Pension Protection Fund

The Purple Book 2022

DB pensions universe risk profile

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Introduction

The Purple Book, also known as The Pensions Universe Risk Profile, is now in its 17th edition. We've published The Purple Book annually since 2006, giving the most comprehensive data and analysis of the UK defined benefit pension landscape. This publication tracks trends in DB scheme funding, demographics, asset allocation and more. It also gives us, the PPF, an in-depth understanding of the risks we face from the universe of schemes we protect. Understanding this information helps us to model the level of claims we may need to absorb in years to come, and helps inform decisions on our funding strategy.

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Overview

Number of eligible schemes

7,751 — 2006
5,220 — 2021
5,131 — 2022

Number of members

14.0m — 2006
9.7m — 2021
9.6m — 2022

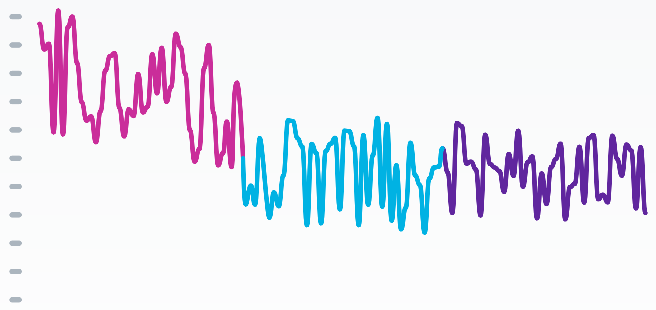
Proportion of schemes closed to all benefit accrual

48% — 2021
51% — 2022

Bonds trend

28% — 2006
72% — 2021
72% — 2022

Equities trend



61% — 2006
19% — 2021
20% — 2022

Scheme funding

97.1% — 2006
102.8% — 2021
113.1% — 2022

Surplus/deficit of schemes in surplus/deficit

2021: Deficit £129bn, Surplus £175bn
2022: Surplus £245bn, Deficit £61bn

Number and liabilities of schemes in PPF assessment

87 schemes — £9.4bn — 2021
63 schemes — £6.4bn — 2022

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01

Executive summary

Highlights and key trends from this year's *Purple Book*.

Data

There are estimated[1] to be 5,131 schemes in the Pension Protection Fund (PPF) eligible universe as at 31 March 2022, a reduction from 5,220 as at 31 March 2021. The declining universe reflects schemes winding up, scheme mergers, and schemes entering PPF assessment. This year, *The Purple Book* dataset covers all 5,131 schemes that are eligible for PPF compensation.

Schemes with more than 5,000 members make up almost 75 per cent of each of total assets, liabilities, and members, while only forming seven per cent of the total number of schemes in *The Purple Book 2022* dataset. Conversely, schemes with fewer than 1,000 members make up 80 per cent of the total number of schemes but only around 10 per cent of total assets, liabilities and members.

Scheme demographics

The Purple Book 2022 dataset includes 9.6 million DB scheme members, down from 9.7 million last year. Of these:

- 43 per cent are pensioner members;
- 47 per cent are deferred members; and
- 10 per cent are active members.

Whilst the proportions are the same as last year, the number of active members in *The Purple Book 2022* dataset who are members of a scheme still open to new benefit accrual and who continue to accrue benefits has reduced by five per cent over the year. This is significantly higher than the percentage reduction in the universe of schemes (two per cent) and the reduction in total membership (one per cent) over the year and will reflect the fact that some members will have retired as well as the continuing trend of schemes that had previously closed to new members now closing to new benefit accrual.

The proportion of schemes that are closed to new benefit accrual has increased from 48 per cent in 2021 to 51 per cent in 2022. This now means that for the first time we have more schemes that provide no form of accrual of benefits than those that do.

Schemes that remain open tend to be larger in terms of membership. 21 per cent of members were in open schemes with a further 41 per cent in schemes that are closed to new members but open to new benefit accrual.

Scheme funding

Universe scheme funding improved in the year to 31 March 2022. The net funding position on a section 179 (s179) basis as shown in the PPF 7800 index improved to a surplus of £193.0 billion compared to a surplus of £46.9 billion the year before, while the aggregate funding ratio increased to 113.1 per cent from 102.8 per cent.

The increase in the aggregate funding ratio is mainly the result of market movements, primarily the result of higher gilt yields driving down liability values by more than the corresponding decrease in asset values, together with large increases in equity values.

There was a further increase in the aggregate funding ratio from the new s179 basis that came into force on 1 May 2021 as well as up-to-date valuations and the latest eligible universe available by updating to the new *Purple Book 2022* dataset.

Over the year we have seen the total section 179 liabilities fall by almost 12 per cent, this being the largest annual fall observed.

On an estimated full buy-out basis, the net funding position improved to a deficit of £438.4 billion from a deficit of £615.3 billion the year before and the funding ratio improved from 73.7 per cent to 79.2 per cent.

Asset allocation

The aggregate proportion of schemes' assets invested in equities and bonds were broadly unchanged from those recorded two years ago. The proportion in equities rose slightly from 19.0 per cent to 19.5 per cent while the proportion in bonds fell slightly from 72.0 per cent to 71.6 per cent.

Within bonds, the index-linked bonds proportion increased from 47.2 per cent to 47.8 per cent. The corporate bonds proportion increased from 28.2 per cent to 30.2 per cent, while the government fixed interest bonds proportion fell from 24.6 per cent to 22.0 per cent.

Within equities, the UK-quoted proportion fell from 11.6 per cent to 9.9 per cent, falling below 10 per cent for the first time. The overseas-quoted proportion increased slightly from 68.3 per cent to 68.6 per cent, while the proportion of unquoted/private equities increased from 20.1 per cent to 21.5 per cent.

Risk reduction

DB pension schemes have continued to close to new benefit accrual. Although there has been little change in the proportion of assets in bonds and equities over the last year, schemes continued to invest a large proportion (over 70 per cent) of their assets in bonds and the proportion of assets invested in equities is less than 20 per cent.

Based only on current recovery plans in place, total annual recovery plan payments are indicated to decrease by around 88 per cent over the next 10 years, from around £12.3 billion in 2022 to around £1.4 billion in 2032, as schemes increasingly become fully funded on a Technical Provisions basis. However, this only shows the current position so changes may be made to existing recovery plans and new recovery plans may be put in place in the future if experience is different from what has currently been assumed by schemes.

Analysis of The Pensions Regulator's latest Technical Provisions and recovery plan data shows that in Tranche 15[2], the average recovery plan length was 6.4 years, a year less than that of Tranche 12 (comparable given the three-year valuation cycle). Assets as a percentage of Technical Provisions was 88.8 per cent in both Tranche 12 and Tranche 15.

> "For the first time we have more schemes that provide no form of accrual of benefits than those that do."

1 The number of schemes in the PPF eligible universe as at 31 March 2022 could be different from 5,131 if any of these schemes are discovered to be ineligible for PPF protection or if any other schemes are discovered to be eligible for PPF protection as at 31 March 2022.

2 Tranche 15 covers schemes with valuation dates between 22 September 2019 and 21 September 2020. https://www.thepensionsregulator.gov.uk/en/document-library/research-and-analysis/scheme-funding-analysis-2022/scheme-funding-analysis-2022-annex

Executive summary continued

The total number of contingent assets submitted to the PPF for the 2022/23 levy year was 303, compared with 317 in 2021/22.

There were £43 billion worth of risk transfer deals (buy-ins, buy-outs and longevity swaps) in 2021, down from £56 billion the previous year. This is a relatively small amount in the context of the whole universe of schemes.

PPF levy, claims, and compensation

- In 2021/22, the levy totalled £476 million, down from £630 million the previous year.
- The top 100 levy payers accounted for 58 per cent of the total levy, up from 55 per cent last year.
- 34 per cent of schemes had no risk-based levy while 3.3 per cent of schemes saw the cap of 0.25 per cent of smoothed liabilities apply to their risk-based levy.
- 84 per cent of the total levy came from schemes sponsored by employers categorised as 'Non-Subsidiaries £30 million+ and Large Subsidiaries', 'Credit Rated' or 'Group £50m+' for D&B scorecard purposes.

In the year to 31 March 2022, 14 new schemes entered PPF assessment. This is lower than last year when there were 30 new schemes. The total value of the year's claims was £12 million (as measured on an s179 basis), which is lower than last year's claims of around £200 million.

In the year to 31 March 2022, the PPF made compensation payments of £1,115 million compared with £1,006 million in the previous year. As at 31 March 2022, there were 193,983 records in respect of members receiving compensation[1], up from 184,844 a year earlier. The average annual payment per record to members receiving compensation was £4,825, which is comparable to the 31 March 2021 average of £4,829.

PPF risk developments

We published our funding strategy review in September 2022, which explains our approach to financial risk management as we move into a new phase of our funding journey. We enter this new stage in a strong financial position, and our strategic aim will shift from growing our reserves to 'Maintaining our Financial Resilience', which is our revised funding objective.

We defined a set of funding priorities to monitor our financial resilience. The strategic decisions on our future investment and levy strategies will be guided by how our reserves compare to these priorities. We therefore need to understand how our own funding and that of the schemes we protect may change over time. For that, we use the Long-Term Risk Model (LTRM), a stochastic model that runs a million different scenarios to project what the future may look like, allowing for future claims, levies, investment returns and changes in economic conditions.

Like any complex modelling exercise, LTRM projections are subject to significant uncertainty. They depend crucially on modelling assumptions, which we continually refine to reflect how experience and expectations develop over time. We carried out sensitivity testing to understand the key financial risks to which we are exposed. Under each of these tests, we are comfortable that our current strategic decisions would be unchanged. We also continue to monitor, and seek to understand, the impacts of the key risks we face, including climate change risk, macro-economic changes and the COVID-19 pandemic.

Over the last year, there has been a material improvement in our funding position and in that of the schemes we protect. This has increased the likelihood of us 'Maintaining our Financial Resilience'. The general economic environment remains volatile, but our modelling indicates that we are well placed to cope with the uncertainty.

Economy and market background

The following table sets out how some key market indicators in the assessment of universe scheme assets and s179 liabilities have changed over the year:

Market indicator	Change over the year to 31 March 2022
10-year fixed interest gilt yield	0.72pp
15-year fixed interest gilt yield	0.58pp
20-year fixed interest gilt yield	0.47pp
5–15 year index-linked gilt yield	-0.06pp
FTSE All-Share Index (TR)	13.03%
FTSE All-World Ex-UK Index (TR)	12.62%

pp = percentage point(s)
TR = Total Return

"Our strategic aim will shift from growing our reserves to 'Maintaining our Financial Resilience', which is our revised funding objective."

1 Some members have more than one record in the data.

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02

The data

An overview of the dataset used in this edition of *The Purple Book.*

Summary

- This chapter contains information on the number and distribution of schemes in *The Purple Book 2022* dataset and the estimated universe of PPF-eligible schemes.
- The main analysis in *The Purple Book 2022* is based on the most recent scheme returns submitted to TPR by 31 March 2022. This covered a dataset of 5,131 DB schemes, covering 9.6 million members[1]. This represents all PPF-eligible schemes and universe liabilities. A full description of the data used is set out in the appendix.
- It is estimated that the eligible universe of schemes was 5,131 as at 31 March 2022, a reduction from 5,220 as at 31 March 2021. The declining universe reflects schemes winding up, scheme mergers, and schemes entering PPF assessment.
- As in previous editions of *The Purple Book*, the bulk of the analysis uses funding with pension scheme liability values measured on an s179 basis. This is, broadly speaking, what would have to be paid to an insurance company to take on the payment of PPF levels of compensation.

Figure 2.1 | Distribution of schemes excluding those in assessment by size of scheme membership

The reduction in the eligible universe from 5,220 schemes at 31 March 2021 to 5,131 schemes at 31 March 2022 is mainly due to schemes with fewer than 1,000 members leaving the eligible universe.

Number of members	2–99	100–999	1,000–4,999	5,000–9,999	10,000+	Total
The Purple Book 2021 dataset (number of schemes)	1,874	2,280	720	160	186	5,220
The Purple Book 2022 dataset (number of schemes)	1,836	2,248	706	159	182	5,131
Difference in number of schemes	-2.0%	-1.4%	-1.9%	-0.1%	-2.2%	-1.7%

Source: PPF

Figure 2.2 | Distribution of assets, s179 liabilities and members in *The Purple Book 2022* dataset as at 31 March 2022

Large schemes with over 5,000 members make up seven per cent of schemes in *The Purple Book 2022* dataset but almost 75 per cent of each of total assets, liabilities and members.

Number of members	2–99	100–999	1,000–4,999	5,000–9,999	10,000+	Total
Assets (£bn)	17.4	145.6	265.9	208.8	1,029.3	1,666.9
s179 liabilities (£bn)	14.6	131.3	244.3	187.3	896.4	1,473.9
Number of members (000's)	81	786	1,604	1,110	6,067	9,648

Source: PPF

Note: the components may not sum to the total because of rounding.

Figure 2.3 | *The Purple Book* datasets

The universe has declined by two per cent over the year, similar to previous years. This reflects schemes winding up, scheme mergers and schemes transferring into the PPF.

	Estimated universe	*Purple Book* dataset	Number of members (m)
2006	7,751	5,772	14.0
2007	7,542	5,892	12.7
2008	7,400	6,898	12.4
2009	7,098	6,885	12.4
2010	6,850	6,596	12.0
2011	6,550	6,432	12.0
2012	6,460	6,316	11.7
2013	6,225	6,150	11.4
2014	6,070	6,057	11.1
2015	5,967	5,945	11.0
2016	5,886	5,794	10.9
2017	5,671	5,588	10.5
2018	5,524	5,450	10.4
2019	5,436	5,422	10.1
2020	5,327	5,318	9.9
2021	5,220	5,215	9.7
2022	5,131	5,131	9.6

Source: PPF

Note: the reason for the increase in *The Purple Book* dataset from 2006 to 2008 is mainly a result of improvements to the design of the scheme return intended to permit better PPF validation procedures.

1 One individual can have multiple memberships (for example of different pension schemes). Hence the number of members exceeds the number of individuals.

03

Scheme demographics

This chapter looks at trends in scheme status and member status. Schemes can be open to new members, closed to new members but open to new benefit accrual, closed to new benefit accrual, closed to new members and benefit accrual, or winding up. Members may be actively accruing benefits, deferred, or retired.

Summary

This chapter describes the dataset used for this year's edition of *The Purple Book* and includes some comparisons with data from previous years. Figures for the total number of schemes and total scheme membership are included, with breakdowns by scheme size, scheme status, and member status.

How we categorise schemes has varied in earlier editions of *The Purple Book* as more informative breakdowns became available although the method of categorisation has been unchanged since 2013. For more detailed information, see the appendix.

Some statistics from this chapter are summarised in the following table:

	Date of *The Purple Book*	
	31 March 2022	31 March 2021
Number of schemes in *The Purple Book* dataset	**5,131**	5,215
Proportion of schemes that are:		
open to new members	**10%**	11%
closed to new members (but open to new benefit accrual)	**38%**	39%
closed to new benefit accrual	**51%**	48%
winding up	**2%**	2%
Number of members covered by schemes in *The Purple Book* dataset, of which:	**9.6m**	9.7m
pensioner members	**43%**	43%
deferred members	**47%**	47%
active members (still accruing benefits)	**10%**	10%

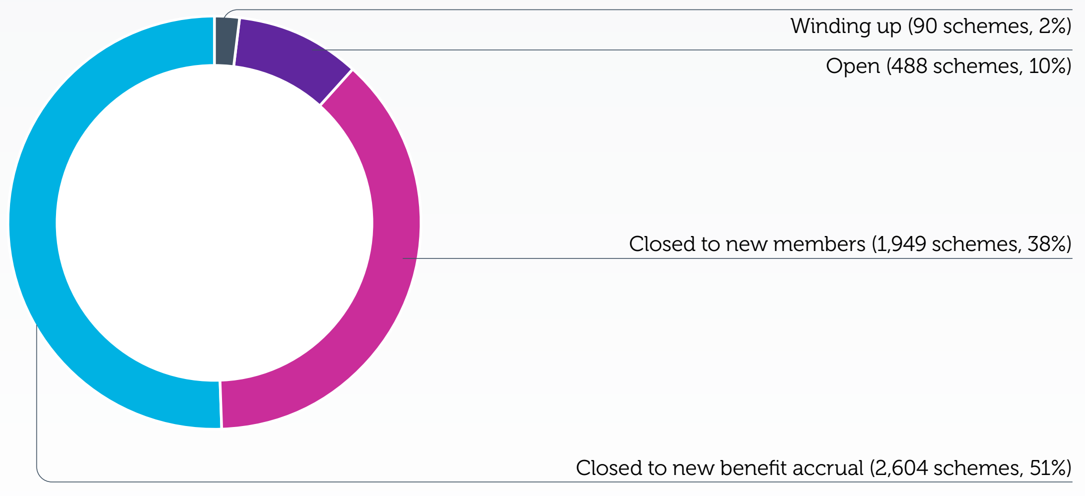
Note: the percentages may not sum to 100 per cent because of rounding.

- The number of active members has continued to fall and is now around 0.9 million. This is around a quarter of those found in the first *Purple Book* dataset in 2006.
- The gradual trend of schemes closing to both new members and new benefit accrual has continued and now accounts for more than half of all schemes for the first time (51 per cent). This compares with 12 per cent in *The Purple Book* dataset in 2006.
- 73 per cent of schemes have assets of less than £100 million.

Scheme status

Figure 3.1 | Distribution of schemes by scheme status

Over 50 per cent of schemes don't provide any new benefit accrual.

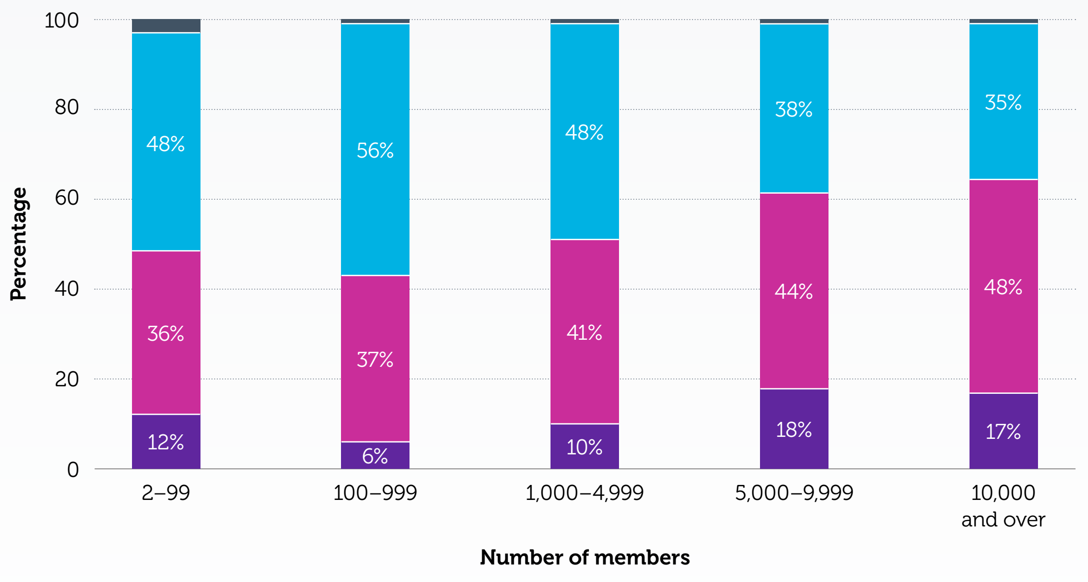


Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Figure 3.2 | Distribution of schemes by scheme status and member group

Large schemes are more likely to be open to new members or new benefit accrual.



Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

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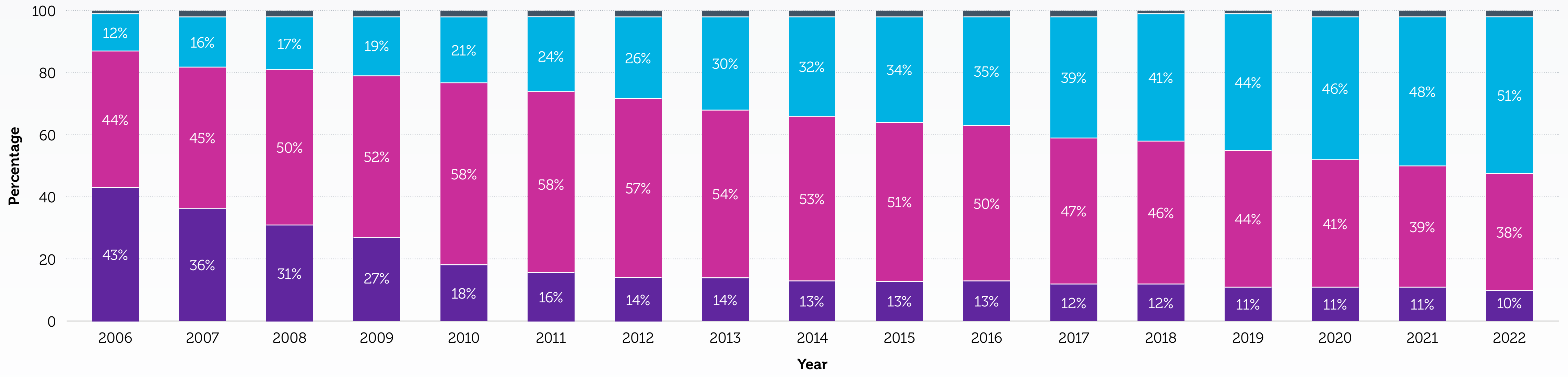
Scheme demographics continued

Figure 3.3 | Distribution of schemes by scheme status and year

The gradual trend of schemes already closed to new members also closing to accrual has continued, with this status now covering more than 50 per cent of schemes for the first time (51 per cent).



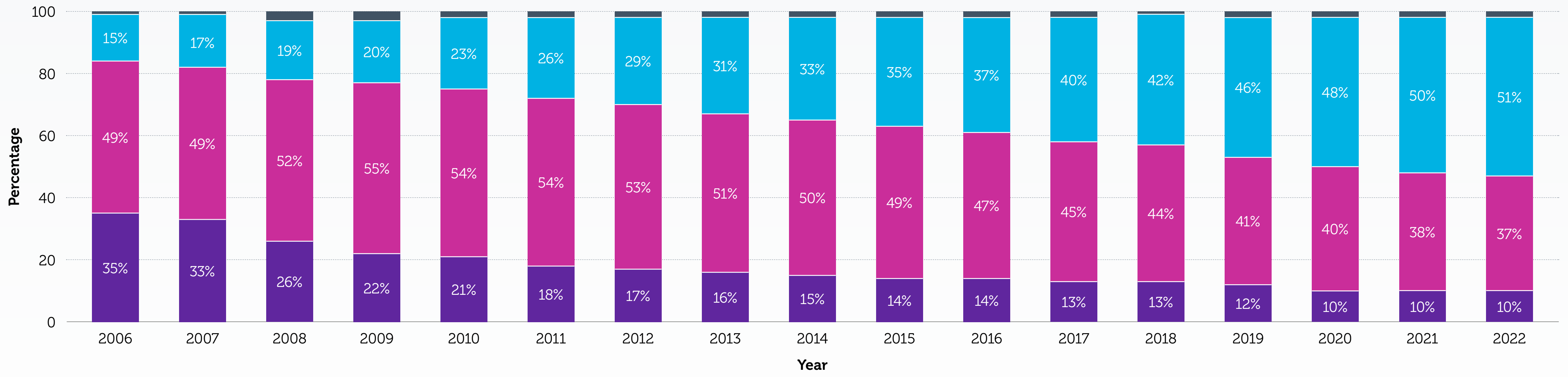
● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Figure 3.4 | Distribution of schemes by scheme status and year (excluding hybrid schemes[1])

The distribution of schemes by scheme status in *The Purple Book 2022* dataset is similar whether or not hybrid schemes are excluded.



● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

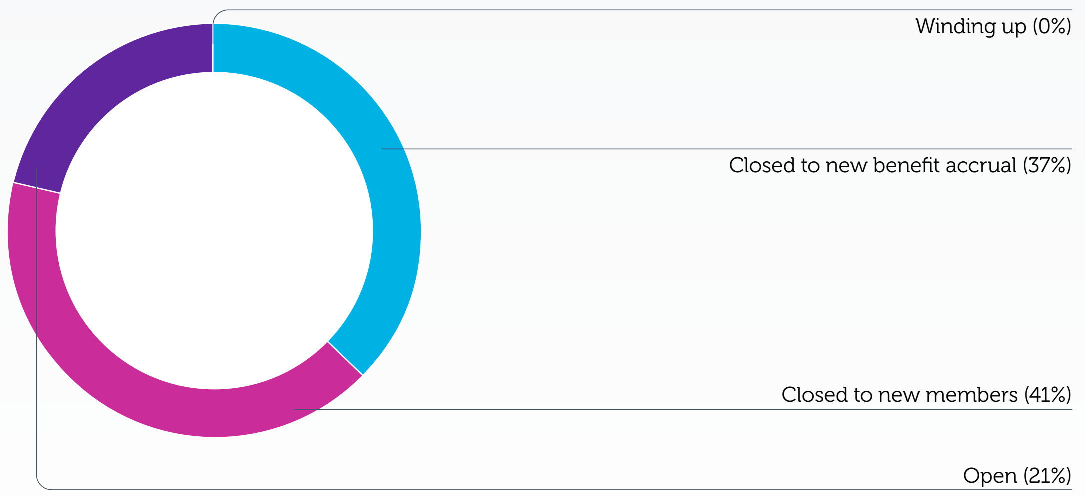
Note: the percentages may not sum to 100 per cent because of rounding.

1 A hybrid scheme is one that provides defined benefit (DB) and defined contribution (DC) benefits. The treatment of such schemes has varied in past editions of *The Purple Book* as better data has become available (see the appendix for a detailed explanation). At present we define a scheme as closed if the DB section is closed, even if the DC section remains open.

Scheme status and scheme members

Figure 3.5 | Distribution of members by scheme status

Around 62 per cent of members are in schemes that have some form of new benefit accrual.



● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

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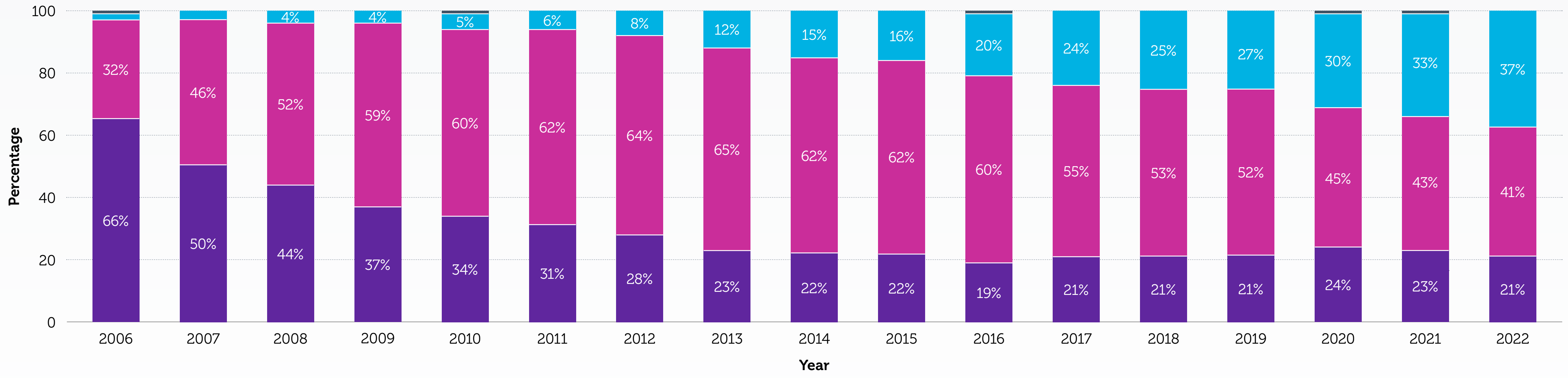
Figure 3.6 | Distribution of members by scheme status and year

The change in membership by scheme status has followed a similar trend over time to the number of schemes by scheme status. However, just under 40 per cent of members are in schemes that don't provide any new benefit accrual compared with over 50 per cent of schemes not providing any new benefit accrual.



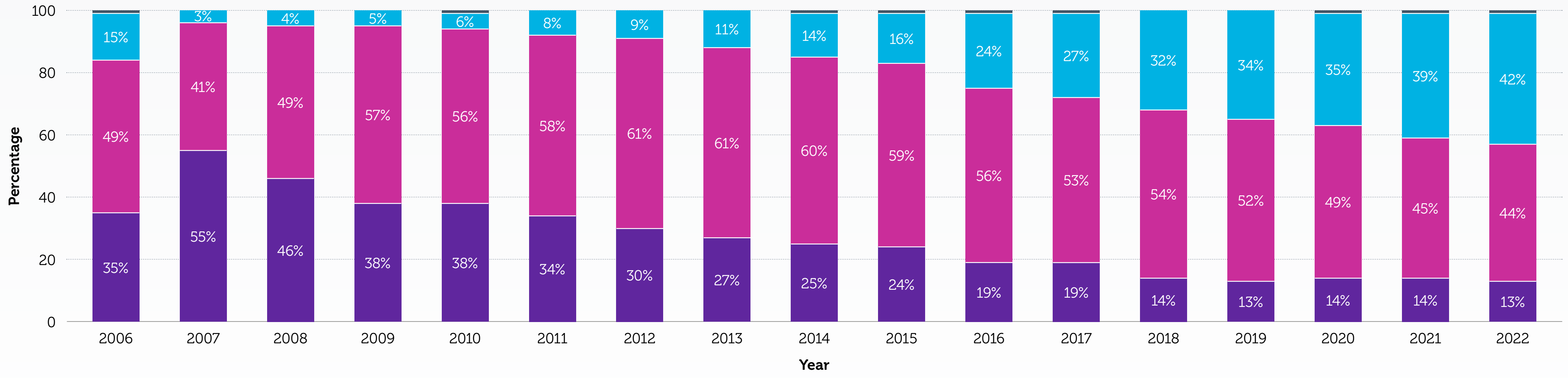
● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Figure 3.7 | Distribution of members by scheme status and year (excluding hybrid schemes)

Excluding hybrid schemes has a notable effect on the distribution of members by scheme status in *The Purple Book 2022* dataset. This is partly due to one very large open scheme having a hybrid status.



● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

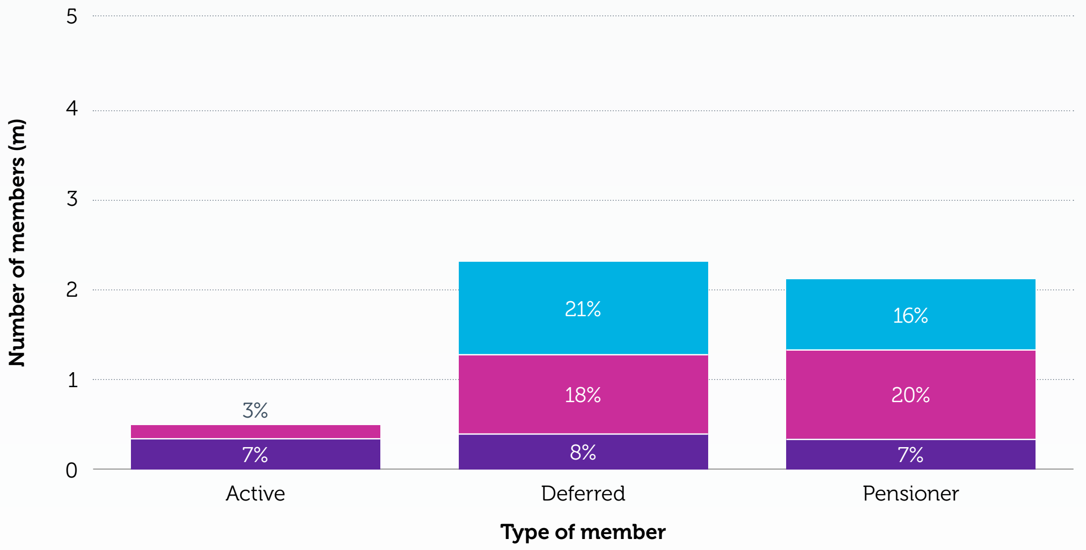
Scheme membership

Figure 3.8 | Number and distribution of members by member type and scheme status as at 31 March 2022

The total number of active members reduced by five per cent in the year to 31 March 2022 and is the main reason for the reduction in total membership. The total number of pensioners reduced by one per cent while the total number of deferreds was almost unchanged.

Number (000's) / %	Open	Closed to new members	Closed to new benefit accrual	Winding up	All
Active members	628.5	302.2	–	–	930.7
	7%	3%	0%	0%	10%
Deferred members	743.5	1,784.4	2,026.6	20.7	4,575.3
	8%	18%	21%	0%	47%
Pensioner members	657.7	1,908.4	1,555.2	20.3	4,141.6
	7%	20%	16%	0%	43%
Total	**2,029.8**	**3,995.0**	**3,581.8**	**41.0**	**9,647.6**
	21%	**41%**	**37%**	**0%**	**100%**

Note: the percentages may not sum to 100 per cent and the components may not sum to their totals because of rounding.



● Open ● Closed to new members ● Closed to new benefit accrual ● Winding up

Source: PPF

Scheme demographics continued

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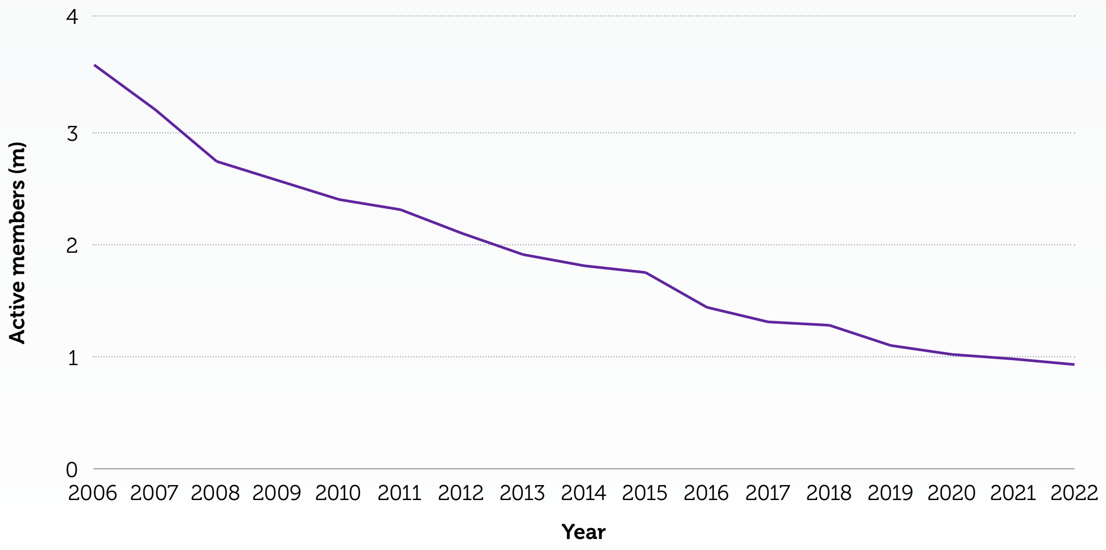
Figure 3.9 | Active members in *The Purple Book* datasets

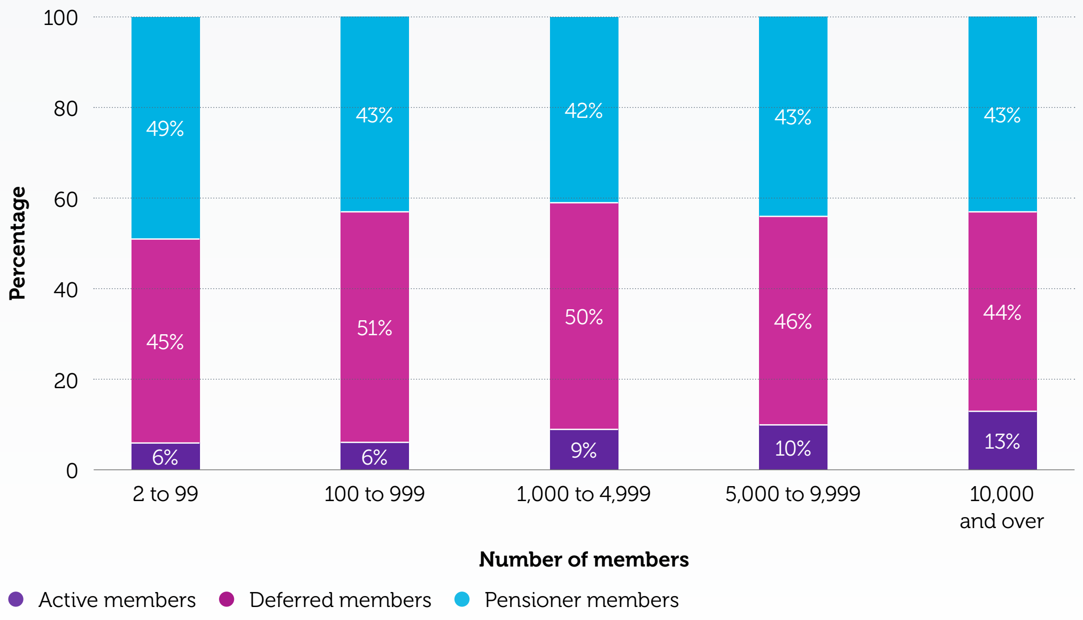
The number of active members has decreased to around 0.9 million and is around a quarter of those found in the first *Purple Book* dataset in 2006.



Source: PPF

Figure 3.10 | Distribution of member type, by scheme membership size

The proportion of active members increases as scheme membership size increases.

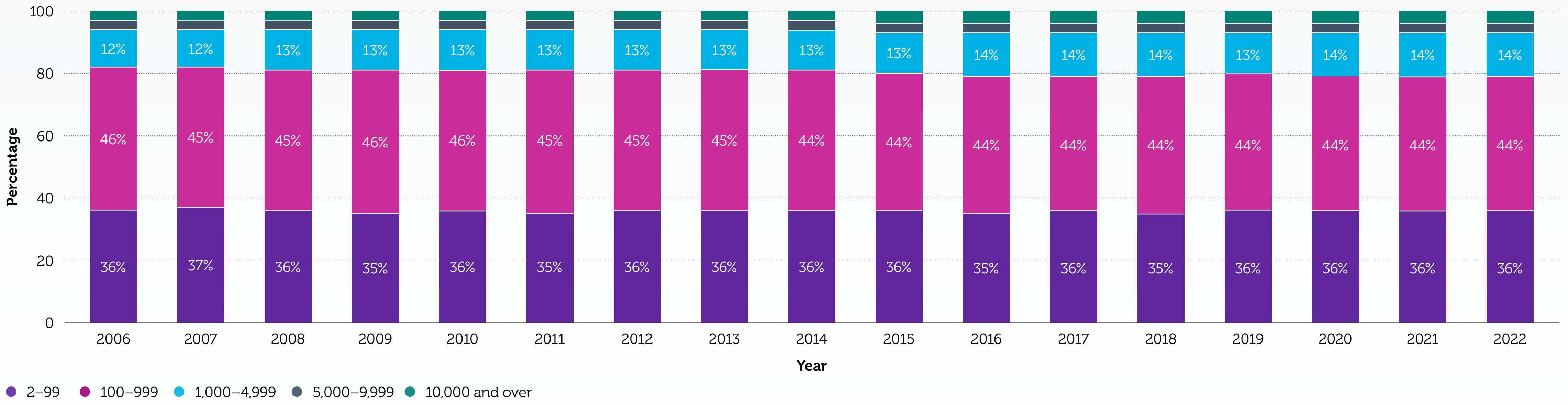


Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Figure 3.11 | Proportion of schemes by scheme membership size, by year

The distribution of schemes by scheme membership size has remained relatively stable over time, suggesting that there is little correlation between scheme size and removal from the eligible universe.



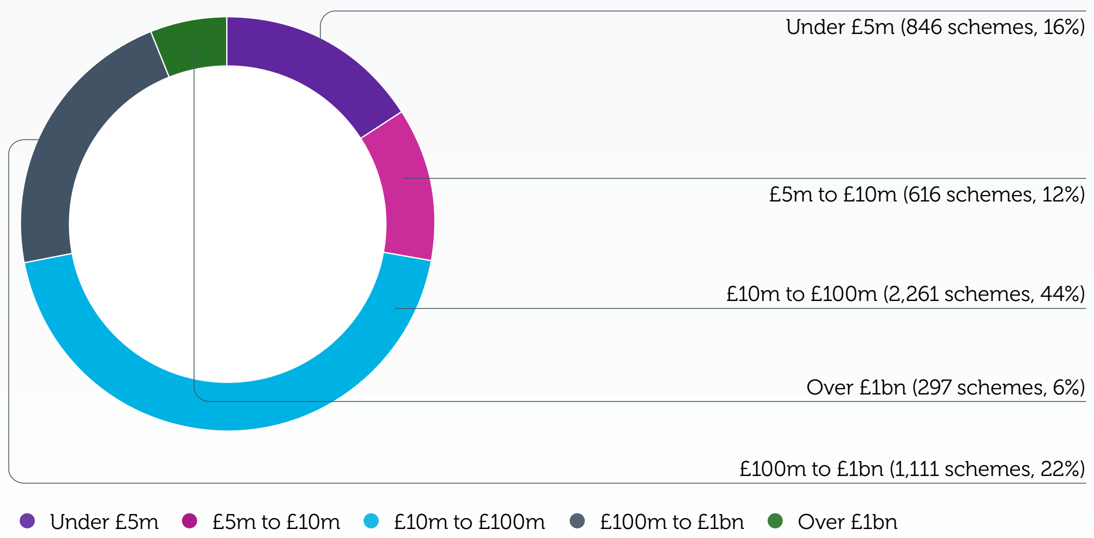
Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Asset size

Figure 3.12 | Distribution of schemes by asset size

72 per cent of schemes have assets of less than £100 million.



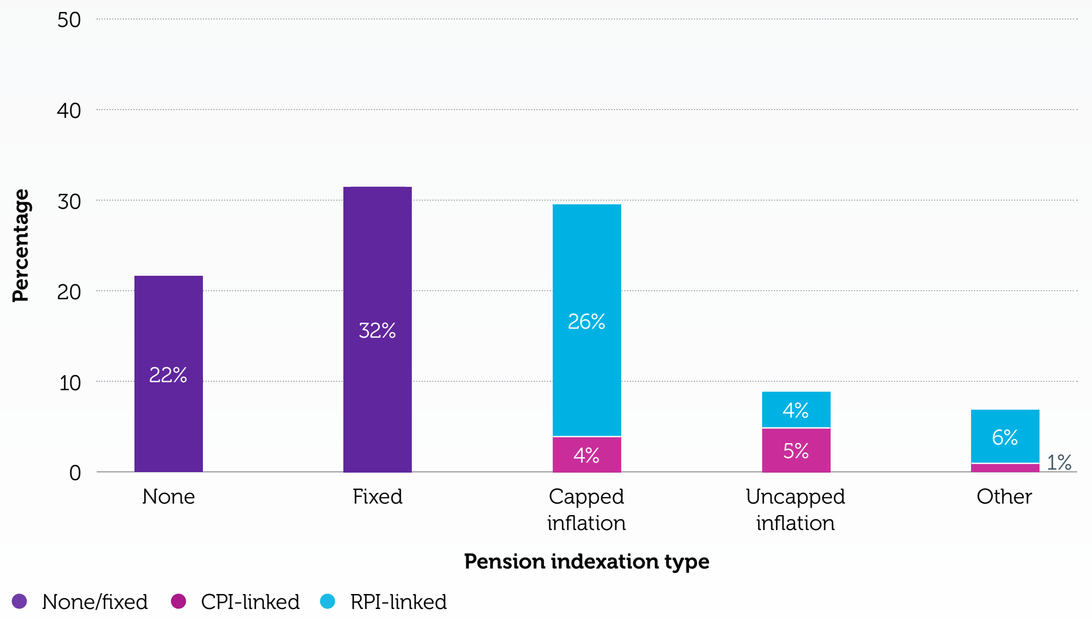
Source: PPF

Scheme demographics continued

Pension indexation types

Figure 3.13 | Pension indexation types for scheme benefits accrued before 6 April 1997

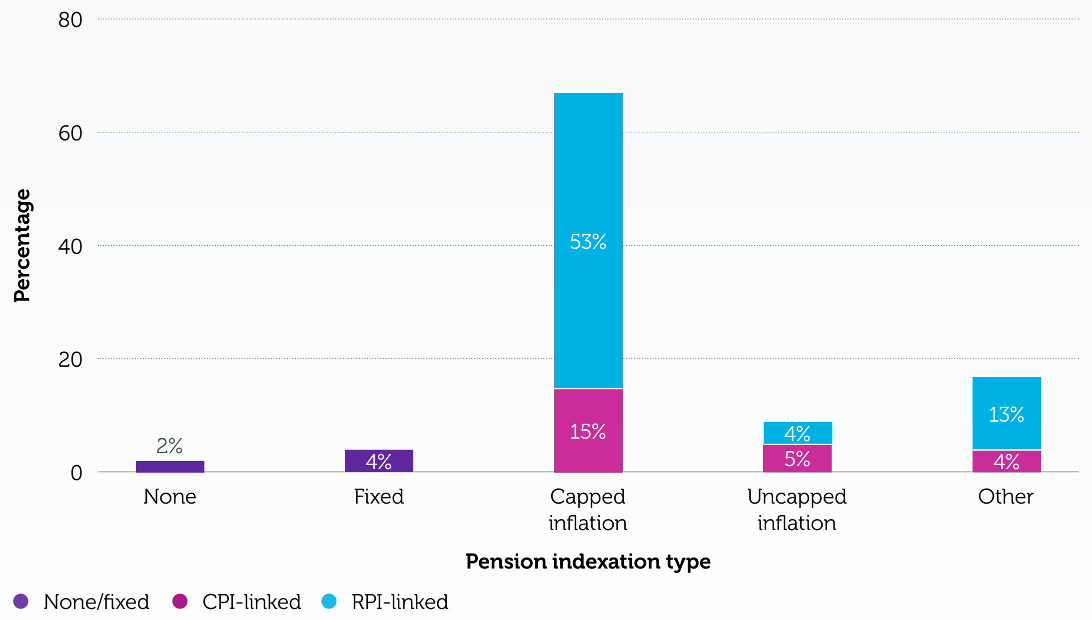
More than three quarters of schemes provide indexation on scheme benefits accrued before 6 April 1997.



Source: PPF

Figure 3.14 | Pension indexation types for scheme benefits accrued after 5 April 1997

Around two thirds of schemes provide indexation of capped inflation on scheme benefits accrued after 5 April 1997. For the vast majority of these schemes, the inflation cap is five per cent a year.



Source: PPF

Note: this is based on scheme return data provided by schemes, where the scheme return specifies that in cases where there is more than one rate of indexation, the rate applying to the largest proportion of protected liabilities should be submitted.

Note: most of the schemes with no pension indexation don't have any scheme benefits that were accrued after 5 April 1997 or are cash balance schemes.

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04

Scheme funding

This chapter looks at how well funded schemes are, and trends and scheme funding by scheme size, status and maturity.

Summary

This chapter covers funding on an s179 basis as at 31 March 2022, which is based on version A10 of the s179 assumptions. Funding information supplied in scheme returns submitted to The Pensions Regulator (TPR) is processed so that the funding ratios can be estimated at a common date, allowing consistent totals to be used. In *The Purple Book* Deficit-Reduction Contributions (DRCs), as submitted for levy purposes, have been added to the asset values submitted in s179 valuations. More detail on how assets and s179 liabilities have been calculated at 31 March 2022 can be found in the appendix.

A scheme that is 100 per cent funded on an s179 basis has broadly enough assets to pay an insurance company to take on the scheme with PPF levels of compensation.

In addition, this chapter considers estimated full buy-out funding information. This has been calculated using the same valuation assumptions and underlying data as for the s179 calculations. An approximate allowance is then made for the difference between the PPF level of compensation and full scheme benefits. Some of the statistics summarising these calculations are shown below:

	The Purple Book	
Item	31 March 2022	31 March 2021[1]
Net s179 funding position (£bn)	**193.0 surplus**	46.9 surplus
s179 liabilities (£bn)	**1,473.9**	1,673.8
Assets (£bn)	**1,666.9**	1,720.7
Funding ratio:		
s179 basis	**113.1%**	102.8%
Estimated full buy-out basis	**79.2%**	73.7%

1 The 31 March 2021 figures are based on version A9 of the s179 assumptions, which was in force at the effective date of last year's *Purple Book*.

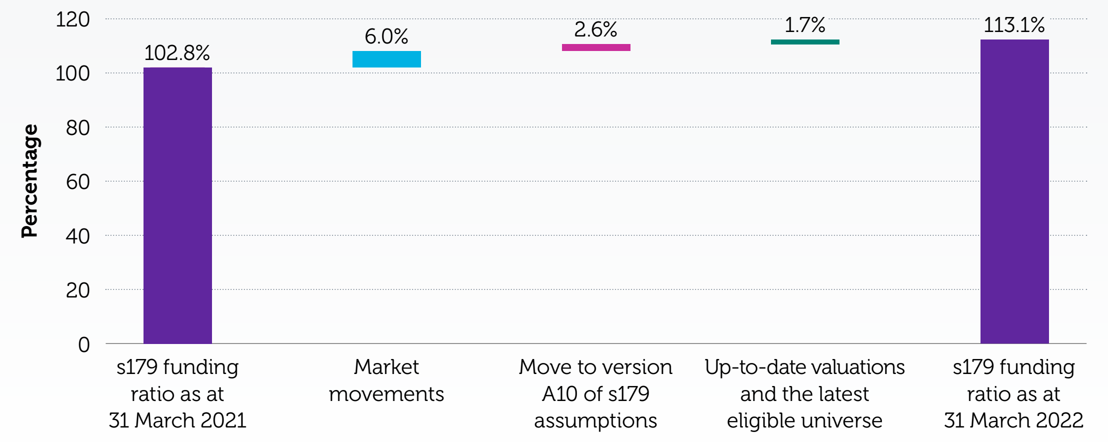
The following table sets out how some of the market indicators used to assess and roll forward pension scheme assets and s179 liabilities have changed over the year:

Market indicator	Change over the year to 31 March 2022
10-year fixed interest gilt yield	0.72pp
15-year fixed interest gilt yield	0.58pp
20-year fixed interest gilt yield	0.47pp
5–15 year index-linked gilt yield	-0.06pp
FTSE All-Share Index (TR)	13.03%
FTSE All-World Ex-UK Index (TR)	12.62%

pp = percentage point(s)

TR = Total Return

The change in the aggregate s179 funding ratio over the year is a result of market movements, new assumptions and new data, as shown in the following chart.



- The 10.3 percentage point increase in the s179 funding ratio over the year to 31 March 2022 can be broken down as follows:
  - The impact of market movements has resulted in a 6.0 percentage point increase in the s179 funding ratio. This was due to large increases in equity values and gilt yields over the year, which caused total assets to increase while total liabilities decreased.
  - The impact of moving to the A10 version of the s179 assumptions was an increase of 2.6 percentage points in the s179 funding ratio. This was due to a reduction in scheme liabilities.
  - Additionally, an increase of 1.7 percentage points in the s179 funding ratio was observed from adopting the new *Purple Book 2022* dataset, which includes more up-to-date scheme valuations.
- The s179 funding ratio at 31 March 2022 is 16 percentage points higher than that disclosed in the first *Purple Book* as at 31 March 2006. However, total assets and liability values have more than doubled over this period for the following reasons:
  - The significant increase in assets has arisen from increases in equity values (returns of around 143 per cent and 350 per cent on UK and global equities respectively), increases in bond values and DRCs, offset to some extent by schemes that have left the PPF universe.
  - The significant increase in liabilities has arisen from lower gilt yields and longer life expectancies driving up liability values, again offset to some extent by schemes that have left the PPF universe.
- Funding ratios are higher among:
  - More mature schemes (i.e. those with a higher proportion of liabilities that relate to pensioners); and
  - The smallest and largest schemes (compared to mid-size schemes).
- In the last 12 years, the proportion of liabilities that relates to pensioner members has remained relatively stable at around 40 per cent, although there are recent signs this is increasing as the proportion increased by 3 percentage points to 44 per cent over the last year. The proportion relating to active members has reduced significantly over the same period and has reduced by 15 percentage points to 17 per cent.

Overall funding

Figure 4.1 | Key funding statistics as at 31 March 2022

The net s179 funding position of the schemes in *The Purple Book 2022* dataset at 31 March 2022 was a surplus of £193.0 billion, corresponding to a funding ratio of 113.1 per cent.

Number of members	s179	Estimated full buy-out
Total number of schemes	5,131	5,131
Total assets (£bn)	1,666.9	1,666.9
Total liabilities (£bn)	1,473.9	2,105.3
Net funding position (£bn)	193.0	-438.4
Aggregate funding ratio	113.1%	79.2%
Number of schemes in deficit	1,752	4,515
Number of schemes in surplus	3,379	616
Net funding position for schemes in deficit (£bn)	-61.1	-454.4
Net funding position for schemes in surplus (£bn)	254.1	16.0

Source: PPF

Note: the component figures may not sum to the total because of rounding.

Scheme funding continued

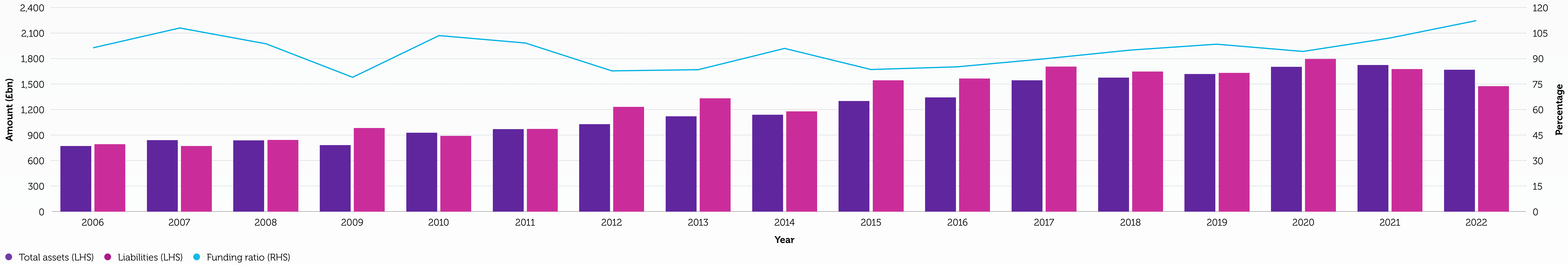
Figure 4.2 | Current and historical funding figures on an s179 basis

The aggregate s179 funding ratio improved by 10.3 percentage points over the year to 31 March 2022 to a record high of 113.1 per cent. The deficit of schemes in deficit improved from £128.5 billion to £61.1 billion over the year to 31 March 2022.

Year	Number of schemes	Total assets (£bn)	s179 liabilities: Liabilities (£bn)	s179 liabilities: Net funding position (£bn)	s179 liabilities: Aggregate funding ratio	s179 liabilities: Deficit of schemes in deficit (£bn)	s179 liabilities: Surplus of schemes in surplus (£bn)
2006	7,751	769.5	792.2	-22.7	97.1%	-76.3	53.5
2007	7,542	837.7	769.9	67.8	108.8%	-38.5	106.2
2008	6,897	837.2	842.3	-5.1	99.4%	-67.7	62.6
2009	6,885	780.4	981.0	-200.6	79.6%	-216.7	16.0
2010	6,596	926.2	887.9	38.3	104.3%	-49.1	87.4
2011	6,432	968.5	969.7	-1.2	99.9%	-78.3	77.1
2012	6,316	1,026.8	1,231.0	-204.2	83.4%	-231.3	27.1
2013	6,150	1,118.5	1,329.2	-210.8	84.1%	-245.8	35.0
2014	6,057	1,137.5	1,176.8	-39.3	96.7%	-119.0	79.7
2015	5,945	1,298.3	1,542.5	-244.2	84.2%	-285.3	41.1
2016	5,794	1,341.4	1,563.1	-221.7	85.8%	-273.5	51.8
2017	5,588	1,541.1	1,702.9	-161.8	90.5%	-246.7	84.9
2018	5,450	1,573.3	1,643.8	-70.5	95.7%	-187.6	117.1
2019	5,422	1,615.3	1,628.0	-12.7	99.2%	-159.8	147.1
2020	5,318	1,700.6	1,791.3	-90.7	94.9%	-229.1	138.4
2021	5,215	1,720.7	1,673.8	46.9	102.8%	-128.5	175.3
2022	5,131	1,666.9	1,473.9	193.0	113.1%	-61.1	254.1

Note: the component figures may not sum to the total because of rounding.

Total s179 liabilities fell by almost 12 per cent over the year to 31 March 2022, which is the largest fall recorded. This was primarily a result of rising gilt yields.



Source: PPF

Scheme funding continued

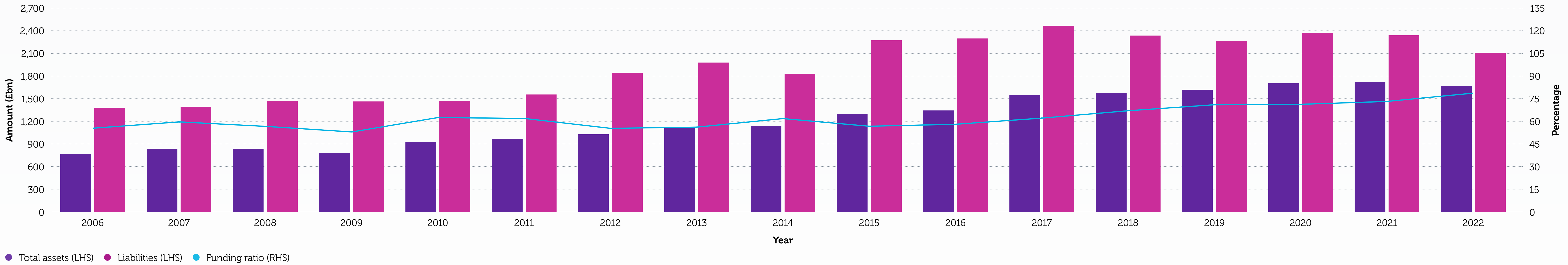
Figure 4.3 | Current and historical funding figures on an estimated full buy-out basis

The aggregate full buy-out funding ratio increased from 73.7 per cent to 79.2 per cent over the year to 31 March 2022, which is smaller than the increase in the aggregate s179 funding ratio. This is because of an increase in inflation expectations over the year, which is more significant for buy-out liabilities than for s179 liabilities.

		Estimated full buy-out		
Year	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio
2006	769.5	1,376.7	-607.2	55.9%
2007	837.7	1,393.7	-556.0	60.1%
2008	837.2	1,465.8	-628.6	57.1%
2009	780.4	1,461.1	-680.7	53.4%
2010	926.2	1,469.3	-543.1	63.0%
2011	968.5	1,551.8	-583.3	62.4%
2012	1,026.8	1,840.5	-813.7	55.8%
2013	1,118.5	1,974.7	-856.2	56.6%
2014	1,137.5	1,827.2	-689.7	62.3%
2015	1,298.3	2,269.2	-970.9	57.2%
2016	1,341.4	2,293.1	-951.7	58.5%
2017	1,541.1	2,461.7	-920.6	62.6%
2018	1,573.3	2,332.0	-758.7	67.5%
2019	1,615.3	2,260.3	-644.9	71.5%
2020	1,700.6	2,369.1	-668.5	71.8%
2021	1,720.7	2,335.9	-615.3	73.7%
2022	1,666.9	2,105.3	-438.4	79.2%

Note: the component figures may not sum to the total because of rounding.

Since 2006, there has been a significant increase in the aggregate full buy-out funding ratio, from 55.9 per cent to 79.2 per cent at 31 March 2022.



Source: PPF

The s179 funding ratio has increased significantly over time due to improvements in the last two years, from 97.1 per cent at 31 March 2006 to 113.1 per cent at 31 March 2022. The estimated full buy-out funding ratio has also increased significantly over the same period mainly due to improvements in the last seven years, from 55.9 per cent at 31 March 2006 to 79.2 per cent at 31 March 2022.

Scheme funding continued

Analysis of funding by scheme membership size

Figure 4.4 | s179 funding ratios by size of scheme membership as at 31 March 2022

The best funded schemes were the smallest, with an aggregate s179 funding ratio of 119.2 per cent for schemes with fewer than 100 members.

Scheme size (members)	Number of schemes	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio	Simple average funding ratio*
2 to 99	1,836	17.4	14.6	2.8	119.2%	114.8%
100 to 999	2,248	145.6	131.3	14.4	110.9%	108.5%
1,000 to 4,999	706	265.9	244.3	21.6	108.8%	107.7%
5,000 to 9,999	159	208.8	187.3	21.4	111.4%	110.4%
10,000 and over	182	1,029.3	896.4	132.8	114.8%	115.4%
Total	5,131	1,666.9	1,473.9	193.0	113.1%	110.9%

Source: PPF

Note: the component figures may not sum to the total because of rounding.

* Whereas aggregate funding ratios are determined by comparing the total assets and liabilities for all schemes, the simple average funding ratio is the average of all of the schemes' individual funding ratios. Note that 12 schemes with funding ratios over 200 per cent (on an estimated full buy-out measure) were excluded from the simple averages to avoid distortions. All of these schemes were small, with total assets of £0.1 billion.

Figure 4.6 | Estimated full buy-out levels by size of scheme membership as at 31 March 2022

The smallest schemes are the most well funded on a full buy-out measure.

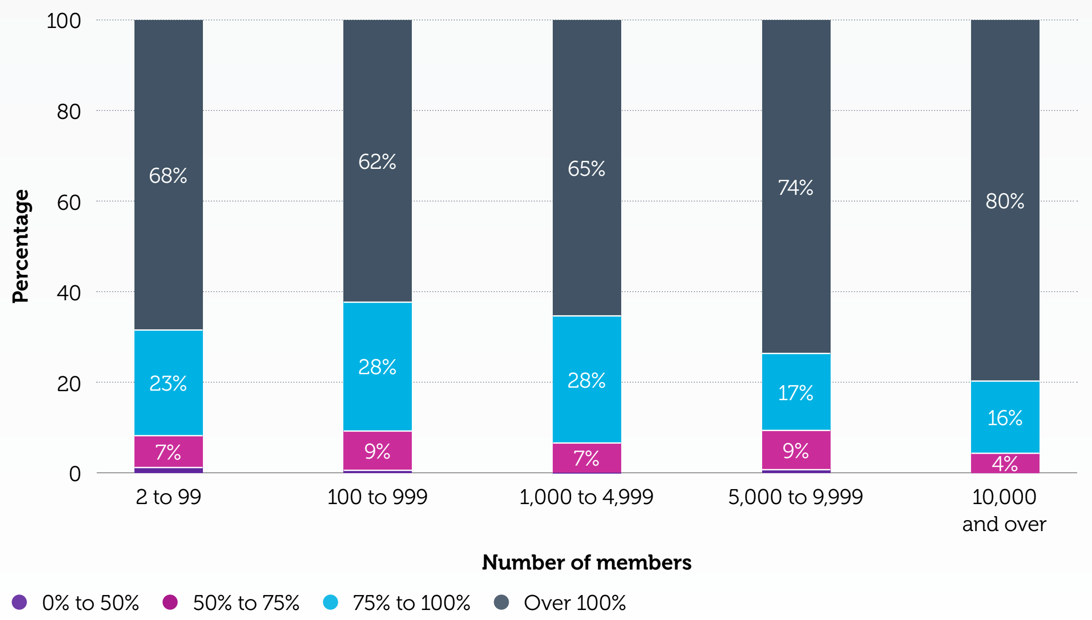
Members (number)	Number of schemes	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio	Simple average funding ratio*
2 to 99	1,836	17.4	20.6	-3.2	84.6%	83.3%
100 to 999	2,248	145.6	186.2	-40.5	78.2%	77.7%
1,000 to 4,999	706	265.9	342.1	-76.2	77.7%	77.7%
5,000 to 9,999	159	208.8	264.7	-55.9	78.9%	79.5%
10,000 and over	182	1,029.3	1,291.8	-262.5	79.7%	79.8%
Total	5,131	1,666.9	2,105.3	-438.4	79.2%	79.8%

Source: PPF

* 12 schemes with funding ratios over 200 per cent (on an estimated full buy-out measure) were excluded from the simple averages to avoid distortions. All of these schemes were small, with total assets of £0.1 billion.

Figure 4.5 | Distribution of s179 funding ratios by size of scheme membership as at 31 March 2022

Schemes with at least 5,000 members are the most well funded on an s179 basis.

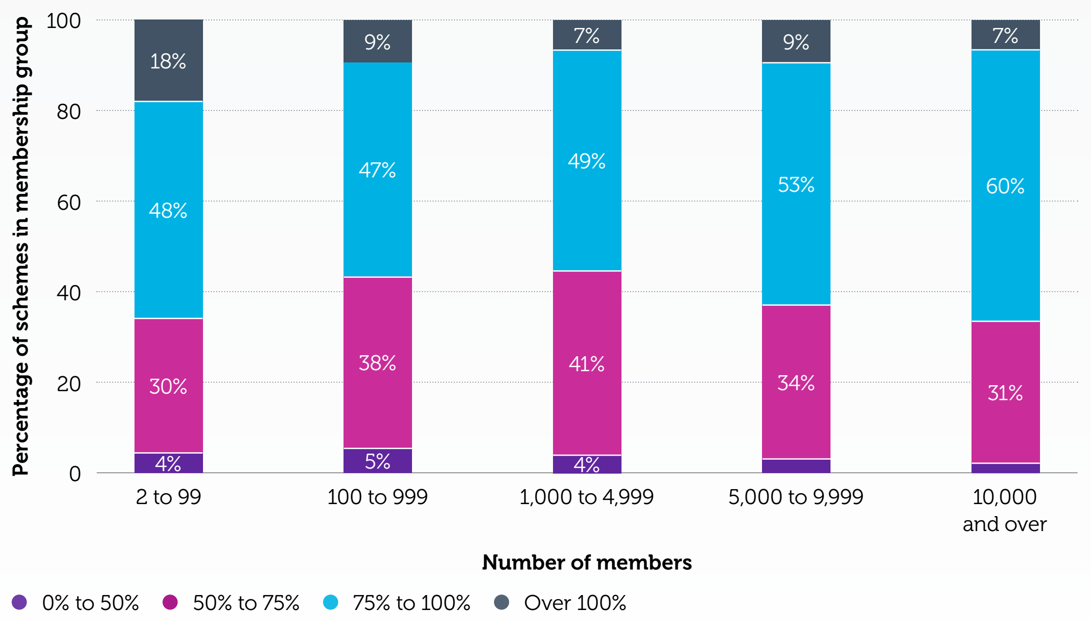


Source: PPF

Note: the percentages in each column may not sum to 100 per cent because of rounding.

Figure 4.7 | Distribution of estimated full buy-out funding ratios by size of scheme membership as at 31 March 2022

95 per cent or more of all scheme sizes have an estimated full buy-out funding ratio higher than 50 per cent.



Source: PPF

Note: the percentages in each column may not sum to 100 per cent because of rounding.

Analysis of funding by scheme maturity

Maturity is measured here as the percentage of the scheme liabilities relating to pensioners.

Figure 4.8 | Analysis of s179 funding ratios by scheme maturity as at 31 March 2022

The most mature schemes have an aggregate s179 funding ratio that is around 40 percentage points higher than the least mature schemes.

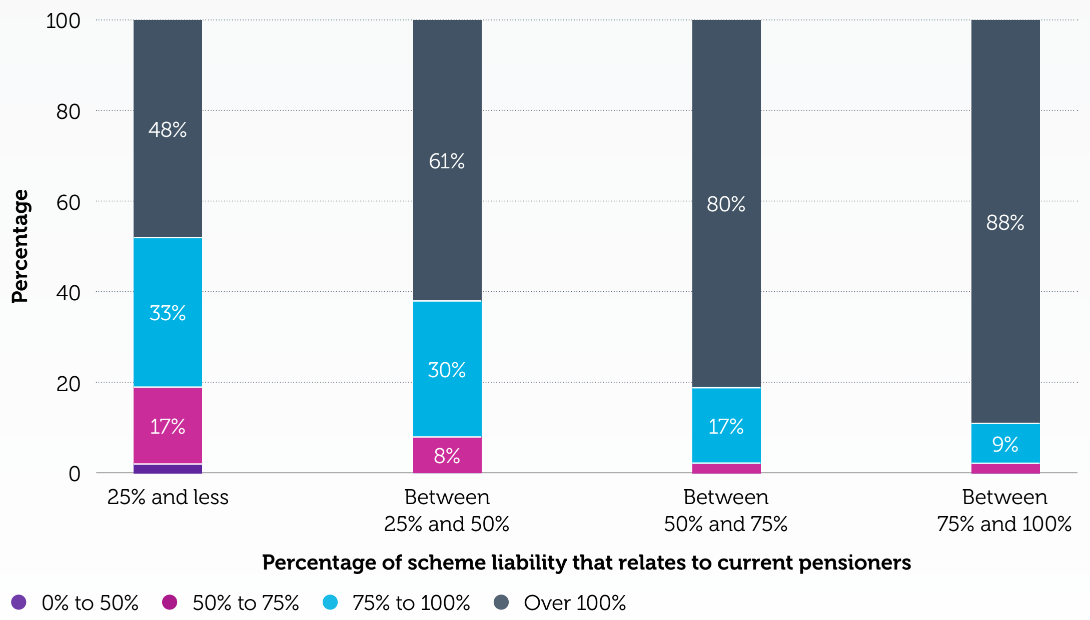
Proportion of s179 liabilities relating to pensioners	Number of schemes	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio	Simple average funding ratio*
25% and less	879	141.8	145.3	-3.4	97.6%	100.2%
Between 25% and 50%	2,468	908.3	838.8	69.5	108.3%	106.4%
Between 50% and 75%	1,457	569.1	454.7	114.5	125.2%	120.0%
Between 75% and 100%	327	47.7	35.2	12.5	135.7%	134.0%
Total	5,131	1,666.9	1,473.9	193.0	113.1%	110.9%

Source: PPF

* 12 schemes with funding ratios over 200 per cent (on an estimated full buy-out measure) were excluded from the simple averages to avoid distortions. All of these schemes were small, with total assets of £0.1 billion.

Figure 4.9 | Distribution of funding ratios on an s179 basis by scheme maturity as at 31 March 2022

Funding ratios improve with scheme maturity, with 88 per cent of the most mature schemes being overfunded on an s179 basis.



Source: PPF

Note: the percentages in each column may not sum to 100 per cent because of rounding.

Scheme funding continued

Analysis of funding by scheme status

Figure 4.10 | Analysis of s179 funding ratios by scheme status as at 31 March 2022

Open schemes are around 20 percentage points worse funded than closed schemes, as measured by the aggregate s179 funding ratio.

Status	Number of schemes	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio	Simple average funding ratio*
Open	488	307.9	315.3	-7.4	97.6%	105.8%
Closed to new members	1,949	818.9	690.8	128.1	118.5%	112.9%
Closed to new benefit accrual	2,604	533.0	462.1	70.9	115.4%	110.1%
Winding up	90	7.1	5.7	1.4	125.4%	119.3%
Total	5,131	1,666.9	1,473.9	193.0	113.1%	110.9%

Source: PPF

Note: the components may not sum to the totals because of rounding.

* 12 schemes with funding ratios over 200 per cent (on an estimated full buy-out measure) were excluded from the simple averages to avoid distortions. All of these schemes were small, with total assets of £0.1 billion.

Figure 4.12 | Analysis of estimated full buy-out funding ratios by scheme status as at 31 March 2022

Open schemes are around 10 percentage points worse funded than closed schemes, as measured by the aggregate buy-out funding ratio.

Status	Number of schemes	Total assets (£bn)	Liabilities (£bn)	Net funding position (£bn)	Aggregate funding ratio	Simple average funding ratio*
Open	488	307.9	434.3	-126.5	70.9%	78.0%
Closed to new members	1,949	818.9	1,010.2	-191.4	81.1%	80.8%
Closed to new benefit accrual	2,604	533.0	652.7	-119.7	81.7%	79.1%
Winding up	90	7.1	8.0	-0.9	89.2%	88.7%
Total	5,131	1,666.9	2,105.3	-438.4	79.2%	79.8%

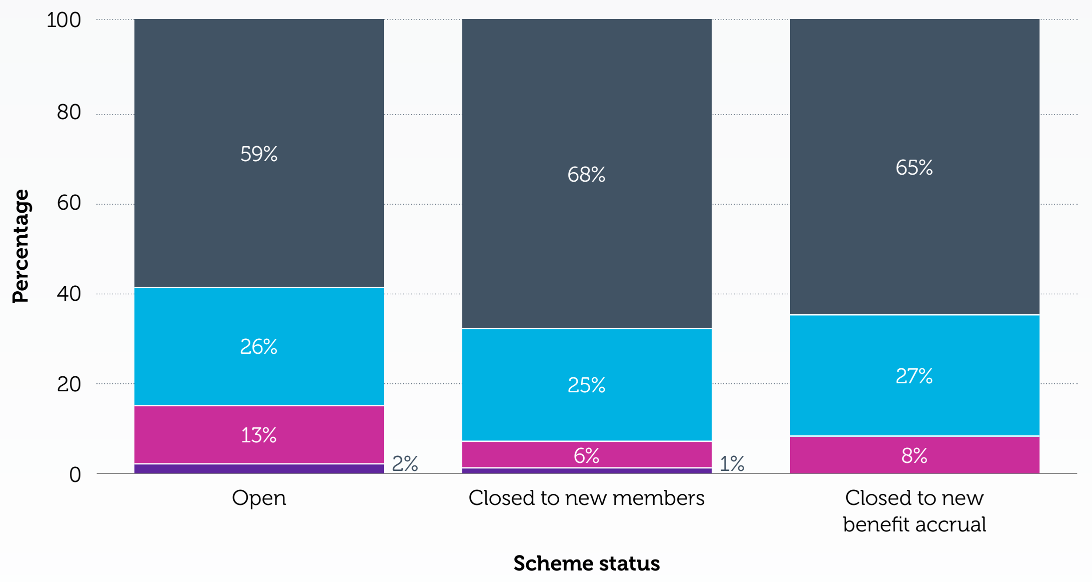
Source: PPF

Note: the components may not sum to the totals because of rounding.

* 12 schemes with funding ratios over 200 per cent (on a full buy-out measure) were excluded from the simple averages to avoid distortions. All of these schemes were small, with total assets of £0.1 billion.

Figure 4.11 | Distribution of schemes by s179 funding ratios within scheme status groups as at 31 March 2022

Although on average open schemes are less well funded than schemes of other statuses, almost 60 per cent of open schemes are more than 100 per cent funded on an s179 basis.

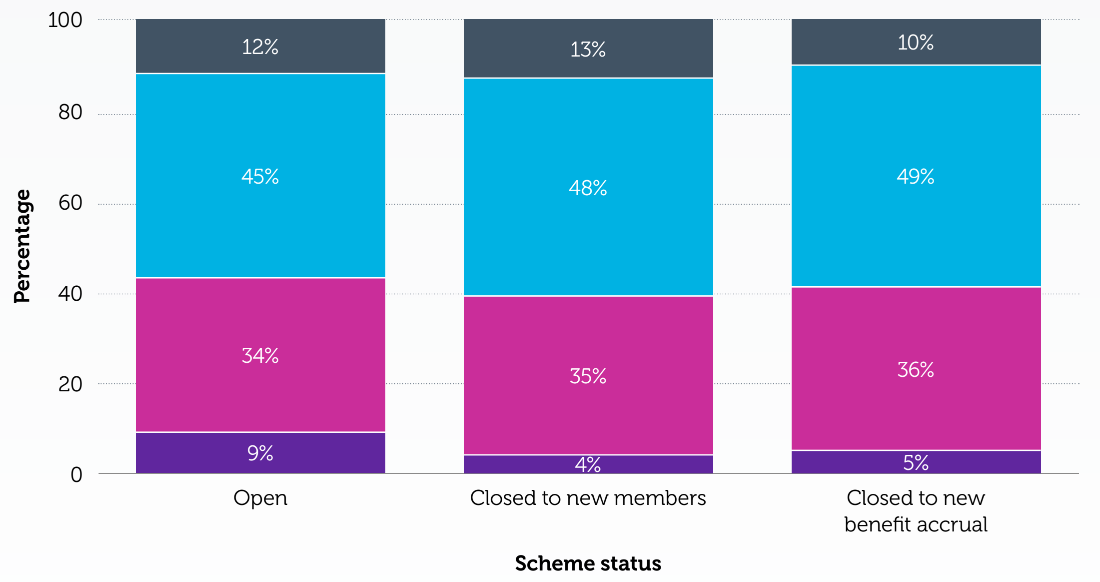


Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

Figure 4.13 | Distribution of schemes by estimated full buy-out funding ratios within scheme status groups as at 31 March 2022

The proportion of open schemes that are more than 100 per cent funded on an estimated full buy-out basis is similar to schemes of other statuses.



Source: PPF

Note: the percentages may not sum to 100 per cent because of rounding.

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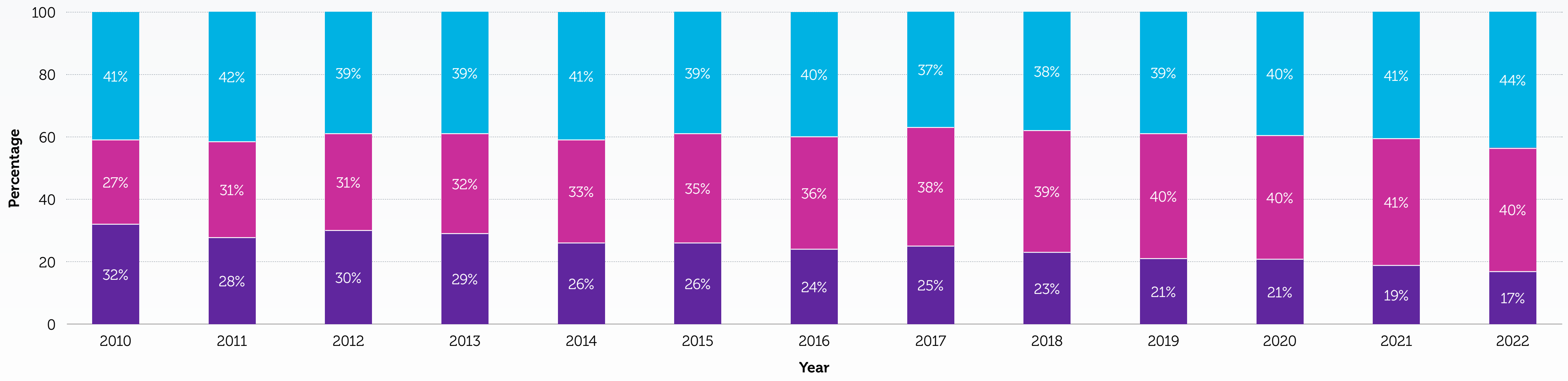
Figure 4.14 | s179 liabilities by member status in current and historical *Purple Book* datasets

The proportion of liabilities that relates to pensioners increased to 44 per cent, which is the highest proportion recorded.



Source: PPF

Note: the percentages in each column may not sum to 100 per cent because of rounding.

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Funding sensitivities

This chapter looks at factors affecting scheme funding levels, including changes in equity prices, gilt yields and life expectancy.

Summary

- This chapter shows how the funding of DB schemes and markets has changed since 2006, and how the funding of DB schemes at 31 March 2022 would change as a result of plausible changes in markets and longevity.

The following sections cover:

- The historical changes in s179 scheme funding since 2006. The series in this section take the estimated funding position at 31 March in previous years' editions of *The Purple Book*.
- Various funding sensitivities. All of these are on an s179 basis, taking the funding position as at 31 March 2022[1] as the base and using *The Purple Book 2022* dataset.

Change in s179 funding position over time

- Both the historical net funding position and funding ratio had been broadly trending downwards between March 2006 and August 2016. This trend has subsequently reversed and both measures are now higher than the levels they were at on 31 March 2006, with the net funding position reaching an all-time high of £193 billion at 31 March 2022.
- The proportion of schemes in deficit on an s179 basis reached an all-time low of 34 per cent in March 2022. This is 15 percentage points lower than the previous historical low of 49 per cent in March 2021.

Funding sensitivities as at 31 March 2022

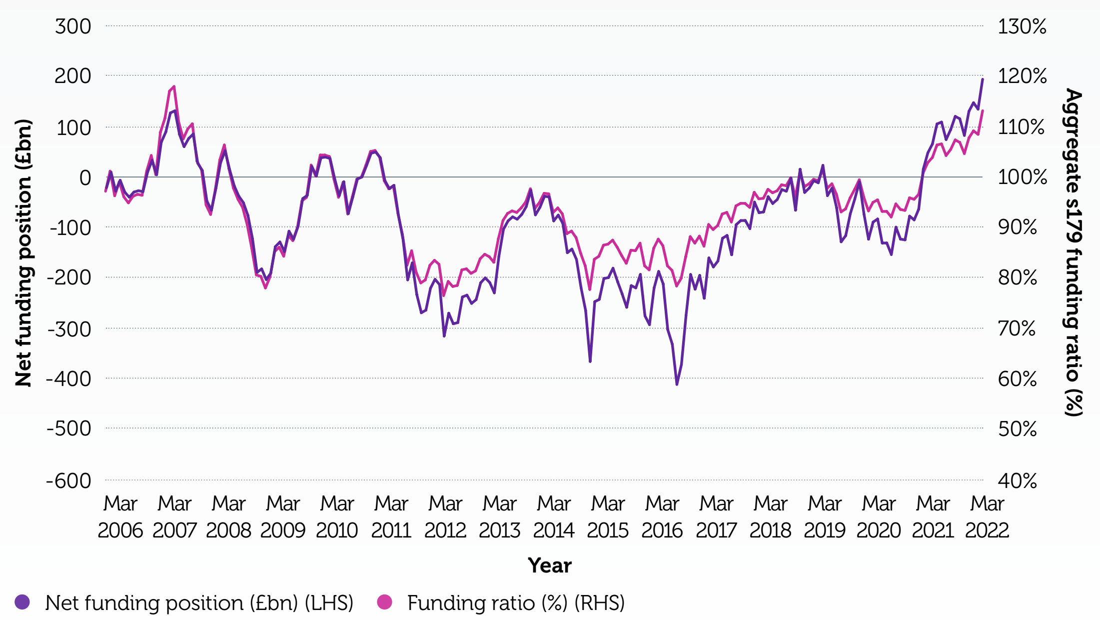
- A 0.1 percentage point (10 basis point) rise in both nominal and real gilt yields increases the 31 March 2022 net funding position by £11.1 billion from £193.0 billion to £204.1 billion. A 2.5 per cent rise in equity prices would improve the net funding position by £9.3 billion.
- A 0.1 percentage point (10 basis point) reduction in both nominal and real gilt yields raises aggregate scheme liabilities by 1.7 per cent and raises aggregate scheme assets by 0.9 per cent. A 2.5 per cent increase in equity markets increases scheme assets by 0.6 per cent.
- If individuals live two years longer than expected, s179 liabilities would increase by £110.9 billion, or 7.5 per cent.

Historical changes in s179 scheme funding since 2006

The estimated funding position of the universe of schemes can change over time owing to a number of factors including financial markets, actuarial assumptions, the decline in the number of DB schemes, and sponsoring employers' special contributions. The historical series in this section take the estimated funding position at 31 March from previous editions of *The Purple Book*. The monthly profiles between end-March of one year and end-February of the next are obtained by rolling forward the assets and liabilities using movements in nominal and real gilt yields and equity markets.

Figure 5.1 | Historical s179 aggregate funding ratio and net funding position of pension schemes in *The Purple Book* datasets

The net funding position has reached a record high of £193 billion while the aggregate s179 funding ratio is close to the highest historical level.



Source: PPF

> The net funding position of schemes reached an all time high of £193 billion at 31 March 2022.

1 Using the valuation guidance as in Chapter 4. For more information, see the PPF website.

Funding sensitivities continued

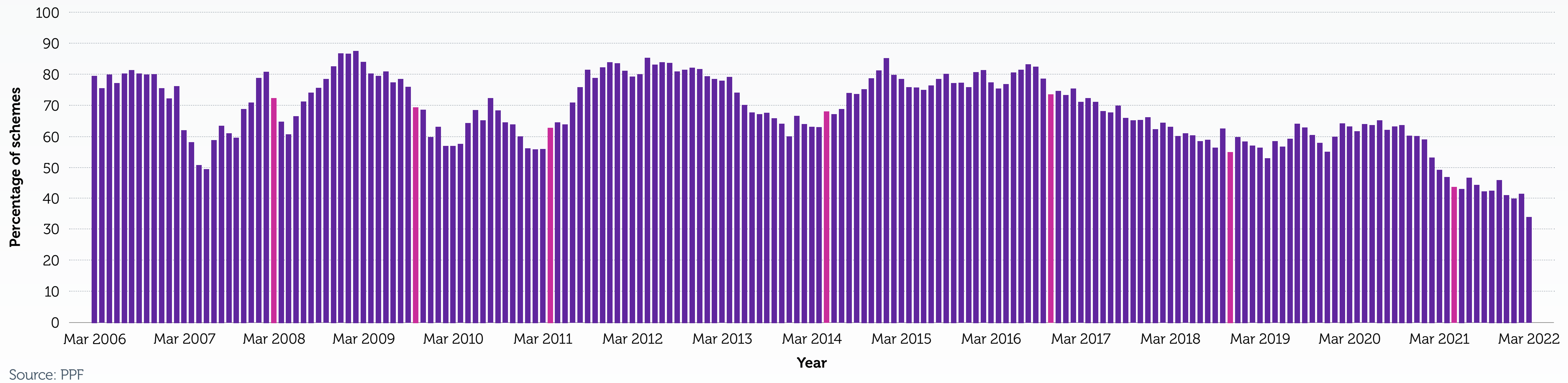
Figure 5.2 | Historical movements in assets and s179 liabilities of schemes in *The Purple Book* datasets

Liabilities have fallen significantly by £317 billion over the last two years, although prior to this there had been a general upward trend since 2006.

Source: PPF

Figure 5.4 | Historical percentage of schemes in deficit each month in *The Purple Book* datasets

In March 2022, the percentage of schemes in deficit reached an all-time low of 34 per cent, which is 15 percentage points lower than the previous all-time low of 49 per cent last year.

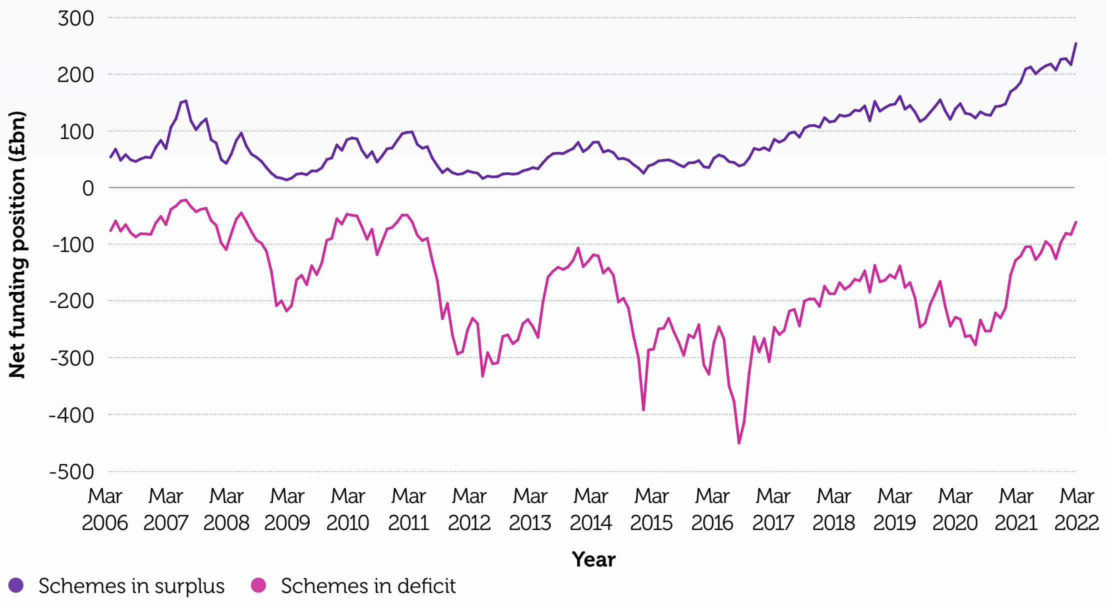


Source: PPF

The pink lines indicate months in which changes were made to the assumptions used to value schemes on an s179 measure. The changes to assumptions in March 2008 and October 2009 reduced the number of schemes in deficit by 412 and 566 respectively, while the changes to assumptions in April 2011 and May 2014 raised the number of schemes in deficit by 107 and 259 respectively. The changes to assumptions in November 2016, November 2018 and May 2021 reduced the number of schemes in deficit by 157, 437 and 210 respectively.

Figure 5.3 | Historical aggregate funding position for schemes in deficit and surplus

The deficit of schemes in deficit was at its largest in August 2016 at £451 billion. At 31 March 2022 this deficit was £61 billion, down £67 billion from the £128 billion experienced at 31 March 2021.

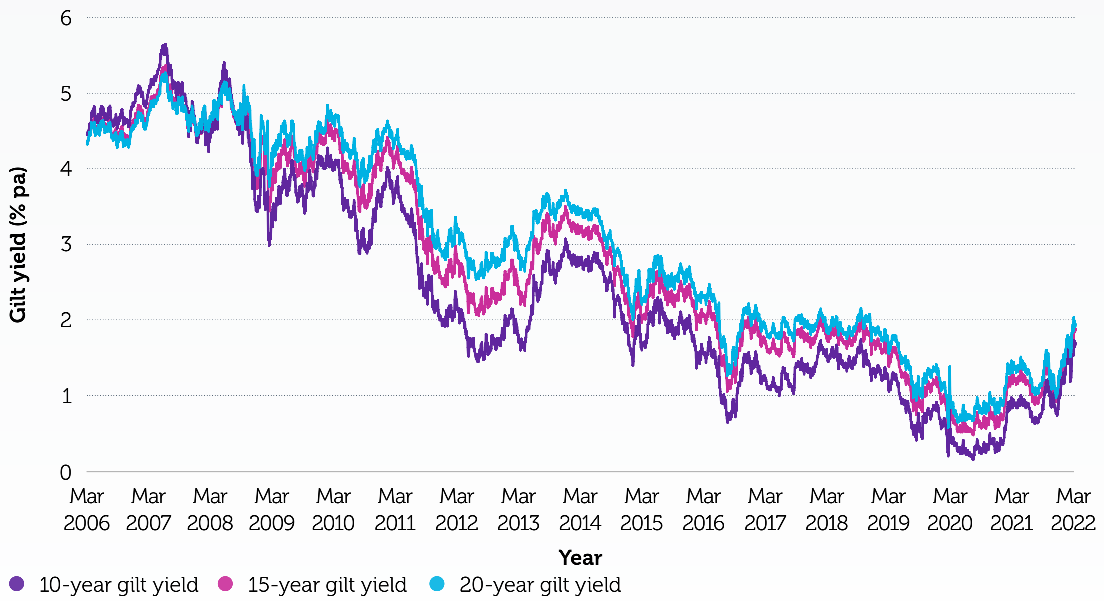


Source: PPF

The funding position of schemes in surplus has been more stable over time than the funding position of schemes in deficit.

Figure 5.5 | Movements in gilt yields

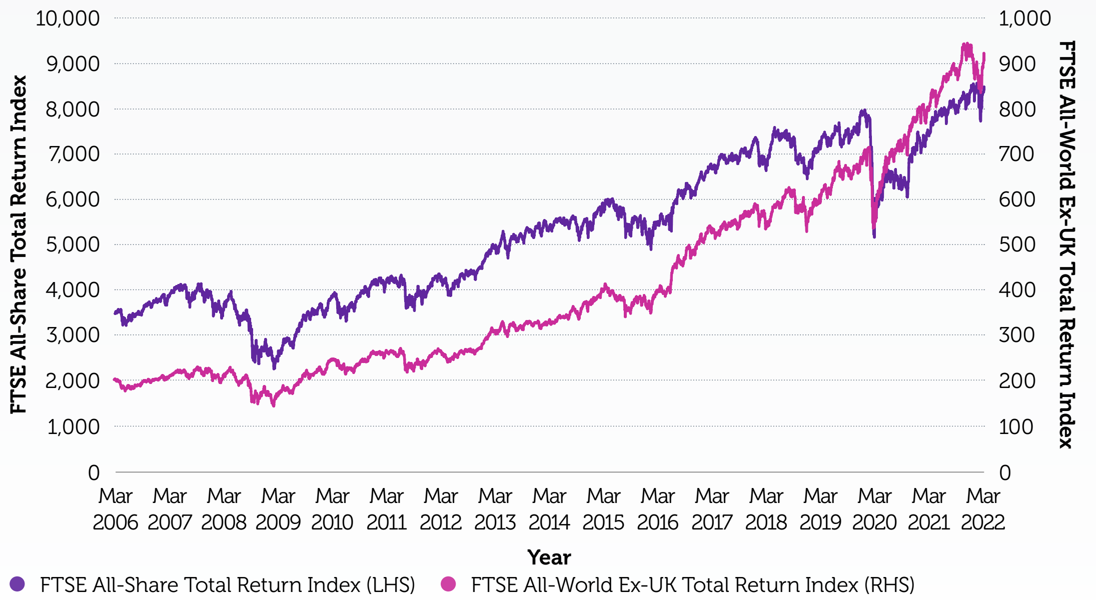
Gilt yields have increased since their all-time lows in March 2020.



Source: Bloomberg

Figure 5.6 | Movements in equity indices

The FTSE All-Share and All-World Ex-UK Total Return Indices have recovered from their sharp declines in March 2020 and have reached historical highs over the last year.



Source: Bloomberg

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Funding sensitivities continued

Funding sensitivities: rules of thumb

Funding ratios are sensitive to movements in financial markets, with equity and gilt prices in particular having a major impact upon scheme assets, and gilt yields affecting liability values. This section shows the effect on scheme funding positions of changes in equity and gilt markets. The impact of a change of a 7.5 per cent rise in equity prices and a 0.3 percentage point increase in gilt yields have been accurately calculated and then the rest of the results have been calculated by pro-rating these two impacts.

The sensitivities do not take into account the use of derivative instruments to hedge changes in interest rates, inflation, equity levels or life expectancy.

Figure 5.7 | Impact of changes in gilt yields and equity prices on s179 funding positions from a base net funding position of £193.0 billion as at 31 March 2022

Small changes in gilt yields have a slightly larger impact on s179 funding positions than small changes in equity prices.

Assets less s179 liabilities (£bn)							
Movement in equity prices	Movement in gilt yields						
	-0.3pp	-0.2pp	-0.1pp	0.0pp	0.1pp	0.2pp	0.3pp
7.5%	188.3	199.0	209.7	220.7	231.8	243.0	254.4
5.0%	179.1	189.7	200.5	211.5	222.6	233.8	245.2
2.5%	169.9	180.5	191.3	202.3	213.4	224.6	236.0
0.0%	160.7	171.3	182.1	**193.0**	204.1	215.4	226.8
-2.5%	151.5	162.1	172.9	183.8	194.9	206.2	217.6
-5.0%	142.3	152.9	163.7	174.6	185.7	197.0	208.4
-7.5%	133.0	143.7	154.5	165.4	176.5	187.7	199.1

Source: PPF

A 0.1 percentage point rise in both nominal and real gilt yields would have improved the end-March 2022 s179 net funding position by £11.1 billion from £193.0 billion (bold) to £204.1 billion (shaded). That's more than the £9.3 billion impact of a 2.5 per cent increase in equity prices (shaded).

Figure 5.8 | Impact of changes in gilt yields and equity prices on assets from a base of 100 as at 31 March 2022

Small changes in gilt yields have a slightly larger impact on assets than small changes in equity prices.

Assets relative to a base of 100							
Movement in equity prices	Movement in gilt yields						
	-0.3pp	-0.2pp	-0.1pp	0.0pp	0.1pp	0.2pp	0.3pp
7.5%	104.3	103.4	102.5	101.7	100.8	99.9	99.1
5.0%	103.8	102.9	102.0	101.1	100.2	99.4	98.5
2.5%	103.2	102.3	101.4	100.6	99.7	98.8	98.0
0.0%	102.7	101.8	100.9	**100.0**	99.1	98.3	97.4
-2.5%	102.1	101.2	100.3	99.4	98.6	97.7	96.9
-5.0%	101.6	100.7	99.8	98.9	98.0	97.2	96.3
-7.5%	101.0	100.1	99.2	98.3	97.5	96.6	95.8

Source: PPF

A 2.5 per cent increase in equity prices would raise scheme assets by 0.6 per cent (shaded). A 0.3 percentage point decrease in gilt yields would increase scheme assets by 2.7 per cent (shaded).

Figure 5.9 | Impact of changes in gilt yields on s179 liabilities as at 31 March 2022

A 0.1 percentage point movement in gilt yields would impact s179 liabilities by 1.7 per cent.

Impact on s179 liabilities						
	Movement in both nominal and real gilt yields					
	-0.3pp	-0.2pp	-0.1pp	0.1pp	0.2pp	0.3pp
Percentage change	5.2%	3.5%	1.7%	-1.7%	-3.5%	-5.2%

Source: PPF

Figure 5.10 | Impact of changes in nominal or real gilt yields on s179 liabilities as at 31 March 2022 (base = £1,473.9 billion)

As at 31 March 2022, the s179 liabilities were almost three times as sensitive to changes in nominal yields as to changes in real yields.

Impact on s179 liabilities				
	Change in nominal yields		Change in real yields	
	-0.1pp	0.1pp	-0.1pp	0.1pp
£ billions	1,493.6	1,454.2	1,480.6	1,467.2
Percentage change	1.3%	-1.3%	0.5%	-0.5%

Source: PPF

Note: s179 liabilities are assessed using a combination of various nominal and real gilt yields. Whereas figure 5.9 shows the impact of universal stresses across both nominal and real yields, figure 5.10 stresses the nominal and real gilt yields separately.

Figure 5.11 | Impact of changes in life expectancy assumptions on s179 liabilities as at 31 March 2022 (base = £1,473.9 billion)

If individuals live two years longer than expected, s179 liabilities would increase by around £111 billion, or 7.5 per cent. Conversely, if individuals live two years shorter than expected, s179 liabilities would decrease by around £109 billion, or 7.4 per cent.

	s179 liabilities (£bn)	% change from base
Age rating +2 years	1,364.8	-7.4%
Age rating -2 years	1,584.8	7.5%

Source: PPF

Note: the impact of increased length of life has been approximated by age rating down by two years – that is, replacing the life expectancy assumptions for each individual by an individual currently two years younger.

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06

Insolvency risk

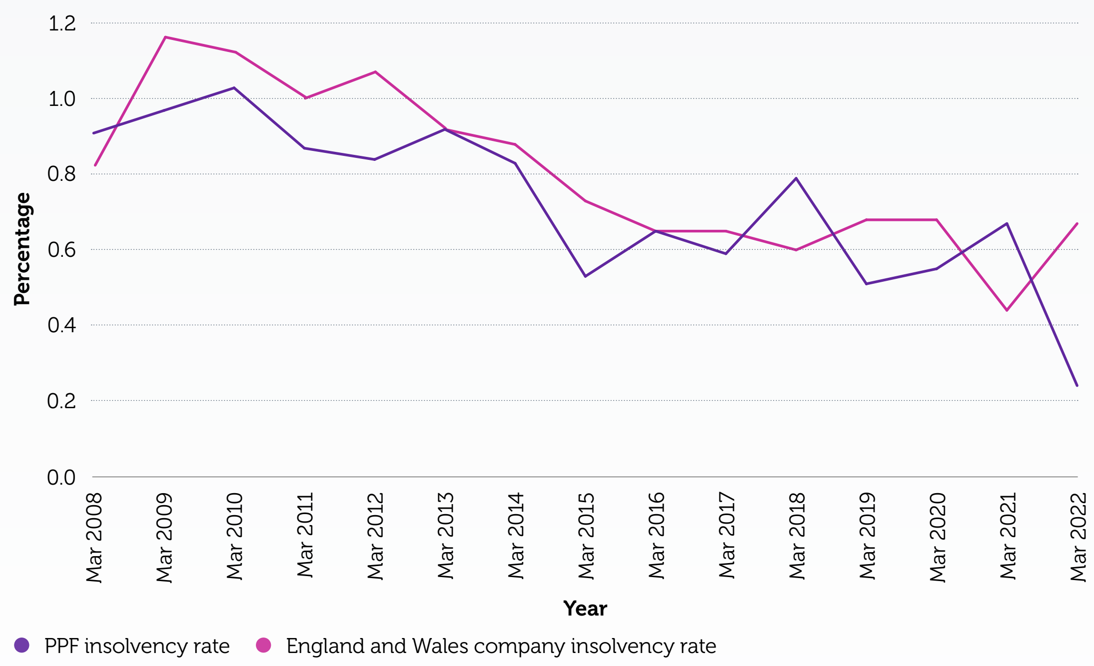
This chapter looks at the rate of insolvencies in DB scheme sponsors, compared to the overall company insolvency rate in England and Wales, and insolvencies by scheme size.

Summary

- This chapter shows the annual insolvency rate for employers in the PPF universe and companies in England and Wales. It also shows the number of England and Wales company insolvencies compared with the rate of UK real GDP growth. Finally, it shows a proxy for insolvency risk over the next year, for different scheme sizes.
- The average insolvency rate in the PPF universe has decreased by 0.43 percentage points to 0.24 per cent at 31 March 2022.
- Conversely, the average annual insolvency rate of companies in England and Wales increased by 0.23 percentage points to 0.67 per cent at 31 March 2022. This was caused by an increase of 49 per cent in the number of company insolvencies observed in England and Wales each year.
- UK real GDP growth was 8.7 per cent in Q1 2022, up from -5 per cent in Q1 2021.
- In aggregate, larger schemes tend to have a lower insolvency risk than those with fewer members.

Figure 6.1 | Annual insolvency rates*

The rate of insolvencies for the PPF universe fell to a historical low of 0.24 per cent. However, the rate of insolvencies in England and Wales increased to 0.67 per cent, which is similar to rates observed between 31 March 2015 and 31 March 2020.

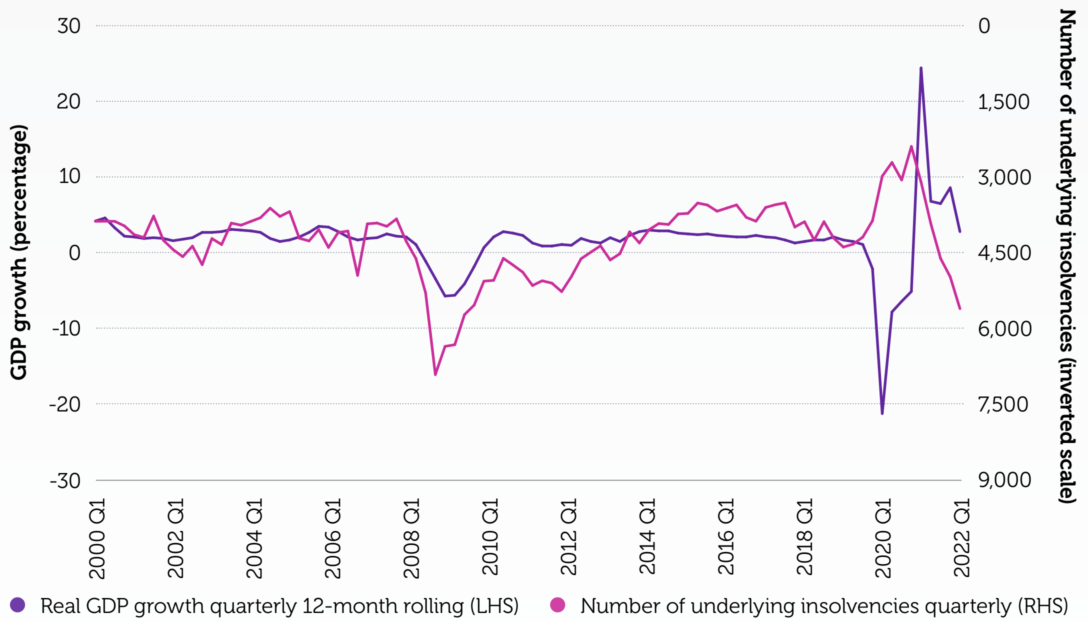


Source: PPF, Office for National Statistics (ONS)

* The England and Wales company insolvency rate has been calculated based on the 2.5 million companies in England and Wales that are VAT/PAYE registered with HMRC. Insolvencies in England and Wales account for around 95 per cent of UK insolvencies. In comparison, there are around 13,500 companies in the PPF universe, or around 12,000 if companies that participate in multiple schemes are only counted once.

Figure 6.2 | England and Wales underlying company insolvencies (seasonally adjusted)

The number of insolvencies in England and Wales increased by 49 per cent in the year to 31 March 2022 compared with the year to 31 March 2021. UK real GDP has risen by 13.7 percentage points over the same period.

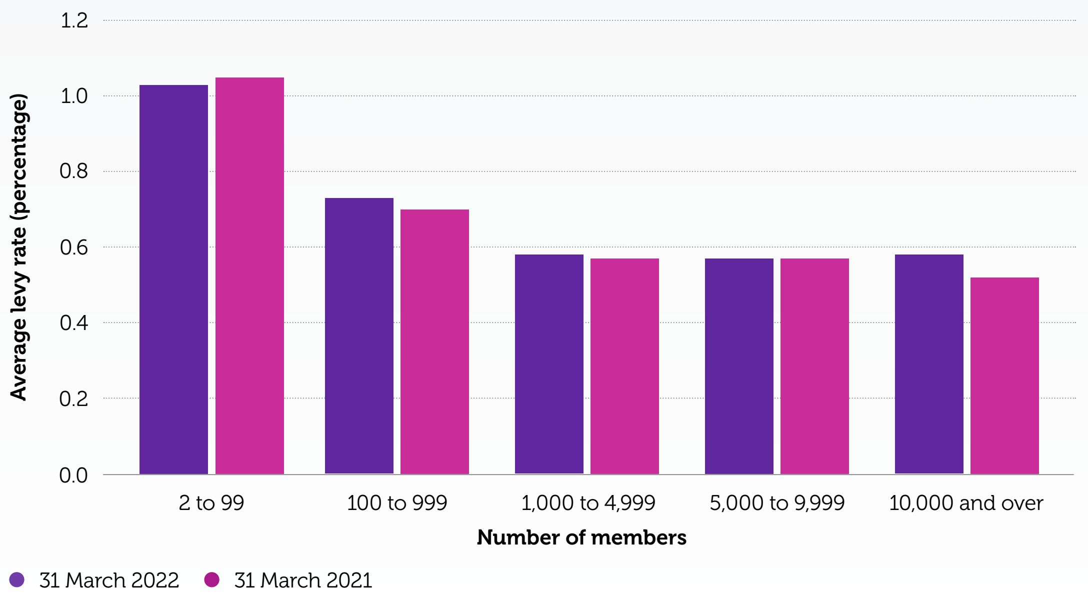


Note: as the ONS and UK Insolvency Service revise their methodology and receive new data, the figures for previous time periods may be updated.

Source: ONS and the UK Insolvency Service

Figure 6.3 | Average levy rates of sponsoring companies by scheme membership size*

Schemes with the fewest members tend to have sponsors with higher insolvency probabilities.



* Schemes' risk-based levy rates, as used in calculating the PPF levy, have been used as a proxy for the insolvency probabilities.

Source: PPF

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07

Asset allocation

This chapter looks at trends in the types of assets DB schemes invest in.

Summary

- This chapter contains information on how DB schemes have invested scheme assets since 2006 and how asset allocations in *The Purple Book 2022* dataset vary according to different scheme characteristics, such as scheme size.
- Around 99 per cent of schemes' asset allocations in *The Purple Book 2022* dataset were at a date in 2020 or 2021.
- The aggregate proportion of schemes' assets invested in equities rose slightly from 19.0 per cent to 19.5 per cent while the proportion in bonds fell slightly from 72.0 per cent to 71.6 per cent.
- Within bonds, the proportions held were broadly unchanged from last year with index-linked bonds making up the biggest proportion at 47.8 per cent. Corporate bonds accounted for 30.2 per cent of the bonds held and government fixed interest bonds contributed 22.0 per cent of the total.
- Smaller schemes tend to have higher proportions in government and corporate fixed interest bonds than larger schemes.
- Within equities, the UK-quoted proportion fell below 10 per cent for the first time and fell from 11.6 per cent to 9.9 per cent. The proportion of overseas-quoted equities increased slightly from 68.3 per cent to 68.6 per cent, while unquoted/private equities increased from 20.1 per cent to 21.5 per cent.
- Smaller schemes tend to hold higher proportions in UK equities with smaller proportions in both overseas and unquoted/private equities.
- The majority of total assets are invested in equities and bonds and the proportion does not vary greatly by funding ratio.
- As scheme maturity increases, the proportion of assets invested in equities falls.

Asset data[1]

Figure 7.1 | Distribution of schemes by asset allocation date*

Around 99 per cent of schemes provided an asset allocation with an effective date in 2020 or 2021.

Asset allocation year	Number of schemes	Percentage of *The Purple Book 2022* dataset
2017 or earlier	6	0.1%
2018	12	0.2%
2019	47	0.9%
2020	1,739	33.9%
2021	3,318	64.7%
2022	9	0.2%
Total	**5,131**	**100%**

Source: PPF

* There can be a significant gap between the date of the scheme return and the date at which the asset allocation was taken. This means that the date at which asset allocation data is provided differs from scheme to scheme.

1 Asset allocations submitted by schemes are not adjusted for market movements. Most of this chapter uses weighted average asset allocations. For example, the weighted average share of equities is the total amount of equities across all schemes divided by the total amount of assets across all schemes. The simple average takes the arithmetic average of each scheme's proportion of its assets held in equities.

Asset allocation continued

Figure 7.2 | Weighted average asset allocation in total assets

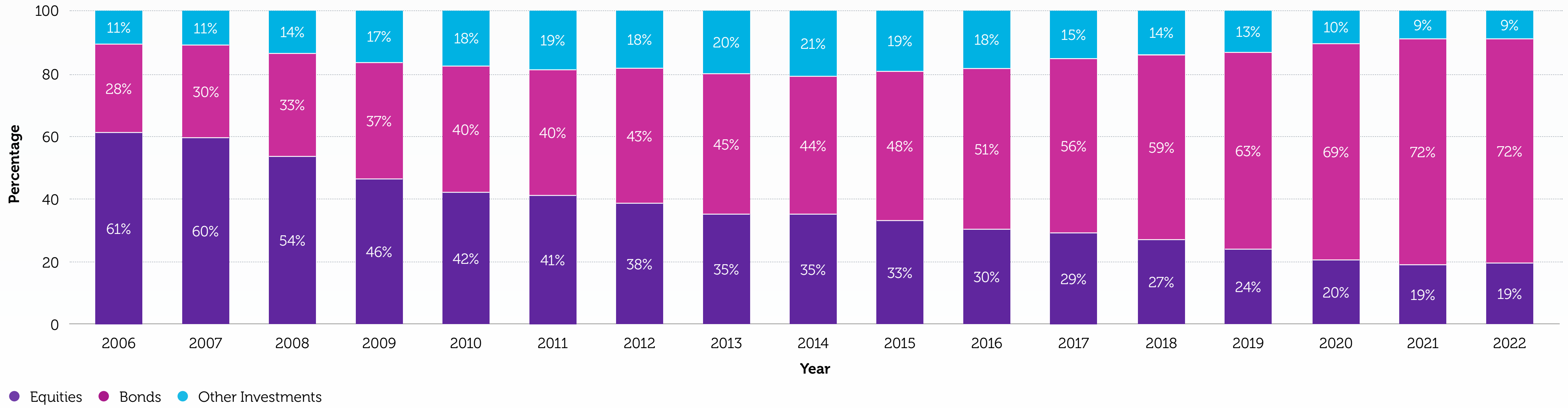
The proportions of assets invested in equities and bonds have been broadly stable since 31 March 2020.

	Asset class								
				Breakdown of other investments					
Year/*The Purple Book* dataset	Equities	Bonds	Other investments	Property	Cash and deposits	Insurance policies	Hedge funds*	Annuities*	Miscellaneous
2006	61.1%	28.3%	10.6%	4.3%	2.3%	0.9%	n/a	n/a	3.1%
2007	59.5%	29.6%	10.9%	5.2%	2.3%	0.8%	n/a	n/a	2.5%
2008	53.6%	32.9%	13.5%	5.6%	3.0%	1.1%	n/a	n/a	3.8%
2009	46.4%	37.1%	16.5%	5.2%	3.9%	1.4%	1.5%	n/a	4.5%
2010	42.0%	40.4%	17.6%	4.6%	3.9%	1.4%	2.2%	n/a	5.4%
2011	41.1%	40.1%	18.8%	4.4%	4.1%	1.6%	2.4%	n/a	6.3%
2012	38.5%	43.2%	18.3%	4.9%	5.1%	0.2%	4.5%	n/a	3.6%
2013	35.1%	44.8%	20.1%	4.7%	6.7%	0.1%	5.2%	n/a	3.5%
2014	35.0%	44.1%	20.9%	4.6%	6.1%	0.1%	5.8%	n/a	4.3%
2015	33.0%	47.7%	19.3%	4.9%	3.5%	0.1%	6.1%	n/a	4.7%
2016	30.3%	51.3%	18.4%	4.8%	3.0%	0.1%	6.6%	2.1%	1.7%
2017	29.0%	55.7%	15.3%	5.3%	-0.9%	0.1%	6.7%	3.3%	0.8%
2018	27.0%	59.0%	14.0%	4.8%	-2.5%	0.1%	7.0%	3.4%	1.2%
2019	24.0%	62.8%	13.2%	5.0%	-4.4%	0.3%	7.4%	4.0%	1.0%
2020	20.4%	69.2%	10.4%	4.9%	-7.2%	0.1%	6.8%	5.0%	0.8%
2021	19.0%	72.0%	9.1%	4.7%	-9.5%	0.1%	6.1%	6.6%	0.9%
2022	19.5%	71.6%	8.9%	4.6%	-8.8%	0.1%	5.2%	6.8%	1.0%

The weighted average proportion of assets held in cash and deposits being negative represents a number of large schemes with significant negative cash holdings which are likely to be related to investments such as swaps and repurchase agreements.

* n/a denotes not available, where schemes may have been invested in these asset classes but the percentages cannot be determined from the data held.

Note: figures may not sum to 100 per cent or the 'Other investments' total due to rounding.



Note: figures may not sum to 100 per cent or the 'Other investments' total due to rounding.

Source: PPF

Asset allocation continued

Figure 7.3 | Asset allocation: simple averages

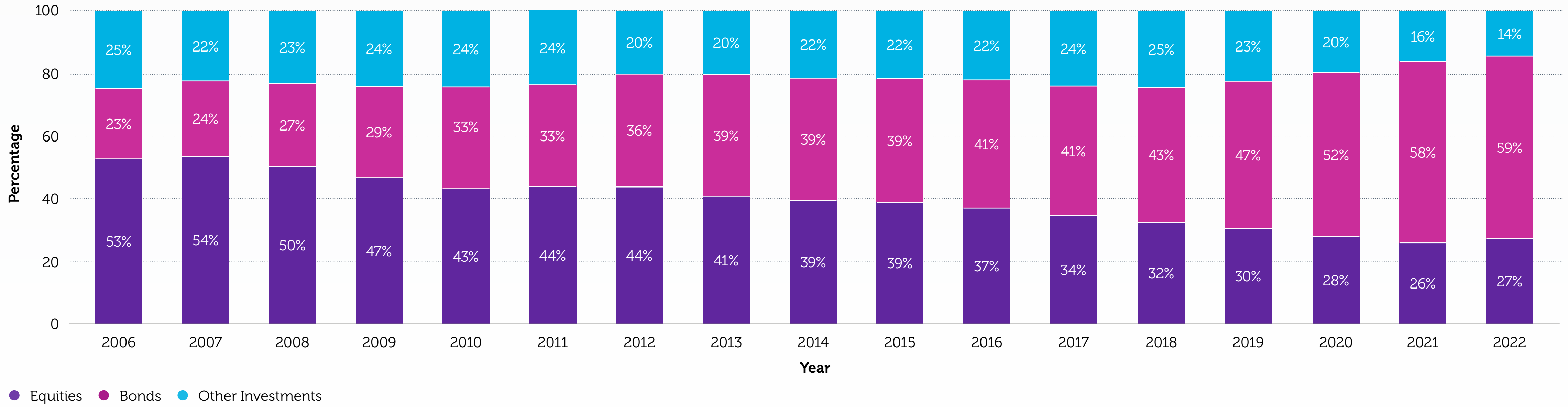
A comparison of simple and weighted averages in 2022 shows there is greater weighted allocations to bonds and a smaller allocation to other investments. This reflects the fact that the larger schemes hold a greater proportion of bonds than smaller schemes.

	Asset class								
				Breakdown of other investments					
Year/*The Purple Book* dataset	Equities	Bonds	Other investments	Property	Cash and deposits	Insurance policies	Hedge funds*	Annuities*	Miscellaneous
2006	52.6%	22.6%	24.8%	2.1%	3.9%	14.9%	n/a	n/a	3.6%
2007	53.5%	24.0%	22.5%	2.5%	3.7%	13.7%	n/a	n/a	2.6%
2008	50.2%	26.5%	23.3%	2.9%	4.4%	13.0%	n/a	n/a	2.9%
2009	46.6%	29.2%	24.2%	2.8%	5.6%	12.4%	0.7%	n/a	2.6%
2010	43.1%	32.6%	24.3%	2.6%	5.7%	12.3%	0.9%	n/a	2.8%
2011	43.7%	32.6%	23.7%	2.7%	4.9%	11.8%	1.0%	n/a	3.3%
2012	43.7%	36.1%	20.2%	3.5%	5.5%	4.4%	3.7%	n/a	3.2%
2013	40.6%	39.1%	20.3%	3.6%	6.2%	2.0%	5.0%	n/a	3.5%
2014	39.4%	39.0%	21.6%	3.5%	6.4%	1.8%	6.2%	n/a	3.9%
2015	38.8%	39.4%	21.8%	3.6%	5.7%	1.7%	7.3%	n/a	3.7%
2016	36.8%	41.1%	22.1%	3.7%	5.4%	1.2%	7.9%	2.4%	1.5%
2017	34.5%	41.4%	24.1%	3.7%	3.6%	0.7%	7.9%	6.8%	1.3%
2018	32.4%	43.1%	24.5%	3.3%	1.8%	0.6%	8.5%	8.9%	1.4%
2019	30.4%	47.0%	22.7%	3.4%	-0.8%	0.5%	8.9%	9.4%	1.3%
2020	27.8%	52.3%	19.9%	3.4%	-3.2%	0.6%	7.9%	9.7%	1.7%
2021	25.8%	58.0%	16.3%	3.2%	-6.6%	0.6%	6.9%	10.6%	1.7%
2022	27.1%	58.5%	14.4%	3.0%	-7.5%	0.6%	6.0%	10.7%	1.6%

The simple average proportion of assets held in cash and deposits being negative represents schemes with negative cash holdings which are likely to be related to investments such as swaps and repurchase agreements.

* n/a denotes not available, where schemes may have been invested in these asset classes but the percentages cannot be determined from the data held.

Note: figures may not sum to 100 per cent or the 'Other investments' total due to rounding.



Note: figures may not sum to 100 per cent or the 'Other investments' total due to rounding.

Source: PPF

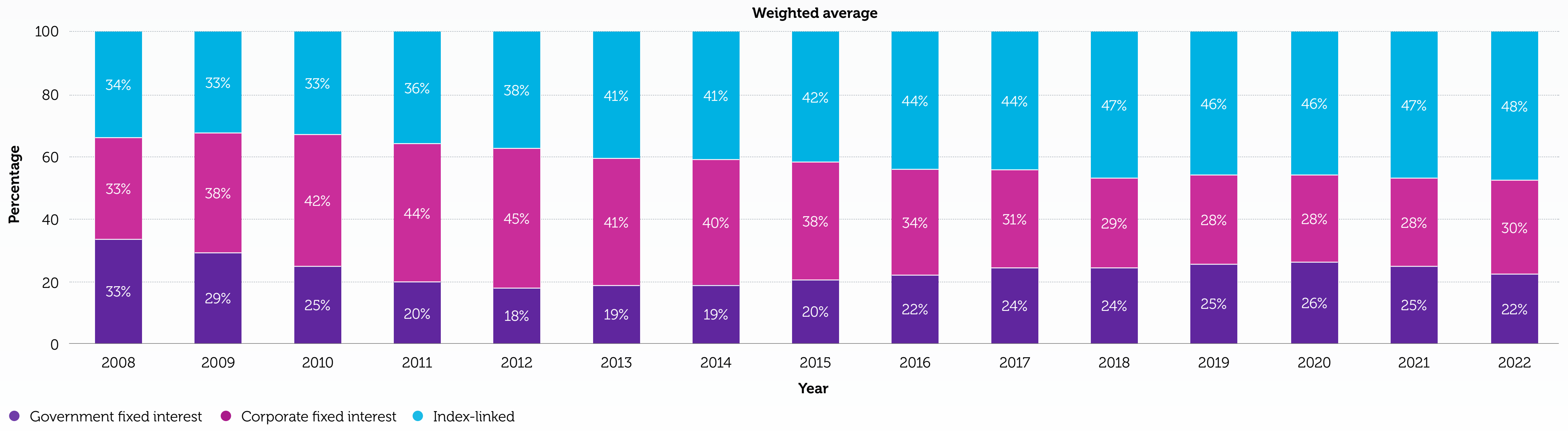
Asset allocation continued

Figure 7.4 | Bond splits

The proportion of bonds in each class has remained broadly unchanged in recent years.

Year/*The Purple Book* dataset	Bonds					
	Weighted average			Simple average		
	Government fixed interest	Corporate fixed interest	Index-linked	Government fixed interest	Corporate fixed interest	Index-linked
2008	33.2%	32.6%	33.9%	47.2%	33.0%	19.8%
2009	29.0%	38.3%	32.6%	45.6%	37.3%	17.1%
2010	24.6%	42.2%	33.1%	37.3%	43.0%	19.8%
2011	19.6%	44.3%	36.1%	31.2%	47.1%	21.7%
2012	17.7%	44.8%	37.5%	28.2%	49.4%	22.4%
2013	18.5%	40.6%	40.9%	27.0%	49.6%	23.4%
2014	18.6%	40.3%	41.1%	23.8%	51.9%	24.4%
2015	20.3%	37.7%	42.0%	23.8%	51.2%	25.0%
2016	21.9%	33.7%	44.4%	24.4%	49.0%	26.6%
2017	24.1%	31.4%	44.5%	25.9%	46.8%	27.3%
2018	24.1%	28.8%	47.1%	27.2%	42.1%	30.8%
2019	25.4%	28.4%	46.2%	29.0%	38.9%	32.1%
2020	25.9%	28.0%	46.1%	29.4%	36.1%	34.6%
2021	24.6%	28.2%	47.2%	30.4%	34.8%	34.8%
2022	22.0%	30.2%	47.8%	30.2%	35.7%	34.1%

Note: the rows may not sum to 100 per cent due to rounding.



Source: PPF

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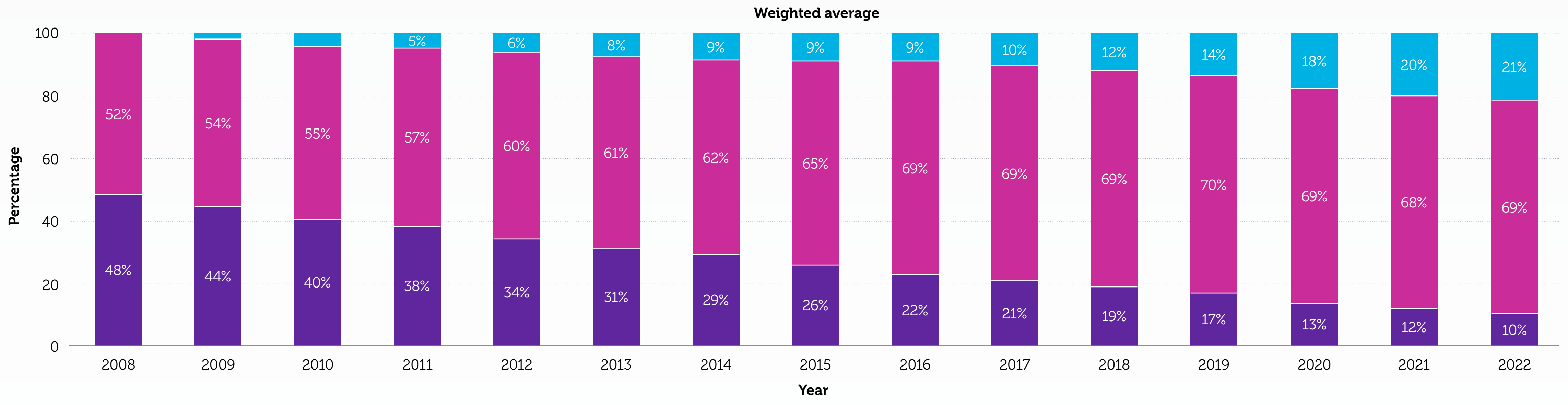
Figure 7.5 | Equity splits

Within equities, the proportion invested in UK equities continued to fall and is below 10 per cent for the first time, while the proportion invested in private equities continued to rise.

	Equities					
	Weighted average			Simple average		
Year/*The Purple Book* dataset	UK quoted	Overseas quoted	Unquoted/ Private	UK quoted	Overseas quoted	Unquoted/ Private
2008	48.2%	51.8%	n/a	60.4%	39.6%	n/a
2009	44.2%	53.8%	1.9%	57.6%	41.7%	0.7%
2010	40.1%	55.3%	4.4%	55.3%	43.7%	1.0%
2011	38.0%	57.2%	4.8%	52.7%	46.1%	1.2%
2012	33.9%	60.0%	6.1%	49.9%	48.5%	1.7%
2013	31.0%	61.3%	7.7%	47.5%	50.3%	2.2%
2014	28.9%	62.4%	8.7%	44.9%	52.7%	2.4%
2015	25.6%	65.4%	9.0%	42.2%	55.3%	2.5%
2016	22.4%	68.6%	9.0%	38.8%	58.6%	2.6%
2017	20.5%	69.0%	10.5%	36.3%	61.0%	2.7%
2018	18.6%	69.4%	12.0%	32.1%	65.0%	3.0%
2019	16.6%	69.7%	13.7%	29.6%	66.7%	3.7%
2020	13.3%	69.0%	17.7%	26.9%	68.4%	4.8%
2021	11.6%	68.3%	20.1%	24.9%	69.4%	5.8%
2022	9.9%	68.6%	21.5%	22.5%	70.9%	6.6%

Note: the rows may not sum to 100 per cent due to rounding.



Note: figures may not sum to 100 per cent or the 'Other Investments' total due to rounding.

Source: PPF

Figure 7.6 | Weighted average asset allocation of schemes by asset size

The proportion of assets held in bonds tends to increase with scheme asset size, while equities display the opposite relationship.

Source: PPF

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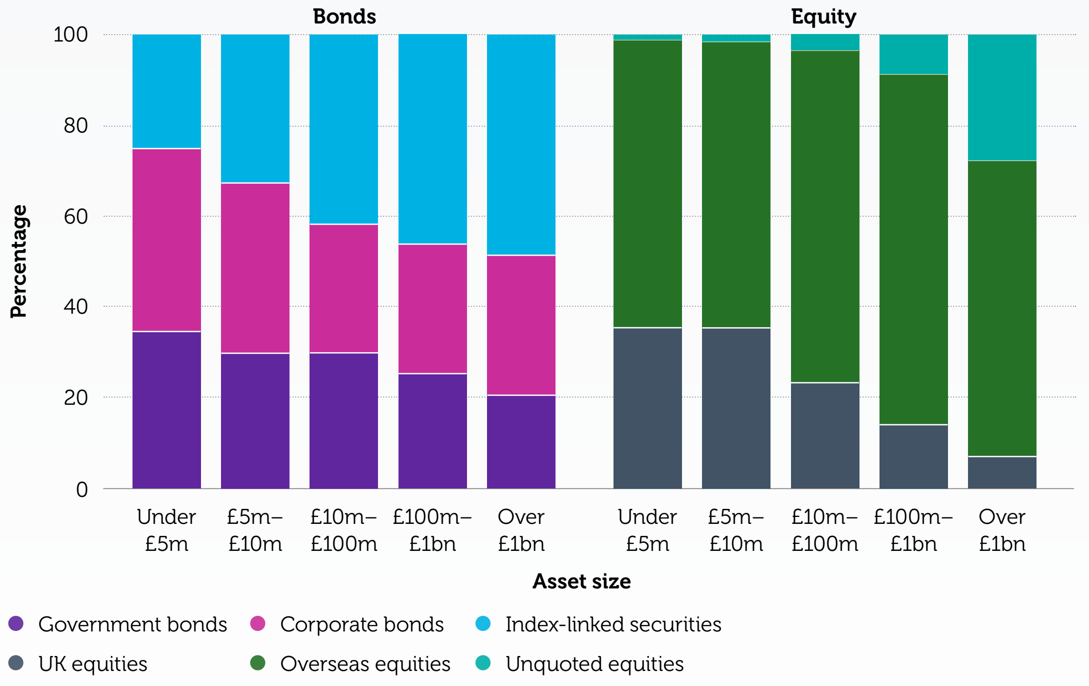
Figure 7.7 | Weighted averages of equity and bond holdings split by asset size

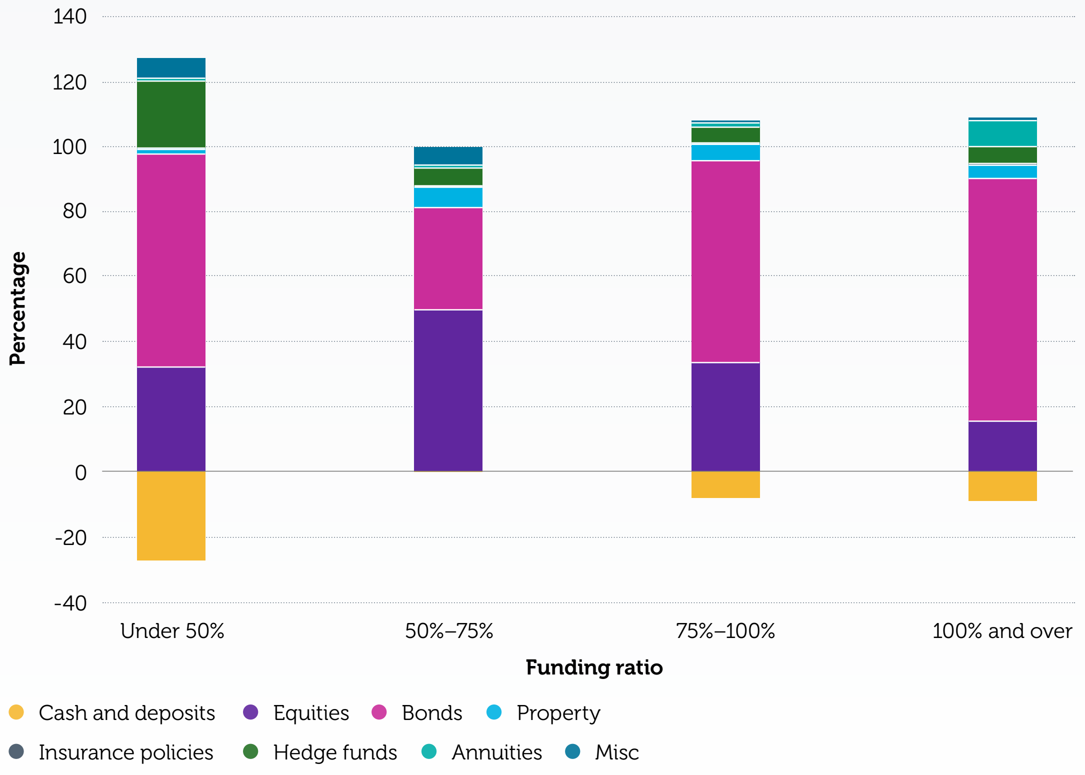
Larger schemes tend to hold a higher proportion of overseas and private/unquoted equities within their equity portfolio, and a higher proportion of index-linked bonds in their bond portfolio.



Source: PPF

Figure 7.8 | Weighted average asset allocation by s179 funding ratio

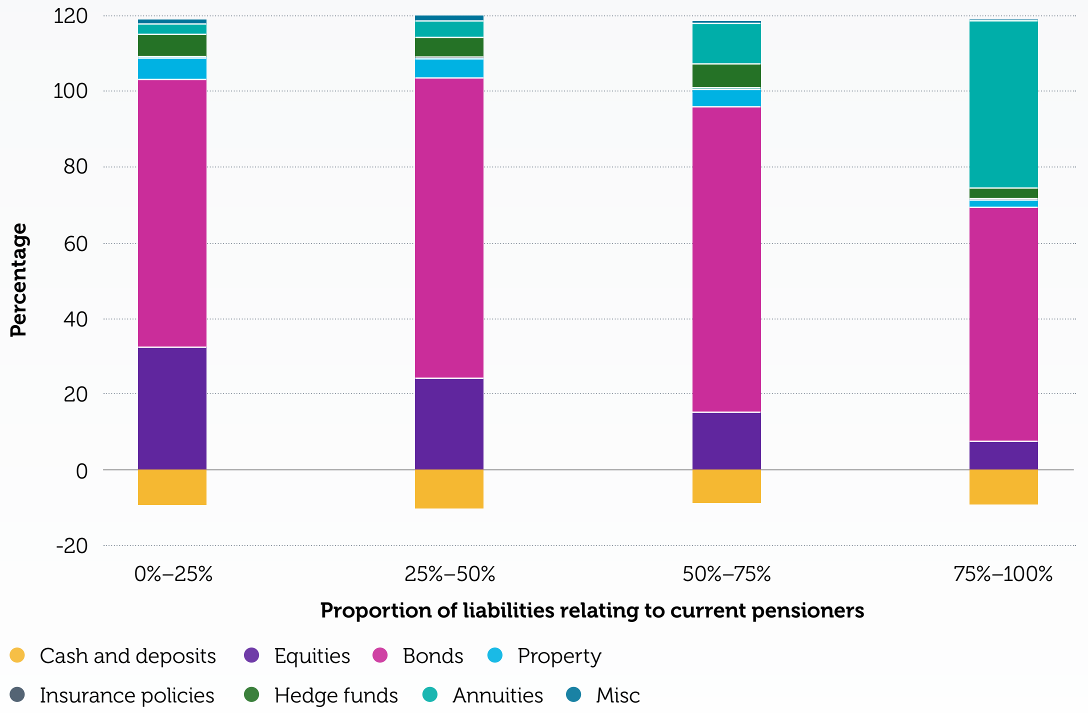
The majority of scheme assets are invested in equities and bonds for all funding ratio groups.



Source: PPF

Figure 7.9 | Weighted average asset allocation of schemes by scheme maturity

As scheme maturity increases, the proportion of equities falls.



Source: PPF

Note: the heavy concentration in 'Annuities' for mature schemes is explained by one large scheme with a heavy concentration in annuity policies.

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Risk reduction

This chapter looks at the measures that schemes have taken to reduce their funding risk, which will also act to reduce the risk of schemes claiming on the PPF. These actions may also help schemes to reduce the amount of PPF levy they pay.

Summary

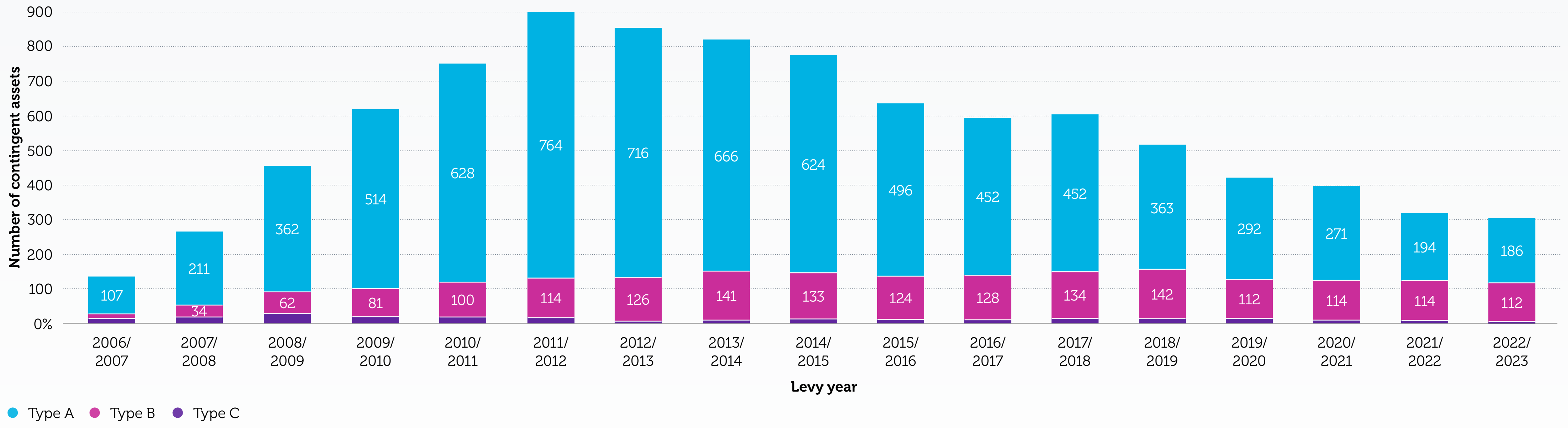
- This chapter contains information on the risk reduction measures DB schemes have put in place or undertaken, including contingent assets, longevity swaps, buy-ins and buy-outs. It also shows information on how recovery plan lengths and funding measures relative to DB schemes' Technical Provisions have changed over time.
- The total number of contingent assets submitted to the PPF for the 2022/23 levy year was 303 compared with 317 in 2021/22, continuing the downward trend.
- Based only on current recovery plans in place, total annual recovery plan payments are indicated to decrease by around 88 per cent over the next 10 years as schemes increasingly become fully funded on a Technical Provisions basis. The rate of decrease is planned to be similar between different scheme sizes and, in aggregate, annual recovery plan payments are set to fall from around £12.3 billion in 2022 to around £1.4 billion in 2032. Changes may be made to existing recovery plans and new recovery plans may be put in place in the future if experience is different from what is currently assumed by schemes.
- Analysis of TPR's latest Technical Provisions and recovery plan data shows that in Tranche 15[1], the average recovery plan length was 6.4 years, a year less than that of Tranche 12 (comparable given the three-year valuation cycle). The average funding ratio as measured by assets divided by Technical Provisions was 88.8 per cent in Tranche 15, which is the same as for Tranche 12.
- Technical Provisions as a percentage of s179 liabilities increased to 99.5 per cent from 96.9 per cent in Tranche 12. There was also a rise in Technical Provisions as a percentage of buy-out liabilities, from 68.8 per cent to 76.5 per cent.
- Total risk transfer business covering buy-outs, buy-ins and longevity swaps amounted to £351 billion between the end of 2007 and the second quarter of 2022. 36 per cent of these deals were longevity swaps.
- The total value of risk transfer deals was £43 billion in 2021, which was lower than £56 billion in 2020.

1 Tranche 15 covers schemes with valuation dates between 22 September 2019 and 21 September 2020.

Contingent assets

Figure 8.1 | Contingent assets by type

The number of recognised contingent assets has followed a general downward trend over the last 11 years and is at its lowest level since levy year 2007/08.



Source: PPF

Type A Contingent Assets are parent/group companies' guarantees to fund the scheme, up to a pre-arranged amount.

Type B Contingent Assets comprise security over holdings of cash, real estate and/or securities.

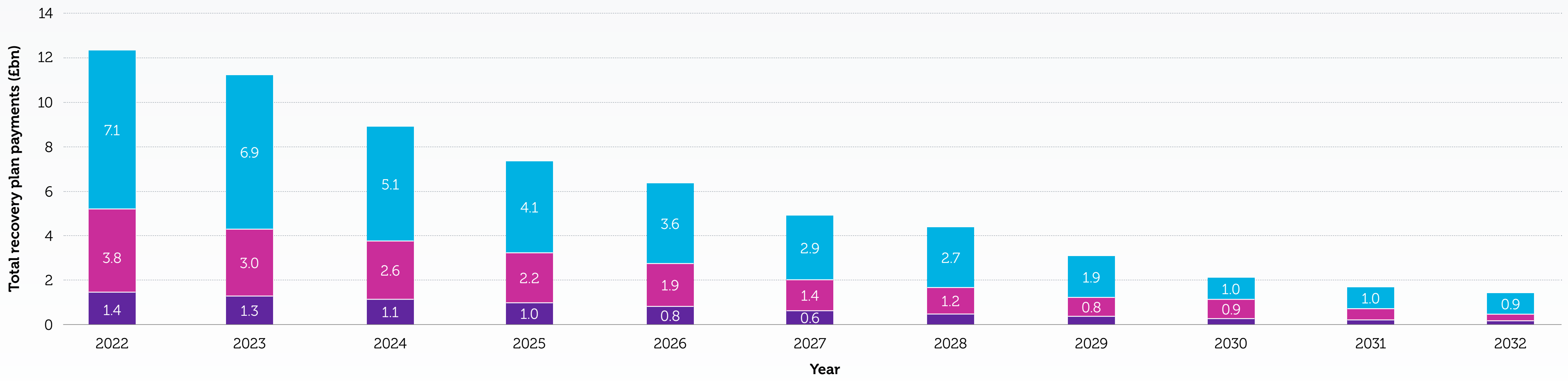
Type C Contingent Assets consist of letters of credit and bank guarantees.

Risk reduction continued

Recovery plan payments

Figure 8.2 | Planned recovery plan payments until 2032 by asset size

Total annual recovery plan payments are planned to reduce by around 88 per cent over the next 10 years, from around £12.3 billion in 2022 to around £1.4 billion in 2032.



● Under £100m ● £100m to £1bn ● Over £1bn

Source: TPR

The scheme funding regime

Figure 8.3 | Technical Provisions and recovery plan lengths (unweighted averages)

In Tranche 15, the average recovery period was 6.4 years, a year shorter than Tranche 12 (comparable given the three-year valuation cycle).

Tranche	Year of valuation	Number of recovery plans	Average length of recovery plan (years)	Assets as a percentage of Technical Provisions	Technical Provisions as a percentage of s179 liabilities	Technical Provisions as a percentage of buy-out liabilities
3	2007–08	1,840	8.6	81.3%	110.7%	74.5%
6	2010–11	1,652	7.8	82.3%	109.7%	71.3%
9	2013–14	1,530	8.0	89.4%	102.5%	71.5%
12	2016–17	1,481	7.4	88.8%	96.9%	68.8%
13	2017–18	1,112	6.5	93.5%	100.0%	73.5%
14	2018–19	1,176	6.1	91.6%	102.9%	75.8%
15	2019–20	1,256	6.4	88.8%	99.5%	76.5%

Source: 'Scheme funding analysis 2022 Annex', TPR, July 2022

Notes:

(1) Valuation dates run from 22 September to 21 September.

(2) 75.9 per cent of schemes with Tranche 15 valuations reported valuations in respect of Tranches 12, 9, 6 and 3.

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Risk reduction continued

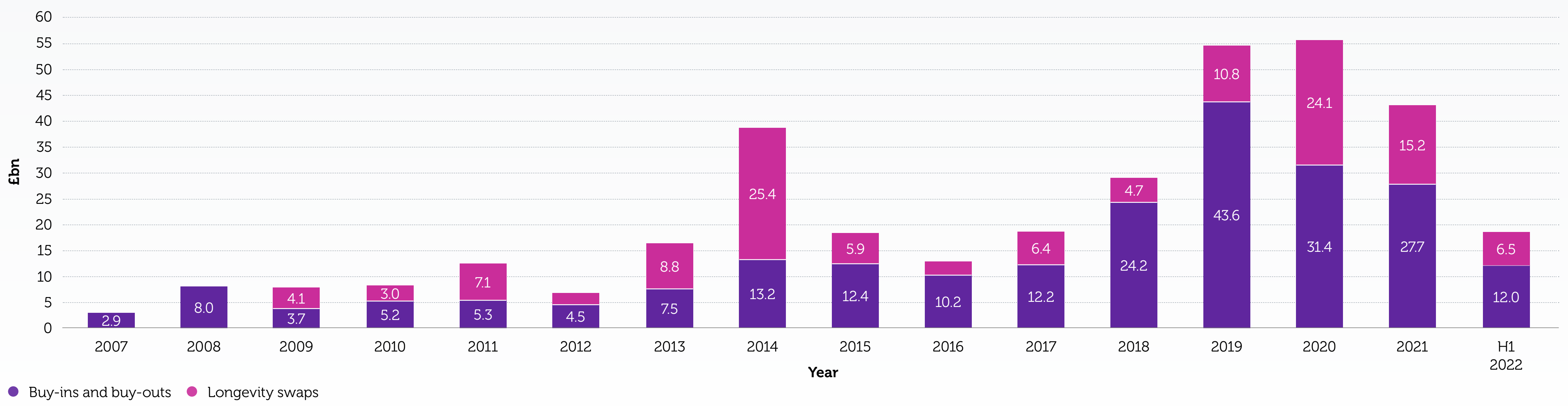
Buy-out, buy-in and longevity hedging

Buy-out and buy-in transactions provide schemes with the opportunity to remove risk relating to all or part of their liability. Under a buy-out deal, a scheme transfers its entire liability and scheme assets to an insurer in exchange for a premium. Insurers tend to require assets significantly in excess of Technical Provisions to compensate for the risk transferred. Buy-in deals result in an insurance policy as a scheme asset.

While both longevity swaps and buy-in/buy-out can mitigate the risk of greater than expected life expectancy, under the former there is no transfer of the underlying scheme assets to a counterparty. Longevity swaps entail the pension scheme exchanging fixed payments for cash flows that vary in accordance with the longevity experience of a reference population (either the named scheme members or a wider sample).

Figure 8.4 | Value of risk transfer deals since 2007

£42.9 billion of risk transfer deals were completed in 2021, which was £12.6 billion lower than in 2020.



Source: Hymans Robertson, 'Buy-outs, buy-ins and longevity hedging'

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Figure 8.5 | Number of risk transfer deals since 2010

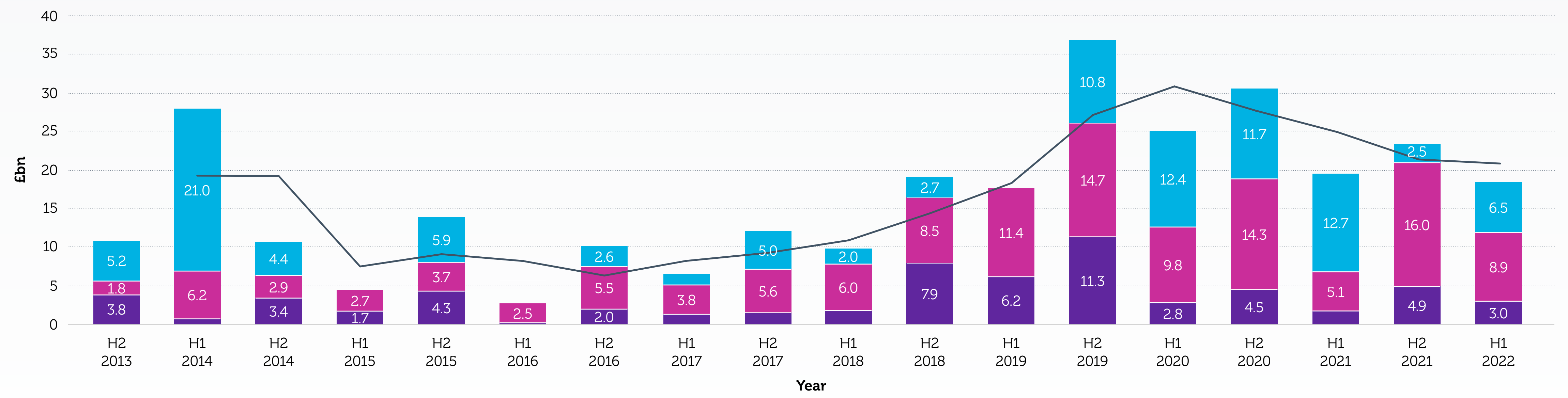
There were slightly more buy-ins and buy-outs in 2021 than in 2020. The number of longevity swaps remains low.

Year	Number of buy-ins/buy-outs	Number of longevity swaps
2010	174	2
2011	171	4
2012	167	2
2013	219	10
2014	177	5
2015	176	4
2016	104	5
2017	132	5
2018	171	4
2019	157	3
2020	141	8
2021	154	4
H1 2022	78	2

Source: Hymans Robertson, 'Buy-outs, buy-ins and longevity hedging'

Figure 8.6 | Value of risk transfer deals since H2 2013

The two-half moving average of risk transfer deals has fallen since H1 2020, although it has increased slightly over the last half year.



● Buy-out ● Buy-in ● Longevity swap ● Two-half moving average

Source: Hymans Robertson, 'Buy-outs, buy-ins and longevity hedging'

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PPF levy 2021/22

This chapter contains information on how much PPF levy was invoiced and how this was distributed between schemes and by employers.

9.1 Summary

Since 2006/07, the PPF has collected a total of £9.1 billion through levies, determined mainly by the risk schemes pose to the PPF. This and other key statistics from this chapter are summarised in the following table:

Asset allocation year	2021/22[1]	2020/21
Total levy since 2006/07	£9.1bn	£8.6bn
Total levy in year	£476m	£630m
Proportion of total scheme assets	0.03%	0.04%
Number of schemes which contributed to this	5,220	5,331
Amount and proportion of total levy contributed by the top 100 levy payers (by size of levy)	£277m 58%	£347m 55%
Proportion of schemes which paid no risk-based levy	34%	28%
Number of schemes with a capped risk-based levy	173	160
Proportion of total number of schemes	3.3%	3.0%
PPF levy band whose schemes made the largest contribution in the year	3	5
Levy contribution made by these schemes	£95m	£96m
Proportion of total levy contribution	20%	15%
Proportion of total liabilities accounted for by schemes in this category	17%	11%
Proportion of levy being paid by the three top scorecards (as measured by levy paid)	84%	82%

1 Year from 1 April 2021 to 31 March 2022.

Note: the percentages may not match those calculated using financial amounts in the table because of rounding.

Assets and liabilities, and therefore funding ratios, in this chapter are on a smoothed, stressed basis unless otherwise stated and exclude Deficit-Reduction Contributions (DRCs). For more information on these and other terms and definitions used in this chapter, see the 2021/22 Levy Determination, and its associated appendices, available on our website.

9.2 Total levy by year

In this section we compare total levy by levy year, from levy year 2012/13 to 2021/22. We look at the distribution across schemes broken down by levy band, considering the risk-based levy and scheme-based levy separately.

Figure 9.1 | Total levy

The levy has gradually fallen as a percentage of assets since 2012/13 and has varied between around £475 million and around £650 million each year.

Levy year	Total levy (£m)[a]	Levy as a percentage of assets[b]	Number of capped schemes[c]
2012/13	648	0.08%	427
2013/14	577	0.06%	302
2014/15	579	0.06%	274
2015/16	560	0.05%	211
2016/17	563	0.05%	187
2017/18	541	0.04%	147
2018/19	564	0.04%	184
2019/20	564	0.04%	161
2020/21	630	0.04%	160
2021/22	476	0.03%	173

Source: PPF

Notes:

a) The figures quoted in this chapter are based on the total levy for the dataset of 5,220 schemes in 2021/22, or from prior years' *Purple Books*.

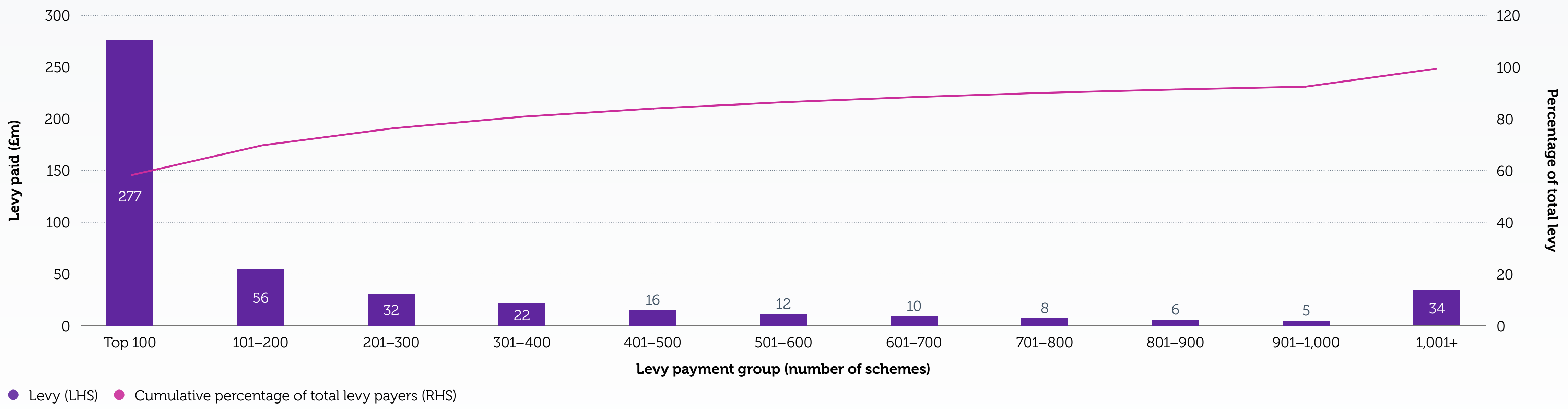
b) Total levy as a percentage of levy-paying schemes' total assets.

c) Refers to schemes to which the risk-based levy cap applied.

PPF levy 2021/22 continued

Figure 9.2 | Distribution of levy by largest levy payers in 2021/22

In 2021/22, the top 100 levy payers accounted for £277 million, or 58 per cent of the total levy.



Source: PPF

Note: the 1,001+ category accounts for a relatively large percentage of the total levy as it contains just over 4,220 schemes.

Note: the components do not sum to the total levy because of rounding.

Figure 9.3 | Schemes with no risk-based levy by levy year

34 per cent of schemes are paying no risk-based levy, which is the highest proportion since the introduction of the New Levy Framework in 2012/13.

Levy year	Number of schemes	Percentage of total schemes	s179 liabilities (£bn)[1]	s179 liabilities as percentage of total
2012/13	1,191	19%	199	19%
2013/14	1,056	17%	171	15%
2014/15	1,113	18%	206	17%
2015/16	985	17%	195	14%
2016/17	961	17%	239	16%
2017/18	1,011	18%	405	25%
2018/19	1,457	26%	560	35%
2019/20	1,509	28%	562	33%
2020/21	1,503	28%	624	34%
2021/22	1,766	34%	737	40%

Source: PPF

1 Liabilities are stressed and smoothed.

Figure 9.4 | Number of schemes with capped risk-based levies by levy band

The proportion of schemes with a capped risk-based levy increased from 3 per cent in 2020/21 to 3.3 per cent in 2021/22 following the reduction in the risk-based levy cap for 2021/22.

Levy band	Levy rate	Total number of schemes	Number of capped schemes	Percentage of schemes in levy band which are capped
1	0.28%	1,412	0	0.0%
2	0.31%	337	0	0.0%
3	0.35%	525	0	0.0%
4	0.40%	478	0	0.0%
5	0.53%	584	1	0.2%
6	0.81%	676	3	0.4%
7	1.26%	531	17	3.2%
8	1.76%	260	28	10.8%
9	2.39%	217	49	22.6%
10	3.83%	200	75	37.5%
Total		**5,220**	**173**	**3.3%**

Source: PPF

Note:

A scheme's risk-based levy is calculated by mapping the sponsoring employer's insolvency probability to one of the 10 levy rates above. Schemes with multiple employers have had their insolvency probability calculated as an average of the corresponding employers, mapped back to the nearest levy band. This is then multiplied by the amount of underfunding in the scheme and the levy scaling factor in order to give the risk-based levy. Further details of how the PPF levy is calculated can be found on the PPF website[1].

1 For more information see: https://www.ppf.co.uk/how-levy-calculated

Figure 9.5 | Number of schemes with capped risk-based levies by funding ratio (on a stressed and smoothed basis)

Schemes with lower funding levels are more likely to pay a capped risk-based levy.

Funding ratio	Number of capped schemes	Percentage of schemes in funding band which are capped	Total number of schemes
Less than 50%	71	19.2%	369
50%–75%	100	6.4%	1,557
75%–100%	2	0.1%	1,743
Over 100%	0	0.0%	1,551
Total	**173**	**3.3%**	**5,220**

Source: PPF

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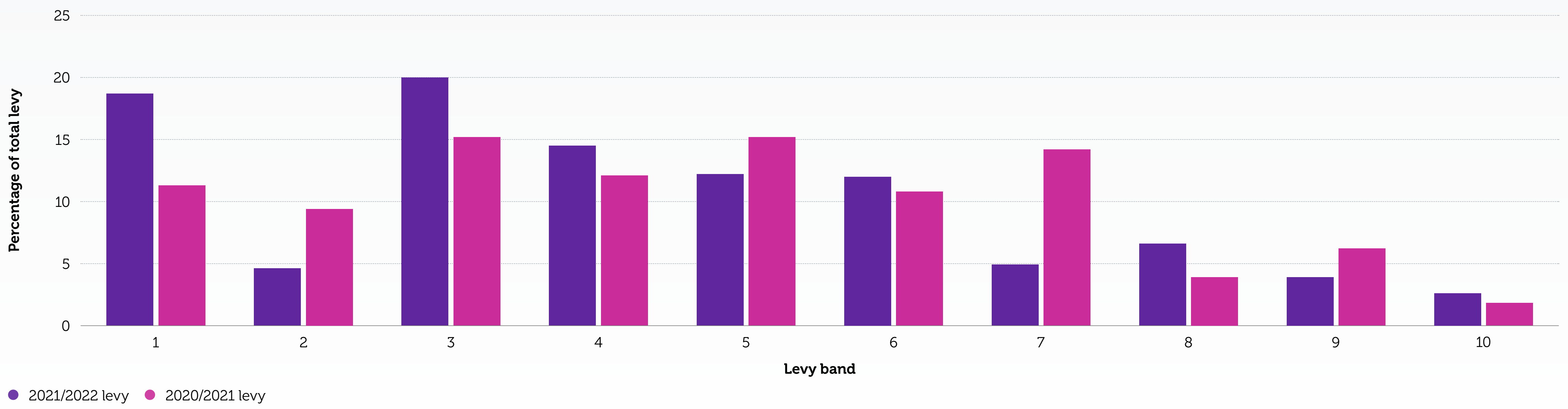
Figure 9.6 | Levy distribution by levy band

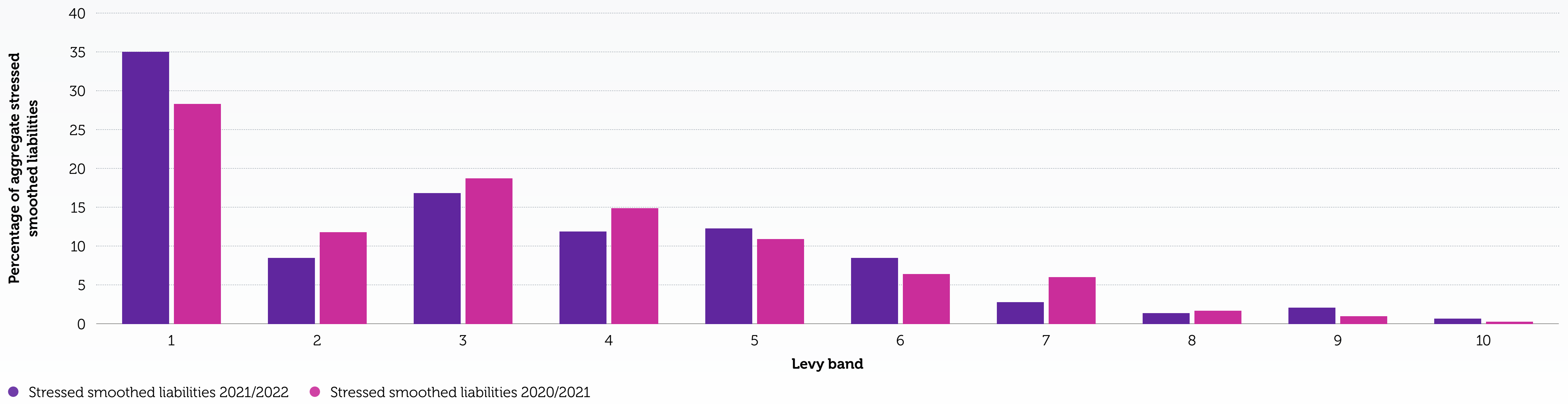
Schemes in levy bands 1 and 3 made the largest contribution to the total levy in 2021/22, paying between 18 and 20 per cent each.



Source: PPF

Figure 9.7 | s179 aggregate stressed smoothed liabilities by levy band

Schemes in levy band 1 account for 35 per cent of the total liabilities in 2021/22.



Source: PPF

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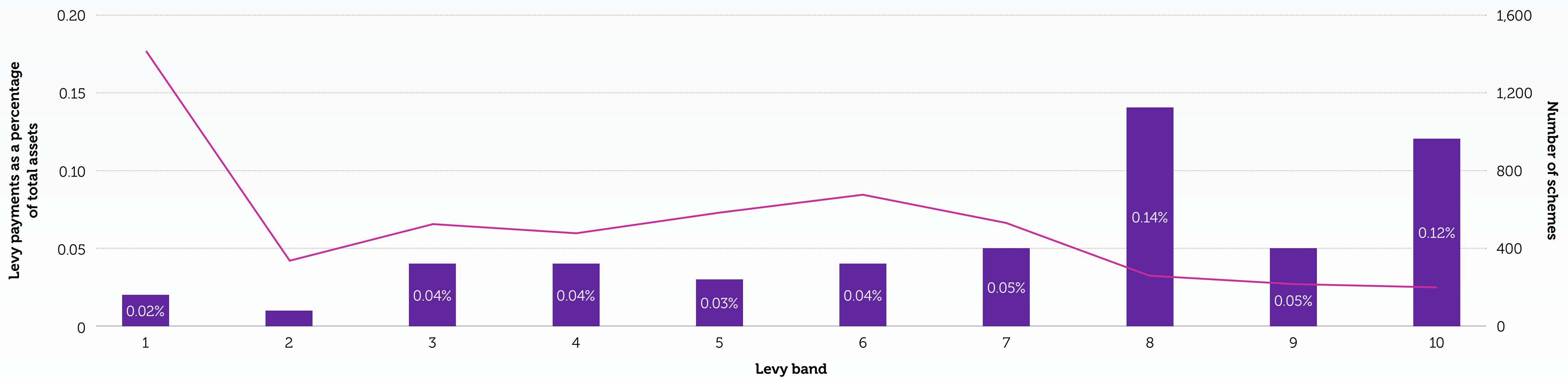
Figure 9.8 | Levy as a proportion of assets by levy band

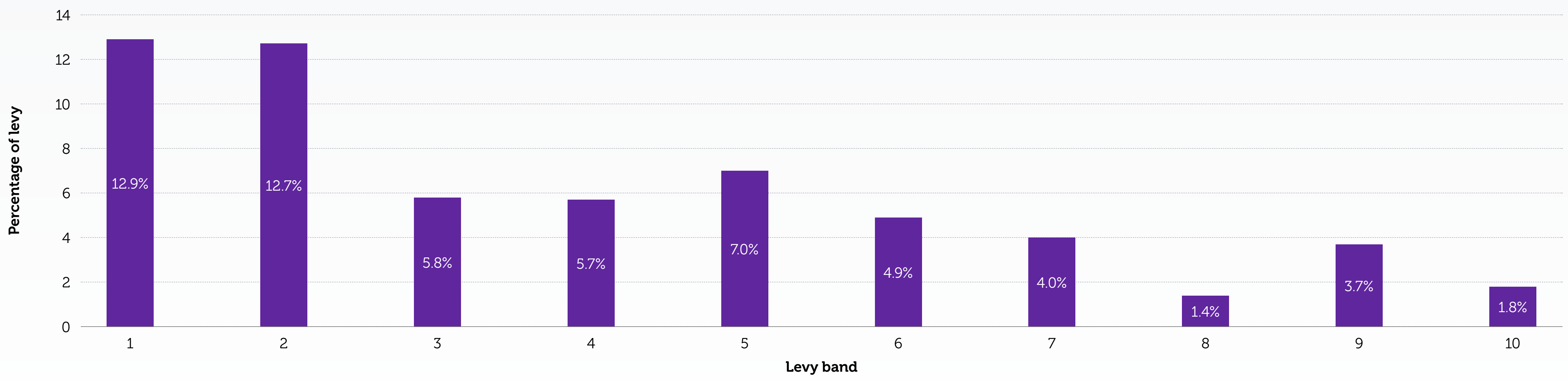
Schemes in levy bands 8 and 10 paid a noticeably higher levy, expressed as a percentage of assets, than schemes in other bands.



Source: PPF

Figure 9.9 | Percentage of total levy that is scheme-based[1] by levy band

In general, the proportion of total levy that is scheme-based falls as the levy band increases.



Source: PPF

1 For the definition of scheme-based levy, please see the 2021/22 Levy Determination.

Figure 9.10 | Percentage of total levy that is scheme-based by funding ratio (on a stressed and smoothed basis, excluding bespoke asset stress submissions)

For schemes that were over 100 per cent funded the scheme-based levy constituted on average around 87 per cent of their total levy, which is much lower than last year's figure of 99 per cent due to a higher amount of levy paid by overfunded schemes that become underfunded once the bespoke asset stress submission is taken into account.

Funding ratio	Less than 50%	50%–75%	75%–100%	Over 100%
Percentage of levy that is scheme-based	1.7%	3.4%	9.1%	86.6%

Source: PPF

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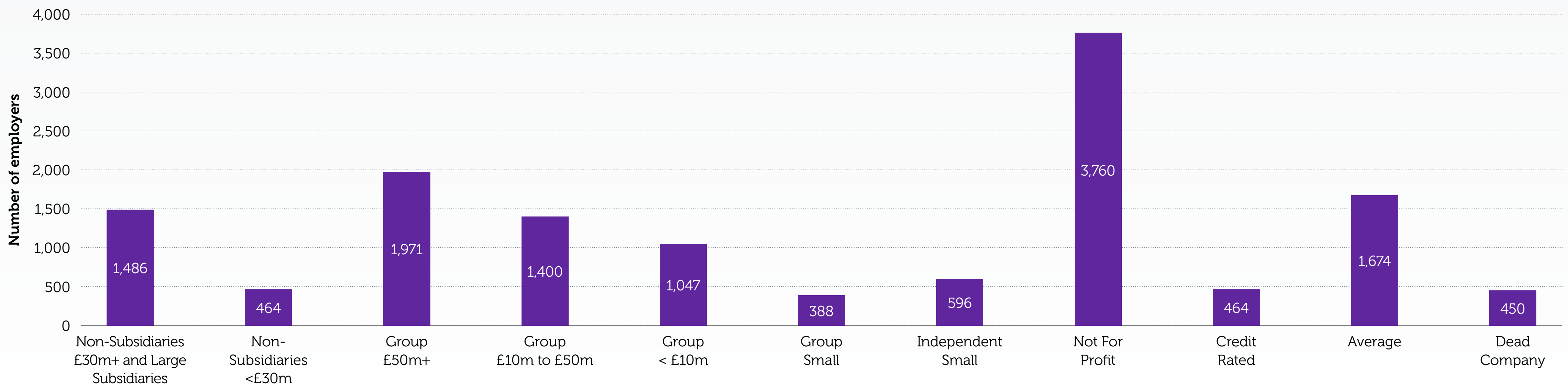
9.3 D&B scorecards

For the 2021/22 levy year, we used the PPF and Dun & Bradstreet's (D&B's) bespoke model for assessing insolvency risk of schemes in the universe.

The charts in this section show how many sponsoring employers in the PPF universe are assigned to each scorecard, and how much of the total 2021/22 PPF levy was collected in respect of schemes sponsored by the employers in these categories.[1]

Figure 9.11 | Number of sponsoring employers in each D&B scorecard

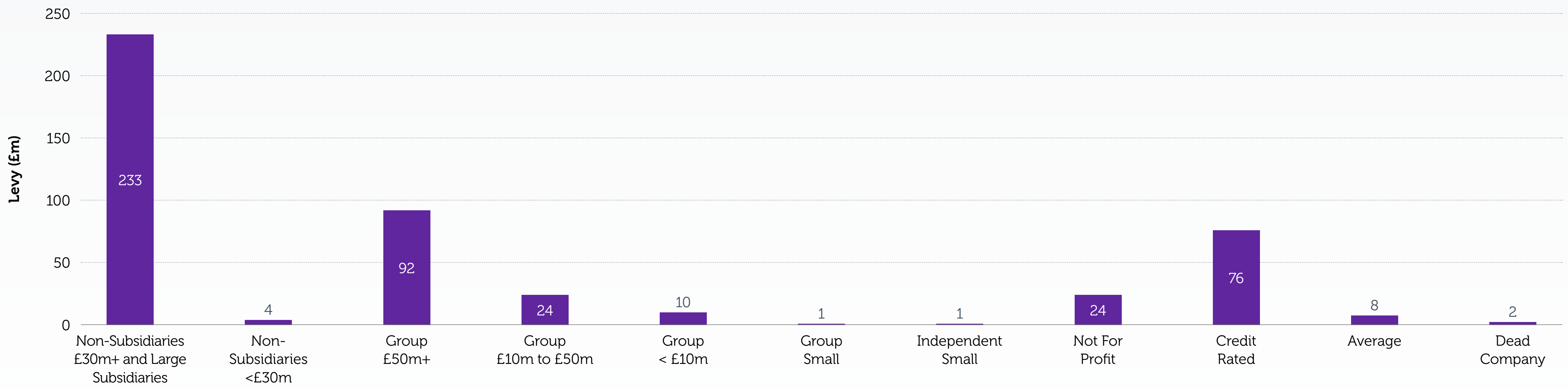
Not For Profit organisations make up the greatest number of sponsoring employers in the PPF universe.



Source: PPF

Figure 9.12 | Levy invoiced in respect of schemes with sponsoring employers in each D&B scorecard

Schemes on three of the 12 D&B scorecards paid 84 per cent of the total levy.



Note: the components do not sum to the total levy because of rounding.

Source: PPF

1 For multi-employer schemes (with employers on different scorecards), the levy was split proportionately by membership numbers.

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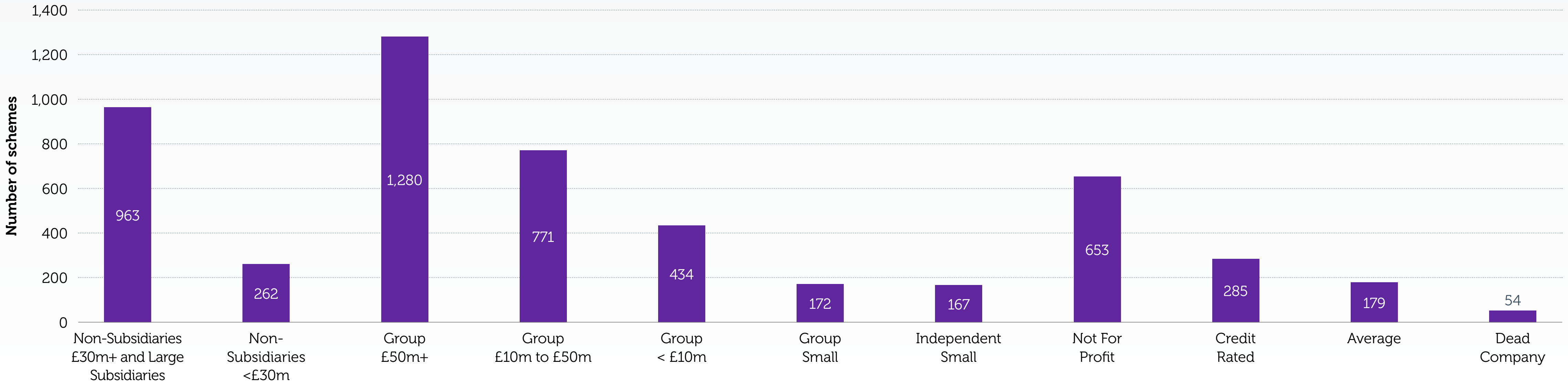
Figure 9.13 | Number of schemes with sponsoring employers in each D&B scorecard

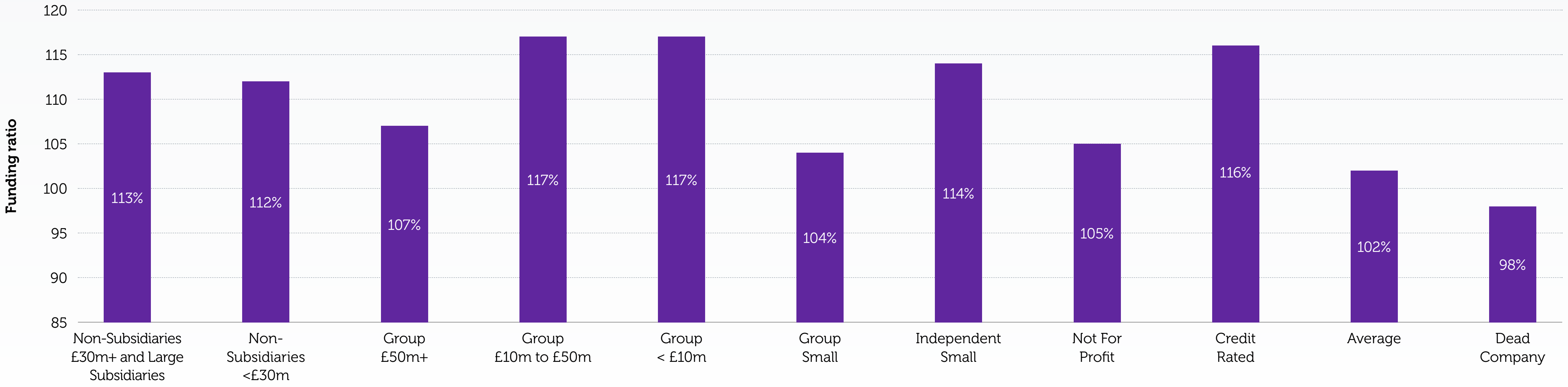
43 per cent of schemes had sponsoring employers categorised as 'Non-Subsidiaries £30 million+ and Large Subsidiaries' or 'Group £50 million+'.



Source: PPF

Figure 9.14 | Aggregate funding ratio (unstressed and unsmoothed) of schemes with sponsoring employers in each D&B scorecard

Funding ratios vary by around 15 percentage points (excluding dead employers) across the scorecards used to assess the insolvency risk of employers of schemes.



Source: PPF

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Claims and schemes in assessment

This chapter looks at characteristics of schemes that were in a PPF assessment period as at 31 March 2022. Once they have made a claim, all schemes go through an assessment period to determine their ability to pay PPF levels of compensation before they are able to enter the PPF.

Summary

- The changes over the year since 31 March 2021 reflect new schemes entering and remaining in assessment, schemes transferring into the PPF and schemes being rescued, rejected or withdrawn.
- The following table sets out some of the statistics about schemes in PPF assessment[1] as at 31 March 2022, including comparisons with both the previous year and schemes in the universe.

		31 March 2022	31 March 2021
Schemes in assessment[2]	Number of schemes	63	87
	Number of records in respect of all members[3]	75,000	98,000
	Total assets	£5.9bn	£8.6bn
	Total PPF liabilities	£6.4bn	£9.4bn
	Funding ratio	93%	91%
Schemes in universe	Funding ratio	113%	103%

1 For the purpose of this chapter we treat separate sections and segregated parts of the same scheme as one single scheme. We also include overfunded schemes. This is different from the approach in the PPF's Annual Report and Accounts which treats all segregated parts of schemes as separate schemes, and generally excludes overfunded schemes.

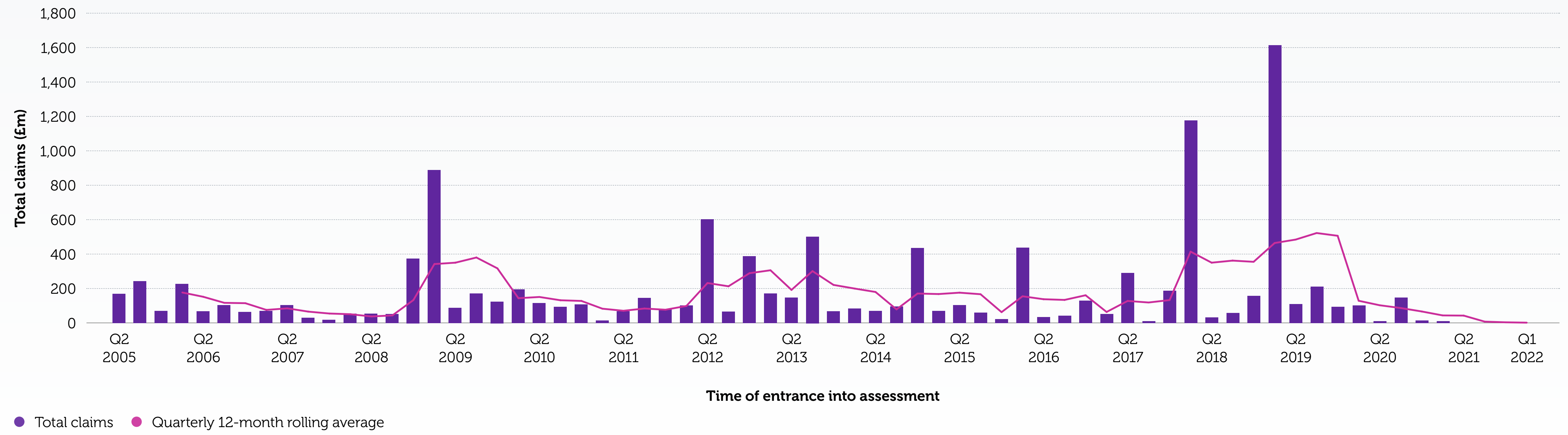
2 These figures differ from those in the Annual Report and Accounts because of the exclusion of expected reapplications in *The Purple Book* and the use of a different set of actuarial assumptions.

3 Some members have more than one record in the data.

Schemes entering assessment

Figure 10.1 | Total s179 claims for schemes entering an assessment period

The total s179 deficit of the 14 schemes that entered assessment in the year to 31 March 2022 was £12 million, the lowest annual total by far since the PPF's inception.

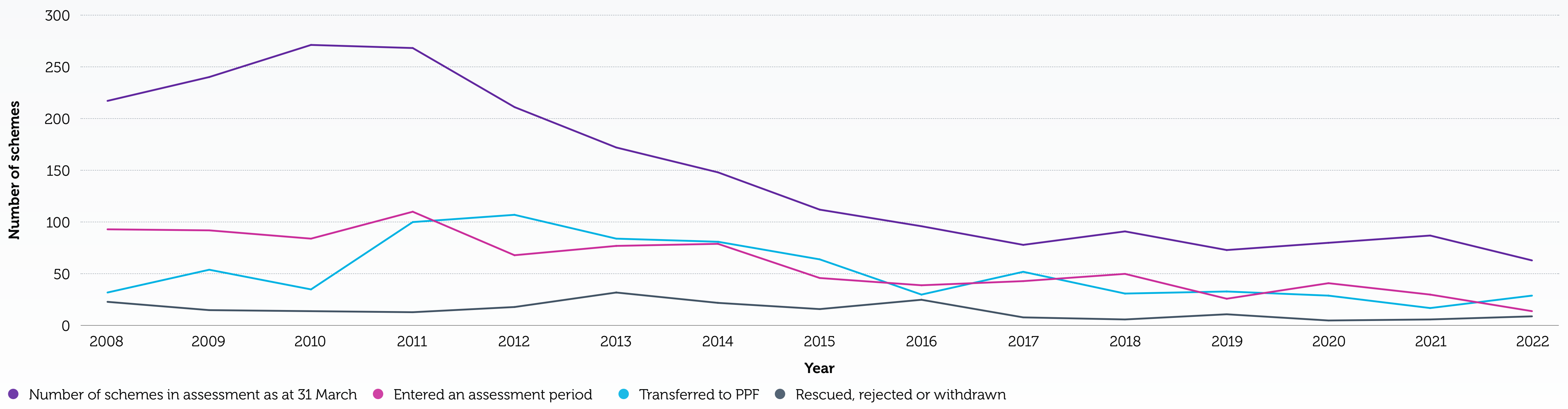


Source: PPF

Claims and schemes in assessment continued

Figure 10.2 | Number of schemes in assessment each year as at 31 March

63 schemes were in PPF assessment at 31 March 2022, down from 87 last year.



Note: the figures in the chart exclude those schemes that came into assessment and were subsequently rescued, rejected or withdrawn in the same year.

Source: PPF

Figure 10.3 | Funding statistics for schemes in assessment each year, as at 31 March

The funding ratio of schemes in assessment at 31 March 2022 increased to its highest ever level of 93 per cent, up from the previous record set last year of 91 per cent.

Year	Assets (£bn)	Liabilities (£bn)	Surplus (£bn)	Funding ratio	Universe funding ratio
2007	4.0	4.7	-0.7	85%	109%
2008	4.2	5.4	-1.2	78%	99%
2009	6.7	9.4	-2.8	71%	80%
2010	8.9	10.0	-1.1	89%	104%
2011	9.5	10.9	-1.4	87%	100%
2012	6.2	8.4	-2.2	74%	83%
2013	5.8	7.6	-1.8	77%	84%
2014	5.8	7.6	-1.7	77%	97%
2015	5.3	7.5	-2.3	70%	84%
2016	5.0	7.4	-2.4	68%	86%
2017	5.6	6.6	-1.0	85%	91%
2018	6.9	9.3	-2.4	74%	96%
2019	7.7	11.2	-3.5	69%	99%
2020	10.3	13.6	-3.3	76%	95%
2021	8.6	9.4	-0.8	91%	103%
2022	5.9	6.4	-0.4	93%	113%

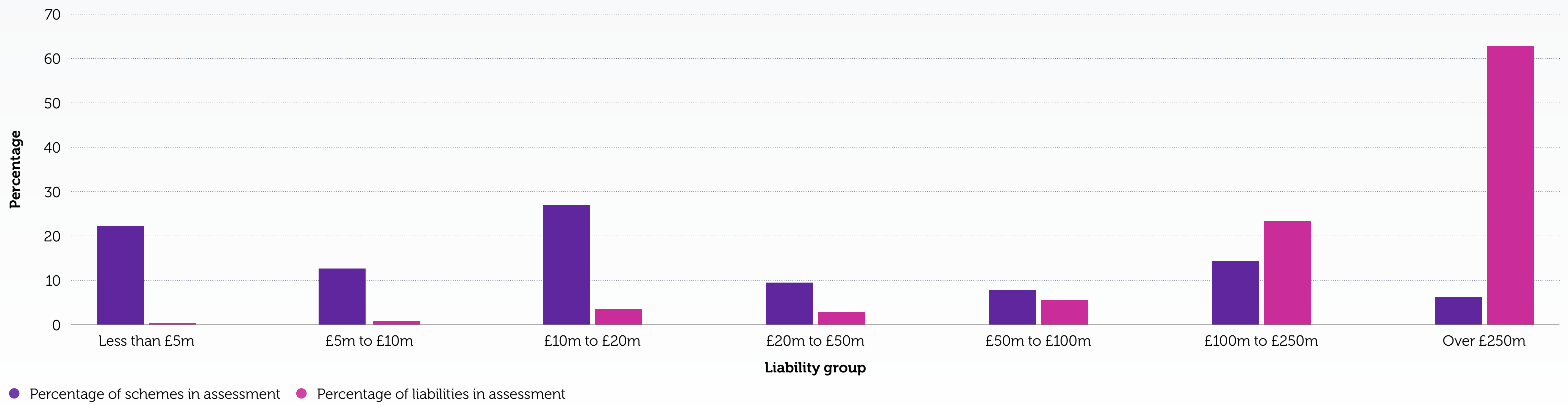
Note: the components may not sum to the total because of rounding. Also the ratios of the components may not equal the aggregate ratios because of rounding.

Source: PPF

Scheme demographics

Figure 10.4 | Percentage of schemes and percentage of s179 liabilities grouped by size of liabilities for schemes in assessment as at 31 March 2022

Schemes in PPF assessment that have liabilities of over £250 million represent six per cent of schemes and 63 per cent of liabilities.



Source: PPF

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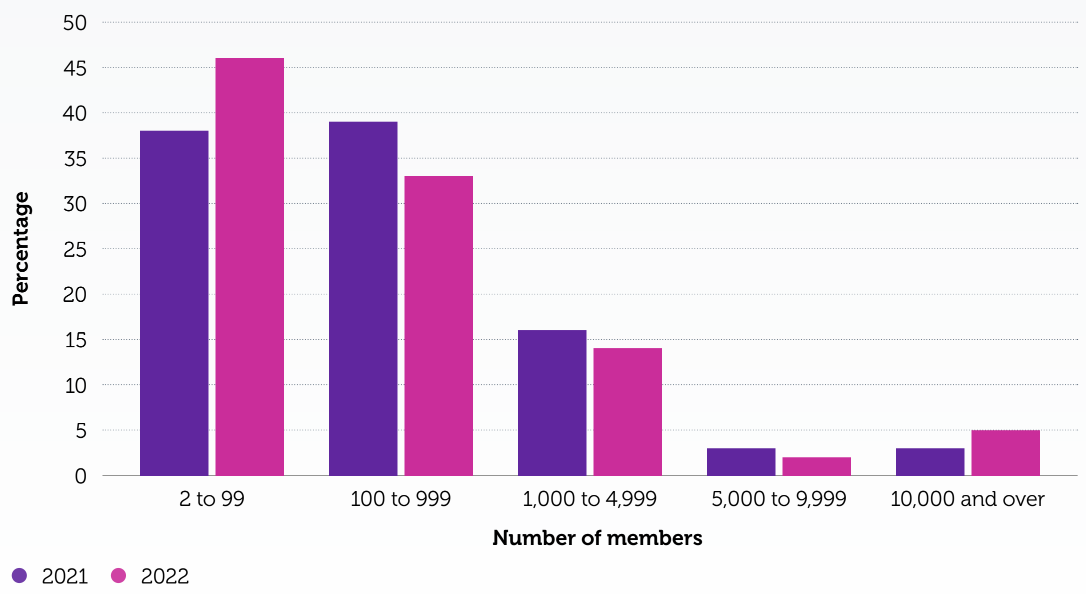
Figure 10.5 | Proportion of schemes in assessment by membership size

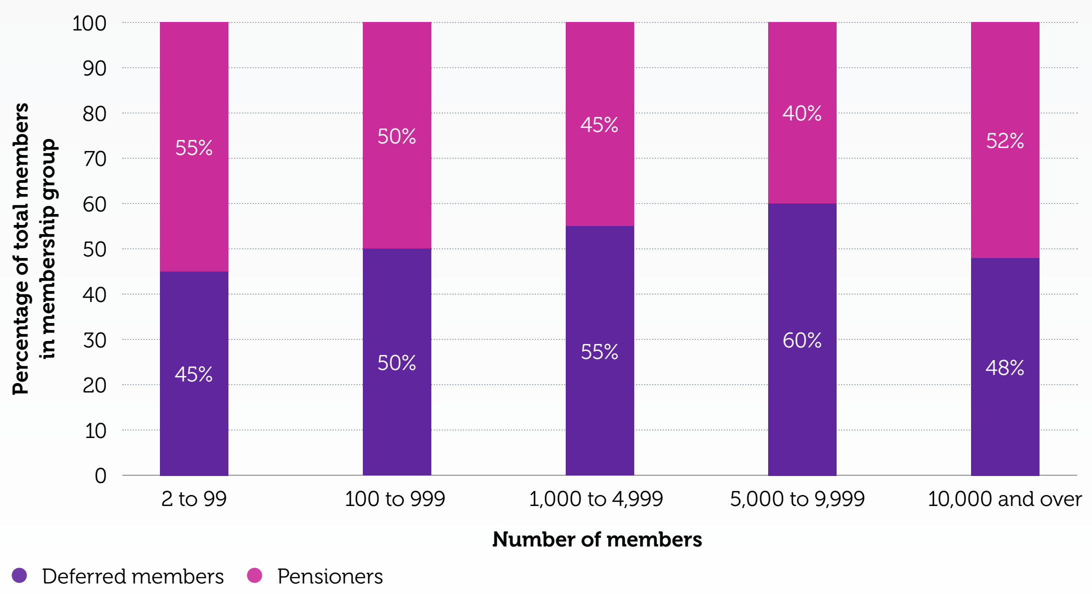
Around 80 per cent of schemes in assessment have fewer than 1,000 members.



Source: PPF

Figure 10.6 | Maturity of schemes in assessment by membership size

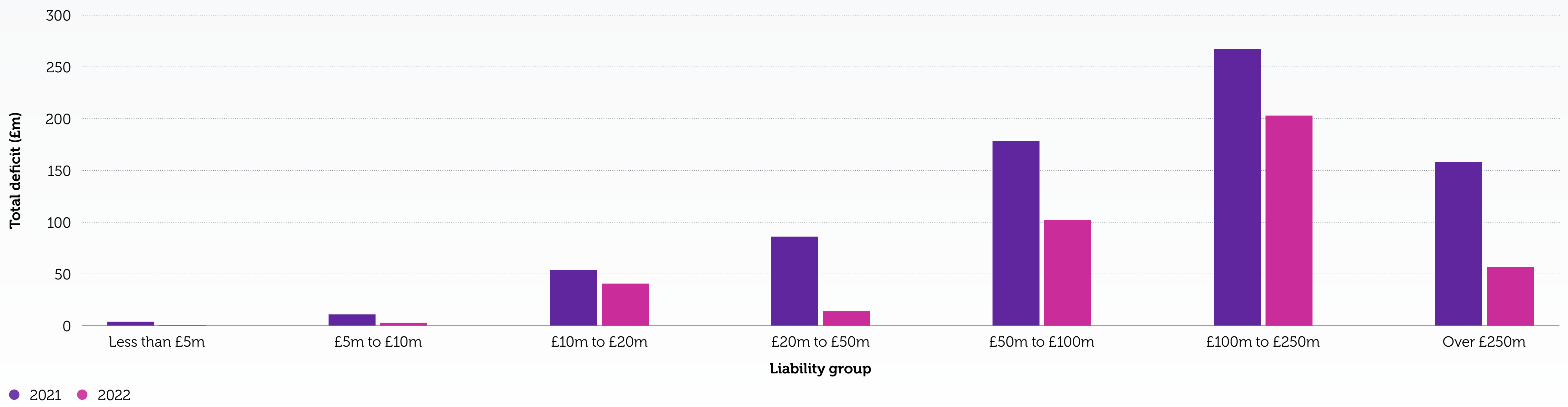
With the exception of the largest schemes, the proportion of members that are deferreds increases with scheme size for schemes in assessment.



Source: PPF

Figure 10.7 | Total s179 deficit of schemes in assessment by liability size

62 per cent of the deficit from schemes in assessment relates to schemes with liabilities of more than £100 million, up from 56 per cent last year.



Source: PPF

11

PPF compensation 2021/22

This chapter looks at the compensation that we paid to PPF members in 2021/22, including the distribution of compensation amounts, and the gender split of PPF members.

Summary

When a scheme transfers into the PPF, we generally pay compensation of 90 per cent of the scheme pension (subject to a compensation cap[1]) to members who have not reached their Normal Pension Age (NPA) at the date the scheme entered assessment. We will generally pay a starting level of compensation equivalent to 100 per cent of the scheme pension to those members who are over their NPA at the start of the assessment period.

Here are some of the key statistics features in this chapter:

	31 March 2022	31 March 2021
PPF compensation paid in the year	£1,115m	£1,006m
Number of records in respect of members receiving compensation	193,983	184,844
Average annual amount paid to members and dependants	£4,825	£4,829
Number of records in respect of deferred members*	111,995	113,902
Average annual compensation accrued by deferred members (ignoring any impact of the compensation cap)	£3,309	£3,325

* Members with compensation not yet in payment.

Total compensation and other member statistics

Figure 11.1 | Total compensation and number of members' records

Total compensation paid in the year to 31 March 2022 was £1,114.9 million, 11 per cent above the amount paid in the year to 31 March 2021.

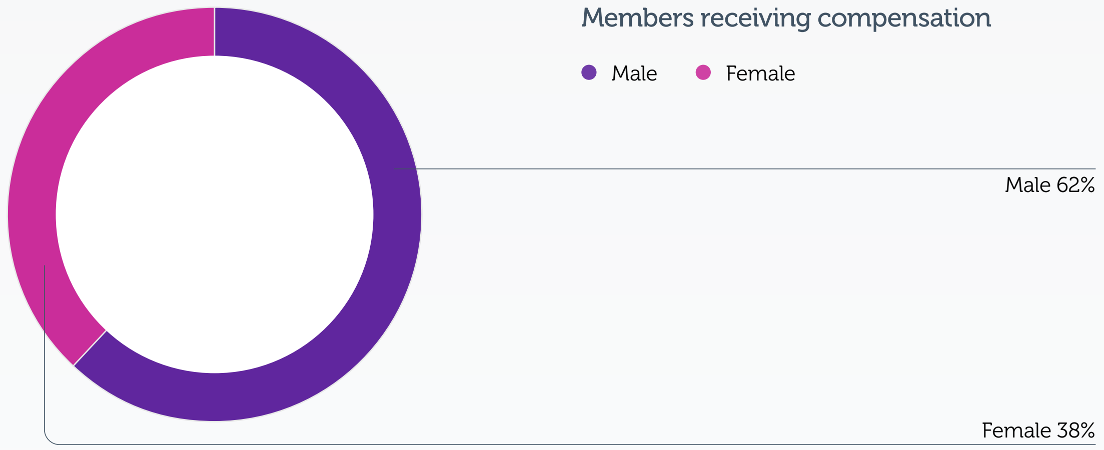
		Number of members' records*		
Year ended 31 March	Total compensation paid	Members receiving compensation	Deferred members	Total
2007	1.4	1,457	5,621	7,078
2008	17.3	3,596	8,577	12,173
2009	37.6	12,723	18,009	30,732
2010	81.6	20,775	26,058	46,833
2011	119.5	33,069	42,063	75,132
2012	203.3	57,506	70,608	128,114
2013	331.8	80,665	91,353	172,018
2014	445.1	95,599	100,070	195,669
2015	564.0	114,028	110,681	224,709
2016	616.0	121,059	109,143	230,202
2017	661.3	129,661	110,478	240,139
2018	724.5	135,377	107,759	243,136
2019	775.1	148,005	109,567	257,572
2020	859.7	169,861	116,461	286,322
2021	1,006.4	184,844	113,902	298,746
2022	1,114.9	193,983	111,995	305,978

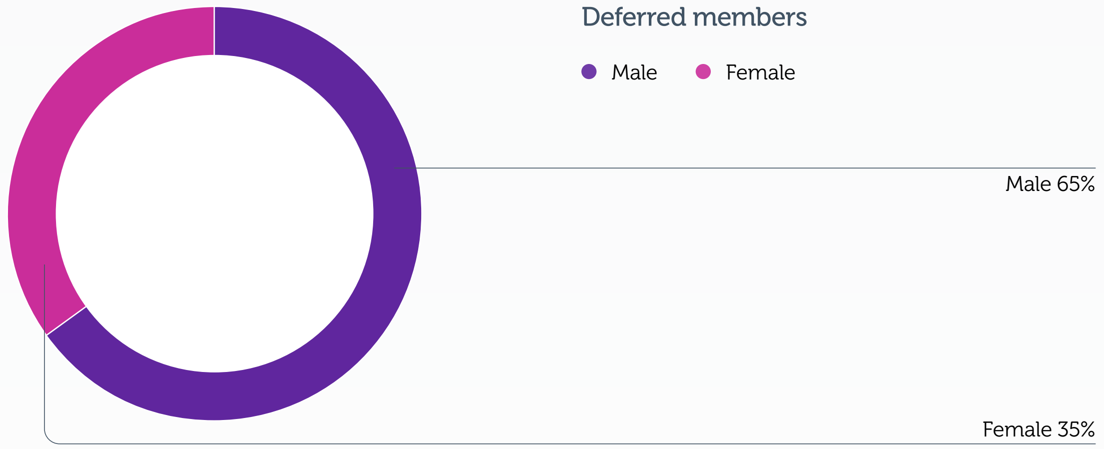
Source: PPF

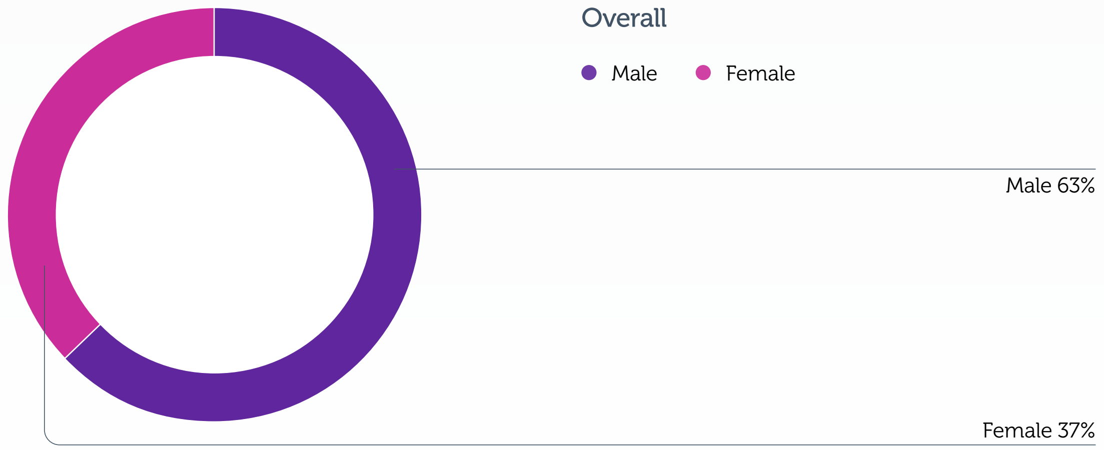
* Some members have more than one record in the data.

Figure 11.2 | Gender of members in the PPF

The majority of our members are male.







Source: PPF

1 In June 2020 the Administrative Court ruled in the case of *Hughes v Board of the Pension Protection Fund 2020 EWHC 1598* that this cap is unlawful. The Court of Appeal upheld this ruling in August 2021. We are currently in the process of uplifting compensation for members who were previously capped, but the compensation in payment shown in the table above has not yet been adjusted to disapply the compensation cap for most members.

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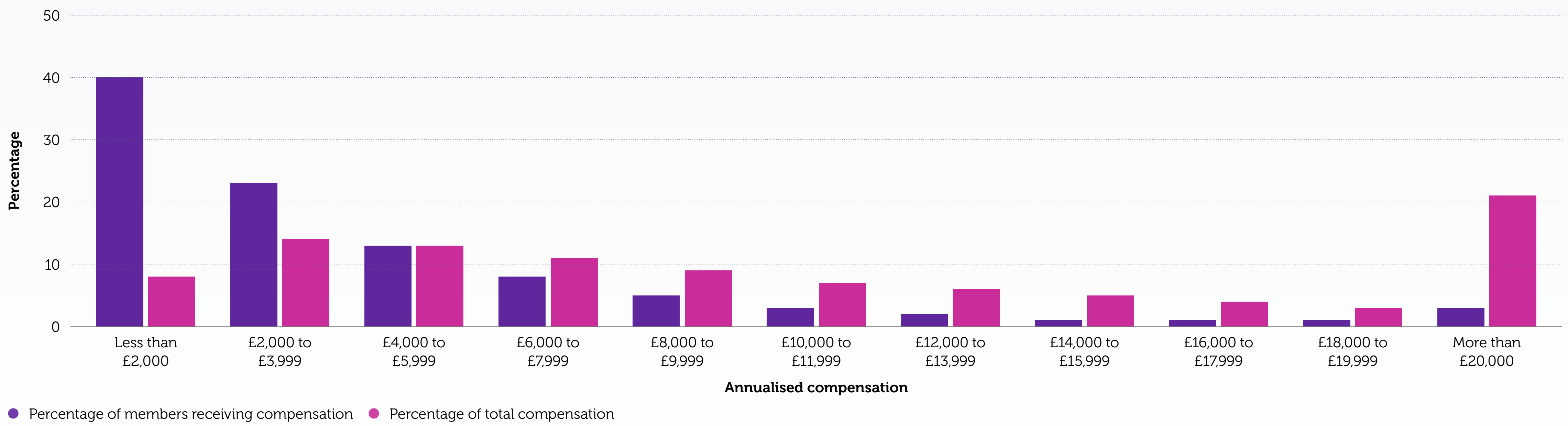
PPF compensation 2021/22 continued

Figure 11.3 | Distribution of members receiving compensation by annualised compensation level

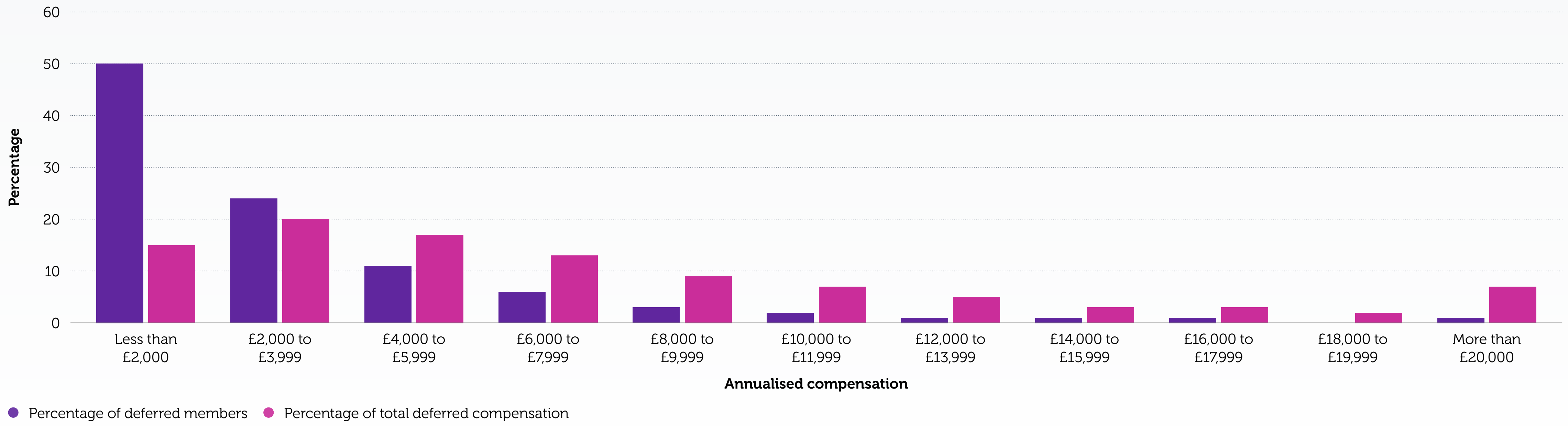
Around 90 per cent of members receiving compensation are paid less than £10,000 a year. However, this compensation makes up around 55 per cent of the total paid out.



Source: PPF

Figure 11.4 | Distribution of deferred members by annualised compensation level

Around 95 per cent of deferred members have annualised compensation of less than £10,000. This compensation makes up around 75 per cent of the total annual deferred compensation.



Source: PPF

Figure 11.5 | Status of members receiving compensation

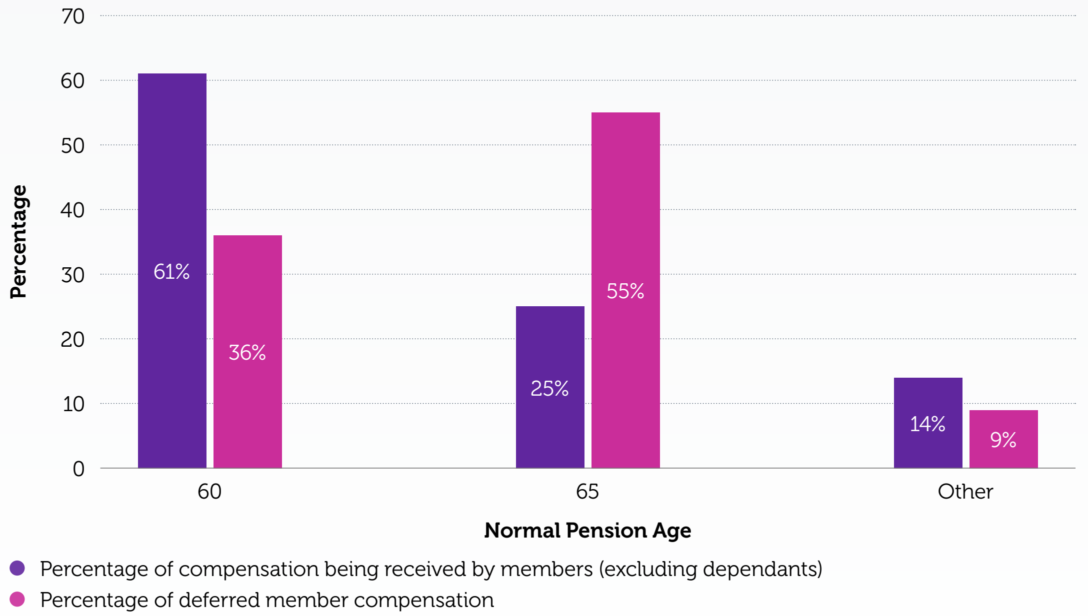
	Number of records in respect of members receiving compensation	Percentage of total population	Annualised compensation (£m)	Percentage of total annualised compensation
Members	161,465	83%	830	89%
Dependants	32,518	17%	106	11%
Total	**193,983**	**100%**	**936**	**100%**

Source: PPF

Note: annualised compensation is less than compensation paid in the year to 31 March 2022 as the latter includes cash sums taken upon retirement, and takes account of member movements (e.g. deaths or retirements) over the year.

Figure 11.6 | Distribution of members receiving compensation (excluding dependants) and deferred member compensation by Normal Pension Age (NPA)

For members receiving compensation, the majority of compensation was payable from an NPA of 60, whereas for deferred members the majority is payable from age 65.



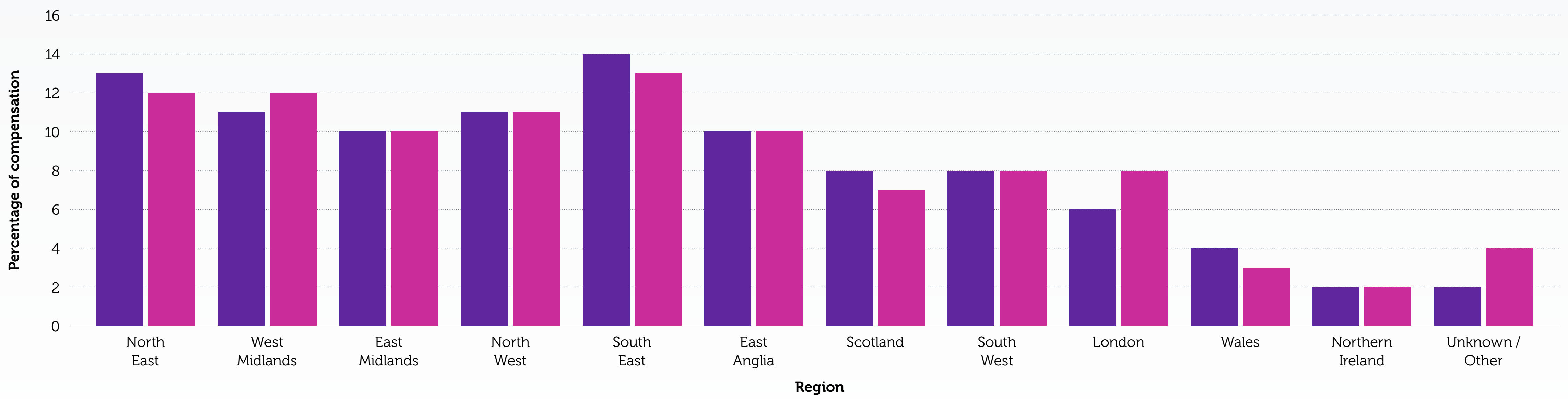
Source: PPF

Note: the component figures may not sum to 100 per cent because of rounding.

PPF compensation 2021/22 continued

Figure 11.7 | Annualised compensation by UK region

The largest share of compensation goes to members in the North East and South East.



● Percentage of compensation being received by members ● Percentage of deferred compensation

Source: PPF

Figure 11.8 | Annualised compensation for members receiving compensation and deferred members before 6 April 1997 and after 5 April 1997

Around 70 per cent of compensation being received by members was accrued before 6 April 1997.

	Members receiving compensation		Deferred members	
	Annualised compensation (£m)	Percentage	Annualised compensation (£m)	Percentage
Before 6 April 1997	637	68%	147	40%
After 5 April 1997	299	32%	224	60%
Total	**936[1]**	**100%**	**371**	**100%**

Source: PPF

1 This represents the annualised compensation payable to members receiving compensation at 31 March 2022 and excludes lump sums, whereas the total compensation paid over the year to 31 March 2022 including lump sums is £1,114.9 million.

12

PPF risk developments

This chapter looks at the risks to our funding position and to our ability to deliver on our mission.

Summary

This chapter contains information on our approach to funding and how we manage the risks that could have a material impact on our future funding levels.

In September 2022 we published the outcome of our funding strategy review, which confirmed our approach to financial risk management as we enter a new phase of our funding journey. We are in a strong financial position and our strategic aim will shift from growing our reserves to maintaining our financial resilience. To meet this objective we have defined a set of funding priorities, and the strategic decisions we take will be guided by how our reserves compare to these priorities.

To help us understand how our future funding may evolve, we use a stochastic model which considers how our own funding and that in the universe we protect may change over time. This modelling is then used to help inform our future investment and levy strategy.

Over the last year, there has been a material improvement in our funding position and in that of the schemes we protect. This has increased the likelihood of us meeting our new funding objective of 'Maintaining our Financial Resilience'. However, the general economic environment remains volatile. Our modelling indicates that we are well placed to cope with the uncertainty, and our new funding framework will help guide our strategic decisions as our funding and that of the schemes we protect evolve.

Our approach to risk management

Like other financial institutions, we assess our risks using a comprehensive enterprise risk management framework, so we focus on the risks that could have the most material impact. We seek to understand our financial risks by using modelling, including sensitivity testing, to help us understand the potential impact from changes to those risks in the future.

We consider our risk under three broad headings – External Environment, Strategic and Funding, and Operational. In *The Purple Book* we focus our attention on the components of those risk types with material financial implications for us. Therefore, we do not cover here Operational Risk or non-financial External Environment risks to which we are exposed.

Strategic and Funding: risk from our existing assets and liabilities

These risks are similar to those that other financial institutions face, including pension funds and insurance companies. They include the risks of managing our own investment portfolio and demographic risks.

We will accept risk where it adds value to do so or where the costs of hedging are disproportionate. We hedge our liabilities closely for changes in inflation and interest rates. We also use a bespoke investment strategy which seeks to avoid concentration in the UK economy to which we are exposed via the companies sponsoring the schemes we protect. This strategy takes a conservative level of investment risk to enable us to grow our reserves further over the long term. We accept short-term volatility of our funding level and our response to such volatility is consistent with our long-term funding strategy.

We are willing to accept longevity and other demographic risks. However, we are prepared to transfer these risks to a third party if they are significant and hedging costs are reasonable. Reflecting the importance of longevity in our future cashflows, we use granular estimates of longevity based on socio-economic and geographical factors.

Both investment and demographic risks are potentially impacted in the long term by climate change. We have a comprehensive Responsible Investment strategy which helps mitigate this risk, and we are developing approaches to understand the potential impact of climate change on our risk exposure.

External Environment: risk from the schemes we protect

This is the risk that we exist to protect – a scheme being underfunded when its sponsor fails, possibly resulting in a claim. We cannot control these risks so we must accept them. Therefore, we monitor these risks to understand any implications they may have for us both financially and operationally.

TPR monitors funding and sets guidance for DB pension schemes to reduce the risk of scheme underfunding. We liaise with TPR regularly to gain a shared understanding of developments that may change the risk of claims on us. In addition, we monitor key information about employers who sponsor the schemes we protect, including public credit ratings where available. When monitoring claims risk, we consider both the potential size of a claim and the likelihood of it occurring.

The data in *The Purple Book* shows that risk in the universe has reduced over time and that claims on us have been decreasing. That said, some schemes remain very underfunded and therefore the risk of further claims on us remains.

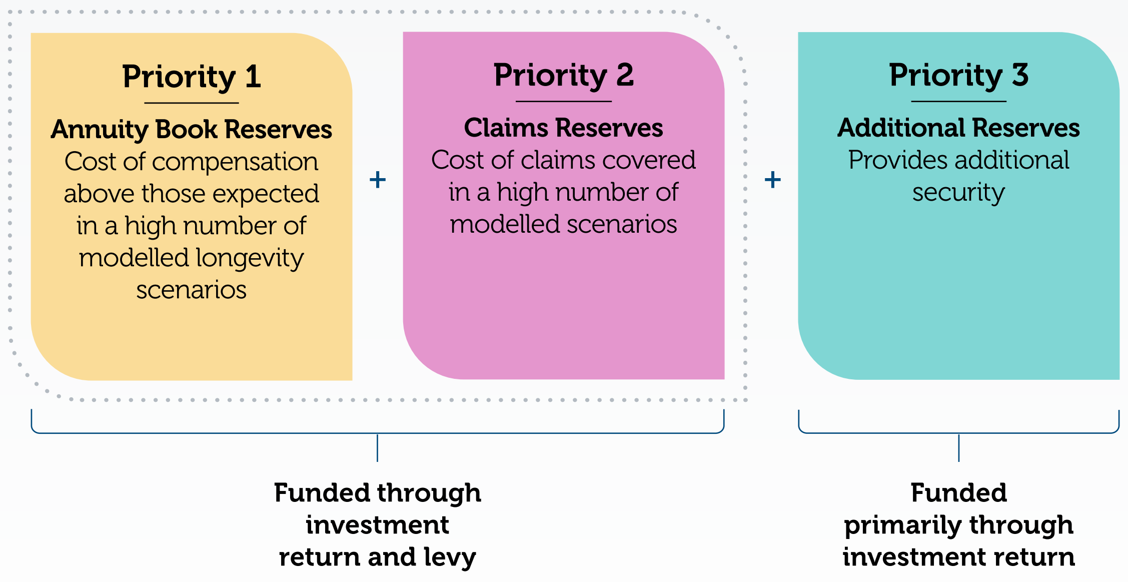
Our funding strategy

Recognising our own financial strength and the changing profile in our universe, we are entering what we have called the maturing phase of our funding journey. During this phase our central expectation is that we will see fewer claims, and that those that do occur will have less impact on our funding.

We confirmed in September 2022 that during this new phase our funding objective will be 'Maintaining our Financial Resilience'. We define Financial Resilience as having a high level of confidence of being able to pay compensation to both our current and future members in full, with no support required from investment returns and levy. The strategic decisions the Board will take will depend on how our reserves compare with the level required to meet the Financial Resilience test.

To help us achieve this objective we have set three main funding priorities, as illustrated in the diagram below. The investment and levy decisions we take will be guided by how our reserves compare to these priorities.

Target reserves during the PPF maturing phase



The Annuity Book Reserves and Claims Reserves are designed to cover all but the worst longevity and claim scenarios. These reserves will be funded through both investment return and levy. Any Additional Reserves built up will be funded primarily through investment return.

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PPF risk developments continued

We consider ourselves Financially Resilient when we have sufficient reserves to cover both Priority 1 and Priority 2 reserves, i.e. longevity reserves for our current members and reserves for future claims. However, our aim is to achieve Priority 3 reserves, i.e. additional reserves above those needed to meet the Financial Resilience test, to provide better protection for both our current and future members. As the universe we protect matures and declines, it will be difficult to raise a material levy. By building additional reserves – through our investment returns – our aim is to reduce the risk of having to go back to ask levy payers to contribute more in the future.

Summary of modelling

To understand the level of protection afforded by our reserves and how likely we are to meet our Financial Resilience test in the future we use the Long-Term Risk Model (LTRM), a Monte Carlo simulation model. This model runs a million different scenarios to project what the future may look like, allowing for future claims, levies, investment returns and changes in economic conditions. Like any complex modelling exercise, the projections are subject to significant uncertainty and our success ultimately depends on some factors outside of our control.

No model can perfectly predict the future, and the LTRM is no exception. The base case projections are based on a series of assumptions, which we continually refine to reflect how experience and expectations develop over time. We assume that our broad approach to levy will not change. Our investment strategy is assumed to remain unchanged in the medium term, and then to gradually de-risk as we move from our maturing phase to our final run-off phase. Schemes are assumed to transition gradually to a low-risk investment strategy, and to keep receiving deficit-reduction contributions (DRCs) if they are underfunded.

The fan chart in figure 12.1 below shows the recent history of our funding level up to 2022, followed by LTRM projections of how it might develop in the future. Projections are shown for the period up to 2035, which is the earliest we expect to move from our current maturing phase to our run-off phase. The chart shows that, based on our current strategy, in most scenarios our funding level is expected to rise as investment returns plus income from levy exceed claims. Also, even in more extreme scenarios, the funding level remains above 110 per cent, which is the amount currently estimated as needed to cover our Priority 1 reserves.

Figure 12.1 | Projections of our funding level

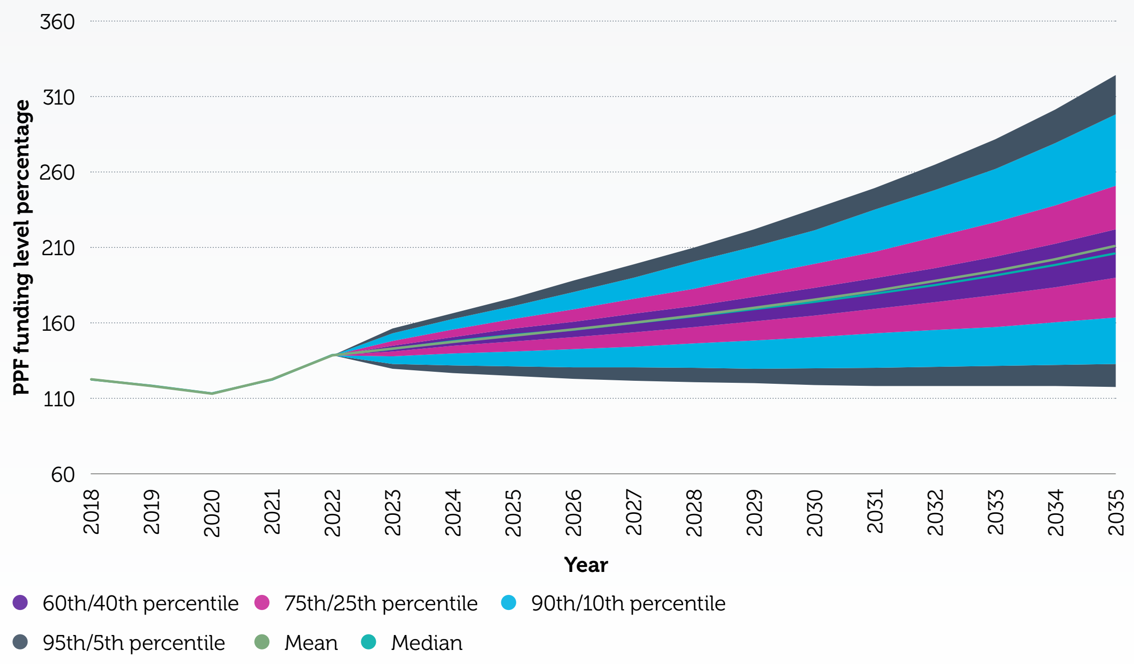
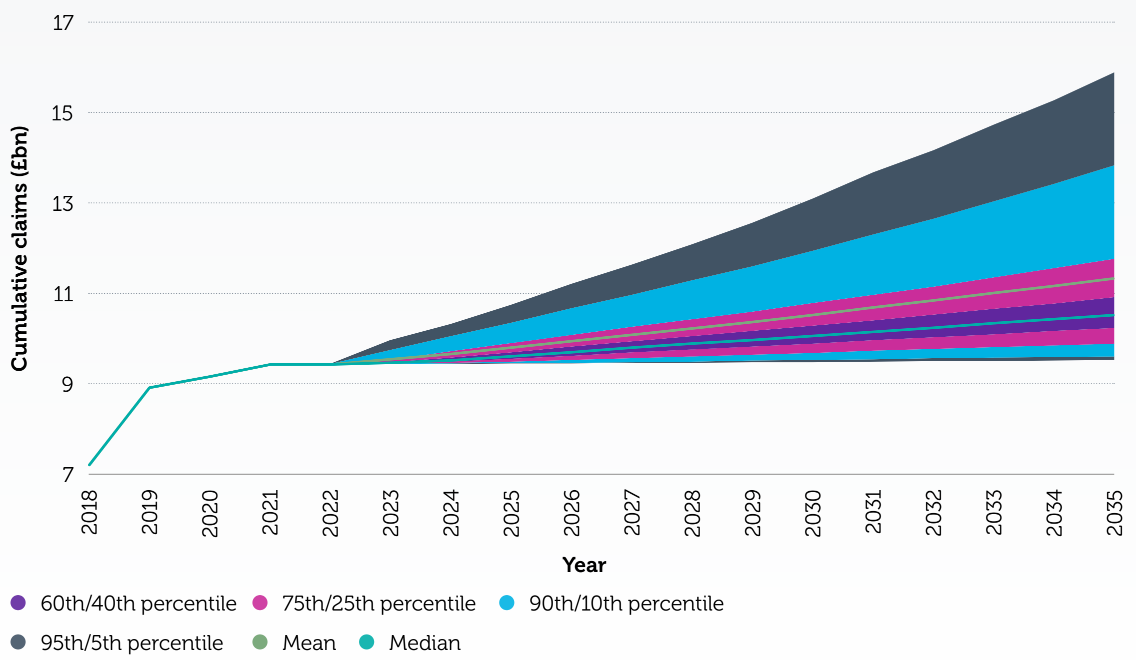


Figure 12.2 below shows the history of claims as well as the distribution of modelled claims on the fund beyond 2022. This is the risk our Priority 2 reserves are designed to protect against. As at 31 March 2022 we were close to having sufficient reserves to meet out Financial Resilience test and have a high likelihood of achieving it by the time of our next planned detailed review in 2025. The chart also shows that in many of our modelled scenarios we can expect modest growth in our cumulative claims, which is a defining feature of the maturing phase. We do still have some scenarios where significant claims occur.

Figure 12.2 | Projections of cumulative claims



Risks not allowed for in our modelling and possible future changes in the risk landscape

Like all financial services institutions, we are exposed to possible changes in the external environment, which could have an impact on our finances but over which we have no or limited influence. At this stage it would not be appropriate to incorporate all such factors into our modelling and our funding targets. The following paragraphs discuss some of the most material risks which we are currently monitoring.

Climate risk: We consider climate change as a systemic risk, which can affect the value of our investments across the short, medium and long term. We have engaged with the Paris Aligned Investment Initiative (PAII) and other initiatives to improve our management of these risks. As a supporter of the Task Force on Climate-related Financial Disclosures (TCFD), we commit to reporting on our climate-related governance, strategy, risk management, and metrics and targets. Our dedicated TCFD Climate Change Report[1] shares this information in-depth. Climate change could, over the medium to long term, have a significant impact on the level of claims we receive. This is due to impacts on the value of scheme asset portfolios and on sponsor insolvency risk. Increased requirements on pension schemes for disclosure are likely to drive changes in approach to investment. Also, longevity risk is potentially affected by climate change, which could impact the reserves we need to meet our Financial Resilience Test. We continue to review and develop approaches to help us understand the potential impact of climate change in our risk exposure.

1 https://www.ppf.co.uk/sites/default/files/2021-09/PPF_ClimateChangeReport2021.pdf

COVID-19 pandemic: Although, so far, we have not experienced an increase in claims attributable to COVID-19, due to government support for businesses, it is possible that longer-term consequences will feed through to higher future claims. Also, the long-term impacts on life expectancies are still unclear at this stage. Our modelling makes no allowance for longer-term expected impacts and assumes no further improvements in life expectancy over the shorter term.

Macro-economic changes to the economy: The current macro-economic environment remains volatile. There are a number of contributing factors which have led to both short-term and structural changes. The ultimate extent of the structural changes is still somewhat uncertain at this stage. Changes to working preferences are affecting the demand for certain types of goods and services. Supply issues are affecting the availability of component parts and labour in certain sectors. The current high inflation environment has been created by supply-demand imbalances, particularly in the energy and food sectors; the medium-term outlook for inflation is still uncertain. These issues may adversely impact the viability of sponsoring employers, which affects our biggest risk. The value of our financial assets may also be affected. The impact of this may however be muted to some extent as a high interest environment will act to improve funding for many schemes. This means that even if insolvency rates do rise, we expect a low proportion to transfer to us.

Buy-out pricing: A material deterioration in buy-out pricing either through supply issues or changes to underlying regulation could see the deficit in the universe we protect increase, hence increasing claims risk. Conversely, increased competition or regulatory change could see pricing become cheaper. This could in theory lead to a faster decline in the DB universe.

Commercial consolidators: Interest in consolidator vehicles continues to advance. However, the shape and size of the market are relatively unclear, so at this stage we have made no specific adjustments in our financial modelling. TPR has set out guidance for consolidators which indicates that the risk these new models pose to our ability to meet our funding objectives will be limited. At the time of writing one consolidator has been approved by TPR, but we have yet to see any successful transfers.

TPR's consultation on a new DB funding framework: TPR expects the draft code of practice on funding to be published in late 2022. The new framework is expected to be operational from September 2023. Its aim will be to increase the security of the benefits that have been promised to members of DB schemes, which also has the impact of reducing the likelihood and scale of claims on us.

Sensitivities

The LTRM output has been tested for sensitivity to a range of modelling assumptions. The sensitivity tests aim to provide an insight into how the model outputs might be affected if future experience is not as expected relative to the base case, best-estimate assumptions.

A selection of the more significant sensitivity scenarios tested this year are summarised in the table below. Under each of these scenarios, we are comfortable that our current strategic decisions would be unchanged.

The scenario having the most impact was a deterioration in funding by 10 per cent. In this scenario, our Financial Resilience Test may take two funding cycles rather than one to be met. That said, the coverage of future claims in this scenario remains very high.

Worsened funding levels for the schemes we protect	Scheme s179 funding levels reduce by 10 percentage points as a result of a decrease in asset values
Increased insolvency risk	Transition probabilities for all credit rating downgrades are increased by 10 per cent at all future times
Higher inflation and nominal interest rates	Inflation and nominal interest rates increased by one percentage point a year at all future times and all durations
Lower returns on growth assets	Growth asset returns are 0.2 percentage points a year lower at all future times

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Note on historical datasets.

Sources of data

The information used in Chapters 3 to 7 and Chapter 12 of this publication comes from three primary sources, as described below.

1. Scheme returns provided to TPR

Most of the analysis in this year's publication is based on new scheme returns issued in December 2021 and January 2022 and returned by 31 March 2022.

2. Voluntary form reporting

Electronic forms are available on TPR's website so pension schemes can provide data regarding contingent assets (Cas), valuation results on an s179 basis, DRCs and the s179 valuation results following block transfers. More information on DRCs and Cas is given in Chapter 8 (Risk reduction).

3. Sponsor failure scores

From the Levy Year 2021/22, D&B took over from Experian to provide us with scores for calculating the PPF levy using the PPF-specific model. This is a statistical model, developed using observed insolvencies among employers and guarantors of DB pension schemes. More detail on the model can be found on our website[1].

The starting point in establishing the insolvency risk element of the risk-based levy is normally the annual average of a scheme's D&B monthly scores. The average monthly score is then matched to one of 10 levy bands and the corresponding levy rate is used.

The data used in Chapters 9 (PPF levy 2021/22), 10 (Claims and schemes in assessment) and 11 (PPF compensation 2021/22) are derived from the PPF's business operations. The data from Chapter 8 is mostly taken from a variety of public sources, as noted underneath each figure.

The PPF-eligible DB universe and *The Purple Book 2022* dataset

The PPF covers certain DB occupational schemes and DB elements of hybrid schemes. Some DB schemes will be exempt from the PPF, including[2]:

- unfunded public sector schemes;
- some funded public sector schemes, for example, those providing pensions to local government employees;
- schemes to which a Minister of the Crown has given a guarantee;
- schemes with fewer than two members; and
- schemes which began to wind-up, or were completely wound-up, before 6 April 2005.

Scheme funding

As in previous *Purple Books*, the bulk of our analysis uses funding estimates on an s179 basis. This is, broadly speaking, what would have to be paid to an insurance company to take on PPF levels of compensation, and estimates of this are what we use in the calculation of scheme-based levies. The analysis in Chapter 4 (Scheme funding) uses s179 data submitted by schemes on TPR's Exchange system by 31 March 2022 and we roll these asset and s179 liability values forward to 31 March 2022 in the following way:

- The asset values are rolled forward using the asset split information submitted on Exchange by schemes and the change in benchmark asset indices over the period. This roll forward methodology will only allow for unfunded LDI arrangements such as interest rate swaps to the extent that the exposure is reflected in the asset split information submitted. DRCs that have been submitted by schemes for levy purposes[3] have been added to the asset values submitted in s179 valuations. These DRCs represent the contributions made by the sponsoring employer between the s179 valuation date and 31 March 2022 after allowing for deductions for items such as additional benefit accrual and benefit augmentations. No allowance is made for membership movements over the period, for benefits paid out or the cost of new benefit accrual.
- The s179 liability values are rolled forward to 31 March 2022 using the s179 data submitted by schemes and converted to version A10 of the s179 assumptions that came into effect on 1 May 2021. No allowance is made for membership movements over the period, for benefits paid out or the cost of new benefit accrual.

As in previous years, PPF actuaries have also produced full buy-out estimates (i.e. based on original scheme levels of compensation) of the funding position for *The Purple Book 2022* dataset. These estimates are calculated in the same way as described above except an approximate allowance is made for the difference between the compensation we would pay members and the benefit levels paid by schemes based on the scheme benefits data submitted on Exchange.

Historical datasets

A dataset is collated for each edition of *The Purple Book*, including all appropriate schemes where scheme return information has been processed and cleaned. In subsequent months, more scheme returns are processed and cleaned and in 2006 and 2007 these were incorporated into the existing dataset to produce an 'extended' dataset. For 2006 and 2007, the increased coverage produced significantly different results to the original datasets. However, since then, datasets have been much larger and the increased coverage made only a small difference. Accordingly, comparisons are made with previous publications as follows:

- *Purple Books 2006* and *2007* – extended dataset
- *Purple Books 2008* to *2021* – original dataset

Scheme status

Scheme status in this *Purple Book* is split between:

- open schemes, where new members can join the DB section of the scheme and accrue benefits;
- schemes closed to new members, in which existing members continue to accrue benefits;
- schemes closed to future benefit accrual, where existing members can no longer accrue new years of service; and
- schemes that are winding up.

Because many larger employers have adopted the strategy of migrating their pension provision towards Defined Contribution (DC) by opening a DC section in an existing Defined Benefit (DB) scheme, many hybrid schemes may accept new members but no longer allow new (or existing) members to accrue defined benefits.

This has been handled differently across different editions of *The Purple Book*. In *The Purple Book 2006*, 40 per cent of members were in the open category and 25 per cent were categorised as 'part open'. The 'part open' category included a significant number of hybrids for which the DB element was closed. In *The Purple Book 2007*, the 'part open' category was removed and the percentage of schemes classified as open increased compared to *The Purple Book 2006*. Many hybrid schemes which had previously identified themselves as 'part open' now identified themselves as 'open'. In *The Purple Books 2008* and *2009*, we analysed the largest 100 schemes (by membership) in the hybrid category separately, so we could adjust the information provided in the scheme returns and remove potential misinterpretation caused by hybrid schemes with closed DB sections declaring themselves as open.

Improved levels of information on hybrid schemes are now available from the scheme returns and since *The Purple Book 2010* we have been able to adjust hybrid statuses to 'closed' where DB provision is not available to new members. Since 2013, those hybrids which no longer admit new DB accruing members are categorised as 'closed to new members'. In addition, where those schemes have no active DB membership it is assumed that the scheme is closed to future accrual. The changes to the information available and consequent developing approach across the various editions of *The Purple Book* should be taken into account when comparing figures from different editions.

1 For more information see: https://www.ppf.co.uk/current-levy-rules
2 For a more comprehensive list see 'eligible schemes' on our website.
3 For more information see the 2021/22 DRC appendix and guidance on our website. 2021/22 levy year | Pension Protection Fund (ppf.co.uk)

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Active member
In relation to an occupational pension scheme, a person who is in pensionable service under the scheme.

Annuity
Contract through which payments of a portion of a scheme's liabilities are met by a third-party insurance company.

Assessment period
The time when a scheme is being assessed to see if the Pension Protection Fund can assume responsibility for it.

Buy-out basis
The level of coverage the current assets will provide if all benefits were to be bought out in the name of the individual member with an insurance company. See also: full buy-out.

Claims
When an employer of a DB pension scheme becomes insolvent and the pension does not have sufficient assets to buy out the liabilities. The DB Scheme members then become members of the PPF.

Closed (to new members)
The scheme does not admit new members. Existing members can continue to accrue pensionable service/benefits.

Closed (to new benefit accrual)
The scheme does not admit new members. Existing members no longer accrue pensionable service/benefits.

Commercial consolidators and superfunds
These are pension vehicles established to consolidate the DB assets and liabilities of unconnected employers, with no link to the original employer. In some commercial cases the intention is to provide returns to investors.

COVID-19 pandemic
The spread of COVID-19 viral infections across the globe. When discussing this we are referring to the wide-ranging impacts, particularly including the impact of restrictions imposed due to the pandemic on financial markets as well as employers, operations and financial strength.

Dead company
A company that is dissolved.

Deferred member
In relation to an occupational pension scheme, a person (other than an active or pensioner member) who has accrued rights under the scheme but is not currently accruing or being paid benefits under the scheme.

Deficit
A shortfall between what is assessed as needed to pay a scheme's benefits as they fall due (this is the scheme's 'liabilities') and the actual level of assets held by the scheme.

Deficit-Reduction Contribution (DRC)
A one-off (or irregular) contribution made by a scheme sponsor to a pension scheme to reduce the level of deficit.

Defined Benefit (DB)
Benefits are worked out using a formula that is usually related to the members' pensionable earnings and/or length of service. These schemes are also referred to as final salary or salary-related pension schemes.

Defined Contribution (DC)
Benefits are based on the amount of contributions paid, the investment returns earned and the amount of pension this money will buy when a member retires. These schemes are also referred to as money purchase pension schemes.

Demographic risks
This is a financial risk to the PPF that members on average have different population-based factors than expected, for example the proportion married or age difference between members and their spouse.

Dun and Bradstreet (D&B)
A provider of insolvency scores used by us for PPF levy calculations.

Enterprise risk management framework
The process of identifying and documenting particular events or circumstances relevant to the organisation's objectives (threats and opportunities), assessing them in terms of likelihood and magnitude of impact, determining a response strategy, and monitoring process.

Experian
A provider of insolvency scores used by us for PPF levy calculations.

Financial Resilience
Defined by us to mean having a high level of confidence of being able to pay compensation to both our current and future members in full, with no support required from investment returns and levy.

Full buy-out
The cost of insuring a pension scheme in the private market. The discount rate applied to liabilities would generally be more prudent than the discount rate applied to section 179 valuations. The benefit assumed in private insurance is usually non-capped and thus could be greater than PPF coverage.

Gilt yield
The yield, if held to maturity, of a government (non-indexed) bond.

Growth assets
Assets that are expected to give a return in excess of the gilt yields, but have more risk of underperformance, for example equities or property.

Hedging
An investment that is made with the intention of reducing the risk of deterioration in a scheme's funding level.

Hybrid scheme or partial DB scheme
A scheme that can provide defined benefits and DC benefits. An example of a hybrid scheme would be a scheme providing benefits on a DC basis but that is or was contracted out of the state scheme on either a Guaranteed Minimum Pension or Reference Scheme test basis.

Glossary continued

Insolvency risk
The risk that a borrower will have to close business due to its inability to service either the principal or interest of its debt.

Insurance company
Insurance companies provide a range of services to pension schemes, including:

- asset investment;
- asset management;
- buy-in and buy-out;
- investment advice and expertise;
- custodian facilities; and
- scheme administration services.

Insurance policy
Investment class: a pooled fund provided by or a deposit administration contract purchased from an insurance company.

Investment portfolio
The group of financial assets that the PPF owns.

Investment strategy
The set of rules, behaviours and procedures, designed to guide the PPF's selection of an investment portfolio after considering our goals, risk tolerance, and future needs for capital.

Longevity risk
This is a financial risk to the PPF that members on average live for longer than the PPF expects, and therefore more funds are required to pay pensions for longer.

LTRM
Long Term Risk Model

Maturing phase
This is the second stage in the PPF's journey (after the growth phase). Once we have reached a certain size, the impact of new claims reduces and our liabilities stabilise.

Net funding position
Sum of assets less sum of liabilities, or sum of scheme funding positions. In a pool of schemes where schemes in deficit outweigh schemes in surplus, there is an aggregate deficit.

ONS
Office for National Statistics

Open scheme
The scheme continues to accept new members, and benefits continue to accrue.

Pensioner member
A person who is currently receiving a pension from the scheme or from an annuity bought in the trustee's name.

Pension Protection Fund (PPF)
A statutory corporation run by the Board of the Pension Protection Fund, established under the Pensions Act 2004.

The Pensions Regulator (TPR)
The UK regulator of work-based pension schemes; an executive non-departmental public body established under the Pensions Act 2004.

Pp
Percentage points

PPF levy
This is the annual amount that a pension scheme is charged by the PPF. It is composed of a scheme-based levy and a risk-based levy. It is similar to an insurance premium.

Repurchase agreement (repo)
The sale of a security combined with an agreement to repurchase the same security at a higher price at a future date.

Responsible investment
An investment strategy that incorporates environmental, social and governance factors in investment decisions and asset ownership.

Risk-based levy
See PPF levy. Calculated on the basis of a pension scheme's deficit and insolvency risk of the sponsoring employer.

Run-off phase
This will be the final stage of the PPF's journey. This will be the phase in which our liabilities fall as our membership matures.

Scheme-based levy
See PPF levy. Calculated on the basis of section 179 liabilities and the number of members in the pension scheme.

Scheme funding position
The difference between the assets and liabilities of a pension scheme (scheme deficit if negative, scheme surplus if positive).

Scheme member
In relation to an occupational pension scheme, a scheme member is any person who:

- is an active member;
- is a deferred member;
- is a pensioner member;
- has rights due to transfer credits under the scheme; or
- has pension credit rights under the scheme.

This includes scheme members whose only entitlements are equivalent pension benefits (EPBs), as those rights were earned through pensionable employment. Members (for occupational and personal schemes) do not include dependants of members. Those whose only entitlements are lump sum benefits payable upon death are also not included.

Section 179 (s179) valuation
To calculate the risk-based pension protection levy the Board of the Pension Protection Fund must take account of scheme underfunding. To achieve consistency in determining underfunding, schemes can complete a PPF valuation (section 179). This valuation will be based on the level of the scheme's assets and liabilities. The liabilities will be based on the scheme benefits taking into account key features of the levels of compensation paid by the Board of the Pension Protection Fund as set out in Schedule 7 of the Pensions Act.

Stress scenario
Changes simultaneously applied to a number of assumptions in the LTRM on asset returns, bond yields and insolvency experience.

Stochastic Model
Distributions of potential outcomes are derived from a large number of simulations (stochastic projections) which reflect the random variation in the inputs.

Swap
Investment: a contract calling for the exchange of payments over time. Often one payment is fixed in advance and the other is floating, based on the realisation of a price or interest rate.

Technical Provisions (TPs)
The TPs are a calculation made by the actuary of the assets needed for the scheme to meet the statutory funding objective. These include pensions in payment (including those payable to survivors of former members) and benefits accrued by other members and beneficiaries, which will become payable in the future.

Trustee
A person or company, acting separately from a scheme's employer, who holds assets in trust for the beneficiaries of the scheme. Trustees are responsible for making sure that the pension scheme is run properly and that members' benefits are secure.

Winding up / wound-up
After the wind-up is complete (the scheme is wound-up), there will be no assets or liabilities left in the scheme, and the scheme will cease to exist as a legal entity. Winding-up describes the process of reaching wind-up from the normal ongoing status. To make sure that members will still receive benefits, there are several options:

- transferring pension values to another pension arrangement;
- buying immediate or deferred annuities; or
- transferring the assets and liabilities of the scheme to another pension scheme.

The scheme must be wound-up in accordance with the scheme rules and any relevant legislation.

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Pension
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