4 Operating costs of pension schemes

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This chapter examines what type of pension scheme has the lowest operating costs. We first analyse the operating costs of Dutch pension funds, broken down by administrative and investment costs. Various cost-influencing factors are identified, including scale, pension fund type, plan type, outsourcing and reinsurance. Economies of scale are shown to be dominant in explaining differences in costs across pension schemes, leading to the conclusion that the consolidation of small pension funds could improve cost efficiency. In addition, the costs per participant of mandatory industry-wide pension funds turn out to be significantly lower than those of company pension funds. Next, the costs of pension schemes offered by pension funds and life insurers in the Netherlands are compared in an effort to distinguish between collective and private schemes. We find that the operating costs per participant of collective pension funds are many times lower than those of private schemes.

4.1 Introduction

The fall of equity prices in 2000-2002 combined with persistently low long-term interest rates and an ageing population led to a worldwide crisis in the pension industry. Since then, higher contributions and lower pension accrual rates, as well as a rebound of equity prices and interest rates con-

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tributed to the recovery of the financial position of pension funds.[2] Despite the financial problems sketched above, the operating costs of pension funds as a potential source of savings received little attention. However, the cumulative effect of these costs can have a strong impact on the size of pension benefits. Figure 1 shows the impact of annual costs on pension benefits for a fictitious pension scheme (for a single person or a group of persons). Here, annual costs of 1% of total assets lead to a reduction in the pension payments of 27% in a defined contribution (DC) system or an increase in the costs or contribution of over 37% in a defined benefit (DB) system.[3]

Operating costs per participant vary strongly between pension funds, mainly due to scale effects and inefficiencies. In addition, operating costs differ significantly between pension funds and life insurers. In this context, one should bear in mind that the different types of pension schemes are not fully comparable. The costs of collective schemes of pension funds and collective contracts of life insurers, on the one hand, and the costs of private pension schemes at life insurers, on the other, differ in nature. As a result, the costs of private schemes as a percentage of the contribution are typically five times higher than those of collective arrangements.[4] In private schemes, unutilised economies of scale is the dominant factor explaining relatively high costs. These cost differences illustrate the importance of selecting the right organisational form for pension provisions.

This chapter first examines the operating costs of pension funds and the main factors that determine these costs. A distinction is made between administrative and investment costs. Key cost determinants include the size of pension funds, their organisational form, the type of pension plan and the degree of outsourcing of the administration, asset management and risks. This analysis makes it possible to determine characteristics of an ideal pension fund in terms of efficiency and to identify which policy or form of market organisation can help to improve the efficiency of existing funds. For this analysis we use data of all (one thousand) Dutch pensions funds during 1992-2004.

Next we turn to the role of life insurers as pension providers, both as a service provider to pension funds and as an independent provider of collec-

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2 Risks that were shifted from employers to participants also play a role here insofar as employees were not compensated for this.

3 See Bateman and Mitchell, 2004, and Bateman, Kingston and Piggot, 2001.

4 One should be careful in interpreting these figures, as the comparison is complicated.

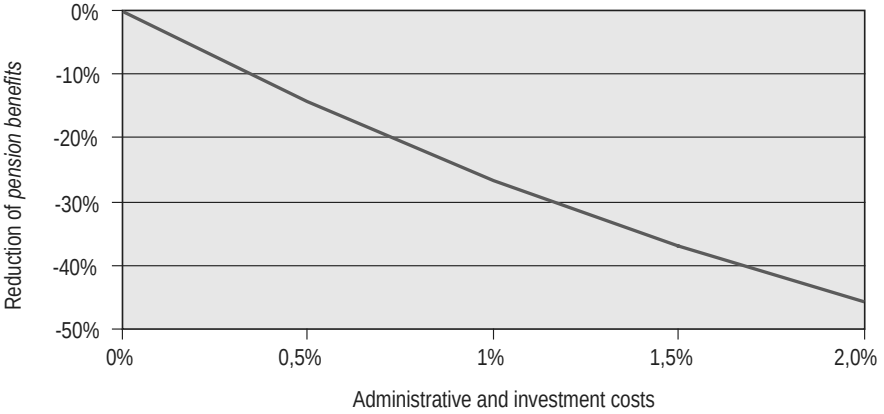

Fig. 1. Erosion of pension benefits due to annual operating costs

Note: To simulate the impact of operating costs on annual pension payments, we assume annual wage growth of 3%, annual inflation of 2%, a nominal investment return of 7%, uninterrupted contribution payments over 40 years and a pension payout period of 20 years.

Source: Bikker and De Dreu, 2007.

tive and private pensions. Attention is also devoted to the cost differences between pension funds and life insurers as well as between private and collective schemes. We thus establish the characteristics of pension funds and pension schemes that are best suited to provide efficient pensions.

4.2 Operating costs of pension funds

The operating costs of pension funds consist of administrative costs and investment costs. Administrative costs relate to all operational tasks excluding asset management, such as record keeping, communication with participants, policy development and compliance with regulatory and supervisory requirements. These costs include salaries, rents and fees charged by third parties such as actuaries, accountants and lawyers. Investment costs are discussed in section 4.4.

We use data of Dutch pension funds over the past thirteen years as reported to the Dutch central bank (DNB) for prudential purposes. The number of pension funds gradually decreased from 1131 in 1992 to 742 in 2004 (see also Table B.1 in the appendix). Tables 1 and 2 present key statistics on administrative costs in 2004 for, successively, different size categories, types of pension funds and types of pension plans. Size is measured

by the number of participants or total assets. Participants consist of contributing employees, inactive participants and pensioners. Data from earlier years (1992-2003) lead to comparable figures as shown in the tables below and are not presented separately.

Though all pension funds are independent legal entities, many small and some mid-sized company pension funds utilise staff and facilities of the sponsor company. The associated costs are often not fully charged to the pension fund and consequently also not reported. About 12% of the pension funds report no administrative costs.[5] These funds are therefore excluded from the statistics presented in this chapter. In addition, many (mainly small) company pension funds underreport their administrative costs. For example: 65% of these funds report no wage costs. Evidently these costs are either borne by the sponsor company or are included in 'other costs' (and remain part of the administrative costs). Such underreporting does not occur among industry-wide pension funds, as these are unable to shift costs to their sponsors. Later we will see that these imperfections in the data are systematic (occurring mainly at smaller company pension funds) and therefore do not significantly impair our analyses. Without this distorting effect, the observed dominant influence of economies of scale and differences in costs between the different categories of pension funds would only be greater.

The upper part of Table 1 shows the average administrative costs of pension funds for different size categories in terms of participant numbers. The table indicates that the (weighted) average of administrative costs as a percentage of total assets declines sharply as the number of participants increases: from 0.59% for the smallest funds to 0.07% for the largest funds. The average administrative costs per participant fall even more sharply as the number of participants increases, namely from an average of € 927 per year for the smallest funds to about € 30 for the two largest size categories. As noted earlier, the cost differences between the size categories are actually even greater than shown in these figures. This is due to the underreporting of costs, mainly by the smallest company pension funds (see also fourth column). Almost half of the category of smallest funds consists of personal pension vehicles for director-owners and director funds for a limited number of (former) board members and members of the supervisory board. This explains why, on average, this category has much higher assets per participant than the other categories.

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[5] The data was collected for prudential supervision purposes, where costs only play a minor role.

Table 1. Annual administrative costs of pension funds by size category (2004)

Size categories of pension funds based on:	Administrative costs/ total assets (%)	Administrative costs per participant (€)	Total assets per participant (€ 1000)	Funds that do not report wage costs (%)[a]	Total number of participants (1000)	Number of funds
1. number of participants						
< 100	0.59	927	157	88	2	56
100-1000	0.46	302	66	82	104	225
1000-10 000	0.23	156	68	55	809	264
10 000-100 000	0.17	86	50	18	2 774	87
100 000-1 million	0.24	28	12	30	7 146	20
> 1 million	0.07	33	46	0	5 611	3
Average / total	0.15	48	33	61	16 446	655
2. total assets (€ million)						
0-10	1.23	159	13	85	37	105
10-100	0.55	129	23	71	508	289
100-1000	0.27	51	18	45	3 532	209
1000-10 000	0.17	45	27	23	4 929	44
> 10 000	0.10	43	45	25	7 439	8

[a] *Note that mainly (small) company pension funds sometimes underreport wage costs.*

Source: Bikker and De Dreu, 2007.

Economies of scale result from high fixed costs and other operating costs that increase less than proportionally with pension fund size. Examples include the costs arising from policy development, data management systems, reporting requirements and the hiring of experts such as actuaries, accountants, lawyers and consultants.

The lower part of Table 1 presents the (weighted) average administrative costs for different size categories in terms of total assets. The table shows that administrative costs expressed as a percentage of total assets are negatively related to the size of pension funds. While the smallest funds have operating costs of 1.23% of total assets, this percentage is only 0.10% for the largest funds. Figure 1 shows the impact of a 1% difference in annual operating costs on pension benefits. In summary, Table 1 shows that the operating costs of pension funds are characterised by strong economies of scale, irrespective of whether the size of the institution is expressed in terms of participant numbers or total assets.

The upper part of Table 2 presents administrative costs for different types of pension funds. We distinguish three main types: company pension funds, industry-wide pension funds and professional group pension funds. Company pension funds provide pension schemes to employees of the sponsor company. They are legally independent of the sponsor company and are managed by the employer and employee representatives. Industry-wide pension funds provide pension schemes to employees in a sector based on a Collective Labour Agreement (CLA) between the employers and labour unions in this sector. There are two types of industry-wide pension funds: mandatory and non-mandatory. Mandatory funds are based on a binding CLA, making participation mandatory for all employers and employees working in the respective sector. Non-mandatory funds are based on a CLA that allows employers to choose whether to participate in the collective fund or not. Professional group pension funds provide pension schemes to professional groups such as general practitioners and notaries. Apart from these three main groups, there are also other types of funds such as savings funds.

The administrative costs of company pension funds average € 138 per year, which is high compared to industry-wide pension funds whose annual

Table 2. Annual administrative costs by type of pension fund and type of pension plan (2004)

Type:	Administrative costs/total assets (%)	Administrative costs per participant (€)	Total assets per participant (€ 1000)	Total number of participants (1000)[a]	Number of funds[a]	Average number of participants (1000)
Pension fund						
Industry-wide (all)	0.13	33	26	14 072	95	148
– mandatory	0.12	31	26	13 557	76	178
– non-mandatory	0.16	66	40	515	19	27
Company	0.19	138	71	2 167	524	4
Professional group	0.10	221	221	71	11	6
Average / total	0.15	48	33	1 446	655	25
Pension type						
Mainly DB	0.14	49	34	15 546	590	26
Mainly DC	0.37	25	7	672	51	13
Other	0.36	33	9	221	12	18

[a] *The pension type of 21 pension funds is not known; four funds are savings funds.*

Source: Bikker and De Dreu, 2007.

costs average only € 33. As noted before, the actual differences are even greater due to the aforementioned underreporting of costs by company pension funds. Professional group pension funds have the highest costs per participant, namely € 221. Company pension funds and professional group pension funds usually manage more assets per participant, which leads to higher costs. This may be due to e.g. more generous pension schemes or a relatively large number of older participants (whose accrued pension assets are obviously larger than those of younger participants). Consequently, the administrative cost difference between the various types of pension funds is smaller per invested euro (or as a percentage of total assets) than per participant.

Pension schemes provided by company pension funds are generally much less standardised and much more customised to the preferences of the employer and employees than schemes provided by industry-wide pension funds. In addition, the services to the participants can be of a higher quality. However, this explicit choice for customisation and extra service results in higher operating costs. Table 2 shows that most pension funds are company pension funds, but that these serve only a small number of the participants. One major advantage of industry-wide pension funds is that when employees change employers within the same sector, the accrued pension assets can often remain within the fund. As a result, lower costs are incurred than when the assets need to be transferred between company pension funds. The (mandatory) industry-wide pension funds have by far the largest number of participants.

The lower part of Table 2 shows the administrative costs for different types of pension plans. We see significantly higher average costs for DB pension plans of € 49 per participant per year, as compared to € 25 for DC pension plans. However, the total assets per participant are much higher in DB pension funds than those of DC funds, presumably because the participants in the latter funds are a lot younger and have therefore accrued much less pension assets.[6] In addition, the number of DC participants has been fairly limited so far. These cost differences are probably also partly determined by scale effects. Overall, scale effects appear to be the dominant explanation for cost differences between pension fund categories, whilst the organisational form possibly has some, albeit smaller, effect. In order to identify the impact of different factors that capture the various organisational forms, we need to perform a multivariate regression analysis so that all factors can be taken into account simultaneously.

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6 Note that more assets also involve higher costs.

4.3 An empirical model for administrative costs

To establish the impact of scale, organisational structure and pension plan types on the operating costs of pension funds, we use a multivariate regression model. The left-hand column of Table 3 provides the estimates for the impact of variables that explain administrative costs in our model.[7] The scale of pension funds is represented by the number of participants (in logarithms). This term is also included quadratically to account for the possible nonlinearity of scale effects. The coefficient of 0.63 indicates that a 1% increase in the number of participants leads to a cost increase of only 0.63%. This implies that there are substantial unutilised economies of scale averaging 37% per unit of extra production. This observation was also made in relation to DB and collective DC pension funds in the United States (Caswell, 1976 and Mitchell and Andrews, 1981), Australia (Bateman and Mitchell, 2004), and in relation to DC pensions in sixteen countries around the world (Whitehouse, 2000; Dobronogov and Murthi, 2005, and James, Smalhout and Vittas, 2001). The quadratic term indicates that these economies of scale are greater for small funds and smaller for large funds. In 2004, all existing funds were below the theoretical optimum size, where the economies of scale turn to diseconomies of scale.

While controlling for other factors, mandatory industry-wide pension funds are found to operate at the lowest costs.[8] As noted before, this can partly be explained by their generally standardised and less generous pension schemes, which are simpler to administer. An additional advantage is that when employees change employers the accrued pension assets can often remain within the fund, so that less transfer costs are incurred. Non-mandatory industry-wide pension funds and company pension funds occupy the middle ground in terms of efficiency, while professional group pension funds are the least efficient. Their costs may be higher mainly because these funds cater to lots of individual participants instead of a single employer, which, for instance, makes the collection of contributions more cumbersome.

We find that pension funds with a DC plan have lower administrative costs than funds with a DB plan. This applies to Dutch DC pension funds in which participants (1) are unable to select and switch between pension funds so that no marketing costs need to be incurred and (2) have only a limited choice in terms of the investment mix so that information costs are

7 Administrative costs are expressed here in logarithms.

8 Significantly lower than company and professional group pension funds.

Table 3. Estimates of the administrative and investment cost models (1992-2004)

	Administrative costs		Investment costs	
	Coefficients	t-values	Coefficients	t-values
Number of participants (in logarithms)	0.63	105.1	–	–
Total assets (in logarithms)	–	–	0.83	76.4
Ditto, squared[a]	0.05	38.1	0.03	10.0
Mandatory industry-wide pension funds	-0.56	10.5	-0.24	3.5
Non-mandatory industry-wide pension funds	0.49	6.8	-0.25	2.6
Company pension funds	0.56	17.1	0.14	3.0
Professional group pension funds	1.24	18.1	0.05	0.5
Defined Contribution pensions (DC)	-0.20	4.7	0.05	0.8
Outsourcing of the administration	1.08	33.2		
Complete reinsurance of liabilities	-0.77	19.2	-0.30	4.9
Partial reinsurance of liabilities	-0.12	2.9	-0.09	1.8
Total assets (in € 1000) per participant	0.07	3.0		
Percentage of pensioners	0.62	11.5	-0.09	1.1
Reported investment costs	-0.45	17.8		
Constant	-0.45	8.9	-5.17	50.3
Number of observations	10 119	7.4	4 986	
R^2	0.71		0.75	

[a] *Respectively, the number of participants (in logarithms) and total assets (in logarithms).*

Note: Almost all coefficients are significant at the 99% level; italics indicate 'no significance'. All variables are expressed in 2004 prices.

limited.[9] Compared with DB funds, DC funds require no or less actuarial advice, which should imply lower costs.

Outsourcing of the administration seems more expensive, but that is probably a distortion due to the aforementioned underreporting of administrative costs. With outsourcing the invoice puts the full costs on the table, whereas without outsourcing part of the costs can remain concealed, at

9 Marketing costs constitute a major part of the operating costs in countries where participants can switch between funds (Dobronogov and Murthi, 2005). In addition, since many participants have no idea how to invest their pension assets properly (e.g. see Van Rooij et al., 2007), they should be provided with information and advice if they can choose to select their own investment mix for their pension.

least for company pension funds. It is found that both full and partial reinsurance of insurance and investment risks, which is often accompanied by the outsourcing of administration and asset management, lead to lower operating costs. However, it is probable that part of the operating costs is included in the contributions that are paid to the insurer. We are therefore unable to conclude that reinsurance increases efficiency.

Next, we look at three control variables. As expected, the costs are slightly higher if more pension assets are managed per participant. Costs also increase with a growing number of pension recipients. Finally, costs are lower if the fund also reports investment costs. Evidently, investment costs are sometimes partly stated as administrative costs. This does not distort the total operating costs, but does influence the distribution over the two cost categories. Insufficiently accurate reporting by a (small) portion of the funds has evidently not prevented clear regression results. All coefficients are significant at a very high reliability level. Also, if the regression model is estimated for different subsets (e.g. all industry-wide pension funds, all company pension funds or only the data of 2004), the results show the same signs for the coefficients and, for most variables, the same high level of significance of 99%.

The first important conclusion is that substantial unutilised economies of scale occur in the management of small and medium-sized pension funds. The same applies after controlling for the option to achieve economies of scale through outsourcing at life insurers and pension providers. Size, therefore, is a crucial determinant of the efficiency of pension funds. The second important conclusion is that, on average, mandatory industry-wide pension funds have significantly lower administrative costs than company pension funds. The organisational form of pension funds is evidently also essential for efficiency purposes. Due to the systematic underreporting of administrative costs by mainly small company pension funds, both effects are actually expected to be somewhat higher than observed in this analysis.

4.4 Investment costs of pension funds

Investment costs arise from investment analysis, risk management and trading, and include salaries of analysts and portfolio managers, brokerage fees and charges for the use of electronic trading facilities.[10] The reported

[10] The literature on mutual funds (which have comparable investment activities) shows that higher investment costs are not (sufficiently) compensated by higher returns (e.g. Jensen, 1968, Malkiel, 1995, and Malhotra and McLeod, 1997). Large

investment costs amount to approximately 40% of total operating costs. Actual investment costs are probably somewhat higher because part of the investment costs is immediately deducted from the returns.

About 24% of the pension funds report no investment costs. These funds do not occur in the tables and estimates used below. Sometimes these costs are included in the reinsurance premiums. In addition, the investment costs may have been deducted directly from the investment returns or included in administrative costs.

The upper part of Table 4 presents the average investment costs of pension funds for different size categories, expressed in numbers of participants. Investment costs as a percentage of total assets decrease as the number of participants increases from about 0.14% for the three smallest fund classes to 0.08% for the biggest funds. The average investment costs per participant decrease even more sharply with the number of participants, namely from € 270 for the smallest funds to € 13 and € 39 for the two largest fund categories. Note that the investment costs per participant are the lowest for pension funds in the second-largest category, which contains most participants. Once again, the real cost differences between size categories are even greater than shown in Table 4, as non-reporting of investment costs is much more common among small funds than the large funds. The lower half of Table 4 shows a comparable picture for the various size categories on the basis of total assets.

The analysis of the investment costs of pension funds reinforces our earlier finding that scale has a strong impact on operating costs and that industry-wide pension funds operate at significantly lower costs. This conclusion is confirmed if the earlier regression analysis is repeated with a model for investment costs, where the size of total assets is used as the scale variable (see the right-hand column of Table 3). The results show similar coefficients and comparable conclusions. On the investment side, large unutilised economies of scale are found to exist, though these are smaller than for administrative costs (17% versus 37%). For investment costs it is found that – after controlling for other factors – industry-wide pension funds again operate at significantly lower costs than company and professional group pension funds. The coefficients of the other explanatory variables are less significant.[11]

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funds with an extensive investment apparatus generate no or insufficient excess returns to compensate for higher costs. Therefore it makes sense to reduce the costs to an optimal level. Note that bid-ask spreads are not part of the investment costs. See for this e.g. Bikker et al. (2007).

11 In an alternative specification (not shown here) with participant numbers as the scale variable, the other variables do all prove to be highly significant, with the same signs as in the administrative cost model.

Table 4. Annual investment costs of pension funds by size category (2004)

Size category of pension funds based on:	Administrative costs/total assets (%)	Administrative costs per participant (€)	Total assets per participant (€ 1000)	Total number of participants (1000)	Funds that report no wage costs (%)[a]	Number of funds
1. number of participants						
< 100	0.13	270	208	1	52	27
100-1000	0.14	101	72	75	33	151
1000-10 000	0.14	97	71	672	21	209
10 000-100 000	0.11	45	41	2 469	13	76
100 000-1 million	0.13	13	10	6 847	10	18
> 1 million	0.08	39	46	5 611	0	3
Average / total	0.10	31	31	15 676	26	484
2. total assets (€ million)						
0-10	0.15	25	17	16	53	49
10-100	0.14	31	22	418	28	209
100-1000	0.14	25	18	3 163	14	179
1000-10 000	0.10	24	24	4 809	7	41
> 10 000	0.10	39	41	7 270	25	6

Source: Bikker and De Dreu, 2007.

4.5 Life insurers as providers of pension schemes

The second part of this chapter examines the cost differences between private and collective pension schemes. The present section discusses the role of life insurers as a provider of both private and collective pension schemes. Section 4.6 then takes a closer look at the cost differences between life insurers and pension funds.

COLLECTIVE PENSION SCHEMES

Companies that do not belong to an industry with a mandatory industry-wide pension fund can choose to arrange their employee pension scheme through a life insurer. Forty insurers provide such 'direct schemes' to some 1.8 million participants working for around forty thousand companies.

In addition, pension funds can reinsure their insurance and investment risks at life insurance companies and outsource their administration and the management of their investments to more specialised institutions, including life insurers. A pension fund can even outsource all its activities to a life insurer, in which case it exclusively acts as a middleman. Where insurers or other institutions are better equipped to bear certain risks of pension funds or are able to perform certain activities more cost-effectively, pension funds can increase their efficiency by reinsuring risks and outsourcing activities.

This actually happens on a considerable scale. In 2004 pension funds outsourced on average 36% of their activities in cost terms. Over a third of the pension funds (principally smaller institutions) outsourced more than 50% of their activities. In the same year, 20% of the (mainly smaller) funds were fully reinsured.[12]

In this way, pension funds seek to maximise the efficiency of their pension activities, with (mainly small) pension funds benefiting from economies of scale at life insurers and pension providers in cases where their own scale is too limited. Direct schemes and outsourcing thus mean that (at least some) market efficiencies are still achieved in providing pension schemes.[13]

Private pension schemes

Besides collective schemes of pension funds and collective contracts of life insurers, there are also private pension schemes. These are important for a large number of self-employed people who are not in salaried employment and are not members of an professional group pension fund. In addition, many people choose to supplement their employee pension with additional savings in the third pillar of the Dutch three-pillar system, e.g. to repair a loss of pension rights due to a change in employment or to enjoy a higher pension. Apart from privately managed assets (e.g. savings or investment accounts), this mainly concerns life insurance policies. These are either (deferred or immediate) annuities or endowment insurance policies with annuity clauses. Premiums for both types of insurance are eligible for

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12 On average these funds have a balance sheet total that is only one tenth of that of the other funds.

13 Outsourcing of pension activities to insurers is accompanied by additional agency costs: the pension fund or the responsible employer needs to check whether the insurer or pension provider fulfils all its obligations.

income tax deduction, subject to certain conditions.[14] In the case of endowment insurance, savings are built up in order to purchase an annuity: for instance, an annuity payable on death before retirement for the benefit of surviving dependants or a single lifetime annuity.

Table 5 provides an overview of the administrative costs of life insurers, consisting of operational costs and acquisition costs (marketing and selling costs, including commissions for intermediaries).[15] Note that these figures indicate the average costs of life insurers for their entire portfolio of products, which include both collective and private policies, insurance policies where the investment risk is borne or not borne by the policyholders, life annuities, endowment insurance, and so forth. In addition, it is important to remember that cost comparisons between pension funds and insurers are difficult to make (see section 4.6).

The first point worth noting is that large unutilised scale effects also occur for life insurers. The total costs as a percentage of gross premiums (a measure we use to permit comparison with pension funds**)** vary from

Table 5. Administrative costs of life insurers and pension funds by size category (2004)

Life insurers				Pension funds		
Size category based on total assets (€ million)	Administrative costs/gross premiums (%)	Gross profits/gross premiums (%)	Administrative costs plus gross profits/gross premiums (%)	Number of insurers	Administrative costs/gross premiums (%)	Number of pension funds
0-10	37.9	0.6	38.5	12	11.9	80
10-100	36.1	11.8	47.9	11	7.8	277
100-1000	17.2	13.4	30.6	26	5.0	206
1000-10 000	13.2	11.4	24.6	24	3.9	43
> 10 000	12.4	13.0	25.4	8	2.6	8
Average/ total	13.1	12.6	25.7	81	3.5	614

[14] A proposal (annuity saving bill of Depla-De Vries) has been made to the Dutch Lower Chamber to extend the application of such fiscal facilities to old age savings via blocked bank accounts.

[15] The data are described in Bikker and Van Leuvensteijn (2007). Investment costs are discussed later in this chapter.

12.4% for the largest life insurers to 37.9% for the smallest. In proportional terms therefore the costs of small insurers are three times higher than those of large insurers. On average almost half of the costs consist of acquisition costs; the percentage is somewhat higher for small insurers. For the period from 1995 to 2003, Bikker and Van Leuvensteijn (2007) calculated unutilised scale effects of on average 21%, varying from 10% for the 25% largest insurers to 42% for the 25% smallest insurance firms. These unutilised scale effects are therefore somewhat lower than those of pension funds.

In addition, a portion of the contributed premiums goes to gross profits. This compensates shareholders for bearing certain risks such as the longevity and investment risk. The profit margin in 2004 seems to have been more or less equal across the size categories. It should be noted that this profit margin relates to the entire portfolio. There are indications that the margin for the new production is smaller than for older policies.[16] On average, administrative costs and gross profits jointly account for a quarter of the gross premium at the larger insurers and almost half of the gross premium at the smaller insurers. Insurers are partly unable to avoid these costs while pension funds, being non-profit institutions, do not charge profit margins.

It is again noted that the above analysis provides information on the average costs of all life insurance products. We lack the data required for a more refined analysis. It is plausible, however, that large cost discrepancies will occur for different types of products, such as collective versus private contracts. With collective contracts the costs will decrease relatively strongly as the size of the contract increases, e.g. in terms of number of participants.

Alongside the aforementioned administrative costs, insurers also incur investment costs. In the financial figures that life insurers are required to report to the Dutch central bank (DNB), the investment costs are aggregated with interest charges. Averaging 0.31% of total assets, these costs are higher for life insurers than pension funds (0.10% of the total assets). This is probably (partly) due to interest charges. However, as the basis of comparison, i.e. total assets, is not identical at life insurers and pension funds, no further conclusions can be drawn from this.

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[16] This is evident from e.g. embedded value calculations where, for instance, the profit on new policies is determined over the entire term.

4.6 Administrative costs of life insurers and pension funds compared

Comparing the administrative costs of pension schemes provided by life insurers with those provided by pension funds gives rise to numerous complications.

Different products

The first question that arises is whether insurers deliver, or are able to deliver, the same products as pension funds. This is not the case. Most pension funds provide DB pension plans where the size of the pension benefits is fixed (long) in advance on the basis of the final or average salary, in a few cases with guaranteed price or wage indexation, at least until the time of retirement (see Bikker and Vlaar, 2007). Insurers do not provide such pensions (and, in fact are not allowed to, at least not at fixed contributions). They cannot distribute the investment, inflation and longevity risks over different generations by varying contributions. In general, insurers provide nominal pensions where surplus profit sharing creates the possibility – but not the certainty – of applying indexation.[17] Incidentally, the aforementioned DB pensions can be offered by an insurer if the employer undertakes to pay the additional contribution required for indexation and supplements up to a certain percentage of the final salary (so-called "*back service*" in final pay schemes). Besides direct schemes and collective contracts that are comparable with pension fund schemes, life insurers also provide reinsurance contracts and private policies for individuals, including both pension schemes as well as other types of insurance. Such products cannot be provided by pension funds.

Mandatory participation

Moreover, from a cost perspective, the position of pension funds and that of life insurers is not always comparable. First of all, the mandatory participation at pension funds leads to a strong reduction in costs. Almost half of the administrative costs of life insurers consist of acquisition costs made up of marketing and selling costs, including commissions for intermediaries. Insurers need to incur these costs to acquire customers, while pension

17 Sometimes partial indexation is guaranteed.

funds can avoid these as a result of the mandatory participation. It is worth noting that these costs are not entirely without benefit for clients, as they are partly incurred to advise on the need for, and best method of, saving for a pension.[18] Mandatory participation in pension schemes yields large social savings in terms of reduced educational and search costs. Note, incidentally, that collective contracts of life insurers also benefit from mandatory participation, as acquisition costs can then be avoided.

Adverse selection

The absence of mandatory participation with private policies of life insurers also leads to costs due to *adverse selection*. People with poor health and therefore a greater risk of death are, on average, more likely to take out life insurance payable on death. Similarly, people in good health are more likely – on average – to take out a lifetime annuity. In order to limit the effects of *adverse selection,* applications for life insurance involve a costly medical examination and selection process. Due to the mandatory participation, costs related to *adverse selection* play no role for pension funds. In addition, buyers of annuities tend to be more highly educated and remunerated people who, on average, are healthier and have a longer life expectancy. This will be taken into account in the pricing process.[19]

Different organisational form

The difference in organisational form also leads to unequal costs. Insurers tend to be profit-oriented companies while pension funds are non-profit institutions. Gross profits averaged 12.6% of the contributions in 2004. For comparison purposes, the corporation tax on the profit and surplus profit must be included in the calculation as costs for the policyholder. Whether the net *return on equity* should also be included in the calculation is open to question. For pension funds a portion of the paid contributions is used to fund buffers. In a sense the participants in a pension fund must themselves contribute a kind of share capital. In the long term, however, they will eventually benefit from this capital as the returns earned on the buffer will be used for e.g. indexation (see Bikker and Vlaar, 2007). The buffer itself, however, will be shifted to the following generation.

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18 The quality and reliability of such advice is sometimes disputed (CPB, 2005).

19 This does not influence the administrative costs of insurers.

Different regulatory regime

Finally insurers must cover the risks on insurance contracts by maintaining capital, so that costs of capital (or profits before taxation) become part of the cost price.[20] Pension funds are required to cover their nominal liabilities for 105% and also to maintain a solvency buffer for investment and longevity risks. The required buffer for an average fund is approximately 30%. Until the Dutch Financial Assessment Framework took effect on 1 January 2007, pension funds were permitted to base their calculations on an actuarial interest rate of 4% at maximum,[21] whereas insurers were required to use 3% for new contracts since 1997. This difference in interest rate does not lead to widely divergent pension contributions in the long term, but may do so in the short term, for instance in a recovery period when buffers need to be repaired. Different regulatory regimes can disturb the optimal allocation of pension provisions over pension funds and life insurers. Though some regulatory convergence is likely in the near future, differences between the regulation of the two sectors will continue to exist on account of the profit objective of most life insurers and the corporation tax on their profits as well as the intrinsic differences between pension funds and life insurers.

Cost differences

Table 5 shows the differences in the administrative costs of Dutch pension funds and life insurers by expressing these costs as a percentage of the gross premiums.[22] The size categories are not relevant for the comparison; these only give information about the distribution of the costs. On average, administrative costs account for 3.5% of the gross contributions at pension funds in 2004,[23] while the percentage at insurers is over 13% excluding profit margins and almost 26% including profit margins. These data can differ from year to year due to e.g. fluctuations in profits or changes in

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20 The supervisor sets a minimum solvency requirement for life insurers, which, incidentally, is much lower than the capital that insurers maintain in connection with their own operational targets.

21 Many pension funds did not use 4% but 3.7% at year-end 2005.

22 Insurers do not report investment costs separately. These costs are included in the investment charges item.

23 This figure may be a fraction higher due to partial underreporting of costs by mainly small pension funds.

Table 6. Administrative costs of life insurers and pension funds (2000-2004)

Year	Life insurers		Pension funds	
	Administrative costs	Gross profits	Administrative costs and gross profits	Administrative costs
	As % of gross premium			
2000	12.4	14.7	27.1	5.8
2001	12.8	12.8	25.6	5.6
2002	13.1	1.7	14.8	4.2
2003	13.0	13.0	26.0	3.9
2004	13.1	12.6	25.7	3.5
Average	12.9	11.0	23.9	4.4
	As % of total assets			
2000	1.20	1.42	2.63	0.13
2001	1.31	1.32	2.63	0.15
2002	1.31	0.17	1.48	0.18
2003	1.26	1.26	2.52	0.17
2004	1.23	1.19	2.42	0.14
Average	1.27	1.08	2.35	0.15

the contributions. For this reason, Table 6 presents the same data for the past five years while the administrative costs are also reported as a percentage of total assets.[24] The conclusions remain the same.

The comparison indicates that due to (i) the frequently individual scale, (ii) the need for acquisition (promotion, distribution and advice), (iii) the costs that are caused by *adverse selection* and (iv) the profit objective, insurers generally incur higher costs for the provision of pension schemes than pension funds.[25] Life insurers play a vital social role in offering insurance

[24] Because pensions are build up over a very long time, pension funds maintain comparatively more assets, which further reduces their cost margins expressed as a percentage of total assets.

[25] The annual continuing costs per policy amount to about € 50-100. The one-off costs per life insurance, including medical examination, equal about € 300-500 as opposed to € 1500-2000 per policy for endowment policies (e.g. for mortgages) and annuities (immediate annuities and endowment policies with an annuity clause). The latter include advice.

products and their policies can yield significant benefits for individuals, partly due to the possibility of providing customised products. However, collective pension schemes based on mandatory participation can be offered at significantly lower (administrative) costs.

One area where a cost comparison could conceivably be made between life insurers and pension funds is that of collective contracts. Unfortunately, the absence of separate data on the administrative costs of these collective contracts implies that we are unable to make such a comparison. However, we do know more about one specific cost item, namely profits. Insurers report profits on both collective and private insurance products, and it turns out that both yield comparable profit margins in both market segments (see tables B.2 and B.3 in the appendix). These, however, are the profit margins on the existing portfolio, i.e. the production from the past. Another source of information consists of *embedded value* calculations, where the profitability of the portfolio of both existing and new collective and other contacts in the remaining term until maturity is calculated. These often turn out to be loss making in the sense that the targeted *return on equity* is not entirely achieved. Apparently, this part of the market, where actuarial knowledge is present on both sides of the table, has become a fiercely competitive market. Smaller and medium-sized pension funds take out reinsurance contracts on a reasonably large scale, while smaller and medium-sized companies take out collective contracts. Evidently this is more cost-effective in these cases, where economies of scale will often be a decisive factor.

Finally we can make a statement about the costs of private policies. Though we do not have separate administrative cost data, we can see in Table B.2 of the appendix that more than half of the contributions and provisions relate to private policies. The number of private policies greatly exceeds the number of collective policies (by 36 million).[26] Given that the costs are strongly determined by scale, we conclude that most of the insurers' costs are allocated to private policies. Nevertheless, we prefer to use conservative estimates by assuming average costs as a percentage of the gross contributions for private policies. Finally, we assume that there is no significant difference between the administrative costs for endowment insurance and pension and annuity insurance products.

[26] The number of collective arrangements is limited and comprise less than 5 million insured persons.

4.7 Conclusions

This chapter shows that the administrative costs of collective pension schemes offered by pension funds constitute only a fraction of the operating costs of private pension schemes offered by insurers (over the last five years an estimated 4.4% versus 12.9% of the gross contributions). The difference becomes almost twice as large when the gross profit margin of insurers is also taken into consideration: 4.4% versus 23.9%. These differences are explained by, among other things, scale effects, adverse selection, acquisition costs and institutional structure. With some provisions for cost comparison problems (averages need not apply to sub-categories), we conclude that collective schemes are much cheaper than private schemes. From a cost-efficiency perspective, collective schemes are superior to private schemes.

Furthermore this study shows that the operating costs of pension funds are strongly influenced by scale. The operating costs of small funds are more than ten times higher per participant than those of very large funds. Some employers and employees may deliberately opt for a small pension fund to obtain extra service and customisation (where pension schemes are designed to accommodate non-standard choices), but whether they are sufficiently aware of the resulting higher operating costs is open to question. More transparency to stakeholders about operating costs could help in this respect. The conclusion here is that the consolidation of small pension funds would lead to efficiency gains.

Lastly, the above analysis has shown that some types of pension funds are more efficient than others (after controlling for economies of scale), even though the cost differences in view of the above comparison are modest. Industry-wide pension funds, particularly the mandatory ones, have significantly lower operating costs per participant than company and professional group pension funds. Standard pension schemes that are less generous and simpler to administer yield extra efficiency gains. In this context efficiency also refers to factors that cannot be influenced, such as the lower costs of value transfers for industry-wide pension funds. In addition, more extensive services can be provided to participants. The aforementioned efficiency gains cast a different light on the recent discussion about the desirability or undesirability of mandatory industry-wide pension funds and the possible expansion of the number of participants at this type of funds.

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Appendix: Key data of pension funds and life insurers

Table B.1. Key data of pension funds (1992-2004)

Year	Number of funds, total	Number of industry-wide pension funds	Number of company pension funds	Number of funds in sample	Total assets, average (€ million)[a]	Number of participants, average (1000)	Total costs/ total assets (%)[b]	Total costs per participant (€)[a,b]
1992	1131	82	1029	781	197	11	0.19	34
1993	1123	82	1021	820	209	11	0.18	34
1994	1111	82	1009	819	223	11	0.19	37
1995	1098	81	997	823	237	12	0.18	38
1996	1090	83	987	823	409	15	0.15	42
1997	1059	82	957	805	468	15	0.14	41
1998	1040	85	938	816	545	16	0.15	52
1999	1014	93	904	784	651	17	0.13	49
2000	986	92	877	791	658	17	0.14	51
2001	961	100	843	773	644	19	0.15	51
2002	924	102	804	727	613	22	0.18	51
2003	873	103	753	702	696	23	0.17	52
2004	841	104	718	655	826	25	0.15	48

[a] *In 2004 prices;*

[b] *Weighted averages.*

Source: DNB.

Table B.2. Technical provisions and gross premiums of life insurers and pension funds (2004; € billion)

	Private	Collective	Total
Gross premium			
Endowment insurance - insurers	9.0	0.9	9.9
Pension and annuity insurance	0.1	3.0	3.1
Insurers			
Total life insurers[a]	9.1	3.9	13.0
– of which for pensions[b]	1.2	3.9	5.1
Pension funds	–	22.8	22.8
Technical provision			
Endowment insurance – insurers	101.2	7.9	109.0
Pension and annuity insurance	21.4	84.8	106.2
Insurers			
Total life insurers	122.6	92.6	215.2
Pension funds	–	446.9	446.9

[a] *Excluding annual deposits in savings banks;*

[b] *Data from Statistics Netherlands (CBS), subject to differences in definition. Distributed over private and collective, according to the authors' own judgment. Note that a proportion of the private endowment insurance policies includes an annuity clause and is intended for pension purposes.*

Source: DNB, Financial data life insurance companies; and Statistics Netherlands (CBS), National Accounts.

Table B.3. Gross profits of life insurers (2004)

	Gross profits (€ million)	Gross profits /gross premiums (%)	Gross profits / technical provisions (%)
Private insurance	1 192	12.3	1.0
Collective insurance	624	15.9	0.7
Total[a]	1 816	13.9	0.9

[a] *Excluding the item 'not to be categorised'.*

Source: DNB, Financial data of life insurance companies.