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COLA PROSPECTS

Most, if not all, of the public retirement systems in Louisiana have entered a period where statutory and cost constraints are going to severely limit the ability of boards of trustees to grant "cost-of-living" increases to retirees. The problem is directly related to diminished investment returns which have increased plan costs and eliminated the supply of "excess interest" required to grant COLA's under most plan provisions. Even an improvement in investment performance over the next year or two may not insure a return to annual COLA's.

Two problems stand in the way of immediately resuming the practice of annual benefit increases to retirees. First, the employer's cost structure may be an element of the equation that trustees cannot ignore. Most systems have experienced employer cost increases over the last year or two. A continuation of this trend due to investment performance or factors related to system liability experience may make it considerably more difficult to further increase costs in order to grant COLA's to retirees.

Secondly, even a return to strong investment performance is unlikely to immediately increase the actuarial rate of return above the valuation interest rate. Single year investment returns in the range of 10% to 12% may not be enough to compensate for prior year capital losses which are still being released into income as a result of asset smoothing techniques. Hence, systems with methods that smooth actuarial gains and losses are likely to experience a lag between the time when markets turn around and when "excess interest" appears in the income statement of the actuarial value of assets.

One positive aspect of the situation is the low inflation rates experienced over the last several years. Over the last five years (measured by CPI-U from July 1, 1996 through June 30, 2001) the annual effective rate of inflation has been 2.58% per year. Given a rather soft economy, there seems to be little likelihood that inflation will increase much beyond that level in the near future. Nevertheless, retirees are losing purchasing power even at these levels.

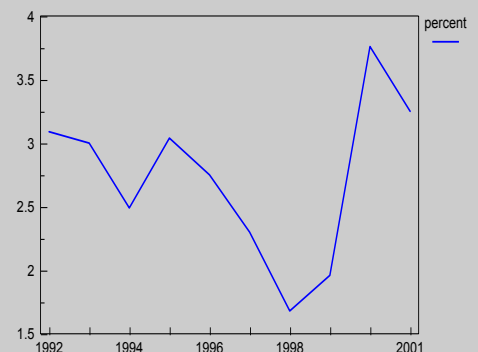
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Consumer Price Index

1992	3.09%
1993	3.00%
1994	2.49%
1995	3.04%
1996	2.75%
1997	2.30%
1998	1.68%
1999	1.96%
2000	3.76%
2001	3.25%

Measuring Period: July 1 through June 30



“IT JUST DOESN’T ADD UP”

Applying intuitive reasoning to investment performance can lead investors to draw false conclusions. As an example, consider the case of a portfolio which earns a 20% rate of return one year and then shows a 20% loss in the following year. Intuitively, it appears that after the end of the two-year period the portfolio (absent any external deposits or withdrawals) would have the same value as it did at the beginning of the two-year period. In reality the portfolio has suffered a loss in value of 4% and has an average annual equivalent rate of return of negative 2.02%. To demonstrate the result, assume that the above portfolio starts with a value of \$100. If it loses 20% in the first year, the

value at the end of the first year will be \$80. In the second year if the portfolio earns 20%, this will amount to \$16 of earnings since the 20% is only earned on the \$80 balance. Thus, the balance at the end of the second year would total $\$80 + \$16 = \$96$. Not the original \$100.

One might also ask whether distortions in results occur only if negative returns are involved. The answer is no. It may be helpful to understand in reviewing or comparing the performance of managers, that a manager with two consecutive year returns of 10% has out performed a manager with consecutive returns of 5% and 15%. In other words, earning 5%

in one year followed by 15% in the following year is not equivalent to earning 10% two years in a row. Arithmetic averaging of rates of return distorts results. In fact, an arithmetic average of returns will overstate actual returns in virtually all cases. This is important in comparing manager and portfolio performance. It is particularly important in evaluating volatile asset classes where negative rates of return are not uncommon. For a series of return rates where the values are relatively close, the error in using arithmetically averaged rates is fairly small. However, if rates of return are highly variable, the error increases.

PORTFOLIO REBALANCING

Asset allocation was not designed to maximize returns but rather to control risk. However, even for periods extending over several years, returns can suffer when one asset class out performs the other, and the allocations are allowed to drift. Whether in the stock market, or at the race track the public always likes a winner. That goes for asset classes as well as individual securities. This trend can be expensive to follow as many individual investors and pension funds have found out over the last several years. As equity performance continued at a record pace in the late 1990's many funds failed to rebalance their portfolios. In many cases,

this brought the asset allocation beyond levels called for in investment policy statements. Instead of rebalancing to the strategic positions identified in the policy, the documents were often changed to reflect the reality of the portfolio mix which emerged from the bull market in stocks. In some cases this proved to be a costly error. An analysis of returns on a portfolio balanced half in equities and half in fixed income securities modeled by S&P 500 and Lehman Aggregate indexes indicates annual equivalent portfolio losses of 0.5% due to failure to rebalance over the period from January 1, 1998, through December 31, 2001. This

amounts to a loss in excess of \$2,400,000 over the four year period per \$100,000,000 of portfolio size assuming neutral cash flows and annual rebalancing.

Boards are often reluctant to remove money from successful managers in order to rebalance portfolios both due to loyalty and perceived high transaction costs. Both of these problems can be moderated by using index funds as buffers to absorb reallocation. Hence, active managers can be left with their funds intact and money moved between stock and bond index funds to accomplish the rebalancing. During extreme

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market fluctuations some call on active managers' funds may be necessary, but this also can be reduced in cases where systems have positive non-investment cash flow.

For portfolios invested solely in stocks and bonds, the amount of funds required in an index buffer to absorb fluctuations can be determined by the formula $2 \times K \times B \times S$ where K is the difference in performance in the two

assets classes, and B & S represent the portion of the portfolio invested in bonds and stocks respectively. Hence, if either asset class is assumed to outperform the other by at most 20% and a portfolio is 60% bonds and 40% stocks, the size of the required buffer (i.e.: funds in the index) would be $2 \times 20\% \times 40\% \times 60\% = 9.6\%$ of the total portfolio. Index exposure of this amount will allow the fund to rebalance back to strategic allocation goals merely by transferring

funds among the indexes as long as the maximum difference in rates of returns between stocks and bonds does not exceed 20% over the rebalancing period. Index use may not be practical for certain asset classes, but for fixed income and equity securities a whole range of low cost index funds can be used to rebalance portfolios without affecting funds under active management.

HOW MUCH IS YOUR PENSION WORTH?

Two persons retire; both receive pensions of \$1,000 per month. Have they both received pensions of equal value? Not if their ages are different. The value of a pension is dependent upon a number of factors. It is certainly not limited to the monthly benefit paid. Other factors such as a member's age, sex, or even health govern the true value of the benefit. Of course, the actual value of a pension cannot be determined until the last payment is made, but even at the inception of the pension a fair value can be assigned to the payments based on a specified interest rate and the probability that payments will be made to the recipient.

Typical governmental pension plans do not adjust normal retirement benefits for age. Hence, if a fund requires ten years of service and age sixty to retire, and one member retires at age sixty with ten years of service while another retires at age sixty-five with the same amount of service, no adjustment is made for age at time of retirement. Thus, if both members have the same final compensation, both will receive the same maximum monthly benefit. However, both will not receive benefits of equal value. The younger member receives a bene-

fit of greater value since he is more likely to collect a greater number of payments.

Whether equity is served by providing members who have equal compensation and service with benefits of equal amount or equal value depends on a person's point of view. As an illustration of the comparison of benefit amount vs. benefit value, consider two members both with an accrued benefit of \$3,000 per month (both males). One member is age fifty-five; the other is age sixty-five. Both have just retired with the same compensation and service. They have equal monthly benefits, but the value of their benefit is quite different. Based on valuation factors typical for many governmental funds, the value of the benefit received by the fifty-five year old is \$370,000, whereas the value of the benefit for the sixty-five year old is \$303,000.

The disparity in values among new retirees who receive equal monthly benefits may be viewed as only an actuarial curiosity. However, this disparity does have a real impact on retirees any time the law requires an actuarial adjustment to the retirement benefit. Typically this type of adjust-

ment is made when an optional form of benefit is selected at retirement. Under these circumstances the value of the benefit is used to determine the outcome, and since younger members have benefits of greater value (given the same monthly benefit) the reductions are less for younger retirees than older retirees. Many members have questioned option factors which decrease as members get older; but this decline is a result of the underlying reduction in benefit value as members age. Often this trend is not apparent as members continue to accrue benefits and receive pay increases as they age; these effects often overcome the reduction in value. However, if a member has reached his maximum accrued benefit and is not receiving pay increases, the actual amount of the optional benefit forms can decrease as he gets older.

Should benefit values be equalized among various age groups? If so, younger members would receive smaller monthly benefits than older retirees with the same service and compensation. One thing is certain. Members can receive benefits of equal amount or equal value but not both.

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From the Actuary's Prospective



Occasionally clients have posed the question, "What does it take to become an actuary?" Actuaries in the United States have various approaches available to be awarded professional credentials. The most rigorous set of such credentials are awarded by the Society of Actuaries, an organization formed in 1949 by the merger of two predecessor

groups. The current membership of the society consists of 16,400 actuaries employed in the United States and throughout the world in fields ranging from life and health insurance to pensions, academia, and investments. The current program to obtain associate status in the organization consists of six examinations covering topics including calculus, probability, economics, finance, investment theory, and actuarial modeling. The exams are not designed as survey courses, but rather focus on the underlying mathematics utilized to price investments and risk. They are designed to give the actuary the

tools to evaluate both the assets and liabilities which are part of all insurance and pension arrangements.

Typical exams cover three to six textbooks and additional study notes published by the Society of Actuaries. Exams range from five to six hours in length and are given either annually or semi-annually. Pass rates typically run between 25% to 40% of applicants. Completion of the program generally takes between five to nine years and provides the successful candidate the requisite tools to render a range of services related to insurance, pensions, and investments.

Gary Curran, A.S.A