

Select Committee on Capital Financing and Investments
Answers to questions from June 27th meeting
Analyses on Investment Returns and Fees
September 14th, 2016

Wyoming State Treasurer's Office
Total Fund - Direct (Mgmt) & Indirect (Incentive) Investment Fees
FY 2015 and FY 2016

	FY 2015			FY 2016			
	Total Fees	Mgmt Fee	Incentive Fee	Total Fees	Mgmt Fee	Incentive Fee	Total Fees (as a % of 6/30 Market Value)
Wyoming State Total Fund	\$73,584,170	\$64,833,677	\$8,750,493	\$72,402,374	\$64,251,004	\$7,851,370	0.38%
% of Beginning WSTO FY Value	0.39%	0.34%	0.05%	0.37%	0.33%	0.04%	
Percentage of Total Fee	100%	88%	12%	100%	89%	11%	
US Equity	\$4,805,868	\$4,805,868	\$0	\$5,173,961	\$5,173,961	\$0	0.20%
State Street All Cap	\$195,501	\$195,501	\$0	\$322,832	\$322,832	\$0	0.02%
State Street S&P 500	\$111,113	\$111,113	\$0	\$0	\$0	\$0	0.00%
Epoch	\$1,141,604	\$1,141,604	\$0	\$1,458,389	\$1,458,389	\$0	0.48%
Lazard	\$1,219,648	\$1,219,648	\$0	\$1,624,712	\$1,624,712	\$0	0.51%
RBC	\$1,432,286	\$1,432,286	\$0	\$1,768,028	\$1,768,028	\$0	0.57%
Gabelli	\$505,718	\$505,718	\$0	\$0	\$0	\$0	0.00%
Global Equity	\$734,598	\$734,598	\$0	\$2,033,347	\$2,033,347	\$0	0.48%
Aarrowstreet	\$734,598	\$734,598	\$0	\$2,033,347	\$2,033,347	\$0	0.48%
International Equity	\$4,696,611	\$4,696,611	\$0	\$3,971,061	\$3,971,061	\$0	0.24%
Internal International Equity Portfolio	\$0	\$0	\$0	\$50,996	\$50,996	\$0	0.04%
Northern Trust*	\$288,314	\$288,314	\$0	\$267,647	\$267,647	\$0	0.03%
Manning & Napier	\$1,353,911	\$1,353,911	\$0	\$1,275,268	\$1,275,268	\$0	0.55%
Fisher Investments	\$2,166,247	\$2,166,247	\$0	\$2,015,616	\$2,015,616	\$0	0.46%
The Boston Company	\$890,139	\$890,139	\$0	\$361,534	\$361,534	\$0	N/A
Private Equity	\$13,417,748	\$11,839,658	\$1,579,089	\$11,897,394	\$10,603,451	\$1,293,942	2.22%
Access Venture Partners II	\$939,156	\$248,065	\$691,090	\$215,031	\$188,236	\$26,794	1.34%
Cheyenne Capital Fund	\$7,389,485	\$8,948,562	\$440,823	\$7,150,710	\$8,383,776	\$766,934	2.19%
Hamilton Lane Nowood Fund	\$1,729,868	\$1,862,031	-\$132,165	\$2,128,537	\$2,161,419	-\$32,882	2.74%
Neuberger Berman Sauger Fund	\$3,359,240	\$2,780,000	\$579,240	\$2,403,116	\$1,870,000	\$533,116	2.07%
Real Estate	\$7,141,703	\$6,360,193	\$781,509	\$11,726,105	\$7,995,226	\$3,730,879	1.39%
Carlson Lion Properties Fund	\$2,097,282	\$2,097,282	\$0	\$2,187,070	\$2,187,070	\$0	0.70%
UBS Trumbull Property Fund	\$1,479,948	\$1,117,901	\$362,045	\$2,062,483	\$1,541,338	\$521,145	0.77%
Comerstone Core Mortgage Fund I	\$82,615	\$82,615	\$0	\$68,994	\$68,994	\$0	0.66%
Heitman Value Partners II	\$30,810	\$30,810	\$0	\$22,350	\$22,350	\$0	0.71%
M&G Real Estate Debt Fund II	\$314,871	\$314,871	\$0	\$719,985	\$631,787	\$88,198	0.91%
Northwood Real Estate Partners IV	\$2,250,446	\$1,830,941	\$419,505	\$5,962,960	\$2,841,424	\$3,121,536	5.20%
TA Realty VIII	\$124,711	\$124,711	\$0	\$114,379	\$114,379	\$0	1.33%
WestRiver Real Estate Finance Fund	\$761,042	\$761,042	\$0	\$587,884	\$587,884	\$0	1.22%
Absolute Return	\$10,196,560	\$10,402,490	\$4,394,130	\$10,222,642	\$8,480,344	\$1,742,298	2.10%
PAAMCO	\$12,923,008	\$8,528,878	\$4,394,130	\$10,222,642	\$8,480,344	\$1,742,298	2.10%
Grosvenor Global Recovery	\$52,668	\$52,668	\$0	\$0	\$0	\$0	0.00%
Aurora I	\$765,624	\$765,624	\$0	\$0	\$0	\$0	0.00%
Aurora II	\$1,055,360	\$1,055,360	\$0	\$0	\$0	\$0	0.00%
Convertible Bonds	\$1,085,569	\$1,085,569	\$0	\$2,823,817	\$2,823,817	\$0	0.61%
Allianz Global Investors	\$3,085,569	\$3,085,569	\$0	\$2,823,817	\$2,823,817	\$0	0.61%
Fixed Income	\$21,917,360	\$22,921,695	\$1,995,725	\$25,270,905	\$24,186,619	\$1,084,230	0.22%
WAMCO Core Plus	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
C.S. McKee	\$1,101,235	\$1,101,235	\$0	\$1,088,998	\$1,088,998	\$0	0.14%
JP Morgan Core	\$2,259,624	\$2,259,624	\$0	\$2,300,895	\$2,300,895	\$0	0.10%
MacKay Shields	\$2,359,246	\$2,359,246	\$0	\$2,312,281	\$2,312,281	\$0	0.21%
Neuberger Berman Core	\$1,751,451	\$1,751,451	\$0	\$1,695,091	\$1,695,091	\$0	0.15%
PIMCO Core	\$3,977,174	\$3,977,174	\$0	\$4,120,188	\$4,120,188	\$0	0.18%
Wells Capital	\$1,291,016	\$1,291,016	\$0	\$1,256,295	\$1,256,295	\$0	0.17%
Neuberger Berman Credit	\$1,658,910	\$1,658,910	\$0	\$1,593,719	\$1,593,719	\$0	0.27%
Seix	\$1,736,561	\$1,736,561	\$0	\$1,754,619	\$1,754,619	\$0	0.29%
Grosvenor Siliery Lupine	\$5,845,596	\$3,848,871	\$1,995,725	\$6,317,560	\$5,233,330	\$1,084,230	1.98%
Investec	\$1,408,038	\$1,408,038	\$0	\$1,244,678	\$1,244,678	\$0	0.59%
Stone Harbor	\$1,367,361	\$1,367,361	\$0	\$1,445,412	\$1,445,412	\$0	0.71%
State Street TIPS	\$161,148	\$161,148	\$0	\$161,175	\$161,175	\$0	0.02%
Internal Fixed Income Portfolio	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
Cash & Cash Equivalents	\$942,752	\$942,752	\$0	\$1,016,486	\$1,016,486	\$0	0.10%
JP Morgan Cash Composite	\$942,752	\$942,752	\$0	\$1,016,486	\$1,016,486	\$0	0.10%

2016 was estimated by RVK using the

All other fees are based on actual quarterly fees paid and were provided by Investment Managers and records of the Treasurer's Office.
Mgmt fees are fees charged for the costs of running the investment. These include both fees paid via explicit invoice and fees paid directly out of the investment.
Fund of fund management fees shown include management fees for the fund of fund and underlying fund levels.
Incentive fees are fees that are dependent on the manager's performance over a given period. These fees are typically paid from a portion of investment profits.

Rep. Harshman, Sen. Kinskey and Rep. Byrd specifically asked about management fees, ways to save on fees, and possibly, could we manage these assets in-house?

- Economies of scale are a major factor in returns with Asset Managers.
- With 20 billion dollars, we are at a size that can take advantage of managing assets internally and reducing manager costs.
- This is not true for smaller funds.

Asset Size Matters!

NACUBO study showed:

- Institutions with assets over \$1 billion averaged a 7.7% return over the last 10 years in 2014-15.
- Institutions with assets under \$1 billion averaged a 5.93% return over the last 10 years in 2014-15.
- The State of Wyoming's return over this comparable period was 5.56%.
- If we were able to achieve the average return of Institutions over \$1 billion, this would have resulted in an increase of 2.1 billion dollars over the last 10 years.
- When compared to our peers I believe the majority of this underperformance is due to very low staffing levels and asset allocation differences.

The Current Investment Options

- Active vs. Passive
- Internal vs. External
- In-house vs. Passive

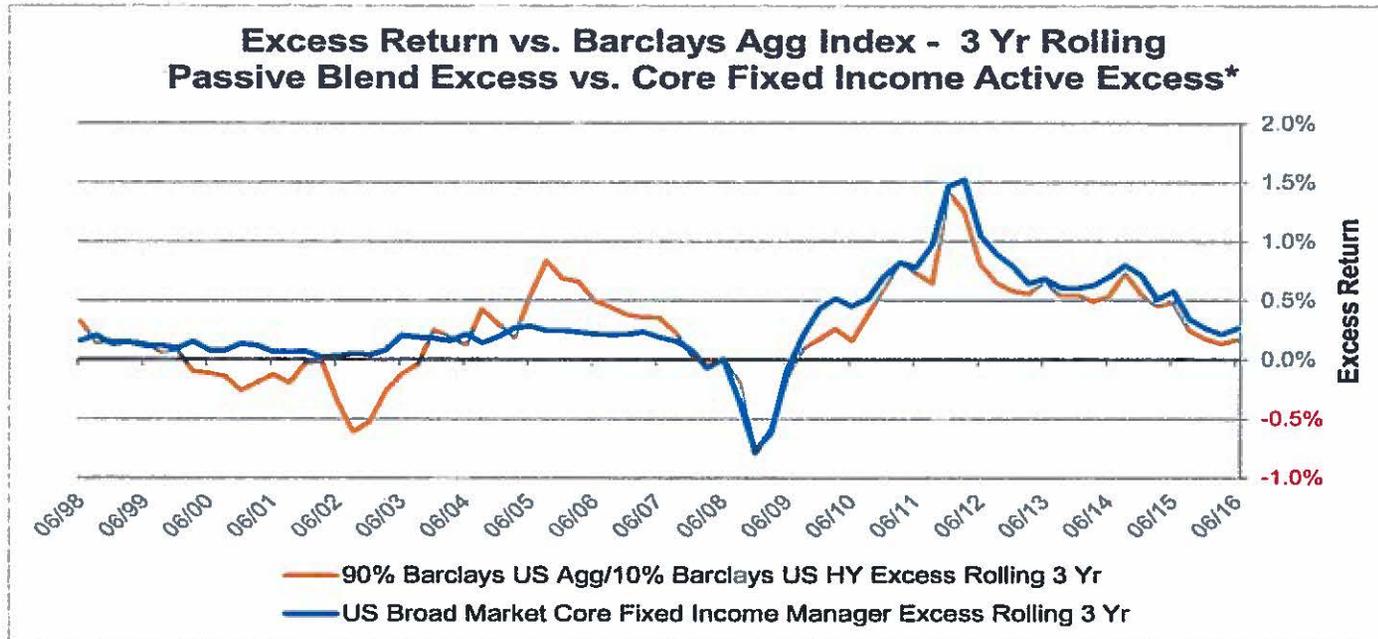
Active vs. Passive

- **Passive investing replicates a market index, providing pure “beta” exposure**
- **Active Management attempts to outperform a market index, providing “beta” +/- “alpha”**
- **Asset Class Characteristics Supportive of a Passive Approach:**
 - Large, efficient, liquid markets
 - High levels of research coverage of underlying investments
 - An easily replicable and widely recognized market index
 - Examples: Large Developed Market Equities, High Quality Non-Callable Fixed Income
- **Asset Class Characteristics Supportive of Active Management:**
 - Smaller, less efficient, less liquid markets
 - Lower levels of research coverage
 - Lack of replicable market indices
 - Strategies that attempt to deliver “alpha” without “beta”
 - Examples: Emerging Markets, Real Estate, Private Equity
- **Generally, you should only pay for active management where there is either significant evidence that managers can add positive alpha after fees, or where passive replication is not feasible.**

Source: RVK

Active vs. Passive

- Is it “alpha” or “beta”?
- Some active manager strategies can be replicated through re-structuring your approach to passive investment



*US Broad Market Core Fixed Income peer group data is provided by Investment Metrics

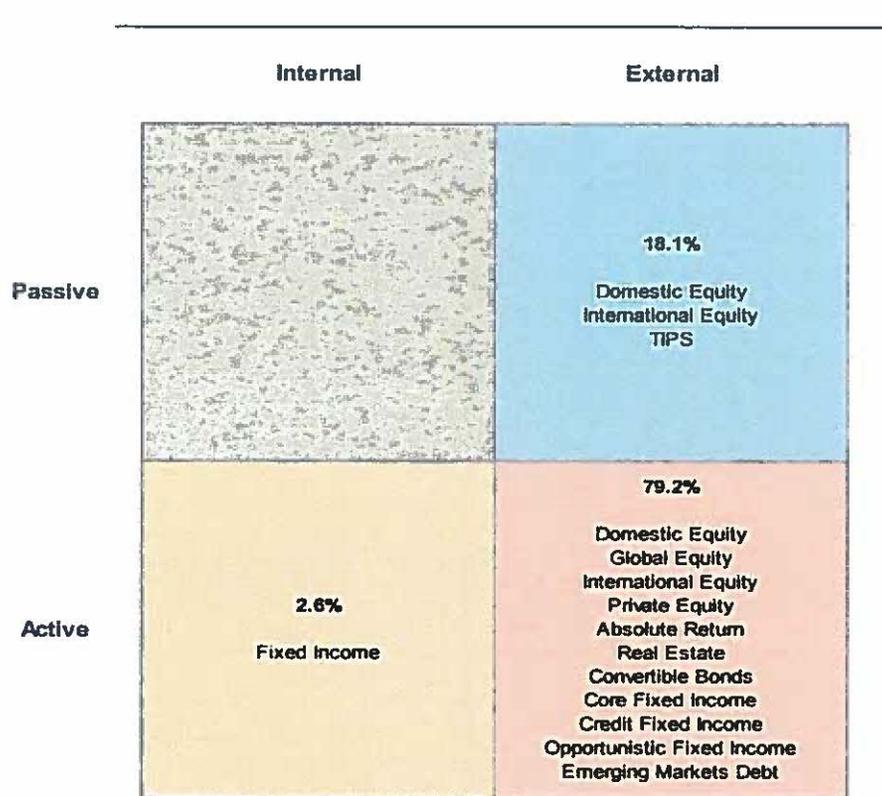
Source: RVK

Internal vs. External Management

When should assets be managed internally?

- When they can be managed internally at a lower cost than externally, without sacrificing returns.
 - Internally managed assets provide more flexibility and control, as well as a more disciplined internal management team.
 - Funds with assets under \$10 billion manage minimal internal funds, while funds with \$10 billion - \$20 billion manage approximately 14% internally, and funds over \$20 billion in assets manage approximately 27% of assets internally*.
 - Prime candidates for internal management tend to be focused on passive mandates in large liquid asset classes such as US equities, developed non-US equities, high quality non-callable fixed income.
 - Fund of fund manager responsibilities (manager selection and monitoring) within alternative asset classes such as hedge funds are also increasingly shifting to internal management among large funds.

Current Structure



Allocations shown are preliminary and as of June 30, 2016.

Portfolio Management Statistics

As of December 31, 2015

Asset Range	Actively Managed (%)	Passively Managed (%)	Externally Managed (%)	Internally Managed (%)
Over \$20B	75.39	24.61	73.35	26.65
\$10B-\$20B	74.71	25.29	65.69	14.11
\$5B-\$10B	73.18	26.82	99.84	0.16
\$1B-\$5B	78.95	23.05	98.44	1.56
\$500mm-\$1B	79.15	20.85	99.64	0.36
Under \$500mm	84.81	15.19	98.36	1.64
Wyoming State Treasurer's Office Permanent Funds	78.63	21.32	97.23	2.72

Portfolio (%)	Active Management		External Management	
	Public Fund Universe	Wyoming State Treasurer's Office Permanent Funds	Public Fund Universe	Wyoming State Treasurer's Office Permanent Funds
60 to 100	12	0	89	0
50 to 69	73	0	11	0
10 to 49	2	0	7	0
Less than 10	1	0	1	0
Total Funds Reporting	88	0	88	0

Source: RVK

In-House vs. Passive

Example, the S&P 500

- A passive fund can replicate this index and charge about 3 basis points. This seems low but that equates to \$300,000 for every \$1 billion invested. Smaller funds do not have the size or staff to buy and manage the weights of 500 stocks. With \$4 billion invested in domestic and international stocks, we could do part of this investing at a lower cost than passive investing.
- Passive investing has its advantages, but when funds reach a critical size, large asset managers are able to replicate the passive management internally.
- Pros - Replicate the passive strategy but at a fraction of the cost.
- Cons - Very computer analytical and labor/time intensive.

What assets and potential savings could we achieve by managing more funds in-house?

Asset classes that potentially could be managed in-house:

CASH

- We are currently in the process of changing our sweep account to a higher yielding fund.
- Savings = \$500,000 - \$1mm. This depends on our cash holdings.

Internally managed cash account

- Most large asset managers and corporations have short term or cash management groups. Instead of having JP Morgan manage our cash and sweep balances, we could do this in-house for a potential savings of \$600,000.

What assets and potential savings could we achieve by managing more funds in-house? – Cont'd

Passive Domestic and International equity

- We currently pay between 3 and 10 bps.
- Fees = \$640,000

Absolute return/Hedge funds

- We are currently being charged 85 bps. by our hedge fund managers.
- Fees = \$4.1mm

Fixed income

- Many parts are replicable like Government, Corporate and Agency bonds. MBS, ABS and CMBS are very difficult to manage internally.
- Fees = approximately \$10mm.
- One advantage of managing the straight or non callable/pre-payable bonds in-house would be the control of Capital Gains and Losses.

Tips

- \$160,000 in fees. We could replicate this portfolio internally.

In many cases, funds should not or could not be effectively managed in-house

P/E

- We are currently being charged between 35 and 45 bps. for our new P/E managers. We also pay approximately 1.1% in management fees to Cheyenne Capital. These fees were agreed upon in 2003 and are not in line now with current market convention.
- We would need a significant increase in staff to manage P/E in-house.

Real Estate

- We would need to directly invest in real estate investments. This would entail a much larger staff and a change to our investment policy that prohibits direct ownership of real estate assets.

In many cases, funds should not or could not be effectively managed in-house – Cont'd

Convertible Bonds

- These bonds are illiquid and very difficult to replicate for a low cost. They are also difficult to implement in a passive strategy. We currently pay 65 bps in management costs.

Credit and Emerging Markets

- These assets would be difficult to replicate because the economies of scale and credit analysis involved.
- Fees vary from manager to manager.
- This is an area where active management should be able to produce Alpha.

Questions from the Committee

Chairman Perkins wanted to know: “Where is the sweet spot using a Sharpe ratio”?

- A Sharpe of 1 or above is considered very good in normal markets.
- In a low return environment, Sharpe ratios tend to fall (higher risk).
- Holding larger amounts of cash to reduce your volatility is sensible, since cash has a lower opportunity cost.

Questions from the Committee – Cont'd

Rep. Harshman asked for research regarding the specific resources of the Wyoming Retirement System. Specifically, he wanted to know if “WRS is below, above or even with their resources”. He also wanted to know if there are any economies of scale with them?

- WRS has 6 investment professionals plus staff. They break down their staff to the following sectors:
 - Fixed Income - 1 manager and one analyst
 - Equities - 1 manager and one analyst
 - Alternatives - 1 manager
 - 1 CIO
- They also “outsource” many functions like trading, legal and consultant specialist. This is a very common practice as it enables the fund to act quickly and invest or divest in funds when the opportunity presents itself.

Rep. Harshman asked: “How many states combine treasury and retirement?”

US SWF Peer Group - Board Composition

		Number of Boards Which Oversee:					
	Median Board Size	Permanent Funds Only	Permanent + Retirement	Permanent + Insurance/Other	Boards With Governor	Boards With State Treasurer	Boards With Investment Expertise*
US SWF Peer Group	9	11	1	1	6	7	9
		Permanent + Retirement + Insurance/Other					
		3					

SWF Peer Group consists of 16 members:

- Alabama Trust Fund
- Alaska Permanent Fund
- Arizona State Treasurer
- CLO of Oklahoma
- Idaho Endowment Fund Investment Board
- Louisiana Education Quality Trust Fund
- Minnesota Permanent School Fund
- Montana Board of Investments
- New Mexico State Investment Council
- North Dakota Legacy Fund
- North Dakota State Land Board
- Texas Board of Education
- Texas University Fund
- Utah State Trust Lands Administration
- Washington State Investment Board
- Wyoming State Treasurer’s Office

Source: RVK

*Investment Expertise refers to boards which have appointed members who have a professional background in investments.

US State Retirement Peer Group - Board Composition

		Number of Boards Which Oversee:					
	Median Board Size	Retirement Funds Only	Retirement + Permanent	Retirement + Insurance/Other	Boards With Governor	Boards With State Treasurer	Boards With Investment Expertise*
State Retirement Peer Group	11	39	1	4	5	28	31
		Retirement + Permanent + Insurance/Other					
		6					

- US State Retirement Peer Group consists of 50 boards with oversight of State Retirement System assets.

Source: RVK

*Investment Expertise refers to boards which have appointed members who have a professional background in investments.

Sen. Wilson - Update on Constitutional Amendment A