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Pension Rollercoaster

The fragile recovery of the funding ratio of the Dutch pension funds in the aftermath of the credit crisis has already been thwarted.

The underperforming stock markets and declining interest rates are causing the financial position of pension funds to rapidly deteriorate. How can pension funds' solvency change so suddenly? And what must be done for these funds to remain afloat?

Funding ratios in the danger zone

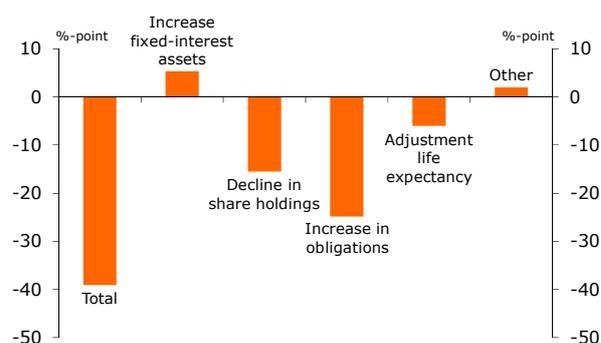
Barely one year after the last crisis, Dutch pension funds are beset by problems once again. The funding ratio of the average Dutch pension fund currently hovers around 100%, which is lower than the statutory minimum of 105%. The largest pension funds, including ABP (for civil servants), Pensioenfondsen Zorg & Welzijn (for the healthcare sector) and the two funds for the metal industry, PMT and PME – which together account for EUR 400 billion, i.e. half of the Dutch pension capital – are faced with a funding shortfall as well. As a result, the financial position of pension funds has rapidly deteriorated: at the end of June 2011, the funding ratio of an average pension fund was still 110%.

Funding ratio

The funding ratio is the ratio of a) the current value of the contractual pension obligations and b) the available assets. Under the current regulations, there is a funding shortfall if a pension fund's funding ratio is less than 105%. Pension funds faced with a funding shortfall are required to submit a recovery plan to De Nederlandsche Bank (Dutch Central Bank) stating how they intend to increase the funding ratio to the required level of 105% within three years. In addition to the minimum capital requirement of 5%, pension funds must also maintain an additional buffer if they manage a high-risk portfolio. For funds with an average portfolio, the required funding ratio in the long term is approximately 130%.

The funding ratio reflects a pension fund's capacity to comply with future obligations. The decision of whether to link pensions to price or wage development (i.e. indexation) and the size of premiums are the tools available to pension funds to manage their funding ratios. When the credit crisis erupted, we also saw a steep decline in the funding ratio, although the situation at the time was significantly more alarming than the current one. The CPB Netherlands Bureau for Economic Policy Analysis recently identified the causes of this decline (see Figure 1). Their research shows that the deterioration in the funding ratio is due primarily to declining interest rates and the lower prices in the financial markets. Relatively speaking, the impact of the declining interest rates on the funding ratio was more significant than the impact of weak investment results. The recent decline in the funding ratio also appears to be mainly the result of declining interest rates.

Figure 1: Why has the funding ratio been in decline since early 2008?



Source: CPB Netherlands Bureau for Economic Policy Analysis (2011)

A nominal assessment framework

The Financial Assessment Framework for pension funds became effective when the Pension Act was implemented on 1 January 2007. This Financial Assessment Framework incorporates three tests:

- The continuity test: this test reviews the fund's financial situation in the long term.

- The solvency test: pension funds must maintain a buffer such that the probability of a funding shortfall occurring within one year does not exceed 2.5%.
- The minimum test: at any given time, pension funds are subject to a minimum capital requirement of 5% in relation to the unconditional pension obligations.

The statutory funding and finance requirements imposed on pension funds under the Financial Assessment Framework are nominal in nature, since pension funds generally only give an unconditional promise in relation to the accumulated *nominal* pension rights.¹ One consequence of this nominal assessment framework is that pension funds focus strongly on monitoring the one-year nominal funding ratio, because the solvency test has a one year horizon. On the other hand, pension funds do have a *real* ambition, namely to index pensions to prices or wages. This is because, from the participants' perspective, only an indexed pension is valuable in an economic sense.²

There is a conflict between the nominally orientated risk management and the ambition to index pensions. There is a strong incentive for pension funds to adjust their investment policies in order to protect the nominal funding ratio. An extreme example of this is Liability Driven Investment (LDI), where the investments exactly match the nominal obligations. The result of the implementation of the Financial Assessment Framework is therefore that the continuity test has moved into the background while the solvency test has been given a prominent place. In addition, the nominal security criterion of 97.5% is basically a false security. The models used in the Financial As-

essment Framework insufficiently consider extreme scenarios in order to ensure a 2.5% probability of underfunding (De Jong and Pelsser, 2010). The funding ratios of pension funds have been compromised three times within a 10-year period, when in fact a funding shortfall based on the solvency test should be allowed to occur only once every 40 years.

The interest rate mechanism

The obligations of pension funds generally relate to the distant future. In order to be able to determine their net worth, pension funds compare the market value of assets with the current market value of the pension obligations. In the past, the current market value of pension obligations was calculated at a fixed discount rate of 4%. Under the Financial Assessment Framework, however, pension funds must value their obligations against the nominal yield curve.³ This means that the discount rate depends on the duration of the pension obligations and the interest rates applicable in the financial markets at that time. The shift to a valuation of obligations based on market value was in line with the Basel regulatory model developed in the 1980s and 1990s, which was also based on market value (De Jong and Pelsser, 2010). The result was that the value of pension obligations began to fluctuate more strongly, as the yield curve can vary significantly over time (see Figure 2).

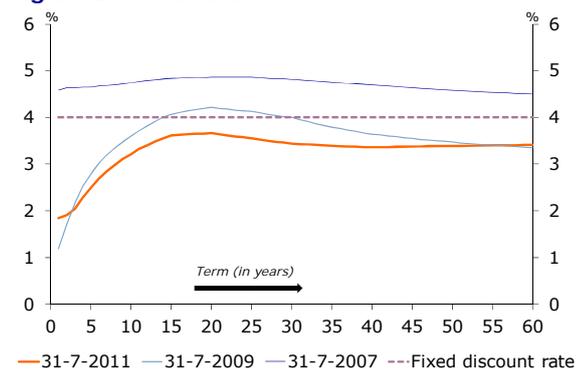
The yield curve as a whole shifted downwards in recent years, causing the (market) value of the pension obligations to increase. For an average pension fund, an interest rate decline of 1% causes the accumulated pension obligations to increase by 17% (*Pensioenthermometer*, 2011). This type of interest rate decline

¹ The term 'unconditional' is misleading, because the Pension Act requires that funds reduce nominal pension rights if there is a funding shortfall with no realistic chance of recovery.

² The nominal pension benefits accrued by participants up to age 40 will have lost approximately half of the purchasing power on the commencement date if no indexation occurs in the meantime.

³ The yield curve is a series of interest rates for any term. In order to determine the yield curve, the regulator (De Nederlandsche Bank/Dutch Central Bank) uses the European swap interest rates. For these interest rate swaps, the 6-month EURIBOR (i.e. the average interbank interest rate at which European banks are prepared to lend to one another) is swapped at a fixed interest rate.

Figure 2: Yield curve



Source: De Nederlandsche Bank (Dutch Central Bank) (2011)

is not sufficiently offset by an increase in the value of the bond portfolio. On balance, the funding ratio therefore deteriorates significantly when interest rates decline. The proposal contained in the new pension agreement is to revalue the obligations at a fixed notional interest rate, i.e. the expected average long-term return. This is not without risk, however, as the use of an overly optimistic discount rate could potentially have a detrimental effect on the long-term financial position of pension funds. Instead, it would be better if the Dutch Central Bank required the use of a notional interest rate based on a long-term moving average of the risk-free market interest rate (e.g. the European swap interest rates or the 10-year government bond yield), but reduced with a few basis points in order to ensure that the discount rate is conservative.

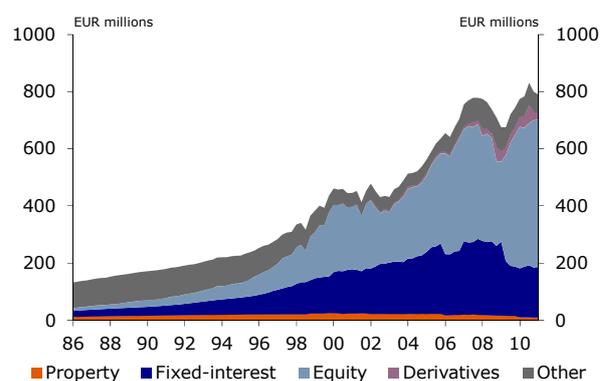
The asset mix

Over the past decades, pension fund asset mixes have shifted increasingly towards equity and derivatives. However, the implementation of the Financial Assessment Framework in 2007 has somewhat levelled off the growth of the percentage of equity in the portfolio. Since the implementation of the Financial Assessment Framework, pension obligations have moved in tandem with the nominal market interest rate. This has exposed pension fund assets to shocks in the real interest rate and in inflation.⁴ This volatility has made risk man-

⁴ According to the Fisher equation, the nominal in-

agement much more of a priority for pension funds. Specifically, they have started investing more in assets that have a negative correlation to the market interest rate. Examples of these include long-term bonds and derivatives such as interest rate swaps and swaptions.

Figure 3: Pension funds are investing substantially more in equity



Source: De Nederlandsche Bank (Dutch Central Bank) (2011)

However, the emphasis placed by pension funds on risk management is not likely to result in an optimal asset mix in the long term. Pension funds' ambition for the long term is to protect the purchasing power of pensions. In order to achieve this goal, pension funds invest in equity and other asset classes as well as in low-risk bonds. With the ambition to provide inflation-linked pensions, it is apt for pension funds to value their obligations at real interest rates.

However, since for the majority of pension funds indexation is not an explicit commitment, the nominal interest rate can be used to determine the funding ratio. However, in hedging the nominal interest rate risk the real funding ratio remains exposed to inflation shocks, since the value of obligations remains unaffected by a positive inflation shock, whereas the value of long-term bonds on the asset side of the balance sheet decreases. The investment policies of pension funds are therefore caught between two objectives: in the short term, funds are attempting to protect the one-year nominal

terest rate can be described as the sum of the real interest rate and inflation: $i=r+n$.

funding ratio, whereas in the long term the ambition to index pensions takes precedence.

Towards a real framework

The current low funding ratio compels pension funds once again to protect the nominal funding ratio through a dynamic strategic investment policy. This is a costly policy that could potentially also have a pro-cyclical effect. However, in the long term pension funds mainly aim to achieve a high return on investment, which requires a certain degree of risk tolerance. It would therefore be a good thing if pension funds jettisoned their nominal guarantees and made pension entitlements explicitly dependent on investment windfalls and setbacks. This is precisely the objective of the newly concluded pension agreement.⁵ Furthermore, the new agreement essentially fixes the level of pension premiums. This, too, represents a positive development, because due to a declining ratio of the number of working people to the number of retirees, the level of premiums are no longer an appropriate instrument for absorbing negative shocks (DNB, 2011). However, it is essential to identify how the investment windfalls and setbacks are distributed among the different generations. This is where the new pension agreement fails, because it does not clearly set out which generations or participants are the owners of a funding surplus (Bovenberg and Mehlkopf, 2011). In addition, it is unfair to younger generations to allocate the existing pension buffers to seniors by immediately using indexation when there is a funding surplus, leaving younger people with the risks.

Conclusion

In the current pension system, the solvency test is being treated with too much apprehension. As a result, too much emphasis is placed on protecting the nominal funding ratio, when in fact the goal to provide an inflation-indexed

pension should be the guiding principle. This requires taking risk, even if the funding ratio is low. However, the current pension system does not provide sufficient scope for such risk. While the new pension agreement does provide that scope by explicitly linking pension payments to investment results, it is not clear how funding shortfalls and surpluses are handled. A new agreement should clearly set out which generations or participants own a funding surplus, and how windfalls and setbacks are managed. It is recommended that shocks be settled with current participants over a relatively short period of time, because otherwise the temptation would be too great to shift negative investment shocks onto future generations.

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⁵ For a detailed discussion on this issue, please refer to our Special report *Pension Agreement for the Future?* (2011/15).