

SB

170

FISCAL NOTE

STATE OF ALASKA
1994 LEGISLATIVE SESSION

BILL NO. Sonate Bill 170

Revision Date: _____
 Title: "An Act relating to income of the permanent fund."

Dept. Affected: Department of Revenue
 BRU: APFC
 Component: APFC

Sponsor: Senator Rieger
 Requestor: Senate State Affairs

COMPONENT SERIAL NO. 109

Expenditures/Revenues:

(Thousands of Dollars)

OPERATING	FY95	FY96	FY97	FY98	FY99	FY00
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL	-0-	-0-	-0-	-0-	-0-	-0-
REVENUE FUND SOURCE:	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING:

(Thousands of Dollars)

	FY95	FY96	FY97	FY98	FY99	FY00
1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

	FY95	FY96	FY97	FY98	FY99	FY00
FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of current year (FY94) Impact: \$ 0

ANALYSIS: (Attach a separate page if necessary)

Prepared by: William H. Scott, Executive Director *WHS* Phone: 465-2047
 Division: Alaska Permanent Fund Corporation Date: January 31, 1994
 Approved by: Darrel J. Rexwinkel, Commissioner *DJR* Date: 1/31/94
 Commissioner: _____
 Agency: Department of Revenue

PREPARER TO PROVIDE
 For further information

LEGISLATIVE OFFICE
 Legislative Office

Alaska State Senate

SENATOR STEVE RIEGER
District 1

Senate Finance Committee
Chair, Senate Health, Education
and Social Services Committee
Vice Chair, Senate Rules Committee
Vice Chair, Senate Labor and
Commerce Committee



State Capitol
Room 516
Juneau, Alaska 99801
(907) 465-3879

SENATE BILL 170

- AN ACT RELATING TO THE INCOME OF THE PERMANENT FUND -

Senate Bill 170 places into statute the concept of "real earnings" and applies that concept to the provisions for the uses of Permanent Fund earnings.

CONCEPT OF REAL EARNINGS:

There are several ways in which income of a fund can be calculated. When all cash receipts are counted without regard to the effects of inflation, the earnings are often referred to as "*nominal earnings*." In contrast, "*real earnings*" are the amount by which nominal earnings exceed inflation.

For any long-term preservation of a fund, and particularly in times of any significant inflation, the concept of real earnings is extremely important to the management of an endowment fund. Any endowment which is designed to last for a sustained period of time must be concerned about its purchasing power and earning power. Inflation tends to erode a fund; to offset this a fund must grow (in nominal terms) at the same rate as inflation just to preserve its purchasing or earning power. In this context, a fund can afford only to pay out earnings which are in excess of the rate of inflation — real earnings.

APPROPRIATENESS FOR THE PERMANENT FUND:

I believe that the voters, in establishing the Permanent Fund, intended for the Fund to be truly permanent in the sense that its purchasing power and earning power should not be eroded over time. In this context, a real earnings approach is most appropriate for the Permanent Fund. The only earnings which should be put on the table for use each year are the real earnings.

In contrast, under present statutes all of the *nominal* earnings are put on the table for appropriation each year. The Legislature then allocates the earnings to dividends, inflation-proofing, and the earnings reserve account. With SB170 the inflation-proofing would be automatic and the Legislature would provide for the allocation of real earnings between the dividends and the earnings reserve account.

EFFECT ON PERMANENT FUND EARNINGS RESERVE:

Since there would be no further need to reserve earnings for inflation-proofing, the required size of the Permanent Fund Earnings Reserve (PFER) is not as great. There would, however, be a reason to retain some amount in the PFER to cover 5-year averaging provisions, such as the payout rule on dividends, regardless of whether the real earnings concept is used. SB 170 is silent on the issue of the PFER and does not require any change from present PFER policy.

EFFECT ON DIVIDENDS:

The bill leaves untouched the underlying formula for calculation of dividends. However, since the earnings on which dividends are based are real earnings rather than nominal earnings, there will be a slower rate of long-term growth in dividends, and there could be a temporary drop in the amount transferred to the dividend fund, depending on the Permanent Fund's actual performance in the next few years. These transfers are shown under a variety of earnings assumptions in the attached financial forecasts.

OTHER CHANGES:

One additional change, although minor, is that the effect of inflation on the fund will be calculated using the average annual balance of the Fund, rather than the Permanent Fund's present practice of using the balance as of the end of the year.

SUMMARY:

The overall effect of SB 170 will be that the Permanent Fund will be made more permanent, as the question of inflation-proofing will be removed from the annual process of allocating earnings. Earnings will be more realistic, as they are reflective of the actual economic earnings of the Fund. However, the effect of converting to a real earnings basis for the annual allocation process will also lower the amount put on the table for appropriation each year. The result will be better protection for the Fund, and a better representation to the State of the maximum amount which properly could be used each year.

Alaska State Senate

SENATOR STEVE RIEGER
District 1

Senate Finance Committee
Chair, Senate Health, Education
and Social Services Committee
Vice Chair, Senate Rules Committee
Vice Chair, Senate Labor and
Commerce Committee



State Capitol
Room 516
Juneau, Alaska 99801
(907) 465-3879

PERMANENT FUND PROJECTIONS:

The attached projections from the Alaska Permanent Fund Corporation show the effect of different earnings assumptions on the size of the Permanent Fund, as well as the amount of each year's earnings and transfers to the dividend fund, through the Year 2000. It should be pointed out that these forecasts are still in a nominal-earnings format, even though they are correctly calculated as if SB 170 is in effect.

Most of the forecasts provided by the Permanent Fund Corporation are based on recent investment performance and long-standing assumptions which the Corporation has used regarding nominal earnings and inflation. The forecasts were also done under two different assumptions: in one case the amount of real earnings which are not paid out in dividends is invested in the PFER; in the other case the amount not paid out is transferred to the general fund.

At my request, the Permanent Fund Corporation also did three additional runs, which reflect the higher earnings assumptions suggested in the Ibbotson Associates' report (enclosed). The Ibbotson report was commissioned by the Legislative Budget & Audit Committee late last year and received in January 1994. This report shows the expected average annual return (9.33%) on the Permanent Fund once the Permanent Fund reaches its target portfolio, which is higher-yielding than its present portfolio because of a greater amount of assets invested in higher-yielding securities. The report also suggests two different asset allocations, which yield higher returns of 10.31% and 11.33% respectively. It should be pointed out that these returns are from Ibbotson, and not necessarily agreed to by the Permanent Fund Corporation.

Alaska Permanent Fund Corporation
P.O. Box 25500 Juneau, Alaska 99802-5500
(907) 465-2047

MEMORANDUM

DATE: January 20, 1994

TO: Senator Steve Reiger

FROM: Jim Kelly *JK*
Research & Liaison Officer

SUBJECT: **Analysis of Senate Bill No. 170**

Per your request, the Alaska Permanent Fund Corporation has updated our previous analysis of Senate Bill No. 170. Please note, however, that there are eight financial projections attached as part of this analysis as well as a copy of the population projections used to calculate per capita dividends. **Note:** The model takes the July 1 population numbers (with a one-year lag to allow for the one-year residency requirement), then multiplies by 90 percent (based on 1992 actual experience) to arrive at an approximation of future eligible Permanent Fund dividend applicants.

The additional financial projections are included to provide a more complete perspective on the possible outcomes of passage of SB 170.

Four Variations on the Status Quo

Financial Projection #1: This is the status quo case (with per capita dividends) as of November 30, 1993. It provides the benchmark against which to compare and contrast any changes to current law.

Financial Projection #2: This is the same as the status quo case except this projection assumes for all years after fiscal 1994 that all income remaining after dividends and inflation-proofing is appropriated to the General Fund.

Financial Projection #3: This is the same as the status quo case (Financial Projection #1) except the rate of return for all years after fiscal 1994 is 8.37 percent and the inflation rate is 4 percent.

Financial Projection #4: This is the same as Financial Projection #3, that is, the rate of return for all years after fiscal 1994 is 8.37 percent and the inflation rate is 4 percent, but it also assumes that all income remaining after dividends and inflation-proofing is appropriated to the General Fund.

Four Variations on Senate Bill No. 170

Financial Projection #5: This is the projection based on SB 170 as written (assuming an effective date of July 1, 1994), which makes the following changes to the status quo: (1) inflation-proofing is treated as a return of capital to Fund principal and is given first priority over any other use of what has historically been called net income; (2) a new accounting treatment for Fund income is established: "real income", which equals net income minus inflation-proofing; and (3) real income is used to compute each year's dividend distribution - except during a transitional period in fiscal years 95-99 in which net income is used instead of real income for the years in which real income was not calculated.

Financial Projection #6: This is the same as Financial Projection #5, except that like Financial Projection #2, this projection assumes for all years after fiscal 1994 that all income remaining after dividends and inflation-proofing is appropriated to the General Fund.

Financial Projection #7: This is the same as Financial Projection #5, except that like Financial Projection #3, this projection assumes that the rate of return for all years after fiscal 1994 is 8.37 percent and the inflation rate is 4 percent.

Financial Projection #8: This is the same as Financial Projection #6, that is, SB 170 with a rate of return for all years after fiscal 1994 of 8.37 percent and an inflation rate of 4 percent, but it also assumes that all income remaining after dividends and inflation-proofing is appropriated to the General Fund.

Senator Reiger
January 20, 1994
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For Your Information: These projections are based on a certain set of basic assumptions; the numbers shown on these sheets would change if different assumptions were used. The assumptions used in the preparation of each projection are listed at the bottom of each projection sheet, and explained herein.

It is the Corporation's policy to use conservative assumptions wherever possible. Thus, the Fund's long-term rate of return is projected to average three percent per year after inflation; long-term inflation is projected to average six percent per year; and the assumptions for future dedicated State oil revenues are taken from the Department of Revenue's most recent "low-case" forecast. The population assumptions used in the computation of future per capita dividend payments are derived from the Middle Series of the Department of Labor's "Population Projections" dated November 1991.

PLEASE NOTE THAT THE CORPORATION NEITHER SUPPORTS NOR OPPOSES ANY PROPOSED CHANGES TO THE CURRENT USE OF FUND EARNINGS, EXCEPT AS THEY MAY RELATE TO THE PROPER EXERCISE OF THE TRUSTEES' FIDUCIARY RESPONSIBILITIES AS REQUIRED UNDER THE PRUDENT INVESTOR RULE.



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Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	4	222	984	17,375	
0	17,375	4	204	1,055	18,638	
1	18,638	4	189	1,130	19,961	
2	19,961	4	177	1,209	21,351	
3	21,351	5	165	1,291	22,812	
4	22,812	5	153	1,378	24,348	
5	24,348	5	139	1,470	25,962	
6	25,962	5	128	1,568	27,658	
7	27,658	5	115	1,667	29,445	
8	29,445	5	106	1,763	31,320	10
9	31,320	5	98	1,549	32,972	336
10	32,972	6	90	1,629	34,698	355
Cumulative Totals Projected:						
For FY 1994-2010:						702

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Dividends	Per Capita Dividends	Inflation-Proofing	General Fund	Add (Delete) FY End Balance	
2				1		78
8				7		79
32	12			12		80
150	28			28	59	81
368	71	\$1,000.00		71	185	82
471	108	\$386.15	231	110	110	83
530	175	\$331.29	151		203	84
658	217	\$404.00	235		206	85
1,021	303	\$556.26	216		501	86
1,069	391	\$708.19	148		529	87
789	424	\$826.93	303		62	88
868	460	\$873.16	360	4	44	89
916	487	\$952.63	454	4	(30)	90
1,030	489	\$931.34	559	4	(24)	91
1,036	488	\$915.84	477	5	64	92
1,226	532	\$949.46	362	5	320	93
1,061	553	\$964.00	376	—	127	94
1,238	587	\$1,001.00	528		118	95
1,314	617	\$1,028.00	557		134	96
1,393	654	\$1,065.00	589		145	97
1,478	681	\$1,084.00	622		169	98
1,650	747	\$1,165.00	984		(44)	99
1,799	806	\$1,230.00	1,055		(66)	0
1,912	889	\$1,297.00	1,130		(91)	1
2,027	935	\$1,368.00	1,209		(121)	2
2,146	1,005	\$1,441.00	1,291		(155)	3
2,269	1,066	\$1,498.00	1,378		(180)	4
2,396	1,129	\$1,555.00	1,470		(207)	5
2,528	1,193	\$1,614.00	1,566		(236)	6
2,665	1,260	\$1,675.00	1,667		(267)	7
2,808	1,330	\$1,736.00	1,763		(291)	8
2,956	1,402	\$1,799.00	1,549			9
3,112	1,477	\$1,866.00	1,629			10
34,792	16,312	\$23,386	19,360			

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94-99	7.71%	2.98%	4.73%
FY 95-98: ****	8.37%	4.00%	4.37%
FY 99-2010:	9.00%	6.00%	3.00%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d).
 **** Based on capital market assumptions adopted by the Trustees in April 1993.

STATUS QUO WITH PER CAPITA DIVIDENDS



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	4	222	984	17,375	
0	17,375	4	204	1,055	18,638	
1	18,638	4	189	1,130	19,961	
2	19,961	4	177	1,209	21,351	
3	21,351	5	165	1,291	22,812	
4	22,812	5	153	1,378	24,348	
5	24,348	5	139	1,433	25,925	37
6	25,925	5	128	1,288	27,344	275
7	27,344	5	115	1,358	28,821	291
8	28,821	5	108	1,427	30,360	308
9	30,360	5	98	1,502	31,965	326
10	31,965	6	90	1,579	33,640	344
Cumulative Totals Projected:						
For FY 1994-2010:						1,582

USE OF FUND INCOME							
Net Income	Distributions			General Fund	Reserves		FY
	Dividends	Per Capita Dividends	Inflation-Proofing		Add (Delete)	FY End Balance	
2				1			78
8				7			79
32	12			12			80
150	28			28	59	59	81
368	71	\$1,000.00		71	185	244	82
471	108	\$386.15	231	110	110	354	83
530	175	\$331.29	151		203	557	84
658	217	\$404.00	235		206	763	85
1,021	300	\$556.28	216		501	1,264 **	86
1,069	391	\$708.19	148		529	529	87
789	424	\$828.93	303		62	591	88
868	460	\$873.16	360	4	44	635	89
916	487	\$952.83	454	4	(30)	605	90
1,030	489	\$931.34	559	4	(24)	581	91
1,036	488	\$915.84	477	5	64	645	92
1,226	532	\$949.48	362	5	320	965	93
1,061	553	\$964.00	376	—	127	1,092	94
1,238	587	\$1,001.00	528	118		1,092	95
1,303	616	\$1,028.00	557	125		1,092	96
1,371	651	\$1,060.00	589	126		1,092	97
1,443	674	\$1,072.00	622	142		1,092	98
1,637	734	\$1,144.00	984		(85)	1,008	99
1,742	787	\$1,200.00	1,055		(104)	903	0
1,851	845	\$1,260.00	1,130		(128)	775	1
1,963	907	\$1,325.00	1,209		(157)	618	2
2,078	974	\$1,394.00	1,291		(191)	427	3
2,198	1,032	\$1,449.00	1,378		(218)	210	4
2,321	1,093	\$1,504.00	1,433		(210)		5
2,449	1,158	\$1,562.00	1,288				6
2,583	1,221	\$1,621.00	1,356				7
2,721	1,289	\$1,681.00	1,427				8
2,866	1,359	\$1,742.00	1,502				9
3,017	1,432	\$1,807.00	1,579				10
33,843	15,909	\$22,812	18,304	511			

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94-	7.71%	2.98%	4.73%
FY 95-98-****	8.37%	4.00%	4.37%
FY 99-2010:	9.00%	6.00%	3.00%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d).
 **** Based on capital market assumptions adopted by the Trustees in April 1993.
**STATUS QUO WITH PER CAPITA DIVIDENDS,
 EXCEPT ALL REMAINING INCOME TO GENERAL FUND**



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL

FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	203	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	6	222	658	17,049	
0	17,049	6	204	690	17,950	
1	17,950	6	189	728	18,871	
2	18,871	7	177	762	19,816	
3	19,816	7	185	800	20,788	
4	20,788	7	153	838	21,787	
5	21,787	8	139	877	22,811	
6	22,811	8	128	916	23,863	
7	23,863	8	115	960	24,948	
8	24,948	9	106	1,002	26,063	
9	26,063	9	98	1,047	27,217	
10	27,217	10	90	1,093	28,409	
Cumulative Totals Projected						
For FY 1994-2010: 2,775 13,039						

USE OF FUND INCOME

Net Income	Distributions			Reserves		FY
	Dividends	Per Capita Dividends	Inflation-Proofing	General Fund	Add (Delete)	
2				1		78
8				7		79
32	12			12		80
150	28			28	59	81
368	71	\$1,000.00		71	185	82
471	108	\$386.15	231	110	110	83
530	175	\$331.29	151		203	84
658	217	\$404.00	235		208	85
1,021	303	\$558.26	216		501	86
1,069	391	\$708.19	148		529	87
789	424	\$828.93	303		62	88
868	460	\$873.16	360	4	44	89
916	487	\$952.63	454	4	(30)	90
1,030	489	\$931.34	559	4	(24)	91
1,035	488	\$915.84	477	5	64	92
1,228	532	\$949.48	362	5	320	93
1,081	553	\$964.00	376	5	122	94
1,238	587	\$1,001.00	528		118	95
1,313	617	\$1,028.00	557		134	96
1,393	654	\$1,065.00	589		144	97
1,477	681	\$1,084.00	622		169	98
1,557	734	\$1,143.00	656		171	99
1,658	778	\$1,188.00	690		183	0
1,752	824	\$1,227.00	728		196	1
1,849	872	\$1,272.00	762		208	2
1,949	921	\$1,317.00	800		221	3
2,053	972	\$1,362.00	838		235	4
2,160	1,025	\$1,407.00	877		250	5
2,271	1,080	\$1,455.00	918		265	6
2,386	1,136	\$1,504.00	960		282	7
2,504	1,194	\$1,554.00	1,002		299	8
2,628	1,255	\$1,604.00	1,047		317	9
2,758	1,317	\$1,658.00	1,093		336	10
32,014	15,199	\$21,831	13,039	5		

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94-	7.71%	2.98%	4.73%
FY 95-98****	8.37%	4.00%	4.37%
FY 99-2010**	8.37%	4.00%	4.37%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.

** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.

*** Transferred to principal from earnings reserve account per AS 37.13.145(d).

**** Based on capital market assumptions adopted by the Trustees in April 1993.

STATUS QUO BUT ASSUMES AN 8.37% RATE OF RETURN AND 4% INFLATION, FOR ALL YEARS AFTER FISCAL 1994



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	6	222	658	17,049	
0	17,049	6	204	690	17,950	
1	17,950	6	189	728	18,871	
2	18,871	7	177	762	19,816	
3	19,816	7	165	800	20,788	
4	20,788	7	153	838	21,787	
5	21,787	8	139	877	22,811	
6	22,811	8	126	918	23,863	
7	23,863	8	115	960	24,948	
8	24,948	9	108	1,002	26,063	
9	26,063	9	98	1,047	27,217	
10	27,217	10	90	1,093	28,409	
Cumulative Totals Projected:						
For FY 1994-2010: 2,777,355,16,030						

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Dividends	Per Capita Dividends	Inflation-Proofing	General Fund	Add (Delete) Balance	
2					1	78
8					7	79
32	12				12	80
150	28				28	81
368	71	\$1,000.00			71	82
471	108	\$386.15	231	110	185	83
530	175	\$331.29	151		110	84
658	217	\$404.00	235		203	85
1,021	303	\$556.26	216		206	86
1,069	391	\$708.19	148		501	87
789	424	\$826.93	303		529	88
668	460	\$873.16	360	4	62	89
916	487	\$952.63	454	4	44	90
1,030	489	\$931.34	559	4	(30)	91
1,036	488	\$915.84	477	5	(24)	92
1,226	532	\$949.46	362	5	64	93
1,061	553	\$964.00	376	5	320	94
1,238	587	\$1,001.00	528	118	1,087	95
1,303	616	\$1,026.00	557	124	1,087	96
1,371	651	\$1,059.00	589	126	1,087	97
1,443	674	\$1,072.00	622	141	1,087	98
1,517	722	\$1,123.00	658	134	1,087	99
1,594	759	\$1,155.00	690	138	1,087	0
1,672	798	\$1,187.00	728	142	1,087	1
1,752	838	\$1,220.00	762	145	1,087	2
1,834	879	\$1,253.00	800	148	1,087	3
1,918	921	\$1,287.00	838	152	1,087	4
2,005	964	\$1,320.00	877	156	1,087	5
2,094	1,008	\$1,356.00	918	160	1,087	6
2,185	1,054	\$1,391.00	960	164	1,087	7
2,279	1,100	\$1,428.00	1,002	168	1,087	8
2,376	1,149	\$1,464.00	1,047	172	1,087	9
2,477	1,198	\$1,503.00	1,093	176	1,087	10
30,816	14,488	\$20,800	13,038	2,368		

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.98%	4.73%
FY 95 - 98: ****	8.37%	4.00%	4.37%
FY 99 - 2010: **	8.37%	4.00%	4.37%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d).
 **** Based on capital market assumptions adopted by the Trustees in April 1993.
STATUS QUO BUT ASSUMES AN 8.37% RATE OF RETURN AND 4% INFLATION, AND ALL REMAINING INCOME TO GENERAL FUND



#5

Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	4	222	984	17,375	
0	17,375	4	204	1,055	18,638	
1	18,638	4	189	1,130	19,961	
2	19,961	4	177	1,209	21,351	
3	21,351	5	165	1,291	22,812	
4	22,812	5	153	1,378	24,348	
5	24,348	5	138	1,470	25,962	
6	25,962	5	128	1,566	27,658	
7	27,658	5	115	1,667	29,445	
8	29,445	5	106	1,773	31,330	
9	31,330	5	98	1,886	33,319	
10	33,319	6	90	2,005	35,420	
Cumulative Totals Projected:						
For FY 1994-2010:						

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Inflation-Proofing	Per Capita Dividends	General Fund	Add (Delete)	FY End Balance	
2					1	78
8					7	79
32		12			12	80
150		28			28	81
368		71	\$1,000.00		71	82
471	231	108	\$386.15		110	83
530	151	175	\$331.29		203	84
658	235	217	\$404.00		206	85
1,021	216	303	\$556.26		501	86
1,069	148	391	\$708.19		529	87
789	303	424	\$826.93		62	88
868	380	460	\$873.16	4	44	89
916	454	487	\$952.63	4	(30)	90
1,030	559	489	\$931.34	4	(24)	91
1,036	477	488	\$915.84	5	64	92
1,226	362	532	\$949.46	5	320	93
1,061	376	553	\$964.00	5	122	94
1,258	528	532	\$902.00		173	95
1,318	557	503	\$830.00		252	96
1,408	580	481	\$770.00		333	97
1,509	622	445	\$692.00		436	98
1,749	984	414	\$524.00		348	99
1,895	1,055	428	\$630.00		408	0
2,052	1,130	445	\$640.00		473	1
2,221	1,209	465	\$655.00		543	2
2,402	1,291	488	\$674.00		618	3
2,598	1,378	536	\$728.00		679	4
2,806	1,470	588	\$786.00		743	5
3,027	1,566	645	\$848.00		812	6
3,263	1,667	706	\$915.00		885	7
3,514	1,773	772	\$986.00		963	8
3,782	1,886	843	\$1,061.00		1,048	9
4,068	2,005	920	\$1,141.00		1,138	10
Cumulative Totals Projected:						
For FY 1994-2010:						

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.98%	4.73%
FY 95-98:	8.37%	4.00%	4.37%
FY 99-2010:	9.00%	6.00%	3.00%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.

** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.

*** Transferred to principal from earnings reserve account per AS 37.13.145(d).

**** Based on capital market assumptions adopted by the Trustees in April 1993.

SENATE BILL 170



#6

Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,483	
97	14,483	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	4	222	984	17,375	
0	17,375	4	204	1,055	18,638	
1	18,638	4	189	1,130	19,961	
2	19,961	4	177	1,209	21,351	
3	21,351	5	165	1,291	22,812	
4	22,812	5	153	1,378	24,348	
5	24,348	5	139	1,470	25,962	
6	25,962	5	128	1,568	27,658	
7	27,658	5	115	1,667	29,445	
8	29,445	5	106	1,773	31,330	
9	31,330	5	98	1,886	33,319	
10	33,319	6	90	2,005	35,420	
Cumulative Totals Projected:						
For FYs 1994-2010:						

USE OF FUND INCOME							
Net Income	Distributions			Reserves		FY	
	Inflation-Proofing	Dividends	Per Capita Dividends	General Fund	Add (Delete) FY End Balance		
2					1	78	
8					7	79	
32		12		12		80	
150		28		28	59	81	
368		71	\$1,000.00	71	185	82	
471	231	108	\$386.15	110	110	83	
530	151	175	\$331.29		203	84	
658	235	217	\$404.00		206	85	
1,021	216	303	\$556.26		501	86	
1,069	148	391	\$708.19		529	87	
789	303	424	\$826.93		62	88	
868	360	460	\$873.16	4	44	89	
916	454	487	\$952.63	4	(30)	90	
1,030	559	489	\$931.34	4	(24)	91	
1,036	477	488	\$915.84	5	64	92	
1,226	362	532	\$949.46	5	320	93	
1,061	376	553	\$967.00	5	122	94	
1,238	528	532	\$902.00	173		95	
1,303	557	502	\$827.00	238		96	
1,371	589	475	\$760.00	302		97	
1,443	622	433	\$671.00	382		98	
1,637	984	390	\$584.00	259		99	
1,750	1,055	388	\$567.00	302		0	
1,868	1,130	387	\$551.00	346		1	
1,992	1,209	388	\$538.00	392		2	
2,123	1,291	389	\$525.00	438		3	
2,260	1,378	413	\$549.00	464		4	
2,404	1,470	438	\$572.00	492		5	
2,555	1,566	464	\$596.00	520		6	
2,715	1,667	492	\$622.00	551		7	
2,883	1,773	521	\$648.00	583		8	
3,060	1,886	552	\$678.00	617		9	
3,247	2,005	584	\$705.00	652		10	
34,908							
20,064							
7,899							
\$1,258							
6,718							

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94-	7.71%	2.98%	4.73%
FY 95-98	8.37%	4.00%	4.37%
FY 99-2010	9.00%	6.00%	3.00%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d).
 **** Based on capital market assumptions adopted by the Trustees in April 1993.

SENATE BILL 170 EXCEPT ALL REMAINING EARNINGS TO GENERAL FUND



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	218	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	6	222	658	17,049	
0	17,049	6	204	690	17,950	
1	17,950	6	189	726	18,871	
2	18,871	7	177	762	19,816	
3	19,816	7	165	800	20,788	
4	20,788	7	153	838	21,787	
5	21,787	8	139	877	22,811	
6	22,811	8	128	918	23,863	
7	23,863	8	115	960	24,946	
8	24,946	9	106	1,002	26,063	
9	26,063	9	98	1,047	27,217	
10	27,217	10	90	1,093	28,409	
Cumulative Totals Projected:						
For FY 1994 - 2010: 2,777 13,039						

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Inflation-Proofing	Per Capita Dividends	General Fund	Add (Deductions)	FY End Balance	
2					1	78
8					7	79
32					12	80
150		12			28	81
368		71	\$1,000.00		71	82
471	231	108	\$386.15		110	83
530	151	175	\$331.29		203	84
658	235	217	\$404.00		206	85
1,021	216	303	\$556.26		501	86
1,069	118	391	\$708.19		529	87
789	303	424	\$826.93		62	88
868	360	460	\$873.16		44	89
916	454	487	\$952.63		4	90
1,030	559	489	\$931.34		4	91
1,036	477	488	\$915.84		5	92
1,226	362	532	\$949.46		5	93
1,061	376	553	\$964.00		5	94
1,238	528	532	\$902.00		173	95
1,318	557	503	\$830.00		252	96
1,408	589	481	\$770.00		333	97
1,509	622	445	\$692.00		436	98
1,622	656	435	\$658.00		525	99
1,744	690	471	\$699.00		576	0
1,872	726	512	\$743.00		628	1
2,007	762	556	\$793.00		682	2
2,149	800	605	\$847.00		737	3
2,297	838	657	\$903.00		796	4
2,454	877	711	\$961.00		857	5
2,617	918	770	\$1,023.00		922	6
2,789	960	831	\$1,086.00		990	7
2,970	1,002	896	\$1,152.00		1,063	8
3,160	1,047	965	\$1,221.00		1,140	9
3,360	1,093	1,037	\$1,294.00		1,221	10
35,574	13,039	10,958	\$15,530		5	

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.98%	4.73%
FY 95-96:	8.37%	4.00%	4.37%
FY 99-2010:	8.37%	4.00%	4.37%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d).
 **** Based on capital market assumptions adopted by the Trustees in April 1993.
SENATE BILL 170, BUT ASSUMES AN 8.37% RATE OF RETURN AND A 4% RATE OF INFLATION FOR ALL FISCAL YEARS AFTER FY 1994



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		418	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	5	209	528	13,717	
96	13,717	5	214	557	14,493	
97	14,493	5	221	589	15,308	
98	15,308	6	230	622	16,166	
99	16,166	6	222	656	17,049	
0	17,049	6	204	690	17,950	
1	17,950	6	189	726	18,871	
2	18,871	7	177	762	19,816	
3	19,816	7	165	800	20,788	
4	20,788	7	153	838	21,787	
5	21,787	8	139	877	22,811	
6	22,811	8	128	918	23,863	
7	23,863	8	115	960	24,946	
8	24,946	9	106	1,002	26,063	
9	26,063	9	98	1,047	27,217	
10	27,217	10	90	1,093	28,409	
Cumulative Totals Projected						
For FY: 1994-2010:						2,777 13,039

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Inflation-Proofing	Per Capita Dividends	General Fund	Add (Delete)	FY End Balance	
2			1			78
8			7			79
32		12	12			80
150		28	28	59	59	81
368		71 \$1,000.00	71	185	244	82
471	231	108 \$386.15	110	110	354	83
530	151	175 \$331.29		203	557	84
658	235	217 \$404.00		206	763	85
1,021	216	303 \$556.26		501	1,264 **	86
1,069	148	391 \$708.19		529	529	87
789	303	424 \$826.93		62	591	88
868	360	460 \$873.16	4	44	635	89
916	454	487 \$952.63	4	(30)	605	90
1,030	559	489 \$931.34	4	(24)	581	91
1,036	477	488 \$915.84	5	64	645	92
1,226	362	532 \$949.46	5	320	965	93
1,061	376	553 \$964.00	5	122	1,087	94
1,238	528	532 \$902.00	173		1,087	95
1,303	557	502 \$827.00	238		1,087	96
1,371	589	475 \$760.00	302		1,087	97
1,443	622	433 \$671.00	382		1,087	98
1,517	656	412 \$620.00	444		1,087	99
1,594	690	432 \$636.00	465		1,087	0
1,672	726	453 \$653.00	486		1,087	1
1,752	762	475 \$670.00	508		1,087	2
1,834	800	497 \$687.00	530		1,087	3
1,918	838	520 \$705.00	553		1,087	4
2,005	877	544 \$722.00	576		1,087	5
2,094	918	568 \$741.00	600		1,087	6
2,185	960	593 \$760.00	625		1,087	7
2,279	1,002	618 \$779.00	650		1,087	8
2,376	1,047	644 \$798.00	676		1,087	9
2,477	1,093	671 \$818.00	704		1,087	10
30,116	13,039	8,919 \$12,713	7,917			

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.98%	4.73%
FY 95-98:	8.37%	4.00%	4.37%
FY 99-2010:	8.37%	4.00%	4.37%

* Department of Revenue Fall 1993 Low-Case Revenue Forecast.

** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987.

*** Transferred to principal from earnings reserve account per AS 37.13.145(d).

**** Based on capital market assumptions adopted by the Trustees in April 1993.

SENATE BILL 170, BUT ASSUMES AN 8.37% RATE OF RETURN AND 4% INFLATION AFTER FY 1994, AND ALL REMAINING EARNINGS TO GENERAL FUND



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	368	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	149	7,664	
88	7,664		418	303	8,585	
89	8,585		228	380	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	382	12,385	
94	12,385	5	209	376	12,975	
95	12,975	7	209	526	13,718	
96	13,718	7	214	558	14,497	
97	14,497	8	221	589	15,314	
98	15,314	8	230	622	16,175	
99	16,175	8	222	656	17,060	
0	17,060	8	204	691	17,963	
1	17,963	9	189	726	18,887	
2	18,887	9	177	763	19,836	
3	19,836	9	165	800	20,811	
4	20,811	10	153	839	21,813	
5	21,813	11	139	879	22,841	
6	22,841	11	126	919	23,890	
7	23,890	12	115	961	24,985	
8	24,985	12	106	1,004	26,108	
9	26,108	13	98	1,049	27,257	
10	27,257	14	90	1,095	28,466	
Cumulative Totals Projected						
For FY 1994 - 2010:						2,777 13,054

USE OF FUND INCOME							
FY	Net Income	Distributions			Reserves		FY
		Inflation-Proofing	Per Capita Dividends	General Fund	Add (Delete)	FY End Balance	
78	2				1		78
79	8				7		79
80	32		12		12		80
81	150		28		29	59	81
82	368		71 \$1,000.00		71	185	82
83	471	231	108 \$386.15		110	110	83
84	530	151	175 \$331.29			203	84
85	656	235	217 \$404.00			206	85
86	1,021	216	303 \$556.26			501	86
87	1,069	148	391 \$708.19			529	87
88	789	303	424 \$826.93			62	88
89	868	360	460 \$873.16	4		44	89
90	916	454	487 \$852.63	4		(30)	90
91	1,030	559	489 \$931.34	4		(24)	91
92	1,036	477	488 \$915.84	5		64	92
93	1,226	362	532 \$949.46	5		320	93
94	1,061	376	553 \$964.00	5		122	94
95	1,481	528	557 \$948.00	389		1,087	95
96	1,559	559	554 \$919.00	440		1,087	96
97	1,640	589	558 \$897.00	488		1,087	97
98	1,726	622	543 \$855.00	553		1,087	98
99	1,701	658	541 \$830.00	496		1,087	99
0	1,786	691	556 \$834.00	531		1,087	0
1	1,874	726	572 \$836.00	568		1,087	1
2	1,964	763	587 \$840.00	605		1,087	2
3	2,056	800	603 \$845.00	643		1,087	3
4	2,151	839	631 \$866.00	671		1,087	4
5	2,249	879	660 \$888.00	699		1,087	5
6	2,349	919	690 \$911.00	729		1,087	6
7	2,451	961	720 \$934.00	759		1,087	7
8	2,557	1,004	751 \$958.00	790		1,087	8
9	2,667	1,049	783 \$982.00	822		1,087	9
10	2,780	1,095	817 \$1,007.00	855		1,087	10
34,052	13,054	10,675	\$15,314	10,041			

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.92%	4.79%
FY 95 - 99: ***	9.93%	4.00%	5.93%
FY 99 - 2010:	9.93%	4.00%	5.93%

* Department of Revenue Feb 1993 Low-Case Revenue Forecast.

** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987

*** Transferred to principal from earnings reserve account per AS 37 13 145(d).

**** Based on capital market assumptions adopted by the Trustees in April 1993

SENATE BILL 17C, BUT ASSUMES A 9.93% RATE OF RETURN AND 4% INFLATION AFTER FY 1994, AND ALL REMAINING EARNINGS TO GENERAL FUND



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,768	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	368	235	5,741	
86	5,741		323	216	6,281	
87	6,281	1,254 **	170	148	7,854	
88	7,854		418	303	8,595	
89	8,595		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,888		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	7	209	528	13,719	
96	13,719	8	214	558	14,498	
97	14,498	8	221	589	15,316	
98	15,316	9	230	622	16,177	
99	16,177	9	222	655	17,064	
0	17,064	10	204	691	17,969	
1	17,969	10	189	727	18,895	
2	18,895	11	177	763	19,846	
3	19,846	12	165	801	20,824	
4	20,824	13	153	840	21,830	
5	21,830	13	139	878	22,862	
6	22,862	14	126	920	23,922	
7	23,922	15	115	962	25,014	
8	25,014	16	106	1,005	26,142	
9	26,142	17	98	1,050	27,307	
10	27,307	18	90	1,097	28,512	
Cumulative Totals Projected						
For FY 1994 - 2010:						
			2,777	13,064		

USE OF FUND INCOME							
Net Income	Distributions			Reserves		FY End Balance	FY
	Inflation-Proofing	Per Capita Dividends	General Fund	Add (Delete)	FY End		
2					1		78
8					7		79
32		12			12		80
150		28			28	59	81
368		71 \$1,000.00			71	185	82
471	231	108 \$386.15			110	244	83
530	151	175 \$331.29			203	354	84
658	235	217 \$404.00			208	463	85
1,021	216	303 \$556.26			501	564	86
1,069	148	391 \$708.19			529	635	87
789	303	424 \$826.93			62	697	88
868	360	460 \$873.16		4	44	741	89
916	454	487 \$952.63		4	(30)	785	90
1,030	559	489 \$931.34		4	(24)	825	91
1,038	477	488 \$915.84		5	54	879	92
1,226	362	532 \$948.46		5	320	939	93
1,061	376	553 \$964.00		5	122	1,087	94
1,540	528	564 \$959.00		442		1,087	95
1,522	558	567 \$941.00		489		1,087	96
1,707	589	576 \$931.00		534		1,087	97
1,795	622	570 \$900.00		595		1,087	98
1,889	656	588 \$907.00		636		1,087	99
1,985	691	618 \$931.00		666		1,087	0
2,082	727	648 \$955.00		697		1,087	1
2,162	763	680 \$981.00		729		1,087	2
2,285	801	713 \$1,007.00		760		1,087	3
2,381	840	746 \$1,033.00		793		1,087	4
2,500	879	780 \$1,059.00		827		1,087	5
2,611	920	815 \$1,087.00		861		1,087	6
2,726	962	852 \$1,115.00		897		1,087	7
2,844	1,005	889 \$1,143.00		934		1,087	8
2,966	1,050	927 \$1,172.00		972		1,087	9
3,092	1,097	967 \$1,202.00		1,011		1,087	10
37,280	13,064	12,051 \$17,287		11,846			

REALIZED RATE OF RETURN ASSUMPTIONS:

	Nominal	Inflation	Real
FY 94:	7.71%	2.95%	4.76%
FY 95 - 98: ****	10.31%	4.60%	5.71%
FY 99 - 2010:	16.01%	4.00%	12.01%

* Department of Revenue Fall 1993 Low-Cost Revenue Forecast.

** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1997.

*** Transferred to principal from earnings reserve account per AS 37.13.145(d).

**** Based on capital market assumptions adopted by the Trustees in April 1992.

SENATE BILL 170, BUT ASSUMES A 10.31% RATE OF RETURN AND 4% INFLATION AFTER FY 1994, AND ALL REMAINING EARNINGS TO GENERAL FUND



Alaska Permanent Fund Corporation

FINANCIAL PROJECTIONS (in millions)

as of November 30, 1993

GROWTH OF FUND PRINCIPAL						
FY	FY Begin Balance	Appropriations	Dedicated State Revenues*	Inflation-Proofing	FY End Balance	Inflation-Proofing Shortfall
78	0		54		54	
79	54		84		139	
80	139		344		483	
81	483	900	385		1,769	
82	1,769	800	400		2,969	
83	2,969	400	421	231	4,021	
84	4,021	300	366	151	4,838	
85	4,838	300	358	236	5,741	
86	5,741		323	216	6,281	
87	6,281	1,264 **	170	148	7,864	
88	7,864		416	303	8,585	
89	8,585		228	360	9,173	
90	9,173		267	454	9,894	
91	9,894		435	559	10,888	
92	10,568		338	477	11,703	
93	11,703	5 ***	315	362	12,385	
94	12,385	5	209	376	12,975	
95	12,975	8	209	528	13,720	
96	13,720	9	214	558	14,500	
97	14,500	10	221	589	15,320	
98	15,320	10	230	622	16,183	
99	16,183	11	222	657	17,073	
0	17,073	12	204	692	17,980	
1	17,980	13	189	727	18,909	
2	18,909	14	177	764	19,864	
3	19,864	15	165	802	20,846	
4	20,846	16	153	841	21,855	
5	21,855	17	139	881	22,892	
6	22,892	18	126	922	23,958	
7	23,958	20	115	964	25,056	
8	25,056	21	106	1,007	26,191	
9	26,191	23	96	1,052	27,363	
10	27,363	24	90	1,099	28,577	
Cumulative Totals Projected						
For FY 1994 - 2010: 2,777 13,079						

USE OF FUND INCOME						
Net Income	Distributions			Reserves		FY
	Inflation-Proofing	Per Capita Dividends	General Fund	Add (Delete)	FY End Balance	
2			1			78
8			7			79
32		12	12			80
150		28	28	59	59	81
368		71	71	185	244	82
471	231	108	110	110	354	83
530	151	175		203	557	84
658	235	217		206	763	85
1,021	216	303		501	1,264 **	86
1,089	148	391		529	529	87
789	303	424		62	591	88
868	360	460		44	635	89
916	454	487	4	(30)	605	90
1,030	559	489	4	(24)	581	91
1,036	477	488	5	64	645	92
1,226	362	532	5	320	965	93
1,061	376	553	5	122	1,087	94
1,702	528	581	585		1,087	95
1,792	558	602	623		1,087	96
1,866	589	629	658		1,087	97
1,985	622	644	709		1,087	98
2,088	657	663	738		1,087	99
2,194	692	717	774		1,087	0
2,302	727	753	809		1,087	1
2,413	764	790	846		1,087	2
2,527	802	828	883		1,087	3
2,644	841	867	921		1,087	4
2,765	881	907	960		1,087	5
2,889	922	948	1,001		1,087	6
3,016	964	991	1,042		1,087	7
3,148	1,007	1,034	1,085		1,087	8
3,283	1,052	1,079	1,129		1,087	9
3,424	1,099	1,125	1,175		1,087	10
41,120	13,079	19,729	19,944			

REALIZED RATE OF RETURN ASSUMPTIONS

	Nominal	Inflation	Real
FY 94:	7.7%	2.9%	4.7%
FY 95 - 98: ***	11.35%	4.0%	7.35%
FY 99 - 2010:	11.35%	4.0%	7.35%

* Department of Revenue Fall 1993 Low-Cost Revenue Forecast
 ** Earnings reserve appropriated to Fund principal by the Legislature July 1, 1987
 *** Transferred to principal from earnings reserve account per AS 37.13.145(d)
 **** Based on capital market assumptions adopted by the Trustees in April 1995
 SENATE BILL 179, BUT ASSUMES A 11.35% RATE OF RETURN AND 4% INFLATION
 AFTER FY 1994, AND ALL REMAINING EARNINGS TO GENERAL FUND



Alaska Permanent Fund Corporation

P.O. Box 25500 Juneau, Alaska 99802-5500

(907) 465-2047

January 13, 1994

Senator Randy Phillips
Legislative Budget & Audit Committee, Chairman
State Capitol Building, Room 103
Juneau, AK 99801-1182

Dear Senator Phillips:

Thank you for providing us with Ibbotson's report on the asset allocation of the Alaska Permanent Fund Corporation (APFC). We are pleased to provide this initial response to the report. Communication on this issue will continue as the board commences its annual review of APFC's asset allocation at the February 3 meeting in Juneau.

Since April 1993, the APFC has been involved with a significant portfolio restructuring program under the direction of the Board of Trustees. Upon completion, the APFC will place significantly less emphasis on passive investment and more on active management of the equity securities portfolio. This program has been undertaken with our investment consultant, Callan Associates, Inc. (Callan), providing recommendations and advice at each step of the program. Once completed, a number of the issues mentioned in the Ibbotson Associates Asset Allocation study will have been addressed.

After reading the Ibbotson report, Callan made the following observations:

1. Recent performance has been good because the board and staff have done a good job of adopting sound strategic allocation policies and employing good managers.
2. Movement toward current strategic targets at an accelerated pace may be particularly important since much of the strong performance over the past several years is attributable to extraordinary bond returns which are unlikely to continue given the current low level of interest rates. Obviously, we all agree with this

assessment and you, through significant funding of global portfolios in recent months, have already essentially reached the strategic target allocations.

3. Diversification within the domestic equity portfolio could be improved with a greater commitment to the small and mid-cap sector. Callan shares this view and your staff recognizes the under-representation in this area and plans to address it through the hiring of two small/mid-cap domestic equity managers in the first half of 1994.
4. Diversification within the fixed-income portfolio could be improved with explicit allocations to major segments such as mortgages. As discussed at length at our recent meeting, the effects of statutory limitations on fixed-income management must be carefully considered. The use of derivative securities, lower-rated bonds and non-US\$ denominated bonds are all influenced by current (statutory) restrictions. In addition, managing liquidity to meet annual dividend requirements is increasingly affecting the fixed-income portfolio. Nonetheless, broader diversification of the fixed-income effort warrants further discussion and already has been scheduled for the upcoming board meeting. As an aside, I was pleased to see that Ibbotson recognized the fee savings and good performance that has been achieved to date. It also is important to note that at least over the past several years an allocation to mortgages would have hindered performance.
5. Ibbotson's expected equity returns are extraordinarily high relative to the firm's expected bond returns. While I sincerely hope that they are correct, the very large premiums and the high absolute levels may result in an underestimation of near-term risk associated with more aggressive strategies. Relatedly, we, staff and the board have all acknowledged that heavier equity commitment would result in greater expected returns over the long run but we all also recognize that shorter-term consistency in returns is particularly important to the Fund since the annual dividend is potentially at issue. Finally, it is important to note that the "aggressive" alternative suggested results in full utilization of the statutory equity maximum of 50%.
6. Ibbotson very clearly advises that the board control asset allocation at a more micro level than it has in the past. Specially, the study advises that the board set specific allocations within the fixed-income and domestic equity areas and make extensive use of specialists in the international area. The directions suggested are contrary to the board's movement toward providing less restrictive guidelines to its managers, particularly the global managers. I think that this is an important issue that already has been discussed at length during 1993 and warrants continued close monitoring

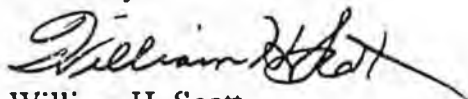
January 13, 1994
Senator Randy Phillips
Page 3

and review as we gain experience with the current structure. My current view is that the board's basic asset allocation plan, while theoretically vulnerable to the actions of the managers, will not be adversely affected. Each manager has indicated that it is highly unlikely that they would make sudden dramatic shifts from domestic to international portfolios. We, therefore, will be able to identify any potential problem before it undermines the program. You are continuing to use some specialists internationally and are planning to add specialists in domestic mid-cap securities. In sum, Ibbotson's management structure comments are important and I agree that the structure, particularly the domestic structure, should be on the board's agenda for 1994.

The staff of the APFC agree with Callan's remarks. Should the Legislative Budget & Audit Committee (LB&A) like to discuss in greater detail these conclusions, we recommend that myself and a representative of Callan Associates, Inc. be invited to appear before the Committee. The APFC would be pleased to make the necessary arrangements.

We would like to express our appreciation for LB&A's efforts and those of Ibbotson in conducting this review. It is always helpful to receive more than one independent view of this most important subject of asset allocation. In addition, we would be pleased to have Ibbotson present their report to the Board of Trustees at its meeting on February 3, 1994 at the APFC offices in Juneau.

Sincerely,



William H. Scott
Executive Director



Alaska Permanent Fund Corporation

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January 13, 1994

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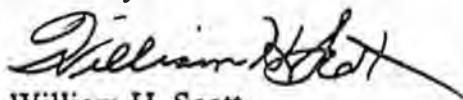
January 13, 1994
Senator Randy Phillips
Page 3

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Sincerely,



William H. Scott
Executive Director



ASSET ALLOCATION STUDY

FOR

THE ALASKA PERMANENT FUND

Prepared by Ibbotson Associates, Inc.
January, 1994



Summary of Recommendations

Currently, the Alaska Permanent Fund is a well diversified portfolio that has enjoyed tremendous success in recent years. This success is mainly due to the Board's knowledge of the importance of asset allocation and its commitment to diversification. This has resulted in the Fund earning high rates of return at relatively conservative levels of risk. The Fund is well positioned to reap the benefits of diversification, having made investments in many different asset classes, both domestic and international. Also, the Fund appears to be efficiently managed, employing reputable and capable managers for both its equity and fixed income assets. The Fund has been able to manage its substantial fixed income portfolio entirely in-house, keeping administrative costs and outside management fees to a minimum. Several important issues must be addressed, however, in order to ensure the Fund's continued success.

Our analysis suggests the Permanent Fund should alter its asset allocation policy in order for the Fund to enjoy returns similar to those it has earned in recent years. Specifically, the Board should consider the following actions:

- ▶ Revise its current three-year target asset mix to include a larger allocation to domestic mid and small capitalization equities, European, Pacific Rim and emerging market equities, and mortgage-backed securities.
- ▶ Adopt a more aggressive investment style by allocating a larger percentage of Fund assets to equity assets and real estate.
- ▶ Revise its equity management plan by setting specific allocations for international and domestic mid and small capitalization equity managers.
- ▶ Set specific target allocations across fixed income sectors.

By implementing these changes, the Board can help ensure that the Permanent Fund will achieve the highest expected return for its chosen risk level. This will help the Board achieve its statutory goals of maximizing total Fund return and providing the maximum amount of disposable income to Alaska's citizens.

This report presents recommendations concerning the Alaska Permanent Fund. The first section provides background information on the procedures we used to perform the asset allocation study. The second section suggests improvements for those portfolios, and outlines a third portfolio suited to a more aggressive investment philosophy. The final section provides guidance on several important implementation issues.

I. Analyzing an Investment Portfolio

A first step in analyzing an investment portfolio is determining whether the portfolio adequately compensates the investor for taking risk. Ideally, the portfolio is *efficient* in providing return to the investor; i.e., the portfolio provides the most return possible for the amount of risk taken. In reality, however, few portfolios accomplish this objective.

Defining Asset Classes

In order to analyze the Fund's portfolio, we had to decide which assets to include in the Fund's investment universe. Currently, the Fund invests in 12 different asset classes that comprise six main categories. The benchmarks used to represent each asset class in our analysis are listed in Appendix A at the end of this report. The asset classes used in our study are as follows:

U.S. Equity Assets

Large Capitalization
Mid/Small Capitalization

Non-U.S. Equity Assets

Canada
Europe
Pacific
Emerging Markets

Other Assets

Real Estate

Non-U.S. Fixed Income Assets

Intermediate-Term Government/Corporate Bonds
Long-Term Government/Corporate Bonds
Mortgage-Backed Securities

Non-U.S. Fixed Income Assets

Non-U.S. Government Bonds

Cash

U.S. Treasury Bills



Forecasting Return

We also had to forecast three estimates for each asset class: expected return, expected risk (as measured by standard deviation), and expected return correlation between assets. Summary tables of our forecasts are provided in Appendix B. It is important to note that our return, risk, and correlation forecasts are *long-term* -- they apply to an investment horizon of 10 years or more. Our forecasts are passive in nature and, therefore, would not change dramatically if we were to recalculate them a year from now. Consequently, the portfolio allocations we recommend will remain stable over a very long time period, and will require few changes over a long-term investment horizon.


The basis for our equity return forecasts is the risk-free rate of return and the historical premium, called an equity risk premium, that is demanded by investors for holding risky assets. We use the historical premium because the amount by which common stocks have outperformed risk-free government bonds has been consistent over time. The long-term equity risk premium for large capitalization domestic equities over the period January 1926 to September 1993 was 7.25 percent. Also, many researchers have found that, as the risk of an investment increases, so does its expected return. For this reason, we forecast the expected return of other equity asset classes, such as domestic small capitalization equities and international equities, to have greater expected returns.

The basis of our fixed income return forecasts is the current risk-free rate of return, as proxied by the current yield on a risk-free government bond with a maturity matching the investment time horizon. Currently, this rate is 6.31 percent, the current yield on 20-year U.S. Treasury bond. To this rate, we add the appropriate maturity premium (additional return required by investors for relinquishing the use of their money for long time periods) and default premium (additional return that compensates investors for buying bonds that have default risk, such as corporate bonds) for each class of bonds for which we are forecasting returns.

For international fixed income assets, we forecast returns as if the assets were denominated in U.S. dollars. Since currency fluctuations are expected to average to zero over time, any short-term currency gains or losses will not affect the long-term return on international assets. Currency fluctuations do increase risk, however, and are accounted for in our risk forecasts of non-U.S. fixed income assets.

Forecasting Risk

When forecasting the risk of an asset, we typically assume that the future will equal the past. Therefore, we forecast risk by calculating the historical standard deviation using a long time period over which we have reliable data, and data that is representative of possible future scenarios. Although investment risk can be quantified in a number of



ways for asset allocation purposes, we believe that risk is best modeled as the annual volatility of returns, and standard deviation provides an estimate of how much actual returns may deviate from the average, expected return over time. We use shorter time periods only when we can identify a permanent and dramatic process shift in the behavior of an asset class, such as the late 1960s when bond market volatility increased noticeably from its observed volatility during the previous 40 years.

Forecasting Return Correlation


Return and risk are not the only factors that determine how a portfolio performs. The correlation between the returns of two assets also plays an important role in portfolio performance. Correlation measures how much the returns of two assets tend to move together or move separately. If the returns move together, the assets are positively correlated. If they move in opposite directions, the assets are negatively correlated. If no pattern can be detected in the way the assets' returns move, the assets have a return correlation of zero.

Portfolios comprised only of assets that have high, positive correlations with each other are not well diversified. This tends to exaggerate both upside and downside volatility, and the risk of the portfolio. On the other hand, portfolios with assets that have low or negative return correlations will provide more stable returns because, even though some assets may perform poorly, other portfolio assets will perform better, serving to reduce portfolio volatility. The benefits of diversification, therefore, are a direct result of relatively low return correlations among portfolio assets.

When forecasting return correlation, we again typically assume that the future will equal the past. The basis for our forecast of return correlation is, therefore, the historical correlation between assets, observed over the longest time period for which reliable data is available.

Determining the Fund's Current Allocation

The amount of the Fund currently allocated to each asset class was determined by using information in the Fund's 1993 Annual Report, with supplemental information provided by William L. Means, the Fund's Chief Investment Officer. Market values of all investments came from the Annual Report, while Mr. Means provided clarification regarding the amount currently invested in equities of domestic companies with capitalizations larger than \$1 billion (large capitalization equities), the amount currently invested in equities of companies with capitalizations of \$1 billion or less (mid and small capitalization equities), and the amount currently invested in domestic government and corporate bonds with maturities ranging from one to seven years (intermediate-term),



and more than seven years (long-term). The Fund's current allocation, and its expected return and standard deviation is given on page 5.

Determining the Fund's Three-Year Target Allocation

The Permanent Fund's investment manual provided information regarding the three-year target allocation, although some guidelines were too broad for our purposes. For example, the manual lists a 10 percent target allocation for international equities, but gives no country-specific allocations. In this case, we assumed the Fund would increase its international equity exposure to 10 percent, while maintaining the current proportion invested among sectors. Also, the target allocation constrains the amount invested in non-domestic fixed income assets to 10 percent or less, but provides no specific number. We assumed the amount invested in international debt would decrease in proportion to the total decrease in the amount allocated to all fixed income assets. The Fund's three-year target allocation, and its expected return and risk, is listed on the following page.

Current and Three-Year Target Portfolios

Asset Class	Current Allocation (%)	3-Year Target Allocation (%)
U.S. Large Capitalization Stocks	21.17	24.00
U.S. Mid/Small Capitalization Stocks	0.65	6.00
Canadian Stocks	0.03	0.04
European Stocks	2.54	4.28
Pacific Region Stocks	2.94	4.97
Emerging Market Stocks	0.42	0.72
Real Estate	6.69	10.00
Cash	4.64	0.00
Intermediate Govt/Corp Bonds	30.86	25.32
Long-Term Govt/Corp Bonds	25.27	20.74
Mortgage-Backed Securities	3.94	3.24
Non-U.S. Government Bonds	0.85	0.69
Expected Return (%)	8.53	9.93
Standard Deviation (%)	7.57	9.91



II. Asset Allocation Recommendations

The next step in our analysis was to improve the Fund's current and target portfolios by increasing their expected return while keeping expected risk at a constant level.

Allocation with Risk of the Current Portfolio

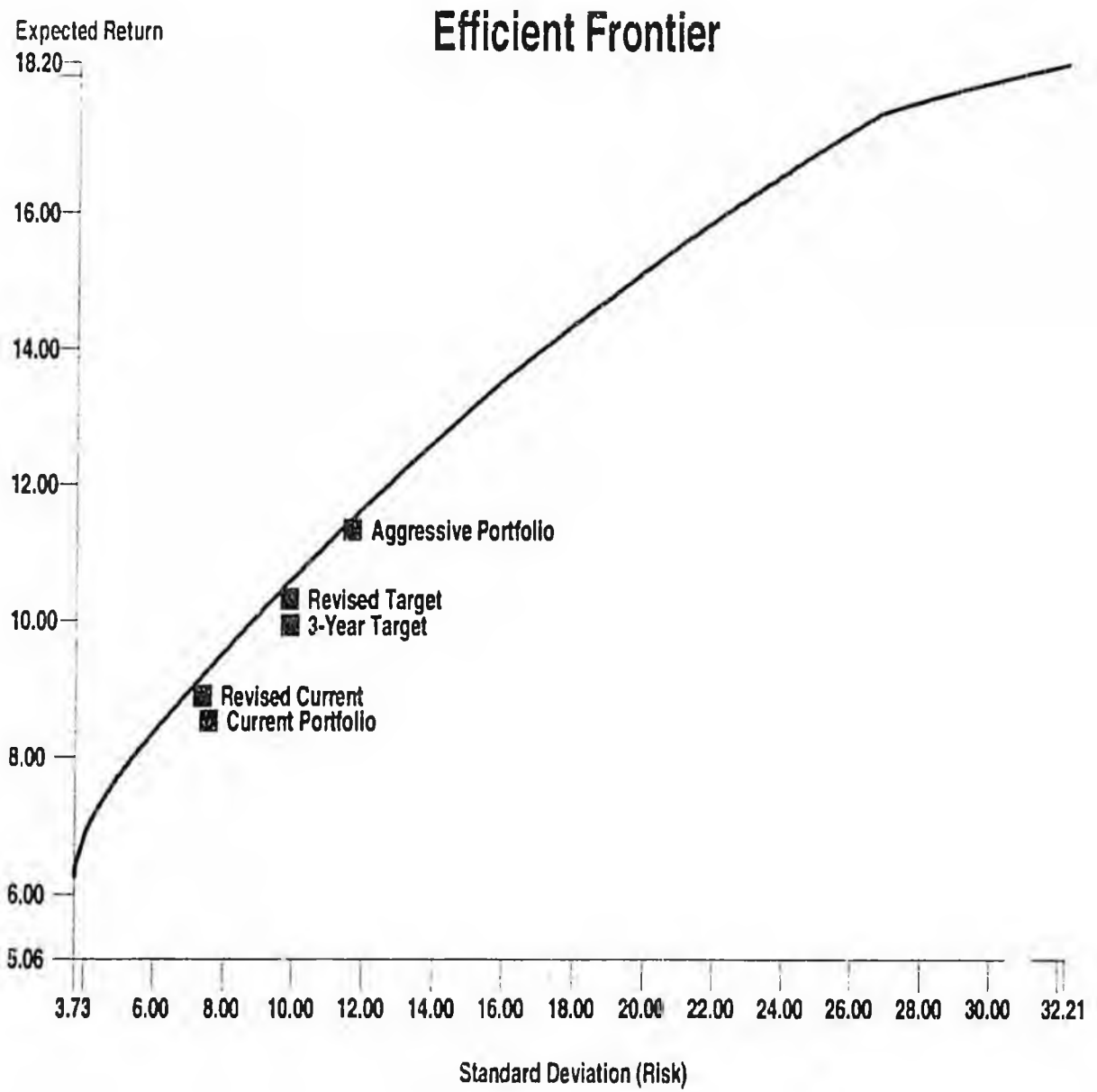
As shown in the graph on page 7, the Fund's current portfolio does not provide the maximum amount of expected return for the amount of risk taken. For example, the portfolio labeled "revised current" provides a higher expected return and slightly less risk than the current portfolio. (The graph is titled "Efficient Frontier" because the line in the graph represents those portfolios which are the most efficient in providing return to the investor; i.e., those portfolios provide the maximum return for a given level of risk.) The allocations for both the current and revised portfolios, as well as their expected returns and standard deviations, are shown on page 8.

The current portfolio need not be drastically changed in order to achieve a higher expected return. In fact, the percent of the portfolio invested in equities (approximately 35 percent, including real estate) and in fixed income assets (approximately 65 percent), is the same in both the current and revised portfolios. Rather, the composition of the equity and fixed income portions need only change. By shifting part of the equity portion from large capitalization stocks to mid and small capitalization and international stocks, and part of the fixed income portion from cash and long-term bonds to intermediate-term bonds and mortgage-backed securities, the Fund can achieve a higher expected return while taking less risk.

Although these changes represent shifts from safer assets to more risky ones, the overall risk of the portfolio actually decreases. This is because domestic mid and small stocks, mortgage-backed securities, and international stocks have low correlations with many of the other portfolio assets.


Allocation with Risk of the Target Portfolio

The graph on page 7 shows that the Fund's target portfolio also does not provide the highest possible expected return for the amount of risk taken. Although both the allocations of the target and revised target portfolios are equally divided between equity and fixed income assets, the revised target portfolio has a significantly higher expected return and less risk. The composition of both portfolios, along with their expected returns and standard deviations, is given on page 8.



**Current and Recommended
Portfolio Allocations**

Asset Classes	Allocations				
	Current Portfolio (%)	Revised Current (%)	3-Year Target (%)	Revised Target (%)	Aggressive Portfolio (%)
U.S. Large Cap Stocks	21.17	11.00	24.00	16.00	18.00
U.S. Mid/Small Cap Stocks	0.65	4.00	6.00	8.00	10.00
Canadian Stocks	0.03	0.00	0.04	0.00	0.00
European Stocks	2.54	3.50	4.28	6.00	7.50
Pacific Region Stocks	2.94	4.00	4.97	7.00	10.50
Emerging Market Stocks	0.42	2.50	0.72	3.00	4.00
Real Estate	6.69	10.00	10.00	10.00	10.00
Cash	4.64	1.00	0.00	1.00	1.00
Intermediate-Term Govt/Corp Bonds	30.86	40.00	25.32	30.00	18.00
Long-Term Govt/Corp Bonds	25.27	12.00	20.74	5.00	6.00
Mortgage-Backed Securities	3.94	12.00	3.24	14.00	15.00
Non-U.S. Govt Bonds	0.85	0.00	0.69	0.00	0.00
Expected Return	8.53	8.89	9.93	10.31	11.33
Standard Deviation	7.57	7.40	9.91	9.89	11.69



The superior tradeoff between risk and return of the revised target portfolio can be accomplished by shifting a larger portion of Fund assets into domestic mid and small capitalization stocks, international stocks, mortgage securities, and real estate. Again, these riskier assets have low correlations with many other portfolio assets, and therefore provide enhanced diversification benefits.

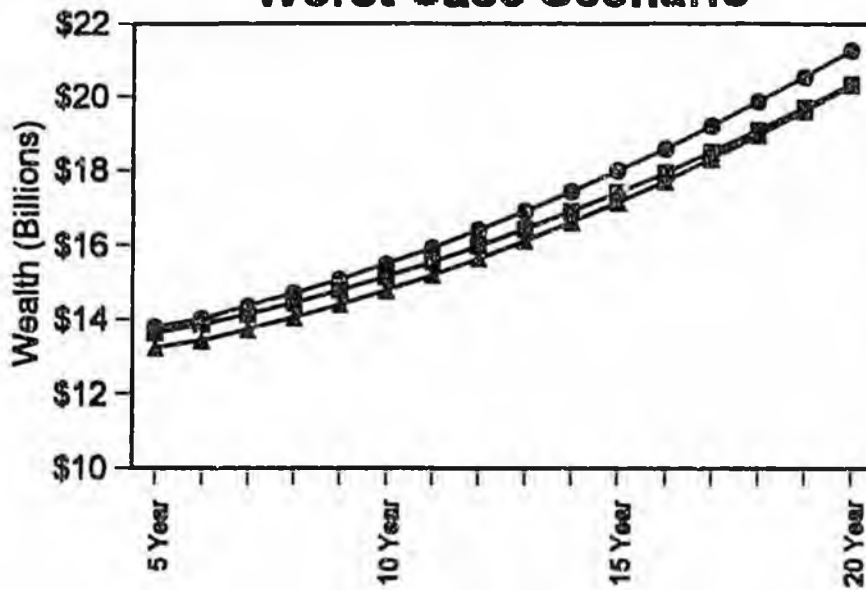
Allocation of a More Aggressive Portfolio

Although we have analyzed and suggested improvements to both the current and target portfolios, we have not yet commented on whether either portfolio is appropriate for the Fund. Ideally, a portfolio provides enough return to meet the goals of the investor while maintaining a level of risk that is comfortable for the investor. By setting a three-year target portfolio that has an increased allocation to equity assets, the Board has indicated that it is comfortable with a more aggressive investment philosophy. In our opinion, such an aggressive investing strategy is appropriate and necessary for achieving the Fund's statutory goals of maximizing total return and providing the maximum amount of disposable income to the citizens of Alaska. Consequently, we believe the Fund should consider the benefits of investing in the "aggressive portfolio," also shown in the graph on page 7.

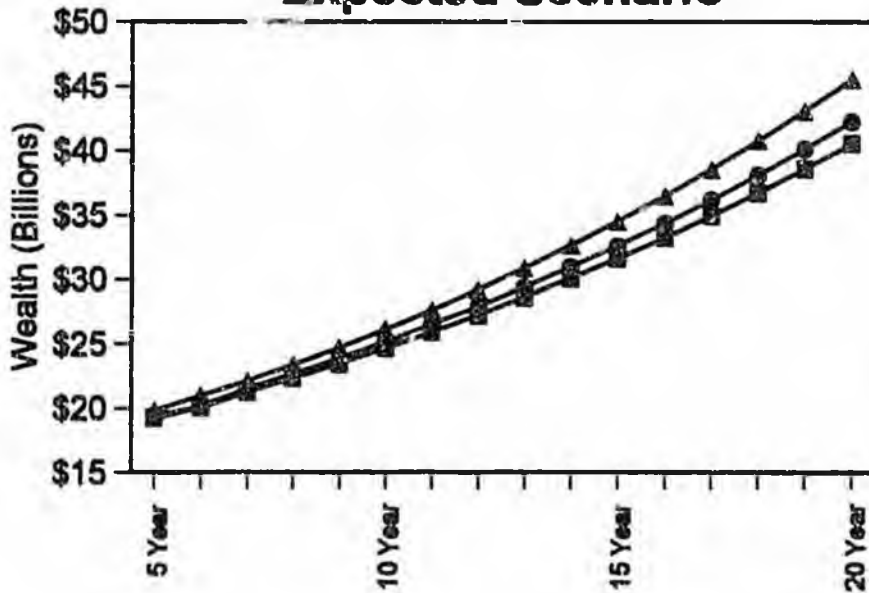
In recent years, the Fund has enjoyed relatively high returns, particularly on its fixed income investments. These high returns were due, in part, to rather unique market conditions, such as a dramatic decline in U.S. interest rates. These market conditions, however, are not expected to continue in the future, as evidenced by the returns expected on the current and target Fund portfolios. The potentially lower returns earned by both these portfolios are important factors to consider, because such low returns will inevitably lead to lower dividend payments to Alaskans. Our recommended aggressive portfolio, however, with its significant allocations to international equities and mortgage-backed securities, has an expected return in the range of the Fund's recent returns. The allocation of this aggressive portfolio, along with its expected return and standard deviation, is provided on page 8.

The graphs on the following page can help to compare the expected performance of each portfolio. The graphs show expected wealth values under the target, revised target, and aggressive portfolios for five-, ten-, and twenty-year investment horizons. Although the Board may consider the aggressive portfolio too risky, the graph shows that the majority of this portfolio's volatility is due to its broad range of possible high, *positive* returns, not negative ones. For all investment time horizons, the aggressive portfolio has a higher expected wealth value under the best- and expected-case scenarios. Only under the worst-case scenario does the aggressive portfolio underperform the target portfolio, while the revised target portfolio performs better than the target portfolio in *all* cases.

Worst Case Scenario

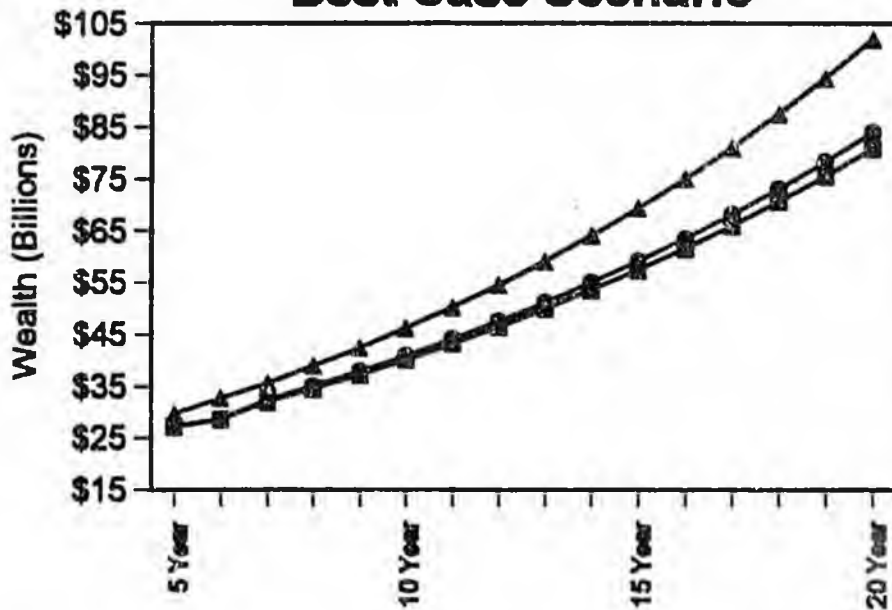


Expected Scenario



- 3-Year Target Portfolio
- Revised Portfolio
- ▲ Aggressive Portfolio

Best Case Scenario





Testing Our Recommended Portfolios

To ensure the validity of our recommended portfolios, we tested those portfolios and the Fund's current and target portfolios for *stability*. A stable portfolio is one that performs well under a variety of possible future market conditions; i.e., the portfolio provides adequate return for the amount of risk taken under conditions that differ from our forecasts. We tested the portfolios using "worst-case" scenarios where the return of one or more assets is lower than expected and the risk is higher than expected. The following scenarios were used, both individually and in combination, to test our recommended portfolios:

- U.S. equity risk premium decreases to 5 percent
- Mid and small capitalization equity return decreases to 15 percent
- Europe equity return decreases to 10 percent
- Europe equity standard deviation increases to 26 percent
- Pacific equity return decreases to 10 percent
- Pacific equity standard deviation increases to 34 percent
- Emerging market equity return decreases to 10 percent
- Return between long-term and intermediate-term bonds increases to 1 percent
- Intermediate-term bond standard deviation increases to 6 percent
- Mortgage-backed securities return decreases to 6 percent
- Mortgage-backed securities standard deviation increases to 11 percent
- Real estate standard deviation increases to 25 percent
- Correlation between U.S. stocks and U.S. bonds increases 30 percent
- Correlation between U.S. stocks and non-U.S. stocks increases 30 percent

Under these scenarios, our recommended portfolios provided higher returns with less risk than either the Fund's current or target portfolios. For example, the improved target portfolio had 10 basis points more return and less risk than the current target portfolio when tested under the assumption that all international markets had the lower returns and higher risks outlined above. This indicates that the revised portfolios will perform better over the long run, despite possible extreme underperformance of some markets.



III. Implementation Issues


Whichever portfolio the Board chooses, several issues must be addressed by the Board to ensure maximum Fund performance. The single most important issue is the degree of adherence to the chosen allocation. Research has suggested that the asset allocation decision accounts for over 90 percent of the variability of returns on a portfolio, and is the single largest determinant of portfolio performance.¹ Consequently, individual security selection and active security management, the two factors commonly assumed to contribute the most to the return of a portfolio, actually account for only a small amount of portfolio return variability. Therefore, adherence to the chosen allocation is *crucial* to the future performance of any investment portfolio, including the Permanent Fund. Accordingly, the Board must decide whether the current investment strategy of the Fund accommodates a strict adherence to the chosen allocation. We address this issue separately for equity and fixed income assets in the following two sections.

Equity Assets

As of April 1993, the Board decided to use active managers only for domestic mid/small capitalization stocks and all international equities. Since our recommended portfolios are based on passive benchmarks, we believe that the long-term performance we forecast can be achieved through the use of passive managers, although it is certainly possible for active managers to meet or exceed that performance. For this reason, we believe the Board's decision to retain active managers is appropriate, *as long as each manager is given only that portion of Fund assets that is recommended in the chosen allocation, and is required to invest those assets in the specific, recommended asset class.*

This stipulation is in direct contrast to the Board's new global investment strategy as outlined in the Fund's 1993 Annual Report. The new strategy allows active international equity managers to decide when and where to invest Fund assets, essentially shifting the asset allocation decision from the Board to the manager. As mentioned earlier, asset allocation, not security selection or active market timing, is the largest determinant of portfolio performance. Under the planned strategy, the Fund's equity allocation will shift continuously, violating the most crucial aspect of strategic asset allocation: maintaining a stable asset mix which was chosen based on long-term forecasts and needs of the fund. For this reason, we suggest a slightly modified strategy where the Board hires managers that have a specific style of investing. For example, under this modified strategy, the European equity allocation would be managed by a manager who specializes in European equities. This type of management strategy would allow the Board to retain control over the equity allocation of the Fund.

¹ Gary P. Brinson, Brian D. Singer, and Gilbert L. Beebower, "Determinants of portfolio performance II: An update," *Financial Analysts Journal*, May-June 1991.




The Fund's domestic equity managers also have similar control over the asset allocation decision. Currently, the performance of each domestic equity manager is evaluated by using a benchmark portfolio that consists of 80 percent large capitalization equities and 20 percent mid and small capitalization equities. The equity managers, however, are not specifically required to invest 80 percent of their Fund allocation in large capitalization stocks and 20 percent in mid and small capitalization stocks. A manager could alternate between large cap and mid and small cap stocks, and still *average* an 80 percent large cap and 20 percent mid and small cap investment. This manager could potentially be 100 percent invested in large cap stocks when the return in the mid and small cap market is high, and vice-versa. Again, this causes the overall equity allocation of the Fund to change continuously, and shifts control of the asset allocation decision to individual managers. Because the asset allocation decision is so important to the overall performance of the Fund, we feel the Board should set specific domestic equity allocations, and select managers who specialize in each asset class. This will ensure the maximum expected return for the Fund's equity investments.

Fixed Income Assets

Currently, the Fund's fixed income assets are passively managed in-house by the Fund's Chief Investment Officer, and are generally treated as a single asset class. Our analysis, however, treats the fixed income category as five distinct asset classes, because each contributes unique benefits to the overall portfolio. Treasury bills, for example, provide more liquidity than the other assets, and are, consequently, the least risky. Also, mortgage-backed securities perform differently from government or corporate bonds. For this reason, each fixed income asset class must be considered separately in the asset allocation decision.

Currently, the Board treats all fixed income assets as a single asset class and provides only a broad allocation directive. This essentially shifts the asset allocation decision to the fixed income manager. While the current allocation across fixed income assets may be appropriate when viewed in isolation, that same allocation may be inappropriate when viewed in the context of the overall portfolio. The Board has a comprehensive perspective on the Fund and, as such, should determine the Fund allocation to each asset class. For this reason, we suggest that the Board set specific target allocations for fixed income asset classes. In this way, the Board maintains control over the Fund's asset allocation and ensures maximum overall Fund performance.

Prior to beginning our study, several Board members and senators voiced concern over the Fund having only one manager for the entire fixed income portfolio. We feel that a single, capable manager, such as the current manager, can manage a large, passive fixed income portfolio with few problems, as long as that portfolio has only a small allocation to mortgage-backed securities. However, if a larger proportion of funds was invested in



mortgage-backed securities (as is our recommendation), it may be required to hire additional staff. This is because mortgage-backed securities are more complex to analyze, and the holders of mortgage securities continually receive principal and interest payments which must be accurately recorded. All our recommended portfolios contain substantial allocations to mortgage-backed securities. Consequently, we suggest that the Board hire an outside manager to manage the mortgage portfolio, or, at the very least, hire additional support staff.

Conclusion

Although the Permanent Fund has an excellent performance history, the Fund faces new and uncertain investment challenges in the coming years. The Board, realizing the importance of asset allocation to overall Fund performance, has created a target allocation to meet those challenges. However, as our analysis reveals, the Board can implement a better allocation for the Fund, one that has higher expected return and less risk than the Fund's target portfolio. Also, the Board can implement a new investing policy, one emphasizing an adherence to the chosen allocation. By doing so, the Board will help ensure the maximum expected performance of the Fund over the long-term investment horizon, thereby providing the highest possible income to the State's citizens and fulfilling its obligation to those citizens.



Appendix A: Benchmarks Used in Asset Allocation Study

<u>Asset Class</u>	<u>Benchmark Description</u>
U.S. Large Capitalization Equity	S&P 500: A market capitalization-weighted index of 500 of the largest stocks of companies domiciled in the United States.
U.S. Mid/Small Capitalization Equity	Russell 2000 Index: A market capitalization-weighted index of the stocks of the bottom two thirds of the largest 3,000 publicly traded companies domiciled in the United States.
Canada Equity	Morgan Stanley Capital International Canada Total Return Index: A market capitalization-weighted index of 81 large Canadian stocks.
Europe Equity	Morgan Stanley Capital International Europe Total Return Index: A market capitalization-weighted index of large stocks from Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.
Pacific Equity	Morgan Stanley Capital International Pacific Total Return Index: A market capitalization-weighted index of large stocks from Australia, Hong Kong, Japan, Malaysia, New Zealand, and Singapore.
Emerging Markets Equity	IFC Emerging Market Composite Index: A broad-based, market capitalization-weighted index of stocks listed in countries with a per capita GDP below an annually-disclosed figure. Currently, 20 countries are represented in the Composite index.
Cash	U.S. 90-Day Treasury Bills: Published by Salomon Brothers in <i>International Bond and Money Market Performance</i> .



IT Govt/Corp Bonds

Lehman Brothers Intermediate-Term Government/Corporate Bond Total Return Index: A portfolio of U.S. government issues (>\$100 million par value) and investment grade corporate debt (>\$50 million par value) with an average maturity of 4.42 years as of November 29, 1993.

LT Govt/Corp Bonds

Lehman Brothers Government/Corporate Bond Total Return Index: A portfolio of U.S. government issues (>\$100 million par value) and investment grade corporate debt (>\$50 million par value) with an average maturity of 10.81 years as of November 29, 1993.

Mortgage-Backed Securities

Lehman Brothers Mortgage-Backed Securities Total Return Index: An index of all fixed-rate securities backed by mortgage pools of the Government National Mortgage Association (GNMA), Federal Home Loan Mortgage Corporation (FHLMC), and the Federal National Mortgage Association (FNMA). The index has an average maturity of 5.39 years.

Non-U.S. Bonds

Salomon Brothers Non-U.S. 1+ Bond Index: A market capitalization-weighted index of bonds from Australia, Canada, Germany, Japan, Netherlands, Switzerland, and the United Kingdom with one year or more to maturity. The average maturity of bonds in the index is 6.95 years.

Real Estate

Wilshire Real Estate Securities Total Return Index: A market capitalization-weighted index of approximately 85 real estate investment trust and real estate operating companies.

Appendix B: Forecasts Used in Asset Allocation Study

Forecasts of Expected Return and Standard Deviation

Asset Class	Expected Return	Standard Deviation
U.S. Large Cap Stocks	13.56	20.61
U.S. Mid/Small Cap Stocks	18.03	32.95
Canada Stocks	13.73	24.64
Europe Stocks	13.98	22.69
Pacific Stocks	15.11	28.24
Emerging Market Stocks	21.38	47.00
Real Estate	9.90	13.63
Cash	4.61	2.73
IT Govt/Corp Bonds	5.89	4.10
LT Govt/Corp Bonds	6.37	7.22
Mortgage-Backed Securities	7.45	9.28
Non-U.S. Govt Bonds	6.01	14.75