

**RESTRICTIONS ON
PENSION FUND
INVESTMENT – A COST
ASSESSMENT**

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Overview

- Background – optimal investment for pension funds
- Distinguishing between QAR and PPR regulatory approaches
- Weighing up the arguments
- Tests of the benefits of PPR
- Conclusions and issues for discussion

Background – optimal investment for pension funds

- Defined contribution – mean-variance approach to maximise replacement ratio at retirement, subject to members' risk aversion
- Defined benefit – subject to additional risks:
 - Real labour earnings, interest rates, mortality risks, falling asset returns, risks of changes in government regulation
- Warrants asset-liability management (ALM) approach:
 - Immunisation
 - Asset driven approaches
 - Liability driven approaches
- Benefits of international for both DB and DC- avoid unnecessary systematic risk

Defining QAR and PPR

- **Quantitative asset restrictions (QAR)** – limits on holding of particular classes of assets and notably international assets
- Considers prudence equal to safety, where security of assets is measured instrument-by-instrument.
- Typically limits holdings of assets with relatively volatile nominal returns, low liquidity or high credit risk, even if mean return relatively high.
- **Prudent person rule (PPR)**, “a fiduciary must discharge his or her duties with the care, skill, prudence and diligence that a prudent person acting in a like capacity would use in the conduct of an enterprise of like character and aims” (OECD definition)

- Prudent investment is what someone would do in the conduct of their own affairs
- Test is of the behaviour of asset manager, institutional investor and process of decision-making.
- Example, whether “due diligence” investigation undertaken in formulating strategic asset allocation, whether coherent/explicit statement of investment principles.
- Polar extremes rarely adopted:
 - PPR typically accompanied by a QAR on self investment,
 - Some QAR countries introduce concepts of maximising safety and profitability to their investment laws.
 - Commonly in PPR restrictions on large exposures
 - QAR rarely extended to require specific methods and targets for maturity matching

The case for QAR

- Limits overall risk of a pension portfolio, while allowing sponsors to be as competitive or low-cost as possible;
- May protect beneficiaries against insolvency of operators and investment risks, by ensuring diversification;
- Reduces need for an insurance fund;
- Protects governments from need to bail out individuals from imprudent investments in DC products;
- Compliance more readily verified and monitored than for PPR. Lowers cost of running regulatory agency
- Canadian case – “government rules are necessary for the proper allocation of resources”

- Difficulty with PPR - court judgements (or desire to avoid litigation) can lead to narrow interpretations of risk and safety, possible focus on indexation
- Case for QAR stronger in EMEs, where managers and regulators inexperienced, markets volatile and open to manipulation by insiders, investors may need to be prevented from taking excessive risks.
- Issues regarding internal controls in institutions, industry's capacity for self-regulation and related governance structures.
- If securities markets not yet developed, possibly need for initial investment in government bonds, corporate loans and corporate bonds.
- Further issues in context of capital outflow controls in EMEs that may be needed to avoid currency crises

The case for PPR

- Allows free market to operate throughout investment process while ensuring, along with solvency regulations and contributions policy, adequacy of assets and appropriate risk
- Presumption diversification of investments is key indicator of prudence, in line with finance theory
- Entails wider degree of transparency for the institutions
- May be delegated to industry self regulating bodies

Weighing up the arguments

- Finance theory arguments strongly against QAR:
 - Likely to enforce holdings of a portfolio below the efficient frontier, (high proportions of bonds and domestic assets);
 - Limits diversification benefits of international investment, also exposing policy holders to currency risk;
 - Focuses unduly on risk and liquidity of individual assets and ignore risk reduction via diversification, and liquidity risk depends on the overall liquidity position;
 - May prevent account being taken of the duration of the liabilities and related changes in risk aversion;
 - Renders difficult or impossible the application of appropriate immunisation or ALM techniques for maturity matching;
 - Encourages national governments to treat pension funds as means to finance budgetary requirements;
 - May impose higher administrative costs on pension funds

- If limits use of derivatives, force the institution either to hold low-yielding assets or expose itself to unnecessary risks;
- Inflexible and cannot be changed rapidly for changing conjunctural economic circumstances and market movements;
- Incentivises asset managers to hold proportions of risky assets which fall well short of the limits, to avoid breaching them;
- May encourage low levels of surplus assets;
- Strategies likely to conform with legal restrictions rather than attaining good returns, reducing risk and other desirable objectives;
- Impacts on the asset management industry and the economy
 - Less incentive to nominate skilled investment managers;
 - Competition among asset managers discouraged;
 - Development of asset management industry set back;
 - QAR may lead to inefficient allocation of capital, via limiting capital to small firms and pension funds' corporate governance;
 - Increase costs for employers providing pensions.

Tests of the benefits of PPR

- Limited amount of empirical work – often using quite short national return datasets and not allowing for risk
- Other influences on pension fund portfolios typically not taken into account in studies, such as:
 - Regulation
 - Liabilities
 - Taxation
 - Corporate governance of pension funds
 - Competition in asset management
 - Inefficiencies in international capital markets
 - Financial structure in terms of bank or market dominance
- We now go on to outline some key contributions

Davis 2002

- Compared pension fund returns between QAR and PPR countries in aggregate pension fund sector for 7 OECD countries using data from 1980-95
- Used flow of funds data on pension fund sector and overall market indices for returns
- Found both higher returns and in most cases lower risk in PPR on average
- Similar result if comparing with benchmarks
- Problem – small sample of countries and short dataset. Some results differ over 1970-95

Estimated returns on pension fund portfolios

	Nominal return	Standard deviation	Real return	Standard deviation	Memo: 1970- 1995 real returns	Memo: 1970- 1995 Standard deviation
Average	11.5	9.4	7.2	10.0	4.6	10.0
Prudent person	11.9	8.7	7.8	9.5	4.8	10.2
Restricti ons	10.6	11.1	5.8	11.4	4.0	9.5

Comparing pension fund real returns with benchmarks

Real return on pension funds less	50-50 domestic bonds and equities	Global 50-50 bonds and equities	Real earnings growth
Average	-2.2	-2.7	6.4
Prudent person	-1.8	-1.9	6.9
Restrictions	-4.6	-4.1	4.9

Hu 2007

- Assessed pension asset allocation in 39 countries, 17 emerging markets and 22 advanced countries.
- Investigated rate of change in the Sharpe ratios comparing mean variance optimal portfolios with foreign assets to those confined to domestic assets.
- Positive values for pension funds in both OECD countries and EMEs, with a larger effect on the latter.
- Widely differing optimal portfolio - higher proportion of pension funds optimally allocated to foreign assets in EMEs than those in OECD countries.
- Results not based on actual investment performance of funds or sectors

Percent change in Sharpe ratio shifting from the QAR to PPR

	Min	Max	Median	Mean	SD^a
OECD	24.7	43.5	34.0	34.0	5.8
EXCL OUTLIERS	7.2	15.2	10.3	10.6	2.5
EMEs	108.0	184.3	134.2	138.2	30.8
EXCL OUTLIERS	36.9	75.4	50.3	52.6	15.5

Davis and Hu 2008

- Analysed returns and risks on Canadian pension funds vis and vis those in UK and US, in light of residual QAR aspects of Canadian regulation
- Used both aggregate and individual fund data
- Found Canadian funds underperform in risk and return relative to benchmarks and also relative to a mean-variance optimal portfolio
- Data period covers period of Canadian foreign asset restrictions so does not show solely current rules

Sectoral real returns and benchmarks, UK and Canada

Canada		Actual portfolio	50-50 domestic	20% foreign	40% foreign	Global portfolio	Diversified portfolio
66-06	Mean	5.4	5.7	5.8	5.9	6.2	6.0
	S. Dev	8.0	9.9	9.4	9.3	11.6	8.6
	Ratio	0.7	0.6	0.6	0.6	0.5	0.7
90-06	Mean	8.3	9.2	8.6	8.0	6.2	8.1
	S. Dev	7.1	9.3	8.6	8.3	9.6	8.1
	Ratio	1.2	1.0	1.0	1.0	0.6	1.0
United Kingdom							
66-06	Mean	7.7	7.2	6.8	6.4	5.2	6.9
	S. Dev	15.0	16.3	14.5	13.3	13.6	13.5
	Ratio	0.5	0.4	0.5	0.5	0.4	0.5
90-06	Mean	7.0	7.0	6.6	6.1	4.8	6.5
	S. Dev	9.8	9.1	9.1	9.4	11.8	9.4
	Ratio	0.7	0.8	0.7	0.7	0.4	0.7

Optimisation for 1978-2006

(1) High risk mean variance portfolio (100% risky portfolio)

	Overall Return	Overall Risk	Sharpe Ratio	Risky Portfolio						<i>Fund Return</i>	<i>Fund Risk</i>	<i>Sharpe Ratio</i>	<i>Excess return on fund</i>
				CB	GB	EQ	PR	FA					
Canada	7.9	5.7	1.385	0.231	0.034	0.112	0.460	0.163	7.6	7.8	1.0	-0.3	
UK	7.9	6.7	1.178	0.070	0.189	0.303	0.437	0.000	8.5	8.9	0.9	0.6	
US	7.2	6.0	1.215	0.000	0.030	0.271	0.658	0.042	7.5	9.9	0.8	0.3	

(2) Medium risk mean variance portfolios (80% risky portfolio)

	Overall Return	Overall Risk	Sharpe Ratio	Risk Fraction	Risky Portfolio						<i>Fund Return</i>	<i>Fund Risk</i>	<i>Sharpe Ratio</i>	<i>Excess return on fund</i>
					CB	GB	EQ	PR	FA					
Canada	6.6	4.0	1.7	0.8	0.111	0.164	0.087	0.510	0.129	7.6	7.8	1.0	1.0	
UK	6.4	4.8	1.3	0.8	0.018	0.378	0.183	0.421	0.000	8.5	8.9	0.9	2.1	
US	5.5	4.0	1.4	0.8	0.198	0.000	0.122	0.667	0.013	7.5	9.9	0.8	2.0	

Top 20 funds' real returns in UK and Canada, 2000-2006

	2000-2006
Canada	average
Mean fund return	5.2
Benchmark (40% foreign)	6.4
Excess over benchmark	-1.2
Standard deviation across funds	4.0
UK	
Mean fund return	1.7
Benchmark (40% foreign)	2.4
Excess over benchmark	-0.7
Standard deviation across funds	11.1

Other studies

- Queisser 2000 cites study for European Federation for Retirement Provision . Data for 1984-1993 shows pension funds from PPR European countries had 9.5% average real rate of return, compared to 6.9% for QAR
- OECD 2007 – extent to which different regulatory regimes impact on the performance of privately managed pension funds over 1990-2005. Most country pension funds underperform when compared to the hypothetical optimal portfolio, and investment restrictions have a damaging effect on performance.

Conclusions

- Overview of literature shows PPR superior to QAR in theory and also in empirical work.
- Some limitations on latter, such as small samples, other influences on portfolios, but overall outturn is clear.
- Warrants pressure on regulators to ease outstanding restrictions such as those in Canada
- Logic has been followed in IOPR Directive in Europe and recent shifts to PPR in countries such as Japan

Issues for discussion

- Are there any stronger arguments for QAR?
- How could the testing of effects of regulation be improved?
- For countries where QAR holds, how restrictive are the regulations considered to be in practice?
- Are they more serious for DC or DB schemes?
- Is their impact worsening in the context of the increasing sophistication of strategies?
- Is there a detectable impact on competition in asset management?
- Are governance structures adequate for PPR in all cases?
- Does the sub-prime crisis tell us anything about the effectiveness of PPR or QAR?

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