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DB pensions: influence on the market valuation of the Pension Plan Sponsor

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The influence of DB pensions on the market valuation of the Pension Plan Sponsor

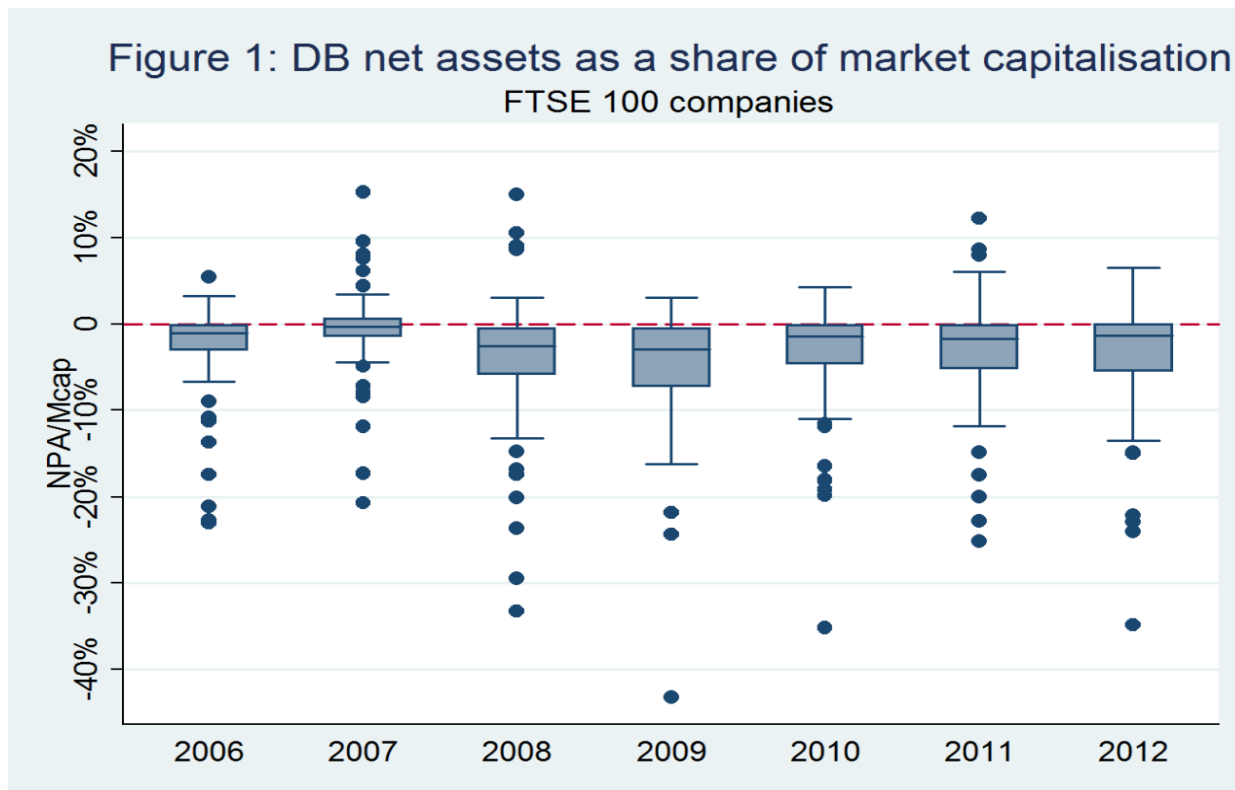
For the FTSE 100 companies, size really does matter

2014



There has been a major shift to defined contribution (DC) pensions

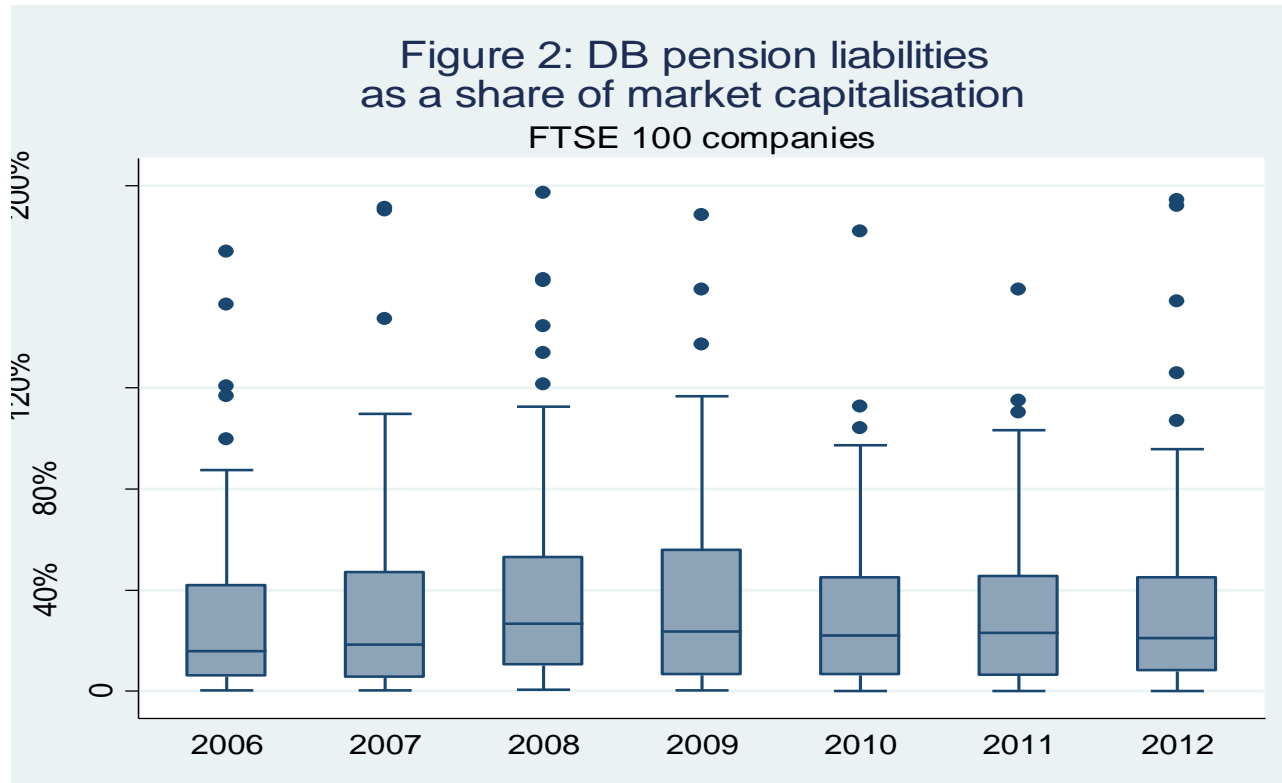
Nevertheless DB pensions remain a large component of company balance sheets



Notes: The shaded blue areas indicate the inter-quartile range, with median values shown as a solid bar. Maximum and minimum values in the normal range are shown by the outer bars, while the dotted points represent minor outliers. A small number of major outliers beyond the scale of the graphs are not shown for some years.

DB deficits and liabilities rose sharply at the time of the recession

They have since fallen, although they remain large for many companies



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Establishing the effects of DB schemes on company valuations

Four considerations

- It seems reasonable to suppose that, when a company liability is taken off (or added to) its books, this will be reflected, more or less one-for-one, in the company's valuation
 - There seems no reason why this should not apply to DB pensions, which are ultimately part of the company's overall liabilities
- However, a number of studies, notably those by US Fed researchers (Coronado and Sharpe, in 2003 and 2006) do not find any such effect
 - In particular, they argue that for US companies the pension “footnotes” are worthless
- That said, UK accounting standards differ considerably from those of the US
 - And reporting requirements have improved over time, resulting in more and better detail
- Hence there is an interest in looking at UK data for a more recent period
 - And thereby potentially profiting from the richer pension note details

The study's main findings

... in respect of the FTSE 100 companies for the period 2006 to 2012

- The valuation of UK companies apparently does reflect the value of their DB pension net liabilities, and more or less one-for-one
 - Provided that these liabilities are properly valued, and on a systematic basis
- Companies with large DB liabilities are apparently further penalised
 - This reflects their potential vulnerability to economic risks, and possible miss-valuation of liabilities

In this sense, size really does matter

- We reach these conclusions through a step-wise research procedure
 - This is reported in the study; but
 - Some people who have only skim-read the study have latched on to the first number they saw, and read no further

Some initial caveats

In drawing these conclusions we stress four points

1. We had no priors about possible findings
2. The study is econometric: and its conclusions are inferential
3. It is not a survey, nor does it seek to make forecasts. Rather it:
 - Looks at a large sample of companies over a reasonably long period; and
 - Examines hypotheses about broad tendencies of behaviour, and the consequences
4. Two matters warrant particular attention:
 - The (statistical) significance of the pension deficits (published or corrected) for share prices; and
 - The broad orders of magnitude, compared with previous studies

Research method

The basic approach was data-based, and used an econometric model

- We first compiled a large data base taken from the published company accounts for the FTSE100 and the associated pension notes, for the period 2006 to 2012
 - Specific account was taken of the precise accounting periods and key assumptions underlying the pension estimates
- Using these data we then estimated an econometric model which related market values to:
 - The reported book values of company net assets (ex-pensions);
 - Company earnings; and
 - Net DB pension assets, as reported in the notes to the annual company accounts, allowing also for annual and sectoral effects

Initial estimates

... confirmed that the model was reasonably well determined

- These (initial) estimates showed:
 - A strong and significant statistical correlation between net deficits and market valuation, as well as with
 - Company earnings and the non-pension book value of company net assets
- However, the initial estimated coefficient for pension net assets, while highly (statistically) significant was around 1.6
 - Taken at face value, this would imply that a £100 net pension deficit (or surplus) is valued by the market at around £160
 - But this seems implausibly high

Next stage: investigating sources of such a high coefficient

Separating pension liabilities and assets

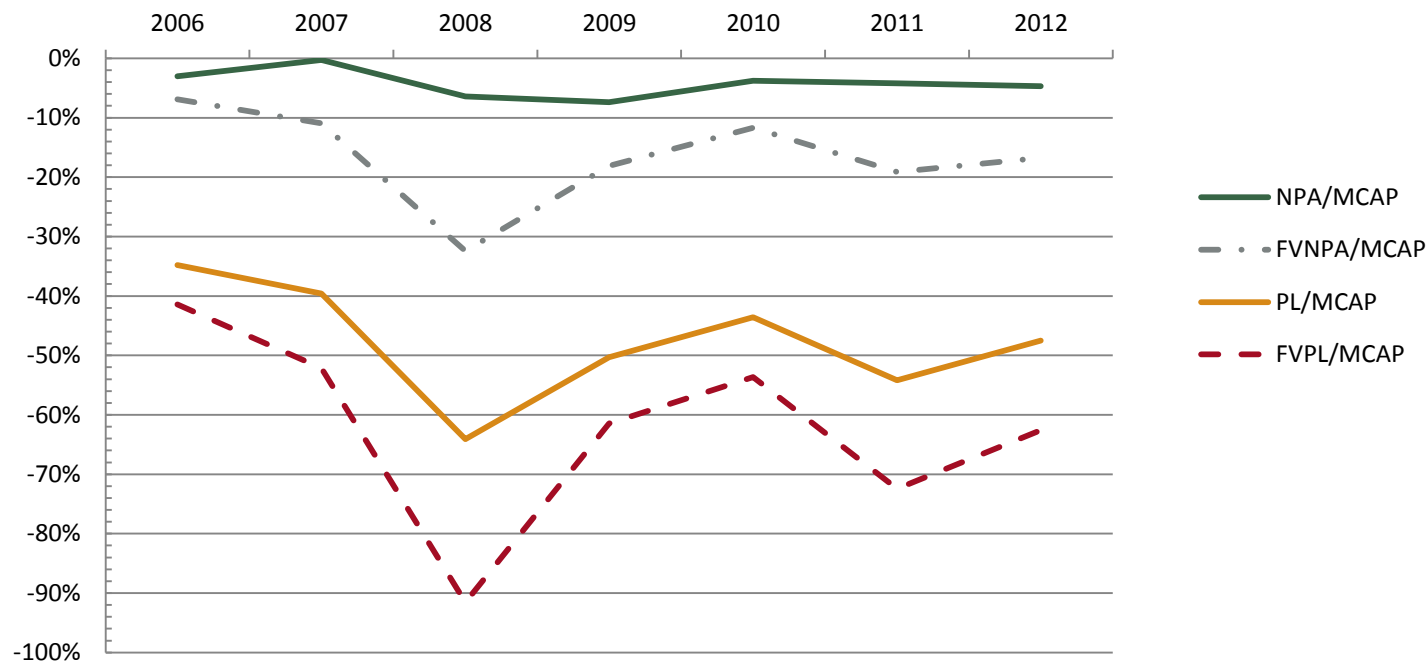
- We next estimated a model which explicitly separates the estimated effects into those coming, separately, from reported pension assets and reported pension liabilities
- These results were found to be equally statistically significant as, as well as an improvement on, the basic model
- The key result was that the market apparently attaches a higher weight to liabilities, with the weight on assets and hence the pure deficit being reasonably close to unity
- Specifically those estimates implied an impact of:
 - £85 per £100 of deficit; plus
 - An additional £18 per £100 of liabilities
 - This would be equivalent to a rule of thumb of an average risk premium of around 20% on reported liabilities
- Main limitation: the method implies that these results hold ‘across the board’, irrespective of the quality and information content of the specific company accounts

Investigating possible sources of bias in valuing DB liabilities

Standardising liability estimates across companies changes values importantly

- We estimated durations, and comparable (gilt) rates based on pension-note information and gilt market data to produce 'fair-value' estimates

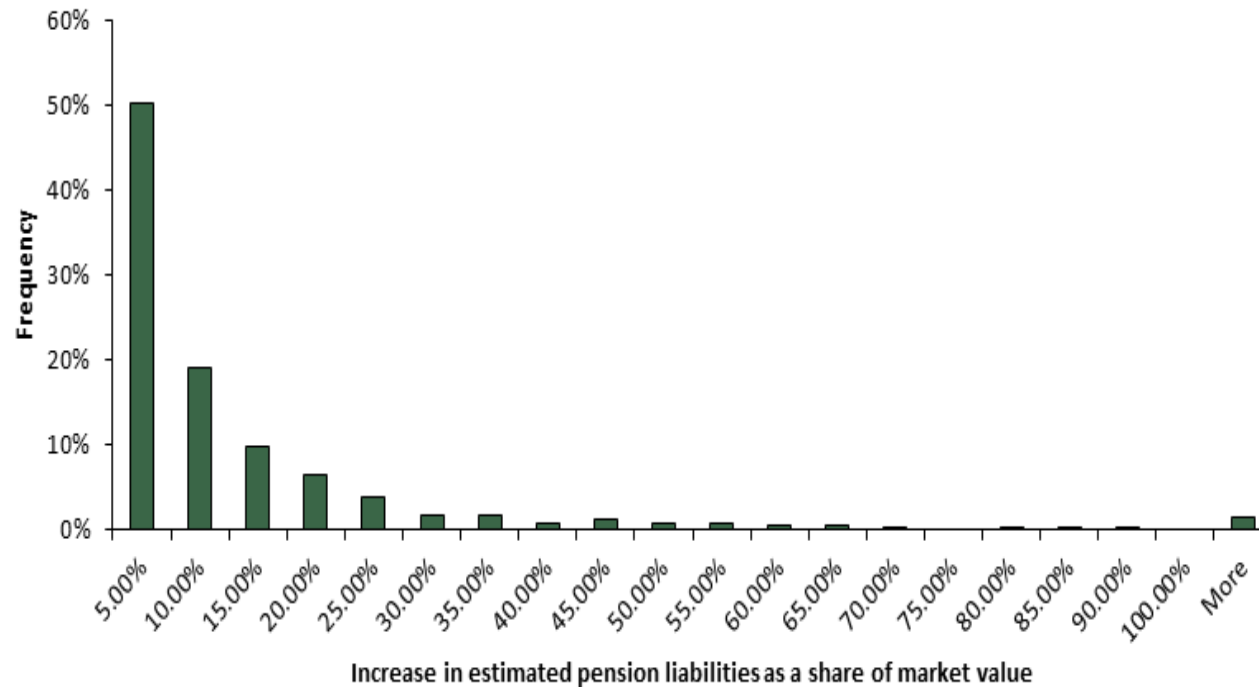
Figure 3: The effects of 'fair-value' adjustments on pension net assets and liabilities as a percentage of market value



The distribution of the 'fair-value' adjustments

... is skewed across companies

Figure 4: The impact of 'fair-value' adjustments on pension liabilities as a percent of market value



Source: *The DB Pensions Analytic Data Base*

Notes: Figure 4 reports the frequency distribution of percentage revisions to pension liabilities made through fair valuation adjustments as described in the main text.

The model was then re-estimated, using 'fair-value' estimates

This gave the most (statistically) satisfactory and stable models

- For the sample the average correction to liabilities is of the order of 20%, but varies considerably across time and company (as shown in Figure 4)
- The parameter of the corrected deficit is highly statistically significant, stable, and close to unity
 - It implies an effect of £93 per £100 of corrected deficit
- Companies with the largest DB pension schemes seem to be penalised most heavily by the markets, even where a pension scheme is reported to be fully funded
- These results are also found to be quite robust to the exclusion of companies with the largest pension deficits

Further analysis supported these basic findings

... while raising further considerations

- Experimentation with company-risk variables tended to support all the above conclusions, but did not improve on the 'fair-value correction' results
- Assessing the overall impact of pension deficits suggests that it is both company- and time-dependent:
 - The quoted 20% valuation adjustment is merely the average for companies across time
 - The 'adjustment' was larger during the financial collapse, given the profile of gilts vis-à-vis corporate bonds; and it will vary with company-specific durations and choices of corporate bond rate
 - [Note the spread of overall 'fair-value' adjustments (figure 4)
 - 5% for 50% of companies;
 - 10% for 20% of companies;
 - 15-25% for 20% of companies; and
 - A long flat tail of companies with much larger adjustments]

Thoughts on further work (1)

Extending the existing analysis and scope beyond the FTSE 100 companies

1. Extending the range of deficit impact estimates for the FTSE 100 companies

- a. What was the profile of DB pension effects on the average FTSE index over time? How large were they through the recession? And to what extent have they attenuated since?
- b. How do the estimated impacts vary across companies and company groupings - by size, sector, and pension characteristics?
- c. More generally, are companies with DB pension schemes further penalised relative to those which do not have them?

2. Extending the study beyond the FTSE100 and for a longer period

- a. How robust are the original results; do they generalise across FTSE 250 and 350 companies?
- b. Does a larger sample support or undermine the existing results, and why?
- c. Do the FTSE 100 companies attract greater market attention?
- d. Are companies with DB pensions separately penalised (as under A.3)?
- e. To what extent does the quality of pension-note information diminish going from the FTSE 100 to FTSE 250 and FTSE 350 companies?

Thoughts on further work (2)

Extending the existing analysis and scope beyond the FTSE 100 companies

- 3. Exploring the impact of recent accounting reforms on pension deficits and company valuations**
 - a. It would be interesting to explore the likely effects of the most recent accounting reforms on reported deficits and share price through the existing equation estimates
 - b. Specifically, under the new regulations, companies are now obliged to use the discount rate for pension liabilities also as the expected rate of return on pension assets
 - c. This would be expected to have the effect of lowering reported earnings (up to 2012 they were free to choose the expected return on every class of asset, and book the resulting estimates as earnings) and increase reported deficits
 - d. Drawing on the existing model estimates, this would in turn be expected to impact on share prices. Such an analysis would require additional data, and might represent a standalone study in itself

Major reports include



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