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Drivers of supply & demand for infrastructure products

Oct. 2012

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GROUPE BPCE

Summary

1. The consequences of Basel III

2. Quantitative features of the Infrastructure « asset class »

3. What demand from institutional investors ?

4. Conclusion

1 The consequences of Basel III

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From regulation to project financing constraints

- **Significant increase in capital requirements ➔ higher pressure on the RoE when attributing loans**

- **Introduction of liquidity ratios in 2015**
- **Could threaten the use of letters of credit (25% coverage level might make them economically unattractive)**

- **NSFR: High weighting (65 to 85%) for loans of more than 1Y maturity, excluding corporate & covered bonds**

- **Incentive to issue project bonds and to disintermediate**

Phase-in arrangements

(shading indicates transition periods – all dates are as of 1 January)

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 Jan 2019
Leverage ratio	Supervisory monitoring		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum CET1 ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital conservation buffer						0.625%	1.25%	1.875%	2.50%
G-SIB surcharge						Phase-in			1.0%–2.5%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum total capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum total capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as Tier 1 capital or Tier 2 capital			Phased out over 10 year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio	Observation period begins							Introduce minimum standard	

$$LCR = \frac{\text{High-quality liquid assets}}{\text{Net cash outflows over a 30-day period}} > 100\%$$

$$NSFR = \frac{\text{Stable funding sources}}{\text{Stable funding needs}} > 100\%$$

Source: BIS

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Disintermediation is under way

- **BIS data show reduced funding contributions to project finance loans between Q3 and Q4 2011 (aggravated by the crisis in dollar funding)**
- **Implementation of the NSFR ratio should materialize in an increase in LT resources in order to match LT loans ➔ additional cost for banks given the spread term structure**

Changes in new lending by lender / loan [1]

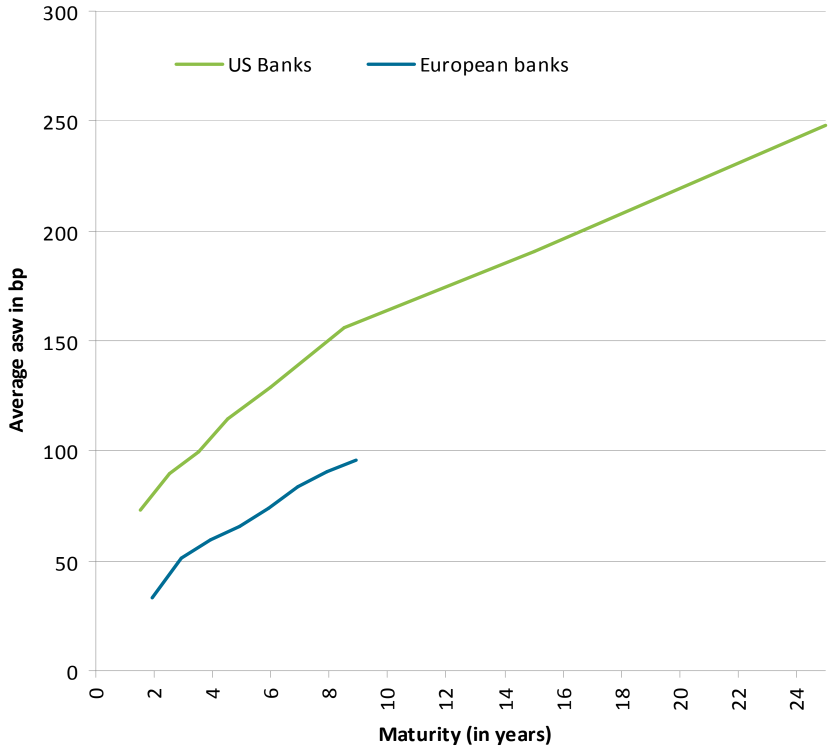
Loan type	Change in new lending between Q3 2011 and Q4 2011, by type of lender; in %			2011 Lending volume	
	Weaker EU banks [2]	Other EU lenders	All lenders worldwide	In bn$	Denominated in $
All loans	–14.6	–6.0	0.4	4 181	62
Dollar-denominated	–16.2	2.4	4.4	2 503	100
Leveraged [3]	–43.0	–43.4	–18.3	1 085	80
Project finance	–39.0	–21.4	–7.0	319	40
Trade finance	–23.5	–9.8	–4.6	65	88
Aircraft / Ship leasing	–40.5	–12.9	7.3	49	85

[1] Lending measured as newly signed syndicated and large bilateral loans by consolidated organisational groups, excluding any loans subsequently cancelled or

[2] The 31 banking groups with EBA capital shortfalls, plus all Greek banking groups.

[3] Loans rated below investment grade, plus some non-rated loans depending on pricing and characteristics. All loans for leveraged buyouts included. All loans for asset financing excluded.

Asw spread structure for banks



Sources: BIS, Bloomberg

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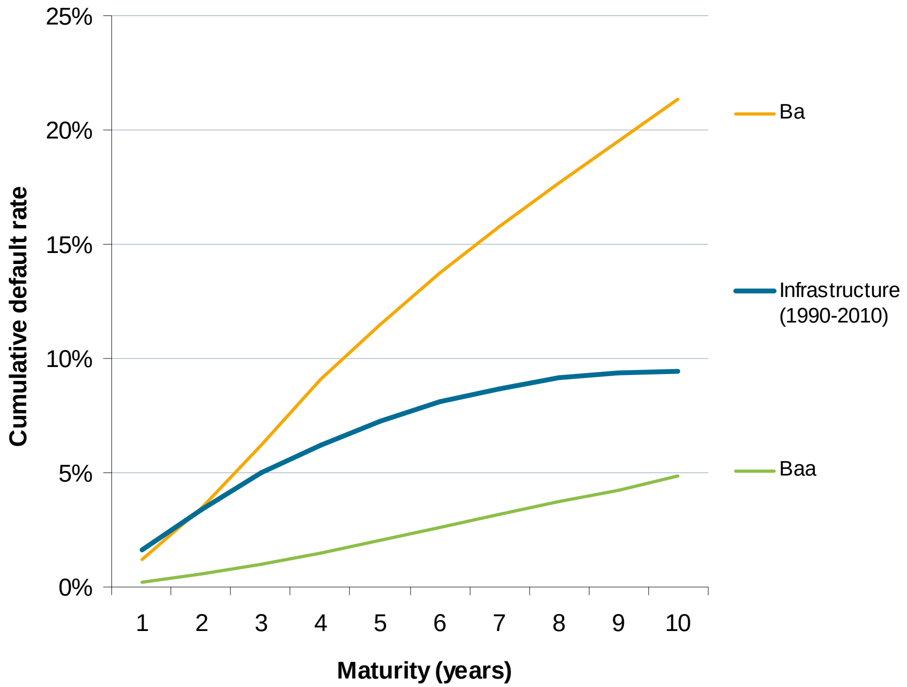
2 Quantitative features of the Infrastructure « asset class »

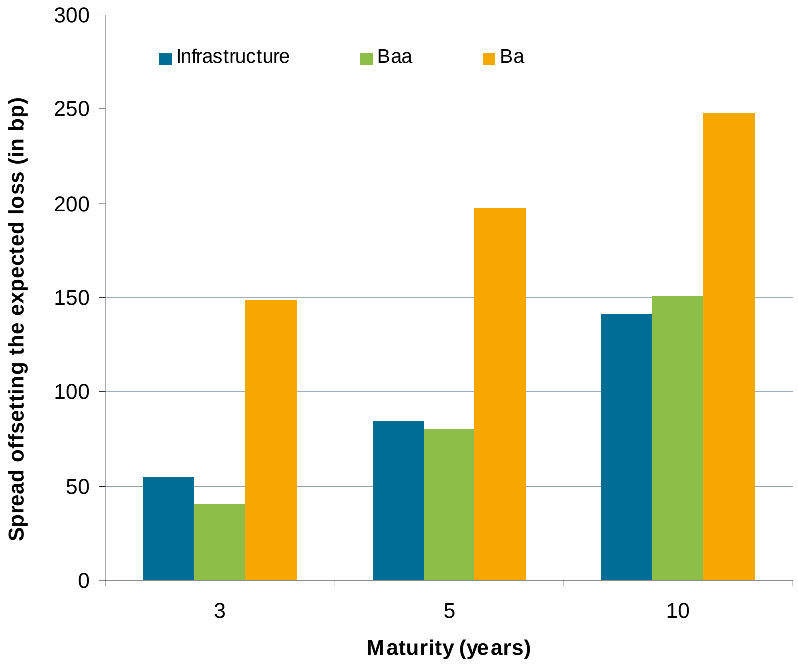
Attractive risk/ reward vs corporate bonds

- **Default rate for infrastructure: between Baa & Ba Moody's Corp. default rate …**
- **… but ultimate recovery rate (80% in average) much higher than for corporate bonds (40%) ➔ theoretical spread offsetting the expected loss is lower for an 10Y project finance than for a Baa-rated Corporate**

Cumulative default rate : Infrastructure vs Corporate bonds



Spreads offsetting expected loss in bp



Sources: Natixis, Moody's

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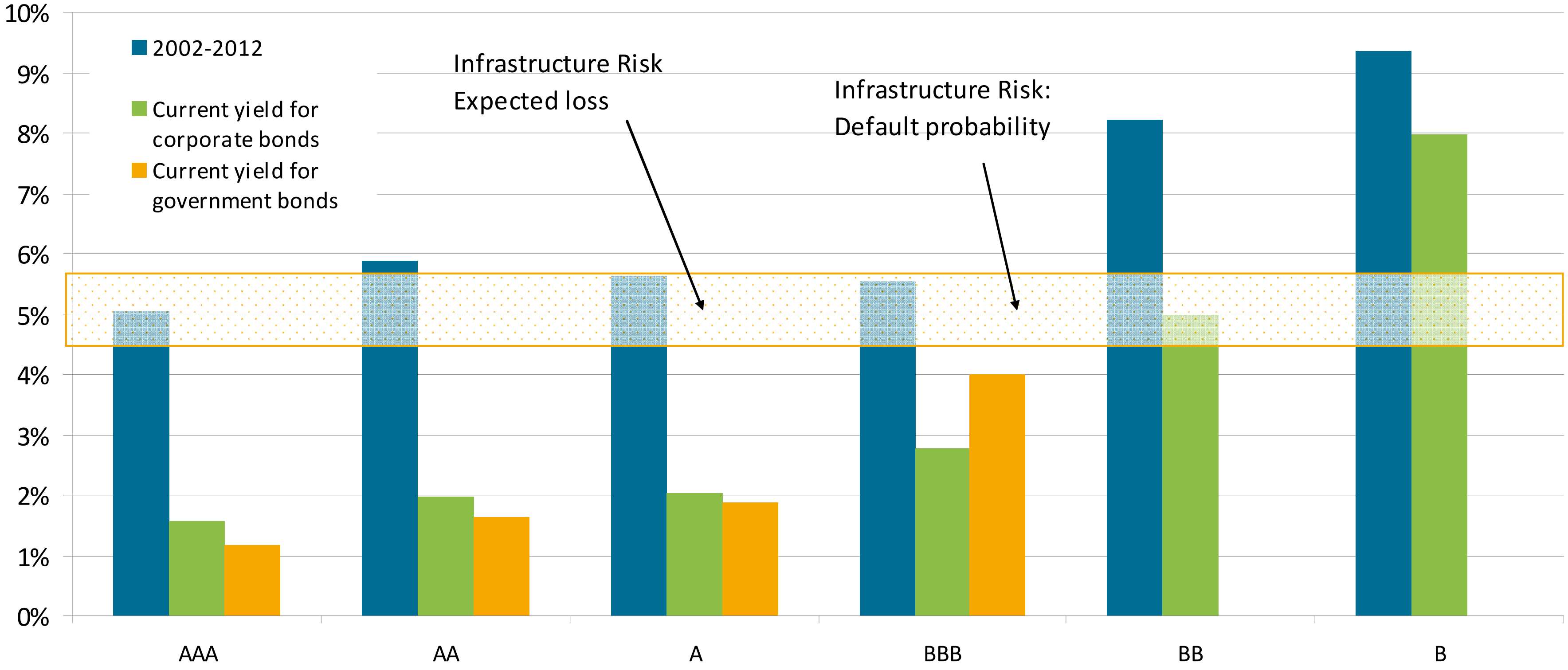
Attractive risk/ reward vs corporate bonds (2)

- **Corporate bonds have benefited from i/a low yield environment, ii/ their safe haven status on the backdrop of the Euro sovereign crisis**
- **Returns offered by project financing (4.5%-6%, or Eur+200-300bp) now compare favorably with the current low yield levels in the fixed income market**



Sources: Natixis, iBoxx, Moody's

What lessons from Australian infrastructure ?

- **Low volatility / high returns relative to other asset classes**
- **Resilient returns in an environment of low growth /recession (2007/2009) ➔ relatively low sensitivity to the economic cycle**
- **Low correlation with other asset classes (< 0.3 with equities, close to 0 with bonds) ➔ high diversification opportunity**

Return, volatility, Sharpe ratio

Study	Period	Frequency	Listed infra.	Equities	Bonds	Listed property	Direct property	Listed infra.
Average annual return								
Peng and Newell (2007)	Q3 1995-Q2 2006	Quarterly	14.1	12.9	7.2	13.8	10.9	22.4
Newell et al. (forthcoming)	Q3 1995-Q2 2009	Quarterly	14.1	9.1	7	4.9	10.6	16.7
Newell et al. (forthcoming)	Q2 2007-Q2 2009	Quarterly	8.2	-13.2	7.1	-35.8	3.3	-23.9
Finkenzeller et al. (2010)	Q4 1994-Q1 2009	Quarterly	8.2	7.9	8.2		9.8	15.6
Annualized volatility								
Peng and Newell (2007)	Q3 1995-Q2 2006	Quarterly	5.8	11	4.3	7.9	1.5	16
Newell et al. (forthcoming)	Q3 1995-Q2 2009	Quarterly	6.3	13.9	4.6	17.5	3	24.6
Newell et al. (forthcoming)	Q2 2007-Q2 2009	Quarterly	6.7	21.5	6.9	31.6	5.8	23
Finkenzeller et al. (2010)	Q4 1994-Q1 2009	Quarterly	3.8	15	5		5.1	16.6
Sharpe ratio								
Peng and Newell (2007)	Q3 1995-Q2 2006	Quarterly	1.47	0.67	0.39	1.04	3.67	1.05
Newell et al. (forthcoming)	Q3 1995-Q2 2009	Quarterly	1.34	0.25	0.3	-0.05	1.63	0.45
Newell et al. (forthcoming)	Q2 2007-Q2 2009	Quarterly	0.32	-0.9	0.15	-1.32	-0.47	-0.7

Correlations of unlisted infrastructure funds with other asset classes in Australia

	Period	Frequency	Listed infra.	Equities	Bonds	Listed property	Direct property
Peng and Newell (2007)	Q3 1995-Q2 2006	Quarterly	0.31	0.06	0.17	0.24	0.26
Newel et al. (forthcoming)	Q3 1995-Q2 2009	Quarterly	0.37	0.15	0.06	0.23	0.3
Newel et al. (forthcoming)	Q2 2007-Q2 2009	Quarterly	0.31	0.24	-0.1	0.16	0.68
Finkenzeller et al. (2010)	Q1 1995-Q2 2007	Quarterly	0.22	0.05	0.09	-0.08	0.04
Finkenzeller et al. (2010)	Q1 1995-Q1 2009	Quarterly	0.29	0.27	-0.02	0.17	0.2
CFS (2010)	July 2000-June 2010		0.24	0.1	0.03	0.1	0.48

Sources: EIB, Natixis

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3 What demand from institutional investors ?

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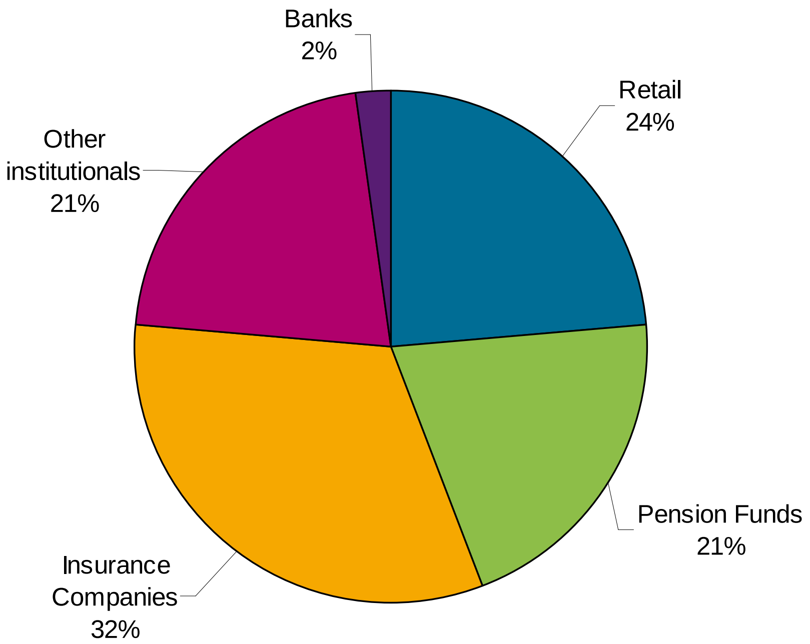
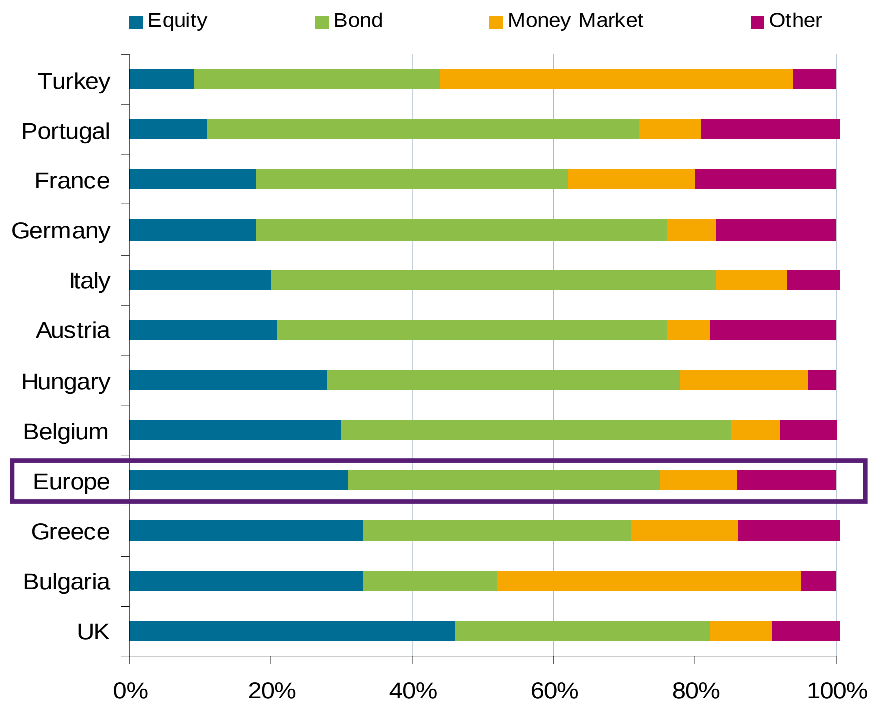
Asset management in Europe

- **Assets under management in Europe : circa €13.8 trillion at end-2011**
- **If 3% of portfolios were to be allocated to infrastructure: €400bn of investments would cover 25% of European Infrastructure needs to 2020 (EC)**

Assets under management in Europe by type of client



Asset allocation in Europe

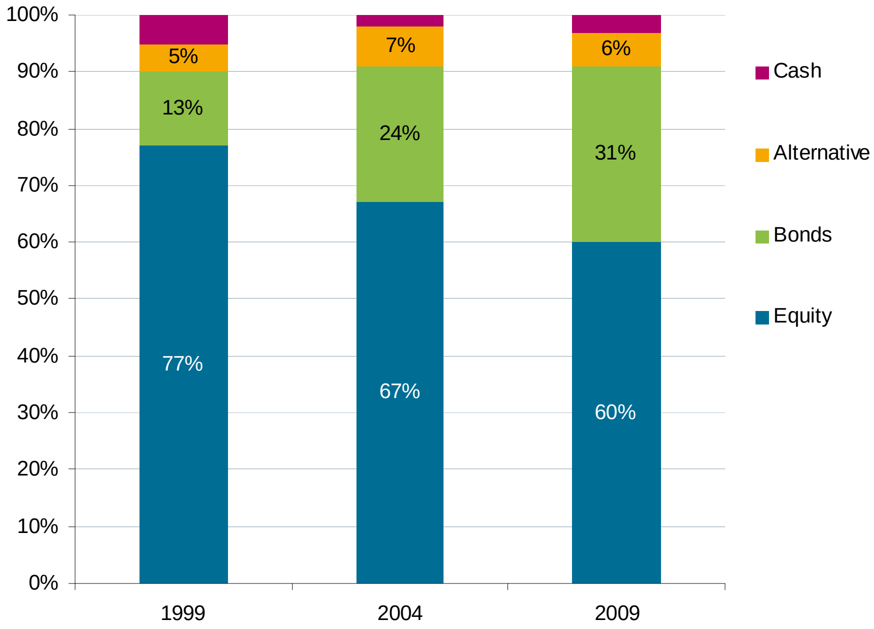


Sources: Efama, Natixis

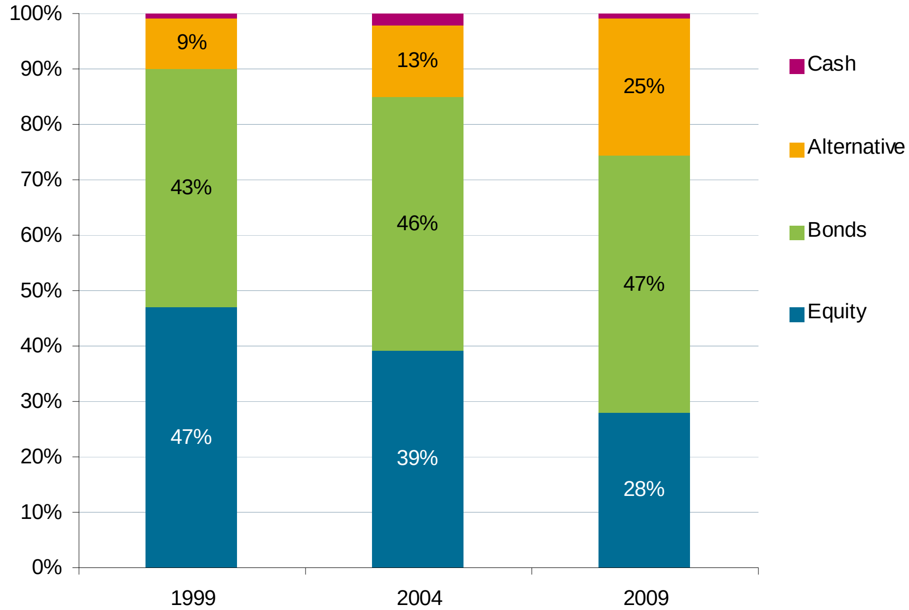
Infrastructure in asset management

- **Less than 5 years of dedicated allocation to infrastructure in Europe, despite the maturity of the market (UK, France, Spain)…**
- **… however, pension funds tend to show a growing interest for the asset class, for many reasons: inflation-linked features, low correlation with other assets, long-term maturities, stability of cash flows, high returns vs bond market**

UK pension funds: Asset allocation



Dutch pension funds: Asset allocation



Sources: OECD, Natixis

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Pension funds lead the investment in infrastructure

- **PensionDanmark: Infrastructure allocation will move from 4.5% currently to 10% in 2017 (investments in Europe + NA, €1.6bn)**
- **PFZW, 2nd largest pension fund in the Netherlands: 1.5% of total AUM (€99bn) in Feb 2011 ➔ future target allocation of 3.5%**
- **APG: started to invest in Infrastructure in 2004. Target allocation increased from 1 to 2% in 2008, a further increase in 2009**
- **ATP: 25-30% target to the inflation class of assets (3% committed to infrastructure so far)**
- **USS: target allocation to infrastructure between 4 and 5% of the total portfolio**
- **Varma: no target infrastructure allocation (<1% of assets as of June 2010). Between a Private equity and a Real Estate investment**

- **Long-term view: 10% of pension funds in Infrastructure ➔ $73trn, 40% of European infrastructure needs**

Sources: OECD, Natixis

Name of the fund	Country	Tot Assets USD million	Infrastructure Investment % of total assets			
			Unlisted Equity	Listed Equity	Fixed Income	Total
ABP	Netherlands	312,257	0.3	n.a.	n.a.	0.3
PFZW	Netherlands	131,780	2	0	0	2
PMT	Netherlands	49,426	0.6	n.a.	0	0.6
Pension Reserve Fund	France	49,033	0	na	na	0
USS	UK	48,889	2.9	n.a.	n.a.	2.9
PFA	Denmark	45,962	0.7	n.a.	0	0.7
AP-3	Sweden	30,661	0.5	na	na	0.5
AP-4	Sweden	29,560	0	9	na	9
COMETA	Italy	7,484	0	2.2	1.5	3.7
Fonditel	Spain	7,328	0	n.a.	n.a.	0
Caja Madrid	Spain	5,400	0	0.7	0.2	0.9
Fonchim	Italy	3,915	0	n.a.	n.a.	0
Banco BPI	Portugal	3,114	0	10.2	10.6	20
Endesa	Spain	2,082	0	8.7	4.7	13.4
OMERS	Canada	52,385	15.5	0	0	15.5
Previ	Brasil	88,847	0	13.5	n.a.	13.5
AustralianSuper	Australian	33,800	11.5	0.2	0.1	11.8
AFP Horizonte-Col	Colombia	7,930	1.7	7.5	2.4	11.5
AFP Horizonte-Perù	Perù	7,162	0.3	3	7.4	10.7
Superannuation Fund	New Zealand	11,162	3.3	6.6	na	9.9
OTPP	Canada	101,655	7	0.7	1.6	9.3
CPPIB	Canada	136,039	6	0.8	na	6.8
Sunsuper	Australian	15,782	4.3	n.a.	0.2	4.5
UniSuper	Australian	25,676	4.4	n.a.	0	4.4
Future Fund	Australian	65,824	4.1	na	na	4.1
Afore Bancomer Mexico	Mexico	16,430	0	2.1	0.5	2.6
AFP Provida Chile	Chile	40,474	0	0.2	1.4	1.5
GEPF	South Africa	138,572	0.1	n.a.	0.2	0.3
Total		1,468,630				

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