2011 ERSRI Asset/Liability Study

Rhode Island State Investment Commission

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by

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Recap from Prior Meetings

- Up to this point, the SIC has discussed the following:

  - Review of Strategic Asset Classes

  - Review of PCA Capital Market Assumptions

    - Returns

    - Risk

    - Correlations

- As a result of those discussions the SIC has made the following decisions:

  - Approved investment assumption, and

  - Allocation constraints for all potential investment classes

Today's Agenda

Today's meeting – the emphasis is on liabilities

- Examine and discuss the results of simulated projections of ERS Plan

  - Findings
  - Implications
  - Issues for further analysis

- Asset class descriptors

  - Information only

- Next steps

  - Focus on factors the SIC feels are important to manage
  - SIC direction to PCA/EFI on further analysis

Asset-Liability Model of ERS Plan

Asset-Liability Model of ERS Plan

- The next several slides review projections of various financial variables associated with the ERS Plan (Does not include MERS, Judges, State Police)

- Plan projections and characteristics

  - Projected benefits
  - Employer contribution as a % of payroll
  - Projected funded ratio
  - Inactive-only funded ratio
  - Age distribution
  - Service distribution
  - Variability ratio

- Plan simulations

  - Nominal returns
  - Benefits as a % of payroll
  - Employer contribution as a % of payroll – current policy allocation
  - Assets as a % of payroll – current policy allocation
 - Funded ratio – current policy allocation

  - Nominal returns – 100% cash allocation
  - Employer contribution as a % of payroll – 100% cash allocation
  - Assets as a % of payroll – 100% cash allocation
  - Funded ratio – 100% cash allocation

Preview of Findings

- ## Demographic maturity

  - Significant number of older, longer service members
  - Limits ability to redesign plan, mitigate costs
  - Effects cost level and cost risk (variability)

- ## <u>Level</u> of employer cost

  - Employer cost is increasing

- ## <u>Variability</u> of employer cost

  - Lots of variability in plan cost
  - Variability is increasing as the plan becomes better funded

- ## Risk/reward tradeoff

  - Asset mixes with more risk (return volatility) have lower expected cost and higher expected cost variability
 - Asset mixes with less risk (return volatility) have higher expected cost and lower expected cost variability

Graph 1: Projected benefit payments under **current actuarial** assumptions

Benefit Payments
(As a percentage of active member payroll)
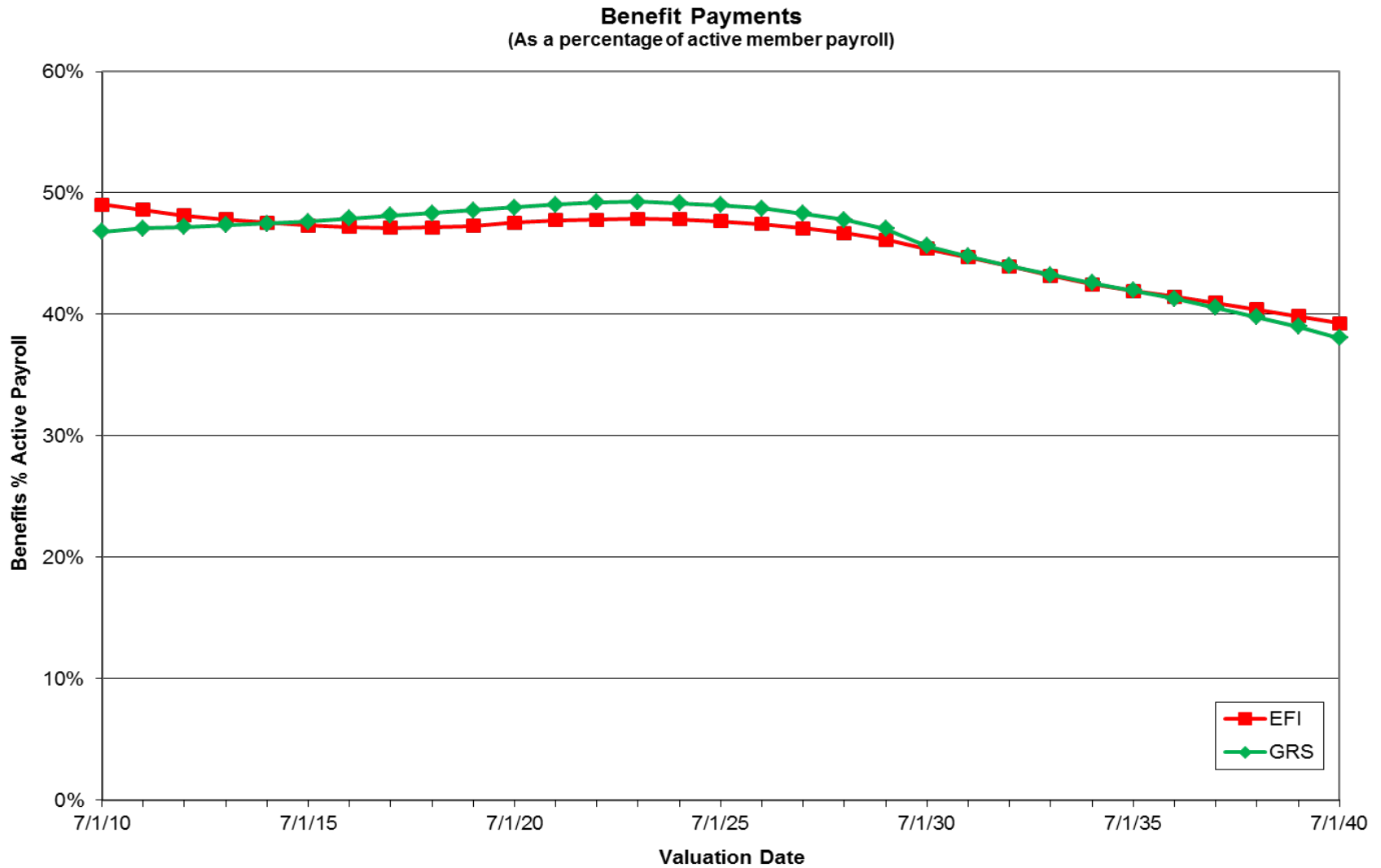
Asset-Liability Model of ERS Plan

Graph 2: Projected total contributions under **current actuarial** assumptions (differing amortization policies)

Employer Contributions
(As a percentage of active member payroll)
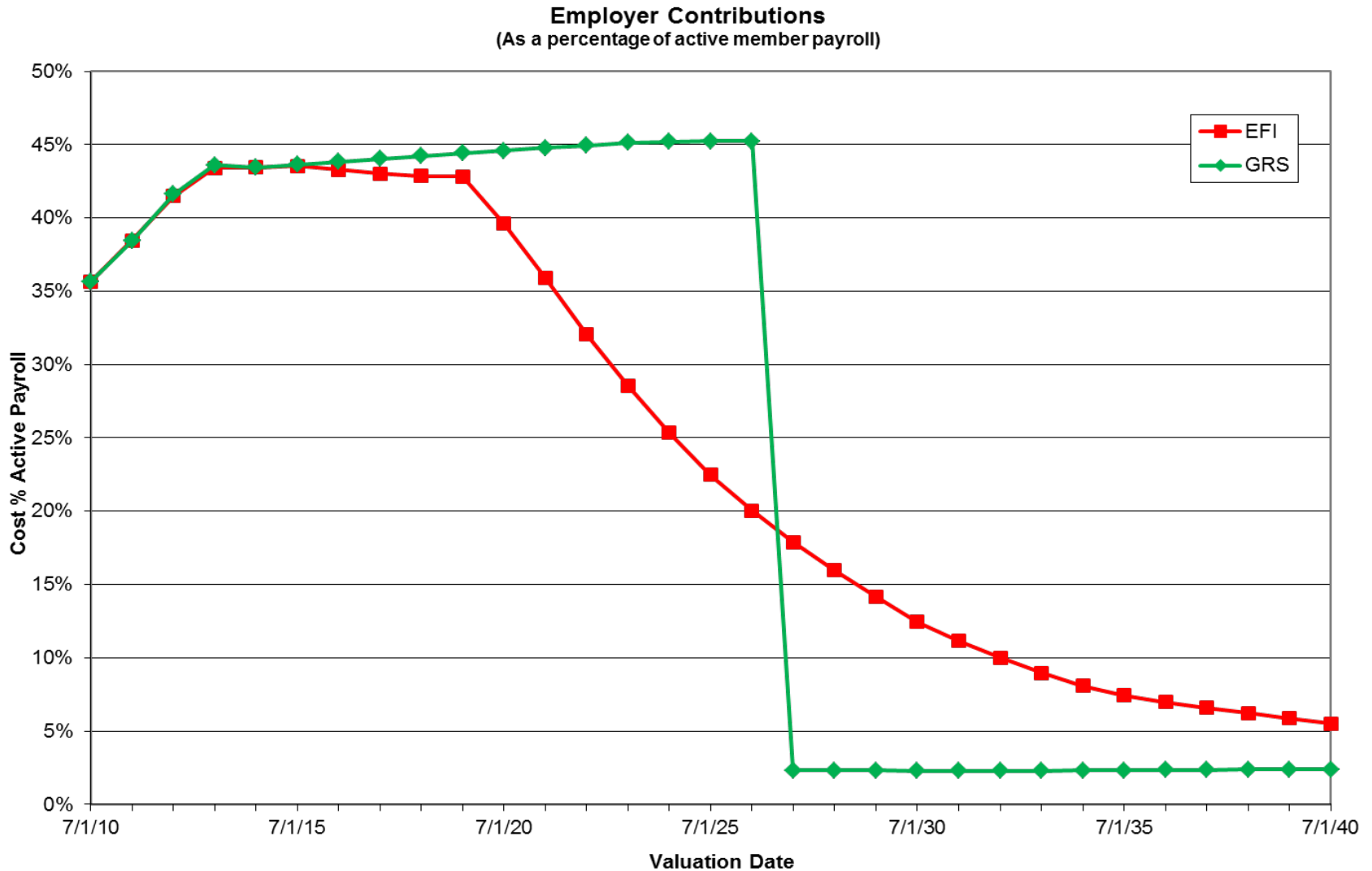
Asset-Liability Model of ERS Plan

Graph 3: Projected market value of assets as percent of accrued liability under **current actuarial** assumptions(differing amortization policies)


Actuarial Funding Ratio
(Market value of assets a percentage of actuarial accrued liabilities)
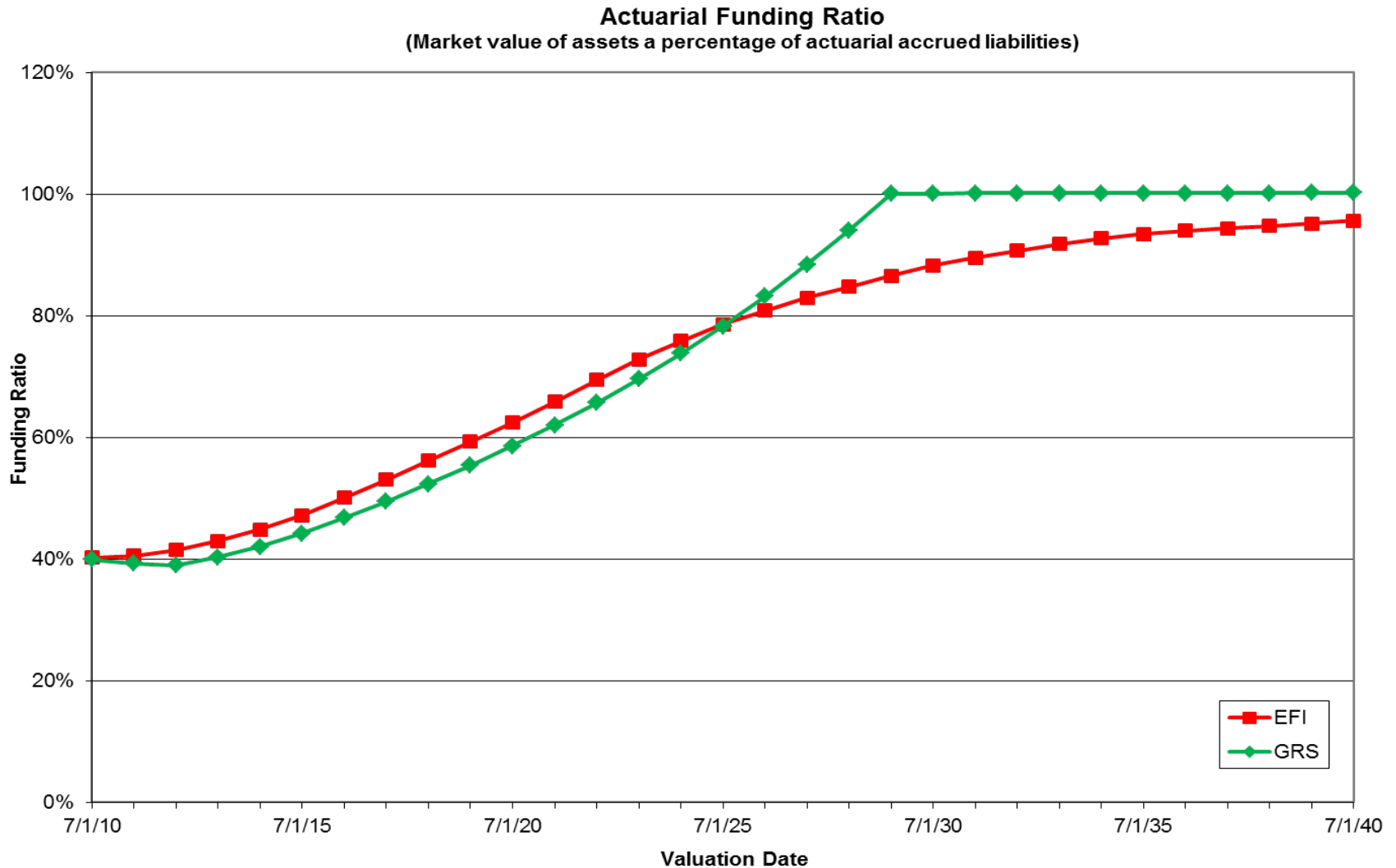
Asset-Liability Model of ERS Plan

Graph 4: Projected inactive-only funded ratio under **current actuarial** assumptions

**Inactive-Only Funded Ratio**
(Inactive liabilities as a percentage of total actuarial accrued liability)
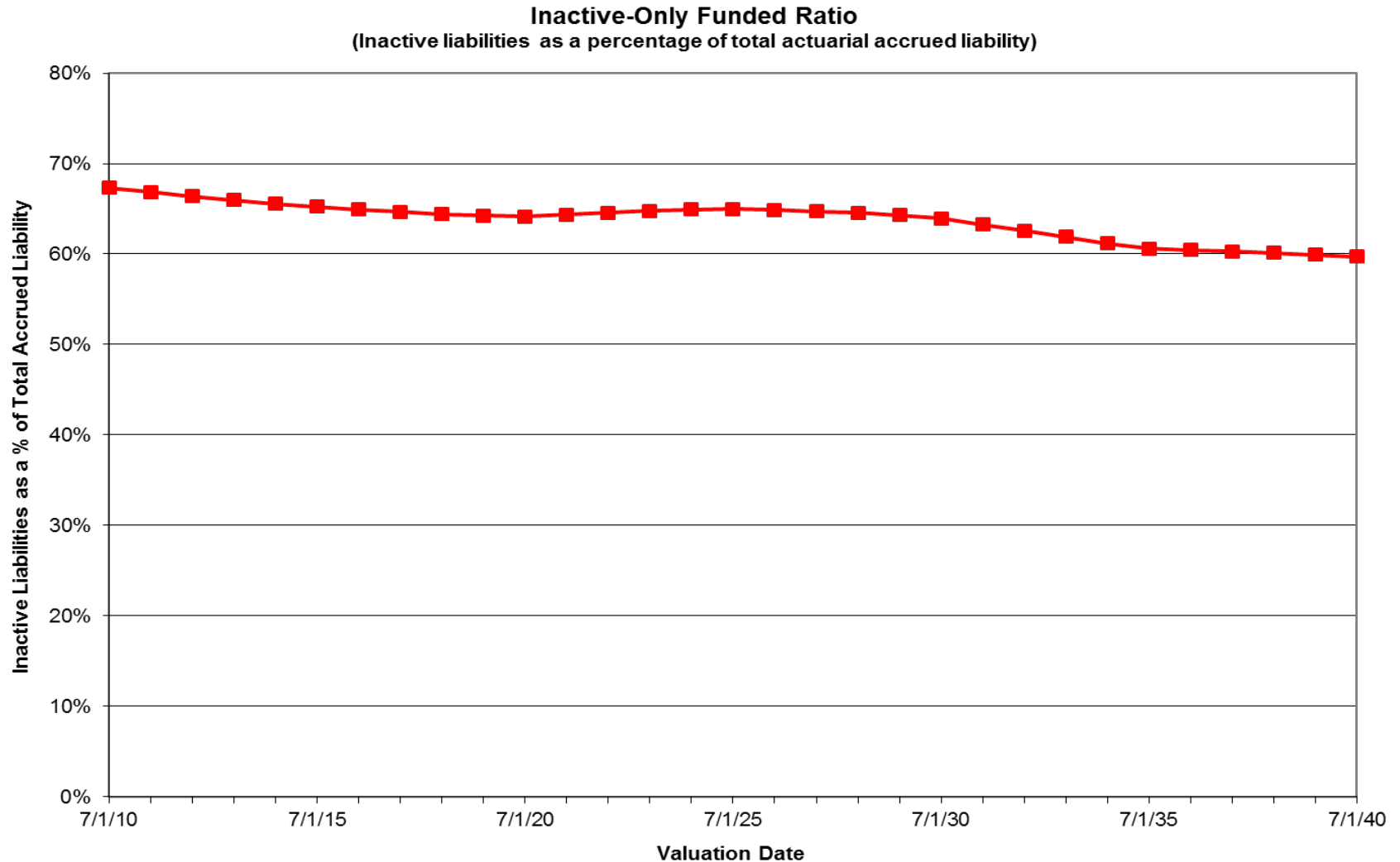
Asset-Liability Model of ERS Plan

Graph 5: Current age distribution of ERS actives

Rhode Island ERS Active Age Distribution
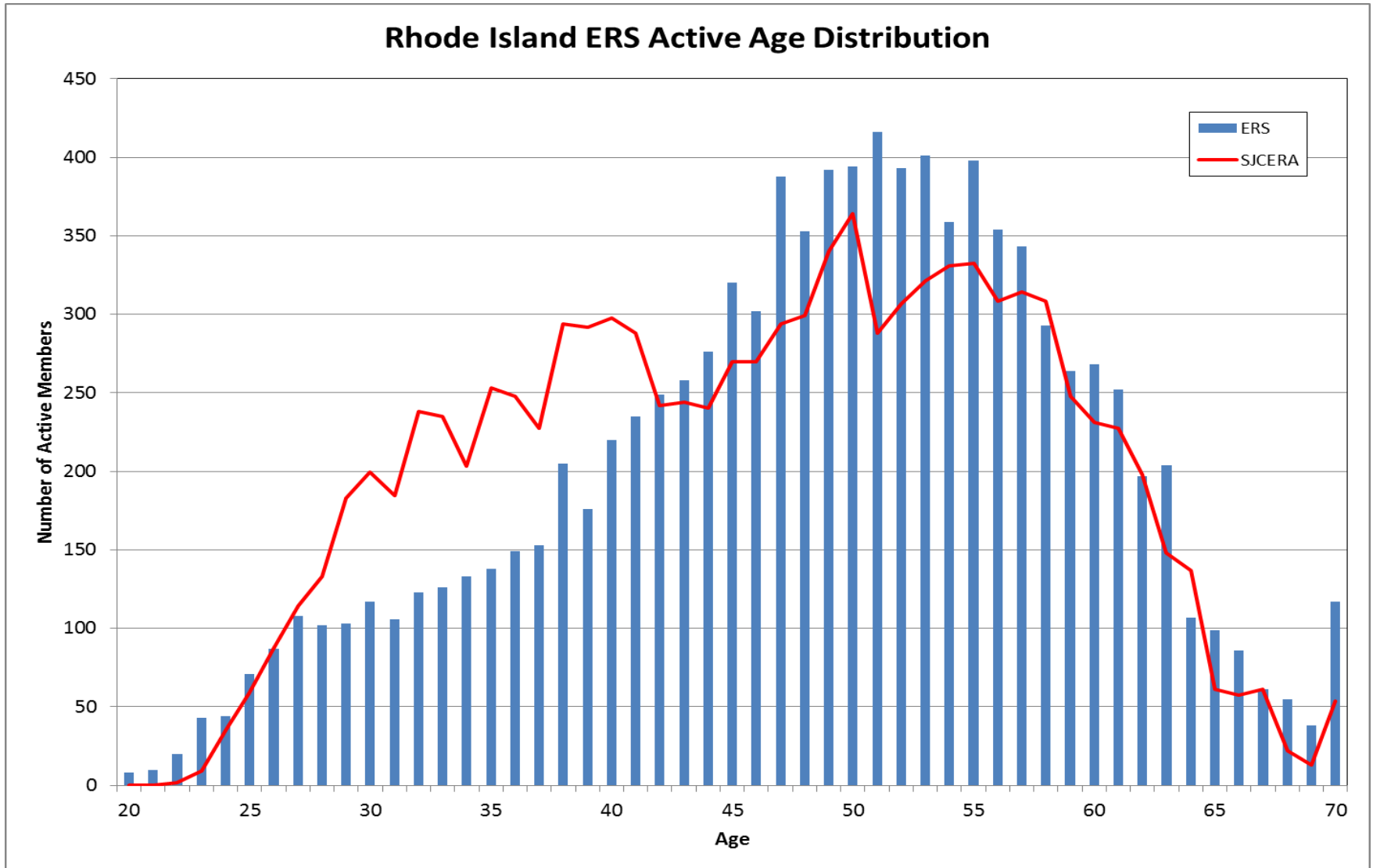
Asset-Liability Model of ERS Plan

Graph 6: Current service distribution of ERS actives

Rhode Island ERS Active Service Distribution
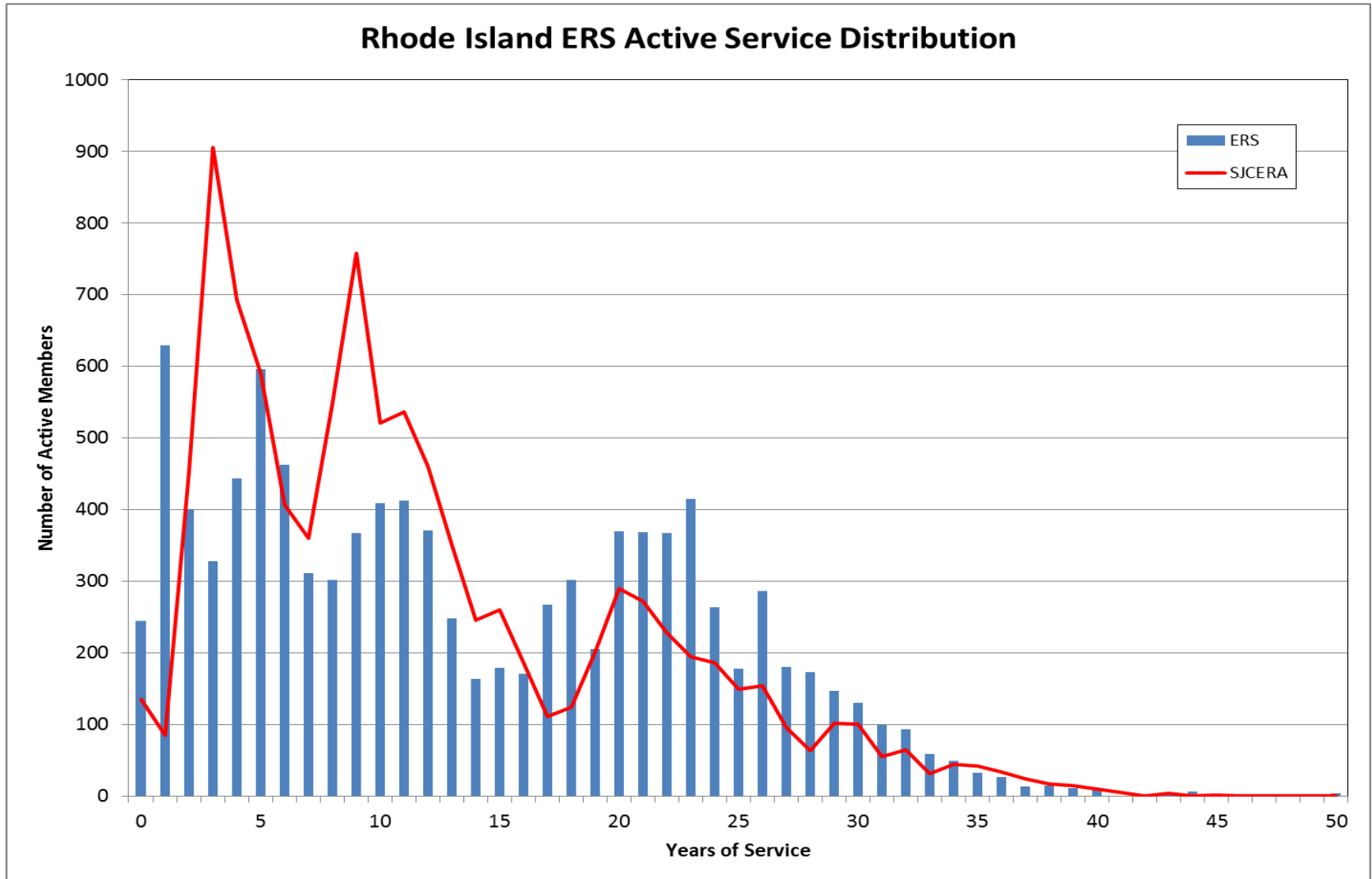
Variability Ratio

- Variability Ratio is the ratio of plan assets to active member payroll
  - Measures the effect of variations in investment return on plan cost
  - The more assets relative to payroll, the more plan cost is influenced by investment returns
  - Typical ratios: 5 for general service, 10 for public safety

- Example

	Assets = 3 X Pay	Assets = 6 X Pay
Return	-2.5%	-2.5%
Investment Loss	10%	10%
Investment Loss as Percent of Member Pay	30%	60%
Estimated Impact on Employer Contribution (10 Years)	3%	6%

Asset-Liability Model of ERS Plan

Graph 7: Projected market value of assets as a percent of payroll under **current actuarial** assumptions

Variability Ratio
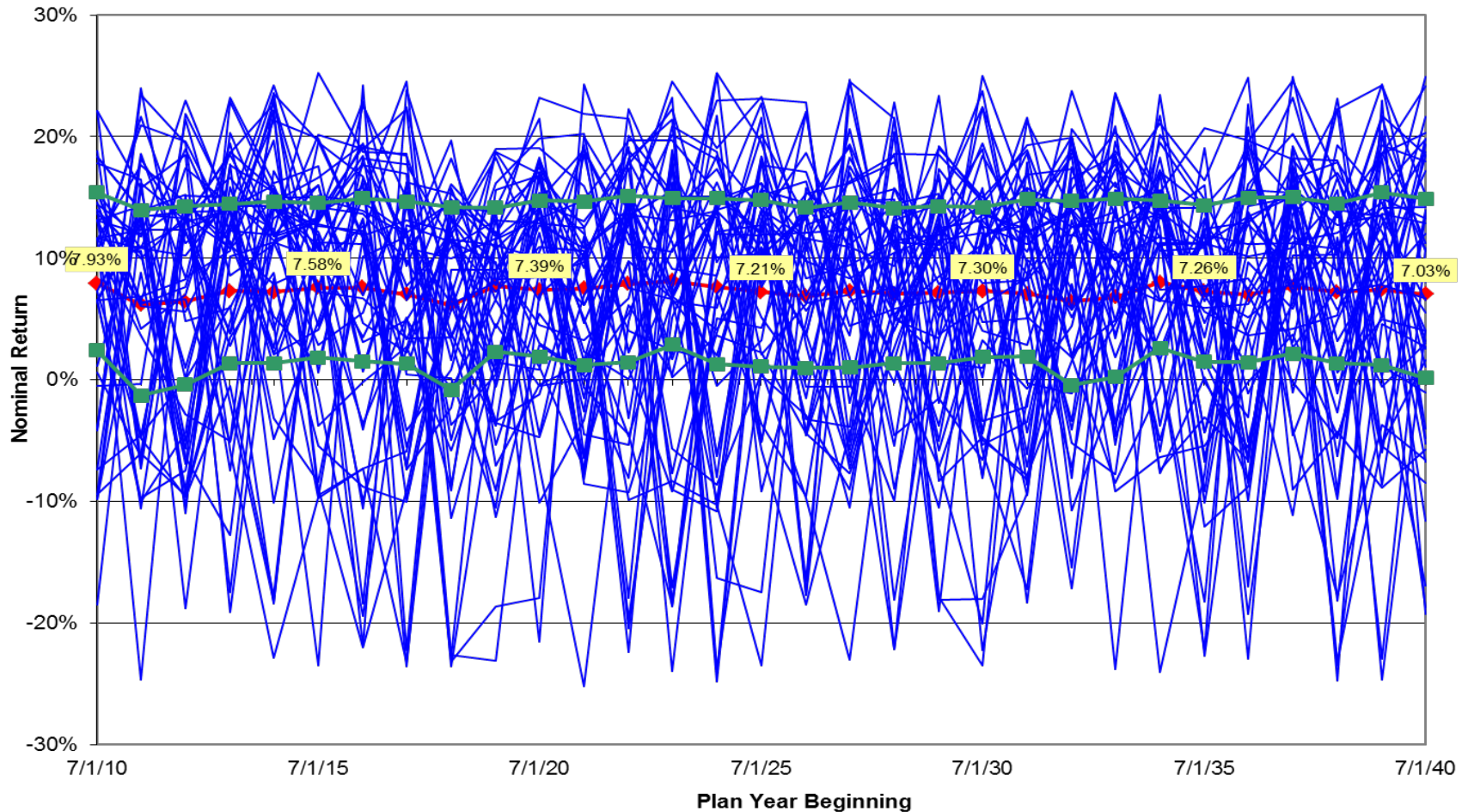**(Market Value of Assets as a Percentage of Member Payroll)**
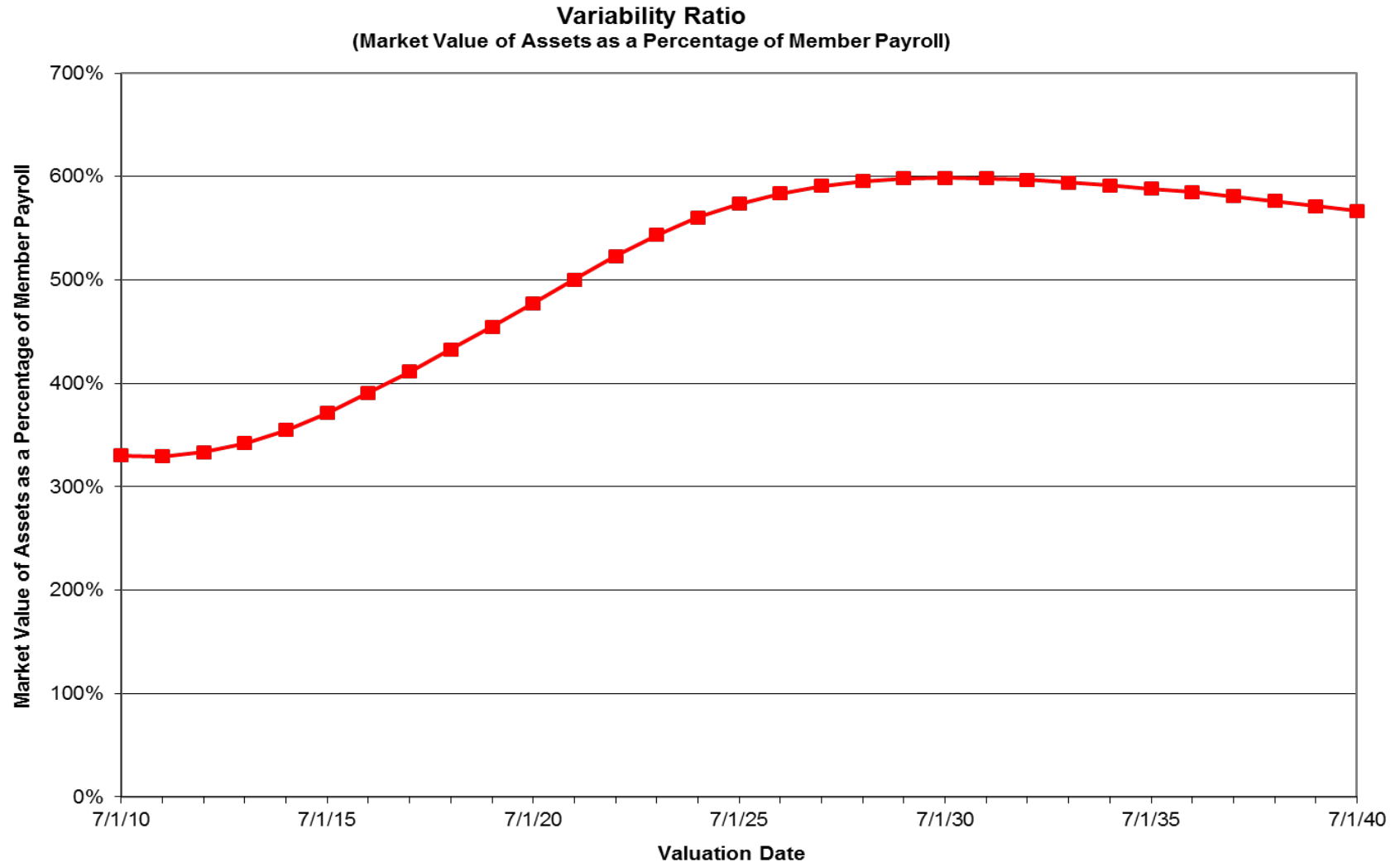
Asset-Liability Model of ERS Plan

Graph 8: *Simulation* of nominal returns under **current actuarial** assumptions.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.

Nominal Returns - Current Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)
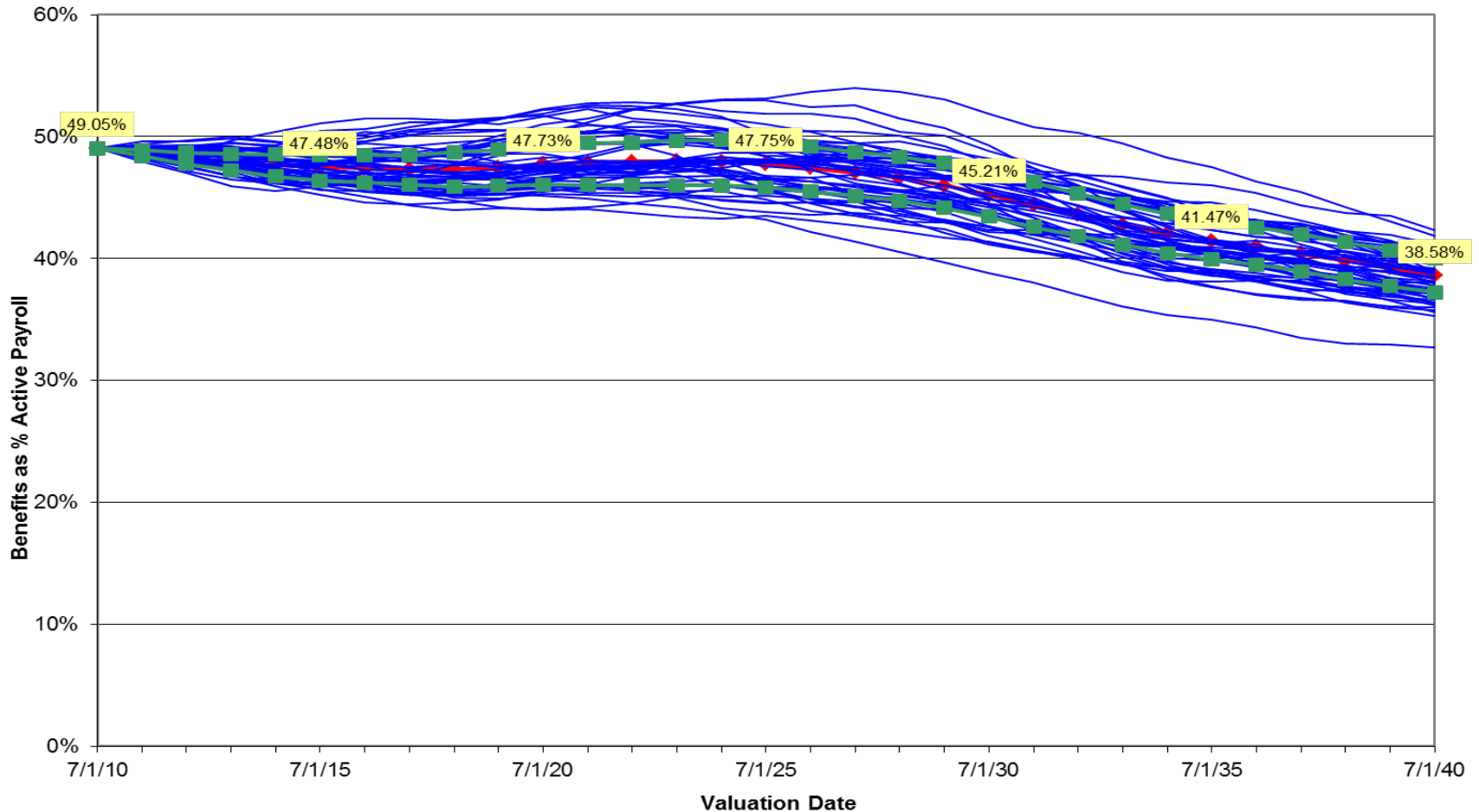
Asset-Liability Model of ERS Plan

Graph 9: *Simulation* of benefit payments under **current actuarial** assumptions.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.

Benefit Payments as a Percentage of Payroll
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Asset-Liability Model of ERS Plan

Graph 10: *Simulation* of current **employer** contributions as a % of payroll – adopted return levels.
The blue lines show 500 trials, the **red** line is the average of the trial results , **green** lines are 25th and 75th percentiles.

Employer Contributions - Current Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Asset-Liability Model of ERS Plan

Graph 11: *Simulation* of projected assets under **current actuarial** assumptions.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.
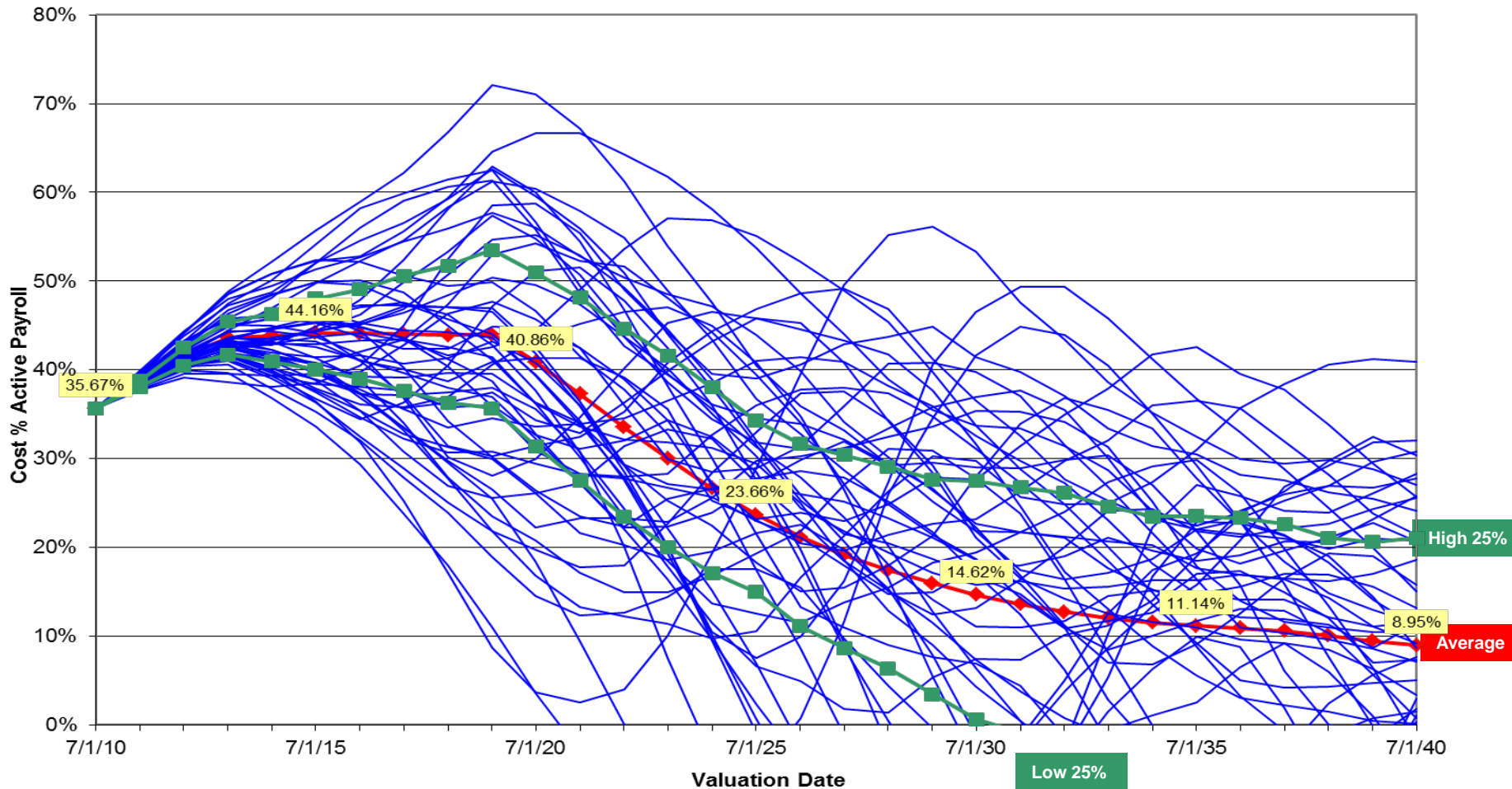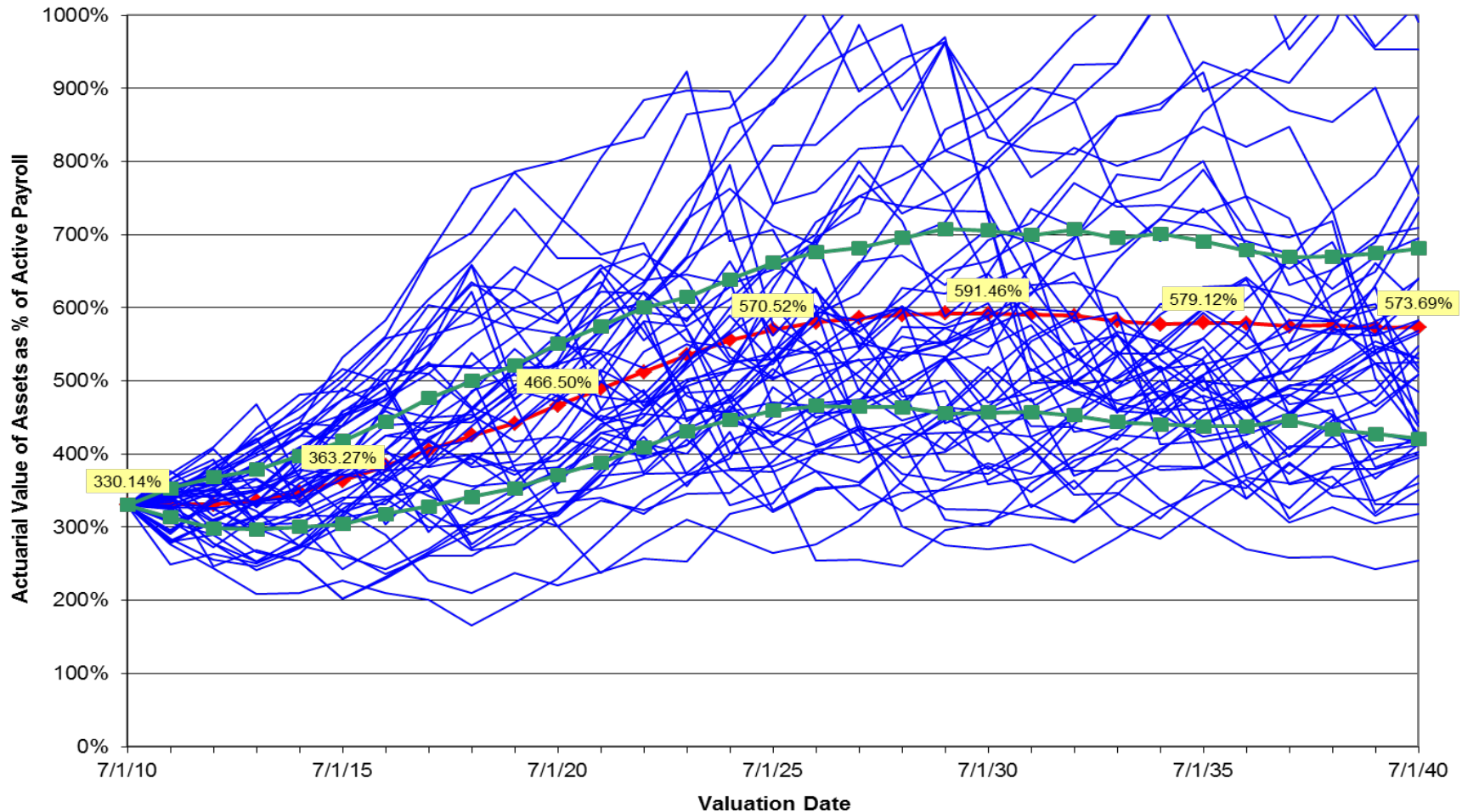

Market Value of Assets - Current Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Graph 12: *Simulation* of projected funded ratio under **current actuarial** assumptions.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.
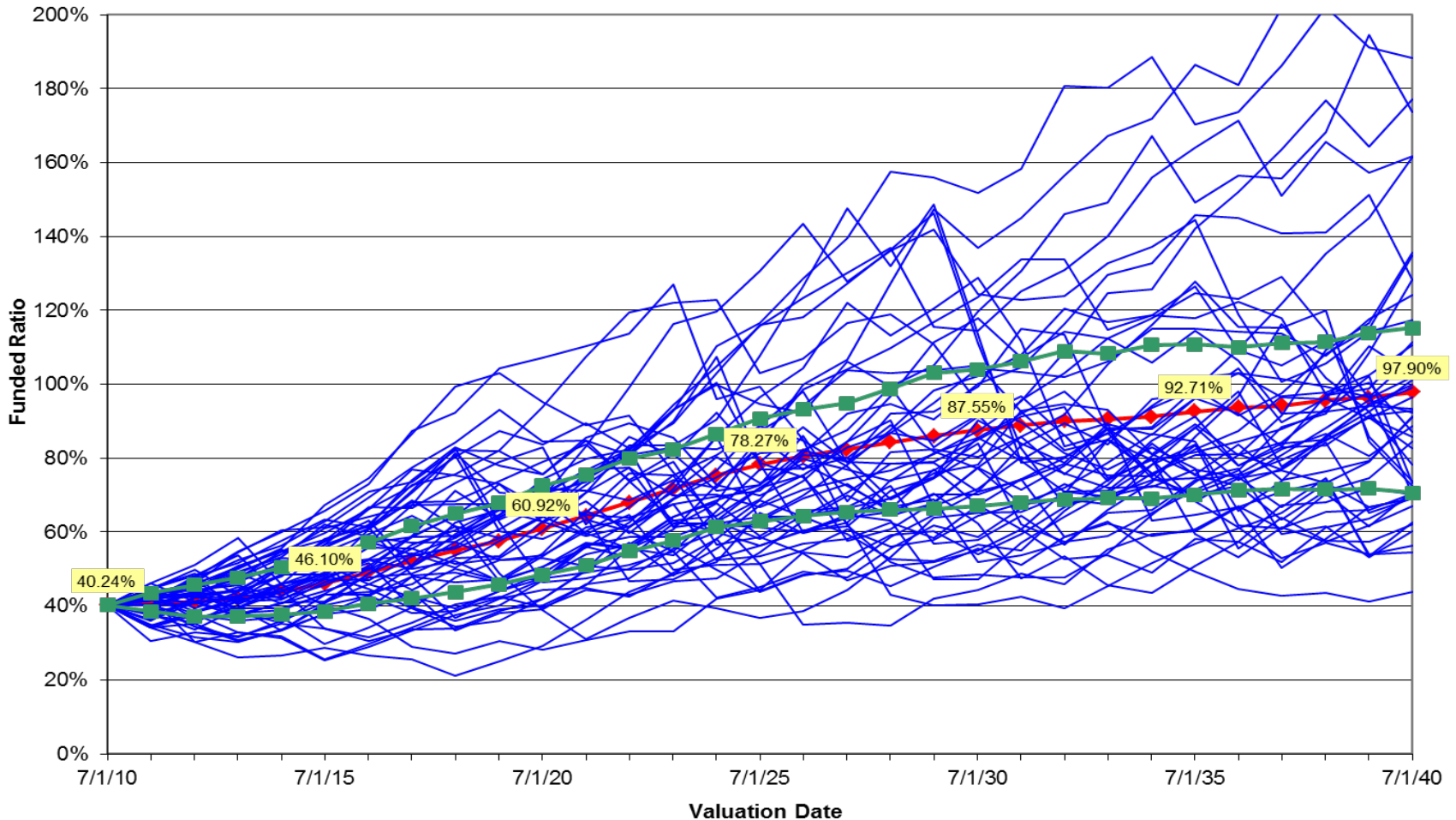

Funded Ratio - Current Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Graph 13: *Simulation* of nominal returns under **100% cash allocation**.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.

Nominal Returns - 100% Cash Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)
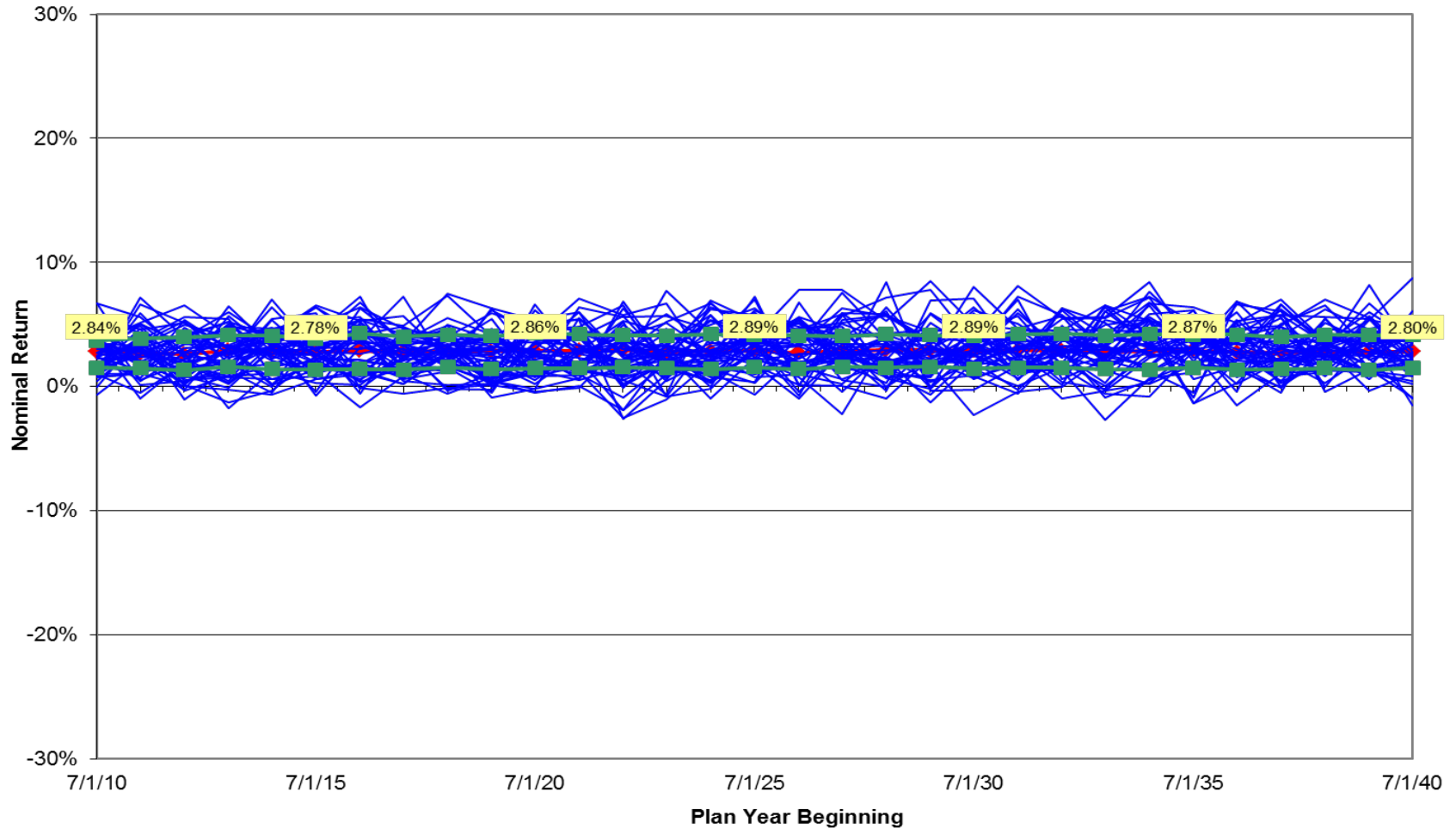
Asset-Liability Model of ERS Plan

Graph 14: *Simulation* of current **employer** contributions as a % of payroll – 100% cash allocation.
The blue lines show 500 trials, the red line is the average of the trial results , green lines are 25th and 75th percentiles.

Employer Contributions - 100% Cash Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Asset-Liability Model of ERS Plan

Graph 15: *Simulation* of projected assets with 100% cash allocation.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.
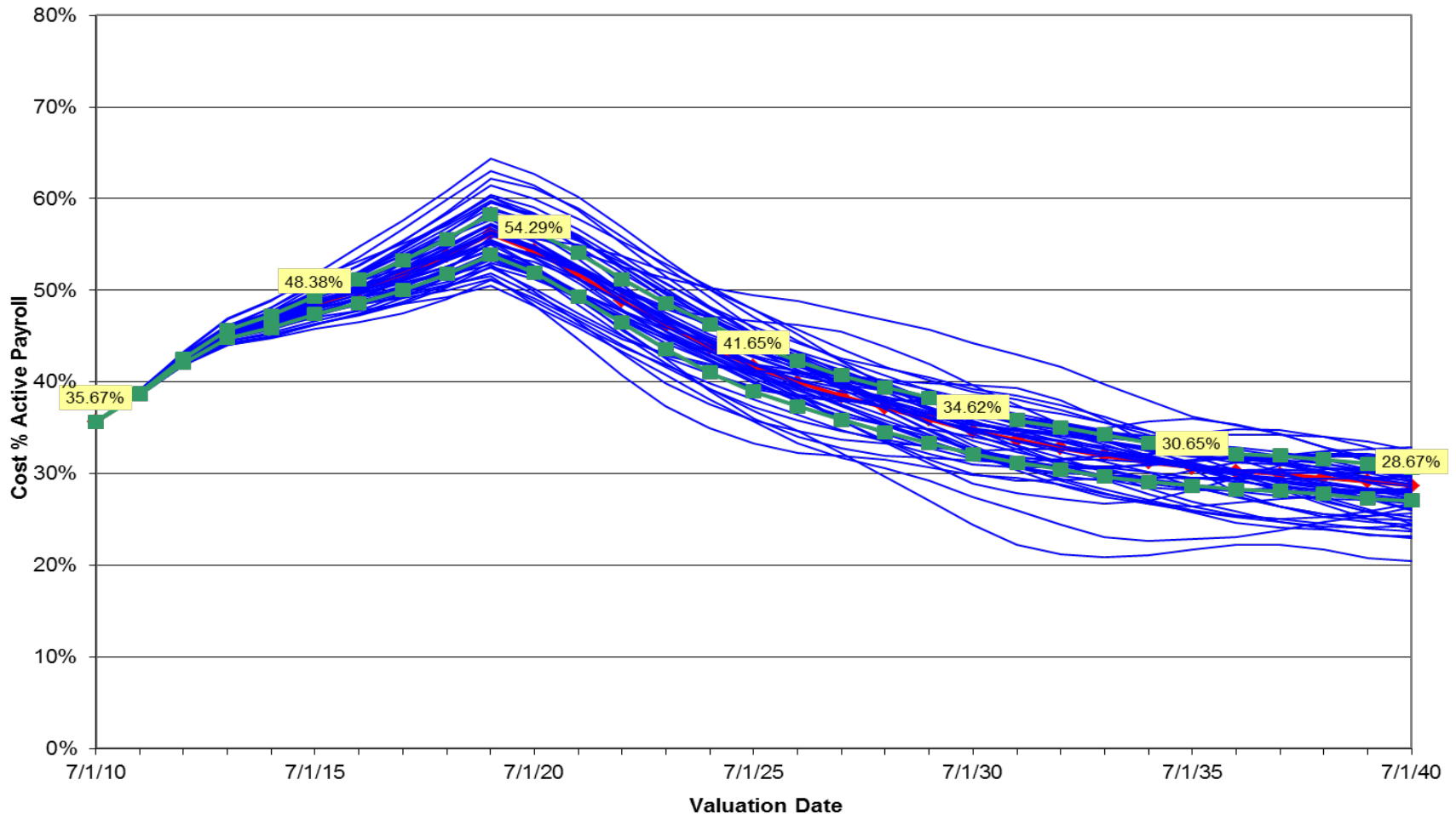

Market Value of Assets - 100% Cash Allocation
(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Asset-Liability Model of ERS Plan

Graph 16: *Simulation* of projected funded ratio under **100% cash allocation**.
The blue lines show 500 trials, the **red** line is the average of the trial results, **green** lines are 25th and 75th percentiles.

Funded Ratio - 100% Cash Allocation
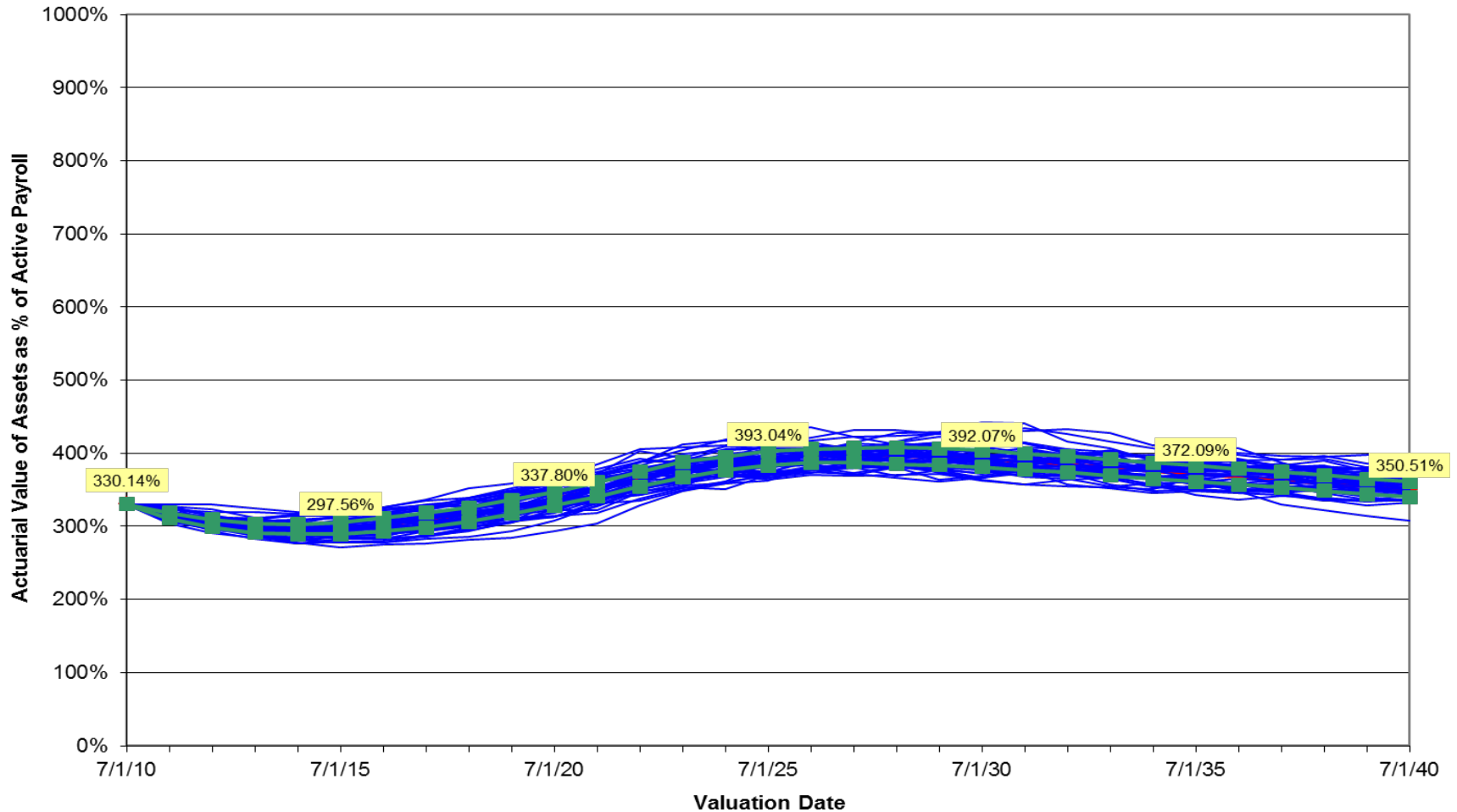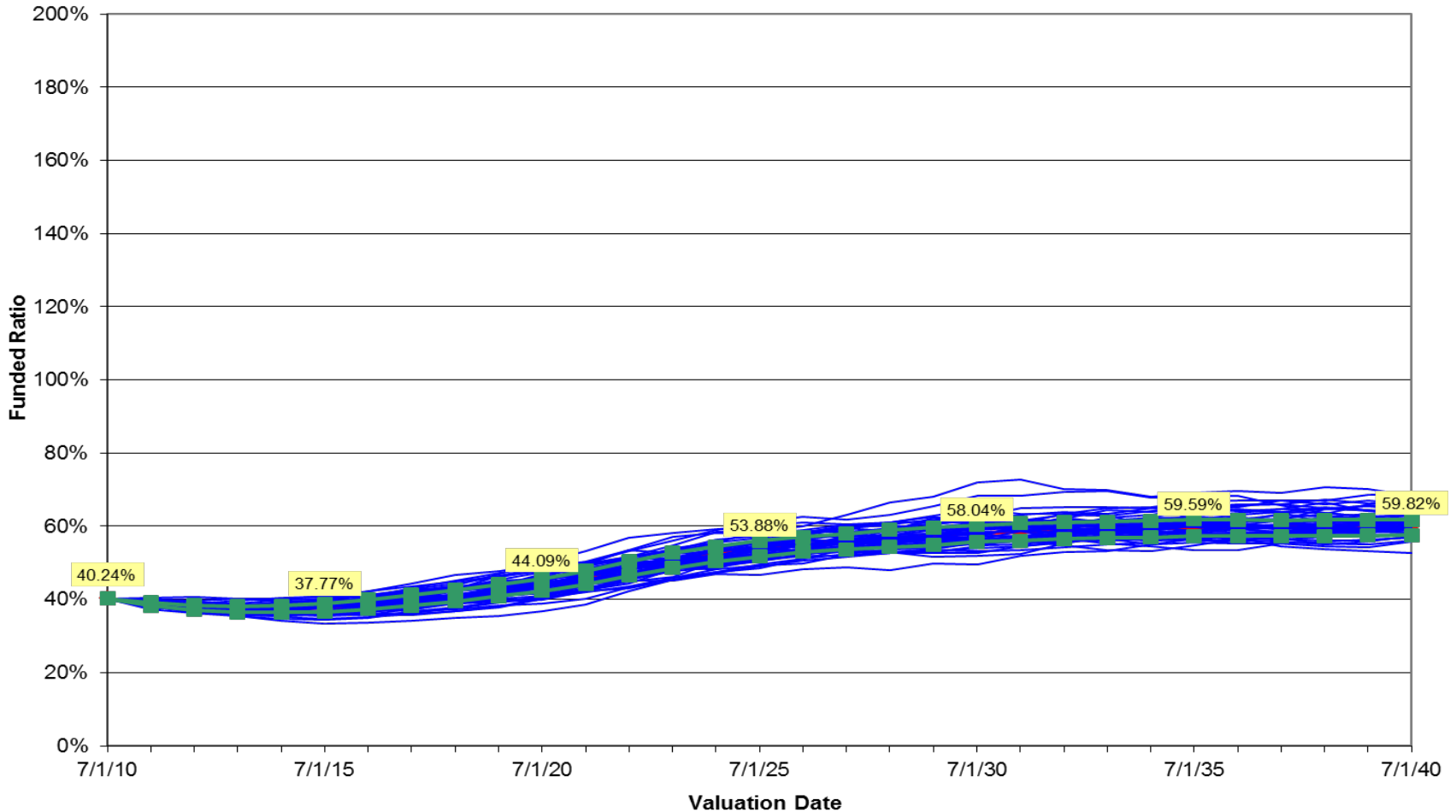(500 trials, 50 shown; average shown in red; 25th, 75th percentiles in green)

Summary of Findings

- Demographic maturity
  - Significant number of older, longer service members relative to other plans
  - Inactive funded ratio is nearly 70% now, about 20% higher than other plans
  - Limits flexibility in adjusting benefits, costs
  - Assets backing inactive members about 2/3 of total assets, when fully funded
  - Variation in inactive assets can only be funded over active payroll; inactive asset risk pushed onto actives (GM effect)

- Level of employer cost
  - Employer cost is increasing
  - Employer cost around 44% of pay for next 10+ years with current benefits

- Variability of employer cost
  - Lots of variability in plan cost
  - Variability is increasing as the plan becomes better funded
  - Upper quartile of employer cost is over 50% in 10 years
  - Some simulation trials exceed 70%

- Changing risk profile of ERS
  - As funding improves, variability ratio will increase
  - Sensitivity of employer cost to market variation will probably double
  - Downsizing/outsourcing will make the situation worse, reducing active payroll

- Risk/reward tradeoff
  - Asset mixes with an array of risk profiles are available
    - Cost stability comes at the expense of return and employer cost

Today's Discussion

- SIC discussion:

  - How do we balance risk and reward?

  - Do we take risk now that the Instability Ratio is low?

  - Do we take less risk to prevent a further decline in funding ratio?

Next Steps

- Define a range of candidate portfolios based on today's SIC discussion and input

  - A range from more to less risky
  - Stay within theoretical and practical class limits

- Use simulation model to measure the impact of candidate portfolios

  - Compare cost and funding level and variability for each

- Consider policy allocation at June SIC investment meeting

APPENDIX

ERSRI Strategic Class Simulation Assumptions

• Nominal Returns

• Modified Data Sample

Year	CPI	US Equity	Intl Equity	Fixed Income	RI Real Estate	Private Equity	Real Return	Cash
1970	3.43%	1.80%	-11.18%	9.48%	6.22%	-24.19%	9.90%	3.54%
1971	2.07%	11.49%	24.86%	4.24%	9.06%	1.80%	1.16%	2.14%
1972	2.07%	15.88%	30.36%	1.76%	5.61%	7.42%	3.18%	1.97%
1973	5.58%	-15.60%	-14.34%	-0.89%	5.61%	-24.72%	30.18%	3.93%
1974	7.78%	-26.61%	-21.24%	-2.33%	5.00%	-21.58%	18.15%	4.51%
1975	4.41%	32.92%	29.94%	5.88%	1.95%	25.43%	-3.15%	3.15%
1976	2.98%	20.49%	1.11%	8.11%	9.26%	43.59%	8.68%	2.59%
1977	4.28%	-14.07%	14.69%	-0.42%	11.70%	38.65%	18.52%	2.80%
1978	5.71%	0.48%	27.51%	-1.66%	23.11%	44.26%	11.86%	4.02%
1979	8.50%	20.67%	3.23%	-0.91%	31.94%	24.75%	18.22%	5.88%
1980	7.91%	28.52%	18.98%	-0.39%	27.12%	66.84%	-0.70%	6.84%
1981	5.64%	-6.01%	-2.99%	2.49%	24.14%	-5.82%	3.14%	8.82%
1982	2.40%	17.50%	-2.86%	18.63%	9.53%	19.33%	9.92%	6.49%
1983	2.33%	19.39%	19.16%	2.96%	17.04%	30.49%	-5.21%	5.00%
1984	2.46%	1.28%	4.70%	7.72%	18.48%	-3.93%	2.51%	5.66%
1985	2.33%	28.20%	46.89%	12.00%	13.20%	6.73%	9.04%	4.30%
1986	0.58%	13.75%	58.33%	8.12%	7.24%	1.19%	1.32%	3.29%
1987	2.72%	-0.05%	19.43%	-0.89%	6.63%	2.53%	11.20%	3.08%
1988	2.72%	14.79%	21.99%	2.69%	9.92%	6.92%	9.14%	3.62%
1989	2.85%	25.53%	8.28%	7.19%	6.15%	3.66%	17.72%	4.80%
1990	3.82%	-6.60%	-21.75%	3.37%	-4.96%	-2.29%	10.67%	4.34%
1991	1.88%	29.59%	9.94%	8.70%	-20.98%	15.89%	2.24%	2.98%
1992	1.81%	7.18%	-11.58%	2.66%	-18.30%	10.18%	10.45%	1.64%
1993	1.68%	8.29%	28.04%	4.60%	-6.83%	20.06%	9.40%	1.30%
1994	1.62%	-1.72%	3.62%	-4.54%	3.34%	5.65%	-0.33%	2.02%
1995	1.55%	32.55%	6.48%	10.07%	5.69%	12.48%	11.16%	2.98%
1996	1.75%	18.53%	3.66%	0.57%	11.31%	26.69%	7.01%	2.67%
1997	0.97%	27.83%	-0.35%	4.17%	18.62%	22.03%	2.76%	2.66%
1998	1.10%	20.67%	10.09%	2.50%	23.37%	17.69%	-7.66%	2.55%
1999	1.73%	17.65%	24.35%	-2.34%	13.46%	69.32%	9.21%	2.35%
2000	2.07%	-8.85%	-15.33%	4.88%	15.24%	-22.49%	9.24%	3.12%
2001	1.07%	-12.59%	-19.15%	3.03%	5.16%	-19.62%	-5.23%	1.94%
2002	1.41%	-22.01%	-15.02%	4.21%	4.07%	-26.94%	8.29%	0.44%
2003	1.09%	27.18%	33.16%	1.50%	8.62%	46.45%	7.92%	0.04%
2004	1.98%	9.29%	15.95%	0.92%	19.80%	14.00%	4.76%	0.15%
2005	2.07%	3.84%	12.25%	-0.61%	31.13%	4.00%	6.71%	1.26%
2006	1.49%	12.82%	20.91%	0.92%	24.07%	7.42%	1.35%	2.36%
2007	2.53%	2.93%	12.68%	1.96%	22.55%	8.79%	9.54%	2.35%
2008	-0.07%	-36.75%	-41.19%	-0.84%	-22.76%	-36.25%	-14.39%	0.50%
2009	1.62%	24.61%	30.22%	3.38%	-43.93%	61.03%	5.46%	-0.53%
2010	0.84%	13.95%	5.16%	2.40%	17.09%	14.54%	3.14%	-0.55%
GeoMean	2.73%	7.31%	7.11%	3.21%	7.45%	9.26%	6.21%	2.98%
Mean	2.75%	8.75%	9.00%	3.30%	8.65%	12.00%	6.50%	3.00%
Std Dev	2.00%	17.00%	20.00%	4.50%	15.00%	25.00%	8.00%	2.00%

ERSRI Strategic Class Model Constraints

Modeled Class	Current Policy	Min	Max
Cash	2.0%	2%	2%
Fixed Income	22.0%	15%	30%
Real Estate	5.0%	3%	8%
Real Return	10.0%	5%	10%
US Equity	36.0%	25%	40%
International Equity	17.5%	15%	30%
Private Equity	7.5%	8%	10%

Appendix – Asset Class Descriptors

Strategic Class	**Publicly-traded US Equity**			
Objective/Role	Provide a high real return that should approach or exceed 5%/year over a long-term investment horizon (i.e., greater than 5 years)	**Allowable Structures/Vehicles**	Typical structures utilized will include separate accounts, commingled funds, and potentially, institutional-grade mutual funds. In all cases, redemption/withdrawal terms will be established to ensure ERSRI can withdraw a material portion of assets from its assigned account within a minimal period (typically < 5 business days).
Income vs. Appreciation Considerations	Overall return of class dominated by capital appreciation. Various equity investments may produce limited amounts of dividend income. Over time, objective is that 15% -25% of total return will be derived from dividend cash flow and 75%-85% of return will come from capital appreciation.	**Leverage Limits/Comments**	Additional application of external leverage beyond that inherent in the underlying securities themselves is prohibited. Equity securities of US public companies reside at the riskiest (i.e., bottom) level of a company's capital structure. Therefore, varying degrees of financial leverage are an inherent characteristic of public equity. Debt-to-equity ratios of overall public equity typically average 40%-50%, but can range from 0% to 90+%.
Marketability/Liquidity	Investments are typically highly liquid and tradeable/marketable. The majority of the US Public Equity portfolio is indexed. Therefore, the overwhelming majority of the assets could be completely liquidated within a few business days and exhibit minimal market impact. Some proportion of US Public Equity (<15%) may exhibit higher degrees of illiquidity.	**Key Risk Considerations**	US public equity is marked-to-market on a relatively continuous basis. As a result, depending on overall market sentiment, valuations can shift dramatically over time. Diversification helps to mitigate volatility, but will not eliminate the majority of volatility associated with this class.
Diversification/ Concentration Issues	Overall US Public Equity portfolio is highly diversified across numerous risk characteristics including manager investment style, economic sector, industry, company size, valuation characteristics, etc. Specialized portfolios may exhibit higher levels of concentration across key risk parameters.	**Fee Structures**	Typically structured as a % of assets under management by account. Fee structures are established through a competitive/comparative bidding process to ensure fee levels do not exceed (and are often lower than) industry standards.

Appendix – Asset Class Descriptors

Strategic Class	Publicly-traded Non-US Equity		
Objective/Role	Provide a high real return that should approach or exceed 5%/year over a long-term investment horizon (i.e., greater than 5 years)	**Allowable Structures/Vehicles**	Typical structures utilized will include separate accounts, commingled funds, and potentially, institutional-grade mutual funds. In all cases, redemption/withdrawal terms will be established to ensure ERSRI can withdraw a material portion of assets from its assigned account within a minimal period (typically < 5 business days).
Income vs. Appreciation Considerations	Overall return of class dominated by capital appreciation. Various equity investments may produce limited amounts of dividend income. Over time, objective is that 15% -25% of total return will be derived from dividend cash flow and 75%-85% of return will come from capital appreciation.	**Leverage Limits/Comments**	Additional application of external leverage beyond that inherent in the underlying securities themselves is prohibited. Equity securities of Non-US public companies reside at the riskiest (i.e., bottom) level of a company's capital structure. Therefore, varying degrees of financial leverage are an inherent characteristic of public equity. Debt-to-equity ratios of overall public equity typically average 40%-50%, but can range from 0% to 90+%.
Marketability/Liquidity	Investments are typically highly liquid and tradeable/marketable. The Non-US Public Equity portfolio is indexed. Therefore, the overwhelming majority of the assets could be completely liquidated within a few business days and exhibit minimal market impact. Some proportion of Non-US Public Equity (<20%) may exhibit higher degrees of illiquidity - specifically Emerging Markets.	**Key Risk Considerations**	Non-US public equity is marked-to-market on a relatively continuous basis. As a result, depending on overall market sentiment, valuations can shift dramatically over time. Diversification helps to mitigate volatility, but will not eliminate the majority of volatility associated with this class. Investments are also denominated in Non-$ currencies, which can add to volatility but, over time, tends to produce zero return. Other risks include non-U.S. political, legal and transparency risks.
Diversification/Concentration Issues	Overall Non-US Public Equity portfolio is highly diversified across numerous risk characteristics including, countries, economic sector, industry, company size, valuation characteristics, etc.	**Fee Structures**	Typically structured as a % of assets under management by account. Fee structures are established through a competitive/comparative bidding process to ensure fee levels do not exceed (and are often lower than) industry standards.

Appendix – Asset Class Descriptors

Strategic Class	*Publicly-traded Fixed Income*		
Objective/Role	Provide a steady stream of income to the portfolio and protect portfolio principal. Fixed income is expected to act as a stabilizer relative to the more volatile equity-oriented classes. Returns are expected to exceed inflation by a modest amount over a reasonable investment cycle.	**Allowable Structures/Vehicles**	Typical structures utilized will include separate accounts, commingled funds, and potentially institutional-grade mutual funds. In all cases, redemption/withdrawal terms will be established to ensure ERSRI can withdraw a material portion of assets from its assigned account within a minimal period (typically < 10 business days).
Income vs. Appreciation Considerations	Overall return of class dominated by cash flow income and the return on the reinvested cash flow. Various fixed income investments may produce limited amounts of capital appreciation, depending on the stage of the market cycle. Over time, objective is that 10% -20% of total return will be derived from capital appreciation and 80%-90% of return will come from cash flow/interest payments.	**Leverage Limits/Comments**	Additional application of external leverage beyond that inherent in the underlying securities themselves is prohibited. Fixed income securities issued by companies typically reside at the higher (if not highest) levels of a company's capital structure. Some high-yield securities, may be "junior" to other levels of debt and therefore exhibit more equity-like characteristics. In addition, certain types of bonds may embed equity payoffs in their yields instead of cash flow. Finally, certain "structured" bonds may include financial leverage as part of their structures (e.g., CLOs, CMOs). Such characteristics can raise the implied leverage level within a fixed income portfolio. Conversely, US-sponsored bonds are considered the safest investment in the world and, if held to maturity, should exhibit zero risk of principal loss.
Marketability/Liquidity	Investments are typically highly liquid and tradeable/marketable. The majority of its assets could be liquidated within a few business days and exhibit minimal market impact. Some proportion of public fixed income (+/- 20%) may exhibit high degrees of illiquidity during certain investment cycle stages (e.g., High Yield, Corp bonds, CMBS, and RMBS during 2008 crisis).	**Key Risk Considerations**	Most public fixed income is marked-to-market on a relatively continuous basis. However, many corporate securities and structured bonds may exhibit relatively low levels of transaction activity, resulting in lower confidence of market pricing. In addition, the general movement in interest rates will impact valuation over time. Diversification helps to mitigate volatility, but will not eliminate the majority of volatility associated with this class.
Diversification/ Concentration Issues	Overall public fixed income portfolio is highly diversified across numerous risk characteristics including major bond type, industry, etc. Specialized portfolios may exhibit higher levels of concentration across key risk parameters. It is important to recognize that nearly all bonds are very sensitive to changes to interest rates and spreads of risk-oriented interest rates versus default-free interest rates. As a result, much of these risks cannot be diversified away.	**Fee Structures**	Typically structured as a % of assets under management by account. Fee structures are established through a competitive/comparative bidding process to ensure fee levels do not exceed (and are often lower than) industry standards.

Strategic Class	Real Return (utilizing 5 underlying components)		
Objective/Role	To produce a reasonable and stable return in excess of inflation. The excess return should be of a level that does not take on undo equity and/or other macro-factor risks. Expectation is to achieve a return in excess of CPI of 4% per year.	**Allowable Structures/Vehicles**	Typical structures utilized may include blind pool limited partnerships/LLCs, separate accounts, and/or commingled funds. In addition, the class may include significant allocations to publicly-listed securities such as public master limited partnerships or listed infrastructure. Triple-net leases (real estate-oriented) may also be considered. In many cases, redemption/withdrawal terms may be extremely limited. For LP/LLC-structures, certain investments may not be exited for 10 years or more.
Income vs. Appreciation Considerations	Overall return of class balanced between capital appreciation and income. It is expected that income flows will grow steadily with inflation due to structural features of the investments. From time-to-time, appreciation may dominate if there is a rapid change in inflation expectations and the class holds investments that exploit these changes in a favorable manner.	**Leverage Limits/Comments**	Financial leverage of the overall Real Return class is subject to leverage allowances at the individual component level. For example, both timber and infrastructure components willl permit some leverage. On the other hand, the core TIPS position contains zero leverage. Leverage may be applied within the structure of a limited partnership/LLC, with many investments occurring via blind pool commingled structures.
Marketability/Liquidity	The class will contain a variety of investments with varying degrees of liquidity. For example, the class currently has significant exposure to TIPS, which are relatively liquid. On the other hand, absolute return funds or commodity investments may be more difficult to exit and may take an extended period of time to return original capital invested.	**Key Risk Considerations**	Because the Real Return is a hybrid class, it shares the risks characteristics of a wide spectrum of both publicly-traded and privately-held investments. For those publicly-traded holdings, there is a significant likelihood that these investments will take on the behavior of the public markets, rather than the behavior of the desired macro risk factor. In addition, it is critical that actual construction of the class not deviate signficantly away from its original "blueprint" intention of helping to protect the overall ERSRI portfolio against significant increases in inflation.
Diversification/ Concentration Issues	Over time, the Real Return class should exhibit significant diversification by containing investments that either (i) protect against structural changes in inflation or (ii) protect against rapid changes in inflation expectations. Protecting against both inflation types will require investing across a relatively wide array of investments	**Fee Structures**	Fee structures will range from straightforward (e.g., AUM-based fee for TIPS-oriented mandates) to complex (timber and absolute return). As a matter of practice, ERSRI will typically seek to negotiate all fees.
Allocation Constraints: Underlying Components	TIPS Min: 0% Max: 40% Absolute Return Min: 30% Max: 50% Commodities Min: 30% Max: 50% Timber Min: 0% Max: 30% Infrastructure Min: 0% Max: 30%		

Appendix – Asset Class Descriptors

Strategic Class	*Alternative Investments*		
Objective/Role	Provide a high real return that should materially exceed public equity over a long-term investment horizon (i.e., greater than 5 years). At a minimum, private equity should capture the illiquidity premium over publicly-traded equity. Historically, the illiquidity premium has approximated 3% per year.	**Allowable Structures/Vehicles**	Typical structures utilized will include blind pool limited partnerships/LLCs and/or commingled funds. In most cases, redemption/withdrawal terms will be extremely limited. For LP/LLC-structures, certain investments may not be exited for 10 years or more.
Income vs. Appreciation Considerations	Overall return of class dominated by capital appreciation. Various private equity investments may produce limited amounts of cash flow. Over time, objective is that up to 10% of total return will be derived from interest earned or dividend cash flow and 90+ of return will come from capital appreciation.	**Leverage Limits/Comments**	Financial leverage can vary dramatically, particularly by investment type. For example, venture capital partnerships typically utilize minimal or no leverage, on average, while leveraged buyout funds can have leverage exceed 70% at the combined company level.
Marketability/Liquidity	Investments are not liquid nor tradeable/marketable. The majority of investments will typically be prohibited from exit for several years. Since investments typically take place through blind-pool commingled funds, once a commitment is made, ERSRI has very little control over investments.	**Key Risk Considerations**	There are several risks associated with Alternative Investments (private equity) investing. These include, headline/political risk, business cycle risk, company acquisition and execution risk, magnification of operating risks due to financial leverage, illiquidity/nonmarketability risk, general partner key-man risk, etc. These risks are typically managed by (i) retaining prudent experts/advisors to conduct due diligence and structure the investment program, (ii) diversifying across a spectrum of general partners, and (iii) diversifying investments over time and economic sector. Successful private equity investing also requires selecting high-quality general partners; the average general partner group does not outperform public equity. Therefore, manager selection is also a critical risk/performance consideration.
Diversification/Concentration Issues	ERSRI guidelines seek to establish a highly diversified portfolio across numerous risk characteristics including partnership type, economic sector, major economic region, year of investment (vintage year), etc. Certain specialized partnerships may exhibit higher levels of concentration across key risk parameters.	**Fee Structures**	Fees structures can be complex. Investments in privately-held LP/LLC/commingled vehicles typically charge fees (i) as a percent of commitments or assets invested and (ii) as a proportion of profits generated in the form of "carried interest." Carried interest is typically not calculated until after the fund's portfolio has achieved a pre-established minimum level of return. As a result of these features, private equity fees are typically higher than management fees associated with publicly-traded equities. As a matter of practice, ERSRI will typically seek to negotiate all fees.

Strategic Class	*Real Estate*		
Objective/Role	Provide a high real return that should approach or exceed 5% per year over a long-term investment horizon (i.e., greater than 5 years). Given the current structure of ERSRI Real Estate portfolio (significant amounts of leverage, participation in both core and non-core (i.e., more aggressive strategies), Real Estate is more total return-driven than income-oriented.	**Allowable Structures/Vehicles**	Typical structures utilized will include public or private REITS, blind pool limited partnerships/LLCs and/or commingled funds, or debt secured by real estate. In most cases, redemption/withdrawal terms will be extremely limited. For LP/LLC-structures, certain investments may not be exited for 10 years or more.
Income vs. Appreciation Considerations	Currently, the overall return of class tilted toward capital appreciation, due to higher leverage (i.e., debt service costs detract from property income) and investment in non-core (more aggressive) strategies.	**Leverage Limits/Comments**	Core properties (high-quality, substantially-leased income-producing office, retail, industrial and/or multi-family properties) are limited to leverage with a loan-to-value ratio of no more than 50%. Non-core properties and/or real estate holdings may employ leverage levels exceeding 50%.
Marketability/Liquidity	Private real estate investments are not liquid nor tradeable/marketable. The majority of investments will typically be prohibited from exit for several years.	**Key Risk Considerations**	There are several risks associated with real estate investing. These include, headline/political risk, property acquisition and execution risk, risk of lower-than-expected net cash flow, magnification of operating risks due to financial leverage, illiquidity/nonmarketability risk, general partner key-man risk, etc. ERSRI has addressed these issues by diversifying across property types and regions, as well as limiting exposure to a specific investment management company/general partner.
Diversification/ Concentration Issues	ERSRI guidelines seek to establish a highly diversified portfolio across numerous risk characteristics including property type, region, income quality type, etc. In addition, the more specialized non-core investments may exhibit higher levels of concentration across key risk parameters.	**Fee Structures**	Fees structures can be complex. For non-core commingled funds, carried interest profit sharing and/or other incentive structures might also take place. As a matter of practice, ERSRI will typically seek to negotiate all ranges of fees regardless of account structure being contemplated.