



# Alaska Permanent Fund Corporation

## Reducing Risk, Increasing Return

### Background

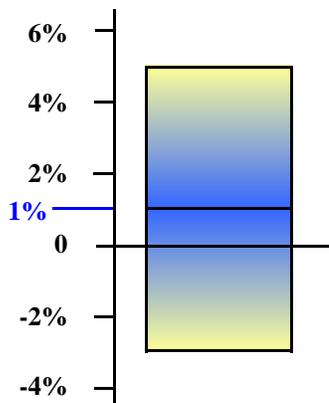
AS 37.13.120 contains a “legal list” of allowed investments for the Alaska Permanent Fund.

The Board of Trustees recently asked two consulting firms, Callan Associates and RV Kuhns, to determine the list’s impact on the Fund’s potential investment returns and risk. These firms found that the Fund may be taking on greater risk without the promise of commensurate returns under the restrictions in the legal list.

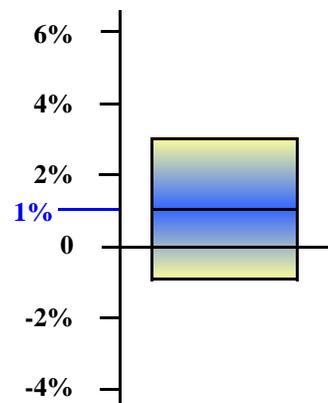
### What is risk? Standard deviation? Volatility?

Risk is defined as the measurable possibility of losing value on an investment. It is expressed as the standard deviation above and below the return, the range of possible returns. In the example on the left, 4% is the standard deviation.

Expected return of 1%  $\pm$  4%



Expected return of 1%  $\pm$  2%

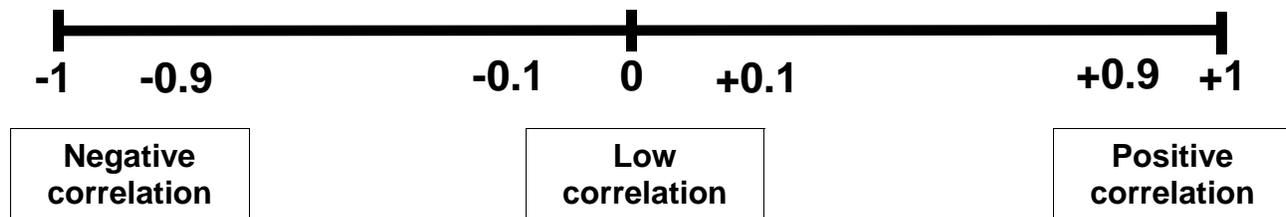


Volatility describes the level of risk for investments, from individual securities to investment strategies to a total portfolio. The returns on highly volatile investments can swing wildly, while the expected returns for less volatile investments will fall into a more narrow range. In the examples above, the figure on the left shows greater volatility and risk than the figure on the right.

## What is correlation?

Correlation is a statistical measure of the relationship between two different assets, describing whether or not they move in tandem under various market conditions.

This relationship is expressed with a number between plus one (perfect positive correlation) and minus one (perfect negative correlation). Positively correlated investments usually rise and fall together, while negatively correlated investments move in opposite directions.



Investments with a low correlation (a correlation value close to zero) do not move in relationship to each other. The less correlated the assets, the less able we are to predict how these investments will perform in relation to each other.

Diversifying assets among negatively correlated investments can increase the likelihood of stable performance under various market conditions. Investing in assets with low correlation to each other can lower total portfolio risk even further.

## Modern portfolio theory

In the past, institutional portfolios were managed by assessing the individual risk for each asset type. Investments that were considered too risky would not be included in the portfolio.

This is similar to how many individual investors approach their personal retirement portfolios. When the investor is young, they are open to more risk and can invest in more volatile assets. As they approach retirement age and the eventual payout of earnings, it becomes more important to protect the value of the portfolio and the investor shifts to less risky assets.

However, institutional funds have different characteristics than a retirement account. Institutional funds must be protected for the long term, while providing annual payouts. As markets have changed, this has created a modern portfolio theory that focuses more on spreading investments across non-correlated assets than focusing on the individual risk of each asset type. Managing investments in this manner can lower the overall risk of the portfolio, even while the fund is invested in assets that are considered risky.

## How does this work?

The following hypothetical examples show how the correlation between assets can affect the overall risk for a portfolio.

**Portfolio A is invested in race horses and race tracks.**

	Race horses	Race tracks
<b>Return</b>	10.0%	7.0%
<b>Std. deviation (risk)</b>	12.0%	8.0%
<b>Correlation between assets: .90</b>		

**Portfolio B is invested in Beanie Babies and fine art.**

	Beanie Babies	Fine art
<b>Return</b>	10.0%	7.0%
<b>Std. deviation (risk)</b>	13.2%	8.8%
<b>Correlation between assets: .10</b>		

While the assets in each portfolio have corresponding returns, they have different risk levels and different correlations. When they are weighted the same, which portfolio has the greater total risk?

### Portfolio A

**Race horses = 56% of portfolio**  
**Race tracks = 44% of portfolio**  
**Expected return is 8.68%**  
**Standard deviation (risk) 10.00%**

### Portfolio B

**Beanie Babies = 56% of portfolio**  
**Fine art = 44% of portfolio**  
**Expected return is 8.69%**  
**Standard deviation (risk) 8.70%**

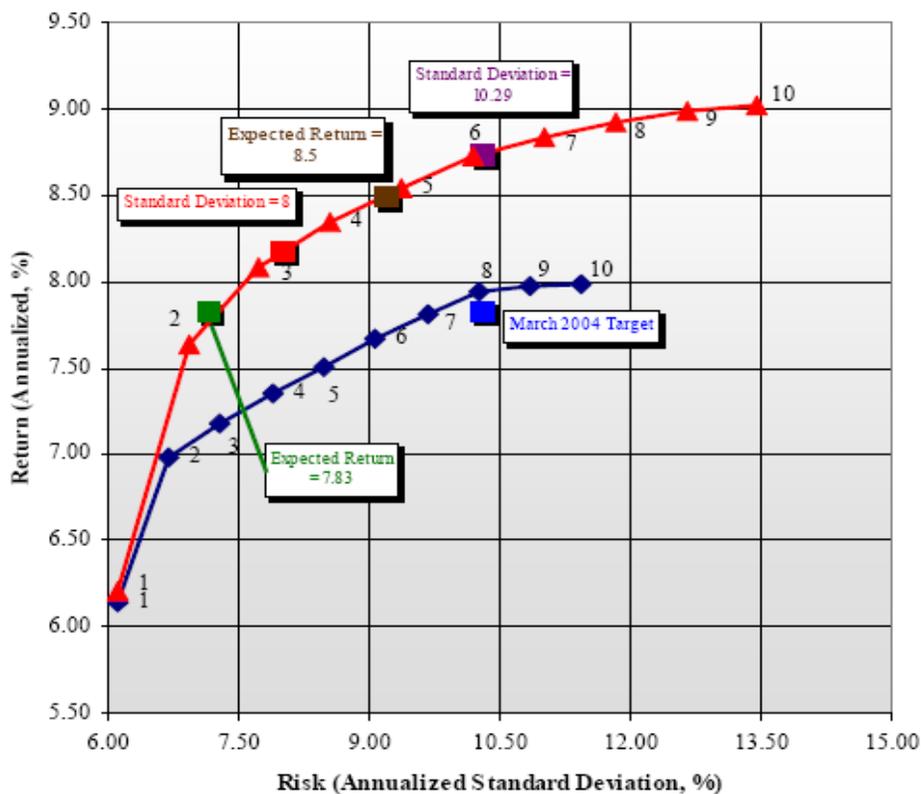
The portfolio using higher risk investments was able to achieve a lower overall risk for equal returns because it used investments that are less correlated.

## Where is the Permanent Fund?

The following chart shows potential risk and return for various portfolios under the Fund's current investment restrictions (blue line), and under the Prudent Investor Rule alone (red line). The underlying asset allocations for the main points of this chart are shown on the next page.

The chart demonstrates that under the Prudent Investor Rule, the Fund could potentially earn the same return as the current portfolio (March 2004 target) with more than 3% less risk (Expected Return = 7.83). Or, for the same risk the Fund could earn almost 1% more return (Standard Deviation = 10.29).

**Efficient Frontier**



The Trustees understand the Legislature's need to balance risk and return for the Fund. While an aggressive rate of growth may be desired by some, others may find it more important to lower the Fund's risk while maintaining a reasonable rate of return.

Increasing the Fund's investment options would allow the Trustees greater flexibility in managing the Fund for the benefit of all Alaskans, whether it is for greater return, lower risk or both. This is especially important as the Legislature begins to contemplate the use of Fund earnings for more than just the dividend program.

## How would the Trustees use that flexibility?

The statutory list prevents investments in newer high risk assets such as broad emerging market debt, high yield bonds and certain forms of real estate investments. These assets, while considered risky on their own, can lower the overall risk of a portfolio through low correlation with other asset types.

These asset types are fairly easy to describe, and with time could be added to the statutory list with Legislative approval. However, by the time they are added, the investment opportunity may have closed, leaving the Permanent Fund out in the cold.

As the investment world seeks new ways to improve returns in increasingly efficient markets, investors are creating new strategies that mix multiple investment options or asset types within a single investment mandate. Absolute return strategies, an alternative asset type that the Fund currently invests in under the 10% basket clause, are portfolios that invest for an absolute target return using the most promising investment opportunities available. These portfolios are defined by their return targets, not by the assets they hold.

Asset Classes	March 2004 Target	Expected Return = 7.83	Standard Deviation = 10.29	Standard Deviation = 8	Expected Return = 8.5
Large Cap US Equity	30	20	20	20	20
Small/Mid Cap US Equity	7	5	5	5	5
International Equity	16	10	10	10	10
Emerging Markets	2	0	6	0	4
Fixed Income	28	20	20	20	20
Non-US Fixed Income	4	5	0	5	1
Real Estate	6	15	14	15	15
REITs	4	0	0	0	0
Private Equity	2	0	10	4	6
Absolute Return	1	10	5	10	9
Cash Equivalents	0	0	0	0	0
Commodities	0	5	5	5	5
Convertibles	0	0	0	0	0
High Yield	0	0	0	0	0
Real Return	0	1	0	1	0
Timber	0	5	5	5	5
TIPS	0	4	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

This new wave of investment practice does not fit well within the rigid structure of a legal list. If the Fund's legal list were moved to regulation as suggested by a recent Attorney General's opinion, it would still require that these strategies have some form of definition. However, the less cumbersome regulatory process would allow Trustees to craft and modify regulatory definitions of alternative investment strategies.

# The Prudent Investor Rule

STATE/TERRITORY ADOPTIONS* of the PRUDENT INVESTOR ACT		
Alaska (ASPIB)	Maryland **	Pennsylvania
Arizona	Michigan	Rhode Island
Arkansas	Minnesota	South Carolina
California	Missouri	South Dakota
Colorado	Montana	Tennessee
Connecticut	Nebraska	Texas
District of Columbia	Nevada	Utah
Hawaii	New Hampshire	U.S. Virgin Islands
Idaho	New Jersey	Vermont
Illinois	New Mexico	Virginia
Indiana	North Carolina	Washington
Iowa	North Dakota	West Virginia
Kansas	Ohio	Wisconsin
Maine	Oklahoma	Wyoming
Massachusetts	Oregon	
* Source is National Conference of Commissioners on Uniform State Laws		
** Substantially Similar		

The Prudent Investor Rule is a legal standard that requires the APFC Board of Trustees to act as a prudent institutional investor would when making investment decisions. Alaska statutes require that the Board follow the Prudent Investor Rule in addition to the other statutory investment restrictions.

The Permanent Fund’s peers—state pension funds and large institutional endowment funds—have been moving away from legal investment lists. Instead, they are simply required to conform to the Prudent Investor Rule.

New York and New Mexico are both seeking legislative approval to expand the investment flexibility for their state pension funds.

## What can we do?

The Constitution says that the Alaska Permanent Fund will be invested in assets “specifically designated by law.” This prevents the Legislature from removing the legal list and simply requiring that all Fund investments conform to the Prudent Investor Rule. However, a recent Attorney General’s opinion says the Legislature may delegate authority to the Board of Trustees to create a list of allowed investments in regulation. A regulatory list may be amended more quickly than statutes, allowing the Trustees the flexibility to respond to changes in the investment world.

Legislation drafted at the request of the Trustees would allow the list to be moved to regulation, while maintaining key restrictions in statute. The most important of these restrictions is the requirement that all Fund investments conform to the Prudent Investor Rule.

**The Alaska Permanent Fund Corporation thanks Michael O’Leary of Callan Associates, and Russ Kuhns, Rebecca Gratsinger, and Jim Voytko of RV Kuhns, for their assistance in producing this handout.**