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Developments in European Pension Regulation: Risks and Challenges

Stefan Lundbergh
Cardano, s.lundbergh@cardano.com

Ruben Laros
APG Asset Management, ruben.laros@apg-am.nl

Laura Rebel
Cardano, l.rebel@cardano.com

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Developments in European Pension Regulation: Risks and Challenges

Abstract

The paper will discuss the proposed regulatory frameworks (market valuation of liabilities) in Europe and the implications it will have on pension provision. The impact on current DB pension schemes and insured solutions with guarantees will be discussed in detail especially on the sustainability of the current guaranteed products. Collective solutions that are capital efficient under the proposed regulatory framework will be outlined as a viable alternative to Individual DC.

Disciplines

Economics

Comments

The published version of this Working Paper may be found in the 2014 publication: *Recreating Sustainable Retirement: Resilience, Solvency, and Tail Risk*.

Recreating Sustainable Retirement

Resilience, Solvency, and Tail Risk

EDITED BY

Olivia S. Mitchell,
Raimond Maurer, and
P. Brett Hammond

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Chapter 10

Developments in European Pension Regulation: Risks and Challenges

Stefan Lundbergh, Ruben Laros, and Laura Rebel

This chapter focuses on developments in the regulatory frameworks for pensions in Europe, and their potential consequences for pension systems in the European Union (E.U.) and possibly other countries as well. Our aim is to outline how these changes in regulatory frameworks may develop, given the underlying demographical and societal trends. Because the rules are still under development, we focus on the key principles involved, rather than specific details.

In what follows, we first discuss retirement systems in the E.U. and how employment-based pensions are organized. Then we outline how the regulatory environment is changing. Next we explore the impact of the global financial crisis on the regulatory framework by highlighting specific experiences of the member states who were early adopters of the stricter regulatory framework. A final section concludes.

Retirement Systems in the European Union

Retirement systems in Europe are often described as having a three pillar structure, where Pillar I refers to the public pension, Pillar II refers to workplace (occupational) retirement plans, and Pillar III consists of private savings through fiscal incentives.

In the E.U. region, the public pension is the foundation of retirement provision, though it is organized in many different ways across member states. Generally, public pensions are redistributive, providing a minimum pension intended to minimize old-age poverty. Most of these are unfunded and paid for out of government budgets. As a consequence, projected low economic growth rates combined with retirements in the baby boomer cohort are placing the systems under pressure. In response to these pressures, many member states have proposed (or passed) laws raising retirement ages to 67.¹ Some countries responded with different types of reforms while others did little to counter these demographic changes. In any event, Pillar I is the bedrock on which the workplace-based retirement plans, Pillar II, rest.

Workplace-based retirement plans are intended to complement public pensions by adding another layer of stable income after retirement. In other words, in

the E.U., occupational pensions have traditionally been seen as a tool for income smoothing over the lifecycle. During their productive years, workers save part of their wage to provide for an income in retirement. These pension savings are invested in financial markets, with the goal to maintain retirees' purchasing power as long as they live (primarily aiming to provide compensation for inflation). This could also be achieved by offering guaranteed real deferred annuity, as it could provide lifelong inflation-linked benefits, but this product is currently unavailable in the E.U. marketplace. Instead, traditional defined benefit (DB) pension schemes seek to fill the gap with something close to real deferred annuities. In these plans, financial market risk, inflation risk, and longevity risk have traditionally been borne by the plan sponsor. But recent developments in longevity and financial market volatility have rendered the DB model unattractive for many sponsors. As a consequence, the European market has witnessed both a rapid decline in DB plans and the rise of various forms of defined contribution (DC) plans over time.

Pillar III of the retirement system in Europe consists of individual saving through tax incentives which typically defer income taxes until after retirement. Though the initial objective was to encourage people to build up additional retirement assets, over time many countries have lowered such tax deferrals.

Generally speaking in the E.U., governments provide the first pillar, whereas Pillars II and III are managed by pension funds, insurance companies, banks, and investment houses. In some cases, there is some overlap between the institutions offering both second and third-pillar pensions. For example, in Sweden, insurance companies and banks offer the same kind of products in both pillars, while in the Netherlands the second pillar is dominated by pension funds while the third pillar is dominated by insurance companies and banks. With the demise of traditional DB plans, one might expect providers of second and third-pillar retirement accounts to become less differentiated. The regulatory frameworks are also aligned along these lines. That is, DB pension plans operate under Pillar II and are covered by the regulation regarding Institutions for Occupational Retirement Provision (IORP), while insurance companies operating under both Pillars II and III are covered by Solvency regulation. The European Commission is currently developing what are known as IORP II and Solvency II rules, yet it is clear that the regulatory frameworks are converging. An important factor in the proposed regulation is the further extension of a risk-capital-based framework.

These changes are taking place within the frameworks promulgated by the Basel Committee on Bank Supervision covering banking regulation, which moved banks away from a capital-based regulatory framework and toward a risk-capital-based framework.² In a risk-capital-based framework market, consistent (i.e. arbitrage-free) valuation of the balance sheet is instrumental. It requires that the financial institution has large enough capital buffers (i.e. risk capital) that the probability of becoming insolvent in the future is sufficiently low should

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adverse movements in the financial markets occur. The minimum required size of the risk capital is a function of the risks on the balance sheet. The pensions and insurance industries are the last of the financial institutions to have moved toward a similar European framework. The proposed regulatory frameworks on occupational retirement provision in the E.U. are mainly driven by harmonization, transparency, and customer protection.

It should be noted that the current problems in the European pension market such as low funding ratios and unsustainability of some types of pension systems are not attributable to the regulations; rather, the risk-capital-based approach only highlights the underlying problems of demographic changes. Yet the global financial crisis and ongoing problems with the euro provide a unique opportunity to assess how retirement systems in the member states have fared, especially in the case of member states that can be seen as early adopters of the new regulation. Going forward, it is reasonable to assume that there will be a further consolidation of the products, vehicles, and providers in both the second and third pillars, and that the regulatory frameworks will continue to converge (albeit over many years).

To date, the retirement provision industry has responded by moving toward pension solutions that do not embody guarantees. As a result, financial market and longevity risk are devolving to individual workers and retirees. We argue in what follows that both regulators and consumers will in turn demand increased transparency and fairness within group risk pools. If the providers of collective risk pools cannot meet these demands it is likely that low-cost individual DC saving schemes will emerge as the dominant form of workplace retirement provision.

Employer-sponsored Pensions in the European Union

Retirement systems do differ across the member states, which can be explained by differences in historical and cultural backgrounds. Nevertheless, all the E.U. nations face long-term aging, driving the need for reforms. While DB plans were the predominant form of workplace-based pensions in the past, they are being replaced by various forms of DC plans.

Across the E.U., companies traditionally elected one of three formats for DB plans: book reserve schemes, pension funds, or insured plans. In a book reserve scheme, the sponsor keeps future pension payments on its balance sheet as deferred salary. This is an unfunded solution deemed quite cost efficient, since there is no charge for asset management or taxes levied on capital gains. Yet this model requires some sort of insurance in the event of a corporate bankruptcy, as the employee might risk losing all pension rights. While book reserve schemes are less common than they were in the past, examples remain in Germany and Sweden. In a pension fund, the employer and the employees both pay contributions to a fund that is legally separated from the plan sponsor. This is called a

funded solution, but one where the sponsor holds the tail risk in the form of a covenant (to be discussed in more detail further on in the chapter). In the case of sponsor bankruptcy, a fully funded pension represents a secure solution since pension capital is maintained at arm's length. A deeply underfunded pension would actually closely resemble a book reserve scheme, and it requires some sort of bankruptcy protection for the members. In the case of an insured plan, an employer will pay pension contributions to a third party that takes over the responsibility to provide retirement income security to the workers. The third party is typically an insurance company, whose shareholders provide the risk capital backing the guarantees. This third solution has attracted strict regulation to protect the interests of the clients in case of insurer bankruptcy.

In the past, many E.U. workers relied on DB schemes for most of the funded retirement component, and only high earners had an individual top-up in the form of an individual DC. Offering DC schemes was an attractive option for both sponsoring companies and financial service providers, and it appeared attractive to the employees during the equity bull market in the 1980s and 90s. While traditional DB schemes based on final wage and inflation indexation worked very well for many years, they were best suited for different times. The DB pension formula was simple to understand as it depended only on years in service and final salary. In Europe, most DB pensions also provided lifelong inflation-linked benefits.

Of late, several economic and social trends have made the traditional DB design even less sustainable. These include increasing longevity, low fertility, worker mobility, and shorter service at an employer. For instance, in the E.U. average life expectancy at birth was close to the retirement age after World War II, but has risen to around 77.7 years and is likely to rise further.³ The average life expectancy at 65 for both sexes averages 17.3 years in the E.U. and is projected to rise by another 3.4 years up to 2045 (OECD 2012). Moreover, in the E.U. the average woman gives birth to her first child later in life and has fewer children. With average fertility rates now around 1.5, virtually all E.U. member states will experience a declining population without immigration (OECD 2012). To these changes must be added the fact that today's workers are more mobile than in the past. Rather than remaining in a single occupation or industry, many will change employers multiple times, and some will have periods of self-employment and international mobility. Accordingly, a corporate-backed pension plan at a single employer is often not the preferred vehicle for retirement provision in the current labor market.

As we cannot select a single pension model representative of what is going on across all member states, we instead focus our study on three—Sweden, the Netherlands, and the United Kingdom—in detail. All three at one time had a pension system characterized by traditional DB pension schemes, and all three have changed their pension systems, albeit in different directions. Additionally, each country was an early adopter of a stricter regulatory framework for its workplace

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retirement system, applying to both pension funds and insurance companies. We discuss each in turn.

Sweden

While many Nordic countries have implemented retirement system reforms, Sweden is of particular interest since its first pillar is income-dependent and the second pillar is mainly serviced by insurance companies. From an international perspective, Sweden is quite unusual and is frequently studied by other member states that are considering reforms. In the 1990s, it became clear that the Swedish pension system was not sustainable and that there was a looming retirement crisis with the Baby Boomers retiring. All political parties joined to reach an agreement without making retirement provision an election issue. The main reform was to change all the pension products in the different pillars to DC schemes, since neither the government nor employers offer guarantees anymore.⁴

The first-pillar retirement provision was changed in the late 1990s into a so-called Notional DC pension system, separate from the government budget but governed by Parliament and managed by a governmental agency. The system is partly funded, with a balance sheet where the notional pension rights of individuals represent the liabilities and future pension contributions and buffer funds represent the asset side. The buffer funds act, as the name suggests, as a means of dealing with the demographic bulge due to the Baby Boomers. What makes the system sustainable is the presence of an automatic ‘break’ that, when needed, will return the balance sheet to parity by reducing liabilities—including pensions in payment. As part of the pension reform, an individual DC component was also introduced to the first pillar, called the premium pension. Initially individuals had to choose from among 800+ funds, a development critiqued by Sunstein and Thaler (2008) as an example of complex choice architecture. In 2011, almost all (98.5 percent) of youth entering the labor market ended up investing in the ‘default’ choice (Swedish Government 2013). A typical employee pays 23 percent in pension premiums on top of salary: 16.0 percentage points go into the Notional DC system, 2.5 percentage points into the premium pension, and the remaining 4.5 percentage points into occupational retirement provision. There is a cap on the salary level that is covered by the public pension system and the premiums paid above that cap are transferred to the state budget and are to be considered as an additional tax. For employees earning more than that cap, additional pension premiums go into the occupational retirement provision through a collective agreement to compensate for this implicit tax. In 2011, 19 percent of men and 7 percent of women had incomes above the cap (Swedish Pensions Agency 2012). The tax incentives for the third pillar are relatively limited.

The Swedish government continues to review the system, with a committee currently examining the pension age. The Swedish Pensions Agency (2012) has calculated what pension age would be required to maintain current pension

incomes, which may indicate what these reforms might look like. The social partners (employer organization and unions) are relatively strong in Sweden, and there are national collective agreements regulating occupational retirement provision. Historically, self-annuitizing mutual insurance companies have dominated occupational retirement provision offering a guaranteed product called ‘traditional life’ which, in spirit, is quite similar to traditional DB plans. Corporate pension funds are rather uncommon. What is interesting to note is that the social partners manage the procurement process where the individual employee selects his/her provider via an election platform. The employees choose mainly between traditional life products and individual DC platforms, both offered through a limited set of providers. The default choice is typically a traditional life product provided by a self-annuitizing mutual insurance company controlled by the social partners.

The Netherlands

Many cite the Dutch retirement system as a strong one due to its fully funded quasi-mandatory Pillar II pension funds. The Netherlands is also interesting since the traditional DB models have been evolving into hybrid schemes over time, sometimes described as ‘collective DC’ schemes. This process began, as in many other countries, in the wake of the tech bubble crisis. The terms and conditions of the DB pension deal changed by moving from final wage and full inflation indexation to career average and conditional indexation. This change illustrates the consensus culture wherein the social partners, on behalf of their members, can agree on changes at the negotiation table.

In the Netherlands, Pillar I is a pay-as-you-go program financed from the annual budget; benefits are based on the number of years retirees have lived in the country. Singles receive 70 percent of the minimum wage (\$1,337 per month) and couples together receive 100 percent of the minimum wage; this makes the benefits among the lowest first-pillar benefits in the E.U. (along with the U.K.) (OECD 2011). The government has already boosted the retirement age, slated to reach age 67 in 2023, and it will be linked to longevity increases from 2024 onward (SVB 2013). The first pillar is financed through taxes. For income up to \$43,500 (2013 figures) the employee pays 17.9 percent of pay into the first pillar.⁵ Over the full income (minus a deduction for the first pillar) an employee pays a percentage of his income into the second pillar. On average, 17.4 percent of pay goes to the second pillar, although the largest three pension funds all levied a premium above 25 percent in 2013 (DNB 2012*b*). The maximum tax levy for third-pillar retirement provisions is relatively small. Overall, the average Dutch employee pays approximately 20 percent of his/her income into all three pillars and it is a widely accepted notion among Dutch people that they work one day a week for their pension.

The fact that Pillar I benefits are low makes the Pillar II benefits more important. There are three types of pension fund in the Netherlands: industry-wide

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funds (which have 88 percent of the participants and 73 percent of the assets managed), corporate pension funds, and pension funds for a certain occupation (although the latter are rare and relatively small). A clear trend in the Netherlands is that corporations are terminating their own pension funds; since 2000, the number of corporate pension funds has fallen by 63 percent (DNB 2013). They either join an industry-wide plan or opt for an insured solution. Recently a third alternative was introduced, namely the PPI, a Dutch IORP vehicle, which is a way to offer DC pensions without guarantees.

The average Dutch worker receives approximately 40 percent of the total pension income from the first pillar, 50 percent from the second pillar, and 10 percent from the third pillar. The social partners (employer organization and unions) still have a strong position in the Netherlands and they negotiate national collective agreements which include second-pillar pensions. Participation is not mandated by law but rather imposed by social partners in collective agreements. The details of the second-pillar provision can be negotiated for an entire industry, where every employer in an industry will be obliged to join the industry-wide pension scheme and their employees obliged to save for their pension through their employer. There is also a growing group of self-employed, often in low-income jobs, outside the collective system; they must rely on buying individual products in the third pillar. There is also discussion underway as to whether guarantees should be provided in Pillar II plans, and what the maximum tax-favored contribution should be. In the end, Pillar II is also expected to migrate toward a DC model.

United Kingdom

The United Kingdom has transformed its pension system in a different direction from that of the two countries just discussed. Because the U.K. focuses more on enabling individuals to make choices, individual DC schemes have become the dominant pension provision. Part of the difference is that individual fairness is seen to be more important than collective benefits. From a legal perspective, the U.K. has a contract-based legal system (common law), making it difficult to change pension contracts retroactively, even if they prove to be unbalanced.

The U.K. Pillar I is financed from the state budget, and it consists of two parts. The Basic State Pension is a flat-rate amount and provides a pension of \$121 per week on average (PPI 2010).⁶ The second part, called the State Second Pension, is means-tested. For an average person, it ranges from \$27 to \$50 per week (PPI 2010).⁷ The government introduced an extensive rehaul of the first pillar which will go into effect in 2017. A flat-rate system will replace the means-testing and the overall pension income in the first pillar will be \$219 per week (\$11,800 per year) plus inflation rises between now and 2017.⁸ Additionally, the U.K. will raise the retirement age from 65 to 67 over a 13-year period (U.K. Government 2013).

In the past, most British workers participated in company DB plans providing a decent retirement income. Currently few private sector workers have open and

accruing DB plans, while public sector employees are in DB schemes. Most public employees are in unfunded book reserve schemes, with the exception of those working for the local governments, but those plans are in relatively poor financial condition. Recently the government introduced an auto-enrolment reform, which forces all firms to offer workplace pensions where individual employees may still opt out. Contribution rates for the auto-enrolment pensions are relatively low compared to the Netherlands: the minimum is 8 percent of salary (3 percent is contributed by the employer, 4 percent by the employee, and 1 percent through tax relief; DWP 2012). At retirement, workers use all or part of their pension savings to buy an annuity. The government has also set up NEST, a low-cost pension scheme that must accept all employers that want to become clients. In doing so, the government hopes that almost everyone will build up Pillar II pensions in the future. But even with these reforms, contribution levels remain low, which will translate into meager retirement incomes for the low earners. In addition, pension costs and fees are rather high, which can erode future retirement income (Pitt-Watson 2012). Nearly all Pillar II pension plans open to new private sector employees in the U.K. are DC (see Table 10.1).

TABLE 10.1 Overview of first and second pillar for Sweden, the Netherlands, and the United Kingdom

	Sweden	The Netherlands	The United Kingdom
First pillar	Large Notional DC Income-dependent, but with a minimum pension level. A small part of the income-dependent public pension is individual DC.	Small Pay-as-you-go Flat minimum level	Small Pay-as-you-go One part is flat minimum level Second part is means-tested, but will become flat level.
Second pillar	Small Social partners model with collective agreements. Election centrals operated by social partners, where the employee selects pension product and provider. Default choices are typically low-cost mutual insurance companies. Market liberal implementation	Large Social partners model with collective agreements. Quasi-mandatory Industry-wide pension fund operated by social partners. Paternalistic implementation offering limited individual employee choices.	Small Employer must offer occupation retirement, but employee can opt out. Employee has choices within the solution of the pension provider. Market liberal implementation

Source: Authors' compilations.

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To summarize, in many E.U. nations, as demonstrated here, traditional DB plans are no longer existing occupational retirement solutions and they are rapidly being replaced by various DC arrangements, especially for new employees. The demise of the traditional DB is attributable to the fact that their design was unsustainable given demographic and societal trends, and because the sponsors did not manage the tail risks well. One should not blame the passing of DB plans on new regulation.

Longer-term Trends in the E.U. Regulatory Environment

Europe has a long history of conflict, and the creation of a single market through the European Coal and Steel Community, the European Economic Community, and later the European Union, was meant to pave the way for economic synergy and political stability. One important aspect of the move toward a single market has been to seek consistent legislation across the different member states. For financial markets, a number of European-wide frameworks have been developed. Of course these reforms do not take place overnight, and changing European regulation is a highly political process with many vested interests. As with most regulatory processes, it also tends to be reactive and moves forward in response to crises or scandals.

Pension regulation currently under development in the E.U. is the result of an evolutionary process driven by harmonization efforts among member states. It aims to create a single market for European retirement provision. One complication is that the vehicles providing pension products are subject to different sets of regulations. For insurance companies the Solvency directive exists, while pension funds are subject to the IORP directive. Additionally, there is a gap between regulatory solvency measures and economic solvency measures in both the regulatory regimes.

The proposed regulatory frameworks (Solvency II for insurance companies and IORP II for pension funds) use the market valuation of the balance sheet to close the regulatory gap. This will incentivize insurers and pension funds to manage their balance sheet risk in a more economically meaningful way. The new regulation will also provide supervisors with an early warning system as well as a set of meaningful tools to bring about changes when needed.

As said, insurance companies are currently subject to the European prudential framework called Solvency; changes and improvements to this framework will result in the implementation of Solvency II. Similarly, pension funds in Europe are subject to the IORP directive, and several changes to the IORP directive will mean the future rollout of IORP II. The banking sector is ahead when it comes to European regulation. Their regulation is called Basel and Basel II is already implemented. When comparing Basel II to IORP II and Solvency II, similarities

arise. All three regulatory frameworks operate on a three-pillar model. The first pillar concerns quantitative capital requirements in order to minimize the risk of insolvency of the financial institution. The second pillar sets standards for risk management and governance within a financial institution. It also allows national supervisors to challenge the institutions on the conducted risk management. The third pillar imposes standards for transparency toward supervisors and the public. In Basel I, IORP I, and Solvency I, the focus was mostly on the quantitative rules. The term ‘three-pillar model’ is not to be confused with the three pillars that are used for the distinction between public pensions, occupational pensions, and individual pensions. To minimize confusion below, we reserve the term ‘pillar’ for the distinction between public, occupational, and private retirement provision.

Solvency: European Insurance Regulation

European solvency rules for insurance companies have been in place since 1973, when the European insurance legislation took form. Over the years, the rules evolved while the basis remained the same: insurance companies were obliged to hold a minimum amount of regulatory capital to insure against unforeseen events. A revision of the rules in the 1990s resulted in the implementation of the Solvency I directive in 2002. Since then, the regulation has again been reviewed and a new expected Solvency II directive is intended to be implemented in 2014. It is very unlikely, however, that this timetable will hold, so implementation is likely to start in 2015 or 2016 (Nyman 2012).

After a series of unexpected bankruptcies in the insurance industry in Europe, European policymakers realized that the prudential rules of Solvency I do not capture all the risks on the balance sheets of insurance companies. Due to the importance of insurance companies to the financial stability of a country, some member states reacted as early adopters by introducing national legislation that was stricter than just Solvency I, while at the same time the European Parliament pondered the question of how Solvency I should be improved.

IORP: European Pension Fund Regulation

Before the IORP I directive was introduced, a single market for European pensions did not exist. Due to differences in fiscal regimes and social and labor jurisdictions, a pan-European fund was (almost) impossible to set up. This was a practical challenge for many multinationals in Europe. A larger problem was that the lack of a single market caused fractured pension accumulation, which was an obstacle to labor force mobility between member states. In addition, due to the reduction of first-pillar pension benefits throughout Europe, second-pillar pension provision grew in terms of relative importance of the total retirement provision. On June 3, 2003, the European Parliament and the European Council introduced the IORP

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I directive (E.U. 2003). The IORPI directive provides a prudential framework for pension funds in which it creates a minimum level of prudential supervision for all member states. As it serves as a minimum level of supervision, all member states adopted IORP in their national regulation and some implemented more restrictive prudential rules.

Some member states recognized the potential to become a haven for pan-European pension funds and were quick to erect new pension vehicles that can facilitate pension schemes from different member states. Most notably, Belgium and Luxembourg created vehicles that could be used by, for example, multinationals to pool pension schemes from different member states. Some member states already had vehicles in place that adhered to the IORP directive, such as the Netherlands and Ireland, but not all vehicles were suitably equipped to service foreign schemes. Belgium actively promoted their IORP vehicle, called the OFP, with the argument that they would apply the minimum level of prudential supervision as the unique selling point. In 2005, Belgium even released a leaflet called 'Belgium, prime location for pan-European pension funds' in which the Prime Minister of that time, Yves Leterme, promoted Belgium as an attractive domicile (Federal Public Service Finance 2008). In June 2012, EIOPA reported 84 cases of IORPs facilitating foreign schemes. Half of these cases are held between Ireland and the United Kingdom (EIOPA 2012).

Similarities and Differences between IORP II and Solvency II

IORP II and Solvency II build on the foundations of their predecessors, and as such, they share similar goals. Solvency I and IORP I provided insurance companies and pension funds with a European passport permitting them to service pension plans from other member states. In addition, regulators seek to take another step in creating a single European market and to strengthen the financial institutions providing second and third-pillar pensions. The general approach of the frameworks is similar; both use an economic risk-based solvency model applied to all member states to avoid regulatory arbitrage between the member states.

An important source of discussion, however, is the underlying vehicle supplying the pension. In the early design stages of IORP II, it appeared as if its risk-based capital approach would be the same as the one in Solvency II. Nevertheless, the pension fund industry resisted this change as it would increase required risk capital. Their main argument was that pension funds and insurance companies have different risk-absorbing potential. The sponsor covenant backing many pension funds implies that the sponsor company will pay a higher premium or lump sum payment if the pension fund falls into financial distress, which could give them more leeway with regard to required risk capital. This may be true in some cases, but many sponsors lack the financial strength to fill the gap, in which case the value of the covenant is relatively small. But in some cases, such as the

Netherlands, accrued benefits can be reduced when a pension fund's funding ratio is low, whereas this is not the case for insurance companies.

Responding to pension fund critiques, the European regulator came up with an extended approach for pension funds termed the Holistic Balance Sheet approach. This represents an integral approach to a pension fund's balance sheet, valuing various recovery methods including the reduction of pension rights and indexation, as well as the backing of a protection fund. But this idea too has come under criticism due to the complexity of valuing some of the instruments in a market-based valuation framework. As yet, European Commission has postponed the implementation of the first pillar of the IORP directive, which focuses on capital requirements, arguing that the solvency rules should be 'an improvement, rather than a punishment' (IPE 2013).

The discussion around Solvency II and IORP II has raised attention to proper risk management, providing a general yet simple framework for financial institutions to use. These institutions can also develop their own more thorough risk management systems, which then must be approved by the regulator. The proposed regulation has also provided impetus to speed up consolidation in the pension market. The increased capital requirements make it advantageous to have different activities under one roof, due to diversification effects in the calculation of the capital requirements. Also, the regulation is likely to raise administration costs and governance costs, making it less attractive to run a small pension fund or insurance company.

Other Drivers of European Reforms

The observed convergence between previously quite differentiated industries such as banking, insurance, and pensions has also helped drive the need for regulatory reforms in the E.U. Current regulation allows pension providers to undertake regulatory arbitrage by managing their regulatory risk instead of the actual economic risk. In times of financial crisis with sharply falling interest rates, regulatory frameworks based on fixed actuarial rates allow the pension provider to maintain a risky investment strategy, whereas applying a market-consistent (risk-neutral) valuation of liabilities could show that the pension provider is technically underfunded or even bankrupt. It is anticipated that future regulation will better measure and regulate these institutions' economic risks to improve customer/member protection and the financial stability of the pension providers. Moreover, it is hoped that increased transparency will provide regulators with an early warning system as well as a framework in which meaningful tools for preventive interventions can be deployed.

This is of particular importance since governments have a moral obligation to handle the consequences if regulation and enforcement are inadequate. Roberts (2012) describes the Equitable Life debacle in the United Kingdom, which

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represents an example where the U.K. government eventually shouldered some responsibility for those who lost their pension rights. Reducing the regulatory gaps will lower the chances of unexpected and large bankruptcies, but it will also induce management to manage the economic risk and not issue off-balance sheet guarantees.

Collective Risk Pool Regulation

The idea of collective pooling of risk has long been the foundation of group pension provision, based on the notion that individuals can pool their individual longevity risk with a large group of other similar individuals. Insurance companies or pension plans can then offer lifetime annuities by carefully managing those risks that are not significantly diminished by pooling; remaining open-ended risks must be absorbed by the plan sponsor in DB pensions, the collective in mutual insurance companies, or shareholders in stock insurance companies. The goal of regulation in these cases is to provide some degree of certainty that the institutions can honor their promises on an ongoing basis. By contrast, persons holding individual pension accounts bear both longevity and capital market risk on their personal balance sheets; the capital in their accounts is ring-fenced, so most of the new regulatory reforms do not impact individual DC pension systems. This explains the rapid growth of individual pension solutions offered by banks, insurance companies, and pension schemes.

Both the Solvency II and IORP II proposed regulations prescribe that risk management and governance of the financial institutions they speak to must be proportional to the scale, nature, and complexity of the operations. Moreover, they set out requirements for these groups' level of expertise, internal audit, and outsourcing. But they do not prescribe the quality of the financial product from the consumer's perspective. When a 'hard' promise is provided, enough risk-based capital is required to absorb shocks; when a product has a 'softer' promise (an ambition or aspiration), the vehicle is responsible only for implementation risks, while the rest of the risks remain with the client/member. An important side effect of the regulatory reform debate is that it has offered a methodology for determining fairness between different cohorts (or individual members) inside collective risk pools. By applying risk-neutral pricing and valuation mechanisms, members can still benefit from collective risk-sharing and gain clarity over their individual claims in a mark-to-market framework (Kocken 2012).

In many E.U. mandatory occupational retirement provision schemes, intergenerational risk-sharing typically translates into applying intertemporal smoothing of asset returns, so as to dampen the impact of financial market volatility on pension income. The length of the smoothing period determines the degree of intergenerational risk-sharing taking place. A challenge is that risks with a trend, such as systemic longevity risk, can give rise to one-way intergenerational transfers. While intergenerational risk-sharing can be welfare-enhancing in some

circumstances, this is a different case which is probably not welfare-improving.⁹ And intergenerational risk-sharing may not be appealing for occupational pensions, especially when participation in a specific collective risk pool is not mandatory. For example, proposed changes to the Dutch pension system are clearly moving away from intergenerational risk-sharing by applying a relatively short smoothing window (a maximum of ten years; Rijksoverheid 2012). This was proposed to provide some fairness between generations and stability in pension income for those who have already retired.¹⁰

Due to the fact that pensions are moving increasingly to DC plans, and the products offered by pension funds, banks, and insurers are becoming more similar over time, it may be less necessary to continue regulating pensions and insurance companies differently in the future. Nevertheless, sensible regulation must consider features distinctive to pension products, such as whether guarantees are offered, collective risk pools or individual accounts, trust-based or contract-based governance, payouts in retirement, and mutual or stock ownership of pension vehicles. The conventional European DB scheme was provided by a mutual vehicle and was a self-annuitizing collective risk pool with a guarantee provided by the plan sponsor. There are still mutual insurance companies in Sweden which offer very similar products, with the difference that the guarantee is provided by the collective instead of the employer. By contrast, individual DC products typically lack guarantees and need to be converted to an annuity at retirement.

Solvency II and IORP II regulatory proposals do not seek to alter the governance structures of collective risk pools. But with pensions moving away from 'hard guarantees,' their governance structures become even more important. Individual products are often associated with contract-based governance: that is, the employer selects a provider of the DC scheme (traditionally an insurance company) on behalf of its employees, and employees participate in the plan by entering into a contract directly with the provider. A danger of contract-based governance is that there might be no entity acting in a role similar to that of a trustee. In other words, trust-based governance has a fiduciary duty to help participants save the best way possible, but contract-based governance need not—and sometimes cannot—help participants due to possible legal consequences.

Regulations Regarding Pension Accounting and Solvency Requirements

In the past, the European pension and insurance industries were heavily regulated and required to invest mostly in national government bonds. Post-deregulation, the industry was able to invest more freely and on the asset side, and valuations changed from book to market value. The introduction of market valuation of assets in the past resolved some adverse behavioral effects that book valuation methodology had had on sound investment principles. In order to protect the solvency, pension funds and insurance companies tended to keep their underperforming

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investments when the market price was below acquisition cost to avoid realizing losses, and sold their successful investments to enhance solvency. Sometimes ‘air’ built up on the asset side of the balance sheet, so the introduction of market valuation of assets was quite painful for certain pension funds and insurance companies. Nowadays, pension and insurance liabilities may still be reported at book value. Not surprisingly, discussions about moving to market valuation of the liability side are again raising concerns.

We have not discussed changes in international accounting standards yet, though they are pertinent to E.U. regulatory reforms. The international accounting standards expressed in IAS19/FRS17 stipulate that a corporation must report its pension liabilities in its balance sheet, as per the 2005 revision of international accounting standards (IFRS). One consequence was that traditional DB schemes began to close to new members when their unfunded liabilities had to be reported on the sponsor’s balance sheets.

A Look at Solvency and IORP

The current regulatory frameworks, Solvency I and IORP I, could be described as capital-based accounting frameworks. The original E.U. directive on Solvency was ratified in 1973, and the E.U. directive for Institutions for Occupational Retirement Provision came in 2003 (E.U. 2003). The longer history of Solvency shows in the details of the regulation. For example, IORP I set no limits on a pension fund’s asset classes, as long as the ‘prudent person principle’ is upheld (meaning that investments made on a client’s behalf should be made in a prudent manner). This involves no quantitative restrictions other than prohibiting holding more than 5 percent in its underlying sponsor (and 10 percent in shares belonging to the same group as the sponsor). By contrast, Solvency I further restricts insurers’ permissible asset classes (E.U. 2002), to stimulate diversification. For example, insurers cannot invest more than 10 percent of their gross technical provisions in one piece of real estate, 10 percent of the shares in non-regulated markets, 3 percent in cash, or 5 percent of the shares in one undertaking. IORP I, more than Solvency I, serves as a minimum basis on top of which member states can implement their national prudential framework.

Neither Solvency I nor IORP I prescribed risk management procedures. Rather, the prudential rules were based on the expected long-term mean of the distribution and did not include the (very relevant) short-term tail risk. This is expressed by the freedom that member states have in determining discount rates used for liabilities. As said, the proposed Solvency II and IORP II frameworks are moving toward a mark-to-market valuation of the balance sheet and a risk-based supervisory framework.

Several conceptual challenges arise when thinking of moving to market valuation for liabilities. Using book values for liabilities means that only asset volatility influences solvency; therefore opting for a stable return on the asset side is the

rational thing to do. Yet it is conceptually problematic to evaluate cash flows using different methods depending on whether they are on the asset or liability side of the balance sheet. The market valuation approach for liabilities makes it impossible to have both a stable solvency ratio and stable asset returns, since the liability side is sensitive to changes in interest rates. This has a large impact on how pension funds and insurance companies must manage the asset side of the balance sheet.

In our view, using book value for liabilities can make it difficult to prudently manage economic solvency risk, since the official solvency measure does not represent actual economic risk. As a consequence, the current regulatory solvency measure, in combination with the equity bull market until 2000, obscured the impact of falling interest rates. Conversely, when market rates dropped below the discount rate, problems became much more apparent.

An Illustrative Example

The effects of the impact of changes in interest rates, equity prices, and longevity for a pension balance sheet using different valuation methods are illustrated in Table 10.2 for a stylized Dutch corporate DB pension fund having a mature collective risk pool. At the beginning of 2007, its initial asset mix was set at half equities (MSCI World) and half fixed income with a duration of six years (equal to the duration of Barclays Capital Aggregate Bond Index for Europe). The duration of the liability side was 15 years. We assume that, prior to 2007, the fund used an actuarial discount rate of 4 percent leading to a (nominal) regulatory solvency ratio of 135 percent, approximately the average in the Netherlands at the time.

At the beginning of 2007, usage of the actuarial discount rate was discontinued and the regulator forced the fund to adopt a market valuation approach. The timing of the implementation was favorable, since then the valuation gap between regulatory solvency and economic solvency was positive. The market funding ratio was slightly higher than the previous regulatory funding ratio since swap rates exceeded the fixed actuarial discount rate of 4 percent. This stylized DB pension fund had two significant market exposures: equity risk and a duration mismatch. The stylized pension fund was also exposed to changes in longevity. Sensitivity of

TABLE 10.2 Sensitivity analysis for a stylized DB pension scheme at January 1, 2007

	Solvency based on market valuation of liabilities (%)	Solvency based on book valuation of liabilities (%)
Starting point	139	135
1% point decline in interest rates	124	139
10% falling equity prices	132	128
1-year increase in longevity	136	132

Source: Authors' compilations.

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the solvency to shocks in yields, equity prices, and longevity increases is illustrated under market and book valuation of liabilities.

As we can see, the regulation in place creates perverse incentives that conflict with sound risk management principles. To reduce the regulatory solvency risk, the DB pension fund could reduce the duration of its fixed income assets, but, as a consequence, economic solvency risk will actually increase. With a fixed actuarial discount rate, the balance sheet volatility only depends on the volatility of the asset portfolio, and senior management is therefore evaluated on its ability to create high and stable returns on the assets. Falling interest rates since the 1970s and booming equity markets until 2000 made the ‘asset-only balance sheet’ appear strong, but this was an illusion. And the existing regulatory framework also made it a challenge for the organization to manage both the economic solvency risk and the business/reputational risks at the same time. This conflict of interest is similar to that leading to the collapse of many financial institutions in the global financial crisis: a regulatory framework which allowed for off-balance sheet risk-taking and stock investors demanding higher ROEs produced a downward spiral where sound management of the real economic risk in the financial institution was actively punished and generated excessive leverage. This conflict of interest was accentuated by Chuck Prince, the Citigroup CEO, in 2007 when he famously told *Financial Times* (2007): ‘... as long as the music is playing, you’ve got to get up and dance.’

The sensitivity results in Table 10.2 illustrate that book valuation of liabilities encourages asset portfolio strategies that had an expected negative impact on the economic balance sheet. In essence, the traditional DB pension fund borrowed money from its members at the long end of the yield curve by issuing long-dated promises. It then invested the contributions at the short end of the curve. A popular hedge fund investment strategy is the so-called ‘carry trade,’ where an investor borrows at the short end of the curve to invest at the long end of the curve. During normal cases, when the yield curve is upward-sloping, this can be a profitable strategy in expectation. By contrast, pension funds and insurers had systematic exposure to the exact opposite situation, a ‘negative carry trade.’ This trade is only profitable when the yield curve shifts upwards enough that the decline in net valuation is larger than the yield pick-up, but this strategy loses money when the yield curve is stable or falling.

This example shows that the current DB pension fund crisis is an unfortunate consequence of long-term trends that were disguised by problematic regulation in combination with poor risk management. These insights are not new, and the E.U. commission worked for years on new regulatory frameworks to better align the regulatory and economic risks. In our view, the new regulatory frameworks are probably best described as risk-based accounting frameworks aimed at reducing the gap between the regulatory measure and the real economic risk.

Some E.U. member states have introduced stricter national regulations, in anticipation of the proposed E.U. regulation. To illustrate what the early adopters have done, we turn again to Sweden, the United Kingdom, and the Netherlands.

Sweden

In 2006, Sweden introduced market valuation for liabilities using the Swedish yield curve as the market rate (previously various other methods were used). The Swedish FSA (*Finansinspektionen*) introduced the so-called traffic light system, where a company's solvency risk is categorized as green, amber, or red. When a company is moving from yellow to red, the Swedish FSA has a set of pre-determined actions that will take place, with the final action being the closure of an insurer or pension fund. Since there are few pension funds in Sweden, similar rules applied to both. Moreover, the Swedish financial minister has suggested that there will soon be one framework for both pensions and insurers. Yet many insurers and pensions have not changed their risk management practices to date, instead continuing with the business model and investment strategy from the old regulatory regime.

Netherlands

Market valuation of liabilities was introduced in the Netherlands in 2007, using a yield curve based on interbank swap rates provided by the regulator, the Dutch Central Bank (DNB). Before that, an actuarial discount rate of 4 percent was used. While pensions and insurers face similar regulatory frameworks, there are some details with large consequence. The chance of underfunding of a pension fund can only be 2.5 percent, while an insurer can only have a 0.5 percent chance of underfunding. The Dutch Central Bank introduced the FTK (Financial Assessment Framework) for pension funds, which is similar to the Swedish traffic light system. FTK set two thresholds for nominal solvency of (approximately) 105 percent and 125 percent requiring regulatory actions (Pensioenfederatie 2012). Pension funds may remain below 105 percent for a maximum of three years but they must submit a recovery plan to the supervisor, including raising contributions and, ultimately, reduction of pension payments. Those who do not comply may be closed. Some pension funds did change their business models and applied sound risk management principles, though many have not.

The United Kingdom

The Pension Act of 2004 initiated a move toward market valuation of liabilities for the DB schemes, along with a minimum funding requirement and the installation of a Pension Regulator and Pension Protection Fund. Trustees of a DB scheme are responsible for a prudent valuation of the liabilities, for which they have to seek professional advice. A specific interest rate is not prescribed, unlike in Sweden and the Netherlands. In practice, most DB pension schemes use a discount rate of gilts (U.K. inflation-linked bonds) plus x percentage points, where x typically ranges between 0.5 percent and 1.5 percent. When setting the discount rate, several factors are taken into account, such as plan demographics, current asset values, and the sponsor's strength. In case

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of underfunding, a recovery plan is required by the pension regulator where remedial actions must be outlined. The insurance industry was quite early in moving toward market valuation of liabilities in anticipation of a stricter regulation.

Ongoing Debate

Member states continue to debate the correct market discount rate for pension liabilities. There is no market for the liabilities in corporate retirement plans, and some recommend that the selected yield curve should be without credit risk and based on liquid instruments to avoid valuation distortions. The pension and insurance industry frequently propose that a smoothed yield curve, for example using the average yields over the previous five-year period, would be better to use, since that would eliminate short-term fluctuations in the yield. Walschots and van Capelleveen (2009) argue that, from an economic perspective, using smoothed returns causes refinance returns to be incorrectly evaluated. Especially for long smoothing periods, the true economic return only becomes apparent after a long time, when it might be too late to take corrective actions.

The proposed risk-based accounting framework is disruptive for the traditional pension funds and insurance contracts providing guarantees, so it is not surprising that governments are being lobbied to try to weaken the impacts of these proposed regulatory changes. Opponents to market-based valuation argue that it is too sensitive to short-term volatility, and that book value better represents the true value of the liabilities. But, given recent market experiences, in our view a market valuation approach for both assets and liabilities better represents the quality of the balance sheet. Pensions or insurers paying out on the hope that markets will recover during downturns might end up in bankruptcy, if the adverse scenario is persistent enough and economic risks are not managed in prudent way.

Regulations Regarding Fair Treatment of Customers/Members

While traditional DB plans historically sought to pay a stable income in retirement, most DC plans do not put an emphasis on the pay-out phase. As the transition toward non-guaranteed retirement payouts continues, with the risks pushed to individuals, regulation becomes even more important to protect individuals' interests. The E.U. regulation seeks to ensure fair treatment for consumers, with greater transparency as well. The IORP and Solvency regulations prescribe minimum information that must be provided to participants; this includes an annual report, the target level of retirement benefits, the level of benefits in case of cessation of employment, the participants' capital market risk exposure, and arrangements relating to the transfer of pension rights to another institution for second-pillar pension provision (E.U. 2003: Article 11).

Yet this required information serves only as a minimum, and some member states have additional requirements. For example, second-pillar Netherlands members receive an annual statement called the Uniform Pension Overview (UPO) that is, as the name implies, uniform. This makes sure that all participants receive the same level of information, although many pension funds have a broader communication platform than just the UPO. Continuing the stronger focus on protecting the consumer, Sweden and the Netherlands have banned commission-driven independent financial advisors. The United Kingdom has introduced a Retail Distribution Review (RDR) and Treat Customers Fairly (TCF) policies which focus on restoring trust in the financial system.

The Global Financial Crisis: A Stress Test of the E.U. Regulatory and Supervisory Reforms

Next we ask how European pensions and insurers fared during the global financial crisis, since this period served as a stress test of the regulatory framework, as well as of the political willingness of the E.U. member states to stick to the principles when their local financial industry is struggling. Since the crisis started in 2007, equity markets in the E.U. have been very volatile, and interest rates have fallen to historically low levels. It is unclear how long these low interest rates will persist, since structural economic problems will take time to address.

To illustrate how the financial crisis affected these industries of interest, it is useful to recall the hypothetical Dutch scheme from Table 10.2. We focus on the six-year period January 1, 2007–January 1, 2013, which includes the global financial crisis as well as the euro crisis, and we expose this pension fund to these developments as well as longevity improvements. First we assume that the fund made the strategic decision to stick to its investment strategy, keeping its asset mix constant by annual rebalancing to the 50/50 asset mix, and not hedging the duration risk. During this period, the 30-year euro swap rate dropped from just above 4 percent to approximately 3 percent, and the MSCI World had a negative return in euros of 12.9 percent. Average life expectancy also rose by 0.8 years during this period.¹¹

Table 10.3 indicates how the individual effects affected solvency (for clarity we have not attributed the cross effects and thus the impact of the individual effects does not add up to the total impact). The optical illusion due to book valuation can readily be seen. If the regulatory framework continued to use the actuarial discount rate (i.e. that used for the book value of liabilities), the global financial crisis and the euro crisis would have had little impact on the pension fund's solvency. Actually, with a fixed actuarial discount rate, the falling interest rates seemed to compensate for the decline in equity markets. Hence the pension fund seemed to be in strong financial shape during this difficult period.

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TABLE 10.3 Impact on solvency due to markets and longevity developments between January 1, 2007, and January 1, 2013

	Solvency based on market valuation of liabilities (%)	Solvency based on book valuation of liabilities (%)
Solvency at January 1, 2007	139	139
Solvency at January 1, 2013	103	135
Change in Solvency (percentage point)	-36	+0
due to interest rates	111 (-28)	146 (+11)
due to equity	130 (-9)	126 (-9)
due to longevity	137 (-2)	133 (-2)

Source: Authors' compilations.

But the fund's problems become very clear after applying market valuations to the liabilities: using the solvency criterion of 103 percent, the pension fund is almost insolvent. The investment strategy of a static asset mix was exposed to both falling interest rates and falling equity markets; these combined with increased longevity eroded solvency by 36 percentage points over a six-year period. Under the proposed market valuation framework, management's investment strategy wiped out most of the fund's risk capital. This very simple example illustrates how following a regulatory framework based on an actuarial discount rate can provide a false sense of security. In fact, the Netherlands was an early adopter of market-based liability valuation and some funds managed their solvency risk successfully.

Corporate Sponsor Risk

Not only did the crisis hurt DB plan solvency; it also hurt the sponsor's profitability as well. And if the current economic scenario continues for another five to ten years, some closed DB plans may not be able to maintain their guarantees. Kocken and Potters (2009) showed that the financial status is quite path dependent for aging pension funds following a traditional static 50/50 asset mix. Should real asset returns be poor during the plan's early years, and the pension payment be large, the fund's economic solvency might eventually be depleted. Conversely, if real returns early on are strong, solvency is likely to persist.

Transition Problems

When moving from the old to the new regulatory regime, there may also be transition problems. For instance, DB schemes that did not carefully manage their economic solvency risk could drag their sponsors down with them, if the proposed regulation were introduced and enforced at current low interest rate levels. E.U. policymakers must then decide whether to require the stricter regulatory framework to better protect retirees' accrued rights, versus risking losing jobs

today. Policy regarding the insurance industry faces a similar conundrum, since a stricter regulatory framework may better protect customers, while at the same time threatening the survival of the local insurance industry.

Again, it is of interest to analyze how the early adopters of a stricter local regulatory framework fared during the crisis. In many cases, local regulators were strict in enforcing their local regulatory frameworks, since most pensions and insurers had decent balance sheets entering the crisis period. The collapse in risky asset values did hurt initially but markets rebounded, and so there was limited impact on the economic balance sheet. Falling interest rates, on the other hand, had a huge impact on the economic balance sheet of pensions that implicitly (or explicitly) speculated, following the negative carry strategy on their economic balance sheet.

Sweden

As a result of the crisis, many mutual and stock insurers stopped selling their traditional life products. Most of this occurred on a voluntary basis, though some were forced to close by the Swedish regulator due to insufficient solvency.

The Netherlands

In early 2013, the Netherlands experienced the bankruptcy of an insurer, SNS Reaal, after which the company was nationalized. Dutch pension funds with a solvency level below 105 are being forced to reduce their liabilities by cutting real pension rights for both active and retired members. Benefits cuts have been announced at approximately 70 pension funds, to be implemented in 2014; this will affect more than two million active participants, 1.1 million retirees, and 2.5 million deferred members. In 2011, the Dutch regulator also found that the metal workers' pension trustees (PME) had taken excessive investment risks, and forced a change in trustees and investment policy.

The United Kingdom

In the U.K., the Pension Regulator effectively put several sponsor companies into bankruptcy and the Pension Protection Fund took over their DB liabilities. There are no prescribed discount rates in this case, so the pension regulator has substantial freedom to act. Nevertheless, the Pension Regulator has permitted lengthening of proposed recovery periods and more optimistic assumptions on expected returns, in some cases.

Easing of the Rules

The regulators in some of the early adopter member states decided to ease the rules due to the low interest rates in mid-2012. They announced that the low interest levels were exceptional and took measures such as introducing a

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temporary floor on the yield curve in Sweden or temporarily introducing the Ultimate Forward Rate (UFR) in the Netherlands. In June 2012, when the interest rate level hit an all-time low, some Swedish insurers that did not manage their economic solvency risk were on the brink of either becoming insolvent or having to sell their remaining risky assets at a large scale. In Sweden, insurers were then given the choice to apply either a temporary interest rate floor or actual market rates. Those who opted for the temporary floor faced some restrictions on dividend payouts to shareholders (Finansinspektion 2012). Recently, the Swedish FSA announced that it will move toward an UFR methodology as described in Solvency II (Finansinspektion 2013).

More on the Ultimate Forward Rate

The UFR is a weighting scheme blending market rates and an assumed steady-state long-term interest rate (like an actuarial discount rate). Market rates are used for the part of the swap curve that is liquid, set at 20 years. Beyond that last point of liquidity (in the literature this point is referred to as the LLP, ‘Last Liquid Point’), the forward (UFR) interest rate is a weighted average of the last liquid forward rate (year 19 into year 20) and the UFR of 4.2 percent so that the forward rate converges to 4.2 percent in ten years (the Smith–Wilson 20-30 UFR methodology; EIOPA 2010).

It is worth mentioning that the Dutch regulator adopted a slightly different UFR methodology for pension funds where the last liquid market forward rate is not used; instead, a weighted average of the market forward rates and the UFR of 4.2 percent is used during the convergence period. Furthermore the convergence period is ten years instead of ten years, so that the forward rate equals 4.2 percent at the 60-year point (DNB 2012a). Table 10.4 shows that solvency based on the two UFR methodologies is higher than the solvency based on market rates, since the UFR rate of 4.2 percent currently exceeds market rates. Yet the discrepancy between the economic solvency and the regulatory solvency concepts is much less striking than when a fixed discount rate of 4 percent is used (see Table 10.3). The number 4.2 percent is a bit arbitrary since it is based on ‘expert opinions’ for the

TABLE 10.4 Impact on solvency due to UFR methodology, January 1, 2013

	Solvency based on market valuation of liabilities (%)	Solvency based on Smith-Wilson 20-30 UFR methodology (%)	Solvency based on Dutch UFR methodology for pension funds (%)
Solvency at January 1, 2013	103	108	106

Source: Authors' compilations.

long-term real rate (2.2 percent) and inflation (2 percent); it is unclear how easy it will be to change the UFR rate in the future.

From a policy perspective, the introduction of the UFR methodology is of particular interest since it represents a step back toward applying a book valuation methodology for the long end of the yield curve. This re-introduces a gap between the regulatory solvency risk and the economic solvency risk, the gap that the regulatory reforms sought to close in the first place. The regulatory gap introduced by the UFR methodology causes a dilemma for managers of a pension fund or insurance company. Should they be street-smart and manage the regulatory solvency risk, hoping for the best, or should they be prudent and manage the actual economic solvency risk? In our view, managers are likely to once again begin managing the regulatory solvency risk. Applying different interest rates (i.e. valuations) for the same cash flows depending on whether they show up on the asset or liability side of the balance sheet is technically challenging, since adopting UFR does not mean that economic risk disappears.

In our view, an insurance company or pension fund will do best by fully hedging the economic risk; in addition to this neutral position, management can have an active view on the expected development of interest rates. In other words, having an active view on interest rates is a management decision and can be evaluated as such, rather than disguised as an asset liability management decision (or implicitly supported by a regulatory framework).

Precedent-setting Concerns

As noted above, some effort was devoted to save weaker local insurers and pension funds in the wake of the financial crisis. This is understandable, since the early adopters implemented stricter local solvency regulations compared to the current E.U. directive. And it would have been difficult for politicians to explain why they closed down one of their own insurers or pension funds due to insolvency, while others with similar (or worse) financial situations could have continued to operate just because they were regulated by a different E.U. member state which applied the minimum requirements under the current regulatory framework. Yet saving one local company creates a precedent, giving pensions and insurers mixed signals that could stimulate moral hazard; additionally, large local players may seek to game the regulatory framework.

European pension and insurer regulation is being driven by the European Commission and EIOPA, the European supervisor for pension funds and insurance companies. While these entities seek to create a single market by bringing in stricter regulation, there is much lobbying underway in Brussels seeking to weaken the capital requirements under the proposed regulatory frameworks. Indeed, introducing the UFR methodology into Solvency II and IORP II may be one of the lobby's most important achievements.

Conclusion

Retirees seek stable retirement incomes, and traditional DB pension schemes met this goal by offering real deferred annuities to their members. Yet the traditional DB design proved to be unsustainable due to demographic and financial market developments. Nevertheless, DB plans serve as a guide for what a good pension system should provide to participants, namely lifelong and stable inflation-linked cash flows throughout retirement. This objective translates into a risk-free investment for the consumer or a portfolio that matches retirement spending needs. From this viewpoint, risk refers to not being able to achieve this stable income. Naturally this perspective on risk differs from the wealth management portfolio, where risk is typically measured as asset volatility in relation to cash.

The E.U. regulatory changes reviewed here are intended to create a single market for retirement provision across the region. If successful, the reforms will remove an obstacle to labor mobility in the E.U. and create a single European market for pension provision. The proposed regulatory frameworks are based on market valuation of liabilities, and they aim to close the gap between regulatory and economic solvency measures. This will increase transparency and create incentives for insurers and pension funds to manage the balance sheet risks in an economically meaningful way. It also provides the regulator with an early warning system and tools for intervention. Moreover, as the barriers between traditional DB and DC plans are becoming less relevant, regulation is keeping up: for instance, pension plans will be identified as individual or collective DC plans, with or without guarantees, and as trust- or contract-based. For this reason, the natural barriers are melting between regulation covering pensions (IORP), insurers (Solvency), and banks (Basel). In the longer run, the different regulatory frameworks (Solvency, IORP, and Basel) will also converge, but since it is a political process, it is difficult to say much about the timetable or path to that end.

Although the E.U. faces many unique challenges, some lessons can be drawn. Moving to a risk-based regulatory framework where both assets and liabilities are valued according to mark-to-market principles increases transparency. Putting a fair price on guarantees acknowledges the market value of cash flows, rather than concealing problems with book values based on wishful thinking. Policymakers outside the E.U. contemplating new regulations based on economic solvency measures will want to carefully consider the timing of the implementation and the transition rules. Ideally, it would be useful to implement new frameworks in robust economic periods when interest rates are closer to long-term averages. Regarding enforcement, a valuable lesson can be learned from the early adopters of the new E.U. regulatory framework. Regulatory enforcement must be credible and the prompt corrective actions have to be strong. If the industry does not consider regulators to be credible, business will continue as usual and business models will not be adapted to the new regulatory framework. The global financial crisis showed that it was too difficult for early adopters to enforce their local regulatory framework, so they relaxed regulations

to avoid having insurers become insolvent. This response has set precedents, and the industry is most likely to try to game the regulators in the future by playing the ‘too big to fail’ card.

The E.U. regulatory developments also offer useful insights for those seeking to improve the pension product. Collective self-annuitizing schemes can be useful, but these must be transparent and internal fairness issues resolved. If not, contract-based individual solutions will dominate pension provision, which could be a loss from the consumer perspective. A leading design principle is that risks which cannot be hedged in the market or naturally reduced by risk pooling in the collective should be passed back to the individual. The proposed E.U. regulation illustrates that there is a way to implement an internal risk-based accounting framework that will increase the transparency and fairness across cohorts. Another lesson learned for product design is that by applying the principles of market-consistent valuation and pricing mechanisms, one can construct a collective product that is fair to members/customers and offers promise with respect to looming risk-based regulatory frameworks.

Notes

1. Pensions are high on the policy agenda because most member states are confronting enormous challenges in the Pillar I systems as Baby Boomers enter retirement. Often public pensions are pay-as-you-go systems paid directly from government budgets. While this mode worked reasonably well given a growing workforce, it has come under challenge given population aging, forcing many countries to implement reforms boosting the retirement age to 67. In the Netherlands, the proposed transition period is eight years; in the United Kingdom it is 13 years, and in Germany the process will take 17 years. One exception to this trend is France, where some have proposed lowering the minimum retirement age from 62 to 60; nevertheless, the age to receive a full public pension in France went up from 65 to 68. In addition to the increasing first-pillar pension payments, many governments also have unfunded DB occupation pensions for civil servants on their economic balance sheets.
2. Basel III standards were agreed on in 2010–11 but implementation in the banking arena has been delayed until 2019 (*Financial Times* 2012).
3. See the Human Mortality Database (2013): <<http://www.mortality.org/>>.
4. Trampusch et al. (2010) provides a comprehensive overview of the pension reforms in the Swedish system.
5. €33,363. Exchange rate EUR:US\$ 1.3043 (July 1, 2013)
6. 79.31 GBP. Exchange rate GBP:US\$ 1.5232 (July 1, 2013)
7. 18 to 33 GBP. Exchange rate GBP:US\$ 1.5232 (July 1, 2013)
8. 144 GBP. Exchange rate GBP:US\$ 1.5232 (July 1, 2013)
9. See Diamond (1977), Gordon and Varian (1988), and Ball and Mankiw (2007), among others.
10. There might be still some unfair distribution among the generations inside the pension fund; see Lever et al. (2012).

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11. According to the CBS (2013) life expectancy after retirement (age 65) increased by 1.11 years for men and 0.49 years for women between 2007 and 2013. On average, life expectancy after retirement increased by 0.8 years for this period.

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