The Actuarial Profession
making financial sense of the future

Finance & Investment Research Committee
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Open Forum

Pension deficits, credit spreads and corporate bond returns

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Pension Schemes in the news...

How should credit spreads respond?

Setting the scene

- Clearly a large pension deficit represents a risk to bondholders
  - Especially where loan stock is unsecured
- **Question: Are pension deficits priced into credit spreads equivalently with other forms of long term leverage?**
  - And should they be?

Credit spread models

A brief history

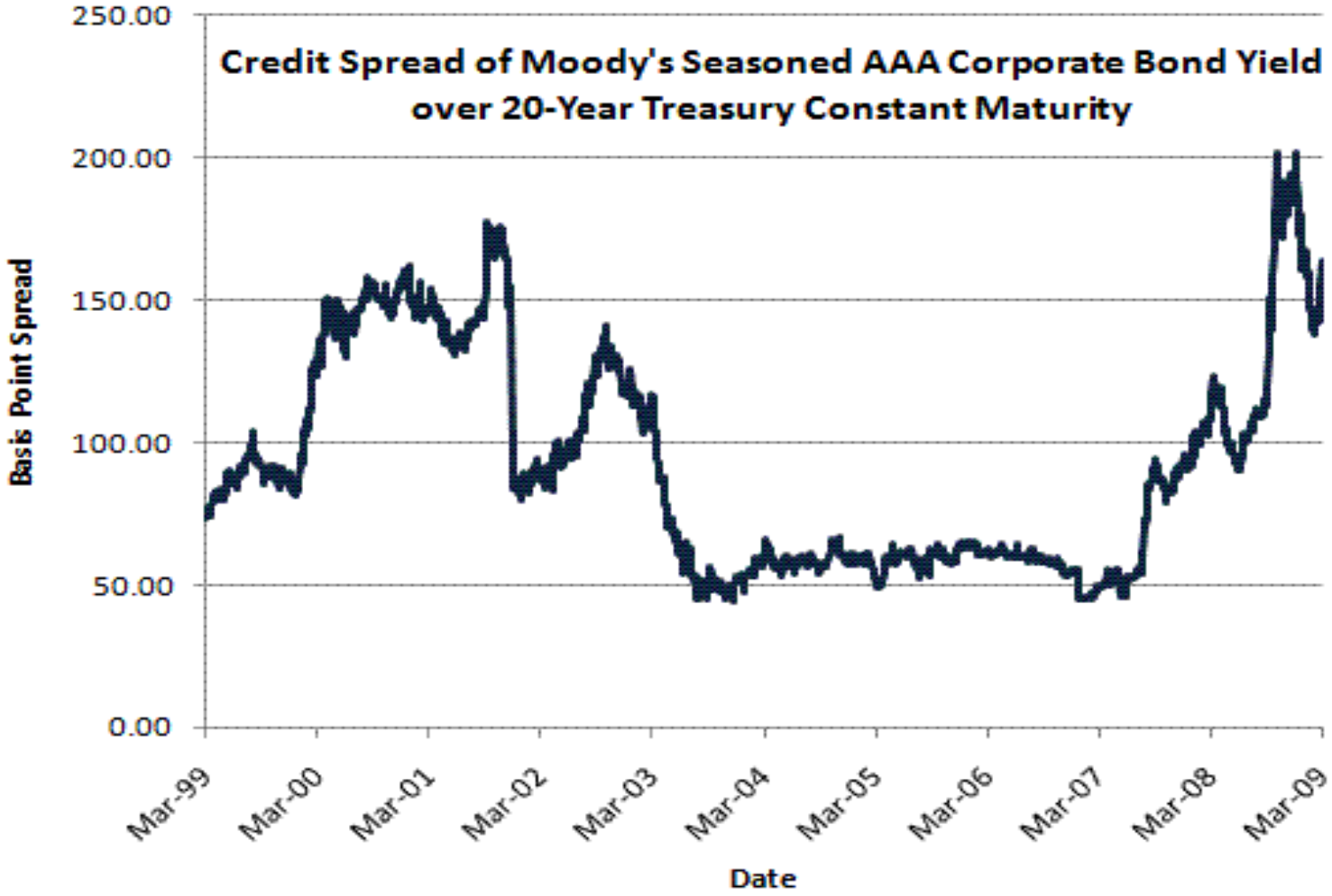
- Merton (1974)
  - More firm leverage increases the probability of default and hence credit spreads
- Credit risk models have developed
  - Some use modern option pricing techniques
  - All major models still attribute strong causality to long (and short) term leverage

A critique of credit spread models

Do these models actually work?

- Eom et al (2004)
  - Predicted spreads are a poor guide when tested empirically
  - They tend to overstate the spreads on ‘risky’ bonds and understate the spreads on ‘safe’ bonds
- Why?
  - Dufresne et al (2001) suggest that credit spreads “are principally driven by local supply/demand shocks that are independent of both credit-risk factors and standard proxies for liquidity.”

Credit spreads – history



Extending the credit spread model

Incorporating pension deficits

- Myers (1984) develops the ‘pecking order theory’ of corporate finance
  - Firms prefer internal forms of finance – avoid information costs?
- Sharpe (1976) pensions are actually deferred wages
  - A long running debate!

Old ideas…

... A modern twist

- Ippolito (1985) claims that firms deliberately run deficits, especially if unionised
  - Employees do not demand sufficient compensation for the risk (unlike the market)
- But things have changed (especially in the UK)
  - Section 75 debts
  - The Pensions Regulator (& PPF)
  - Closed DB schemes in ‘the run-off’

The availability of information

Pensions accounting

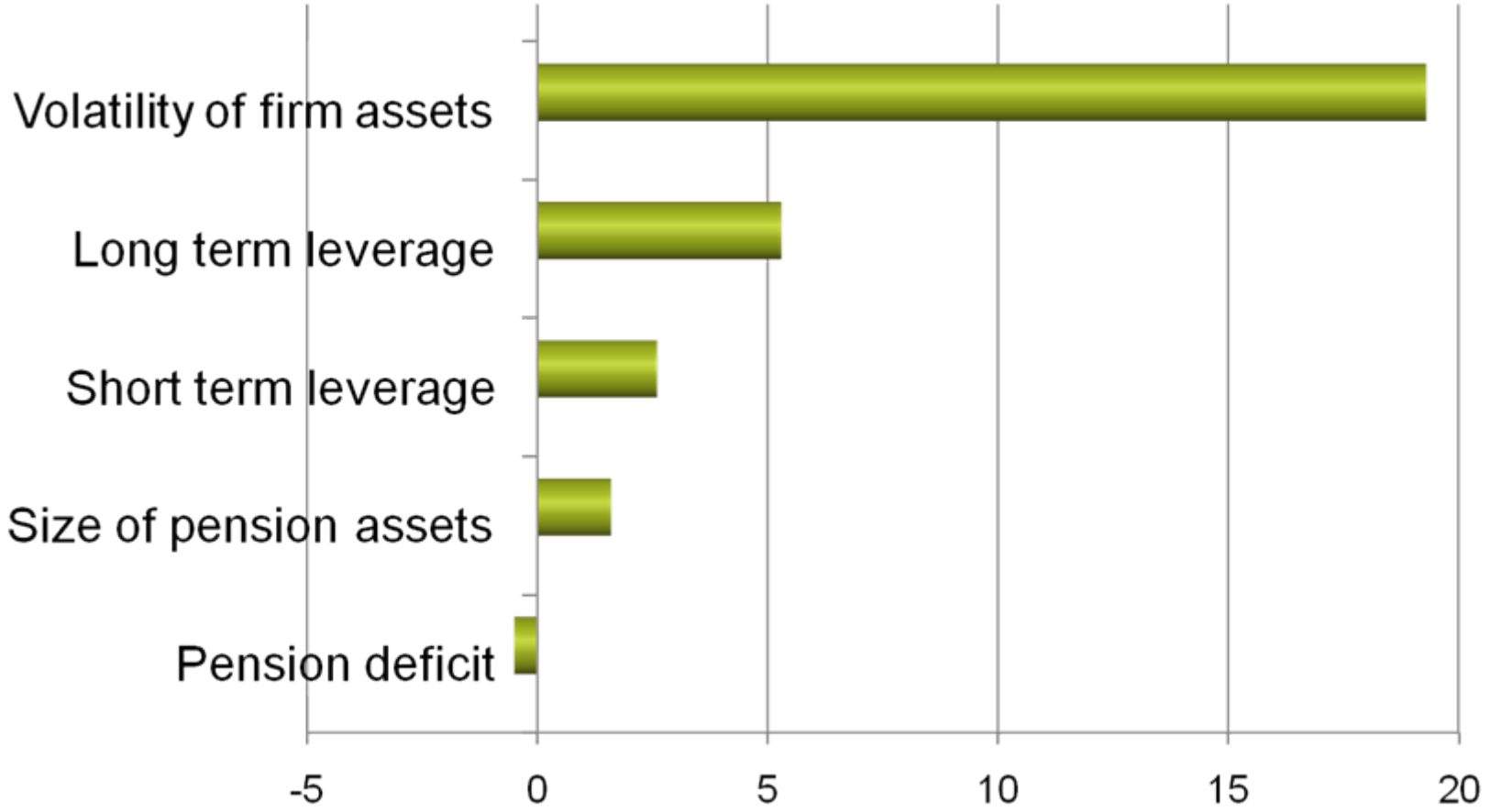
- IAS 19 and equivalents, provide the modern analyst with detailed pensions information at their fingertips
  - cf SSAP 24!
- Postulate that pension deficits can and should therefore be treated like other forms of long-term leverage
  - The Government plays the role of the market in some sense

The investigation

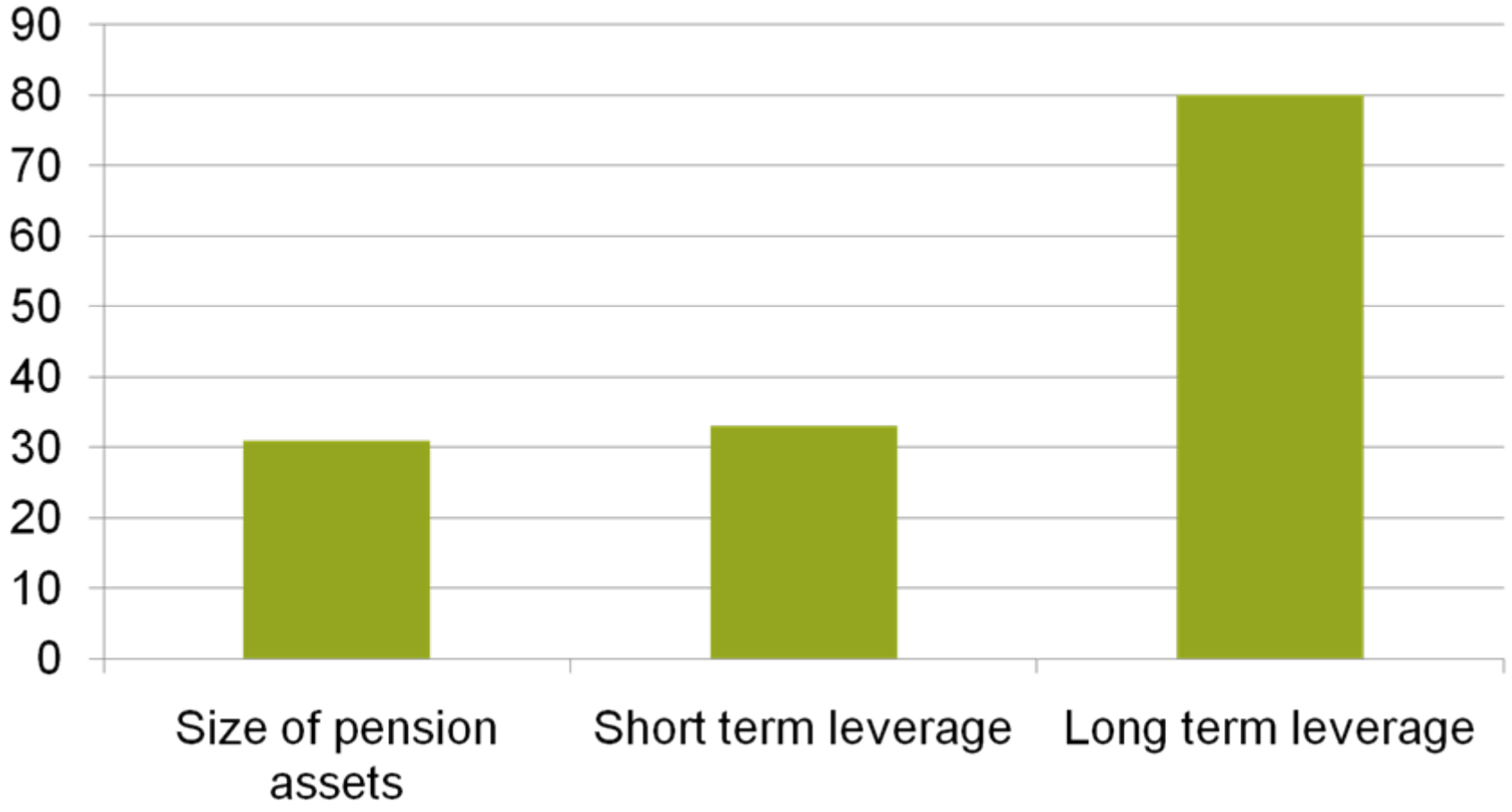
My hypothesis

- Credit spreads in the UK will reflect pension deficits as they do other forms of long term leverage
- Use accounting (FRS/IAS) deficits as a proxy (arguable whether funding/buyout is better)
- Also expect a link with size of plan, following Cardinale

Statistical significance of factors



Relative importance of factors



Summary of findings

The key results

- Pension deficits appear to have no impact on credit spreads in the UK
  - Size of pension scheme does appear to have some effect
- Small effect if only consider firms with pension deficits
  - As expected, long term leverage and volatility of firm assets have biggest impact

Possible reasons

Why might this be?

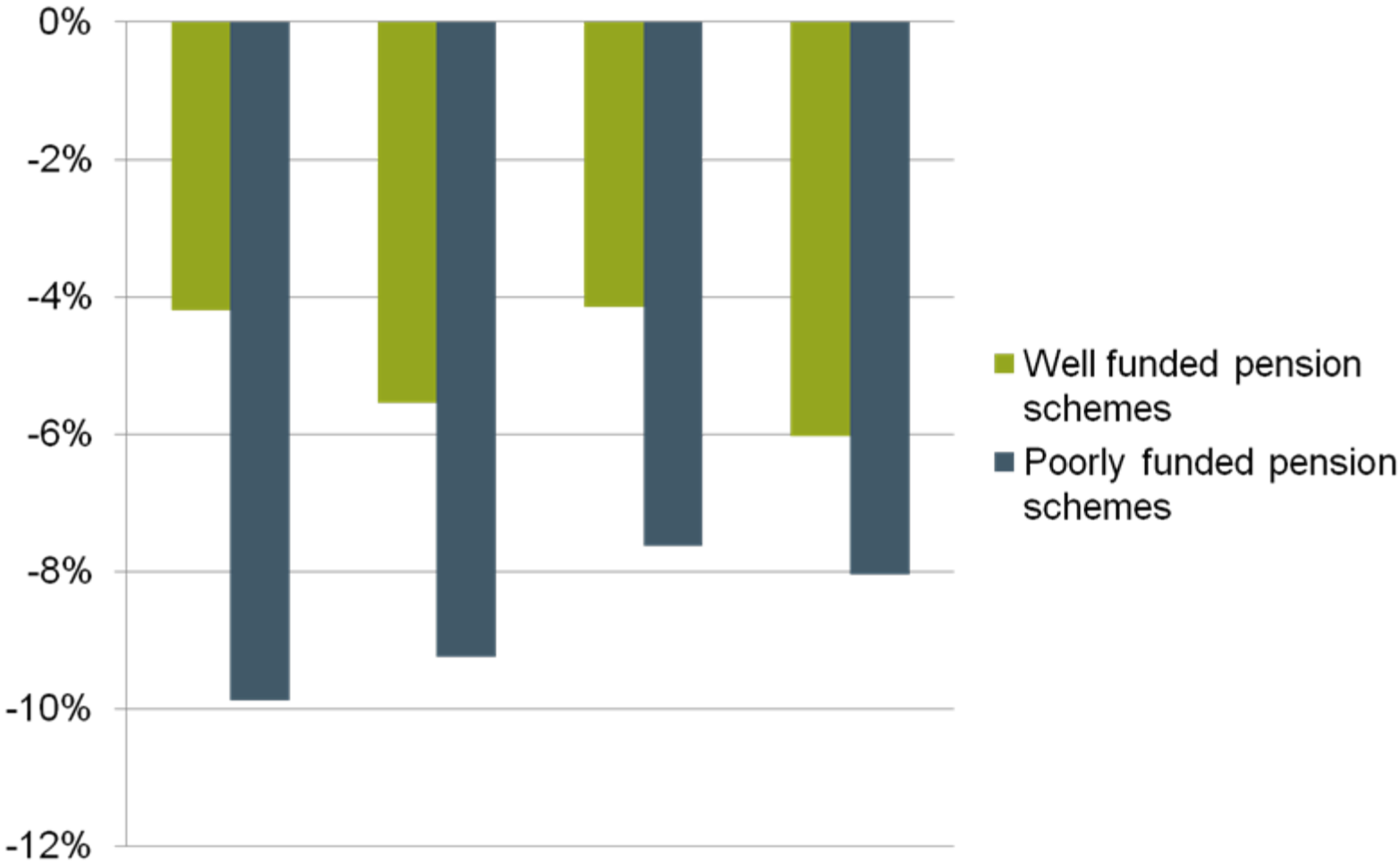
- If hypothesis is correct:
  - Analysts and investors are not yet fully incorporating information on pensions
- Or hypothesis is incorrect:
  - Pension deficits don't actually matter that much
    - Trustees unlikely to push for bankruptcy?
    - Expect bondholders to do better than pension scheme members

Implications for investors

What might this mean?

- If original hypothesis is correct
  - Corporate bonds are mispriced
  - Investors can therefore make above average returns by going long firms with **large**, **well funded** pension schemes
- Only one way to find out:
  - Does this investment strategy work?

Results – limited evidence that this is the case



More work needed

Insufficient data to draw strong conclusions

- Limited data set over limited time period
  - Again recent introduction of information
  - Corporate bonds themselves are relatively recent as an asset class
- Further studies also need to consider
  - Recovery rates on default
  - If possible, Technical provisions and funding

Previous study

Cardinale (2007)

- Very different conclusions in the US
  - Pension deficits have material impact on credit spreads
- Also finds that size of pension scheme has an impact
- Similar results in Japan
- Agrees with my findings in UK

Reasons for differences in US?

Nothing too obvious...

- FAS accounting standard has been around for longer
- Pension deficits and contributions are more closely linked to accounting deficits

Conclusions

In summary

- Credit spreads in the UK do not seem to incorporate pension deficits
  - This is not the case in the US
- More work is needed to investigate whether this translates to a corporate bond investment strategy
  - Initial evidence suggests that it might do

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.