

The View Across the Silos



# Between the ISSUES<sup>SM</sup>

*The Retirement Management Journal*, a publication of the Retirement Income Industry Association, is devoted exclusively to retirement-income planning and management.

# Looking Back Across the Pond: Retirement in the European Union

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Household Balance Sheet Analysis



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# Looking Back Across the Pond: Retirement in the European Union

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## Abstract

True to the RIIA motto “The View Across the Silos<sup>SM</sup>” there are three distinct findings for the different audiences we highlight in this paper:

- When comparing key economic figures for the United States (U.S.) and its four European G7 partners, only Germany and the United Kingdom (U.K.) appear to play in the same league as the U.S. when it comes to state pension sustainability. We look at specific elements of the different approaches and emphasize what we think constitute learning points from a policy point of view
- The Retirement Income Industry Association (RIIA) framework and its tools as published in the *Retirement Management Journal* and laid out in the Retirement Management Analyst (RMA) curriculum can also be applied by financial services firms and advisers in other geographies. We provide examples of adopting a present-value (PV) variation of the Household Balance Sheet<sup>SM</sup> (HHBS<sup>SM</sup>) to analyze typical (median income) households in both Germany and the U.K. This suggests the look across the pond could well turn into a leap in either direction, thereby making

RIIA, its agenda and framework relevant for European policy makers and industry participants

- For many, delaying retirement may be deemed a necessity and not just one lever that should be applied judiciously. We propose the use of what-if? scatter plots to provide a simple visualization of the impact the involved trade-off decisions have and the paths that materialize when transitioning into retirement. One simple insight: The larger the proportion of retirement income that results from inflation-protected sources, the bigger the emphasis on these sources during accumulation

## Overview

This paper starts from the broad perspective of comparing key economic figures for the United States (U.S.) and its four European G7 partners<sup>1</sup> - France, Germany, Italy and the United Kingdom (U.K.). Our findings indicate severe challenges to medium-term sustainability of taxation, social security and pension regimes in France and Italy. We therefore expect (ultimately) disruptive policy changes and as a consequence, difficulties to the retirement-planning process in these two economies. A number of conclusions can be drawn from our observations.

We then continue by focusing on Germany and the U.K. and give a more detailed overview of key elements of their pension regulation and vehicles. Some of the recent undertakings in this space are clearly targeting the issue of long-term viability of a multi-pillar pension framework. We point out the most notable points in the context of sustainability and draw comparisons with the U.S.

Ultimately, we demonstrate that the Retirement Income Industry Association (RIIA) Household

Balance Sheet (HHBS) approach can be put to good use when assessing the retirement choices of typical (median) earners in Germany and the U.K. Trade-off decisions with respect to postponing retirement vis-à-vis a reduction in desired consumption can be condensed into a simple graphical format. We propose the creation of a synthetic annuity that collates all sources of retirement income and helps to hold a single number against forecast expenses in a PV format.

A rough understanding of the RIIA concept of the HHBS is of central importance for this paper. Several papers around this topic have been published in previous editions of the *RMJ*. The latest introduction to the concept can be found in the study material for the Retirement Management Analyst (RMA) designation.<sup>2</sup>

Almost all data and statistics used in this analysis are obtained from a variety of The Organization for Economic Co-operation and Development (OECD)<sup>3</sup> sources, white papers and online statistics. The most notable and seminal piece in this regard is *Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries*.<sup>4</sup>

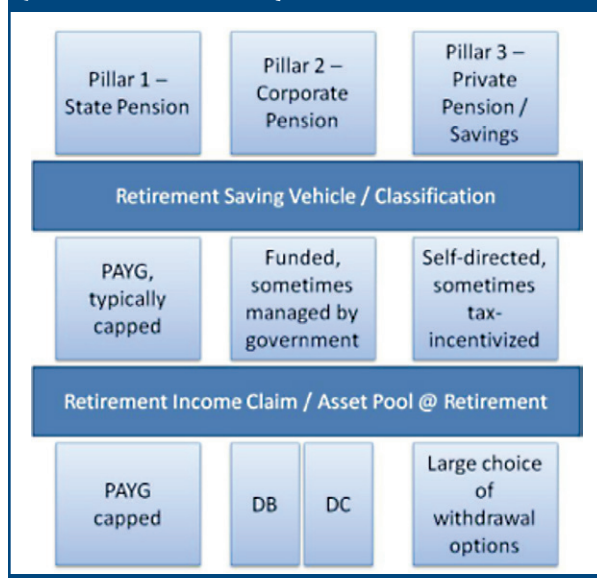
### (Not) Just a European Dilemma?

We begin by looking at the U.S. and all four European G7 members, i.e. France, Germany, Italy, and the U.K., in a number of dimensions as obtained from OECD web pages. To keep matters short, the more detailed, step-by-step approach is presented in Appendix A.

Nowadays the World Bank's three-pillar pension model<sup>5</sup> (see Figure 1, above right) is used widely across European economies' policy debate and in OECD statistics and analysis. Pillar 1 entitlements (aka State Pension or Social Capital in RIIA terms) accrue in a relatively straightforward fashion and entail some form of inflation adjustment during payout.

As per the OECD definition, there are three forms of retirement income taken into consideration – state pensions, occupational plans, aka workplace schemes,

**FIGURE 1: WORLD BANK THREE PILLAR PENSION MODEL (AUTHOR'S INTERPRETATION)**



and private savings vehicles. For the purpose of this analysis, we will focus on private sector employees in defined contribution (DC) plans exclusively, since retirees covered by workplace defined benefit (DB) schemes (or even more generously DB-covered public sector workers) present challenges different from the ones RIIA is currently focusing on.

### Coverage Through Non-government Retirement Provisions

Coverage through complementary (non-mandatory and non-governmental) retirement savings plans is far from universal. None of the economies we are investigating have mandatory private schemes in place, unlike Australia, the Netherlands or Israel. But in Italy and France coverage through voluntary DC schemes is practically non-existent. (See Figure 2, next page, top left, numbers for the distinct pillars are determined independently).

This means 49% of the U.K. working-age population is covered by some form of Pillar 2 pension. Independent thereof, 18% of the same base are invested in some form of private provision. Unfortunately, OECD statistics are sparse where

**FIGURE 2: COVERAGE OF PRIVATE PENSION SCHEMES BY TYPE OF PLAN, 2009**

	Voluntary Occupational (Pillar 2)	Voluntary Private (Pillar 3)
France	4%	7%
Germany	32%	30%
Italy	8%	6%
United Kingdom	49%	18%
United States	33%	25%

(as a % of working age population 16-64 years)<sup>6</sup>

it comes to information on which proportion of those investors are captured in both pillars. So, hypothetically, all 18% owners of Pillar 3 assets could be a completely separate cohort, or, conversely, the full 18% could also be holders of Pillar 2 assets.<sup>7</sup>

It should be noted that coverage percentages are no proxy for income replacement, given that absolute pot sizes can vary dramatically; nevertheless, they are a useful indicator of a general acknowledgement of the need to complement state pension income.

### Systemic Pressures Keep Building

Over the next 50 years, old-age dependency ratios<sup>8</sup> are set to almost double (see Figure 3, above right). In other words: By 2030, for every 100 Italians of working age (15 to 64), there will be 41 pensioners

**FIGURE 3: OLD AGE DEPENDENCY RATIOS 2011, 2030, & 2060 (ESTIMATES)**

	2011	2030	2060
France	26%	39%	47%
Germany	31%	47%	60%
Italy	31%	41%	57%
United Kingdom	25%	35%	42%
United States	20%	33%	37%

(aged 65+) to be supported through tax revenue. It appears that economies with a strong tradition of favorable immigration policies, i.e. the U.K. and the U.S., in combination with relatively higher numbers of childbirths vs. deaths, can keep their dependency ratios lower.

It is easily predictable that the pressure on state pension systems (pay-as-you-go, PAYG, thereby financed directly via tax collection) will only grow with rising numbers of dependents on an ever shrinking income tax base. The trend of government expenses on pensions as a proportion of the tax income observed over the last years certainly indicates as much. (See Figure 4, below)

### Net Income Replacement Rates

Current net income replacement<sup>9</sup> rates (see Figure 5, next page) show quite substantial variations of both government generosity and progressivity

**FIGURE 4: EVOLUTION OF SOCIAL EXPENDITURE AS A PERCENTAGE OF TAX REVENUE, 2007 TO 2012 (ESTIMATE)**

	2007	2008	2009	2010	2011	2012(E)
France	29%	29%	32%	36%	34%	37%
Germany	29%	29%	30%	34%	35%	33%
Italy	32%	34%	36%	41%	48%	51%
United Kingdom	15%	16%	18%	20%	20%	20%
United States	22%	23%	28%	29%	26%	27%

**FIGURE 5: NET INCOME REPLACEMENT RATES AS PROVIDED THROUGH STATE PENSION (PILLAR 1) IN THE U.S. AND EUROPEAN G7 ECONOMIES IN 2008**

	50% of Mean	Median	Mean	200% of Mean
France	69%	61%	60%	49%
Germany	57%	58%	58%	43%
Italy	78%	76%	75%	77%
United Kingdom	68%	48%	42%	24%
United States	64%	53%	47%	40%

(see Appendix A for a detailed discussion of the Progressivity Index).

This means an average gross income earner aged 65 under 2008 U.K. tax rules will receive an effective after-tax state pension income worth 42% of his pre-retirement take-home pay. Someone on twice the gross pre-retirement income (200% of mean) will only see 24% of the previous net<sup>10</sup> materialize.

### Policy Maker Responses – How to Address the Imbalances?

All governments will need to fix their budgetary problems. The means may be debated at length, but ultimately, pushing a larger slice of the responsibility (some would say ‘risk’) towards the working population will be the measure of choice.

Here are a number of observations and forecasts regarding the policy actions the economies we have been looking at have taken, and may copy from each other, given the state of their pension assets landscape, demographics and public finances position.

State pension entitlements will tend to gravitate towards some form of flat-rate basic pension similar to the U.K. format. Indeed, a number of countries have introduced pension reforms that, in the case of France and Germany, have knocked off roughly 10% in absolute terms from future state pension entitlements, i.e. down to 51% and 40% replacement ratios respectively. Giving up on 100% valorization

(i.e. inflation adjustment) of pension income is another way of reducing the burden on government expenses. The cost-of-living adjustment provided through the German state pension is indexed to only 86% of observed wage inflation.

The resulting shortfall in expendable retirement income will need to be (partially) covered by Pillar 2 and Pillar 3 replacement strategies. This in turn requires that such schemes are widely if not universally adopted, promoted and incentivized. Examples for such schemes are given below in the respective country sections for Germany (Pillar 3) and the U.K. (Pillar 2).

Apart from loosening immigration policies to attract more foreign workers, the only other lever on dependency ratios is raising the bar on the entry age for full pension entitlement. Given that life expectancy is growing much faster than in the past, any adjustments now will have to be non-linear and thereby painful.

Increasing the tax load will be the short-term cop-out with the largest associated damage due to more disruptive events at a later stage. It is safe to say that Italy is a case in point, where the perfect storm has been gathering for a while, given a number of its indicators, summarized in Figure 6, next page.

Clearly, an increase in absolute tax revenue and thereby a fall in relative social expenses could also result from an increase in total GDP. (As a matter

**FIGURE 6: KEY ECONOMIC INDICATORS, ITALY VS. RESPECTIVE ‘BEST-IN-CLASS’<sup>11</sup> PEER WITHIN OUR G7 SAMPLE**

	Italy	Best in Class of G7	
Pillar 1 average net replacement rate (2008)	75%	42%	UK
Government debt % of GDP (2010)	109%	44%	DE
Social expenses % of tax revenue (2012)	51%	20%	UK
Tax revenue % of GDP (2012)	43%	25%	US
Debt servicing cost % of tax revenue (2012)	12%	5%	DE
Old-age dependency (2060)	57%	37%	US
Coverage Pillar 2 (2008)	8%	49%	UK
Coverage Pillar 3 (2008)	6%	30%	DE

of fact, growing GDP whilst also generating a budget surplus is the single miracle cure for all other problems.) Incidentally, this is probably also the most difficult route to pursue.

For the remainder of this investigation, we will now focus on Germany and the U.K. as the two European economies that stand a greater chance of steering clear of disruptive policy changes. As such they offer a more reliable base for retirement planning and analysis of the transferability of the RIIA tools in which we are interested. France and Italy appear to be on a somewhat different trajectory altogether; this is set out in greater detail in the Appendix.

### Retiring in Germany – Noteworthy Elements

Germany has historically been committed to a strong social security system as evidenced by its substantial net income replacement ratios of almost 60% for median income levels. (See Figure 5, previous page). However, recent cuts to future entitlements and concurrent gradual increases to the statutory retirement age (reaching 67 for both sexes born 1964 or after under current legislation) must be seen as an adjustment to changing demographics. Implicitly, these changes will also help to address the already substantial tax burden on a shrinking workforce and the need to remain an attractive environment for corporations.

In 2005 a ‘sustainability factor’ was introduced to the state pension system, which dynamically adjusted entitlements to reflect the observed old-age dependency ratio (in essence, this also captured the prevailing unemployment statistics and thereby part of the attributable tax base). Amongst other measures, and as a result of the rising dependency ratio, this led to future adjustments of state pension entitlements below inflation figures. Still, this was a gradual and relatively transparent process, which makes the necessary adjustments more plannable for retirees. (We reflect this in our case study below by using cost-of-living adjustments of 86% of wage inflation.)

Full entitlements will be increased or decreased, depending on the total number of qualifying contribution years to the social security system vis-à-vis required years. Child-rearing years count towards this target. Interestingly, the number of qualifying years substituted (and subsidized by the federal government) for contribution months has recently been raised from one to three years for every child born and raised since 1992. Years spent out of work with multiple children concurrently will ‘roll up’ to a maximum of three years for each child.

As a second pillar, German employers may offer tax-incentivized and non-compulsory occupational

schemes to their workforce. Since only some 30% of the workforce are covered by these schemes, in 2002 the government introduced a pillar three subsidized individual savings account, aka the Riester pension plan, which comes with some form of tax incentive to make it appealing to even the smallest pockets. The uptake has been nothing short of spectacular. Ten years after the introduction of the scheme, some 11 million individuals, or more than 30% of the entitled relevant working population, have started such saving plans.

Riester plans have features akin to the broad category of U.S. individual retirement accounts (IRAs), but are unique in some ways:

- They constitute a legal wrapper that may be serviced and offered via four different product providers: savings banks, mortgage banks, asset managers and insurance companies. All issuers have to guarantee the net asset value of the account to not fall below the total sum of invested monies at maturity
- Withdrawals are only permissible at maturity (i.e. when the beneficiary reaches pensionable age or dies) or for the purpose of paying towards residential real estate investments
- Upon maturity, they allow up to 30% of funds be withdrawn, but require the remainder to be converted into a lifetime annuity (akin to a with-profits annuity that may go up but never down in its periodical payouts). From age 85 onwards these payout plans must be underwritten by life insurers

In spite of the strong social core of the German state pension system, policy makers are increasingly emphasizing a higher degree of self-awareness and self sufficiency. There is a clear trend towards a strengthening of Pillar 2 and 3 offerings and the overarching principle of sustainability.

### Retiring in the U.K. – Some Pertinent Facts

U.K. state pension entitlements are a flat-rate benefit, not means-tested and the only driver of the payout level is qualifying contribution periods. Recently, the

target number of years has been raised to 35 (from 30). In other words: irrespective of absolute pre-retirement income levels, every retiree with the same amount of contribution years will receive the same base rate state pension income for life.

Similar to the German case, U.K. child-rearing times will be acknowledged in lieu of social security contribution times – up until the youngest child reaches 12 years of age (should the respective partner ‘stay at home’ for that period of time).

For Pillar 2 income, once the beneficiary of such an occupational pension plan reaches a threshold age (typically 55 years for current generations), she/he can decide to start taking pension benefits. This choice is always available from that age onwards, but it is optional, not mandatory. Whichever form of benefit is chosen, such a choice will irreversibly change the treatment of the pensionable assets, both from an income and inheritance tax perspective.<sup>12</sup>

Until the 2014/15 budget, the choice of benefits has been:

- One-off tax-free withdrawal of up to 25% of the net asset value of the plan (cash-out)
- Annuity (‘free market option’ applies: while there is a requirement for the plan provider to offer at least one in-plan annuity option, it is up to the retiree to decide where to take his/her money for the purpose of purchasing an annuity; regulation encourages people to ‘shop around’) – only part or none of the funds in the pension may be used for this option
- Income drawdown: transfer of assets into a kind of retirement account with regulated withdrawal rules, allowing for relatively flexible investment options

The applicable income tax is payable on either form of regular income.

A fourth option has been introduced for 2015, under which retirees may choose to withdraw all assets from their occupational plan. Such a ‘crystallization event’ will result in no tax charge on 25% of the assets (analogous to the first option above), while

the remainder of assets will be charged according to the resulting income tax levels. It is too early to tell what changes this will effect in the retirement income industry in the U.K., but as a principle a wider freedom of choice must be supported, provided it goes hand in hand with the required investor education.

It should be mentioned that in January, 2013, the U.K. government introduced the now mandatory offering of low-cost private-sector workplace pensions under the acronym NEST (National Employment Savings Trust), which will require employees to actively opt-out, should they not want automatic salary sacrifice going into these pension provisions (ca. 8% of gross earnings). Clearly, there is no hard data yet on retention rates, so policy makers will need to keep a close eye on emerging trends.

Personal (Pillar 3) savings are subject to all typical taxes (capital gains, dividends, income) unless they sit in a specific individual savings account (ISA), subject to a maximum non-recurring annual contribution allowance, currently £10,800 which, by contrast, is entirely tax exempt for all in-wrapper income, capital gains or withdrawal purposes.<sup>13</sup> There are other, typically insurance (bond) wrappers that will provide some tax shelter during asset accumulation, but will inevitably attract regular income tax upon payout. Only some forms of (low-yielding) government and agency bonds avoid such charges.

Lately, the treasury has fiddled around quite a bit with rules and allowances regarding Pillar 2 pension contributions. This has had two major effects: (1) unsettledness or even apathy among individual savers and (2) an increased interest in the Pillar 3 ISA wrapper, which many see as the better choice in terms of tax shelter and flexibility altogether. Policymakers cannot be happy with that. While ISAs are accessible for withdrawals anytime, contributions are strictly limited in each tax year. In other words: You may take it out, but you cannot put it back in. As a tax-free income complement during retirement ISAs are a great tool, or even as a tax-sheltered parking position for emergency funds; but clearly they would need to perform

implausibly well to surpass the lever that's introduced by gross-in-gross-rollup (partly) employer-matched contributions in Pillar 2 occupational pensions.

### **A Variation to the RIIA Household Balance Sheet Approach**

We now set out to demonstrate how the RIIA Household Balance Sheet (HHBS) (in its PV variation with a small tweak) can be transferred into other retirement income regimes in analogous fashion. We use case studies of Germany and the U.K. to highlight elements of the effects.<sup>14</sup>

Projecting all (discounted) assets and liabilities similar to the RIIA HHBS will enable us to assess and compare consumption gaps and determine their sensitivities to the levers of postponed retirement and reduced target consumption. We propose a simple graphical representation of the triangular trade-off between working longer (in order to increase social capital), saving more (in order to increase financial capital), and an adjustment to consumption expectations (thereby shrinking an eventual consumption gap). This should prove beneficial to advisers irrespective of geography.

The individuals used in the case studies are median earners with some assets to their name, in line with their lifetime earnings up to this point in time. We apply the following underlying modeling assumptions:

- Future inflation is assumed deterministic and in line with a long-term average of 3% per year
- Consumption grows in line with inflation at 3% annually – starting retirement one year later means a 3% increase in baseline consumption/ expenses
- Social security income (state pension) is assumed to rise in line with inflation (U.K.) and at 86% of inflation (Germany) to reflect the national differences<sup>15</sup>
- At retirement, all financial assets (Pillar 2 and Pillar 3 savings) are converted into flat annuities (similar to single premium immediate annuities or SPIAs) at rates obtained from online calculators
- Furthermore, we assume that one, two, and three years later annuity quotes will be identical to what they are now<sup>16</sup>

- Tax brackets are assumed to move in line with inflationary effects, thereby leaving the retirees essentially within the same tax bracket for all of their retired lives
- Discounting of future income and expenses happens along the respective government bond curves<sup>17</sup> (which are also assumed unchanged for deferred retirement entry points)
- In order to capture the true present value (PV) of future cash flows, the discounted values for every year of retirement are then multiplied by survival probabilities as derived from the national mortality statistics (See also Wade Pfau's recent article on this topic.<sup>18</sup>)

### A German Case Study

Let's look at an individual case. In 2009, Frank and Maria live in Germany, are both 65, and have been married for 40 years. Their children are no longer part of their household budgeting. They both have reached statutory retirement age and now set out to investigate their options. Their gross household employment income of €56,000 translates into net household income of approximately €38,000 – after deductions for social security and income tax. During the last years both have contributed to a third-pillar Riester vehicle which now totals some €40,000. Beyond that they hold emergency funds of another €36,000 in cash deposits with their savings bank. The aggregate of €76,000 constitutes their financial capital.

Figure 7, at right, presents an overview of the before- and after-retirement income and expense elements. By combining social capital (Pillar 1 assets) and financial capital (in this case Pillar 3 assets only) into a single life-long income stream we create a synthetic annuity.

This couple's situation is typical for a large number of older German couples without any real estate assets.<sup>19</sup> Within the RIIA Client Segmentation Matrix<sup>20</sup> they would fall into the underfunded mass market segment as follows: The couple's social security claims of first pillar state pension (including largely free health care) from age 65 will contribute a net total

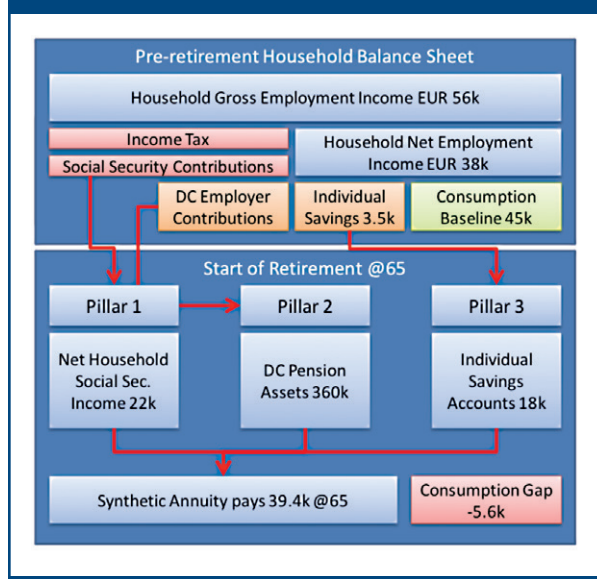
household income of roughly €22,000 – which going forward will be indexed to 86% of observed wage inflation (current applicable law with respect to the sustainability factor).

In order to establish a retirement-income floor, we also deduct current individual savings contributions of €5,000 per annum from total household net employment income of €38,000 to arrive at a consumption baseline of €33,000 annually. This amount would see the couple stay at their current standard of living.

Pillar 1 net pension income of €22,000 would leave them with an annual gap of €11,000 or precisely one third. If they wanted to fund the €11,000 annual expense gap by just drawing from their entire savings balance starting at age 65, they'd be finished within seven years (assuming they make up for inflation in their cash pile). However, their respective life expectancy at 65 is 17.5 and 20.7 years.

What is the most important lever for Maria and Frank? Clearly to work for as long as possible. There are indeed financial incentives (read: increased state

**FIGURE 7: GERMAN COUPLE: HOUSEHOLD BALANCE SHEET VIEW AT AGE 65**



pension entitlements) for them to do just that. Staying employed for another three years would (i) increase their nominal social security income by +19%(!), (ii) increase their savings pile (+21% gross) and (iii) reduce their in-retirement life expectancy (16 and 19 years respectively). A year-by-year overview of these elements is shown in Figure 8, below left.

Now, in order to arrive at a simple graphical representation, we will try to establish a fair PV version of the RIIA Household Balance Sheet by introducing lifetime income that would result from a synthetic financial instrument comparable to a SPIA.<sup>21</sup> Of course, in annuitized form the couple’s accumulated savings will never make the consumption gap disappear, but we get an objective comparison for the impact of postponing retirement.

We need to look at three PV numbers concurrently:

- PV of social capital, where individual payouts are assumed to grow in line with 86% of inflation
- PV of financial capital, where individual payouts are assumed to stay flat throughout the annuitant’s life
- PV of future consumption, where individual expenses are assumed to grow in line with inflation

A decision rule for postponed retirement vis-à-vis adjustment of required consumption levels is now easily obtained by applying a total assets via total liabilities calculation. The results are presented in Figure 9, at right.

**FIGURE 8: INFLUENCE OF DEFERRED RETIREMENT ON SOCIAL SECURITY INCOME AND FINANCIAL CAPITAL – GERMANY**

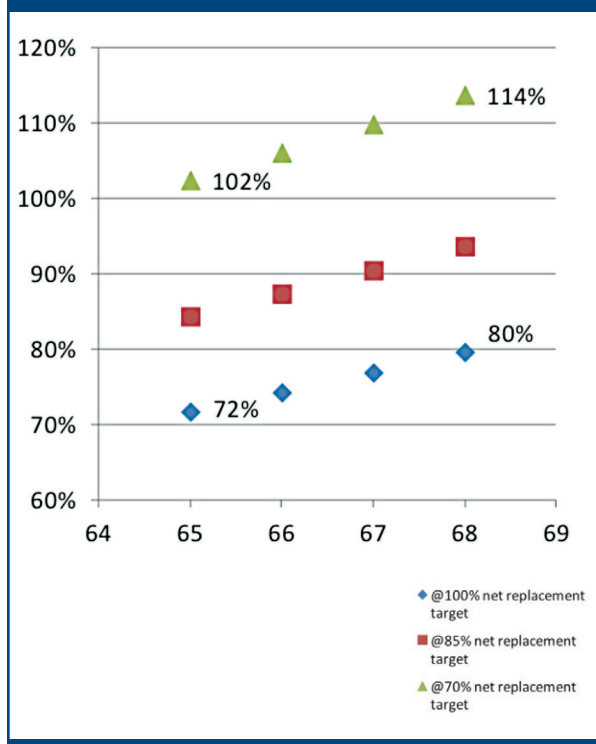
Retirement Age	Starting Level Net Annual State Pension	Financial Capital
65	22,000	76,000
66	23,320	81,347
67	24,719	86,694
68	26,202	92,041

After full annuitization of their savings at age 65 we arrive at a net income replacement rate of 72%, and even by working three more years, this can be lifted to only 80% of the targeted €33,000 starting annual consumption baseline. This is reflected by the blue diamonds in Figure 9. Giving up on a 100% net income replacement rate seems advisable.

Conversely, cutting desired consumption to 70% straight away would result in an adequately funded expense choice (102% net income replacement rate) at age 65. This is illustrated by the leftmost green triangle in Figure 9.

By introducing the certainty of only lifetime income components on the asset side, this version of the HHBS allows us to make transparent the simple trade-off that will allow the retirees to essentially “pick their point” in the retirement age vs. retirement income continuum.

**FIGURE 9: LIFETIME CONSUMPTION GAPS FOR DIFFERENT RETIREMENT START DATES AS PER PV VERSION OF HOUSEHOLD BALANCE SHEET (GERMAN COUPLE)**



That is not to say that there is no space for upside conversations or other financial instruments apart from fixed annuities. Staying employed for three more years as well as aiming to cut expenses to 70% as illustrated will see the funding ratio reach 114% and put more options on the table. Reassessing the situation two years from now may also see a change in the interest rate environment, resulting in both different discount rates and possibly higher annuity rates provided by life insurers.

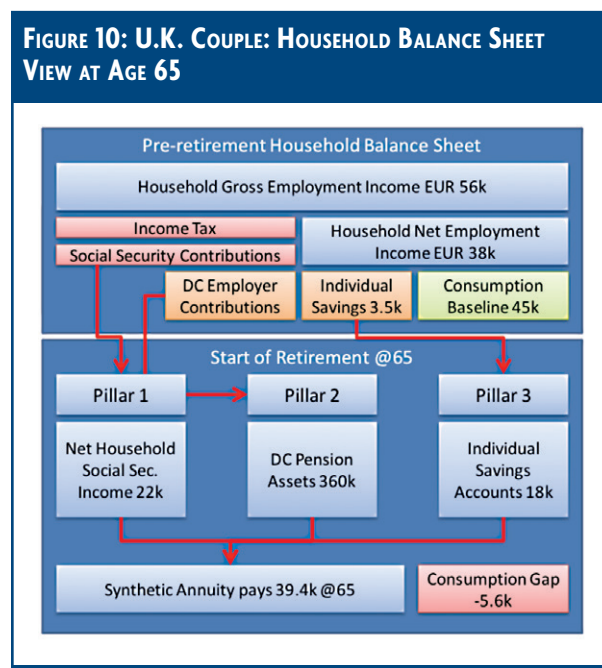
Clearly, this exercise could have easily started much earlier than at age 65; then, it might have led to the decision to consume less and save more with an earlier retirement age and higher consumption target in mind.

**A U.K. Case Study**

In 2009, David and Samantha live in the U.K., are both 65 and have been married for 30 years. Their children are no longer part of their household budgeting. They both have reached statutory retirement age and now set out to investigate their options. Figure 10 below provides an overview of their current household balance sheet. In 2009, their gross household income of £70,000 is somewhat above average earnings, which translates

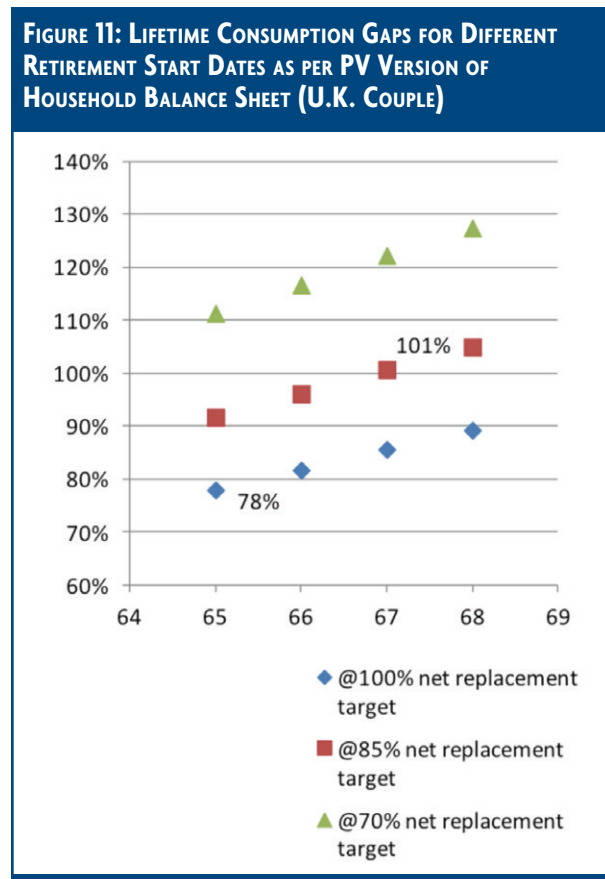
into an annual net household income of approximately £52,000 after social security contributions and income tax. The two have been contributing steadily to their DC pensions, matched by their employer. Another £3,500 has been saved into their ISAs – leaving their consumption baseline at roughly £45,000 annually. As a result, their Pillar 2 pension pots have reached a value of £180,000 each, whereas their Pillar 3 ISAs are now £18,000 in total. Still, within the aforementioned RIIA Client Segmentation Matrix (after USD and PPP conversion) they would fall into the affluent underfunded market segment as follows:

- Aged 65, they now have social security entitlements of first pillar annual net income (including largely free healthcare) of £11,000 each – which, going forward, will be indexed to observed consumer price inflation. This will still leave £23,000 of annual expenses to be made up from their financial assets, which results in a residual consumption vis-à-vis financial capital quota of 6%. Aggregation of all assets at age 65 into a synthetic annuity (as indicated in Figure 10, left) again leaves a consumption gap, this time around £5,600 annually. Also this couple will either need to reduce their current consumption levels or work for a longer period



As set out above, we assume conversion of all financial assets into two equal-sized (flat, SPIA-like) lifetime annuities without spousal benefits or guarantee periods.<sup>22</sup> The resulting lifetime income streams are again discounted and summed up. The results of this consumption gap analysis are summarized in Figure 11 on the next page.

Their PV of total income to PV of total expenses at a target net replacement rate of 100% reaches some 78% when retiring at age 65 (as indicated by the leftmost blue diamond in Figure 11). A reduction to an 85% after-tax income replacement target in combination with a retirement that is postponed to age 67 sees the funding ratio reach 101% (as indicated by the accordingly labeled red square in Figure 11).



The biggest lever here is the increase in proportionate coverage by state pension which goes from 63% in PV terms to 67%. In other words: 63% of the couple’s retirement income, inflation-adjusted, life-expectancy-adjusted comes from the government pension, which in nominal terms at the start only makes up for 56% of absolute income. This demonstrates the power of the built-in inflation hedge: postponing retirement helps by further boosting the proportion of such indexed income. (This only works as long as the combination of discounting via adjusted life expectancy, rate curve structure and assumed inflation are more than offset by the incremental entitlement – in this case as mentioned earlier a substantial 10.4%.) This is summarized in Figure 12, above right.

The 100% line of net income replacement targets can again be interpreted another way: if they wanted to retire at age X with a fully-funded SPIA under the

**FIGURE 12: INFLUENCE OF DEFERRED RETIREMENT ON SOCIAL AND FINANCIAL CAPITAL – U.K.**

Retirement Age	Starting Level Net Annual State Pension	Financial Capital
65	22,080	378,000
66	24,288	391,200
67	26,717	404,400
68	29,388	417,600

PV assumptions, what consumption target should you choose? Well, clearly, at age 65 that would again be 78%.

**Conclusions**

In the light of our findings with respect to sustainability of social security systems in Italy (and to a lesser degree France), an almost obvious statement has to apply across all G7 countries: the less sustainable and inequitable and therefore fragile any individual system seems to be, and the less willing (or able) current policymakers appear to commence necessary adjustments, the less meaningful will analysis and recommendations from within the financial services community be, should these be too closely tailored to present circumstances and regulations. The only sensible recommendation must be to live within one’s means, save as much as possible as early as possible, and to invest as tax efficiently as possible. ‘Thou must not depend on Pillar 1 government handouts beyond the bare minimum’ – as the case of the U.K. couple helps to illustrate.

It has been demonstrated that the RIIA HHBS concept is also applicable to other retirement-income markets and financial planners there could well use it as a guiding tool in their analysis of client portfolios and funding adequacy. Financial services firms entertaining the thought of getting involved in the U.S. retirement-income business could not find a better starting point than the foundations laid out by RIIA and its affiliates over the last nine years.

Again, independent of geography, condensing the HHBS into a single number, representing a lifetime consumption gap by virtue of the PV version of a synthetic annuity being held against the PV of lifetime consumption target helps to establish a feel for the required trade-off at any given point in time. A regular rendition of this exercise – if started early enough – will help to establish a path towards realistic targets for both consumption levels and retirement age.

From such a starting point, different scenarios can be developed by varying assumptions with regards to future inflation or discount factors (and thereby annuity rates) as well as required performance of financial capital during deferred retirement.

As has been shown by comparing our German and U.K. couples' HHBS on a PV basis, the respective percentage of total future consumption covered by social capital is highly relevant. Specifically for underfunded or constrained market segments any embedded valorization features have a substantial impact in offsetting inflationary pressures on future consumption. Here the U.K. leads Germany in its generosity by promising to fully offset any inflation-related adjustments, whereas Germany chooses a dynamic adjustment rate in the interest of demographic sustainability. Given these economies' differences in forecast old-age dependency rates, both policies seem reasonable.

Postponing retirement beyond statutory retirement age (SRA) has incrementally larger beneficial effects. This leads to increased net entitlements and can sometimes be tax-bracket dependent. When looking at median to mean income levels, the incentives presented by the U.K. system (10.4% per extra year vis-à-vis 7.4% in Germany) are larger by comparison with the U.S. (8%). By contrast, retirement before reaching the SRA will always trigger (sometimes punitively high) cuts in entitlements.

We have highlighted a number of issues that apply in similar fashion (if not in equal measure) to both 'sides of the pond'. We believe it can be safely assumed there will be plenty of learning opportunities in the retirement-income space going forward. Exchanging views not just across the silos but also across geographies and jurisdictions should help to further enrich and accelerate this important effort. ■

Disclaimer: The author has neither active nor passive business relationships with any of the companies mentioned herein or used for the purpose of collating information and creating sample annuity payouts, tax calculations or similar. All mistakes made are entirely the author's own, inclusive of misinterpretation of the information sourced from such utilized web pages.

## Appendix

### A Short Excursion on the Selection of Germany and the U.K.

We conclude there will be little insight to be gleaned from retirement income policies or pension investment vehicles in both Italy and France, given that their current social security models appear to be unsustainable even in the medium term. As a consequence, pension reforms will be ever more disruptive in these economies, depending on how long they are postponed. Here is this comparative analysis in a nutshell, again largely based on OECD numbers as referenced.

We look at the following statistics:

- 1) Tax revenue as a percentage of GDP, which can be obtained within the Fiscal Balances and Public Indebtedness section<sup>23</sup> – see Figure A-1, below
- 2) Interest payments on net debt as a percentage of GDP, which can be obtained within the Fiscal Balances and Public Indebtedness section<sup>24</sup> – see Figure A-2, next page
- 3) Social expenditure as a percentage of GDP, (aggregate of subcategories ‘old age’ and ‘survivors’)<sup>25</sup> – see Figure A-3, next page
- 4) Coverage of private pension schemes by type of plan, 2009 (as a % of working age population 16-64 years) – see Figure A-4<sup>26</sup>, next page
- 5) The Progressivity Index (PI) for the respective economies’ government pensions, which is explained in detail in the OECD paper “Pensions at a Glance 2011”<sup>27</sup>, and the associated net replacement rates of select income bands in retirement – see Figure A-5, in 2 pages

Here is the definition of the Progressivity Index from the paper:

“OECD countries’ retirement-income systems place differing emphasis on the roles of insurance and redistribution. The progressivity index is designed so that a pure basic scheme would give 100 and a pure insurance scheme, zero. The calculation is based on Gini coefficients, a standard measure of inequality. Formally, the index of progressivity is 100 minus the ratio of the Gini coefficient of pension entitlements divided by the Gini coefficient of earnings, on both cases weighted by the earnings distribution.”

Two examples from the net replacement rates help to further illustrate the PI scores:

- An Italian median earner will end up with 76% of his pre-retirement net income from government pensions alone. This number holds pretty much across the entire income spectrum analyzed by the OECD, i.e. someone who has earned twice the mean income pre-retirement will end up with twice the net retirement income from his government pension, hence the low PI score
- By contrast, the median earner in the U.K. will end up with roughly 48% of her pre-retirement net income from state pension, which will be twice as much as the 200% mean income earner. In other words: They both get the identical government pension, hence the PI score of 83. (Note this is not due to higher taxation on higher pension pay, but because of a base state pension which is identical for all retirees)

**FIGURE A-1: TAX REVENUE AS A PERCENTAGE OF GDP**

	2007	2008	2009	2010	2011	2012(E)
France	44%	44%	42%	43%	44%	44%
Germany	36%	37%	37%	36%	37%	37%
Italy	43%	43%	43%	43%	43%	43%
United Kingdom	36%	36%	34%	35%	36%	36%
United States	28%	26%	24%	25%	25%	25%

## Appendix, continued

**FIGURE A-2: INTEREST PAYMENTS ON NET DEBT AS A PERCENTAGE OF GDP**

	2007	2008	2009	2010	2011	2012
France	2%	3%	2%	2%	2%	2%
Germany	2%	2%	2%	2%	2%	2%
Italy	5%	5%	4%	4%	5%	5%
United Kingdom	2%	2%	2%	3%	3%	3%
United States	2%	2%	2%	2%	2%	2%

**FIGURE A-3: SOCIAL EXPENDITURE AS A PERCENTAGE OF GDP**

	2007	2008	2009	2010	2011	2012
France	13%	13%	14%	16%	15%	16%
Germany	11%	11%	11%	12%	13%	12%
Italy	14%	15%	16%	18%	21%	22%
United Kingdom	5%	6%	6%	7%	7%	7%
United States	6%	6%	7%	7%	7%	7%

When combining the statistics from (1) and (2) above, we obtain an evolution of debt servicing costs as a percentage of tax revenue, as shown in Figure A-6, next page.

When combining (1) and (3), we obtain an evolution of social expenditure as a percentage of tax revenue, as shown in Figure A-7, next page.

When combining Figures A-6 and A-7 we arrive at an aggregate as shown in Figure A-8, in two pages.

Finally, we look at present government debt as a percentage of GDP<sup>29</sup> (Figure A-9, in two pages) and currently forecast old-age dependency ratios<sup>30</sup> (Figure A-10, in two pages).

Looking at all these statistics combined, we propose a “sustainability” grid (Figure A-11, in two pages), which has two dimensions:

- Government affordability, i.e. will the respective government be able to support (i.e. pay for) the

**FIGURE A-4: COVERAGE OF WORKING AGE POPULATION THROUGH NON-GOVERNMENT PENSION SCHEMES**

	Voluntary Occupational (Pillar 2)	Voluntary Private (Pillar 3)
France	4%	7%
Germany	32%	30%
Italy	8%	6%
United Kingdom	49%	18%
United States	33%	25%

current policy framework surrounding work and pensions – represented by the 2012 numbers from Figure A-7: Social expenditure as percentage of tax revenue

- Equitability, i.e. will the majority of the electorate be willing to go along with the status quo for much longer, assuming the less progressive government pensions are, the more difficult to uphold because

## Appendix, continued

**FIGURE A-5: PROGRESSIVITY INDEX AND NET INCOME REPLACEMENT RATES FOR RETIREES BASED ON THEIR STATE PENSION AND PRE-RETIREMENT EARNINGS – SEE OECD PAPER ON RETIREMENT-INCOME SYSTEMS IN OECD AND G20 COUNTRIES<sup>28</sup> FOR MORE DETAILS**

	Progressivity Index	Net Replacement Rates			
		50% of Mean	Median	Mean	200% of Mean
France	29	69%	61%	60%	49%
Germany	24	57%	58%	58%	43%
Italy	1	78%	76%	75%	77%
United Kingdom	83	68%	48%	42%	24%
United States	41	64%	53%	47%	40%

**FIGURE A-6: SERVICING COST OF NET DEBT AS PERCENTAGE OF TAX REVENUE**

	2007	2008	2009	2010	2011	2012 (E)
France	6%	6%	5%	5%	6%	5%
Germany	7%	6%	6%	6%	5%	5%
Italy	11%	11%	10%	10%	11%	12%
United Kingdom	5%	5%	5%	8%	9%	8%
United States	7%	7%	6%	7%	8%	7%

**FIGURE A-7: SOCIAL EXPENDITURE AS PERCENTAGE OF TAX REVENUE**

	2007	2008	2009	2010	2011	2012(E)
France	29%	29%	32%	36%	34%	37%
Germany	29%	29%	30%	34%	35%	33%
Italy	32%	34%	36%	41%	48%	51%
United Kingdom	15%	16%	18%	20%	20%	20%
United States	22%	23%	28%	29%	26%	27%

of potential social unrest – represented by the PI scores from Figure A-4<sup>31</sup>

As indicated by the small red arrow in Figure A-11, we would argue that Italy is drifting into a direction where (i) growing government debt, (ii) rising expenses for servicing pensions, not to mention (iii) rising

expenses for servicing debt in combination with (iv) comparatively generous state pension entitlements and (v) no substantial coverage through Pillar 2 and 3 assets will ultimately require a substantial rewrite of the social contract. Therefore, we cannot see which page to take out of Italy's book in this space as far as policy recommendations are concerned.

# Appendix, continued

**FIGURE A-8: SOCIAL EXPENDITURE PLUS SERVICING COSTS OF NET GOVERNMENT DEBT AS PERCENTAGE OF TAX REVENUE**

	2007	2008	2009	2010	2011	2012(E)
France	35%	36%	37%	41%	40%	42%
Germany	36%	35%	36%	39%	40%	38%
Italy	43%	45%	46%	51%	59%	63%
United Kingdom	20%	21%	23%	28%	28%	28%
United States	29%	30%	35%	36%	34%	35%

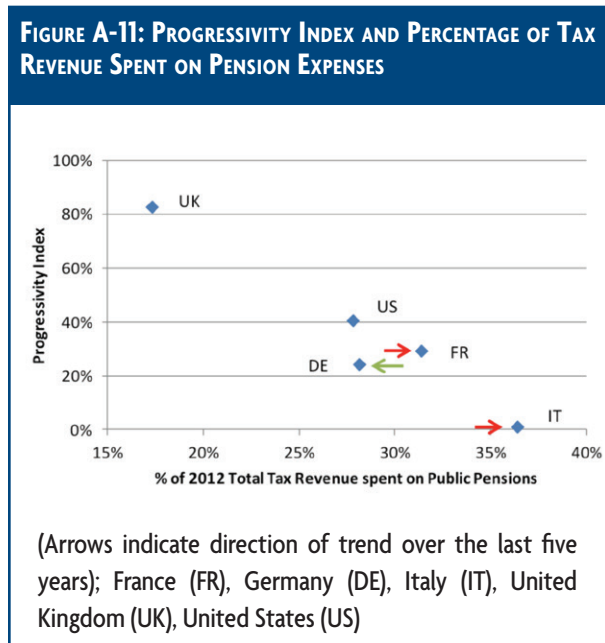
**FIGURE A-9: GOVERNMENT DEBT AS A PERCENTAGE OF GDP**

	2007	2008	2009	2010
France	52%	53%	61%	67%
Germany	40%	40%	44%	44%
Italy	96%	98%	107%	109%
United Kingdom	43%	61%	75%	86%
United States	36%	40%	54%	61%

**FIGURE A-10: TRADITIONALLY DEFINED OLD-AGE DEPENDENCY RATIOS**

	2011	2030	2060
France	26%	39%	47%
Germany	31%	47%	60%
Italy	31%	41%	57%
United Kingdom	25%	35%	42%
United States	20%	33%	37%

Percent of the population older than 65 as a share of the population aged 15 to 64



## Appendix, continued

As for the direction of rising expenses, France is not much different from Italy, although it is still in a much less constrained position. But a similar lack of incentives and assets to support Pillar 2 or 3 pension provisions weigh heavily against an evolutionary solution to the problems that are building. We consequently focus on Germany and the U.K. in terms of identifiable cross references for insights for both policy makers as well as investors and/or advisers.

The other two dimensions not captured in the sustainability grid are government indebtedness (Figure A-9) and old-age dependency ratios, ODR (Figure A-10). We would posit that higher (and increasing) debt levels require faster action and thereby will ultimately undermine government attempts of a gradual adjustment. This pressure is partially offset by lower ODRs in the U.K. and the U.S., whereas Germany's comparatively enviable public debt figures also leave some room for maneuvering while its population ages. ■

### Footnotes:

- 1 <http://en.wikipedia.org/wiki/G7>
- 2 Gadenne, François: *The Retirement Management Analyst (RMA) Designation: Curriculum Book for RMA Candidates, 5<sup>th</sup> Edition* (2013); p. 101
- 3 [www.oecd.org](http://www.oecd.org)
- 4 Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011)
- 5 Averting the old age crisis: policies to protect the old and promote growth. New York, New York, Oxford University Press, 1994 (World Bank Policy Research Report)
- 6 Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011), p. 175
- 7 As footnoted in the OECD paper, for the U.S. data the 'OECD estimate [is] based on data provided by national authorities as a % of total employment. The data provided has been adjusted by the ratio of total employment to the working age population. This implicitly assumes that individuals outside the labor force are not covered'
- 8 Johansson, Å., et al. (2012), "Looking to 2060: Long-Term Global Growth Prospects: A Going for Growth Report", *OECD Economic Policy Papers, No. 3*, OECD Publishing
- 9 Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011), p. 125
- 10 This surprising effect results from a flat state pension being paid out to qualifying retirees in the U.K., irrespective of previously achieved income levels or social security contributions
- 11 We use the term 'best-in-class' in the interpretation of sustainability of the prevailing setup; while from the perspective of the individual retiree a higher net replacement rate may seem more desirable, its perpetual affordability may be questionable; everything else being equal, the U.K. will be able to pay out the kind or state pension it currently pays for much longer than any of its peers
- 12 If no benefits are chosen, the entire asset pool will be passed on to the individual's heirs entirely tax-free upon death before age 75. From that age onwards, "income drawdown death benefit" tax rules apply, e.g. 55% tax on lump-sums and standard applicable individual income tax on recurring installments
- 13 Although not for inheritance tax purposes
- 14 It may be helpful as a foreign exchange reference frame to compare 2008 average (gross) earnings as provided in the OECD report : when adjusted for purchasing-power-parity and converted at then prevailing rates, mean incomes were USD 40,300 for the U.S., USD 50,600 for Germany, and USD 53,100 for the U.K.

- 15 For the sake of simplicity we will not go into the different proxies used for inflation adjustments, e.g. CPI, RPI (U.K.), wage inflation (Germany)
- 16 In other words: today's quote e.g. for a female annuitant aged 67 will be used for the model where the now 65-year-old postpones retirement for 2 more years
- 17 Please refer to the endnotes for detailed data references on government bond yields
- 18 Pfau, Wade D.: Unlocking the Two Mysteries behind SPIAs
- 19 The income base setup for this case is inspired by household 7 in: Benz, T., Raffelhüschen, B., Vatter, J.: Finanzmarktkrise und Altersvorsorge, Cologne (2009); p. 161
- 20 An introduction to the RIIA Client Segmentation Matrix can be found in Gadenne, F. et al.: 2006-2011: An Update of RIIA's "Founding" White Paper; in: *The Retirement Management Journal, Volume 1, No. 1* (2011); p. 14
- 21 There are no quality independent online calculators available for the comparison of annuity rates in the German market. We have used an online calculator provided by Allianz in order to obtain inputs to the further analysis
- 22 There are no quality independent online calculators available for the comparison of annuity rates in the U.K. market. We have used an online calculator provided by Legal and General in order to obtain inputs to the analysis
- 23 <http://www.oecd.org/eco/outlook/economicoutlookannextables.htm>
- 24 *ibid*
- 25 <http://stats.oecd.org/Index.aspx?QueryId=4549>
- 26 Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011), p. 175
- 27 *ibid*, p. 136
- 28 Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011), p. 137
- 29 <http://stats.oecd.org/index.aspx?queryid=8089>
- 30 Looking to 2060: Long-term global growth prospects, OECD (2012), p. 13
- 31 Expressed differently: Only the fact that median income earners in Italy end up with a 76% net replacement ratio may allow them to tolerate similar rates for higher earners. Would their entitlements be cut to a level similar to the U.K. (48%), they may expect proportionately bigger cuts to higher income earners, too

#### References:

- Antolin, P., S. Payet and J. Yermo, "Coverage of Private Pension Systems: Evidence and Policy Options", OECD Working Papers on Finance, Insurance and Private Pensions, No. 20, OECD Publishing (2012), Available at: <http://dx.doi.org/10.1787/5k94d6gh2w6c-en>
- Gadenne, François: *The Retirement Management Analyst (RMA) Designation: Curriculum Book for RMA Candidates*, 5<sup>th</sup> Edition (2013)
- Johansson, Å., et al., "Looking to 2060: Long-Term Global Growth Prospects: A Going for Growth Report", OECD Economic Policy Papers, No. 3, OECD Publishing (2012), Available at: [http://www.oecd-ilibrary.org/economics/looking-to-2060-long-term-global-growth-prospects\\_5k8zxpjsggf0-en](http://www.oecd-ilibrary.org/economics/looking-to-2060-long-term-global-growth-prospects_5k8zxpjsggf0-en)
- Pfau, Wade D.: Unlocking the Two Mysteries behind SPIAs, Available at: [http://adviserperspectives.com/newsletters13/Unlocking\\_the\\_Two\\_Mysteries\\_behind\\_SPIAs.php](http://adviserperspectives.com/newsletters13/Unlocking_the_Two_Mysteries_behind_SPIAs.php)
- Tausch, Arno, "World Bank Pension Reforms and Development Patterns in the World System and in the Wider Europe: A 109 Country Investigation Based on 33 Indicators of Economic Growth, and Human, Social and Ecological Well-Being, and a European Regional Case Study", Available at SSRN: <http://ssrn.com/abstract=976586>
- Averting the old age crisis: policies to protect the old and promote growth. New York, New York, Oxford University Press, 1994 (World Bank Policy Research Report), Available at: <http://www.popline.org/node/288014>
- Looking to 2060: Long-term global growth prospects, OECD (2012), Available at: <http://www.oecd.org/eco/outlook/2060%20policy%20paper%20FINAL.pdf>
- Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, OECD (2011), Available at: [http://dx.doi.org/10.1787/pension\\_glance-2011-en](http://dx.doi.org/10.1787/pension_glance-2011-en)

- OECD Data: <http://stats.oecd.org>
- EUR AAA government bond yields: <http://www.ecb.int/stats/money/yc/html/index.en.html> (as obtained on 9 August 2013)
- GBP U.K. gilt yields: <http://www.bankofengland.co.U.K./statistics/Pages/yieldcurve/default.aspx#chart4>, <http://www.bloomberg.com/markets/rates-bonds/government-bonds/U.K.> (as obtained on 9 August 2013)
- German first-pillar income: <http://www.seehagel.de/html/Rentenrechner.htm>, <https://www.alte-leipziger.de/service/rechner/rechner-rentenschaetzer.htm>
- German annuity calculations: [https://www.allianz.de/prodU.K.te/altersvorsorge/privatsofortrente\\_klassik/sofortrente.html?esales=EsalesR4](https://www.allianz.de/prodU.K.te/altersvorsorge/privatsofortrente_klassik/sofortrente.html?esales=EsalesR4)
- German mortality tables: [https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/Bevoelkerung/Sterbefaelle/Tabellen/Sterbetafel Deutschland.html](https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/Bevoelkerung/Sterbefaelle/Tabellen/Sterbetafel_Deutschland.html)
- German tax calculations: <http://www.brutto-netto-rechner.info>
- U.K. annuity calculations: <http://www.legalandgeneral.com/annuities/pension-annuity/annuity-calculator>
- U.K. mortality tables: <http://www.actuaries.org.U.K./research-and-resources/pages/s1-series-tables>
- U.K. tax calculations: <http://www.listentotaxman.com/index.php>