



# Pension Fund Investment and Regulation

- An International Perspective and  
Implications for China's Pension System

Yu-Wei Hu, Fiona Stewart and Juan Yermo  
Financial Affairs Division  
OECD, Paris

OECD/IOPS Global Private Pensions Forum  
InterContinental Hotel, Beijing  
14-15 November 2007

# Outline

- Introduction
- Regulatory approaches: QAR vs PPR
- Pension fund investment and regulation in China
- Benefits of pension fund investment liberalisation in China
- Conclusions

# Introduction

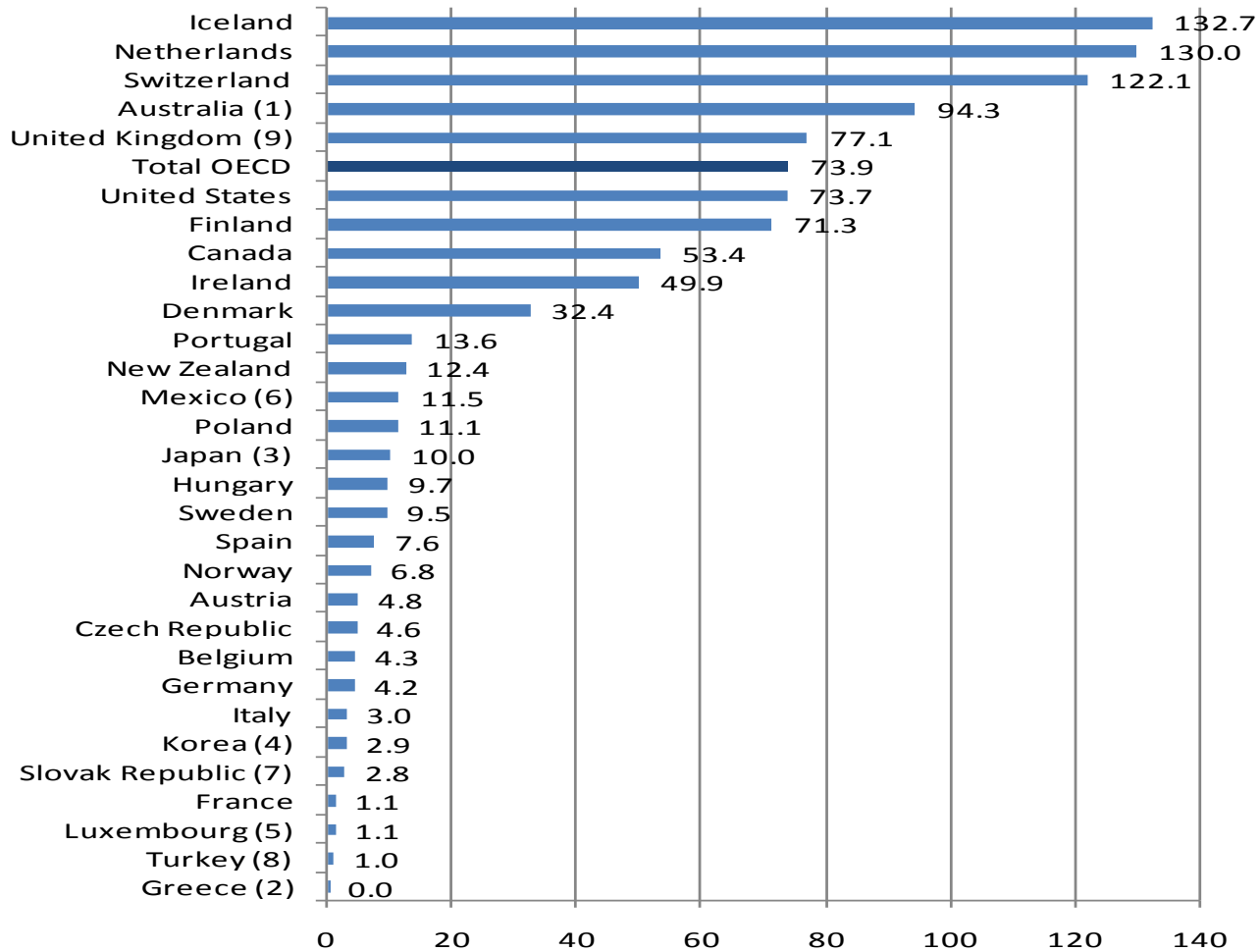
- Growing pension assets in both OECD and non-OECD countries
- Reasons include pension reform towards more funding, mandatory/voluntary, tax benefits, etc
- How such a large amount of assets are invested becomes important
- Two regulatory approaches in general, i.e. Quantitative Asset Restriction and Prudent Person Rule

# Pension fund assets in both OECD and non-OECD countries, in USD million

Country	2001	2002	2003	2004	2005	2006
<b>OECD countries</b>						
Australia (1)	200,943	208,656	255,588	473,142	581,036	687,265
Austria	5,673	7,863	10,553	12,882	14,573	15,611
Belgium	12,775	12,428	12,152	14,355	16,549	16,769
Canada	351,708	355,931	410,328	477,474	569,216	678,952
Czech Republic	1,404	2,053	2,852	3,884	5,152	6,462
Denmark	43,639	45,288	60,646	75,328	87,032	89,570
Finland	61,952	66,730	88,814	117,055	134,163	149,497
France	..	..	22,595	24,849	24,856	25,094
Germany	65,147	70,470	88,887	104,161	112,587	122,764
Greece (2)	-	-	-	-	-	23
Hungary	2,071	2,976	4,397	6,989	9,338	10,978
Iceland	6,636	7,481	10,781	14,103	19,517	21,672
Ireland	45,806	42,231	62,645	77,447	96,856	110,093
Italy	25,194	28,312	36,787	44,351	49,520	55,681
Japan (3)	973,986	950,452	903,421	832,939	756,139	437,458
Korea (4)	..	8,438	9,884	11,516	14,652	25,829
Luxembourg (5)	..	..	..	116	391	..
Mexico (6)	26,600	33,643	37,213	42,718	76,409	96,470
Netherlands	411,460	374,875	545,239	659,839	769,986	860,877
New Zealand	7,687	7,865	9,094	11,157	12,446	13,120
Norway	9,389	10,596	14,565	16,939	20,266	22,874
Poland	4,624	7,623	11,560	17,140	26,513	37,964
Portugal	13,278	14,657	18,396	18,868	23,591	26,581
Slovak Republic (7)	0	0	7	..	293	1,537
Spain	35,072	39,061	54,778	69,147	81,551	92,527
Sweden	18,254	18,542	23,457	26,373	33,211	36,397
Switzerland	261,357	267,554	334,829	389,497	434,746	462,095
Turkey (8)	..	..	..	1,539	3,245	3,965
United Kingdom (9)	1,040,472	930,832	1,175,335	1,467,118	1,763,762	1,831,290
United States	7,207,878	6,593,058	7,913,957	8,599,308	8,979,361	9,721,120
<b>Total OECD</b>	<b>10,833,005</b>	<b>10,107,616</b>	<b>12,118,761</b>	<b>13,610,236</b>	<b>14,716,958</b>	<b>15,660,537</b>
<b>Observer countries</b>						
Brazil	..	..	..	..	..	165,937
Chile	..	37,045	42,674	55,613	68,405	88,293
Colombia	4,942	6,260	7,069	10,061	16,749	20,605
Israel	28,544	28,294	30,559	33,051	41,965	47,609
Russian Federation	..	..	..	..	12,177	15,476
South Africa	..	..	50,360	72,123	..	..
<b>Other economies</b>						
Bulgaria	86	162	296	503	712	1,025
Hong-Kong (China)	24,263	27,526	29,072	38,210	41,037	52,694
Slovenia	..	..	134	547	804	1,167

Source: OECD Global Pension Statistics

# Pension fund assets as % of GDP as of 2006 in OECD countries



- Quantitative Asset restrictions QAR
  - Pension fund investments are subject to quantitative limits on specific asset classes
- Prudent Person Rule PPR
  - *“The investment of pension assets is undertaken with care, the skill of an expert, prudence and due diligence”*
  - There are no any quantitative investment limits

# Quantitative limits in OECD and non-OECD countries

- Survey of Investment Regulations of Pension Funds (OECD 2007)
- Main findings for OECD countries
  - All countries (except for JPN) subject to self-investment limits, e.g. 25% in FIN and CHE and 0% in DNK
  - Many countries set limits in a single issue, usually 10%
  - Half OECD countries place limits by asset type, e.g. 35% on shares for DEU; 20% on foreign assets for MEX, 30% on foreign assets (DC) for KOR; 70% on mortgage loans in FIN
  - Lower limits are not common in OECD countries
- Main findings for non-OECD countries
  - All countries place certain limits, e.g. equities and foreign assets
  - Equities: 30% (COL), 75% (ZAF)
  - Foreign assets: 30% (CHL), no limits (EST)

- OECD Guidelines on Pension Fund Asset Management 2005
- The Guidelines allows for use of quantitative limits, e.g. unguaranteed loans, self investment; however, these should be applied with care
- Minimum limits not recommended
- There should be an established procedure to correct excesses

# Prudent Person Rule PPR

The rule has been traditionally adopted in Anglo-Saxon countries, e.g. the UK, and the USA

- Benefits: flexibility and higher returns
- Potential costs: high demands on fiduciaries and supervisors
- Risk-based supervisory approach gaining popularity

# China's Pension System (Urban)

<b>Pillar</b>	<b>Contribution rate %</b>	<b>Target replacement rate %</b>	<b>PAYG/funded</b>	<b>Mandatory / voluntary</b>	<b>Status</b>
<b>1A</b>	Enterprise: 20 Individual: 0	35	PAYG	Mandatory	In operation
<b>1B</b>	Enterprise: 0 Individual: 8	24.2	Funded*	Mandatory	In operation
<b>2</b>	N.A.	N.A.	Funded	Voluntary	In operation
<b>3</b>	N.A.	N.A.	Funded	Voluntary	Not finalized

Source: OECD (2007c)

## Total assets:

- Pillars 1A and 1B: RMB 548.9 bn (USD 76.8 bn), as of 2006
- Pillar 2: RMB 120 bn (USD 16.1 bn), as of September 2007

# Pension Fund Regulations in China

- Pillar 1B: bank deposits and government bonds
- Pillar 2 (EA): subject to QAR, according to MOLSS No 23 in 2004
  - Bank deposits and equivalent: min 20%
  - Government bonds: min 20%
  - Shares: max 20%
  - One issuer: max 5%
  - Foreign investments not allowed



# Benefits of pension fund investment liberalisation in China: Pillar 1B

	Domestic	Investment Liberalisation			
	0-50-50	33-33-33	70-30	50-50	30-70
	Basic portfolio	Variant-1	Variant-2	Variant-3	Variant-4
1993	3.4	2.2	17.4	26.7	36.1
1994	3.4	-10.4	3.8	4.1	4.4
1995	4.5	1.6	5.3	5.9	6.4
1996	1.6	10.6	3.2	4.2	5.2
1997	5	-14.2	6.4	7.4	8.3
1998	2.7	7.6	5	6.4	7.9
1999	1.5	5.9	-0.1	-1.1	-2.2
2000	0.6	7.3	-3.1	-5.5	-7.9
2001	0.4	-0.5	-1.2	-2.2	-3.3
2002	0.5	30.6	5.8	9.3	12.8
2003	0.9	4.1	3.9	5.9	7.9
2004	0.1	2.9	0.9	1.4	1.9
2005	-1.5	16.6	1.6	3.7	5.8
2006	1.2	51.3	2.5	3.4	4.2
<b>1993-2006</b>					
<b>Mean</b>	<b>1.7</b>	<b>8.3</b>	<b>3.7</b>	<b>5</b>	<b>6.3</b>
<b>Standard deviation</b>	1.8	16.4	4.8	7.4	10.1
<b>Sharpe ratio</b>	<b>0.94</b>	<b>0.5</b>	<b>0.76</b>	<b>0.67</b>	<b>0.62</b>
<b>1993-2004</b>					
<b>Mean</b>	<b>2.1</b>	<b>4</b>	<b>3.9</b>	<b>5.2</b>	<b>6.5</b>
<b>Standard deviation</b>	1.7	11.1	5.2	8.1	11
<b>Sharpe ratio</b>	<b>1.2</b>	<b>0.36</b>	<b>0.76</b>	<b>0.65</b>	<b>0.59</b>

Basic model:  
0-50-50: 0% in shares, 50% in  
govt bonds, and 50% in deposits

Variant 1:  
33-33-33: 33% in shares, 33% in  
govt bonds, and 33% in deposits

Variant 2:  
70-30: 70% in domestic assets,  
and 30% in foreign assets

Variant 3:  
50-50: 50% in domestic assets,  
and 50% in foreign assets

Variant 4:  
30-70: 30% in domestic assets,  
and 70% in foreign assets

# Benefits of pension fund investment liberalisation in China: Pillar 2

	Domestic	Investment liberalisation			
	0-50-50/30-50-20*	33-33-33	70-30	50-50	30-70
	Basic portfolio	Variant-1	Variant-2	Variant-3	Variant-4
1993	3.4	2.2	17.4	26.7	36.1
1994	3.4	-10.4	3.8	4.1	4.4
1995	4.5	1.6	5.3	5.9	6.4
1996	1.6	10.6	3.2	4.2	5.2
1997	5.0	-14.2	6.4	7.4	8.3
1998	2.7	7.6	5.0	6.4	7.9
1999	1.5	5.9	-0.1	-1.1	-2.2
2000	0.6	7.3	-3.1	-5.5	-7.9
2001	0.4	-0.5	-1.2	-2.2	-3.3
2002	0.5	30.6	5.8	9.3	12.8
2003	0.9	4.1	3.9	5.9	7.9
2004	2.9	2.9	2.9	2.8	2.8
2005	14.9	16.6	13.1	11.9	10.7
2006	46.4	51.3	34.2	26.0	17.8
<b>1993-2006</b>					
<b>Mean</b>	<b>6.3</b>	<b>8.3</b>	<b>6.9</b>	<b>7.3</b>	<b>7.6</b>
<b>Standard deviation</b>	12.1	16.4	9.5	9.3	10.6
<b>Sharpe ratio</b>	<b>0.52</b>	<b>0.50</b>	<b>0.73</b>	<b>0.78</b>	<b>0.72</b>
<b>1993-2004</b>					
<b>Mean</b>	<b>2.3</b>	<b>4.0</b>	<b>4.1</b>	<b>5.3</b>	<b>6.5</b>
<b>Standard deviation</b>	1.6	11.1	5.1	8.0	11.0
<b>Sharpe ratio</b>	<b>1.43</b>	<b>0.36</b>	<b>0.80</b>	<b>0.66</b>	<b>0.60</b>

## Basic model:

0-50-50: 0% in shares, 50% in govt bonds, and 50% in deposits  
 30-50-20: 30% in govt shares, 50% in govt bonds and 20% in deposits

## Variant 1:

33-33-33: 33% in shares, 33% in govt bonds, and 33% in deposits

## Variant 2:

70-30: 70% in domestic assets, and 30% in foreign assets

## Variant 3:

50-50: 50% in domestic assets, and 50% in foreign assets

## Variant 4:

30-70: 30% in domestic assets, and 70% in foreign assets

# Summary of empirical results

- Returns on the basic model for both Pillars 1B and 2 are always lowest
- Returns on the all four variant portfolios are higher (or much higher)
- Portfolios with investments abroad have a good balance between return and risk
- Limitations: small number of observations; only four asset classes are considered

# Conclusion

- Pension fund asset grew fast in the past, and will continue this trend in the future
- Two regulatory approaches: QAR vs PPR
- OECD accepts the validity of QAR, but recommends PPR where possible
- In China, pension funds subject to QAR
- However, given our empirical results and OECD experiences, it might be worth considering the following reforms:

# Conclusion

- Pillar 1B (individual account)
  - Removing lower limits on government bonds and bank deposits
  - Allowing investment in more asset classes
  - Gradually allowing for investment abroad
- Pillar 2 (Enterprise Annuities)
  - Removing lower limits on certain asset classes
  - Combining the quantitative limits with a move to the PPR where possible
  - Gradually allowing for investment abroad

# Conclusion

- However, gradual investment liberalization should be accompanied by corresponding improvement in a number of areas, e.g.
  - greater maturity of the capital markets
  - more robust risk control mechanism
  - more experienced financial regulators
  - better investor protection (financial education)
  - more transparent information disclosure