

Los Angeles Fire & Police Pensions



To Serve Those Who Protect

Considering Real Return

Pension Consulting Alliance, Inc.

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Rationale for a Real Return Class

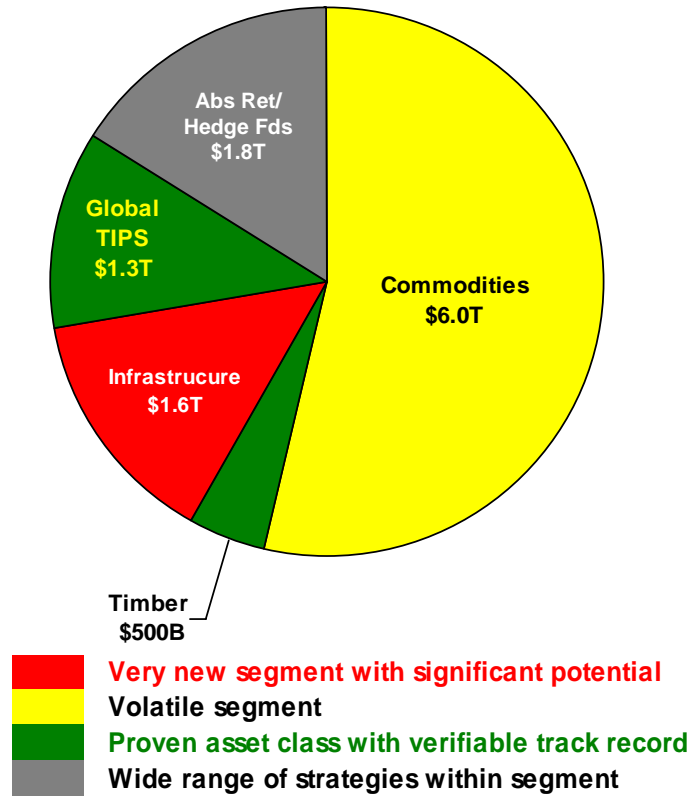
- Under current policies, plan sponsor portfolios often exhibit >70% equity exposure
 - Institutional real estate portfolios have become more appreciation-oriented and may not diversify against equity risk
 - Private equity portfolios may magnify, rather than diversify, public equity volatility
- A prudently structured Real Return portfolio should diversify equity risk while providing levels of returns greater than bonds and moderately less than equities
- Given that inflation (in contrast to the investment markets) produces a relatively stable time series, a Real Return class likewise should be designed to produce relatively stable returns in excess of inflation

Rationale for a Real Return Class

THE OPPORTUNITY SET IS LARGE

Combined Size of Potential Investment Markets

(estimates for 12/31/2008)

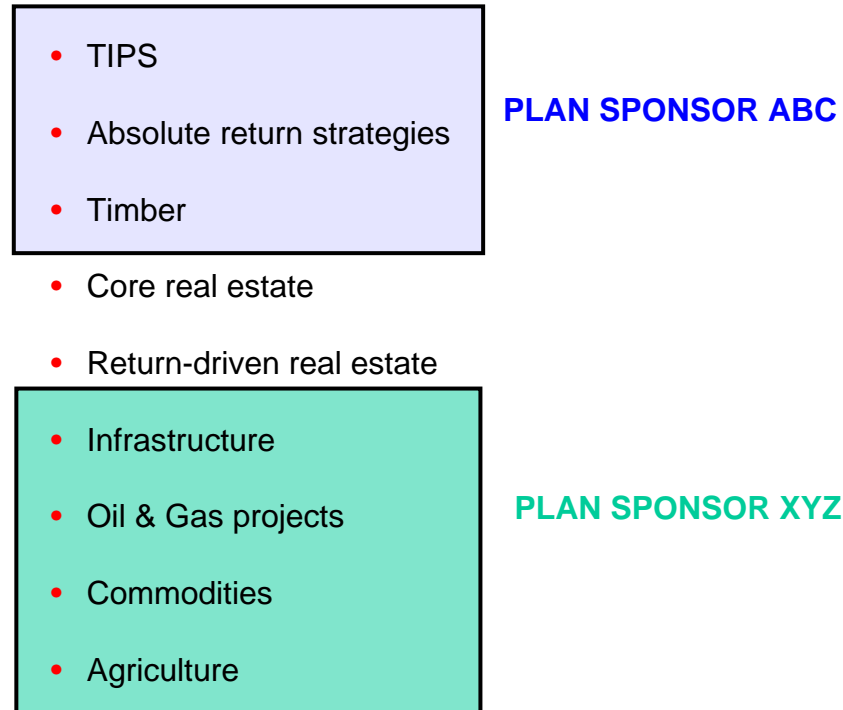


- Real Return-oriented investments represent over \$10 trillion in opportunity
- Other segments include Agriculture and Oil & Gas; LIBOR+ mandates may also be appropriate

Sources: RREEF Real Estate Research, AllianceBernstein, Forest Investment Associates, Mercer

Modeling the Real Return Class

- Different plan sponsors may arrive at different structural definitions for the Real Return Class:



- Once a set of components are determined as viable, appropriate assumptions must be established

Modeling the Real Return Class

- Typically, depending on the plan sponsor, a final set of class structural options are analyzed:

**One Plan Sponsor's
Various Allocation Options for the
Real Return Class**

Asset Class Subcomponents	Option 1	Option 2	Option 3
TIMBER	0%	0%	25%
TIPS	50%	70%	50%
ABSOLUTE RET	50%	30%	25%
TOTAL	100%	100%	100%

- “Optimal” structures reflect liquidity, skill sets, resources, current exposures, etc. and are not necessarily a function of a mean-variance process
- While structural differences are marginal, a single final structure is used in asset-liability modeling

Modeling the Real Return Class

INITIAL EXAMINATION of MODELED OPTIONS

- Modeled Real Return structures exhibit:
 - Solid diversification characteristics versus both public and private equity
 - Positive returns during difficult periods for fixed income
 - Positive modeled results in all four difficult economic environments
 - Short principal loss periods combined with rapid recoveries
 - Correlations are low versus major asset classes, with Option 3 the lowest
 - Correlations are reasonable vs. inflation, better than TIPS alone, Option 3 has highest inflation correlation – 0.42

Year	Cash	Infl. Prot. Sec.	Fixed Income	US Equity	Non US Equity	Custom Real Est.	Private Equity	Option 1	Option 2	Option 3	CPI
1970	4.77	11.79	11.46	1.70	(11.42)	2.12	(36.32)	4.64	7.50	4.93	2.88
1971	3.26	2.69	6.01	10.81	23.69	5.38	(1.26)	2.80	2.76	2.28	1.86
1972	3.08	2.57	3.43	14.94	29.05	2.06	6.33	3.63	3.21	3.86	1.86
1973	5.19	14.02	0.67	(14.68)	(14.51)	(4.54)	(37.04)	4.32	8.20	15.22	4.48
1974	5.82	13.46	(0.83)	(25.03)	(21.23)	(3.86)	(32.81)	4.12	7.86	8.66	6.13
1975	4.35	(0.40)	7.72	30.96	28.64	3.94	30.62	5.06	2.87	2.09	3.61
1976	3.74	6.16	10.05	19.27	0.55	25.68	55.12	11.32	9.26	9.52	2.54
1977	3.97	5.60	1.19	(13.24)	13.78	15.38	48.46	9.41	7.89	14.20	3.51
1978	5.29	4.80	0.04	0.45	26.26	20.47	56.03	8.46	7.00	10.31	4.58
1979	7.29	10.43	0.41	19.45	2.62	55.05	29.70	13.14	12.05	14.24	6.66
1980	8.33	0.65	0.95	26.83	17.96	27.34	86.50	9.48	5.95	5.29	6.23
1981	10.47	5.17	3.46	(5.66)	(3.45)	18.72	(11.53)	2.99	3.86	2.63	4.53
1982	7.95	12.66	22.05	16.46	(3.32)	11.89	22.39	10.71	11.49	7.68	2.10
1983	6.34	(2.01)	4.94	18.24	18.13	17.61	37.46	4.43	1.85	1.19	2.05
1984	7.05	4.43	9.73	1.20	4.04	16.80	(8.99)	3.85	4.08	2.97	2.15
1985	5.59	11.92	14.63	26.53	45.15	11.95	5.40	8.87	10.09	6.52	2.05
1986	4.50	3.31	9.81	12.93	56.29	2.26	(2.08)	3.92	3.67	2.72	0.74
1987	4.28	5.11	1.00	(0.05)	18.39	(8.55)	(0.27)	2.63	3.62	6.92	2.35
1988	4.86	2.07	4.61	13.92	20.89	1.55	5.64	3.27	2.79	7.15	2.35
1989	6.13	7.83	9.30	24.01	7.53	(1.03)	1.25	5.31	6.32	10.94	2.44
1990	5.63	9.38	5.11	(6.21)	(21.73)	(17.70)	(6.77)	3.38	5.78	5.54	3.17
1991	4.17	2.51	10.65	27.84	9.15	(15.60)	17.75	5.94	4.57	6.79	1.72
1992	2.72	4.43	4.37	6.75	(11.82)	(22.02)	10.04	4.77	4.63	9.80	1.67
1993	2.36	5.23	6.38	7.80	26.78	(9.41)	23.38	13.95	10.46	11.86	1.57
1994	3.13	(3.99)	(3.12)	(1.62)	2.99	(1.56)	3.94	(4.36)	(4.21)	(0.88)	1.52
1995	4.16	10.31	12.08	30.62	5.78	3.29	13.15	9.49	9.82	9.33	1.47
1996	3.83	1.33	2.19	17.43	3.03	17.24	32.33	6.51	4.44	5.03	1.62
1997	3.83	1.95	5.94	26.18	(0.87)	17.23	26.04	7.66	5.37	7.25	1.04
1998	3.87	1.53	4.20	19.44	9.29	8.43	20.18	(2.35)	(0.79)	(0.23)	1.13
1999	3.48	0.62	(0.83)	16.60	23.19	5.57	89.84	11.71	7.27	7.48	1.60
2000	4.45	7.28	6.69	(8.32)	(15.47)	16.76	(34.03)	4.74	5.76	4.47	1.86
2001	2.74	3.99	4.76	(11.84)	(19.19)	2.15	(30.15)	2.51	3.10	0.78	1.11
2002	1.49	9.35	5.98	(20.70)	(15.17)	(1.56)	(40.04)	4.38	6.37	4.33	1.37
2003	1.06	4.30	3.17	25.57	31.77	18.01	58.98	6.72	5.75	5.32	1.12
2004	1.25	4.34	2.54	8.74	15.01	21.34	15.20	4.56	4.47	4.89	1.79
2005	2.54	0.86	0.97	3.62	11.40	29.01	1.71	3.10	2.20	4.80	1.86
2006	3.53	(0.64)	2.55	12.06	19.84	23.09	6.33	3.97	2.12	3.52	1.76
Average	4.50	5.00	5.25	9.00	9.00	8.50	12.50	5.65	5.39	6.20	2.50
StdDev	2.00	4.50	5.00	15.00	18.50	15.00	32.00	3.83	3.35	3.98	1.50

Number of Down Years	2	2	2
Minimum Return	(4.36)	(4.21)	(0.88)
Maximum Drawdown Period (in Yrs)	1	1	1
Recovery from Max Drawdown (in Yrs)	<1	<1	<1

Performance During Challenging Equity Periods

Year	Cash	Infl. Prot. Sec.	Fixed Income	US Equity	Non US Equity	Custom Real Est.	Private Equity	Option 1	Option 2	Option 3	CPI
72-73	5.50	13.74	(0.08)	(20.02)	(17.94)	(4.20)	(34.96)	4.22	8.03	11.89	5.30
90-92	4.17	5.40	6.67	8.57	(9.01)	(18.48)	6.50	4.69	4.99	7.37	2.18
00-02	2.89	6.85	5.81	(13.78)	(16.63)	5.49	(34.87)	3.88	5.07	3.18	1.44

Source: PCA



Modeling the Real Return Class

- Different plan sponsor blueprints for the class reflect different preferences and skill sets:

Examples of Approved Plan Sponsor “Blueprints”

Asset Class Subcomponents	CaIPERS Inflation- Linked	OTPP Inflation- Linked	WSIB Tangible Assets	KPERS Real Return
TIPS	20%	0%	0%	50%
TIMBER	20%	20%	30%	25%
INFRASTRCTR	30%	60%	50%	0%
COMMODITIES	30%	10%	0%	0%
OIL&GAS	0%	0%	10%	0%
AGRICULTURE	0%	10%	10%	0%
ABSOLUTE RET	0%	0%	0%	25%
TOTAL	100%	100%	100%	100%

Source: PCA

- Wide variation of structures, reflecting unique plan sponsor characteristics
- Typically, market-driven opportunities will cause actual fundings to deviate significantly from proposed structure
- Policies and guidelines for this class allow for ample investment latitude

Modeling the Real Return Class

- Significant discussion should take place to outline an appropriate Real Return investment policy
 - What underlying segments should be included?
 - How much exposure does the plan sponsor already have to the underlying segments?
 - What would be the resource requirements associated with investing in new segments?
 - Review of assumptions of underlying components
 - Recognition that any model for a Real Return class is likely, at best, to be indicative and not overly precise
 - Implementation of any one of several structures may take an extended period of time

- Many of the underlying segments do not lend themselves favorably to mean-variance optimization
 - There is limited history, *at best*
 - Many segments/classes are not marked-to-market
 - Stress testing of assumptions and disclosure of modeling difficulty is a critical step to developing an initial awareness of the challenges of investing in certain underlying segments

Implementing A Real Return Class

- Investing in a Real Return Class would likely exhibit a combination of private equity, hedge fund, and real estate-like characteristics
- A new funding level for the Real Return Class would likely be determined through the asset-liability process
- An important implementation step would be to review and enhance policies and guidelines that would dictate the long-term structuring of the Real Return Class portfolio