



somewhat
different

Longevity transfer in non-UK markets

Potential and hurdles

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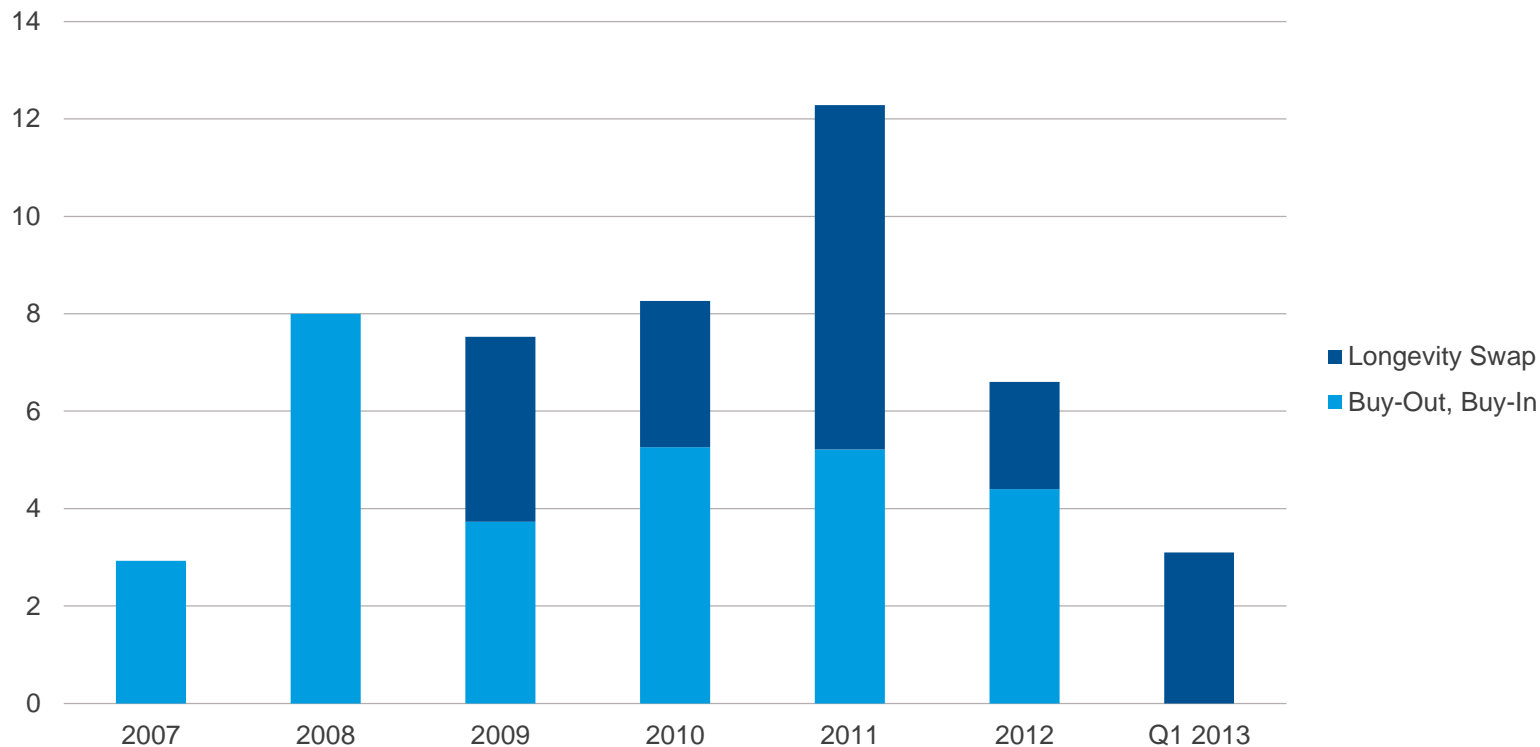
Agenda

- ▶ The UK experience
- ▶ Worldwide view
 - Demographic challenge
 - Pension assets
- ▶ Entering new markets
 - Germany
 - US
 - Spain
 - South Africa

Market Volume UK since 2007

Buy-Outs, Buy-Ins and Longevity Swaps

in bn.GBP



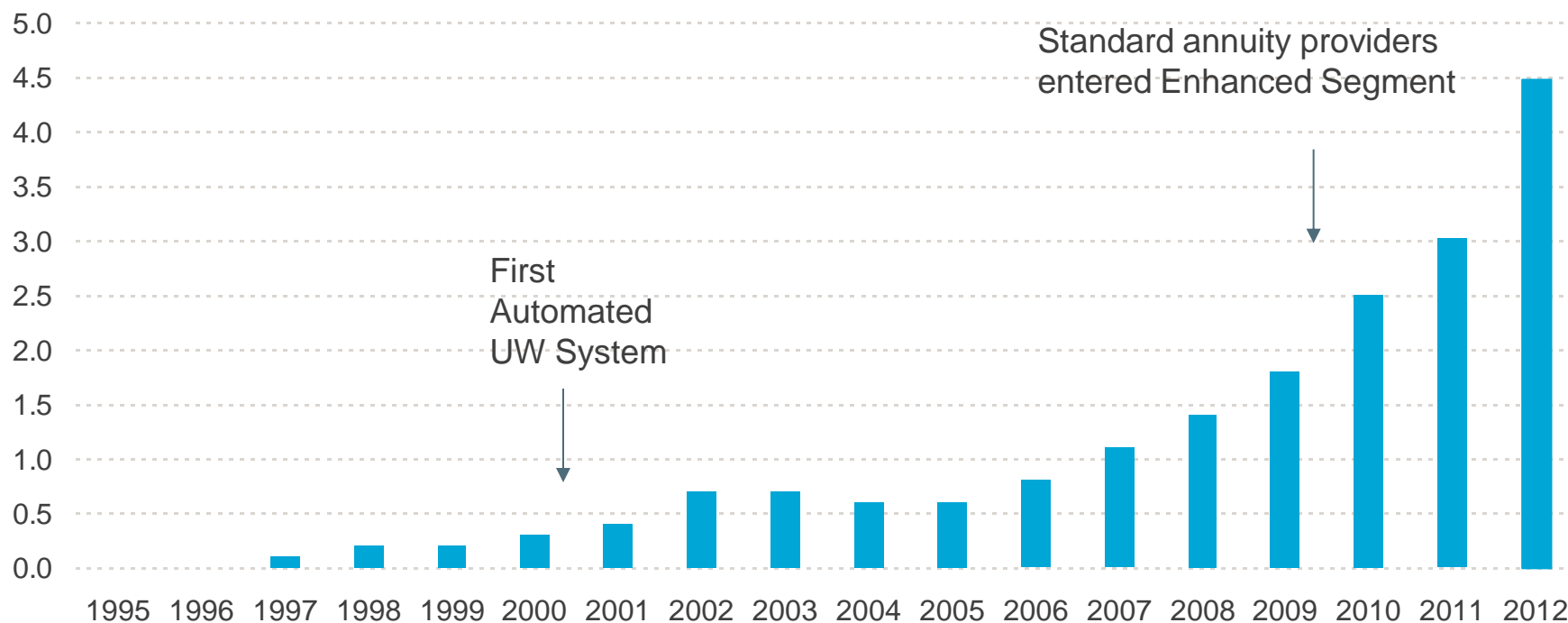
Source: LCP Pension Buy-Ins, Buy-Outs and Longevity Swaps 2008 - 2013

Enhanced Annuities UK

Impressive growth of a niche market

Development UK Enhanced Annuity Market

in bn.GBP



Source: Towers Watson

2012: EA volume 4.48 bn.GBP representing 20% of total annuity market

- ▶ Actuarial Profession in the UK
- ▶ Research by the CMI (Continuous Mortality Investigation)
- ▶ Mortality tables
 - "80", "92", "00" and "S1" series of base mortality tables
- ▶ Improvements
 - "Year of use", "Cohort" improvements, CMI improvements
- ▶ Data sources to derive mortality and improvement assumption
 - Publicly available ONS (Office for National Statistics) data

Extensive information available

UK success factors

for pension scheme derisking

- ▶ Regulatory environment
- ▶ Great awareness of longevity risk
 - CMI investigations
 - IFoA conferences
 - Trustees and employees highly aware
 - Requirement from shareholders
- ▶ High accounting transparency
- ▶ Market developed over years
 - Sophisticated ways to manage and transfer longevity risk

UK success factors

for Enhanced Annuities

- ▶ Substantial saving pots at retirement
 - Individual savings
 - Defined contributions
- ▶ Tax rules lead to annuitisation
- ▶ IFA dominated market
- ▶ Best advice/treating customers fairly
- ▶ In today's investment environment lifetime annuities are an attractive alternative

Agenda

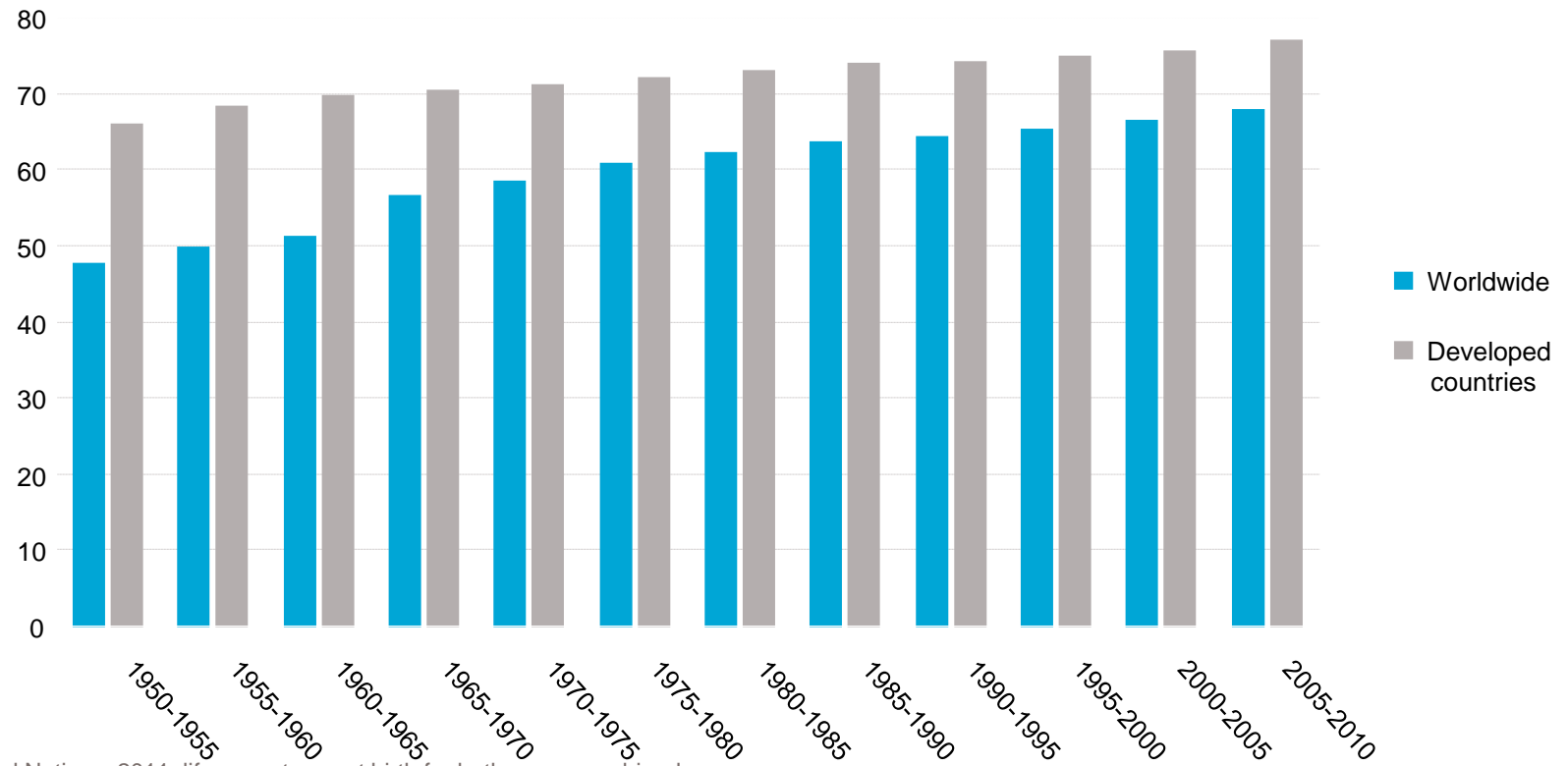
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Demographic Challenge

Increasing Life Expectancy

Period life expectancy

in years



Source: United Nations, 2011, life expectancy at birth for both sexes combined

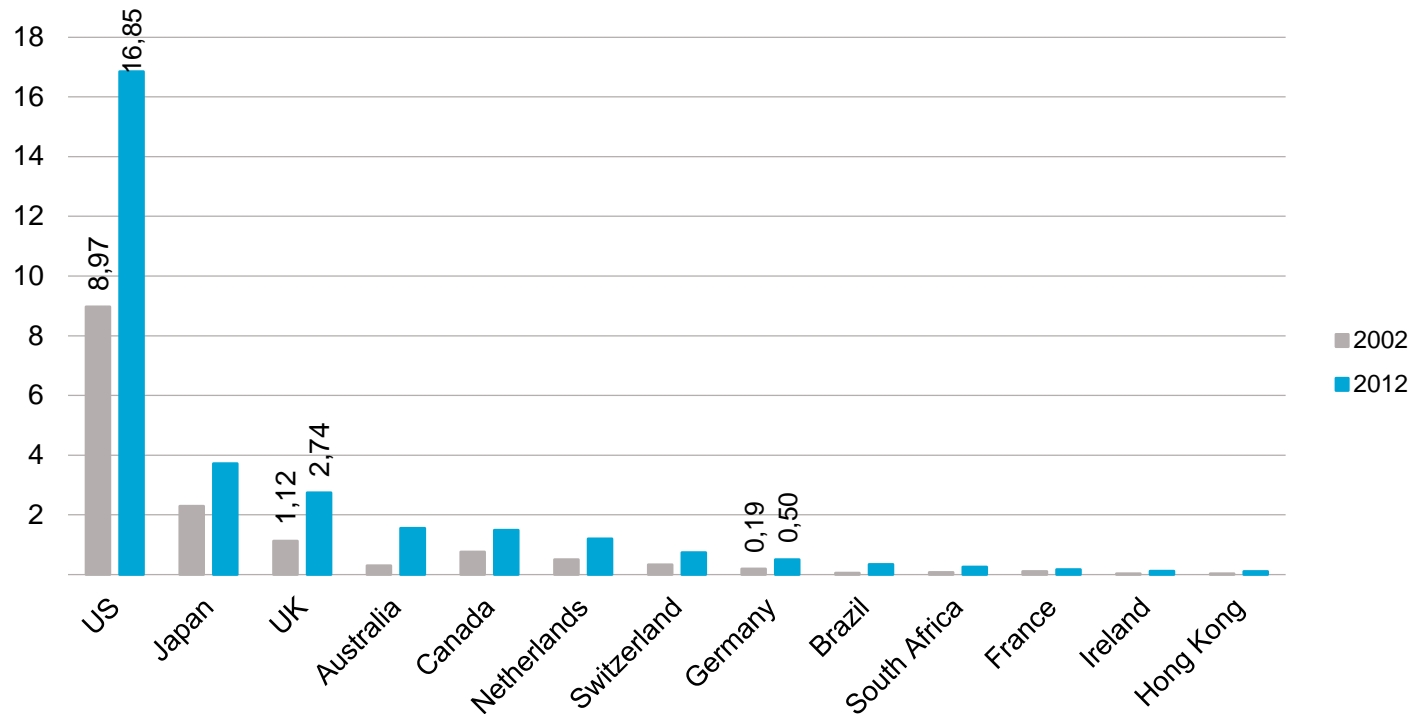
Life expectancy increases on a worldwide basis

Longevity and Pension Markets

Assets in the Pension Market

Assets

in tn.USD



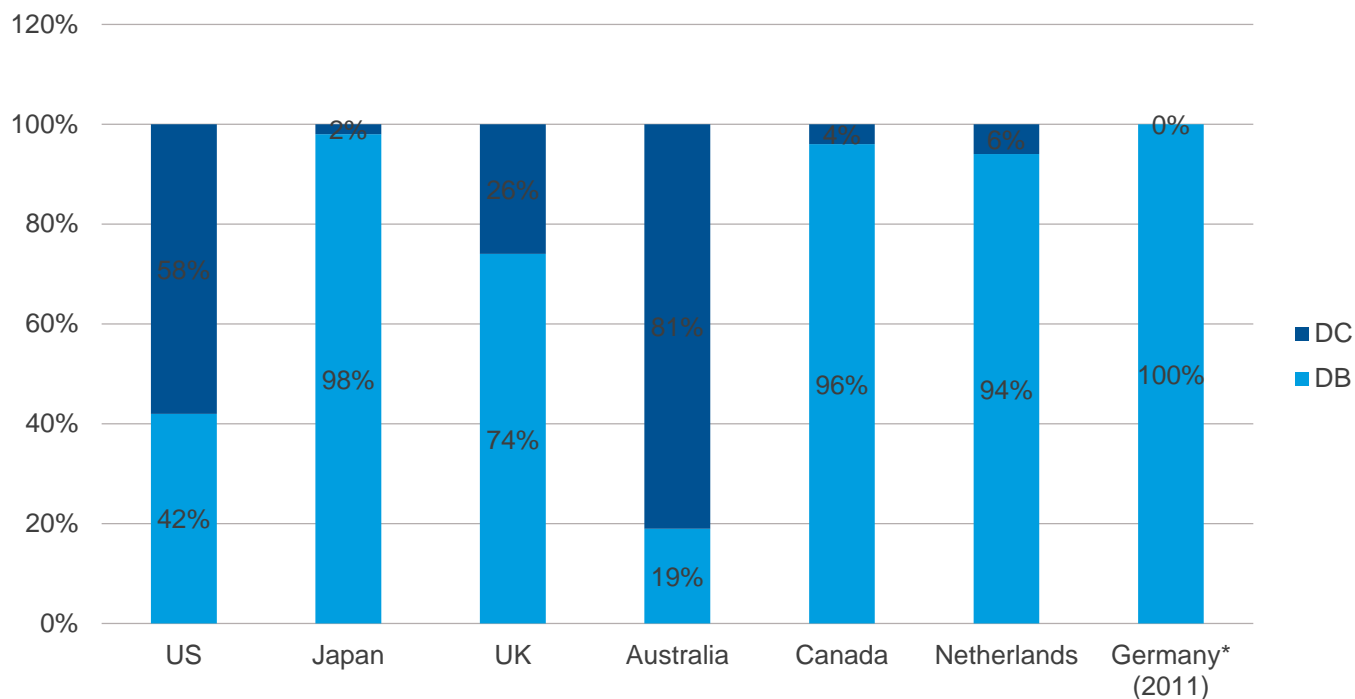
Source: Towers Watson: Global Pensions Asset Study 2013

Global pension assets now amount to 78.3% of the GDP of above economies

Global pension assets

Defined Benefits vs. Defined Contributions

DB/DC split 2012



*Pension plans in Germany can actually be traditional DB plans or hybrid DB plans, but the split between the two categories is not available

Source: Towers Watson: Global Pensions Asset Study 2013 and OECD, Pension Markets in Focus, September 2012, Issue 9

Worldwide view

- ▶ Similar demographic problems as in UK
- ▶ Substantial pension assets in non-UK countries

Why is the longevity risk transfer in other countries not as advanced as in the UK?

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Federal Republic of Germany

Facts and figures



Source of the map: The World Factbook 2013-2014 , www.cia.gov

...and some economic data:

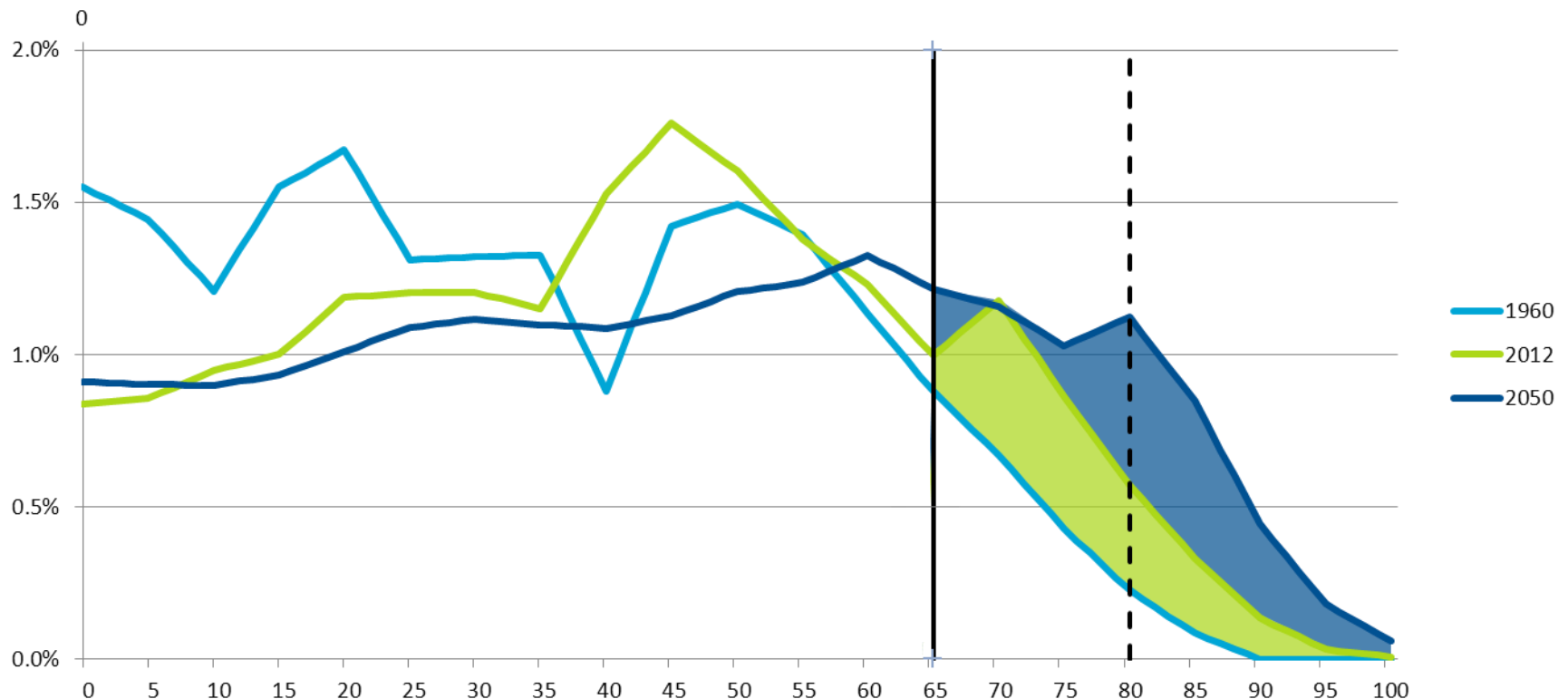
- ▶ Public debt (31.12.2012): 80% of GDP
- ▶ New indebtedness 2012: 0.8% of GDP (...being < 3.0% and thus fulfilling the EU stability criterion)
- ▶ Unemployment rate: 6.8% (May 2013)

- ▶ Area: 357,121 km²
- ▶ 16 federal states
- ▶ Population (09.05.2011): 80.2 m. people

Development of the demographic structure

Dramatic changes

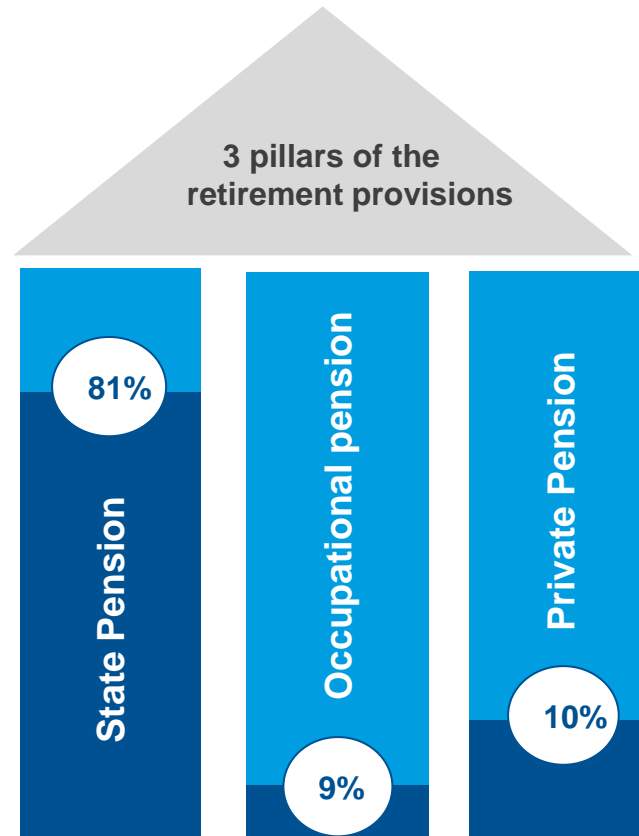
Proportion of age group in Germany



Source: US Census Bureau

Retirement provisions in Germany

Three pillar system



Source: Bundesministerium für Arbeit und Soziales; Ergänztender Bericht der Bundesregierung zum Rentenversicherungsbericht 2012 gemäß § 154 Abs. 2 SGB VI

Highly dependent on state provision

Demographic challenge

leads to problems with the PAYG system



Source: eurostat, U.S. Census Bureau

► Solution of the German legislator:

- Improved capital-based retirement provisions (both occupational and private)
- Personal savings required

Aim: 50% state pension and 50% capital-based retirement provision

German Pension System

The (new) '3-Layer-System'

Due to major changes in legislation in 2002 and 2005, a (new) 3-layer-model has been developed

New: Differentiation according to tax relief



New
3 pension layers

3rd Layer: Insurance and investment products

Private annuity, endowment insurance, shares, stocks and bonds, real estate

No tax relief in terms of premiums
(Benefits not necessarily to be used for pension purposes)

2nd Layer: government-funded supplementary pension

occupational pension, "Riester" annuity (2002)

Limited tax exemption of premiums
Downstream taxation of benefits (subject to benefits in terms of annuities or - with certain restrictions - one-off payments)

1st Layer: government-funded basic pension

state pension, "Rürup" annuity (2005)

Premiums exempted from tax, taxation of the benefits (in case of life-long annuity benefits).

1st Layer: Government-funded Basic Pension

- ▶ Compulsory coverage for all employees
 - 50% paid by employer
- ▶ Statutory pension depending on contribution years, salary, retirement age
- ▶ Decreasing percentage of net income (currently about 60%)
- ▶ "Pay-as-you-go"-system
- ▶ Gradual raising of the retirement age from 65 to 67
- ▶ Private "Rürup" annuity for self-employed

2nd Layer: Supplementary Pension

- ▶ Tax-free employee savings up to a State Pension Fund Ceiling
- ▶ 5 different types of realisation and balance sheet handling
- ▶ Tax-supported private “Riester” annuity

3rd Layer: Insurance and Investment Products

Private annuities - Typical product design

- ▶ Immediate or deferred annuities
- ▶ Guarantee periods
Death benefits during the deferment period
- ▶ Lump-sum option at the end of the deferment period
- ▶ Policyholder's surplus
- ▶ No underwriting

Actuarial Aspects

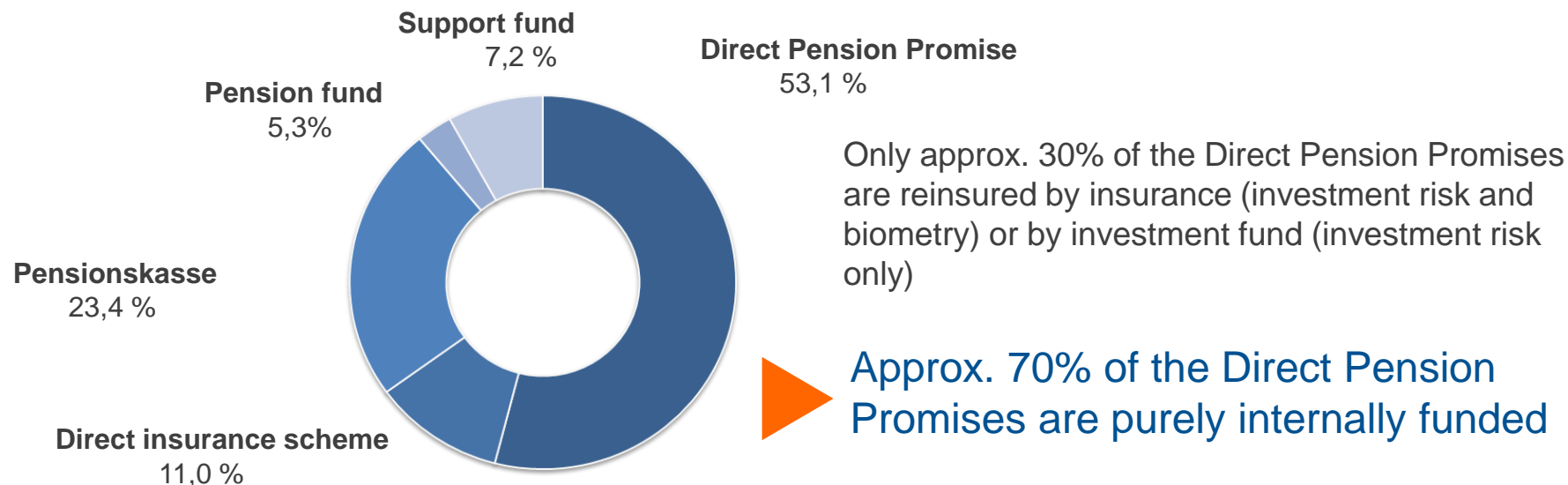
The DAV2004R annuity table (insurance)

- ▶ Standard table in the German annuity market
- ▶ The table provides the data on a best estimate basis as well as with additional security margins for pricing and valuation purposes
- ▶ Based on mortality experience within the portfolios of German life insurers
- ▶ Current interest rate to be used for insurance companies: 1.75%

To be applied for new business since 2005

Potential in Germany

Occupational pensions



Covering funds 2010: 482.9 bn.EUR

Source: J. Schwind, BetrAV (aba) Heft 4/2012, page 363ff.

- ▶ Potential especially with Direct Pension Promise, Pension funds and (regulated) Pensionskassen

Potential for the German pension market

Direct Pension Promises

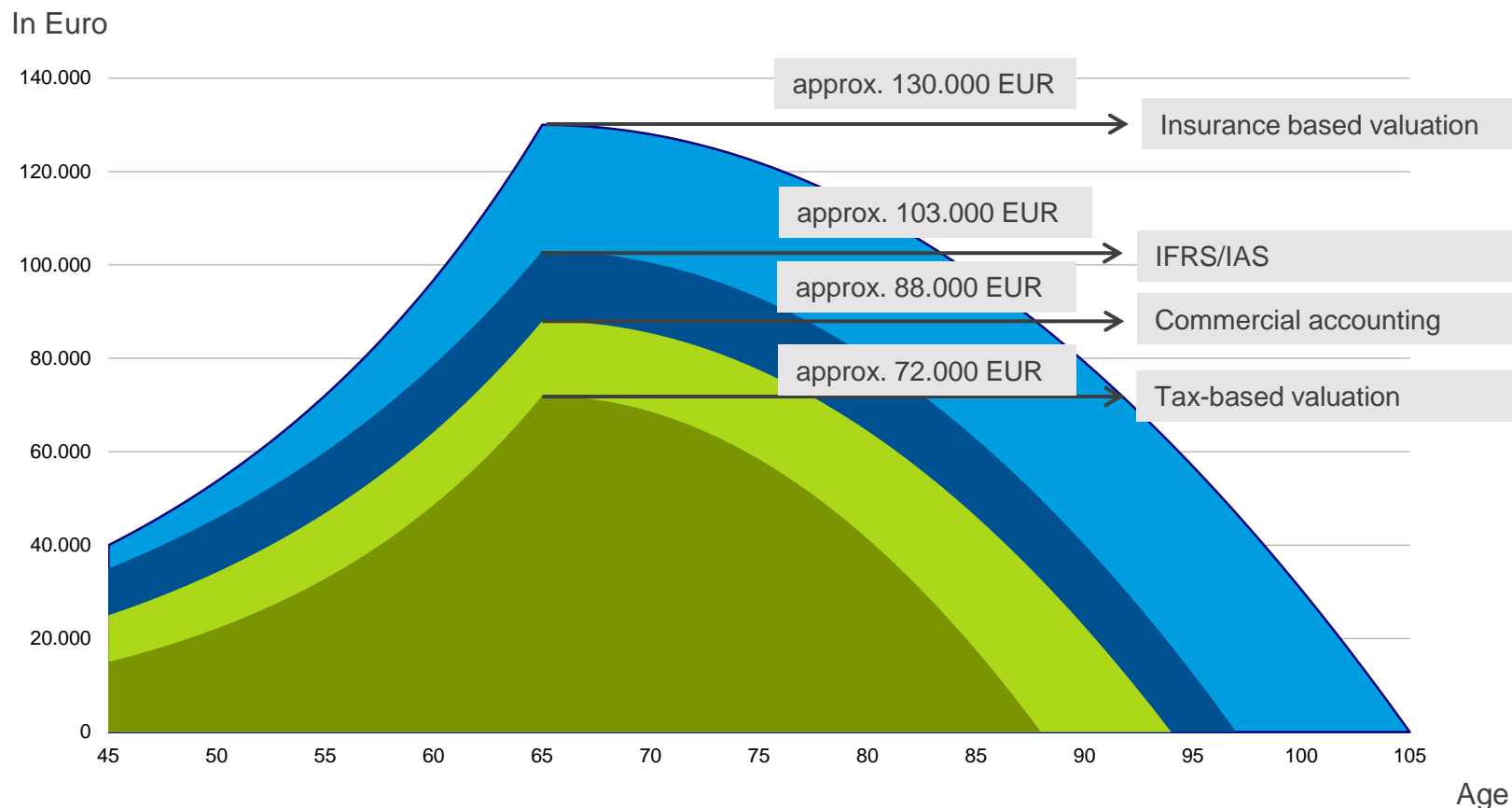
- ▶ Employer pays pension directly from its own capital
- ▶ The pension liabilities have to be shown as pension reserves in the balance sheet
- ▶ Pension reserves are generally lower than the valuation based on insurance principles
- ▶ Heubeck mortality table and less conservative interest rate



The actual pension liabilities are undervalued

Hurdles on the German pension market

Direct Pension Promises - valuation method for pension liabilities



Annuity 500 p.m.

Market potential in Germany

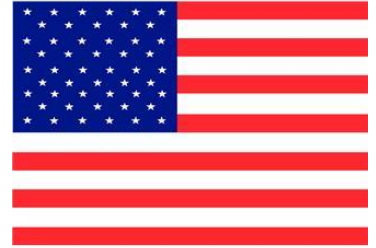
- ▶ Occupational pensions
 - Direct pension promises
 - Pension funds and (regulated) Pensionskassen
- ▶ Insurance/Individual annuities
 - Enhanced annuities (Riester annuity and Rürup annuity)

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Pension Market US

- ▶ The US continues to be the largest market in terms of pension assets
- ▶ Followed at a significant distance by Japan and UK
- ▶ Japan, UK and US account for 78.3% of worldwide assets



Source: Towers Watson 2013

Demographic Trends

Population US

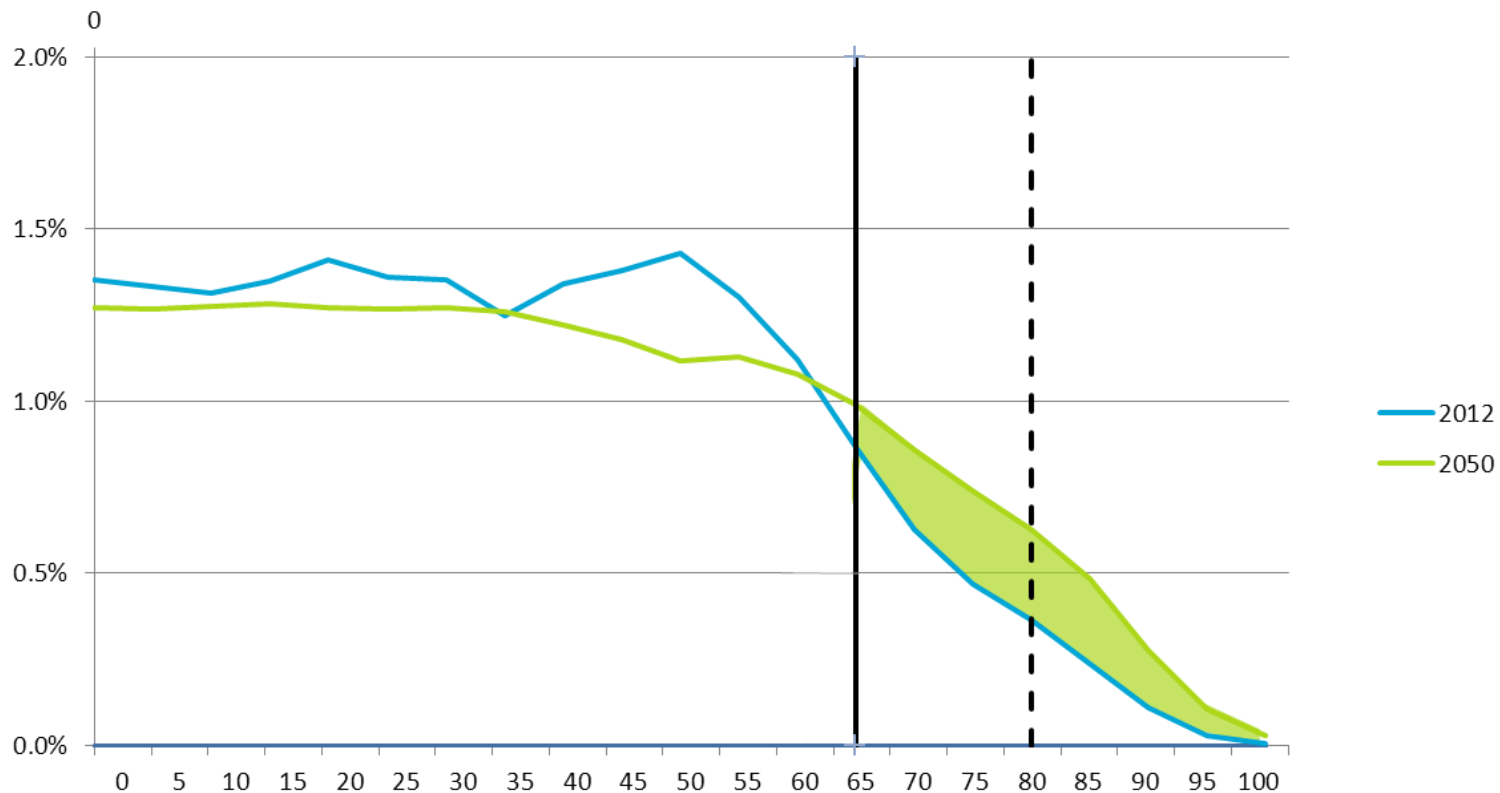


Source: U.S. Census Bureau

Immigration changes the picture

Development of the demographic structure

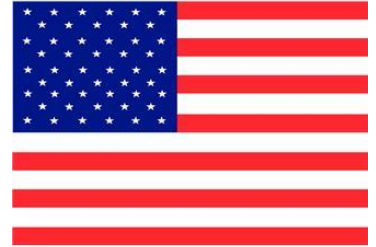
Proportion of age group United States



Source: US Census Bureau

Recent transactions in the US

- ▶ 2 large buy-out deals in 2012
 - General Motors transferred 29 bn.US\$ of pension liabilities
 - Verizon Communication transferred 7.5 bn.US\$ of pension liabilities
- ▶ Heavily asset-driven
- ▶ Longevity risk not the main focus



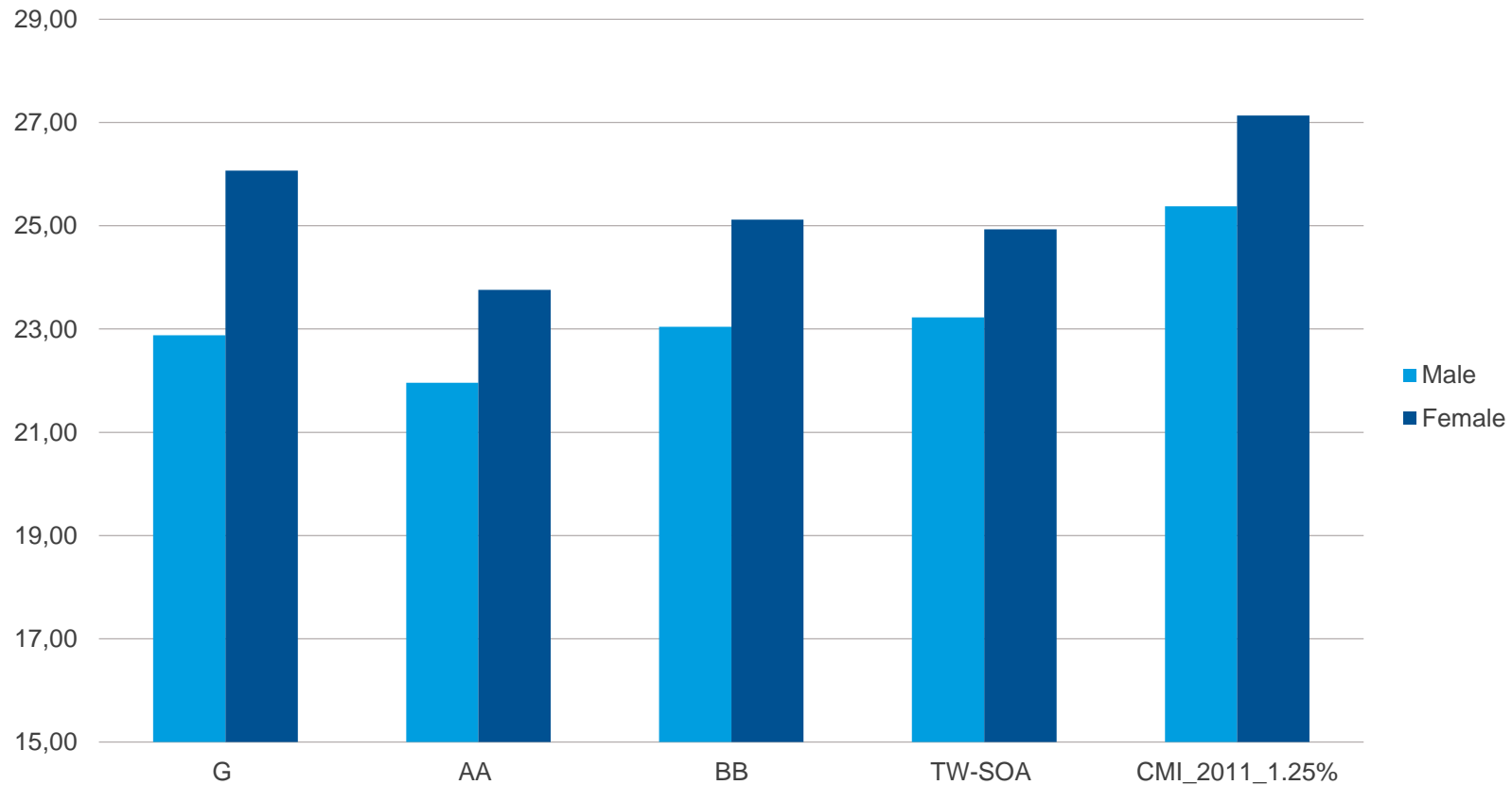
- ▶ Long-term guarantees
 - reduced extra mortality effect for Enhanced Annuities
- ▶ No compulsory or tax-supported annuitisation
- ▶ Overall fee income for broker higher on variable annuities
- ▶ Less allowance for improvements
- ▶ Clients prefer liquidity and own asset management



US

Mortality improvements

Life expectancy at age 65



Base mortality: A 2000, improvements from 2000, Life expectancy at 2012

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Spain

- ▶ Accumulated assets in the private pension system represent only about 7% of GDP (average in the rest of OECD: 60%)
- ▶ Life expectancy at birth is now among the OECD's highest
 - Females at birth: 85.3 years LE in 2010
 - Males at birth 79.1 years LE in 2010
- ▶ Fertility rates are near the OECD's lowest



Source: OECD Perspectives: Spain policies for a sustainable recovery (October 2011) and OECD: CO1.2: Life expectancy

Spain

- ▶ Mainly pure investment products without longevity component sold
- ▶ Longevity risk often handled within families



Potential for creating a private annuity market

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South Africa

- ▶ Very heterogeneous market
- ▶ No credible population and scheme data publicly available
- ▶ Determination of base mortality and future improvements difficult



South Africa

Future development difficult to quantify

- ▶ Future level of medical care
- ▶ AIDS impact
 - also for older people
- ▶ Spouse definition (2nd and 3rd spouse?)



Requirements for a functioning market

- ▶ Regulatory environment
- ▶ Perception of longevity risk
- ▶ Data availability

Market education and government rules needed



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