Joint Revenue Committee

Historical Investment Returns

AUGUST 24TH, 2020

WYOMING TREASURER'S OFFICE

"You are entitled to your own opinion. But you are not entitled to your own facts." Daniel Patrick Moynihan

- Co-Chairman Case asked me to respond to criticism of the state's investments that appeared in a series authored by a WyoFile reporter. This reporter claimed that the state's investment decisions since 2009 have cost the state "Billions." The articles are fraught with misstated "facts" and lack credible analysis.

Wyoming funds have vastly different requirements and restrictions than the other funds mentioned. I intend on addressing:

- There is no consideration or awareness of the unique facts and circumstances of Wyoming's equity investments.
- The SLIB must follow guidelines and asset allocations that are constitutionally and statutorily mandated.
- The Treasurer's office must follow the rules and laws set by the State Constitution, State Legislature and the SLIB. The SLIB sets the asset allocation and the focus of the investment office is to produce a return above the benchmarks (alpha) set by the SLIB.
- Use of highly selective, cherry picked, and mostly inappropriate comparisons.
- Significant concept confusion.
- Misstatements of facts.

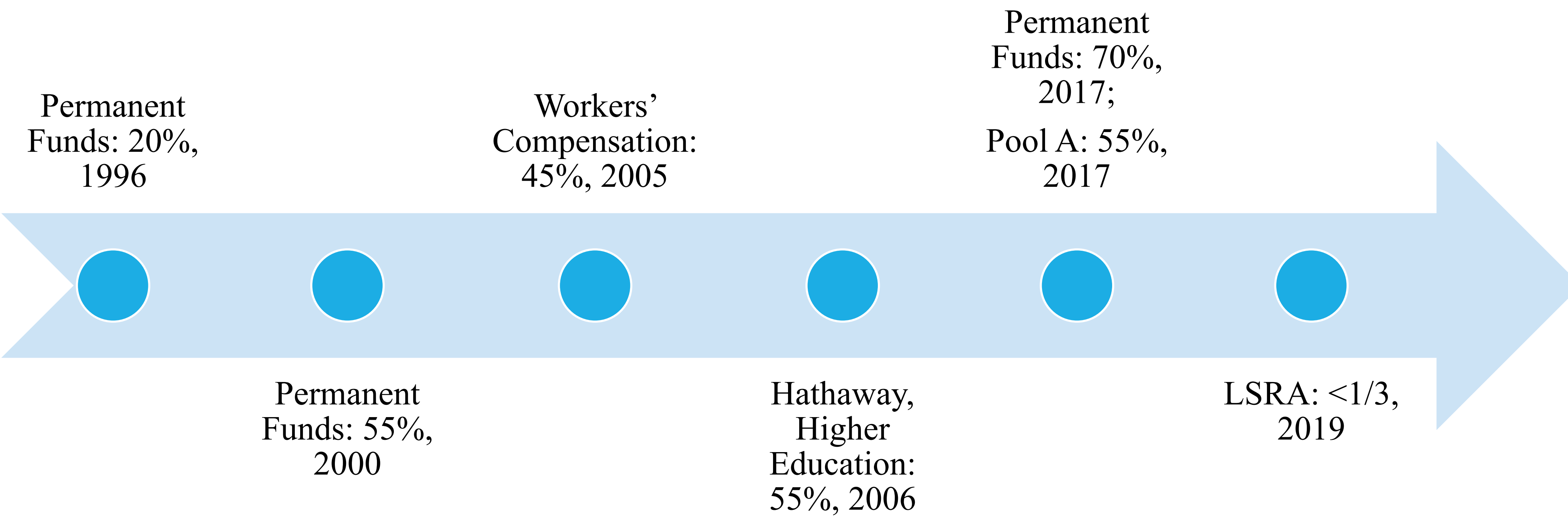
Returns in Question?

The main criticism was on performance from June 30 2009 to June 30 2019. The article compares Wyoming returns vs the table to the right.

The first three articles use highly selective, cherry picked, and mostly inappropriate comparisons.

- The US 60-40 portfolio during this time frame was one of the best returning periods over the last 50 years. All of the funds that are compared had a significantly higher amount of equity than Wyoming over this time period.
- The State Loan and Investment Board had constitutional limits as to what they could invest in. The state had maximum equity exposure of 20% in 1996, 55% in 2000 and 70% in 2017. The other institutional funds mentioned have equity allocations that range from 70% to over 95%.
- Comparison to other Sovereign Wealth Funds (SWF), Pension and Endowments that do not have the same objectives or constraints is inappropriate.
    - ➢ Our funds are inviolate. Pensions, endowments, AK and NM can spend principal when they have a shortfall or need liquidity. We cannot and, therefore, need to have a higher degree of liquidity and lower risk (less volatile). Assets with higher expected total returns typically are less liquid (i.e. private equity).

Timeline of equity investment percentages allowed in Wyoming funds



Cherry Picking Data: Examples

- What about other Sovereign Wealth Funds? Most recent available data shows the following 10 year annual percentage returns:

	10 Year (gross of fees) As of March 31, 2020
CLO of Oklahoma	4.95
Montana BOI	4.45
North Dakota SLB	5.05
Utah SITFO	6.13
WSTO - CSPLF	5.20
WSTO - PMTF	4.98

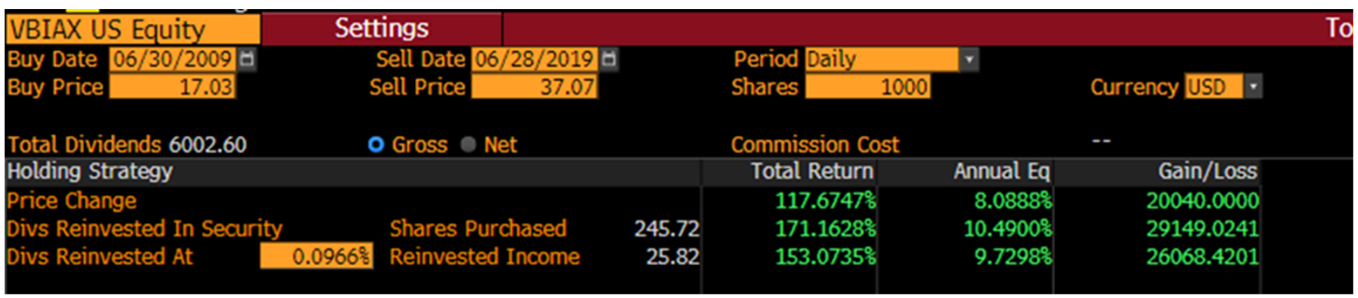
- An important example of framing comes from the 2009 Annual Report which states the portfolio "has produced the result that of 85 public funds across the United States, the Wyoming portfolio was ranked #5 in total return for the year ending June 30, 2009, and #2 when measured over three years…"

- The SLIB investment policy from 2009 states that the portfolio is to be invested "in a manner that strives for **maximum safety**, **provides adequate liquidity to meet all operating requirements** and achieves the highest possible investment return consistent with the **primary objectives of safety and liquidity**."

- Comparing fund returns (and not risk, we will address that later) over one period is fraught with errors and does not provide an accurate portrait of how the state's funds are performing.

Cherry Picking Data: Examples

- Misrepresentation and inappropriate comparisons of returns:

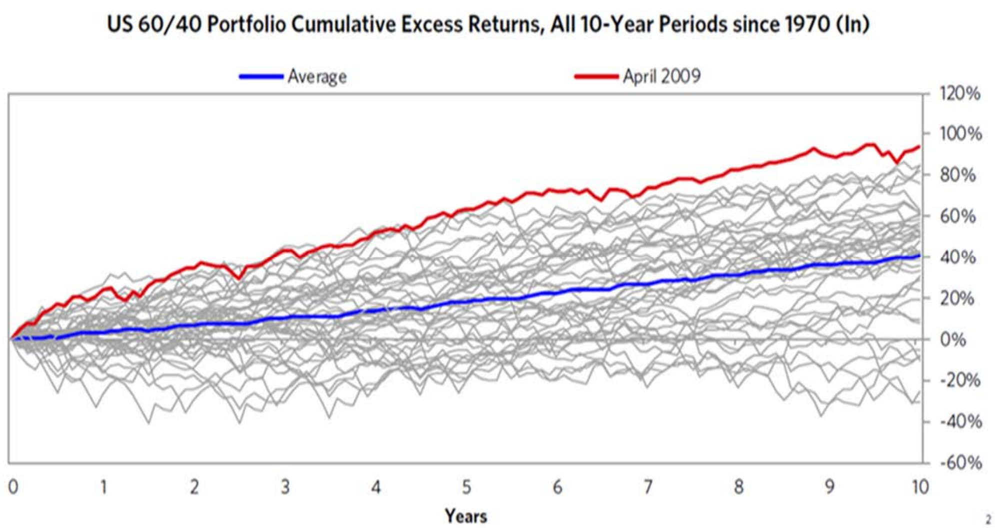


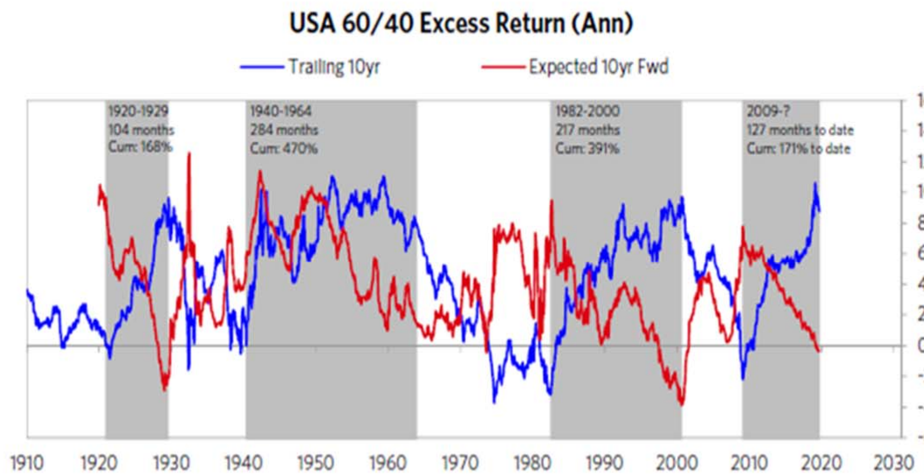
- The state takes all interest income and dividends from its investments on a monthly basis. This is what the state operates on.

- The article proclaims that Vanguard's 60/40 fund would have returned 10.5% but that is with dividends REINVESTED in the security. If they were spent, like Wyoming's portfolio, the return would have been 8.08% (see above). The author even concedes that the state's returns would have been 1.1% higher if we were allowed to invest in a 60/40 portfolio therefore eliminating the gap in returns (excluding all other considerations).

Why not just index it?

- The articles' primary recommendation seems to be that we would be better to just index the fund to a 60% US stock 40% US bond portfolio like the Vanguard Fund.
- However, the time frame the author points to was the best time frame for the last 50 years! What is the probability of this repeating?
- Over the last 100 years, when the 60/40 does well, returns over the next 10 years are very poor. I am not forecasting the future. It is simple math and probabilities. 10-year Treasuries are at ALL TIME lows while US equities are in the 10^{th} decile in valuation terms. From a historical perspective, this does not bode well for returns over the next 10 years.

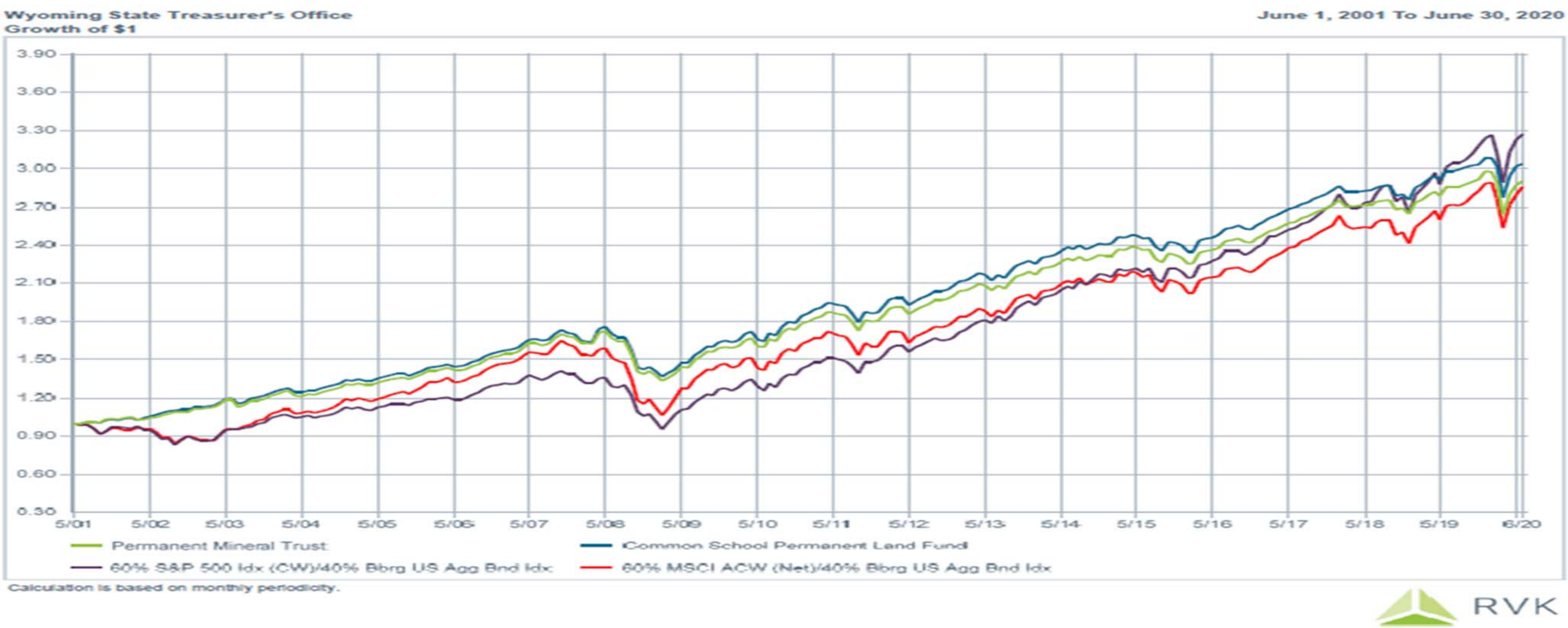




Source Bridgewater-presentation to Capital Finance Committee

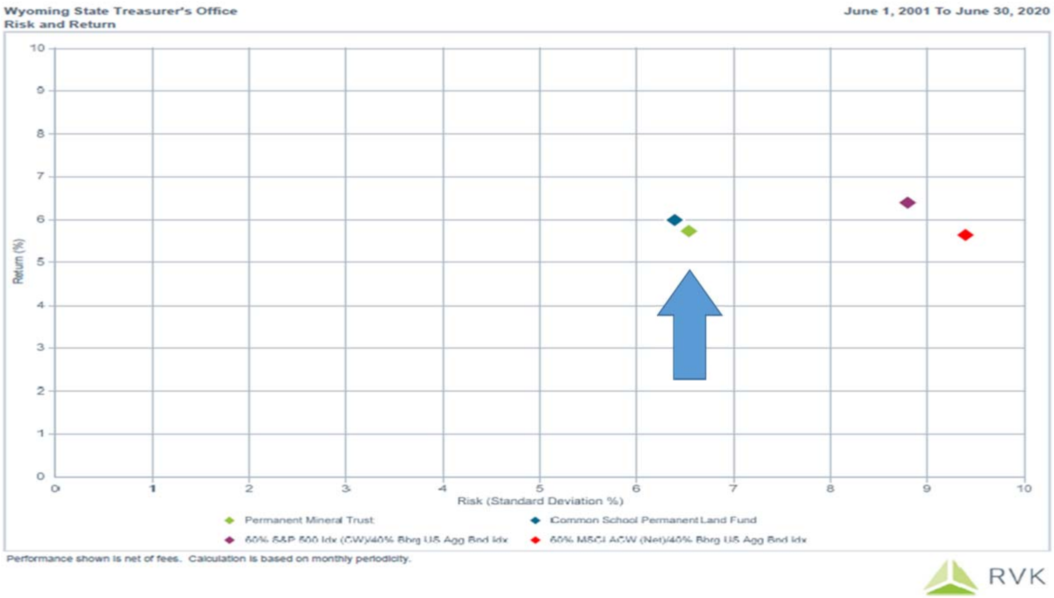
What about other time frames?

- Other than the last two years, both of Wyoming's permanent funds outperformed the US 60/40 Index and is above the MSCI ACW 60/40 Index. The vast majority of institutional investors use the MSCI ACW Index. Very few Institutional investors would only invest in a 60/40 portfolio. Why?



RISK! Portfolio diversification is the founding principle of modern portfolio theory and capital asset pricing models.

- Wyoming's Investment Policy objective is:
  "It is the policy of the Board to invest public funds of the State in a manner that strives for the highest possible **<u>risk-adjusted total return</u>** consistent with an appropriate level of **<u>safety, liquidity, and consideration of the unique circumstances for each fund</u>**."
- What about the risk adjusted return?
  The chart below shows how superior the risk adjusted return of the state's portfolio are (blue arrow). This is what diversification is all about. WSTO strives for a mix of assets that have the highest risk adjusted return. It is not only smart, it is our mandate. Yes, we can get higher returns, but what about the higher expected losses that will occur with the higher risk?



Why not just index it?

The article suggest that by indexing, we would have superior performance.

- The vast majority of the asset classes do not have investable index funds. We would be forced to own a 60/40 type of portfolio.
- Over the past five years Wyoming has changed its asset allocation and already utilizes passive indices extensively in the asset classes where they are liquid and low cost (stocks and bonds).
- Currently: 90% of US equity is passive, while 49% of non-US equity and 52% of MLPs are passive (6-30-20).

We currently only manage fixed income funds internally. Internal equity management should start next quarter.

- Fixed income, which has a significant portion managed internally, helps us to lower our fees and has a lower cost than passive (the author notes these funds are all solidly above the indices). If we produce alpha, why would you index them?

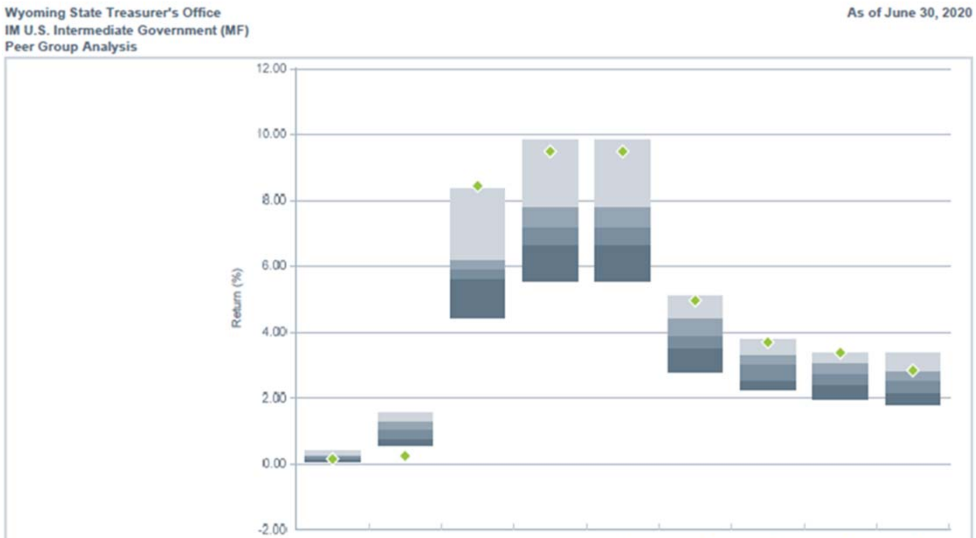
Why not just index it?

- In the table, on the right, is the largest fund we manage internally. If you index it, you only get the index minus fees.

- We manage government bond portfolios internally. These are the most difficult indices to beat as shown below. Funds that underperform their benchmark:

Fund Category (%)	Comparison Index	5 YR (%)	3 YR (%)	1 YR
Government Long	Barclays Long Government	100.00	98.21	97.96
Government Intermediate	Barclays Agg	100.00	84.21	68.75
Government Short	Barclays 1-3 Year Govt	82.76	84.00	73.08

(SPIVA)



	MTD	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
◆ Internal Intermediate Govt Fixed Income Portfolio	0.14 (81)	0.26 (100)	8.46 (3)	9.51 (7)	9.51 (7)	4.96 (11)	3.69 (9)	3.37 (4)	2.86 (24)
5th Percentile	0.42	1.56	8.35	9.85	9.85	5.09	3.77	3.36	3.36
1st Quartile	0.30	1.30	6.22	7.83	7.83	4.46	3.33	3.06	2.85
Median	0.24	1.07	5.92	7.22	7.22	3.90	3.03	2.74	2.57
3rd Quartile	0.16	0.79	5.63	6.67	6.67	3.54	2.53	2.44	2.20
95th Percentile	0.09	0.56	4.47	5.57	5.57	2.80	2.26	1.96	1.79
Population	65	65	65	65	65	61	54	53	35

Performance shown is net of fees. Parentheses contain percentile ranks.

Why not just index it?

- Passive management only makes sense if the portfolio does not produce Alpha, or a return above the benchmark. As you can see, the one year Alpha performance was the best the fund has accomplished over a 1,3,5,7 or 10 year period. The 35 bps of outperformance equates to an additional $77 million dollars that state would not have if the funds were indexed.
- By making the assumption that the Vanguard 60-40 fund will outperform our current diversified fund, the author is implying:
  - US equities will outperform international equities.
  - Public markets will outperform private markets.
  - The US dollar will continue to outperform international currencies.
  - US bonds will continue to rally (rates would need to go negative by ~5% to have similar returns).
- Again, we do not try to forecast the markets. We use quantitative statistical modeling to look for probabilities and mean reversion. What is the risk adjusted return by investing in this asset?

Wyoming State Treasurer's Office
Asset Allocation & Performance

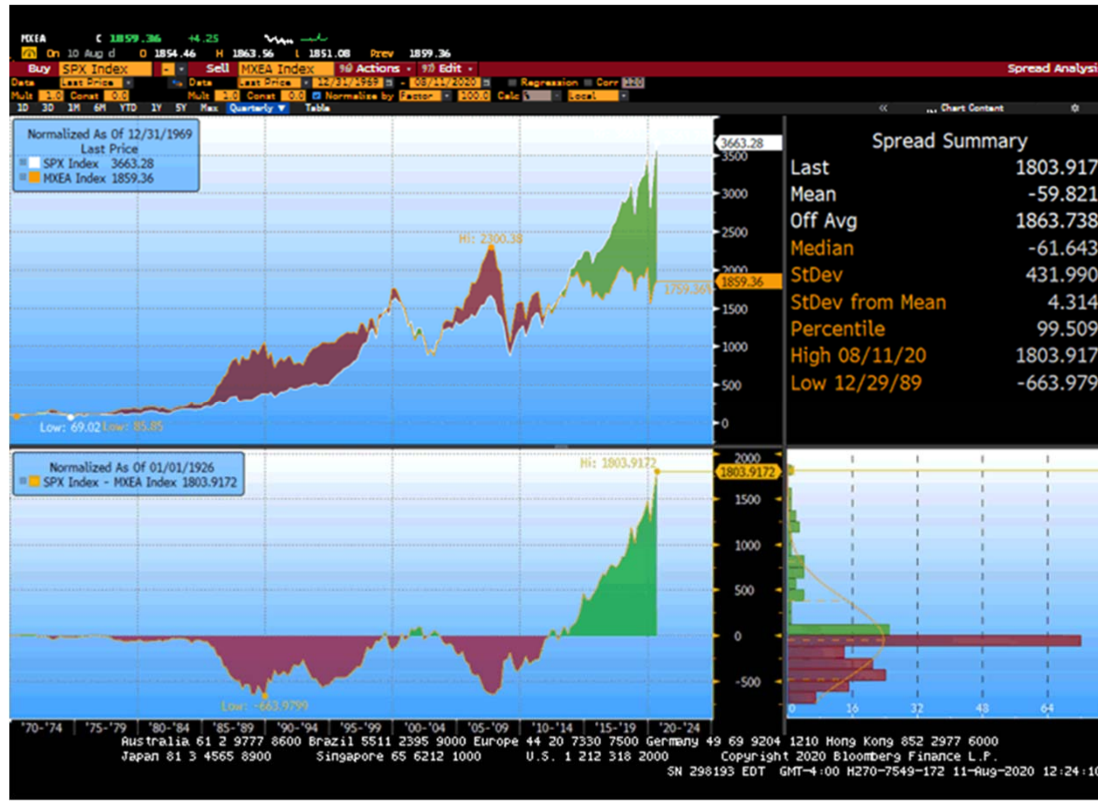
As of June 30, 2020

	Allocation		Performance (%)								
	Market Value ($)	%	MTD	QTD	CYTD	FYTD	1 Year	3 Years	5 Years	7 Years	10 Years
Total Fund	22,669,982,870	100.00	0.83	7.25	-0.69	2.63	2.63	3.99	3.99	4.48	5.12
Wyoming State Custom Index			0.70	7.34	-0.94	2.28	2.28	3.85	3.92	4.41	4.95
Difference			0.13	-0.09	0.25	0.35	0.35	0.14	0.07	0.07	0.17

Narrative from Wyofile: Investing outside of the US is a poor strategy.

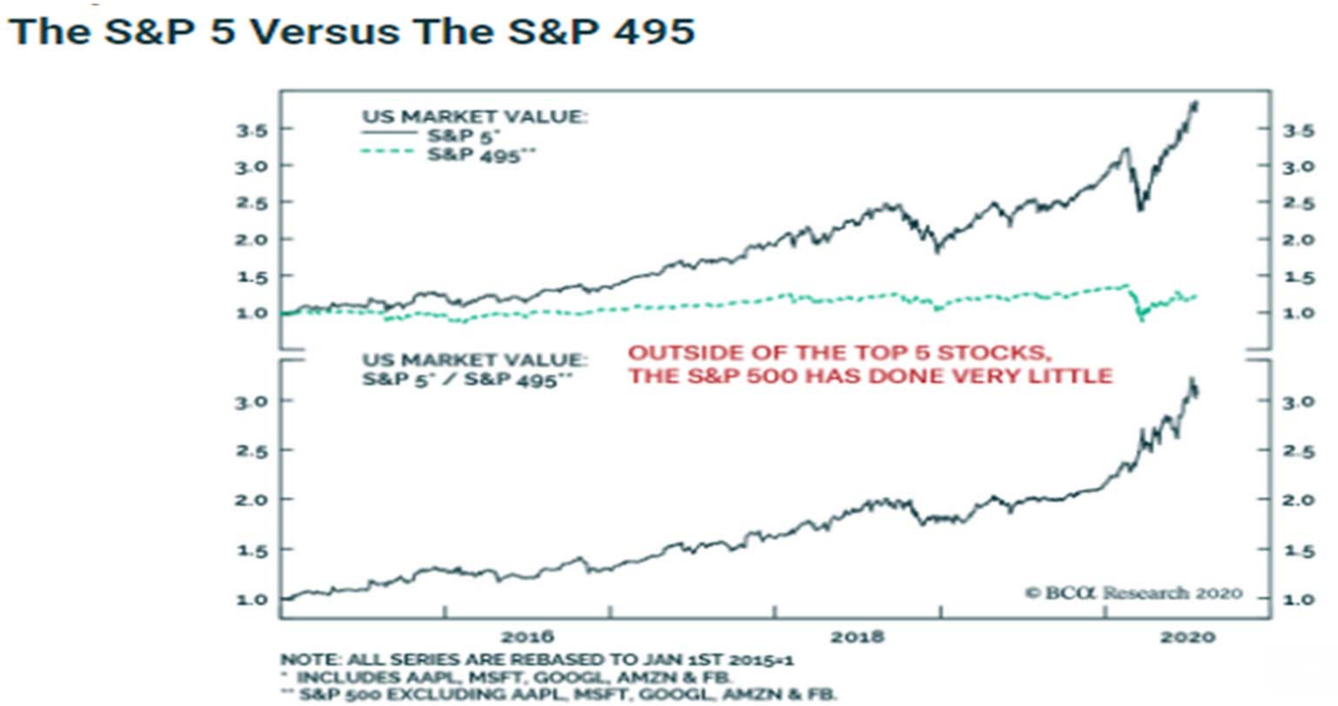
To the right is the difference between US stocks and International stocks over the past 50 years:

- Again, the author is cherry picking data and only looking at returns over the last 10 years.
  The bottom left chart shows green when the US outperforms international and is red when international outperforms the US. Over the past 10 years, the US has had a significant outperformance. It is now 4.3 standard deviations from its mean. If normally distributed, this move statistically happens approximately once in 2,600 years!
- This is one of many reasons why the SLIB increased our exposure to international equities. We believe it is highly likely we will see, at least, a partial mean reversion where international stocks do better than US stocks. International stocks are cheaper and have a higher dividend.



Why have US stocks done so well?

Five US stocks have significantly outperformed in the S&P 500 and leadership is narrowing. The top five stocks in the SPX (AAPL, MSFT, AMZN, GOOGL & FB) have gone up roughly four fold, or 288%, over the past 5 ½ years. The S&P 495 market cap has risen a mere 23%. Tech plus 4 stocks are now ~ 40% of the S&P 500.



What about the US Dollar?

The dollar has had a very good run. It rallied approximately 40% over the past 10 years. Throughout history, dollar declines usually last 7-11 years. If the dollar bull run is over, US stocks and bonds, that are denominated in dollars, could underperform international assets.

Concept confusion

- The author makes numerous false statements about the level of stock ownership of the state's funds. He writes that only US large cap stocks are equities. The state has defined equities to include all equities or stocks. Equity instruments are defined as US large and small cap stocks, international stocks, MLPs, preferred stocks, private equity, funds that invest in equities (e.g. hedge funds) and funds that use leverage (e.g. real estate).

- At the end of June, the PMTF had approximately 64% of its investments in equities. In the permanent funds, we are 6% under the 70% total equity allowed. The SLIB determines the asset allocation and the investment staff tries to produce Alpha above the returns benchmarks.

- Having a large percentage of equities is great when the market goes up but…*Norway's Sovereign Wealth Fund Loses $21 Billion in First Half. The Government Pension Fund Global lost 3.4%, underperforming a benchmark index, largely thanks to its roughly 70% allocation to equities. (source-Pensions and Investments)*

Misconception: WSTO pays high fees

This table was prepared for SLIB two years ago but the management fees are similar. As you can see below, we have continued to lower our fee to 22.6 bps. This has produced an estimated savings of $25mm in 2020.

Projected Fee Savings: FY 2020

- The AUM adjusted management fee uses FY '20 AUM as the basis to calculate the FY '16 fees. This allows for an apples to apples comparison.

		AUM (in Billions)	Mgmt. Fee (in Millions)	Basis Points	AUM Adj. Mgmt. Fee (in Millions)
FY 2016	Actual	$19.2	$66.7	34.7	$72.8
FY 2020	Estimate	$21.0	$47.4	22.6	$47.4
Estimated Savings:					$25.4

	Annual Asset Mgmt. Fees (%)	Passively Managed Assets (%)	Internally Managed Assets (%)	Private Assets (%)	AUM ($M)
Wyoming State Treasurer's Office	**0.29%**	**15%**	**16%**	**10%**	**$20,586**
Colorado PERA	0.37%	22%	59%	17%	$48,995
Idaho Endowment Fund Investment Board	0.38%	39%	0%	7%	$2,281
Montana Board of Investments	0.54%	31%	23%	20%	$16,945
New Mexico State Investment Council	0.65%	27%	0%	19%	$23,816
Utah School & Institutional Trust Funds	0.56%	3%	0%	14%	$2,574
Wyoming Retirement System	0.61%	28%	0%	12%	$8,496

Blatantly false

- "Wyoming must churn investments because without regular realized gains, little income exists to distribute to the Legislature." Furthermore, "Fleming, the state's chief investment officer, has bizarre budgeting power that he never requested…" or "…led to Wyoming …on selling winning stocks quickly."

  - This is completely false. I do not have the authority nor have I ever sold an asset to realize a capital gain so the state has more to spend. Not one legislator or elected official has ever asked me to realize a gain. Our realized gains come from changing managers and asset allocation that must be vetted by the IFC and approved by the SLIB. We currently have approximately $900mm in unrealized gains. If there ever was a time that someone would want to realize gains, it would be now.

- The author states, "Fleming, a Wyoming native and Harvard-educated financier who once ran the investment bank Barclays…the bank Wyoming is paying $2.5 million to assess a massive land purchase."

  - The author implies that the State of Wyoming paid Barclays bank $2.5 million dollars because I was the former CEO of Barclays bank PLC. I was the CEO of Barclay Investments "a 77 year old investment firm in NY". Barclays Bank PLC is a 340 year old institution which has 1.4 trillion dollars in assets, is one of the largest money center banks in the world, and is based in London with 85,000 employees globally.

Instead of looking at what could have been done 11 years ago, look at what has been done over the last five years:

- Not one individual from the SLIB or investment team were involved in these decisions in 2009. The current SLIB and Treasurer clearly understand the issues we face and improving our returns and structure has been our main goal.
- Governor Gordon started the process by working to pass Amendment A and institute an investment funds committee. Treasurer Meier has been working to change our structure to have 10 separate funds and asset allocations, implementing modern accounting and risk systems.
- Internal management has grown from ~$500mm in 2009 in one portfolio to ~$6bn in 2020 in four portfolios.
    - Trading has been modernized: transitioned from manual settlements to electronic settlements.
    - Alpha production has been positive.
- The finance staff has added considerable expertise to facilitate internal trading and cash flow management.
- Automated and segregated accounting via JPM Plan Sub-Accounting: 2019 was the first year we were able to separate our funds into 10 separate accounts.
- Performance compensation plan: this plan is about as black and white as it gets. There is no grey. We either produce Alpha or we did not.

What did the author get right and/or what can we do to improve our process?

- Our funds can only spend interest income, dividends and realized capital gains. With interest rates and dividends very low, our ability to fund the state's spending needs will be limited. Equity returns are expected to be much lower than the 30-year average of 7.9%.
- 5% spending policies, that can only be paid by interest income, dividends and realized capital gains, are very high in the current low yield environment.
- Our fund reserves are small and frequently tapped by the legislature. Our reserve funds are small compared to other funds that have spending flexibilities. This requires us to have more liquidity (cash and bonds) than other funds.
- Remove the investment function from a political process. Both AK, NM, and other Sovereign funds are state owned corporations. The board usually consists of legislators, elected officials and outside investment professionals.
- Continue to fund the "backbone" of our investment group. This includes investment professionals, risk systems and accounting systems and people.
- Allow the investment staff to focus on investing.