601 QUARTERLY INVESTMENT RISK REPORT
UCRP and GEP

Committee on Investments / Investment Advisory Committee
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CONTENTS

◆ Asset allocation history
  ▪ What are the fund’s asset exposures?
  ▪ Asset alloc. current position and risk contributions
    ▪ How do they compare to policy targets?
◆ Capital markets expectations for return
  ▪ What is the probability the fund will achieve its required return?
  ▪ Is the amount of risk required acceptable?
◆ Historical Funded Status
  6  NA
◆ Forecast Funded Status
  7  NA
  ▪ What is the probability the fund will be able to meet future obligations (with and without additional contributions)?
◆ Historical standard deviation of returns vs. bench
  8  17
◆ Historical standard deviation of active return
  9  18
  ▪ What is fund’s realized volatility?
  ▪ How does it compare with the policy benchmark and risk budgets?
CONTENTS

- Systematic vs. residual risk contribution 10 19
- Asset allocation vs. selection risk contribution 10 19
  - What are the sources of volatility?
  - What factors drive performance? Is the fund adequately diversified?
- Sharpe ratio (total risk) 11 20
- Information ratio (active risk) 12 21
  - Are risk exposures being rewarded?
  - Historical risk adjusted returns
Total Risk is largely related to the allocation between equity and bonds – modest equity overweight last FY reduced in third quarter 2005.
[LOWER LEFT] Asset weights are measured relative to Long-Term Policy allocation (blue bars) and Current Policy (yellow bars); Current Policy recognizes the illiquidity of certain asset classes. Underweight in Private Equity is temporarily invested in US equity. Underweight in Real Estate invested in US equity and Bonds. Compared to Current Policy, the fund has a small overweight to Non US equity and TIPS and underweight to bonds.

[LOWER RIGHT] Although US Equity is 56% of the Current Policy, it contributes almost 87% of the forecast total systematic risk (blue bars). About 44% of the small amount (19 bp) of forecast active systematic risk is contributed by Non US equity overweight (yellow bars).
Forecast risk and return (using Treasurer’s 2005 capital markets assumptions) lies close to constrained efficient frontier; however forecast return of 6.2%* is less than actuarially required return of 7.5%.

* Asset Class returns and Efficient frontiers are shown in the chart as arithmetic (i.e., average) expected returns. The projected compound annual return over multi-year horizon is 6.2% for the Long-Term Policy weights and 6.0% for the Current Policy weights. Forecast risk is 10.5% for the L-T weights and 10.9% for the Current weights.
The Pension Fund’s assets and liabilities have been growing steadily (upper left) with University employment and the bull market of 1982-2000. The ratio of actives to retirees has remained steady at a healthy level of 3 (lower left).

The Funded Ratio (= the ratio of assets to liabilities), is an overall metric of the financial health of a pension plan. This ratio has fluctuated considerably over the past (lower right), and while currently greater than 100%, is expected to decline over the next decade (see next slide).
Contributions were suspended in 1990, but annual benefit payments have grown in line with Normal Cost over the last decade (upper left). In the most recent actuarial valuation [July 2005], the Plan’s actuary noted that without additional contributions, “It is expected that the Plan’s surplus will run out in the next few years.” The bottom two charts show projected funded ratio without and with contributions. (For this example, contributions were set to be equal to forecast Normal Cost, beginning FY 2007.)
Total risk trend quite similar to benchmark; recently Plan risk is slightly less than the Budget, but well within ranges.

Total Risk budget equals Benchmark risk plus the Active risk budget. The ranges are +/- 20% around the budget.

Risk is measured by standard deviation of monthly total returns; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights. [This and following charts show risk budgets as if they had been in place during entire historical period.]
Active risk for the total fund has declined steadily over the past 4 years, as (1) US equity was 100% passively managed from 12/02–3/04 and (2) Bond risk was decreased. Active risk is currently below long term expectations for active return and is expected to increase (to within the budgeted range) as the active management program is fully implemented. Note small increase in last four quarters.

The Active risk budget is 3% annualized Tracking Error (adj. for market volatility), with ranges of +/- 1 pct. point around Budget.

Risk is measured by standard deviation of monthly active returns; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights.
Almost all of **Total Risk** is attributed to systematic (market) factors. [UPPER LEFT]

In the past, the majority of **Active Risk** was attributed to security selection. In FY 2003, as passive mgmt. increased, asset allocation decisions contributed most of the small amount of active risk. As the active program was implemented (last 12 months), residual risk has again become more important. [LOWER RIGHT]

Risk is measured here by variance (standard deviation squared) of monthly returns; each bar shows a 12 month measurement period.
Sharpe Ratio (risk adjusted total return) trend has been quite similar to the benchmark since March 2003.

Sharpe ratio is “excess” return (total return less risk free rate) divided by total risk; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights.
Information ratio (risk adjusted active return) in the past was driven by active equity performance; currently driven by asset weighting decisions and active bond performance, with small impact from the new active equity program. **Info ratio has been positive for last 15 months.**

Information ratio is active return (total return less benchmark) divided by active risk; each point shows a 12 month measurement period. The Significance level is the probability that results are due to skill, with 50% being a neutral measure. All risk calculations done using exponentially declining weights.
RISK METRICS FOR GEP
Total Risk is largely related to the allocation between equity and bonds – modest equity overweight reduced in third quarter 2005. Note decrease in US equity (increase in policy allocation to non-US equity).
[LOWER LEFT] Asset weights are measured relative to Long-Term Policy allocation (blue bars) and Current Policy (yellow bars); Current Policy recognizes the illiquidity of certain asset classes. Underweight in Private Equity is temporarily invested in US equity. Underweight in Real Estate invested in US equity and Bonds. Compared to Current Policy, the fund has a small overweight to equity and underweight to bonds.

[LOWER RIGHT] Although US Equity is 38% of the Current Policy, it contributes about 58% of the forecast total systematic risk (blue bars). Almost 83% of the small amount (30 bp) of forecast active systematic risk is contributed by Non US equity overweight (yellow bars).
Forecast risk and return (using Treasurer’s 2005 capital markets assumptions) lies close to constrained efficient frontier; however forecast return of 6.5%* is less than the amount needed to maintain a constant real payout per student (estimated at 8.0%).

* Asset Class returns and Efficient frontiers are shown in the chart as arithmetic (average) expected returns. The projected compound annual return over multi-year horizon is 6.5% for the Long-Term Policy weights and 6.3% for the Current Policy weights. Forecast risk is 10.4% for the L-T Policy weights and 10.8% for the Current weights.
Total risk trend has been quite similar to benchmark; recently GEP risk has been less than the Budget, but within ranges.

Risk is measured by standard deviation of monthly total returns; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights. [Charts show risk budgets as if they had been in place during entire historical period.]
Active risk for the total fund has declined steadily over the past 4 years, as (1) US equity was 100% passively managed from 12/02–3/04 and (2) Bond risk was decreased. Active risk is currently well below long term expectations for active return and is expected to increase (to within the budgeted ranges) as the active management program is fully implemented. Note small increase in last four quarters.

The Active risk budget is 4.5% annualized Tracking Error (adj. for market volatility), with ranges of +/- 1 pct. point around Budget.

Risk is measured by standard deviation of monthly active returns; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights.
Almost all of Total Risk is attributed to systematic (market) factors. [UPPER LEFT] In the past, the majority of Active Risk was attributed to security selection. In FY 2004, as passive mgmt. increased, asset allocation decisions contributed about half of the small amount of active risk. As the active program was implemented (last 12 months), residual risk has again become more important. [LOWER RIGHT]

Risk is measured here by variance (standard deviation squared) of monthly returns; each bar shows a 12 month measurement period.
RISK ADJUSTED RETURN – TOTAL

Sharpe Ratio (risk adjusted total return) trend has been quite similar to the benchmark since March 2003.

Sharpe ratio is “excess” return (total return less risk free rate) divided by total risk; each point or bar shows a 12 month measurement period. All risk calculations done using exponentially declining weights.
Information ratio (risk adjusted active return) in the past was driven by active equity performance; currently driven by asset weighting decisions and active bond performance, with small impact from the new active equity program. **Info ratio has been positive for last 15 months.**

Information ratio is active return (total return less benchmark) divided by active risk; each point shows a 12 month measurement period. The Significance level is the probability that results are due to skill, with 50% being a neutral measure. All risk calculations done using exponentially declining weights.