Original Article

The case for local fair value discount rates under IFRS

Received (in revised form): 22nd March 2011

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ABSTRACT In the Netherlands, listed companies and their pension funds have to apply the principle of fair value accounting with respect to valuation of pension liabilities for their financial statements. Both entities have to implement fair value accounting somewhat differently, as companies have to apply IFRS and pension funds are required to follow Dutch financial reporting standards. During the financial crisis it appeared that the pension funding status for companies improved substantially, while at the same time their pension funds reported huge solvency problems. This led to the surprising situation that several companies were required to make additional cash contributions to their pension fund, while their own annual report showed a large pension surplus. To avoid such inconsistencies in the future, we propose that IFRS adopts local fair value discount rates for nominal accrued pension liabilities.

Pensions (2011) 16, 107–114. doi:10.1057/pm.2011.7

Keywords: accounting; discount rate; fair value; IFRS; pension accounting; pension fund

INTRODUCTION

The basic principles underlying financial reporting standards for listed companies (IAS 19) and pension funds (RJ 271) in the Netherlands are the same; the value of both pension assets and pension liabilities should be determined using fair value. For pension assets this is relatively straightforward, as for most assets market prices are available. Market prices are in most cases considered to be fair values. Although in some countries a relatively active pension buy-out market has developed, still it generally is not straightforward to obtain a fair value for pension liabilities.^{1–4} Hence, the fair valuation of pension liabilities is marked-to-model instead of marked-to-market. In the Netherlands, the model used

for company reporting is different than for pension funds. This may lead to substantially different pension liability values. The question that we try to answer in this article is whether the valuation of pension liabilities for companies can be made consistent with that of pension funds that execute the pension scheme.^{5,6}

We start with a description of the goal and principles of the valuation methods in both sets of reporting standards. As companies report on a going concern basis and pension funds on the basis of discontinuity, this could lead to different liabilities and a different valuation for those liabilities. We then show how differences in discount rates have evolved over the past years. Especially during times of financial turmoil, the differences in discount rates for companies and pension funds can be substantial, even exceeding 2 per cent. This leads to pension liability valuation differences of more than 30 per cent.

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When we analyse large Dutch companies with their own pension fund that executes the company defined-benefit pension scheme in more detail, we observe that inconsistencies arise from the different applications of fair value. Companies are required to account for higher pension-related cash flows than pension funds, but current accounting rules may result in a lower fair value of pension liabilities for companies. We propose a change in financial reporting standards that by definition prevent such inconsistent outcomes to occur in the future.

BACKGROUND ON THE CHOICE OF DISCOUNT RATE

Financial reporting standards have moved towards fair valuation. In the Netherlands, this also holds for pension liabilities, both from the company offering defined-benefit pensions to its employees, as well as for the pension funds executing those pension schemes.

The fair value of pension liabilities is determined as follows. An actuary projects the cash flows that follow from the accrued pensions and the demographic developments, such as mortality rates.⁷⁻⁹ Usually, this results in a series of annual cash flows projections for next year until the year that the last participant is expected to die, say one hundred years. In order to determine the fair value of these cash flows, they need to be discounted using a discount rate that reflects the timing of the cash flow and the risk inherent to the pension liabilities. Which discount rate is appropriate has been the subject of a heated debate in countries with a defined-benefit culture, such as the United States, United Kingdom and the Netherlands.

The first issue deals with which pension liabilities should be taken into account when the actuary determines the cash flows. This follows from the primary goals underlying the financial reporting standards. Pension funds in the Netherlands report as if they are discontinued at the reporting date. Hence, only cash flows that have been accrued are taken into account. The idea is that when the company ceases to exist, the labour contract ends and no new pension liabilities will be accrued in the pension fund.

Companies, on the other hand, report using a going-concern approach. In normal circumstances, salaries of employees will increase and inflation compensation will be granted to accrued nominal pension liabilities. According to this approach, the projected cash flows should also take into account conditional components such as salary increases and inflation compensation. This assumption is controversial.^{10,11} Proponents indicate that the going concern approach leads to the best projection of defined-benefit pension rights, while opponents point out that there are no contractual liabilities to increase salaries or, at least in the Netherlands, compensate pensioners for inflation.^{12,13} Both sides seem to agree that the going concern approach equals the accrued nominal benefits used in the discontinuity approach plus the pension liabilities that follow from future salary increases, inflation compensation and perhaps other conditional rights. Hence, the relevant cash flows from defined-benefit pension liabilities are always larger for companies than they are for pension funds. Hence, it would be inconsistent if the fair value of pension liabilities of companies would be smaller than for pension funds.

The second issue concerns the valuation of the projected cash flows, which means that the appropriate discount rate has to be specified. Again, it is key to understand the goal of the financial reporting. The financial assessment framework for Dutch pension funds is used by the supervisory authority to guard the short-term solvency. This approach has been chosen to protect employees and pensioners from a defaulting plan sponsor. In such case, the pension scheme can be transferred to an insurance company or industry-wide pension fund without cutting existing pension rights. Hence, it seems logical to use the discount rate that an insurance company would use to value these pension liabilities.¹⁴ However, since there is no liquid market for pension liabilities, an approximation for the market value has to be used. The regulator decided that the interest rates on collateralized euro interbank nominal interest rate swaps are appropriate for discounting the

projected cash flows. This implies that pension liabilities are virtually riskless. Apparently, this reflects the level of certainty that employer and employees have negotiated in their labour contracts.¹⁵

As discussed before, the going-concern principle directs companies to value the projected cash flows from both the accrued nominal pension rights and the conditional components. These conditional components such as future salary increases and inflation compensation are the company's best estimate, but they are surrounded with uncertainty. To reflect this level of uncertainty, the discount rate used under IFRS is on purpose higher than the risk-free interest rate. This higher interest rate is then used to discount both the accrued and conditional pension liabilities. IFRS states more explicitly that the discount rate should be equal to the interest rate on high quality corporate bonds.¹⁶ It has also been decided that the interest rate of the pension plan sponsor should not be used, as pension rights should be regarded separately from the business activities of the company and a participant in the pension fund cannot be treated equally as the company's regular bond holders. This makes sense, since participants do not have the option to take their pension rights and switch to a different, more secure pension fund. The high quality corporate bond interest rate is usually interpreted as the weighted average of liquid long-dated corporate bonds with AA credit quality. This implicitly determines the level of certainty relation to pension rights.¹⁷

The use of a higher than risk-free discount rate for both the accrued and conditional pension rights could lead to a situation in which the cash flows for the company are higher than for the pension fund, but the fair value is lower for the company. This in turn could lead to a situation in which companies report pension surpluses, whereas their pension schemes are insolvent and need additional cash injections.

We argue that it is not consistent if the value of pension liabilities for the company are lower than the value of pension liabilities for the pension fund. The use of a higher discount rate for companies is motivated by the uncertain

conditional elements in the pension promise. For the accrued nominal benefits, the same discount rate should be applied as for the pension fund. After all, it is the same pension liability for which a fair value needs to be determined. This by definition avoids situations in which a pension fund reports a deficit, while the company sponsoring the pension scheme reports a surplus.

Summarizing the annual reports of the company and the pension fund have other goals. These different goals may lead to different pension liabilities that need to be taken into account, and different discount rates that best reflect the level of certainty of the pension liability. We argue it is not consistent if the fair value reported by the company is lower than the fair value reported by the pension fund. This is illustrated in Figure 1, in which the grey bars represent the accrued nominal pension rights and the black bars the conditional pension increases. The pension fund is required to only account for the nominal accrued pension liabilities, whereas the company under IFRS (applying IAS 19) should also take into account the conditional increases. However, the current practice of determining discount rates may lead to companies reporting a fair value of total liabilities lower than the pension fund that is accounting for the exact same pension liabilities. Our proposal combines pension fund fair valuation for the nominal accrued pension liabilities, and encourages

Figure 1: Overview of discounted cash flow methods for pension liabilities.

companies to value the conditional pension liabilities using advanced finance methods such as option pricing theory.

DISCOUNT RATE BEHAVIOUR DURING THE FINANCIAL CRISIS

In this section, we show the movement of discount rates over time for both listed companies and pension funds in the Netherlands. The goal of this section is to gauge the impact of the financial crisis on pension accounting. Figure 2 shows the interest rates from the end of 2001 to the end of 2010. The discount rate for pension funds is the zero-coupon interest rate swap that is published monthly by the Dutch pension regulator.¹⁸

A popular method to determine the interest rate for high quality corporate bonds is to take the yield on the iBoxx Euro Corporates 10+ AA index. This index contains corporate bonds with a AA-rating and a remaining maturity of at least 10 years. In Figure 2, we compare the yield of this corporate bond index with the euro swap interest rate that is relevant for pension funds.

Figure 2 shows that the interest rates from the end of 2001 to the end of 2006 were following the same pattern. The only difference is that the corporate bond yield is somewhat higher to

reflect the higher risk of the bonds compared to the euro interbank swap market. However, since the start of the financial crisis the yields curves move far from parallel with each other. The yield on high-quality corporate bonds increases sharply while the swap curve decreased. Although not displayed in the picture, the euro swap-curve is turned lower than the yield on German government bonds. This is a remarkable event in the history of euro swap spreads. Some market participants claim this is because of the increased pressure from the pension funds to hedge their interest rate risk through the swap markets that is temporarily not liquid enough to deal with this demand. Since then, several alternative discount rates have been proposed, such as the maximum of the swap rate and AAA-rated euro government bond rate or a discount rate that reflects economic fundamentals rather than market prices. These proposals have not been accepted, although the Ministry of Finance recently stated that it is studying whether the swap curve is still the best way to value pension liabilities.

When we confront Figure 2 with the discount rates that have been used in annual reports of the largest listed Dutch companies, we observe that indeed pension funds have used systematically lower discount rates than their sponsoring

Figure 2: Pension discount rates for pension funds and companies in the Netherlands.

companies. It is not uncommon that at the end of 2008, the difference in discount rate more than 2 per cent. This translates into valuation differences over 30 per cent in pension liabilities. Even though in recent years the turmoil on financial markets has decreased, the difference in discount rate is still more than 1 per cent at the end of 2010. These substantial marked-to-model valuation differences suggest that there is indeed no liquid market to trade defined-benefit pension rights.

INCONSISTENCIES IN PENSION LIABILITY VALUATION

IFRS distinguishes between defined-benefit and defined-contribution pension schemes. When a company has no additional risks after the pension contributions have been paid, a pension scheme qualifies as a defined-contribution scheme and the pension costs equals the contribution. In all other circumstances, the pension scheme qualifies as a defined-benefit pension scheme. The company has to account for the difference between the pension assets and pension liabilities in its balance sheet. The pension costs is derived from a calculation based on an assumed long-term rate of return for the pension assets. The company also has to disclose additional information on the assumptions underlying the calculations.

In the next subsections, we limit ourselves to two large Dutch companies, TNT and Philips, to illustrate our point of inconsistent liability valuation. Both TNT and Philips offer defined-benefit pension plans to their employees in the

Netherlands and use a separate company pension fund to execute these pension schemes. Hence, for these two companies, the fair value of pension liabilities is important under both IFRS and Dutch accounting standards for pension funds.

TNT

TNT offers the employees of TNT in the Netherlands a defined-benefit pension scheme through the Pension Fund TNT. The pension accounting standard used in IFRS, IAS 19, requires TNT to report the fair value of pension assets and liabilities. We compare a shortened version of the balance sheet of the company and the pension fund in Table 1.¹⁹

We notice from Table 2 that the pension assets of the company and the pension fund are very similar. The difference is between €70 million and €215 million on a total of more than €4 billion; less than 5 per cent. These differences are small, as for assets it is usually straightforward to determine the fair value using market prices.

Table 1 also shows that the value of the pension liabilities has decreased since 2005. This is mainly caused by the increased discount rate that was 4.3 per cent in 2005 and 6.1 per cent in 2008. If we compare this discount rate with the AA-yield in Figure 2, we see that these are close to each other. Reasons for these small deviations can be, for example, differences in maturity between the index constituents and the pension liabilities.

The value of the pension liabilities also shows a downward pattern in the first year. In 2008,

Table 1: Pension accounting for the company and pension fund: TNT

Year	2008 (€ billions)	2007 (€ billions)	2006 (€ billions)	2005 (€ billions)
<i>Company: TNT</i>				
Pension assets	4057	4721	4602	4179
Pension liabilities	3549	4010	4468	4502
Discount rate (%)	6.1	5.7	4.7	4.3
Surplus	508	711	134	-323
Year	2008 (€ billions)	2007 (€ billions)	2006 (€ billions)	2005 (€ billions)
<i>Pension fund: TNT</i>				
Pension assets	3854	4505	4490	4109
Pension liabilities	4143	3186	3332	3407
Discount rate (%)	4.0	4.9	4.3	3.8
Funding ratio (%)	93	141	135	121
Surplus	-289	1319	1221	762

Table 2: Pension accounting for the company and pension fund: Philips

Year	2008 (€ billions)	2007 (€ billions)
<i>Company: Philips</i>		
Pension assets	13003	13771
Pension liabilities	10384	11245
Discount rate (%)	5.3	4.8
Surplus	2619	2526
Year	2008 (€ billions)	2007 (€ billions)
<i>Pension fund: Philips</i>		
Pension assets	12992	13779
Pension liabilities	10681	10023
Discount rate (%)	4.0	4.6
Funding ratio (%)	116	141
Surplus	2311	3756

however, we see that the lower discount rate for the pension fund results in an increase of the value of the liabilities with more than €1 billion, or 30 per cent compared to the previous year. For the company, we saw that the value of pension liabilities decreased with more than 10 per cent from €4.0 billion to about €3.5 billion in 2008. Here, we see a completely different picture with regard to the pension situation of TNT, depending on the annual report. This striking different picture emerges even though the valuation principle for both annual reports is the fair value of pension liabilities, and only the details of implementation are somewhat different.

In this case, the curious situation arises that the pension liabilities according to IFRS, in which both accrued nominal pensions and conditional future salary increases and inflation compensation are taken into account, are valued lower than the accrued nominal pensions on the balance sheet of the pension fund. The company reports a liability value of €3.5 billion, whereas the pension fund reports €4.1 billion. This is not consistent. After all, this has to imply that IFRS assumes that accrued nominal pension liabilities are less certain than the Dutch pension law requires.

The funding level, the ratio of the value of pension assets and pension liabilities, of the pension fund was 93 per cent at the end of 2008. This is lower than the minimum funding requirement of 105 per cent that the Dutch pension law requires. This implies that the pension fund was required to file a recovery plan

with the supervisory authority in which it indicates how it is planning to regain solvency. In TNT's annual report, it projects that an additional contribution of €200 million has to be done in the pension fund. In a press release in 2009, this amount is reduced to €50 million, because the supervisor allowed for a longer recovery period. These additional contributions cannot be seen immediately from the balance sheet or income statement of TNT. Additional disclosures mention the additional contributions, but a user of the annual report must be confused as the company reports a pension surplus and not a deficit!

The information disclosed by the company are important for the cash flows of the company and can even influence the company value. Additional cash contributions into the pension fund lead to a negative impact on investments in projects that create shareholder value. According to Rauh²⁰, companies on average reduce investments when internal financing sources are reduced because of compulsory additional pension contributions.

Philips

The employees of Philips have a career-average defined-benefit pension scheme. This pension scheme is executed by the Philips Pension Fund. IFRS requires Philips to account for this pension scheme in its balance and income statements through IAS 19.

Table 2 contains the balance sheet figures of the company and its pension fund. The pension assets are virtually identical in both balance sheets for 2007 and 2008. The discount rate for the pension liabilities for Philips has increased from 4.8 per cent in 2007 to 5.3 per cent in 2008. This increase in discount rates is similar to that of TNT, although the level that Philips uses is markedly lower. This could be because of the difference in maturity of the pension liabilities. Also here we see that the fair value of pension liabilities is decreasing for the company, but increasing for the pension fund. In 2008, the value has increased €658 million for the pension fund, while it has decreased by €861 million at the company. We again see that the fair value of

the pension liabilities of the pension fund (€10.7 billion) is higher than for the company (€10.4 billion), while the company takes into account future salary increases and inflation compensation and the pension fund does not.

Since the investment policy of Philips has been aimed to reduce the interest rate risk, the funding ratio has not declined below the minimum required level of 105 per cent, with 116 per cent at the end of 2008.^{21–23} In this respect, both annual reports indicate a pension surplus. But still, it is inconsistent that the nominal accrued pension liabilities are valued higher than the same liabilities plus future salary increases and inflation compensation.

A PROPOSAL TO PREVENT INCONSISTENCIES

In the Section ‘Background on the Choice of Discount Rate’, we described the different goals of the financial reporting standards for companies and pension funds and how these may result in different values of pension liabilities for these two entities. In Sections ‘Discount Rate Behavior During the Financial Crisis’ and ‘Inconsistencies in Pension Liability Valuation’, we argue that this has led to inconsistent valuations. In this section, we propose a change in financial reporting standards for companies that still corresponds to the goals, but prevents inconsistencies such that the information content for users of both annual reports is higher.

We propose that companies separate the accrued nominal pension liabilities from the conditional pension liabilities and value both parts separately. This means that the actuary has to provide the company with two series of cash flows. The first series contains the accrued nominal pension liabilities. These should be valued using a discount rate that reflects the certainty that the local pension supervisor requires. In the Netherlands, this means that the euro interest swap curve should be used, which implies that pension rights are very certain. The second series contains the cash flows that relate to future salary increases and inflation compensation, and perhaps other conditional elements. Since these liabilities are less certain and might be

depending on external circumstances, such as the funding status of the pension fund, these can be valued taking into account a higher discount rate that reflects the higher uncertainty of these cash flows. Since risk sharing arrangements can be different for each pension scheme, companies should explicitly motivate the discount rate they apply. Stakeholders using the annual reports are now able to see explicitly which pension liabilities may lead to additional cash contributions in the pension fund, and which liabilities will only materialize once the company and pension fund remain healthy. When this proposal is applied, it prevents that pension funds and companies report seemingly contradictory information about their funding status, as we saw in the two examples in the Section ‘Inconsistencies in Pension Liability Valuation’. This may seem only applicable to the specific situation in the Netherlands, but we feel this method could be applied in every country that makes use of fair value pension accounting. If the local pension supervisor allows for a higher discount rate than current IFRS, this leads to a lower value of pension liabilities. This may be because of the specific pension deal that is agreed upon by employer and employee in their labour contract or the risk sharing mechanism in place.

CONCLUSIONS

In this article, we investigate whether the annual reports of companies and their pension funds value pension liabilities consistently. We compare the valuation principles of local and international pension accounting standards. The financial reporting standards for Dutch companies and pension funds both use fair value as the principle to value pension liabilities. Nevertheless, the difference in implementation of this principle has led to substantially different valuations, especially during the financial crisis. The valuation differences have been as large as 30 per cent.

Discount rates for pension in the Netherlands have decreased substantially in 2008, while an increasing credit spread has increased the discount rates for companies. This has led to seemingly contradictory pension information in annual reports of companies and their pension funds.

Companies may report pension surpluses, but at the same time mention that they paid additional contributions because the pension funds report deficits. This is inconsistent and seems to harm the transparency related to accounting principles for pension schemes.

We propose that IFRS use fair valuation principles that are used in the country in which the pension has been accrued. This prevents companies from reporting fair values of pension liabilities that are inconsistent with those reported by their pension funds. Since IFRS uses the going-concern approach, the value of conditional elements such as salary increases and inflation compensation should be valued separately using fair value methods. Since these conditional components can be different for each company, guidelines other than applying the fair valuation principle seem not useful.

REFERENCES AND NOTES

- 1 For extensive discussions on the pension buy-out market, see Brigden *et al*², Coates and Aldridge³ and De Ferrars⁴.
- 2 Brigden, A., Clare, A., Driver, R. and Selvaggi, M. (2009) The road to buy-out. *Pensions* 14(2): 90–110.
- 3 Coates, J. and Aldridge, A. (2009) Pensions buy-outs: Deal or no deal? *Pensions* 14(2): 81–89.
- 4 De Ferrars, M. (2009) Getting off the hook: Buying out pension liabilities. *Pensions* 14(2): 111–114.
- 5 Dowdell, K. and Spindel. (2010) Investigate the differences in pension liability valuation under US GAAP and the US pension regulator and indicate this has resulted in large differences over the period 1995–2002.
- 6 Dowdell Jr, T.D., Klammer, B.K. and Spindle, R.M. (2010) Predicting cash flows related to defined benefit plan contributions. *Journal of Pension Economics and Finance* 9(4): 505–532.
- 7 Risks associated with estimated mortality rates are discussed in Byrne and Winter⁸ and Dushi *et al*⁹.
- 8 Byrne, A. and Winter, N. (2009) Living with longevity. *Pensions* 14(2): 115–127.
- 9 Dushi, I., Friedberg, L. and Webb, T. (2010) The impact of aggregate mortality risk on defined benefit pension plans. *Journal of Pension Economics and Finance* 9(4): 481–503.
- 10 See also IASB (2008): Preliminary Views on Amendments to IAS 19 Employee Benefits. Bodie¹¹ argues that accrued benefit obligations should be the starting point for pension investment policies, and not the projected benefit obligation.
- 11 Bodie, Z. (1990) The ABO, PBO, and pension investment policy. *Financial Analysts Journal* 46(5): 27–34.
- 12 See Ponds and Van Riel¹³ for a detailed discussion on the specific risk sharing arrangements in the Netherlands.
- 13 Ponds, E.H.M. and Van Riel, B. (2009) Sharing risk: The Netherlands' new approach to pensions. *Journal of Pension Economics and Finance* 8(1): 91–105.
- 14 See IAS 19 (2008): Basis for Conclusions (BC) 19.26. This states that the discount rate for which liabilities can be sold, the settlement rate, is not an appropriate discount rate for final-salary pension benefits, as there is no liquid market in which these can be traded. This does not imply that the settlement rate should not be used to value accrued benefits under a liquidation scenario. In BC 19.27–34, it is also mentioned that the IASB does not think that expected returns on pension assets, interest rates on the debt of the sponsor of the plan or smoothed interest rates are appropriate discount rates for pension liabilities.
- 15 The level of certainty has been debated heavily in the Netherlands ever since the swap interest rate was lower than the Dutch government bond rate for the same maturity.
- 16 See IAS 19 (2008): 19.78–82.
- 17 See ED/2009/10 'Discount Rate for Employee Benefits: Proposed Amendments to IAS 19' in which the IASB proposes to no longer allow the use of the government bond rate in countries without a liquid high-quality corporate bond market to avoid different levels of certainty in different countries. This proposal was not accepted by the IASB in the meeting of October 2009, because the board could not agree.
- 18 Source: <http://www.statistics.dnb.nl/index.cgi?lang=nl&todo=Rentes>. We display the 12-year zero-coupon swap rate, as the duration of the iBoxx Euro Corporates 10+ AA index is about 12 years. Until 2004, the official discount rate was only published once a year, hence no monthly figures available over that period.
- 19 The actual reported pension surplus is somewhat different because of the recognition of other items that marginally influence the balance sheet.
- 20 Rauh, J.D. (2006) Investment and financing constraints: Evidence from the funding of corporate pension plans. *Journal of Finance* 61(1): 33–71.
- 21 The risk-reducing behaviour of companies confronted with new accounting standards has been documented more generally by Amir, Guan, and Oswald²². Swinkels²³ documents that several Dutch pension funds changed from defined-benefit to collective defined-contribution systems after the introduction of IFRS.
- 22 Amir, E., Guan, Y. and Oswald, D. (2010) The effect of pension accounting on corporate pension asset allocation. *Review of Accounting Studies* 15(2): 345–366.
- 23 Swinkels, L. (2006) Have pension plans changed after the introduction of IFRS. Erasmus University Rotterdam, <http://ssrn.com/abstract=917795>.