Investment and Pensions Oversight Committee Meeting
July 10, 2013

Bob Jacksha, Chief Investment Officer

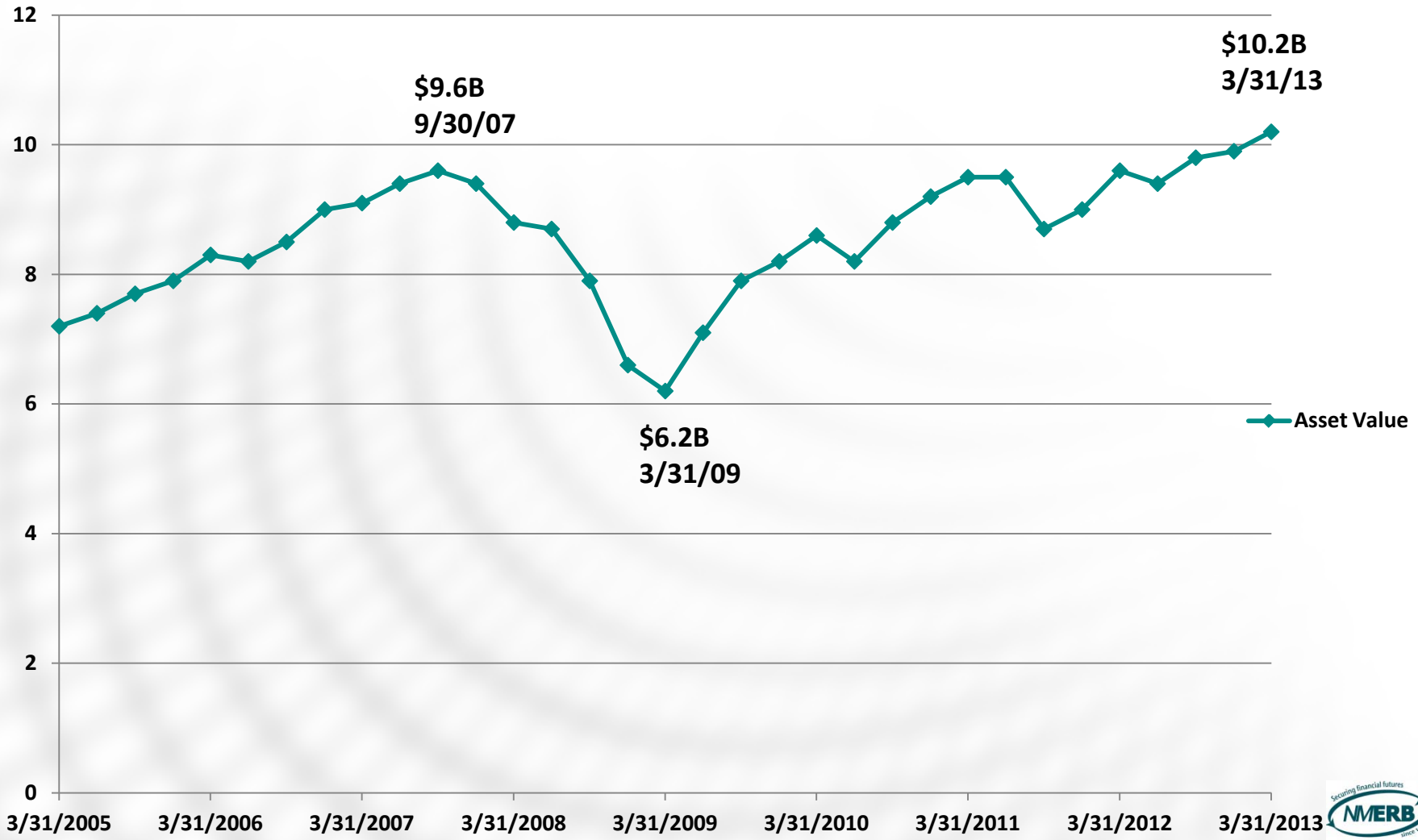
Agenda

- Discuss recent performance.
- Strategy to meet long-term goals.
- Examine investment manager fees.

Recent Investment Highlights

- All-time high of $10.2B on March 31st.
- Investment earnings for the twelve months ended March 31st were over $950 million, a return of more than 10%.
- Portfolio returns equaled or exceeded actuarial target in most periods measured.
- Actual returns exceeded policy index in ***all*** periods measured.
- ERB was recognized by Money Management Intelligence as the 2013 Mid-Sized Public Plan of the Year and was a finalist for a 2012 aiCIO Industry Innovation Award.

Quarterly ERB Assets: March 2005- March 2013



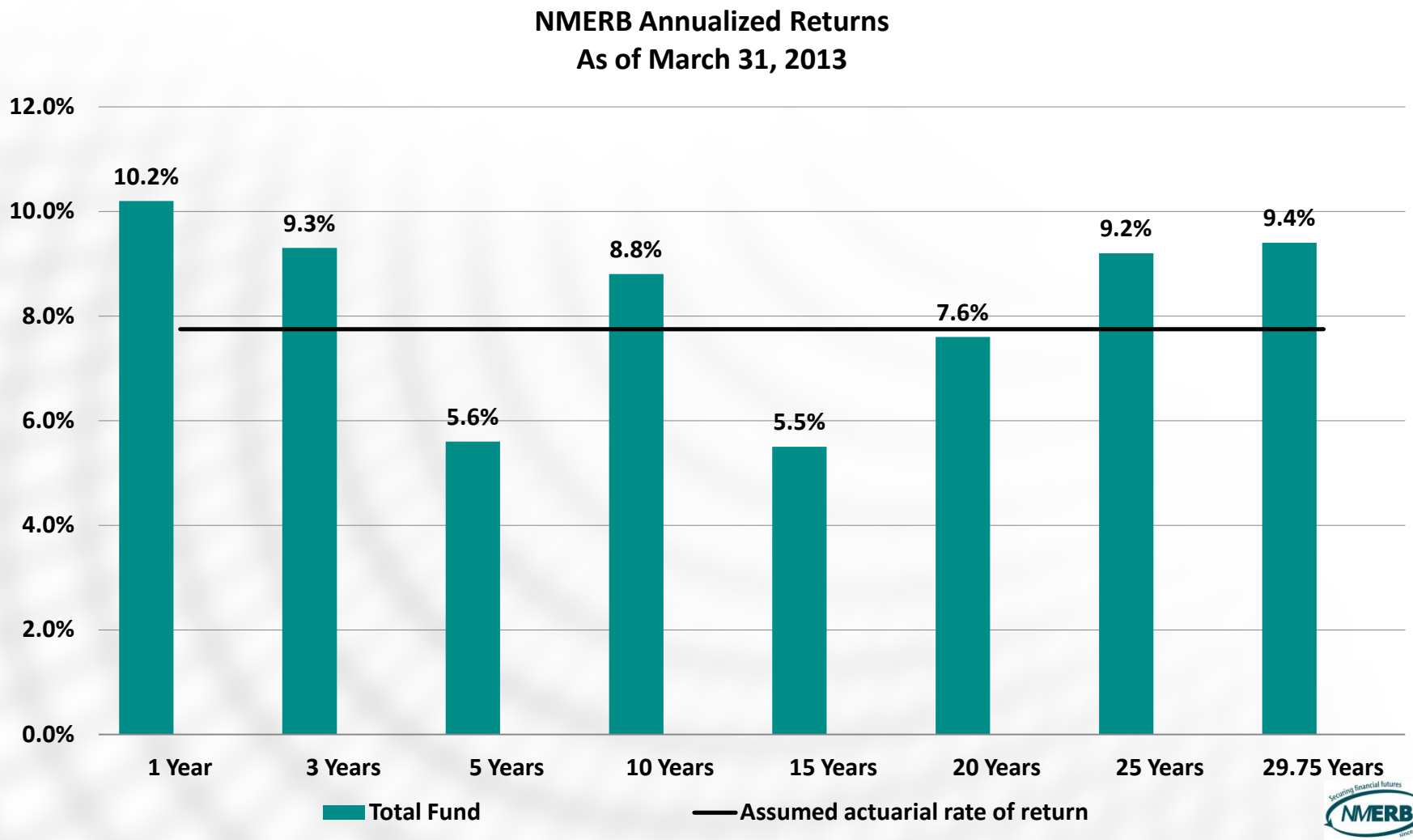
Basic Pension Equilibrium Formula

$$C+I=B+E$$

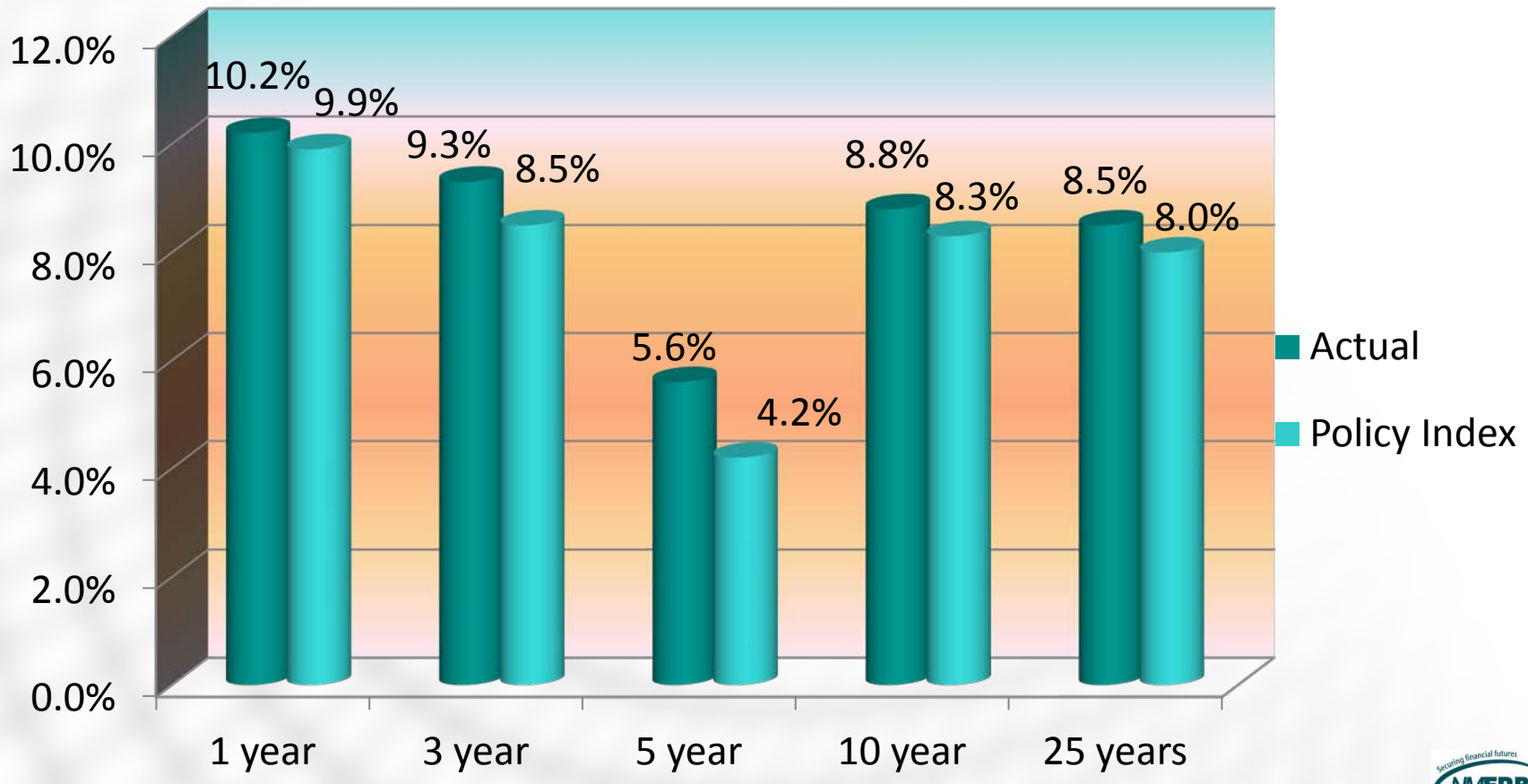
- C=Contributions from employees and employers
- I=Investment Returns
- B=Benefits paid
- E=Expenses of the Fund

In our case, “I” must equal or exceed 7.75%

Return – Actual Exceeds 7.75% Target



Actual vs. Policy – Periods Ending March 31, 2013



Performance – May 31, 2013 Update

- Positive performance continued in April and May.
- May 31st assets = $10.3B
- FYTD (Eleven months) returns: 13.1%
- Twelve month returns: 15.4%

Strategy to Meet Investment Return Goal

- Goal #1: Achieve a long-term, return at least equal to our actuarial assumption of 7.75%.
- Goal #2: Decrease return volatility through diversification.
- Asset Allocation is the main tool, and **the** primary determinant of investment returns.

Strategy Implementation

- Implementation:
  - Increase diversification through asset allocation
  - Beta and Alpha
  - Active or Passive
  - External or Internal (Buy it or Build it?)

Asset Allocation Process

- Ideal portfolio: No risk + a high return.
- Reality: We must trade one for the other: Higher expected returns=Higher Risk, Lower Risk=Lower Return.
- Inputs: Forecast of variables.

Expected Returns and Volatility: 5 – 7 Years

ASSET CLASS	EXPECTED RETURN	EXPECTED VOLATILITY
Cash	1.25%	1.50%
Core Bonds	2.88%	7.00%
Emerging Market Debt	6.75%	15.00%
Opportunistic Credit	7.00%	12.00%
Large Cap U.S. Equities	7.25%	18.00%
Int'l Equities	7.75%	21.00%
Emerging Int'l Equities	9.75%	27.00%
Private Equity	9.75%	28.00%
Real Estate	6.00%	15.00%
Real Assets	6.25%	12.00%

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Correlation Matrix - Diversification

- How does the return of one asset class move relative to other assets in a given economic/market cycle?
- Assets returns that do not move together to a high degree, or move in opposite directions generate a portfolio with less risk. This is the benefit of diversification.
- A matrix of forecast correlations is generated, comparing each asset class to all the others.

Asset Allocation Process (continued)

- Analysis: Execute a mean-variance optimization process to achieve a balance of the two.
- Outputs: Hundreds of potential portfolios, each with the a return/risk balance that equates to the highest return for the amount of risk taken.
- Last asset allocation change adopted September 2012.

Targeted Asset Allocation

	Actual Allocation (3/31/2012)	NEPC Recommendation	Long Term Policy Target (9/30/2005)
Cash	1%	1%	0%
Large Cap Equities	25%	20%	40%
Small/Mid Cap Equities	3%	2%	6%
Int'l Equities	5%	5%	18%
Emerging Int'l Equities	10%	10%	2%
Total Equity	**42%**	**37%**	**66%**
Core Bonds	15%	7%	20%
High Yield Bonds	0%	0%	
Opportunistic Credit	14%	20%	5%
Global Bonds	0%	0%	
Emerging Market Debt	2%	2%	0%
TIPS	0%	0%	4%
Total Fixed Income	**32%**	**29%**	**29%**
Private Equity	6%	8%	0%
Real Estate	5%	5%	5%
Absolute Return	7%	3%	0%
Inflation-Linked Assets	1%	7%	0%
Global Asset Allocation	3%	5%	0%
Risk Parity	4%	5%	0%
Total Alternatives	**25%**	**33%**	**5%**
Expected Return (compound) (5-7 Years)	7.8%	8.5%	6.8%
Expected Risk (volatility) (5-7 Years)	11.8%	12.7%	12.8%
Sharpe Ratio (5-7 Years)	0.55	0.57	0.43
Sortino Ratio (0% Minimum Acceptable Return)	0.85	0.87	0.65
Probability of < 0% over 1 year	25.5%	25.2%	29.8%
Probability of < 0% over 5 Years	7.1%	6.8%	11.8%
Probability of < 7.75% over 5 Years	50.0%	45.0%	56.8%
Expected Return (compound) (30 Years)	8.2%	8.6%	7.6%

Notes

Expected return and risk based on 2012 NEPC Capital Market Assumptions

Totals may not add to 100% due to rounding

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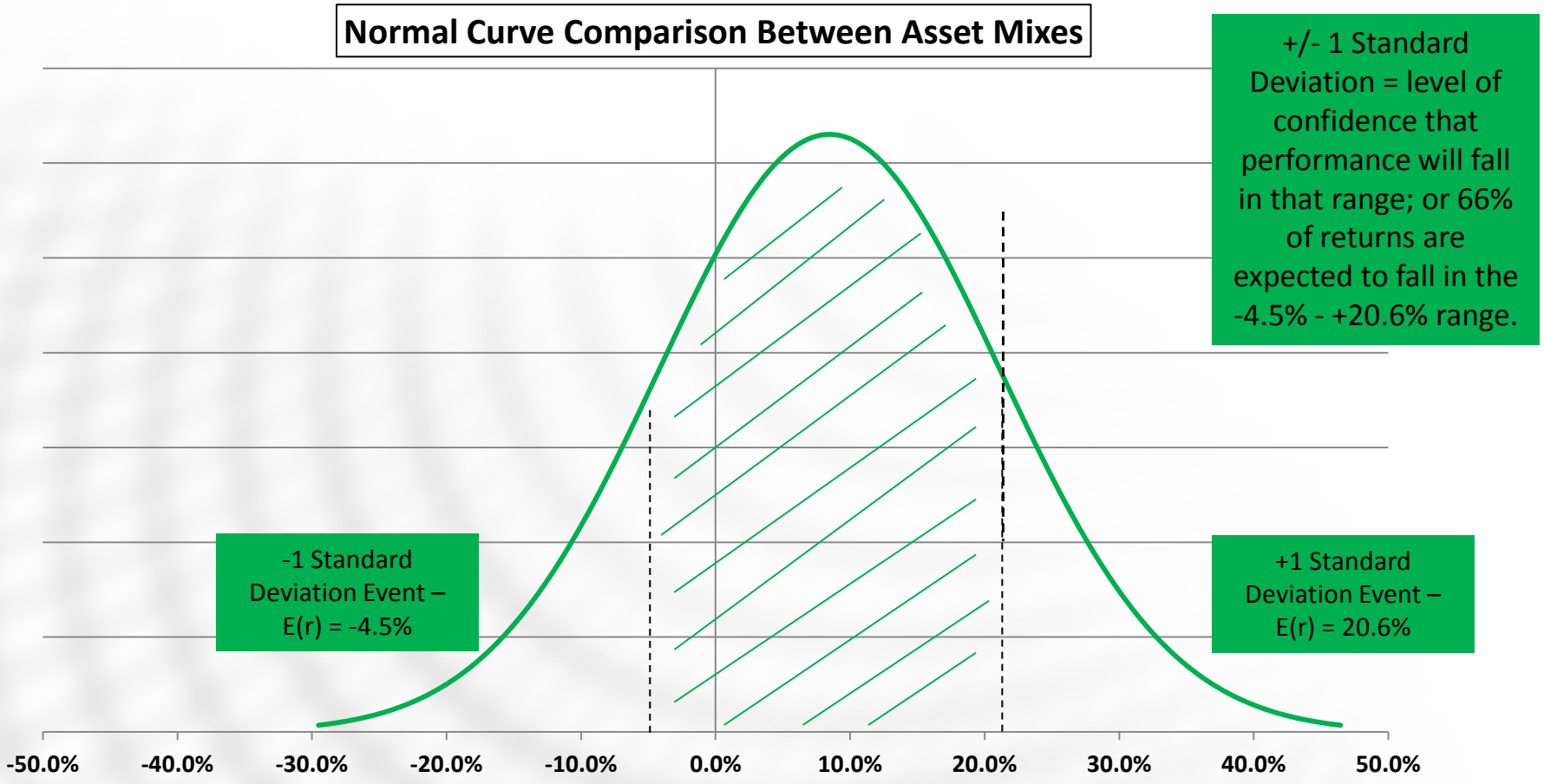
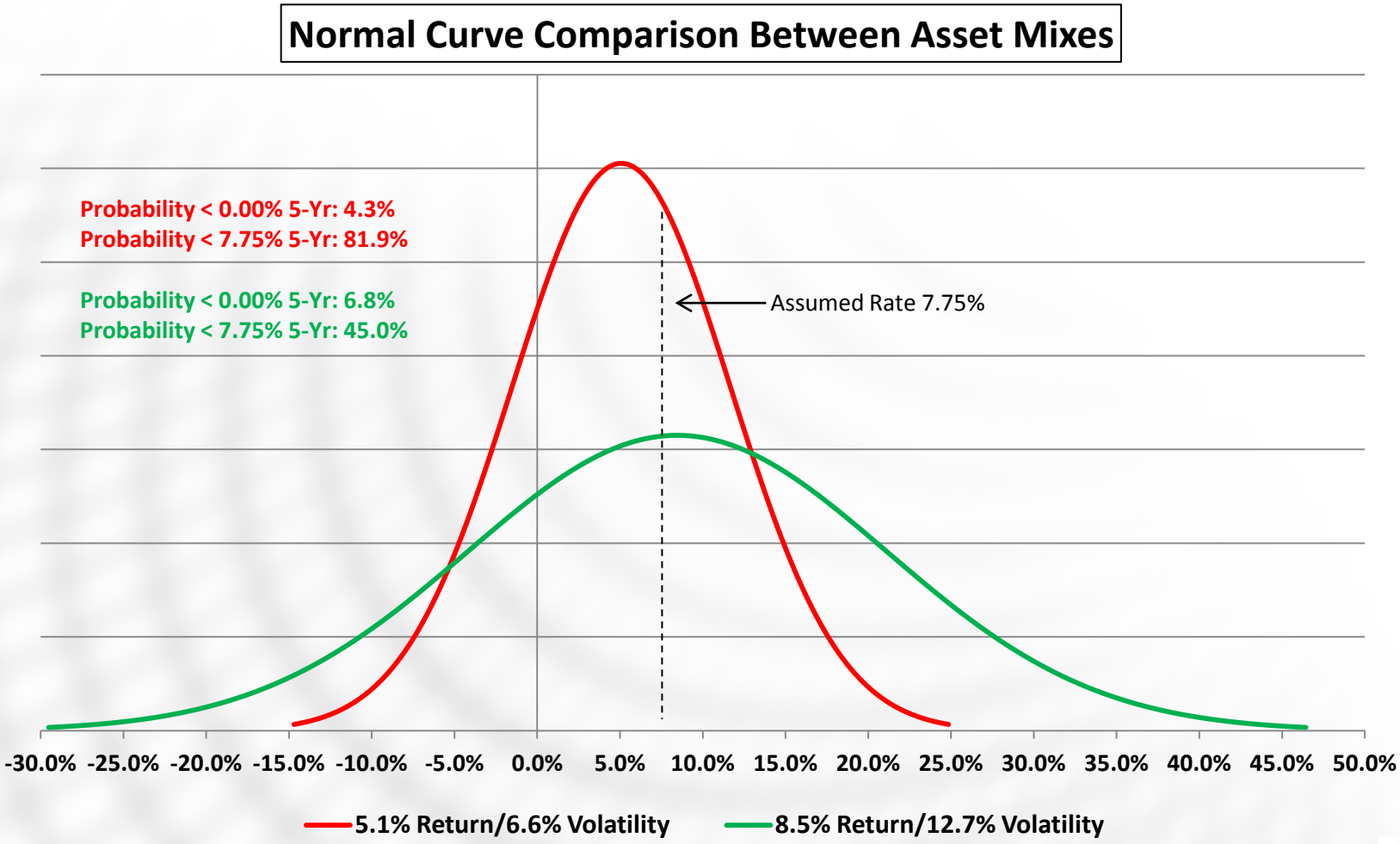
Probability Distribution - Uncertainty



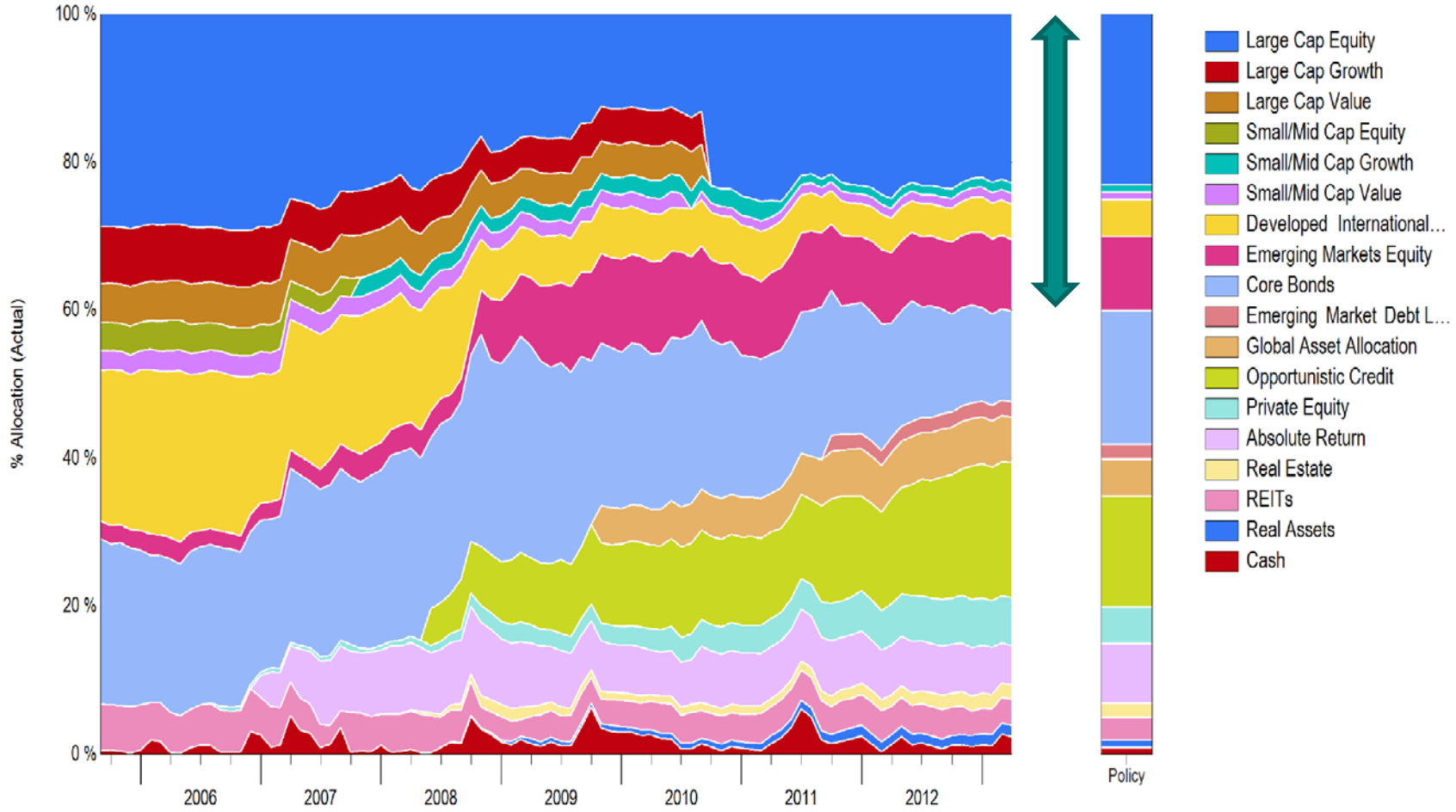
Risk and Return – The Trade-Off



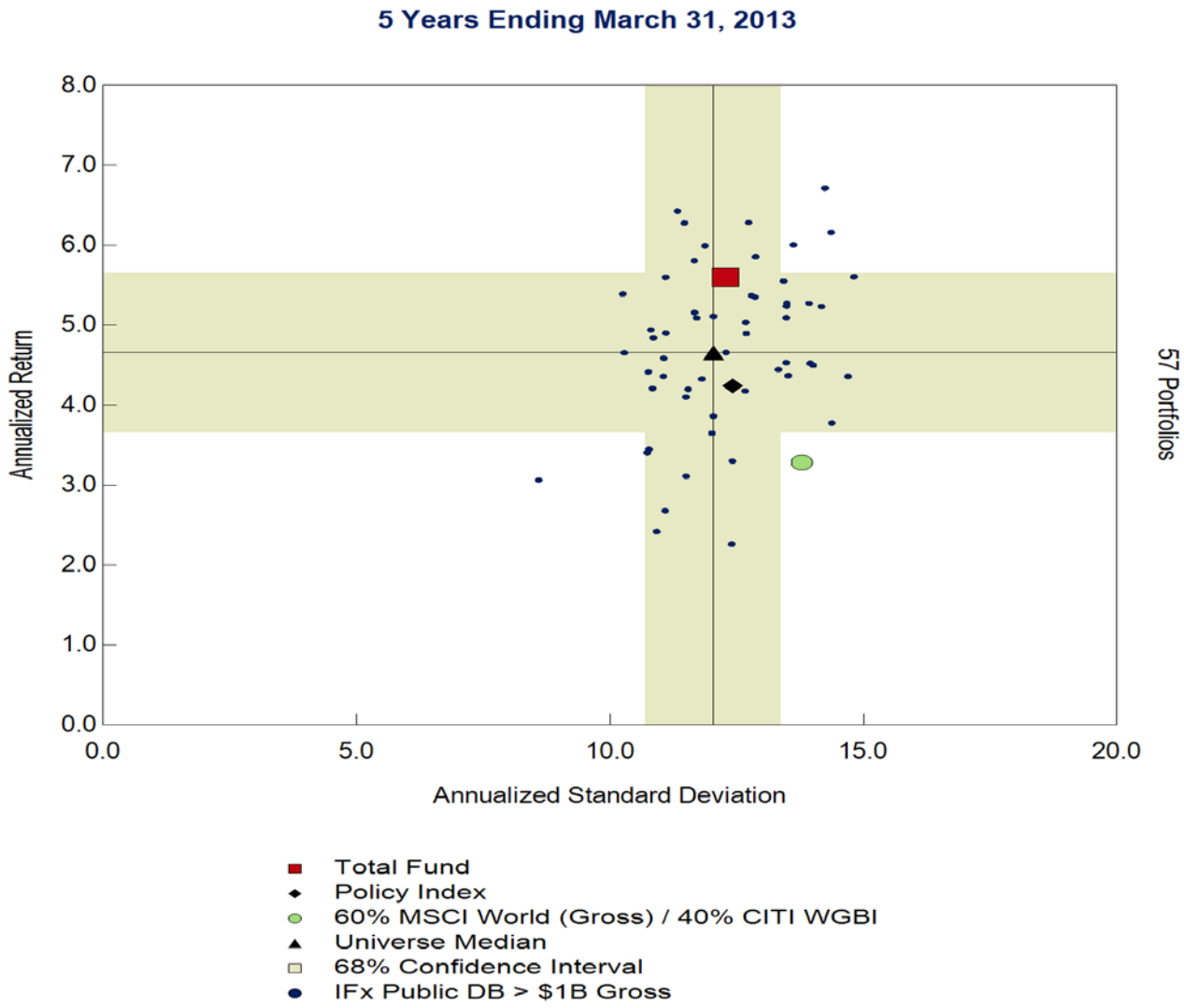
Asset Allocation History

70% Public Equity

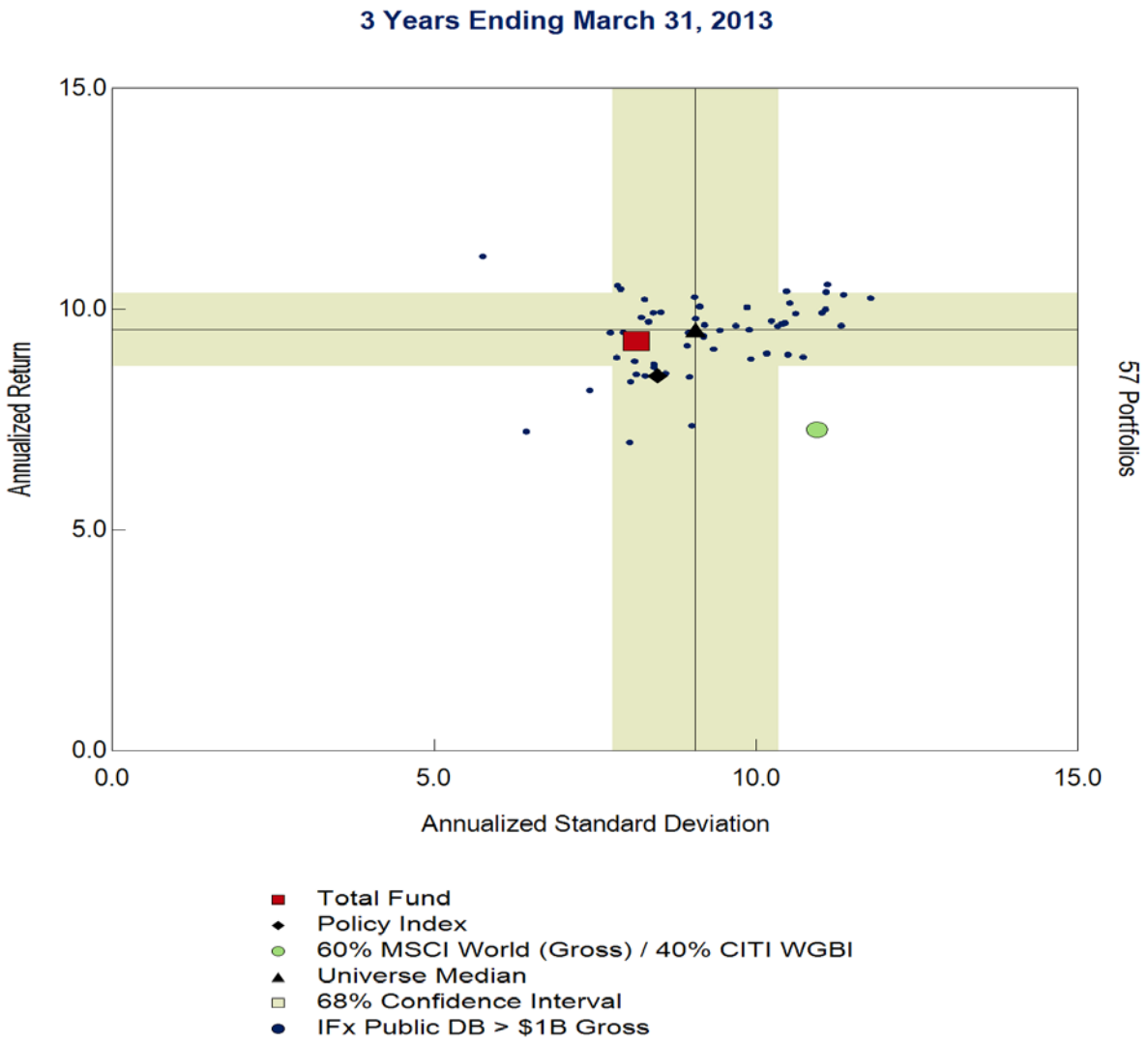
40% Public Equity



Risk and Return: ERB Peer Comparison



Risk and Return: Three Years



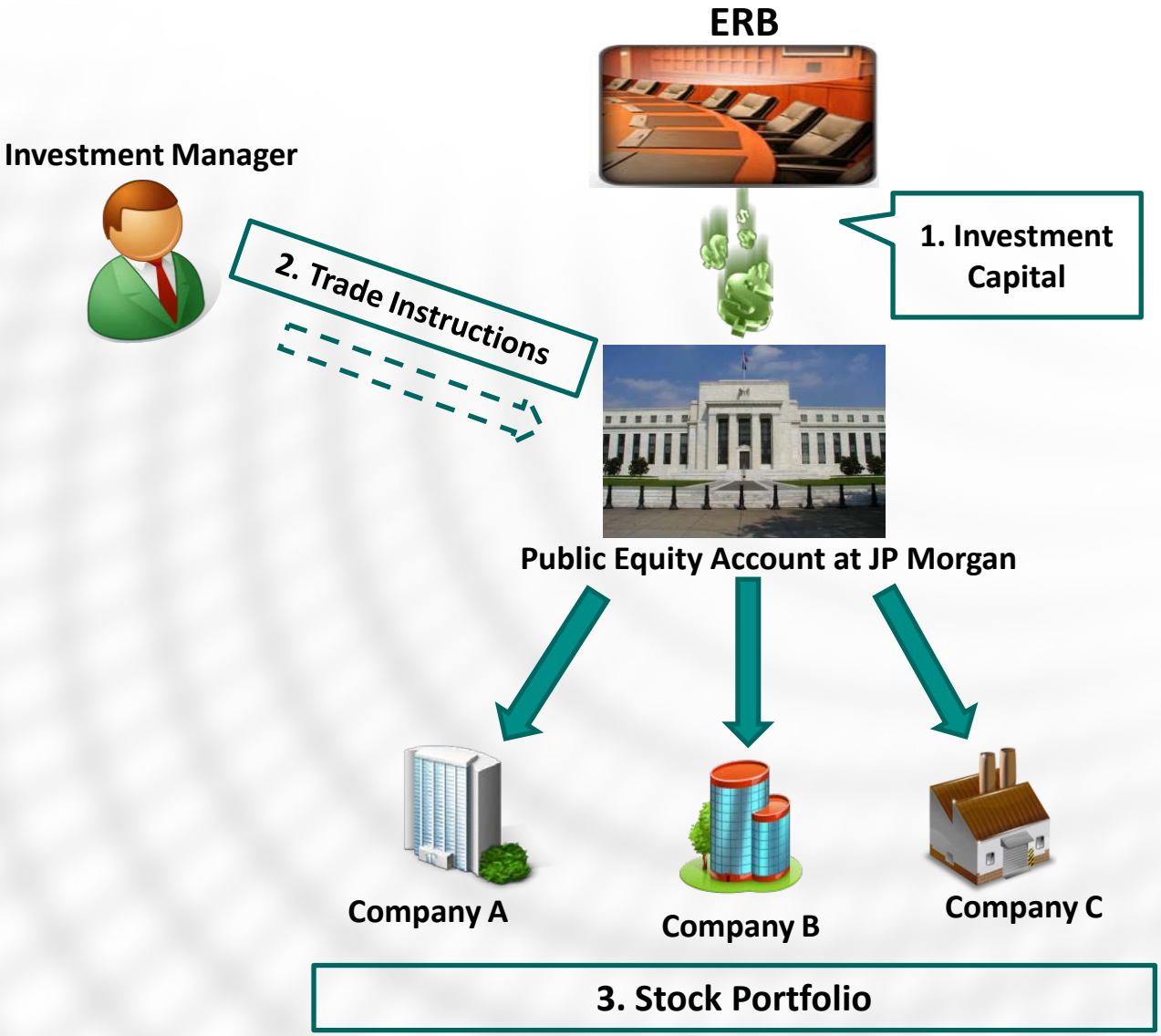
Investment Return Sources: Beta and Alpha

- Two sources of return for a portfolio: Beta and Alpha.
- Beta is related to the return of a market index, such as the S&P 500. It is easy to obtain and relatively low cost.
- Alpha is derived from manager skill. It is not as abundant as Beta and is more expensive.
- Certain markets offer little to no Alpha and thus we look to minimize fees.
- For markets with higher Alpha, we are required to pay higher fees.

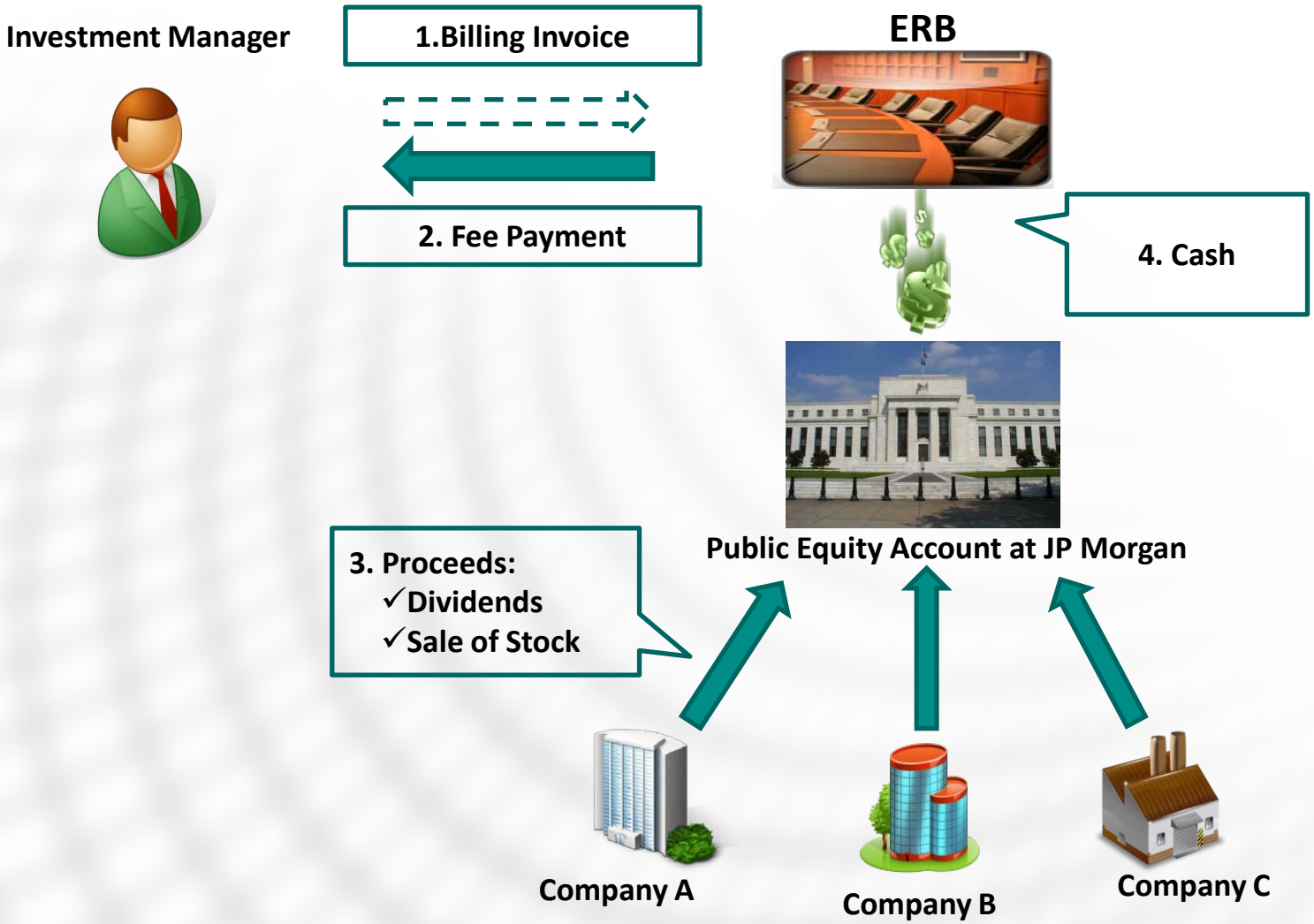
Alpha Potential

Market	Alpha Potential	ERB Approach	Cost
Large Cap U.S. Equity	Very Low	Internal - Index	Very Low <1 basis point (1/100%)
Int'l Developed Equity	Low	External - Index	Low – 5 basis points
Core Fixed Income	Low	Internal - Active	Very Low < 1 basis point
Opportunistic Credit	High	External - Active	High - Up to 1.5% management fee + 20% profit share over a hurdle
Private Equity	High	External - Active	High – Up to 2% management fee + 20% profit share over a hurdle

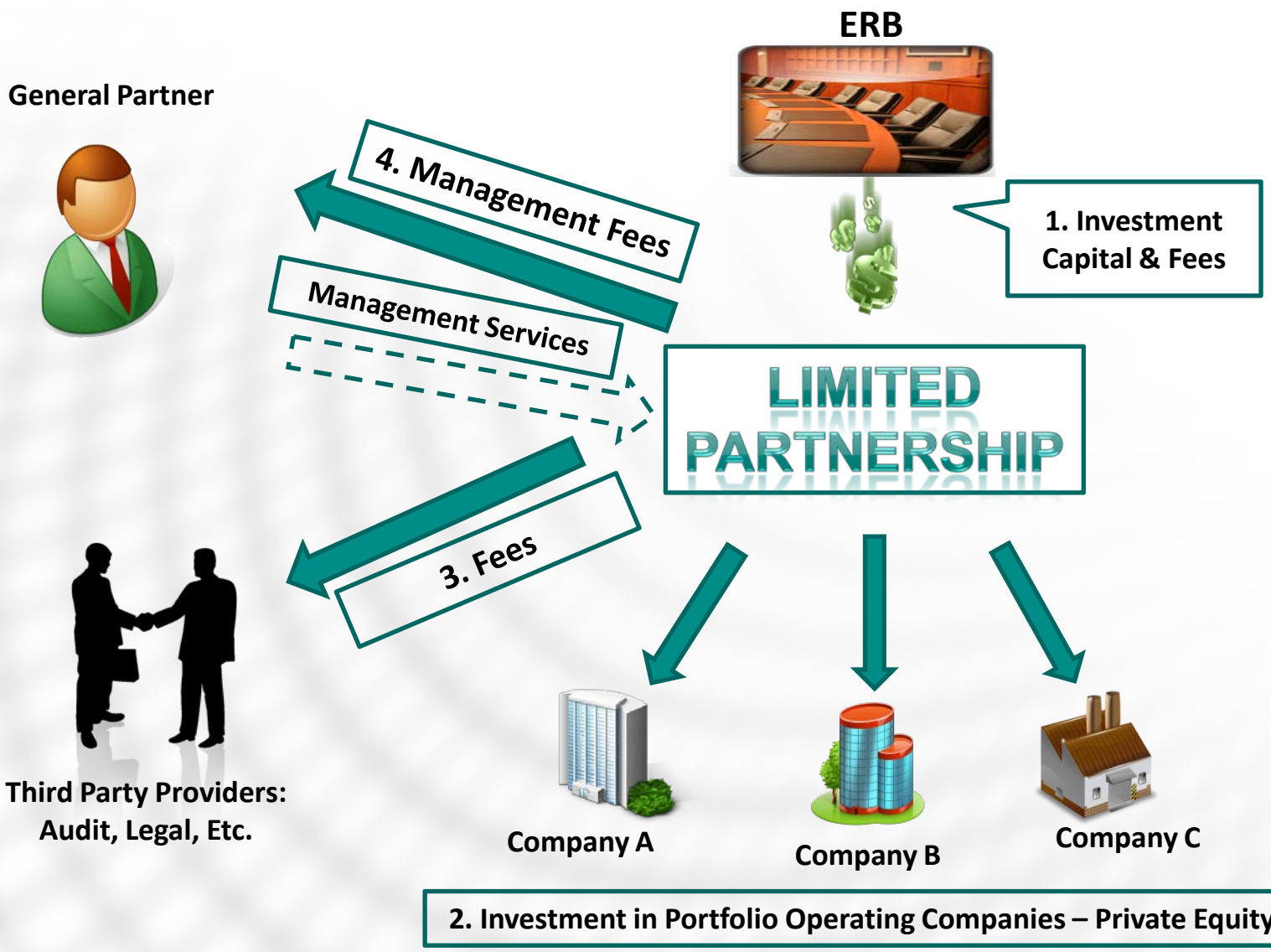
Public Markets – Initial Investment



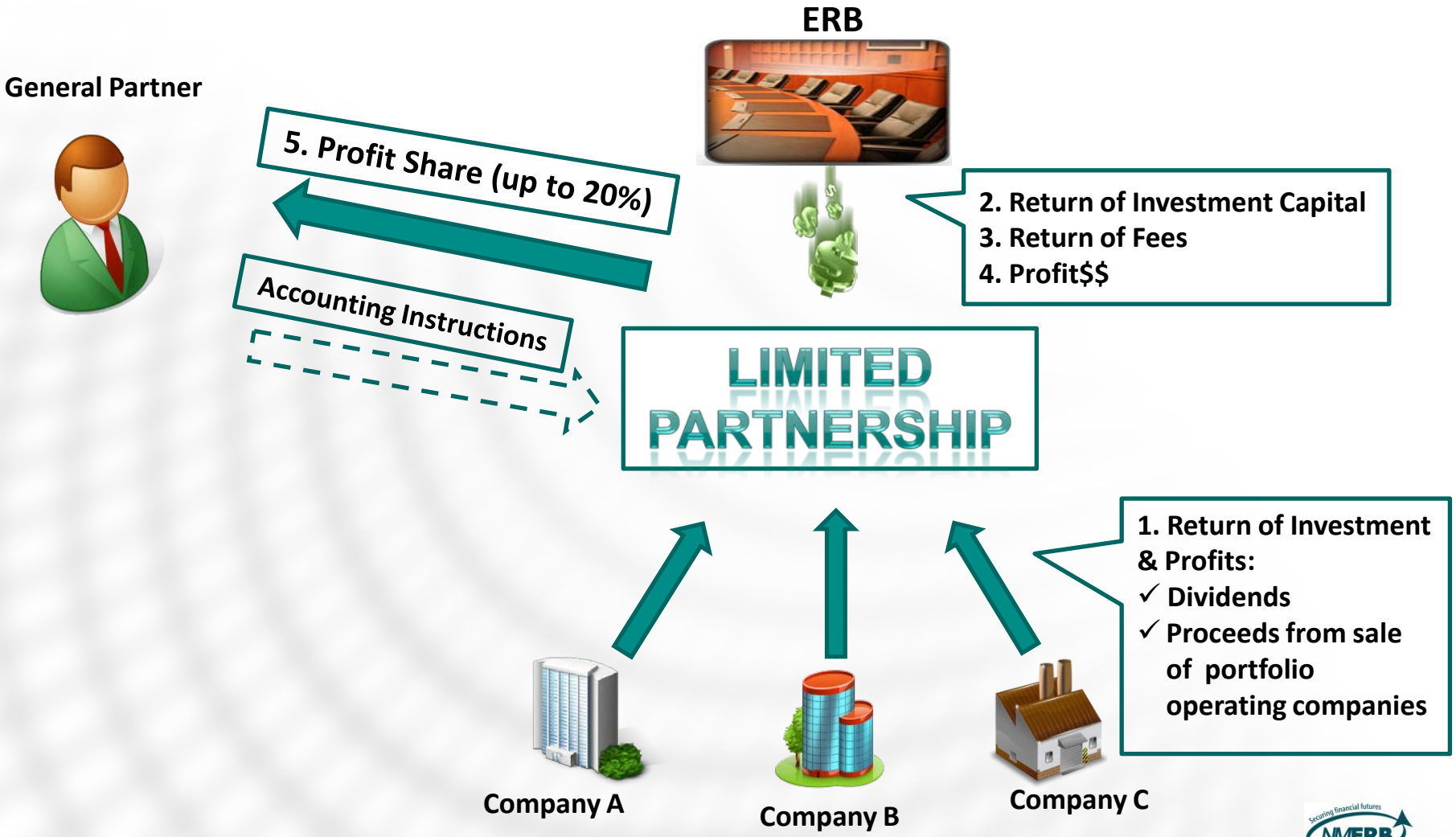
Public Markets – Return of Cash



Private Markets – Initial Investment



Private Markets – Return of Investment



External Investment Fees

External Investment Expenses – FY 2012	
Custodial Expenses (excluding securities lending)	$ 664,384
Investment Consulting Expenses	$ 1,600,386
Investment Manager Expenses:	
Domestic Equity	$ 1,876,542
Domestic Fixed Income	$ 4,754,400
Non-US Equity	$ 3,329,258
Non-US Fixed	$ 340,340
Alternative Investments	$ 44,943,152
Real Estate	$ 3,460,174
Other	$ 16,281,418
Total Investment Management	***$ 74,985,284***
Other Investment Expenses	***$ 1,465,454***
Total Investments Expenses	***$ 78,715,507***

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On-Budget Fees

On-Budget External Investment Expenses - FY 2012	
Custodial Expenses (excluding securities lending)	$ 664,384
Investment Consulting Expenses	$ 1,600,386
Investment Manager Expenses::	
Domestic Equity	$ 1,876,542
Domestic Fixed Income	$ 4,754,400
Non-US Equity	$ 3,329,258
Non-US Fixed	$ 340,340
Total Investment Manager Expenses:	$ 10,300,540
Other Investment Expenses	$ 1,465,454
Total On-Budget Investment Expenses, FY 2012	$ 14,030,764

Off-Budget Fees

Off-Budget External Investment Expenses - FY 2012		
	Expenses	Assets
GTAA	$ 10,724,859	$ 595,535,634
Hedge Fund of Funds	$ 2,186,407	$ 639,631,925
Infrastructure	$ 2,595,732	$ 99,244,848
Natural Resources	$ 774,420	$ 27,440,760
Opportunistic Credit	$ 27,698,518	$ 1,480,293,343
Private Equity	$ 17,244,634	$ 575,089,283
Real Estate	$ 3,460,174	$ 160,520,458
Total	***$ 64,684,744***	***$ 3,577,756,251***

Investment Goals

- Private Equity Goals:
  - Long-term net return in excess of public equities.
  - Secondary goal of some additional portfolio diversification benefits.
- Opportunistic Credit Goals:
  - Additional portfolio diversification.
  - Generate attractive returns that will lag public equities during bull markets.
- GTAA Goals:
  - Additional portfolio diversification.
  - Reasonably attractive net returns over time.

How Did We Do? Is it Worth the Cost?

Asset Class	1 Year	3 Years	5 Years
*Private Equity	17.8%	13.8%	5.2% Incomplete
*Opportunistic Credit	16.8%	9.4%	10.1%
*Global Tactical Asset Allocation (GTAA)	7.3%	14.3%	N/A
Public Equities: S&P 500	14.2%	12.7%	5.8%
Core Bonds: Barclay's Aggregate Index	3.8%	5.5%	5.5%

*Note: Returns are shown ***after*** the deduction of all manager fees.

Fees – Final Thoughts

- **ALL** of ERB's alternative assets are reported net of fees. This includes all off-budget fee categories listed on slide #29.
- All of ERB's traditional managers are reported **gross** of fees. This includes the on-budget manager fees of $10.3mm listed on slide #28.
- At the portfolio level, the deduction of traditional manager fees is not meaningful, resulting in a decrease to returns of 10 basis points (1/10 of a percentage point).