LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

In accord with my constitutional and statutory responsibilities, I requested the attached actuarial analysis to assist me in the preparation of actuarial notes for pension bills being considered this 2012 Regular Legislative Session.

Daryl G. Purpera, CPA, CFE
Legislative Auditor
March 30, 2012

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March 22, 2012

Mr. Paul Richmond, ASA, MAAA, EA
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Re: Cost of LASERS' Gain-sharing Provision

Dear Mr. Richmond:

Under the Contract for Professional Services dated January 30, 2012, Gabriel, Roeder, Smith & Company ("GRS") was requested by the Office of the Louisiana Legislative Auditor ("LLA") to provide analysis on the cost of the gain-sharing provisions in the Louisiana State Employee Retirement System ("LASERS," "Plan" or "System"). As such, the LLA is considered our client and principal.

Brief Description

Gain-sharing provisions are a class of retirement benefit type in which the statutory language automatically triggers a benefit to a specified group of members in pay status, usually when the pension fund's investment performance exceeds a specified level and sometimes subject to approval of the governing board or the legislative body. The form of benefits are usually a single *ad hoc* cost of living adjustment (COLA) permanently applied to the current benefits, a 13th check, or the payment of all or a portion of the health insurance premium for a specified length of time. For some retirement systems, the entire process is specified in the statutes; in other systems, the triggering event is specified in the statutes but the board or legislative body designs the amount and form of benefit; still other retirement systems have triggering mechanisms and benefits that are specified in the statutes, with the board or legislative body approving or denying the benefit. Finally, the triggering event is usually a set of formulas and conditions that are related to investment gains in excess of a specified level.

The Louisiana statutes governing LASERS set forth the formulas and conditions for granting a COLA to eligible retirees, with final approval reserved to the Board, the Legislative Auditor's actuary and the Legislature. The statutes also specify how the benefits are to be financed. While this letter report is not intended to be a legal opinion and may be incomplete in that regard, details concerning LASERS gain-sharing provisions can be found in RS 11:102.1 and RS 11:542. The mathematical mechanism in the statutes triggers a one-time (not annually increasing) permanent COLA to eligible retirees if the pension fund's investment performance exceeds certain thresholds for the year, subject to final approval of the Legislature.

Conclusions and Recommendations

The LASERS gain-sharing COLA is a significant benefit that is not currently being recognized in advance in the actuarial calculations; but only as it occurs, in accordance with the statutes. The mechanism in the statutes and in the actuarial valuation is not an equitable approach for assigning costs to current vs. future generations of taxpayers, and it is not fully transparent. We recommend that the *expected* future LASERS gain-sharing COLAs be advance-funded in a similar manner as all other *expected* future LASERS benefits are advance-funded. This benefit should not be treated any differently.

Using generally accepted actuarial modeling techniques, we found that there is (in any given future year) approximately a 35% to 40% chance that the gain-sharing mechanism would trigger a COLA to eligible retirees. The expected frequency and magnitude of the gain-sharing COLAs are *approximately equivalent* to a 1% annual COLA.

We recommend that the expected gain-sharing COLAs be advance-funded by establishing a new amortization base equal to the change in the actuarial accrued liability (for current actives and inactives) resulting from the addition of an *equivalent* standing 1% annual COLA. This actuarial procedure (even if authorized in the statutes) should not be interpreted as vesting current and future retirees with a guaranteed 1% COLA every year; it is merely an approximate and reasonable way to advance-fund for the likelihood of future gain-sharing COLAs being granted in the future. The 1% figure should be re-visited regularly to determine if it continues to approximate the stochastic actuarial model of the actual gain-sharing mechanism.

A new base for the hypothetical annual 1% COLA as of June 30, 2011, would be $1,374,290,200. The additional mid-year employer contribution to finance (a) the increased normal cost plus (b) the 30-year amortization payment on the new base is a total of $147,559,273, or 5.8% of pay. To properly account for the gain-sharing provision, it is necessary to add approximately 5.8% of pay to the current employer contribution requirement.

This should not be considered an exaggerated or unnecessary treatment; this is sound actuarial practice. This recommendation provides for an actuarially systematic advance-funding of the expected gain-sharing benefits. It moves the Plan's funding to be more inter-generationally equitable and more transparent. It would be instructive to review the section near the end of this letter report entitled "Consequences of the Status Quo."

The balance of this letter report (grouped in the following sections) presents additional information and detailed explanations of the methodologies which give rise to our recommendations.

1. A Brief Description of LASERS' Current Gain-sharing Provision
2. Examples of Other Systems' Experience and Treatment of Gain-sharing Provisions
3. Assessment of the Current Actuarial Practice for LASERS' Gain-sharing Provision
4. Modeling the Cost of LASERS' Gain-sharing Provision
5. Actuarial Cost Methods for Advance-funding LASERS' Gain-sharing Provision
6. Consequences of the Status Quo

A Brief Description of LASERS' Current Gain-sharing Provision

The current LASERS gain-sharing mechanism has three steps:

1. When and how much is transferred from the general reserve to the Experience Account
2. When and how much COLA is triggered for the benefit of eligible members
3. Approval of the Board, the Legislative Auditor's actuary and State Legislature to grant the COLA and transfer funds from the Experience Account back to the general reserve

The diversion of funds into the Experience Account (for the subsequent award of COLAs), is determined in years when the investment performance more than assumed. The current statutory mechanism governing the Step 1 transfers into the Experience Account follows:

- Calculate the rate of return earned on the actuarial value of assets (i.e., the *actual* actuarial return) for the year.
- If the *actual* actuarial return does not exceed the *assumed* actuarial return (currently 8.25%), then no transfer to the Experience Account occurs for the year and this process stops.
- For a year when the *actual* actuarial rate exceeds the *assumed* actuarial rate, calculate the dollar amount produced by the *actual* actuarial return in excess of that produced by the *assumed* actuarial rate of return.
- If that dollar amount is less than $100 million, then no transfer to the Experience Account occurs for the year and this process stops.
- For a year when that dollar amount exceeds $100 million, then one-half of the excess over $100 million is transferred to the Experience Account.
- The Experience Account is credited or debited with investment gains or losses (through a transfer to or from the general fund) equal to the *actual* actuarial rate earned by the general fund.
- Notwithstanding the transfer mechanism described, the balance in the Experience Account may not exceed the reserve necessary to grant two of the maximum permanent benefit increases permitted.
- Once the funds are transferred into the Experience Account, they are designated for the purpose of granting COLAs and are not available to finance the core basic benefits.
- When a permanent COLA is granted through the operation of Steps 2 and 3, above, the actuarial value of that COLA is transferred from the Experience Account back to the general fund (but never leaving the balance in the Experience Account below zero) along with an associated increase in the Plan's liability for inactive members.

For the purpose of this study, we assumed all transfers into the Experience Account will be applied to a cost of living award shortly thereafter. Therefore, the cost of the gain-sharing provision is measured solely in terms of the transfers into the Experience Account that are triggered by the gain-sharing mechanism described in Step 1 above, without regard to the eligibility rules and the restriction rules of Step 2 or the approvals necessary in Step 3.

This does not compromise the model because once the funds are transferred or diverted into the Experience Account (pursuant to Step 1 above) they are no longer available for use in funding the core basic benefits. That constitutes a cost event. It is only a matter of time thereafter before the COLA is approved.

Examples of Other Systems' Experience and Treatment of Gain-sharing Provision

Following are the experiences of three other statewide systems that have had gain-sharing provisions.

Statewide System A

The System had a statutory rate of return assumption of 8.5% and a statutory hurdle of 9.0%. Valuation assets were smoothed over a 5-year period and 100% of all amounts above a 9.0% return on valuation assets were immediately transferred to a Special Account for benefits.

The cost of the gain-sharing provisions had not been recognized in the actuarial valuations, either implicitly or explicitly. Lowering the investment return assumption was recommended for the net pension assets. In 2008, the State Legislature passed a law that said transfers would only occur when the plan was at least 85% funded, which was more than 30 years away. It was appropriate for the 2008 and 2009 valuation to ignore

the gain-sharing provision because there was no expected cost for many years to come. In 2010, the State Legislature repealed the gain-sharing benefits entirely. However, prior to 2008, there had been numerous years of automatic gain-sharing COLAs granted without any advance-funding. Consequently, each such grant lowered the funded ratios further, and the costs are being financed over layered 30-year periods.

State System B

Previously, the System had a gain-sharing provision under which ½ of any excess return over 9.0% (on a market basis) would be transferred into a reserve to pay cost of living increases. There was no advance funding. A study some time ago demonstrated that if the plan had earned 8.5% on average, the gain-sharing transfers would siphon off approximately 200 bps from the investment returns.

Currently, the plan no longer has this trigger, requires an excess return to be measured against a 7-year smoothed actuarial value of assets and prohibits any gain-sharing benefits from being granted if the funded ratio is below 80%.

State System C

This System pays a dividend to retirees if the excess return on smoothed retiree assets exceeds 5%. The retirees are valued using a 5% discount rate to recognize the gain-sharing benefit potential. The retiree dividend can be taken away for shortfall returns in the future. The actives are valued with a cost of living assumption built into the valuation, reflecting a high likelihood of granting them.

Assessment of LASERS' Current Funding of Gain-sharing Benefits

Currently, the actuarial valuations of the Plan give consideration to the gain-sharing provisions only after funds are transferred to the Experience Account, after which a COLA award would be granted. No advance-funding consideration is given to the gain-sharing provision.

To put it another way, the actuarial valuation process makes no provision for gain-sharing benefits until they are ready to be granted. At the time when funds are transferred to the Experience Account, pursuant to the formulas and conditions described in Step 1, above, the liability is recognized in the next actuarial valuation by treating the loss of assets as part of the total actuarial gain (loss) for the year. Each year's total actuarial gain (loss) is set up in a separate amortization base with an amortization payment schedule established to pay off the base over the following 30 years.

Effectively, the potential cost of the gain-sharing provisions are ignored until they are triggered with an asset transfer out of the general fund, at which time a 30-year payment schedule is established. This "wait-and-see" approach is not applied with respect to salary increases, investment returns or any number of other actuarial contingencies at play in the life of a retirement system.

Considering other retirement systems' past practices for financing gain-sharing provisions, LASERS is not the only system to have employed this "wait-and-see" approach. But there is considerable momentum for changing this practice to conform to general advance recognition techniques commonly used in actuarial valuations.

- Various other systems have changed their actuarial valuation process to explicitly or implicitly measure the expected cost of gain-sharing.

- Provisions in the new Exposure Draft for amending Actuarial Standard of Practice (ASOP) No. 4 were specifically included to focus attention on gain-sharing and other similar provisions and to strengthen the actuarial standards to discourage this "wait-and-see" approach.

- Similarly, provisions of the new Exposure Draft amending the Governmental Accounting Standards Board (GASB) Statements No. 25 and 27 were specifically added to address *ad hoc* cost of living increases as benefits that must be measured and recognized in advance for accounting and financial reporting purposes. Gain-sharing provisions that operate like LASERS' were specifically discussed at the GASB board meetings.

- Financial reporting of all relevant and expected benefit liabilities (including gain-sharing) is critical for full transparency. The SEC has become much more involved in judging whether full disclosure of pension obligations has occurred with respect to bond issues.

Some may take comfort in the provision that requires the State Legislature to approve any gain-sharing cost of living increase triggered by the Step 1 and Step 2 statutory mechanisms. If the Legislature had denied numerous such triggered events in the past, that would make a difference in reasonable expectations. But there is no history of such denials in this case. Failure to measure and include the *expected* cost of the Plan's gain-sharing provisions in actuarial valuations would only be justified by a clear pattern of past denials.

The current approach does not make good and sufficient provision for the advance-funding the expected gain-sharing COLA benefits. The Plan employs actuarial cost methods for advance-funding all other contingencies, such as those benefits arising out of termination, disability, retirement and death. However, there is an inconsistency with the failure to advance-fund the COLA contingencies. The COLA contingencies have a high likelihood of payment and create significant liabilities. The funding approach understates the Plan liabilities.

The LASERS thresholds embedded within the Step 1 mechanism (for asset transfer diversions) are expected to be exceeded frequently. Therefore, the mechanism in place for the LASERS gain-sharing provision has a reasonable likelihood of being triggered in any given future year. Based on our models, we estimate that there is a 35% to 40% chance that the statutory conditions triggering a COLA will occur in any given year. The conditions might be satisfied in some years and not in others. The new liability created by each such asset transfer is financed over the following 30 years by increasing the employer contributions over that period. This results in a series of *ad hoc* COLAs that have substantially the same effect as a standing COLA provision.

It is inappropriate to have an effective gain-sharing provision without making advance provision for the expected cost of its benefit payments. Continuing the current practice of recognizing the cost of gain-sharing *only* as it occurs, and amortizing the cost over 30 years, has at least two serious consequences:

1. Under this actuarial practice, the cost of the gain-sharing COLAs will be passed on to future generations of taxpayers, when it should be paid by current taxpayers. Future generations of taxpayers will be paying for benefits earned by current employees for current services rendered. This is a matter of inter-generational equity.

2. Under this actuarial practice, an incomplete picture is presented of the current liabilities of the plan earned and attributable to service rendered to date. This is a matter of transparency.

Therefore, we recommend that the *expected* LASERS gain-sharing COLAs be advance-funded in a similar manner as all other *expected* LASERS benefits.

Modeling the Cost of LASERS' Gain-sharing Provision

Virtually all current retirement systems' actuarial valuations are performed using deterministic procedures and assumptions, i.e., the *expected* rates of turnover, investment return, etc., are assumed to occur each and every year in the future. However, the costs of gain-sharing provisions are difficult, and often impossible, to measure using deterministic procedures and assumptions. It is necessary to employ a stochastic technique, which relies upon running hundreds of computer simulations of the future. With advances in software and computer speeds, this has become a routine tool in the hands of financial engineers and actuaries, who need to model complex mechanisms in a way that measures risk and variation around an expected value.

Open Group Projection Model.

The first step in this process was to take the current actuarial valuation of LASERS, which we performed with results within acceptable margins of the System's actuary's results, and run annual valuations for 30 years into the future. For this, we retained all the current actuarial assumptions, including the 8.25% discount rate. We also assumed that the total number of active employees covered under the System will remain the same, i.e., a stationary workforce size.

Since several sub-plans within LASERS are closed to new hires, the number of employees covered under all plans subjected to the termination, disability, death and retirement rates are assumed to be replaced (to keep the total number constant) with new hires covered under the respective sub-plans that are open to new hires. These hypothetical new hires, replacing exiting employees, are assumed to enter the open sub-plans at similar ages as the current workforce. Their salaries at their future hires dates are scaled up to reflect wage inflation in years to come.

This is called an open group population model for projection purposes. Essentially, the open group projection performs an annual actuarial valuation for each of the next 30 years, resulting in future contribution requirements, asset growth on market value and actuarial value bases and payroll growth and benefit payments for each of the next 30 years, assuming all actuarial assumptions are satisfied exactly each year. The following table presents the expected headcounts and payroll for the next 30 years:

Valuation Date In	Number of Current Members Remaining	Number of New Hires Remaining	Total Number of Active Members	Total Number of Inactive Members	Total Number of Plan Members	Total Expected Payroll in Following Year
2011	54,930	0	54,930	45,836	100,766	2,552,371,913
2012	49,403	5,527	54,930	47,430	102,360	2,595,917,930
2013	44,855	10,076	54,931	48,709	103,640	2,648,731,442
2014	40,790	14,138	54,928	49,870	104,798	2,705,905,482
2015	37,062	17,867	54,929	50,988	105,917	2,766,276,918
2016	33,582	21,348	54,930	52,106	107,036	2,828,021,015
2017	30,303	24,627	54,930	53,247	108,177	2,890,359,515
2018	27,370	27,561	54,931	54,301	109,232	2,959,452,048
2019	24,732	30,199	54,931	55,297	110,228	3,033,538,198
2020	22,362	32,570	54,932	56,183	111,115	3,113,993,667
2021	20,270	34,662	54,932	56,971	111,903	3,201,503,155
2022	18,343	36,587	54,930	57,652	112,582	3,292,270,690
2023	16,544	38,385	54,929	58,300	113,229	3,386,142,155
2024	14,751	40,179	54,930	59,034	113,964	3,479,253,299
2025	13,081	41,849	54,930	59,871	114,801	3,571,020,997
2026	11,588	43,342	54,930	60,590	115,520	3,669,195,938
2027	10,114	44,817	54,931	61,331	116,262	3,768,093,653
2028	8,691	46,238	54,929	62,078	117,007	3,866,784,485
2029	7,467	47,462	54,929	62,645	117,574	3,974,788,705
2030	6,337	48,594	54,931	63,166	118,097	4,082,991,285
2031	5,210	49,720	54,930	63,754	118,684	4,188,161,351
2032	4,177	50,751	54,928	64,245	119,173	4,299,560,324
2033	3,333	51,596	54,929	64,547	119,476	4,418,212,852
2034	2,636	52,295	54,931	64,705	119,636	4,546,042,934
2035	2,034	52,896	54,930	64,757	119,687	4,679,635,538
2036	1,499	53,431	54,930	64,793	119,723	4,813,673,983
2037	1,064	53,866	54,930	64,714	119,644	4,956,721,543
2038	770	54,161	54,931	64,488	119,419	5,108,561,816
2039	535	54,396	54,931	64,204	119,135	5,266,426,078
2040	356	54,574	54,930	63,844	118,774	5,430,526,987

Simulate Future Investment Returns.

The current actuarial assumption concerning expected future investment returns is 8.25% per year. This rate was used to discount the core basic benefits to present values, to amortize bases, to charge interest, etc. The actual future investment returns earned by the pension fund will, of course, never be exactly 8.25% each year. Therefore, modeling the LASERS gain-sharing provisions requires us to simulate the primary cash flows, the growth of the market value of assets and the actuarial value of assets used to fund the defined benefit pensions by statistically simulating the future investment earnings.

Our model's random selection and simulation of future investment returns for fund accumulation was based on our previous research of the expectations of 11 major national investment consultants' forecasts. This research was presented in our letter report to you dated March 7, 2012. That letter report does not express

any opinion of GRS about expected future investment returns but, rather, the consensus of these 11 independent investment consultants. By turning to numerous major national investment consultants, that letter report ensures that you were not hearing the opinion of just one investment consultant, but a consensus average of numerous major reputable firms.

The normal-lognormal distribution from which our statistical model selected future investment returns was based on the average expectations of those 11 investment consultants:

1. The mean of that distribution was equal to the average arithmetic return expected by those investment consultants. These returns were normalized for the same expected inflation and were adjusted to be net of expected investment-related expenses.

2. The standard deviation of that distribution was equal to the average standard deviation expected by those investment consultants.

We ran the simulator with 1,000 trials. In other words, we simulated the next 30 years of the Plan's operation 1,000 times. In each one of the 1,000 trials, the model produced the next 30 years of investment returns, accumulated market value of assets and actuarial value of assets, employer contributions, unfunded actuarial accrued liabilities, funded ratios, etc. Headcounts, payroll and benefits (before future gain-sharing COLA grants) are unaffected by changes in the actual investment return experienced by the pension fund; so the 30 years' projections of those elements remained the same for every one of the 1,000 trials. We did not actually have to run 1,000 trials. The results of these projected numbers began to stabilize after about 500 trials.

This simulation approach employs mainstream stochastic techniques. Nothing was used that was ground-breaking, novel or untested.

Expected Annual Gain-Sharing Transfers.

As mentioned on page 2, the three-step process for granting gain-sharing COLAs involves: (1) satisfying the conditions for transferring certain calculated amounts into the Experience Account in any given year, (2) satisfying the conditions for when or whether COLAs would be triggered for a given year, how much of an increase the COLA should be and to whom it should be granted and (3) approval or denial by the Board, the Legislative Auditor's actuary and the State Legislature, along with the associated transfer of funds from the Experience Account back to the general fund.

To model the cost of the gain-sharing provisions, we considered the event of the transfer of funds from the general fund into the Experience Account (Step 1) to be the cost event. This decision is driven by the following factors:

A. The third step is ignored for the purpose of modeling the cost of the gain-sharing provision. Our purpose is to recommend a model to measure the cost of the gain-sharing provision, not to factor in the probability of approval or denial, which would defeat the measurement process itself. If someone wants to come along after the fact and adjust it for the probability of Legislative approval or denial, that is fine. Our purpose is to measure the cost of the provision itself. That is how its actuarial valuation should be performed. Furthermore, to date, there has been a pattern of approval of the COLAs presented to the Legislature. If a new pattern over a period of years emerges to the contrary, that might change the treatment. For now and for this purpose, the third step is ignored for the purpose of modeling the cost of the statutory provision.

B. It is assumed that once funds are deposited into the Experience Account, it is only a matter of a short period of time before the actual COLA will be triggered. Furthermore, the current practice has been to establish an amortization base as a new liability – not at the time that the COLA is officially granted, but at the time that funds are transferred into the Experience Account. At that time, the general fund no longer has those funds available to pay core basic benefits. Therefore, in determining the cost of the gain-sharing provision, we are not building the model around the second step (the actual COLA trigger); we are ignoring the second step.

C. The cost event is triggered in our model when funds are transferred from the general fund into the Experience Account.

Therefore, layered on top of our standard open group stochastic projection of the pension fund are the specific formulas and conditions unique to LASERS' first step in the gain-sharing provision. This enables the model to simulate how often and by how much the general fund would be expected to transfer amounts into the Experience Account. This is the cost event in the model. The primary factors (not in any particular order) affecting the transfer of funds into the Experience Account are:

1. The $100 million threshold,

2. The cap on the Experience Fund that prevents new transfers in when the balance becomes equal to two times the value of the maximum COLA allowable,

3. The particular smoothing process inherent in the System's actuarial value of assets and

4. Actuarial assumed rate of investment return (currently 8.25%) on the fund's portfolio.

Results of the Simulations

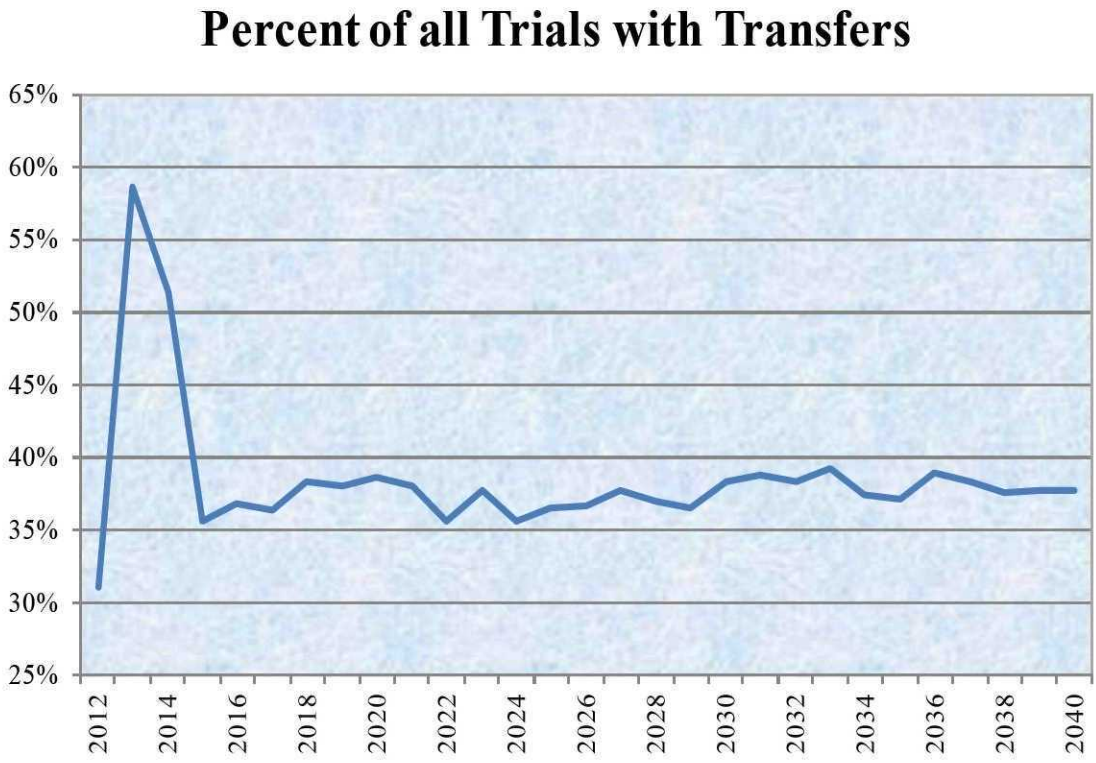
As described previously, the simulation model forecasts the next 30 years 1,000 times. As it is running through those different scenarios of the future, it captures numerous statistics about what happened during each of those 30 years – in terms of assets accumulated (market values and actuarial values), the number of times the conditions for a transfer were satisfied and how much the transfer was, etc.

Following is a graph that presents the frequency of transfers for each specified year. For example, 35.6% of the 1,000 trials produced transfers for the year ending June 30, 2022. Notice the following observations:

- For any given year, the probability of a transfer is approximately 38% (or 37% if you exclude 2013 and 2014). This is fairly stable and is a fairly high probability. This means that there is a fairly high likelihood that significant transfers out of the general fund for the purpose of COLAs will occur every year. This means that those amounts regularly being transferred out will not be available to pay for the core basic Plan benefits.

- The years ending 2013 and 2014 have a much higher likelihood of a transfer (59% and 51%, respectively). The reason for this relates to the current asset smoothing method for actuarial value of assets. Since the transfer triggering mechanism is tied to the performance of the actuarial value of assets, that smoothing method is an important factor in determining if and when a transfer occurs. The current smoothing method involves a 4-year smoothing of the unrealized investment gains or losses as of each year end. The amount of prior gains and losses currently backed up in the pipeline

make it easier to satisfy the threshold condition for a trigger event. Once the current legacy of historical gains and losses moves out of the smoothing process, the frequency of excess actuarial returns settles down to a more stable average.



Following is a graph that presents the average amount transferred out of the general fund for each specified year. In some trials there is no transfer for a given year, while in other trials there are large transfers and small transfers for that year. If we average all trials together, including the years with no transfers as zeroes, the result is the average or mean amount transferred. It is important to mention that this is not an average solely among those trials when there was a transfer; it is an average of all trials.

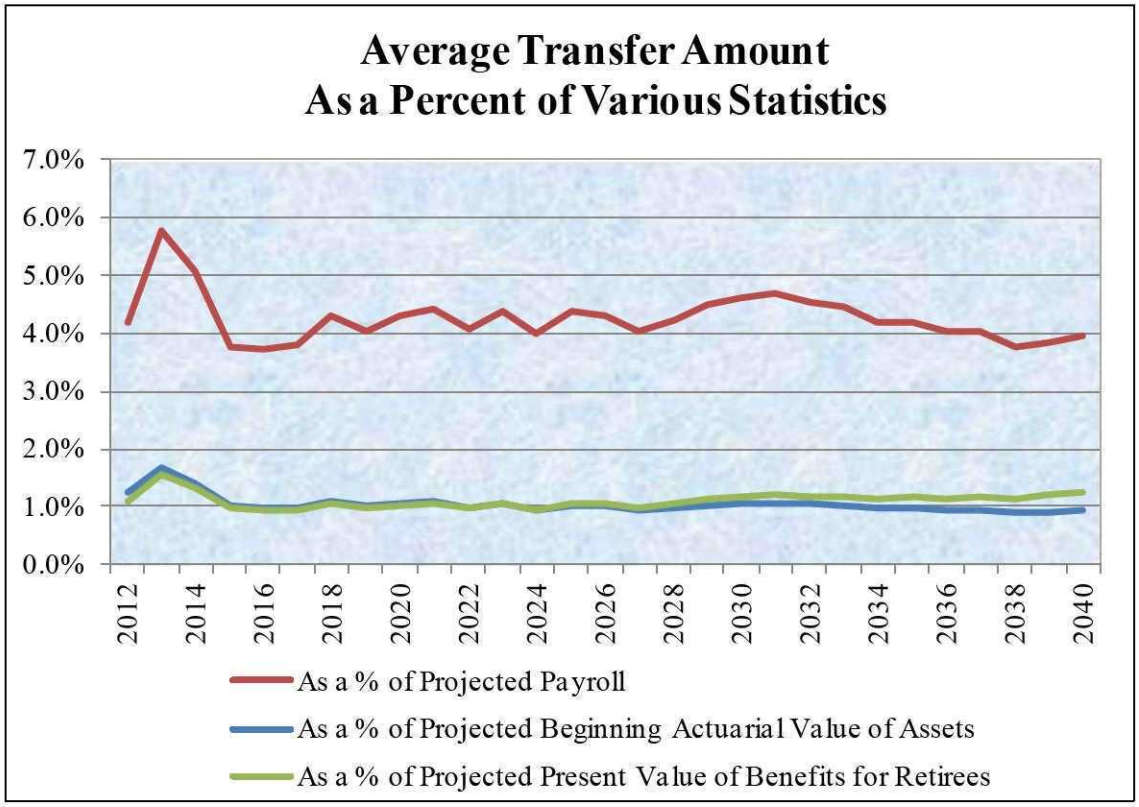
For example, in the year ending June 30, 2027, the expected amount of transfer is $153 million. Among the 38% of the trials that produced a transfer, the average was $405 million; however, by including all the trials for 2027, whether a transfer was expected or not, the total average, or expected value, is $153 million.

This Average (or Expected) Transfer Amount is a very important statistic because we can relate each year's expected mean transfer amount to the total assets held or to the payroll. Following is a graph that presents those relationships. For example, in the year 2037, the expected transfer amount is 1.0% of that year's beginning actuarial value of assets, 4.0% of that year's expected payroll and is equivalent to an expected 1.2% COLA because it is 1.2% of that year's present value of retirees (total retirees in pay status at that time). Notice the following observations:

- *As a % of actuarial value of assets.* On average, across all 30 years, the expected transfer amount is 1.05% of the beginning actuarial value of assets. In other words, the gain-sharing provision is expected to drag down the actuarial rate of return by 1.05 percentage points (i.e., 105 basis points). To express this still another way, 1.05% of the actuarial value of assets will be diverted from funding the core basic benefits to pay for gain-sharing COLAs.

- *As a % of Payroll.* On average, across all 30 years, the expected transfer amount is 4.26% of the projected mid-year payroll at that time. In other words, the gain-sharing provision would cost the employer an average of 4.26% of payroll if it were funded from an outside source each year.

- *As an equivalent annual COLA.* On average, across all 30 years, the expected transfer amount is approximately equivalent to an annual 1.10% COLA.



Actuarial Cost Methods for Advance-funding LASERS' Gain-sharing Provision

We considered a few different approaches to advance-fund for the cost of the gain-sharing provisions in the actuarial process:

First Approach. One approach often employed by other systems is to reduce the investment return assumption by an amount that approximates the expected drag on investment returns otherwise available to finance the core basic plan benefits. Our model estimated that approximately 105 basis points (bps), i.e., 1.05% of the actuarial value of Plan assets, would be spent on transfers out of the general reserve into the Experience Account. Under this approach, not recommended, the actuary would perform the actuarial valuation using an interest discount rate that is 105 bps lower than the rate otherwise adopted for use in the valuation. There are four primary reasons why we do not recommend this approach for advance funding:

- The selection process for setting the investment return assumption is often highly charged with forces at play from various sides. The prudent analytical steps necessary to arrive at a reasonable and final investment return assumption are already long and complex enough without adding another step at the very end. It is better separate the approach for advance-funding the gain-sharing benefits from the process for selecting the investment return assumption.

- Explicit assumptions for various factors affecting an actuarial valuation are preferable to implicit ones. When the effect of the gain-sharing provision (expressed as a percent of actuarial value of assets) is embedded as a reduction to the long-term expected investment return assumption, it is being valued in an implicit, rather than explicit, manner. This approach obscures both the true investment return assumption and the cost of the gain-sharing provisions.

- It would make the investment return assumption for LASERS non-comparable to the assumption used by other systems that do not have a gain-sharing provision.

- The general public and users of financial statements have a straight-forward understanding of an investment return assumption. When LASERS' assumption is disclosed or discussed, it would be more effective communication to separate the primary investment return assumption from any adjustments or costs for gain-sharing. Separating the two topics simply makes for easier dialogue.

Second Approach. Another approach is to model the statistically expected amount paid each year to the Experience Fund, divide it by the expected payroll for those respective years and add that to the annual employer contribution otherwise calculated. Our model estimated this annual increase in the employer contribution to be approximately 4.26% of pay. This approach would produce an additional employer contribution to finance each year's *expected* transfer amount. This is sometimes called the One-year Term Cost actuarial method. There are two primary reasons why we do not recommend this approach for advance funding:

- This method is not likely to be permitted under the current or future accounting standards promulgated by the Governmental Accounting Standards Board. Current Statements No. 25 and 27 permit any one of six specified actuarial cost methods, and the One-year Term Cost method is not one of them. The GASB's current Exposure Draft for amending these Statements is expected to be adopted by July 2012, and it requires only one actuarial cost method: the Entry Age method.

- The One-year Term Cost method does not produce an actuarial accrued liability. The cost of a benefit mechanism for cost of living increases paid to current and future retirees should be attributed or accrued over the working life of employees. This requires the creation of an actuarial accrued liability with respect to the benefit provision.

Third and Recommended Approach. Finally, our recommended approach to actuarially financing LASERS' current gain-sharing provision is to use an annual COLA to approximate the cost of the Plan's mathematical mechanism and then prepare the actuarial valuation "as if" the annual COLA were in place. Our models produced gain-sharing COLAs averaging 1.10% every year. For our purposes, we rounded that down to 1%. Some years will trigger COLAs and some years will not. On average, however, the models produced COLAs *approximately equivalent* to a 1% COLA every year.

We recommend that the expected gain-sharing COLAs be advance-funded by establishing a new amortization base equal to the change in the actuarial accrued liability (for current actives and inactives) resulting from the addition of an equivalent standing 1% annual COLA. This actuarial practice should not be interpreted as vesting current and future retirees with a guaranteed 1% COLA every year. It is merely an approximate and reasonable way to advance-fund for the likelihood of future gain-sharing COLAs being granted in the future. The 1% figure should be re-visited regularly to determine if it continues to approximate the stochastic model of the actual gain-sharing mechanism.

Under current statutes (RS 11:102B(3)(d)(v)) for the amortization periods for LASERS, a new amortization base for this would be amortized over a 30-year period. While 30 years is longer than we would recommend for this, it is the current statutory period for actuarial method changes.

The following table presents the impact on the Plan's funding by employing this actuarial approach to advance-fund the gain-sharing benefits.

	Dollar Amount	Percent of Payroll
Additional Mid-year Normal Cost	27,450,141	1.1%
Additional Mid-Year Amortization Payment	120,109,132	4.7%
Total Additional Employer Contribution	147,559,273	5.8%
New Amortization Base Created	1,374,290,200	
Unfunded Actuarial Accrued Liability		
Old	6,457,954,026	
New	7,832,244,226	
Funded Ratio		
Old	57.6%	
New	52.8%	

Note: Results are Based upon the System's Actuarial Valuation Report prepared as of June 30, 2011, using all the same actuarial assumptions and methods such as the Projected Unit Credit cost method and an 8.25% investment return assumption.

This approach provides for an actuarially systematic advance funding of the expected gain-sharing benefits. It moves the funding to be more inter-generationally equitable and more transparent than the current treatment.

We are not prepared to comment on whether this advance-funding method approach (or any other candidates mentioned above) would be permitted under the current statutory regime. We are providing what we would recommend if advance funding were permitted. In other words, if advance funding were permitted, this is what LASERS' gain-sharing provision would cost.

Consequences of the Status Quo

The current actuarial calculations conform to the current statutes: the cost of the gain-sharing provision is only recognized when funds are transferred out of the general fund and into the Experience Account for the subsequent granting of a COLA. This is not truly pay-as-you-go, and it certainly is not advance funding. This practice does not give full recognition to the long-term cost of this gain-sharing program.

There are serious implications to continuing the current statutes and current actuarial process:

1. Since there is a 38% probability of a cost-triggering event every year, a significant benefit with a significant likelihood is not being fully recognized in advance. The status quo ignores the high likelihood of these benefits being triggered on a regular basis.

2. Each year that a transfer occurs, the Plan experiences a significant actuarial loss (or a significant reduction in its otherwise actuarial gain) without any offsetting actuarial gains expected. The status quo is expected to create a series of regular and systematic actuarial losses.

3. In every year with a transfer, a new actuarial accrued liability is created without a new infusion of assets. This is an immediate drop in the Plan's funding ratio. The status quo sets up a regular and periodic drop in the Plan's funded ratio, making it harder to show any progress in reducing the unfunded actuarial accrued liability or increasing the funded ratio.

4. By not recognizing the gain-sharing provision in advance, while recognizing each individual transfer only as it occurs, the current practice has the effect of pushing the cost onto future generations of taxpayers. This is a current Plan provision affecting current retirees and future retirees. Current retirees have already rendered their services to a previous generation of taxpayers and users of their services. Their expected future COLAs should have been paid by that previous generation of taxpayers or at least, over a reasonably short time after they retired. Future retirees are current employees, rendering current services to current residents of Louisiana. Their expected future COLAs should be paid by the current generation of taxpayers over their working lifetimes and possibly partway into their retirement years. The status quo is not inter-generationally equitable.

5. Beginning in the fiscal year ending June 30, 2014, the GASB is expected to require the financial statements of the Plan and the State to include the effect of future gain-sharing awards in the calculation of the costs and liabilities.

6. The current actuarial reports are not complying with the current or future Actuarial Standards of Practice, which require the actuary to disclose that expected future gain-sharing plan provisions are significant but have not been reflected in the measurement.

7. The status quo exposes various parties to potential liability for failure to disclose a material benefit obligation in financial statements and bond disclosures. The status quo is not transparent.

Summary of Recommendations

We recommend that the *expected* LASERS gain-sharing COLAs be advance funded in a similar manner as all other *expected* LASERS benefits. We recommend this be accomplished, initially, by treating the Plan "as if" it had a 1% annual COLA (and re-visiting the level periodically to ensure it continues to be a reasonable approximation). For the reasons cited, this is the best actuarial cost method for approximating the expected future gain-sharing COLAs. It requires an increase in the annual normal cost rate and requires the establishment of a new amortization base financed over 30 years. The total *additional* employer contribution would be 5.8% of payroll.

The actuaries submitting this statement are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this communication (or any attachment) concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.

This communication shall not be construed to provide tax, legal or investment advice.

Sincerely,

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