

# Risk-based levy road show

January 2009

[www.pensionprotectionfund.org.uk](http://www.pensionprotectionfund.org.uk)

# Introduction and Summary

**Partha Dasgupta**  
Chief Executive

[www.pensionprotectionfund.org.uk](http://www.pensionprotectionfund.org.uk)

- **Introduction and summary**
  - Pension protection in the recession
  - The PPF levy journey
  - Why we propose to change the levy formula
- **How we propose to change the formula**
  - What contributes to PPF risk?
  - How this is reflected in proposed formula
- **What it will mean to levy bills**
  - Impact on levy bills
  - How this improves fairness
- **Influencing your levy**
  - Contingent assets and deficit reduction contributions
  - Levy appeals

**PPF was introduced to provide confidence in circumstances such as those of today**

**Pension  
Protection  
Fund**

- **Security for members:**
  - 12 million scheme members protected
  - 20,000 members receiving or going to receive compensation
  - 290 schemes (120,000+ members) in assessment
- **PPF balance sheet at 31 March 2008:**
  - Deficit of £517 million (funding 91%)
  - PPF can manage liabilities through the cycle
- **Affordability for schemes:**
  - Board, despite difficult times, delivered on August 2007 commitment with £700 million levy for 2009/10

## Recent experience – makes case for our new approach

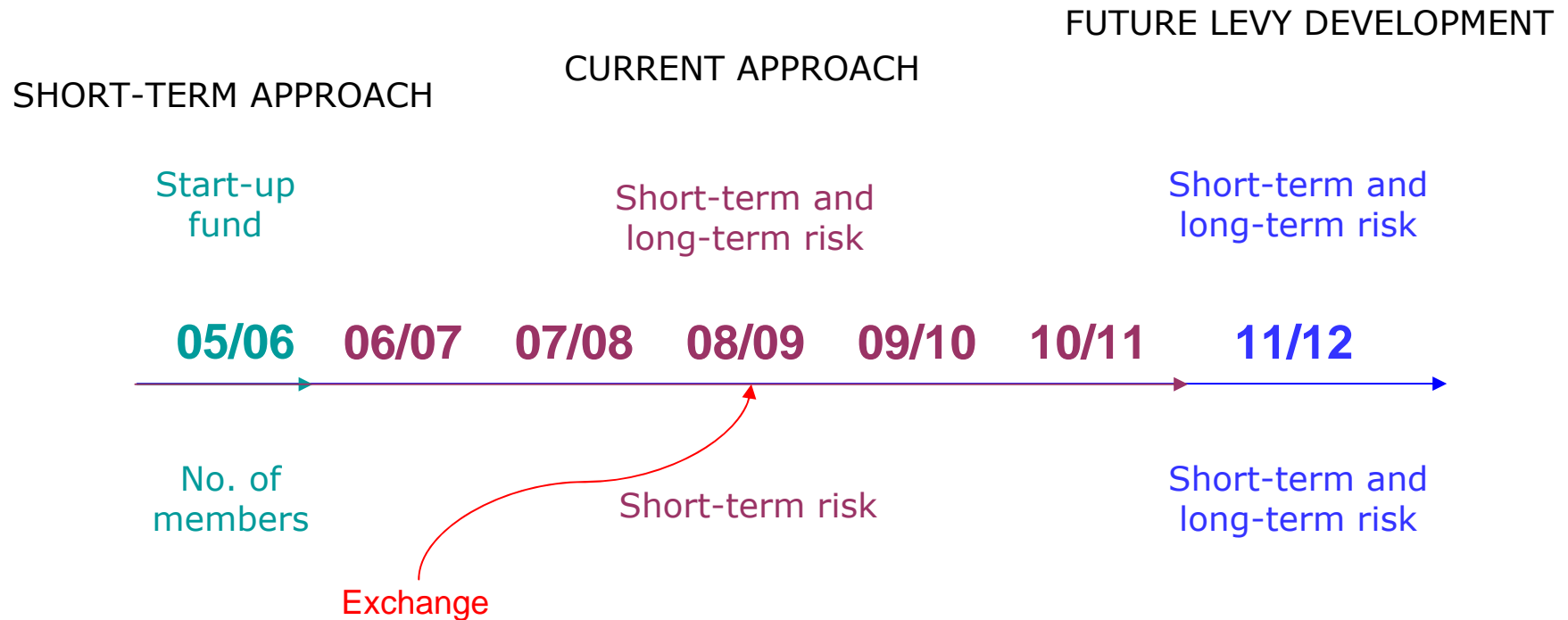
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Fund

- **Pension scheme deficits are vulnerable to market downturns**
  - PPF 7800 index estimates that scheme deficits have increased by 165% over 12 months
- **Economic crisis is now affecting corporate health**
  - PPF beginning to see increase in claims activity
- **Big companies can fail**
  - Lehman Brothers scheme entered assessment in October 2008
  - Woolworths and Wedgwood/Waterford will follow

# Timeline for the development of the levy

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Quantum: total levy we aim to collect in a year



Distribution: how do we share the quantum between schemes?

## The levy in 2009/10 and 2010/11

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- **For 2009/10**
  - Still time to take risk reduction measures
  - All certification via Exchange
- **For 2010/11**
  - Still time to submit s179 / update scheme info / engage with D&B until 31 March 2009
  - Time for risk reduction measures until 31 March 2010
- **For 2011/12**
  - Consultation closes 13 February 2009

## Themes underpinning our approach to developing the levy

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- **Best evidence principle**
  - Individual levy bills should be based on relevant, accurate and consistent data
- **Insurance principle**
  - Individual levy bills should be “priced” using theoretically sound and empirically valid techniques
- **Provide incentives to reduce risk**
  - Individual levy bills should credit actions taken by schemes and employers to reduce their risk to PPF

# How we propose to change the formula

Martin Clarke  
Executive Director of Financial Risk

[www.pensionprotectionfund.org.uk](http://www.pensionprotectionfund.org.uk)

## Why change the levy?

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- **Help improve confidence in pensions**
  - A sustainable PPF providing long term protection
  - Increased stability in the levy at the individual level
  - Individual bills better reflect the risk posed by schemes to PPF
- **Schemes and sponsors have called for:**
  - Fairer distribution of the cost of the levy
- **We have been consulting since August 2007**
  - Established a technical reference group
  - Engaged specialist consultants

- **PPF levy is set by the Board on a long term basis**
  - This reflects risk over a cycle and reduces intergenerational subsidies
- **The current formula is a “simple” calculation based on cost of risk over one year**
  - This is “scaled up” to meet our estimate of total levy
- **The fair share of this total cost is not proportionate to that of the “one year” cost**
  - Extreme events are characterised by severe funding shortfalls and increased propensity of sponsor failure
- **The new formula includes a component to address this without any additional data requirements**
  - The new approach can be adapted for investment risk

The new levy proposals have been developed using the PPF long term risk model (LTRM)

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- **LTRM is a unique model of UK defined benefit pension scheme risk**
  - Developed over three years using proprietary and in-house modules
  - Subject to audit and ongoing quality assurance
- **LTRM uses a comprehensive dataset of UK schemes to model future outcomes**
  - 7400 schemes supply data through Exchange
- **PPF Board uses LTRM to help set levy each year**
  - LTRM assesses short term and long term claim costs
  - And helps us to set appropriate margins

**The current levy formula comprises one risk-based and one scheme based component:**

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- **The risk-based levy is calculated by scaling up one year ahead expected claims ( $P \times U$ ) to 80% of the total levy**
  - Scaling factor can be volatile
  - At times this can place a burden on the weaker and less well-funded schemes
  - Well funded schemes pay little or no risk-based levy
- **The scheme based levy is based on size (liabilities) alone**
  - The scheme-based levy is limited to 20% of the total levy
  - Schemes pay more or less regardless of whether they have low or high risk

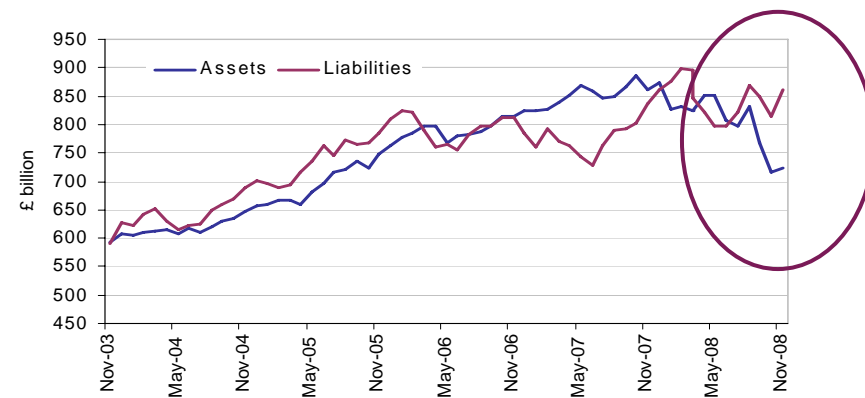
# Current markets illustrate the potential for underfunding risk to change over time

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Protection  
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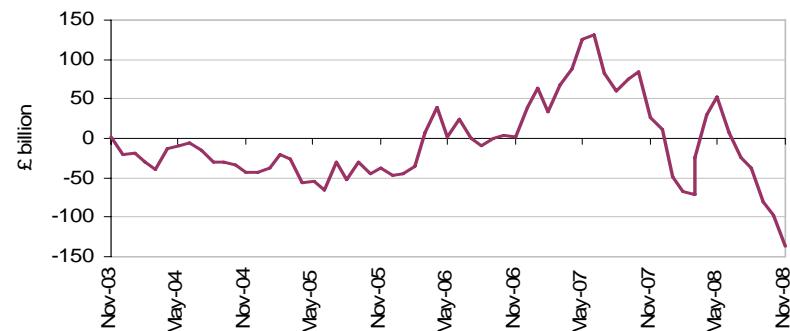
## PPF 7800 index tracks pension scheme exposure

- At end of Nov 2003 we estimate there to have been only a modest deficit
- At end of Dec 2008 the aggregate deficit was £195 billion
- 89% schemes were in deficit at an aggregate deficit of £210 billion

Estimated s179 Aggregate Assets and Liabilities



Estimated s179 Aggregate Balance  
Total Assets Less Total Liabilities



**Not only can the aggregate deficit display such volatility, but an individual scheme's share of the total deficit will vary**

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- **By way of example consider two schemes with liabilities of £10 million**
- **Five years ago one had no deficit on a s179**
  - U for this scheme would have been £500k  
(105% - 100%) x £10m
- **The other was 90% funded on a s179 basis**
  - U for this scheme would have been £1.5m  
(105% - 90%) x £10m
- **Over the five years both schemes' deficits grow**
  - But the deficits do not move proportionately

The gearing effect means that a scheme's share of the total deficit will vary over time

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Five years ago



Today

Growth  
in "U"

Average £10m Scheme:  
100% funded  
U = £500k

£14.5m Scheme:  
84% funded  
U = £3m

6 times

Weaker £10m Scheme:  
90% funded  
U = £1.5m

£14.5m Scheme:  
75% funded  
U = £4.5m

3 times

The long-term exposure is not proportionate to today's "U"

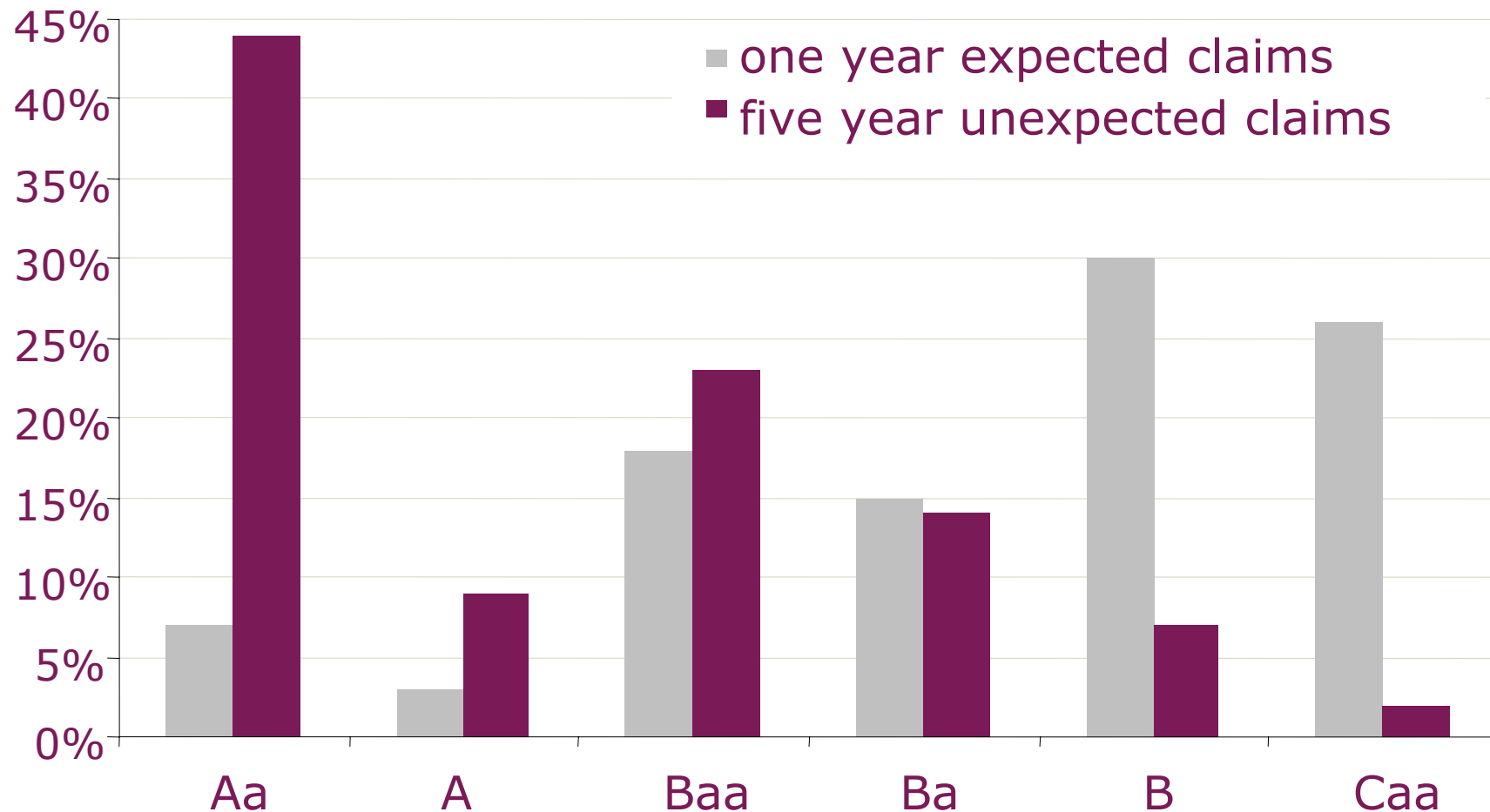
**Similarly the likelihood of insolvency  
is not proportionate in the extreme event**

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- **History shows that stronger (well-rated) companies decline over time**
- **Equally, poorly rated companies (that survive) become stronger on average**
- **Recent experience in the banking sector illustrates how this deterioration can occur rapidly**

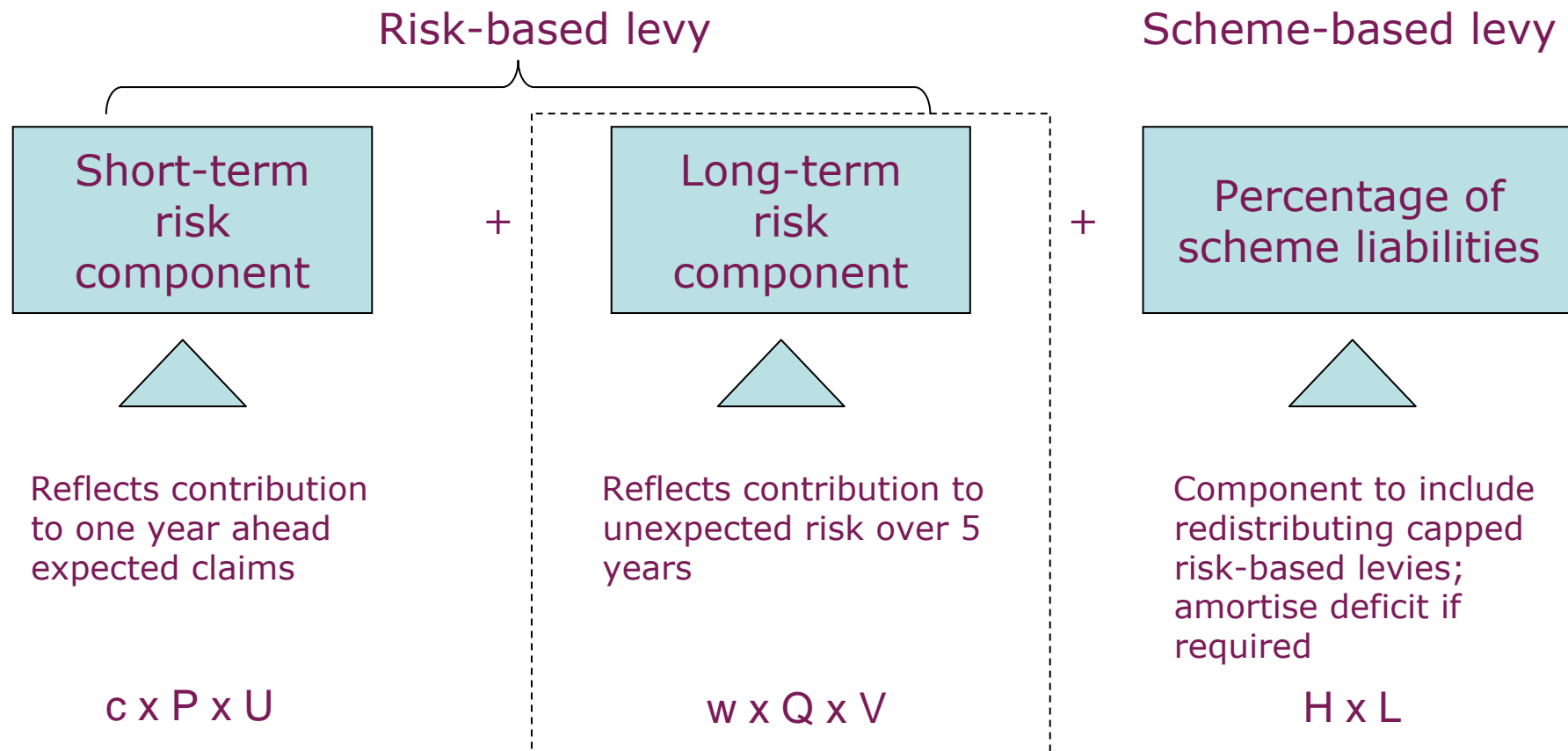
# Highly rated companies can in certain scenarios dominate PPF's claims experience

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# The proposed approach to the risk based levy adds a second component to reflect unexpected risk

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# Our consultation examines several possible approaches to investment risk but with clear preferences

	Less complex & less accurate			More complex and more accurate	
	1. No differentiation	2. Self-certify as low risk	3. Exchange data	4. Voluntary certificate	5. Internal models
Description	<ul style="list-style-type: none"> <li>'Average' investment risk used in calculating funding</li> </ul>	<ul style="list-style-type: none"> <li>Schemes can submit a certificate stating they have lower investment risk</li> </ul>	<ul style="list-style-type: none"> <li>Use exchange data on scheme asset and liability mix in calculating funding</li> </ul>	<ul style="list-style-type: none"> <li>Collect results of stress-tests on assets</li> </ul>	<ul style="list-style-type: none"> <li>Allow schemes to measure own deficit volatility and notify</li> </ul>
Key challenges	<ul style="list-style-type: none"> <li>No recognition of de-risking</li> </ul>	<ul style="list-style-type: none"> <li>Cliff edges</li> </ul>	<ul style="list-style-type: none"> <li>Fairer than 1 or 2</li> <li>but schemes that have hedged their exposure still lose out</li> </ul>	<ul style="list-style-type: none"> <li>Still doesn't fully reflect investment risk e.g. interest rate hedges not captured?</li> </ul>	<ul style="list-style-type: none"> <li>Only suited to large schemes?</li> <li>Adverse selection risk?</li> </ul>

## The proposed formula has a number of advantages

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- **Overall level of fairness improved**
  - Reflects unexpected as well as expected risk
  - No additional scheme data requirements
  - Still recognises risk reduction via contingent assets
  - Potential to reduce scheme-based Levy
- **Less sensitive to scheme underfunding and insolvency risk**
  - Scaling factors will be less volatile
  - Year on year stability in levy bills
- **More sensitive to scheme investment risk**
  - 10% of levy redistributed by including investment risk on a scheme specific basis
  - Future opportunity to recognise more sophisticated risk reduction practices

# What will it mean for schemes?

Chris Collins  
Head of Levy Policy

[www.pensionprotectionfund.org.uk](http://www.pensionprotectionfund.org.uk)

## The proposed new formula: what will change

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Short-term risk  
component

+

Long-term risk  
component

+

Scheme-based  
levy

$C \times U \times P$

+

$w \times V \times Q$

+

$H \times L$

### What is new?

- Underfunding measures U, V take account of investment risk over 1 & 5 years
- Will be a long-term insolvency measure Q derived from the 1 year measure, P
- C & w replace the levy scaling factor

## A practical example : Acme plc Pension Fund

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### Acme exhibits high short term risk:

- liabilities £10m - active/deferred/retired 40/30/30%
- £9m assets - 60% equities, 40% bonds;
- Employer D&B score – 49


**So it pays a high levy on the current formula. For 2008/09 it would have been:**

$$\begin{aligned}\text{Levy} &= \text{scheme-based levy} + \text{risk-based levy} \\ &= 0.000165 \times 10\text{m} + (3.77 \times 0.8 \times 0.0102 \times \text{£}3,100,000) \\ &= \text{£}1650 + \text{£}95,366 \\ &= \text{£}97,015\end{aligned}$$

# Insolvency risk : calculating the long-term insolvency probability

- $p$  is the short-term insolvency probability; calculated on failure score data supplied by the insolvency provider
- $q$ , the conditional long-term insolvency probability is derived from the short-term insolvency probability ( $p$ ) using a conversion table published by the PPF
- For multi-employer schemes the translation  $p$  to  $q$  is done first, then  $P$  and  $Q$ s are calculated (so “ $Q$ ” is weighted average of “ $q$ ” scores)

Table to be published in  
Determination – indicative  
values shown in Annex B  
table 8



D&B score	1yr insolv. rate (p)	5year freq (q)
100	0.01%	0.7%
...	....	....
50	0.98.%	9.3%
49	1.02%	9.5%
....	....	....

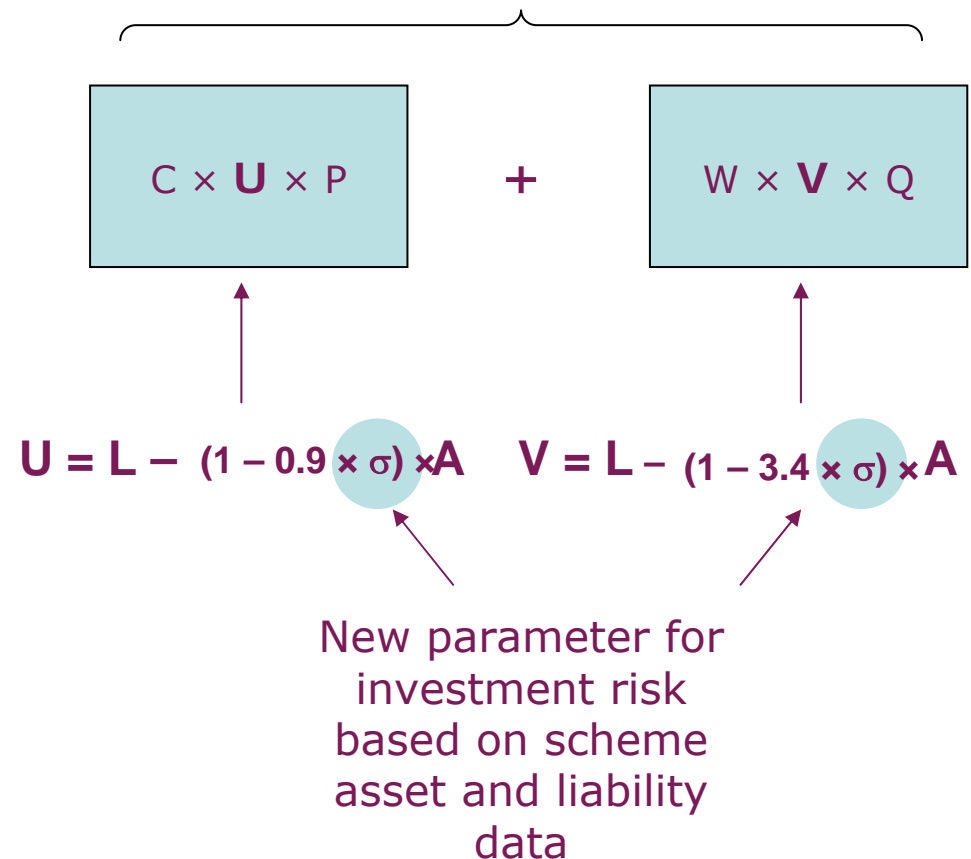
# Underfunding measures use a scheme's investment risk

Pension Protection Fund

Investment risk factor ( $\sigma$ ):

- measures variability of scheme deficit
- For typical scheme with c60% equities & 40% bonds, result around 10-12%
- Calculated by PPF alongside roll forward of assets and liabilities, using same data
- Example of method shown in Annex C of consultation doc

## Risk-based levy



\* Note that U and V have a minimum of zero

## First component of Acme's levy: Short-term risk

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$$c \times U \times P$$

- $c$ , rate for short-term risk  $c = 1.16$
- $U$ , short-term underfunding
$$U = L - (1 - 0.9 \times \sigma) \times A$$
$$= \text{£}10\text{m} - (1 - 0.9 \times 0.115) \times \text{£}9\text{m}$$
$$= \text{£}10\text{m} - 0.8965 \times \text{£}9\text{m}$$
$$= \text{£}1,931,500$$
- $P$ , obtained from D&B failure score  
D&B score [49]  $p = 1.02\%$
- So short-term risk component is:
$$1.16 \times \text{£}1,931,500 \times 0.0102$$
$$= \text{£}22,853$$

## Second component of Acme's levy: Long-term risk

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$$w \times V \times Q$$

- $w$ , the rate for long-term risk  $w = 0.086$
- $Q$  long-term insolvency measure  $Q = 9.5\%$  for a  $p$  of 1.02%
- $V$  long-term underfunding measure
$$\begin{aligned} V &= L - (1 - 3.4 \times \sigma) \times A \\ &= \text{£}10\text{m} - (1 - 3.4 \times 0.115) \times \text{£}9\text{m} \\ &= \text{£}10\text{m} - (0.609) \times \text{£}9\text{m} \\ &= \text{£}4,519,000 \end{aligned}$$

Component for long-term risk:  $0.086 \times 0.095 \times \text{£}4519000$   
 $= \text{£}36,920$

## The overall levy for Acme:

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### The new levy would be:

= Scheme-based levy + risk-based levy components

=  $0.0000825 \times 10\text{m} + \text{£}22,853 + \text{£}36,920$

=  $\text{£}825 + \text{£}22,853 + \text{£}36,920$

= **£60,598**

### By comparison, the current levy:

= **£97,015**

## What are the distributional effects of the proposed formula?

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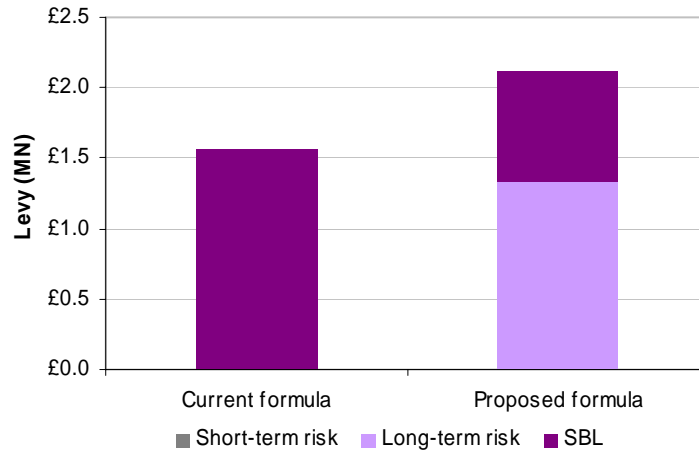
### Effects are complex as three factors interact:

- Schemes with good short-term risk characteristics tend to see an increase in levy as their long-term risk will be properly recognised
- Schemes with low investment risk tend to pay less, higher risk schemes tend to pay more
- On our modelling, the lower scheme-based levy, means large schemes paying less than otherwise.

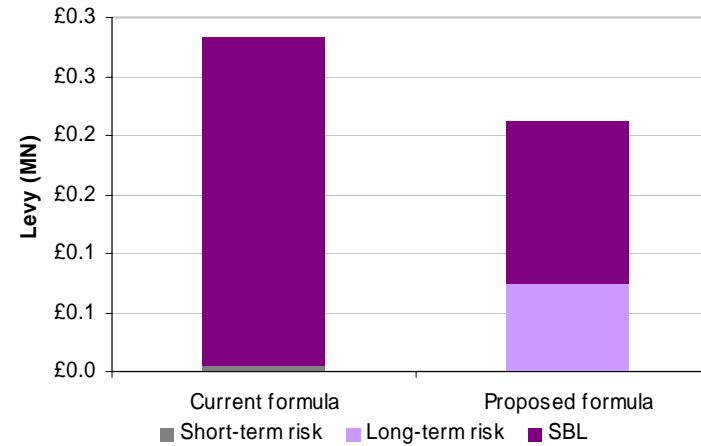
# Who pays less / Who pays more?

Pension  
Protection  
Fund

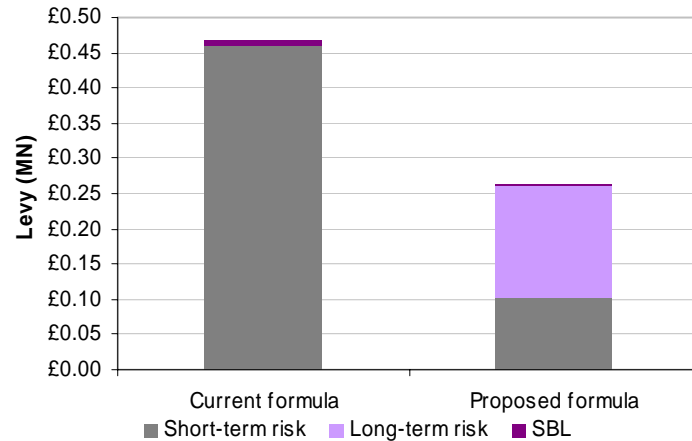
**Scheme 1, rated A**  
(Liab = £9.2 BN, funding level = 172%, 82% equities)



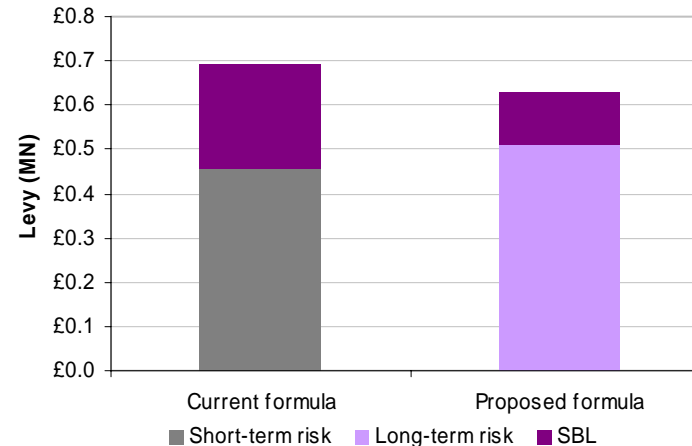
**Scheme 2, rated Aaa**  
(Liab = £1.6 BN, funding level = 121%, 40% equities)



**Scheme 3, rated B**  
(Liab = £43.8 MM, funding level = 94%, 59% equities)



**Scheme 4, rated Ba**  
(Liab = £1.4 BN, funding level = 119%, 26% equities)

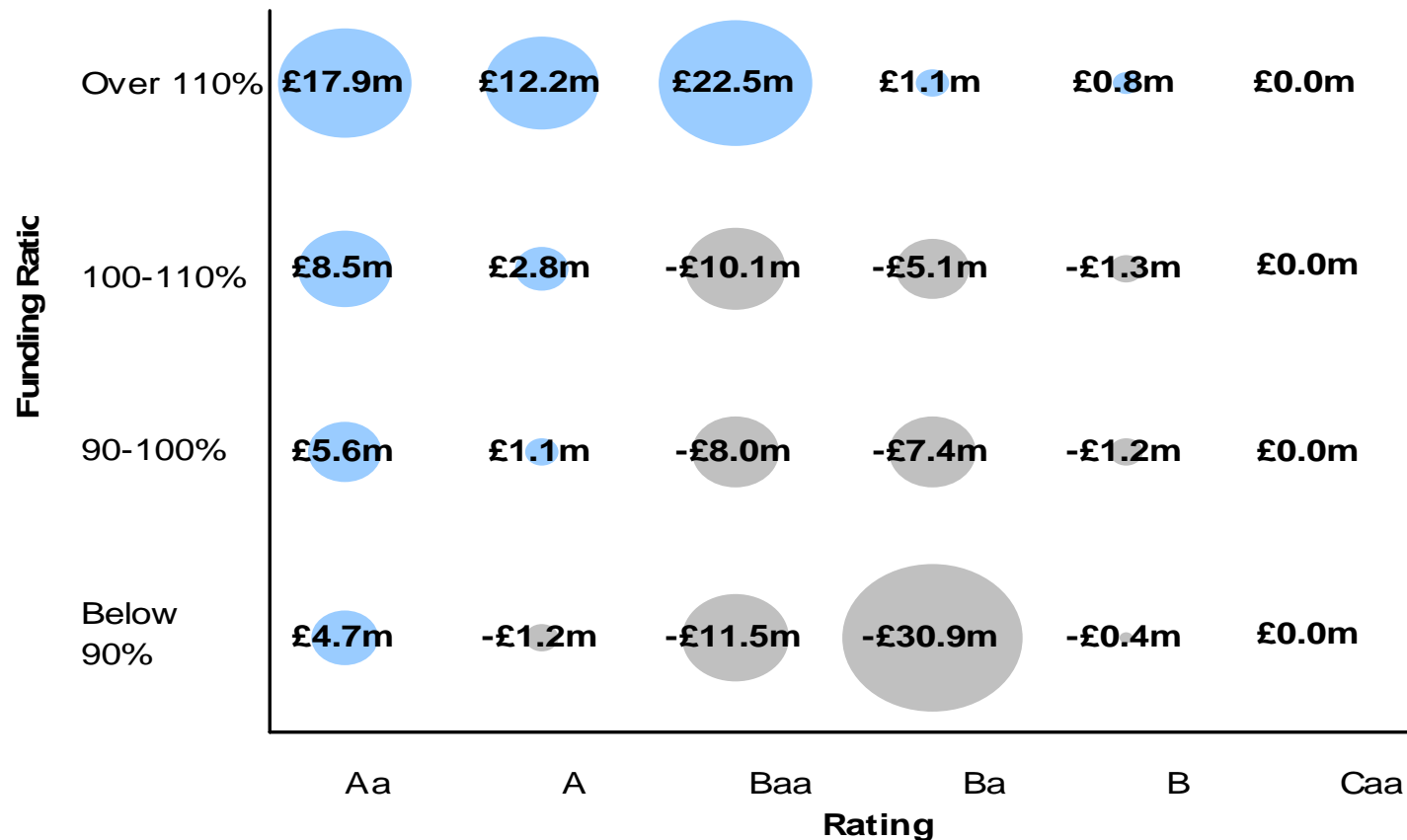


# What is the impact on schemes: by funding level and credit rating/1

Pension  
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Fund

● Levy increase ● Levy reduction

Note: Bubble size is determined by amount of levy in £

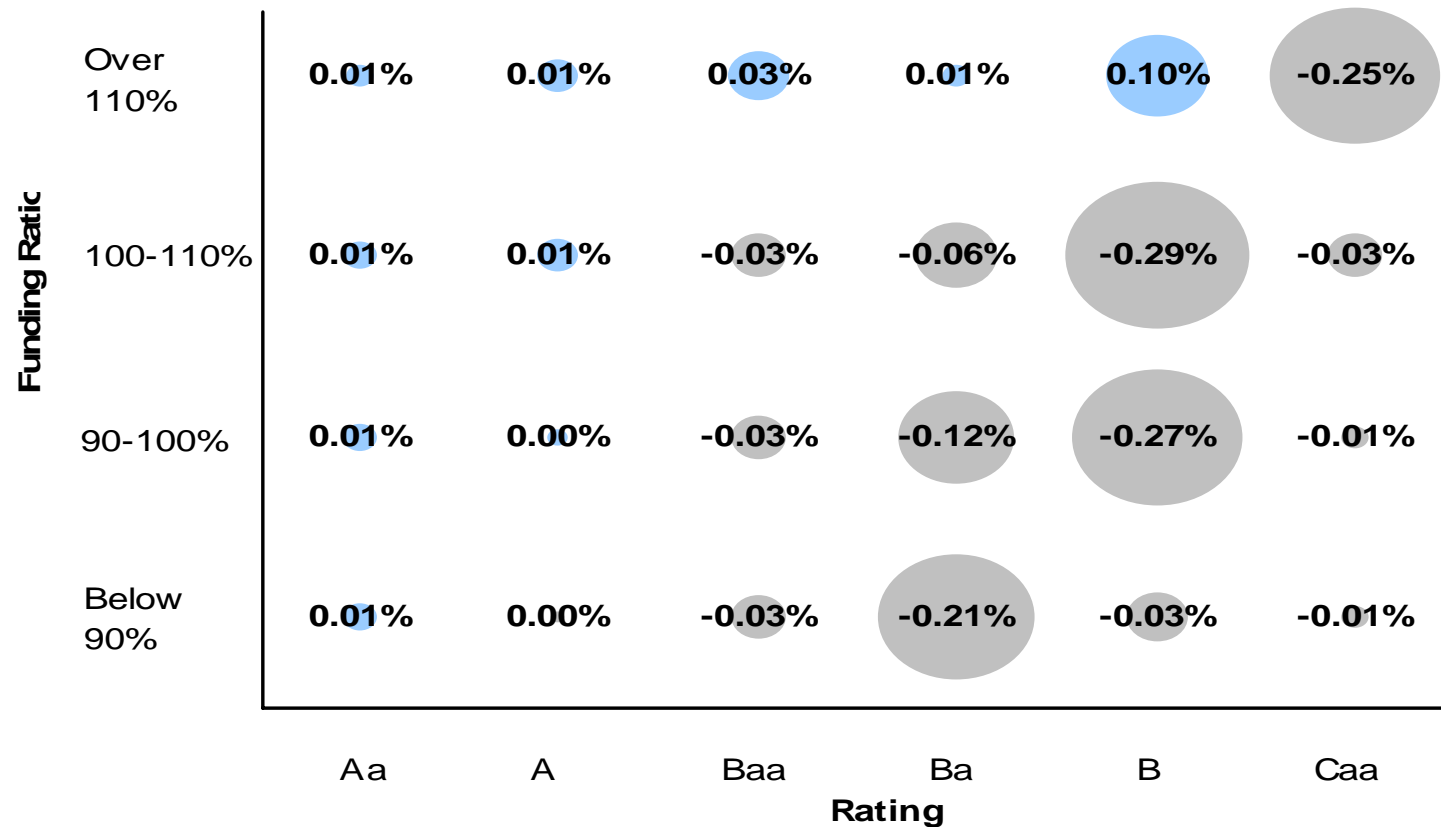


# What is the impact on schemes: by funding level and credit rating/2

Pension  
Protection  
Fund

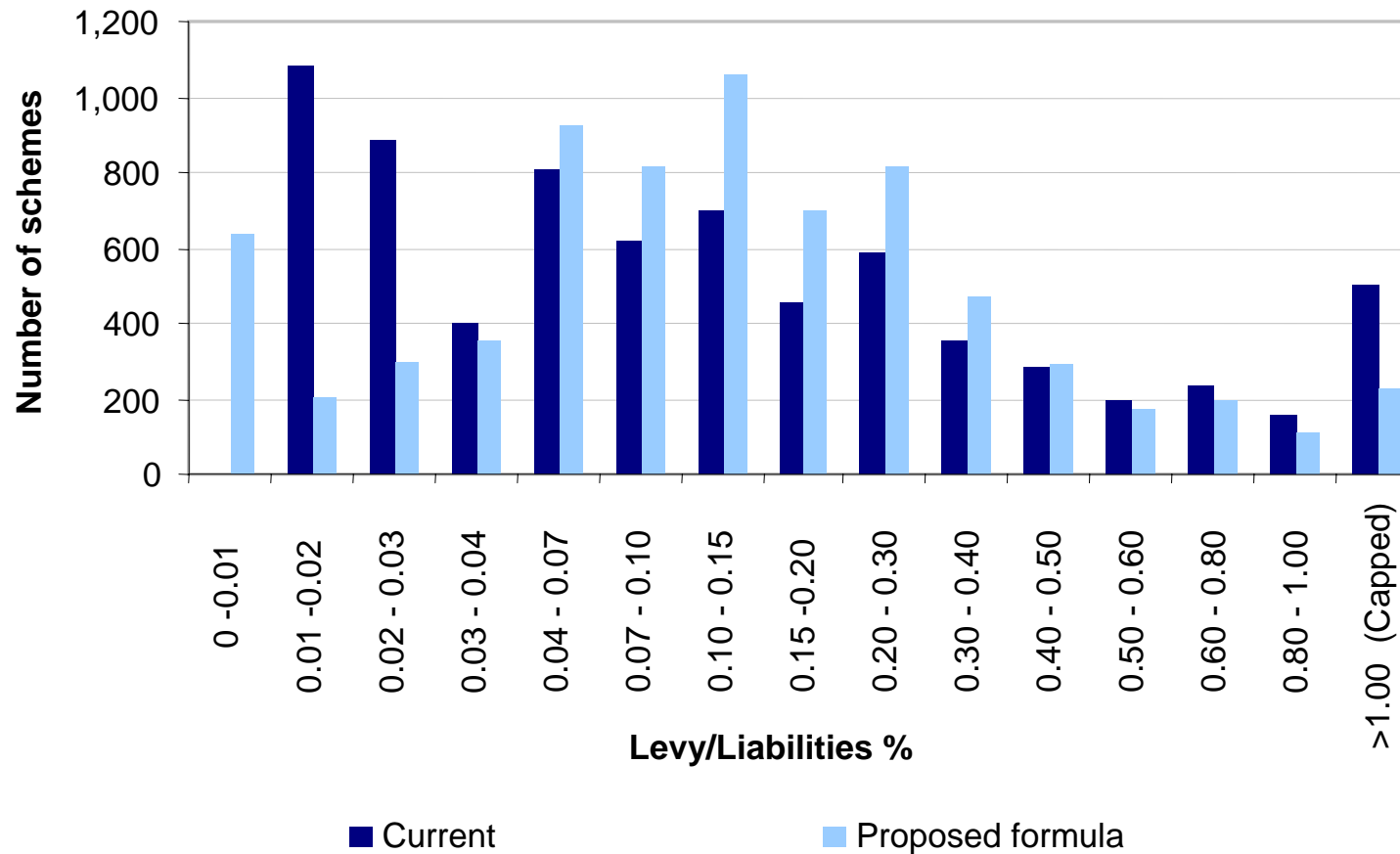
● Levy increase ● Levy reduction

Note: Bubble size is determined by amount of levy as percentage of liabilities



# Affordability - Fewer schemes pay a high levy relative to liabilities

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# What can schemes do to influence their levy bill?

David Taylor  
Head of Legal Services

Amanda Banister  
Senior Lawyer

- **Contingent assets**
- **Deficit reductions**
- **Insolvency risk**
- **Investment strategy**

## Contingent assets: take-up by 2008/09

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- **Three types of contingent asset:  
types A, B & C**
- **Increasing take-up, especially Type A**
- **Need to be robust if they are to be  
recognised in levy**

## Contingent assets: new levy formula (1)

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- We expect still to recognise the same basic types A, B & C
- We don't expect to change the documentation or certification requirements
- Recognition in the new levy formula consistent with treatment of non-contingent assets

- **Type A: risk switch in P and Q if the guarantee is “big enough”**
  - Full s75 debt or guarantees a sufficiently high funding level (whatever the assets)
  - Could reduce 105% threshold to 100%
  - Otherwise partial switch
- **Type B: generally include underlying asset as though non-contingent, and apply appropriate discounting for risk**
- **Type C: add in full after discounting non-contingent assets (i.e. assume zero risk)**

## Contingent assets: in the meantime....

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- Deadline for recognition in 2009/10 levy:  
**5pm 31/3/09**
- All voluntary certificates now submitted  
via **Exchange**
- Includes annual re-certification of  
existing contingent assets
- Hard copy documentation to the PPF:  
**5pm 31/3/09**

- Leaving it too late
- Failing to submit certificate or documents by the deadline
- Legal opinions – opine on the right matters
- Charges over property – registration requirements
- Value on the right basis
- Variations not wholly beneficial to trustees
- “DIY” – no/inadequate use of advisers

- **Deadline for 2009/10: 5pm 7/4/09**
- **Follow the rules**
- **Make sure the dates match**
- **Treatment in new levy formula: assumed invested in line with existing asset split**

- **Insolvency risk: D&B**
- **Exchange data: no corrections policy**
  - NB third anniversary of first s179s coming up
- **Investment strategy**
  - Investment info used for roll forward at present
  - 31/3/10 data will be used for  $\sigma$  in new levy formula for 2011/12
  - Start talking to your investment consultants now

- **3-stage review process**
  - Deadlines
  - Parallel D&B appeals
- **New interest power**
- **PPF Ombudsman decisions**
  - See [www.ppfo.org.uk/determinations.asp](http://www.ppfo.org.uk/determinations.asp)
  - 12 decisions to date – PPF not required to take any action
  - Distinction between policy and its implementation

## Closing remarks

Partha Dasgupta  
Chief Executive

[www.pensionprotectionfund.org.uk](http://www.pensionprotectionfund.org.uk)

- **Your bill will be fairer**
  - Your levy will better reflect your scheme's risk
  - Fewer schemes will face large bills
  - 10% of levy redistributed by including scheme-specific investment risk
  - The investment risk factor can be refined in future
- **Levy bills overall will be more stable**
  - Less sensitive to short-term changes in underfunding and insolvency risk
  - New levy parameters more stable than current scaling factor

## And what won't change?

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- **You can still reduce your bill by reducing risk**
  - Contingent assets
  - Deficit reduction contributions
- **You don't need to give us any more information**
  - Exchange will continue as the single data point
  - Investment risk information from the scheme return

But if nothing changes, the status quo will prevail, with the current issues, so...

We want to hear your views:

**Friday 13 February 2009**

**[consultation@ppf.gsi.gov.uk](mailto:consultation@ppf.gsi.gov.uk)**

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