

The Market Value of Pension Liabilities

A Research Report

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The Market Value of Pension Liabilities – A Research Report:

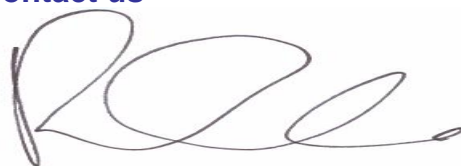
This report sets out the investigations undertaken by Punter Southall Transaction Services into the market valuation of defined benefit pension scheme liabilities

Pensions clearly have an important role in transactions (witness W H Smith) as well as equity market valuations but how does the market value pension liabilities?

The first section of the report outlines our definition of the market valuation of pension liabilities and why this is of interest to investors as well as corporate entities who sponsor a defined benefit pension scheme

Further sections of the report consider evidence from the market, academic studies and other areas

Should you require any additional copies of this report or further information, please do not hesitate to contact us



Richard Jones FIA
Principal
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Executive Summary

“..two-thirds of private equity firms have cancelled a transaction solely due to pension issues”

“...public equity markets tend to place too low a weight on pension liabilities”

- We have defined the market value of pension liabilities as the price at which the equity market values an obligation to fund a defined benefit pension scheme
- We are effectively testing the proposition, suggested by finance theory, that capital markets treat an FRS 17 deficiency as a debt of the sponsoring employer
- In order to do so we have reviewed the academic literature and taken the views of market participants. Particular emphasis has been placed on private equity firms, through a survey, due to their frequent transactions
- The results of this survey show that private equity firms price businesses which they wish to purchase by treating the FRS 17 deficiency as a debt of the business
- 88% of respondents conduct pensions due diligence and two-thirds of private equity firms have cancelled a transaction solely due to pension issues
- The academic evidence, whilst limited, strongly suggests that public equity markets tend to place too low a weight on pension liabilities
- Looking at the valuation of the UK public equity market to determine pension valuation in isolation is impossible although some relatively simplistic analysis suggests that the FRS 17 deficiency is not fully taken into account
- We have also undertaken some discussions with brokers and analysts in the UK equity market and reviewed a number of research pieces by equity analysts



Executive Summary

“The debt markets however are significantly different always treating an FRS 17 deficiency as a debt of the employer...”

“...the equity market will forgive a pension deficit but not a foregone dividend”

- This leads us to believe that whilst, in theory, equity market analysts believe that the FRS 17 deficiency should be treated as a debt of the sponsoring employer, in practice, they do not believe that the equity market does so and alter their behaviour to accommodate the view of the market
- There are a number of special situations where we can study the impact of significant pension related events on the equity market – all of which tend to suggest that the equity market places too little weight on pension matters
- The debt markets however are significantly different always treating an FRS 17 deficiency as a debt of the employer, which helps explain the responses of private equity firms in our survey

We conclude from our analysis that the UK equity market does not treat the FRS 17 deficit as a debt of the employer (even though participants think that they should) but as “quasi-equity”. In contrast the UK private equity and debt markets do treat the FRS 17 deficiency as a debt of the employer

- UK equity investors may wish to avoid investment in companies with defined benefit pension obligations
- The implications of this include a weaker market for corporate control with pension funds acting as a defence against private equity takeovers
- Executives with share options have an incentive to underfund the pension scheme knowing that the equity market will forgive a pension deficit but not a foregone dividend



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Introduction

- Our research project is aimed at determining how the various UK capital markets price a pension obligation in respect of a defined benefit pension scheme

Why is this of Interest?

- This may seem a peculiarly esoteric topic to be researching but in fact it is actually a very important consideration for any investor in equity assets whether public or private. For example the pension deficits under the FRS 17 measure account for around 3% of the market capitalisation of the FTSE-100. Within this there is huge variation with some constituents having pension deficits of more than 30% of their market capitalisation
- Therefore any equity investor should be concerned about the impact of pension deficiencies. In particular if the equity market was placing too much or too little weight on pension liabilities then this would provide an opportunity for, or a threat to, investors
- Any sponsor of a defined benefit pension arrangement will be interested to know how the market values a pension scheme liability in order for the management to maximise shareholder value

Scope of Project

- Our starting point is to review the methodologies that can be applied in calculating the value that should be placed on pension obligation. In particular we re-cap the theory of financial economics in respect of pensions



Introduction

- In order to see whether the actual experience accords with any of the possible theories we have undertaken a number of investigations:
 - A survey of private equity firms;
 - A review of academic studies completed in this regard;
 - A discussion of the issue in the context of the whole UK equity market and specific companies;
 - A review of the methodologies adopted by equity analysts and brokers;
 - Analysis of special situations where the pension impact is material
- We then finally look at how the debt markets deal with the issue of pension obligations to see if we can glean any information from this alternative capital market

Conclusion and Implications

- Based on this research we draw a number of important conclusions
- Finally, and perhaps most crucially of all, we then apply what we have learnt from our investigations and our conclusions, to discuss some implications and make some suggestions as to how certain types of market practitioners might alter their behaviour going forward



The Market Value of Pensions

- What do we mean by the market value of pensions? In this instance we are looking at the pricing by the equity market of an obligation on a company to fund a UK defined benefit pension scheme
- In a defined benefit pension scheme there is a pool of assets (held to fund the liabilities) which can be valued accurately based on the market price of those instruments. The liabilities however can only be estimated as they are not tradable except in very limited circumstances

Financial Economics

- Financial economics suggests that the pension liabilities should be discounted at an interest rate that reflects the ability of the company to vary or default on the payments due. Until recently companies did have some control over pension liabilities through the ability to default on their pension scheme obligations whilst continuing in business
- Therefore a discount rate that reflected this “default option” would arguably be used. Therefore a premium to the risk free interest rate (a gilt yield of suitable duration) would be appropriate. A typical assumption might be to use a AA bond yield of suitable duration
- This is where the recently fully introduced UK accounting standard (“FRS 17”) derives its theoretical justification from and is also the approach that has also been adopted by the International Accounting Standards Board



The Market Value of Pensions

- Since 10th June 2003 the UK Government has removed this “default option” and thus companies can now only default on their pension obligations through an insolvency event. Therefore financial economics would suggest that the true liability should be calculated by discounting the expected cash flows at an appropriate gilt term yield

Transactions in Pension Obligations

- The market for pension obligations is non-existent mainly due to the requirement of legislation that pensions are non-assignable or transferable. Therefore an investor cannot buy a portfolio of pension payments from the members thus creating an actual market price for the obligations
- Most schemes allow members some options, for example taking a transfer value or a tax-free cash lump sum, but these options are not trading the pension obligation but instead converting it into another form
- For example a member taking a tax-free cash sum at retirement has not traded their pension but instead accepted a conversion into a tax favored format
- The annuity market is sometimes cited as a place where pension obligations are traded, however this is incorrect as a different regulatory regime applies which drives the pricing of annuities
- There is therefore no direct market in pension obligations from which we can observe the market price



The Market Value of Pensions

- However when a company that has a pension scheme changes ownership the obligation to meet the pension liability transfers with the ownership
- Therefore the market for pension obligations exists in the equity market and the market for corporate control

Traditional Actuarial Theory

- It should be noted that the market value of pension obligations is completely distinct from the actuarial valuation process undertaken by actuaries
- As is explained very clearly in Simon Carne's paper, "*Being Actuarial with the Truth*" (2004) the actuarial valuation is a budgeting exercise. It is not and has never been an attempt to place a market price on the pension obligations

Summary

- In summary the main purpose of our report is to study situations where an obligation to fund a pension liability transfers to see whether the market price is in accordance with financial economics or not
- For this purpose we will utilise the FRS 17 methodology as being a proxy for the financial economics liability – even though there are arguments that this is not correct – as this is the most accessible number available



Survey of Private Equity Firms

Overview

- There are many professionals, at investment banks and private equity firms – as well as in the corporate finance departments of large companies - who spend a considerable part of their working lives pricing companies and in particular companies with pension obligations
- These individuals are of interest, particularly those at private equity firms, as they very often have a financial stake in getting the pricing of the business correct

The Survey

- We conducted short telephone interviews with sixteen investment professionals from leading private equity houses regularly involved in UK transactions that contain pension obligations
- These individual's firms are listed in the appendix and they give a broad spectrum of the market containing some of the biggest names in global private equity as well as some of the smaller UK only focused players

The Results

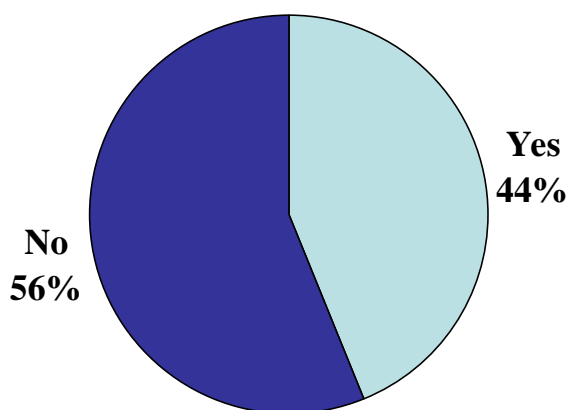
- Our first questions were to ascertain the significance of pension issues for the individuals and their firms and their experience of dealing with pension matters



Survey of Transaction Professionals

Q. Does your firm have a stated policy for dealing with pensions issues in transactions?

- The following chart shows the proportion of the respondents whose firms had a stated policy on how pensions were dealt with in transactions



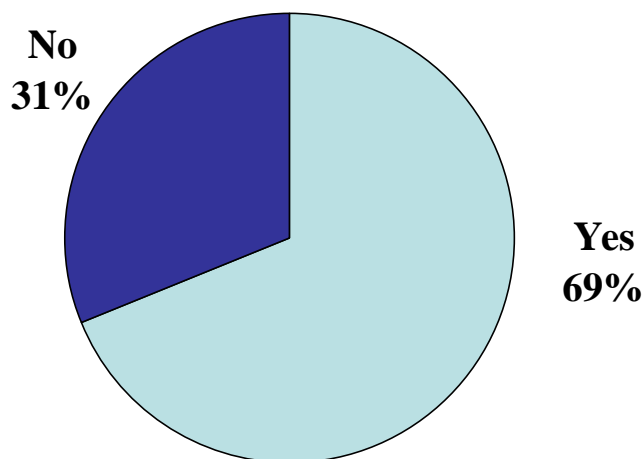
- Whilst 44% of firms had a stated policy on pensions a number of other respondents stated that their firm was considered introducing such a policy
- No respondents to the survey “Never” encountered pension problems in transactions whilst 88% of respondents said that they “Frequently” encountered problems in transactions with 12% encountering pensions “Rarely”
- Full due diligence on pension issues is completed by 88% of respondents all the time
- 40% of the respondents typically spent £15 -£30,000 on pensions due diligence, one third typically spent more than £30,000 and a significant minority (27%) spend less than £15,000



Survey of Transaction Professionals

Q. Have you ever abandoned a transaction solely due to pension issues?

- As has been seen with the recent cases of W H Smith and Marks & Spencer pension issues have come to the forefront of deal making and our next question was an attempt to determine the number of companies who had abandoned a transaction solely due or mostly due to pension issues



- More than two-thirds of all firms had abandoned a deal due to pension issues

“Some vendors only have a rudimentary understanding of pension issues and until vendors’ expectations are tamed we are likely to see more deals thwarted by pension deficits.”

Jonathan Brooks, Rutland Partners LLP



Survey of Transaction Professionals

- The most crucial question we asked was how did they price a pension liability?
- The private equity firms have obviously been reading their financial economics text books as all but one of the respondents replied that they priced at FRS 17 or stronger
- We will try and consider why this trend is so pronounced in the private equity market in due course
- Around 20% of respondents stated that they price on the basis of the full cost of securing the benefits promised with an insurance company which is substantially in excess of the FRS 17 deficit
- Some private equity firms have already started adapting their behaviour to the new regulator regime with the potential for contribution notices to be placed on investors

“Nowadays our first pension issue in a transaction is to see if we can afford the wind-up liability – as it points straight at us!”

Jon Moulton, Alchemy Partners LLP



Survey of Transaction Professionals

- However, in terms of modeling the business going forward, cash costs were seen by half the respondents as being the crucial factor. FRS 17 is used by around a third of respondents with the remaining respondents using a variety of approaches
- The final question was about exiting an investment and which buyer would be most lenient on a pension deficiency (or put another way if you had a company to sell with a large pension deficiency who would give you the best price)
- Broadly the respondents split two thirds in favour of a trade buyer and one third to an initial public offering (“IPO”). None of the respondents suggested that the best price would be available from a private equity firm
- Comments on this section included that trade buyers would just absorb the deficit within their existing pension deficiencies and that in an IPO the pension position was not a huge area of focus

“There is no right answer on who will give you the best price on pensions as it depends on the overall transaction.”

R K Mowatt, Ellerman Investments



Survey of Transaction Professionals

Summary

- Quite clearly we see that the majority of private equity firms are pricing on an FRS 17 basis
- Some firms are even going further and refusing to take on defined benefit pension liabilities unless they can afford to immediately wind-up the arrangement and close down all exposure
- This is quite a change from historic practice where pensions were priced on either the cash contribution cost with a multiple applied or the valuation deficiency as calculated by the Scheme Actuary
- We could argue that this reflects the changing times with the old practices being suitable when firms retained the option to walk away from their pension obligations
- In reality we believe the trend is driven by other factors including accounting standards, the position of the Regulator and most significantly the debt markets



Academic Literature

- There has been little in the way of academic research into how and to what extent the market takes account of the cost of providing defined benefit pensions when pricing the shares of the sponsoring employer. Furthermore, much of the research available is some years out of date, before FRS 17, and with a US centric viewpoint
- However, it does provide some useful insights

Available Research

- In their paper “*Pension Plan Funding and Stock Market Efficiency*”, Francesco Franzoni and José M. Marín (2004) provide evidence of a significant overpricing for companies with large deficits in their defined benefit pension schemes
- Furthermore, their paper concludes that companies whose pension schemes are most under-funded earn lower returns than those companies with healthier pension schemes. Adjusting for risk makes the gap even larger, as severely under-funded companies have relatively high specific risk
- The estimated discount in returns for the most under-funded portfolio can be as large as 10.6% annually. This means that a shareholders’ return could be as much as 10.6% per annum below the market average return. The returns are persistently low for at least five years after the emergence of the large pension scheme under-funding



Academic Literature

“..public equity market investors do not take into account the negative implications of pension scheme under-funding until they actually materialise in the income statement”

- Franzoni and Marín go on to conclude from time-series and cross-sectional tests, and other descriptive evidence, that this finding is not the effect of known asset pricing anomalies, such as return momentum (Jegadeesh and Titman (1993)), earnings momentum (Chan, Jegadeesh, and Lakonishok (1996)), or accruals (Sloan (1996))
- The overpricing follows from the fact that public equity market investors do not take into account the negative implications of pension scheme under-funding for earnings and cash flows until they actually materialise in the income statement. Consistent with this interpretation, significant evidence is provided that the public equity market is negatively surprised by the low earnings of under-funded companies
- Julia Lynn Coronado and Steven A. Sharpe’s paper, *"Did Pension Plan Accounting Contribute to a Stock Market Bubble?"* (2003), attempts to quantify the extent to which equity investors overvalue companies with defined benefit pension schemes
- In their paper, Coronado and Sharpe cite that during the 1990s, the asset portfolios of defined benefit pension schemes ballooned with the booming stock market and that due to US accounting guidelines, the robust growth in pension assets resulted in a substantial boost to the profits of sponsoring corporations



Academic Literature

- Companies use long-term investment return expectations to calculate their income while disguising the volatility actually occurring. The expected return on assets goes through the profit and loss account (at around 8 – 9% in a US context) such that higher assets lead to greater profits
- This accounting is reconciled with the economic reality by gradual amortization of the discrepancies between the assumed and the actual returns experienced on pension assets. This smoothing feature created very large distortions between economic reality and the pension-financing cost accruals embedded in the income statement
- The results of their study indicate that stock prices tend to reflect some capitalisation rate on the pension cost accruals embedded in the income statement rather than fair market value of sponsoring company's net pension assets reported in footnotes to the accounts
- They also conclude that the market does not value a company's "pension earnings", the excess of expected return less interest, differently from its "core earnings", suggesting that pension earnings are often overvalued. Simulations show that a failure to differentiate between core and pension earnings induces large valuation errors for many companies



Academic Literature

- In stable times, the valuation implications of using one measure over the other would be fairly modest for most companies. However, by late 2001, after stock prices and interest rates had tumbled for eighteen months, these two measures of pension finances gave very different, in many cases highly contradictory, signals of the pension scheme finances in the US and their valuation implications. Many companies showed a FAS87 asset on their balance sheet whilst the funding position of the scheme actually showed a deficit
- What is more, the study finds that, when these measures do diverge, stock prices are much more prone to reflect the misleading net financing cost rather than the more direct measure of the pension assets and liabilities disclosed in the footnotes
- For many companies, the implied valuation discrepancies were quite large in 2001, when the average discrepancy was 5 percent to 10 percent. In other words, the average company with a defined benefit pension scheme in 2001 may have been 5 percent to 10 percent overvalued relative to an otherwise similar company without a defined benefit pension scheme
- The same could be said of the UK accounting under SSAP24 where smoothing of pension fluctuations in the profit and loss account were allowed. Under FRS17 however, the deficit in the pension scheme sits on the balance sheet



Academic Literature

- The paper entitled “*Market-Related Values and Pension Accounting*” by Paquita Y. Davis-Friday, Jeffrey S. Miller and H. Fred Mittelstaedt (2005) draws a similar conclusion. In particular, the authors found limited evidence that the market adjusts equity prices for income differences caused by companies using smoothed fair values instead of fair values under the US accounting standard

Conclusion

- The academic studies we have reviewed tend to show that the market underestimates the impact of a pension deficit. The analysis suggests that this is due to the price-earnings focus of many analysts with the deficit in the pension scheme not being accounted for until it starts to hit the profit & loss account, which may not happen until several years after the deficit has arisen
- However, given the US centric viewpoint of the academic research available, the conclusions should be considered with some degree of caution in relation to the UK market



The UK Equity Market

Pensions and the FTSE-100

- As recent press comment has noted pension liabilities are a big issue for a large number of FTSE-100 companies with the aggregate deficit on an FRS 17 basis estimated at around £40 - £50 billion
- There are a large number of different studies that have been undertaken on this issue. Full details of the pension deficiencies of the FTSE 100 companies can be found at <http://www.puntersouthall.com/frs17/default.htm>
- However, given that the market capitalisation of the FTSE-100 is currently around £1.3 trillion the potential pricing impact of pensions is only around 3% of total market capitalisation (less than one year of dividends) it is very difficult to separate the impact of pensions from the other factors that affect equity market pricing
- Another feature of the UK equity market is the diverse nature of the listed companies. Whilst there are around 700 companies listed on the London Stock Exchange within the FTSE-All Share Index the average number of companies within each detailed sector is only 7 and even within each sector there is a high level of diversification
- For example there are only 5 listed companies in the “Beverages” sector ranging from the global drinks industry behemoth of Diageo listed at £24 billion to the soft drink manufacturer Barr (AG) with a market capitalisation of £195 million



The UK Equity Market

- Therefore comparing companies within the same sector who are differentiated on pensions, for example one company with a very significant defined benefit pension liabilities versus one without any defined benefit pension liabilities or against the average for the sector, is unlikely to provide convincing results. There are a vast range of factors that affect equity valuations and there is a lack of true comparator companies in the UK equity market
- Trying to decipher the pricing of pensions by looking at the market valuation of the entire equity market or by comparing stocks within sectors will not provide a robust answer

Individual Stocks

- Of course for some stocks the pension issue is a very significant component of the market valuation, however even here it is difficult to know whether any conclusions that are drawn from analysis are robust given the amount of judgment calls that are required in any attempt to value an equity asset
- In order to illustrate this point we will study three companies within the FTSE-100 who have very significant pension issues indeed – British Airways plc, BAe Systems plc and Rolls-Royce Group plc
- These companies are in the related industries of transport and aerospace & defence



The UK Equity Market

- These companies are of interest because they have some of the most significant pension deficiencies, relative to their size, in the UK equity market:
 - British Airways plc has a market capitalisation of around £3 billion and had a gross FRS 17 pension deficit of £2.0 billion as at 31st March 2005 (equal to 67% of its market cap)
 - BAe Systems plc has a market capitalisation of around £10.5 billion and had a gross FRS 17 pension deficit of £4.3 billion as at 31st December 2004 (equal to 41% of its market cap)
 - Rolls Royce Group plc has a market capitalisation of around £6 billion and had a gross FRS 17 pension deficit of £1.4 billion as at 31st December 2004 (equal to 23% of its market cap)
- Quite clearly pension liabilities are a very significant component of the valuation of the equity in these companies
- In order to demonstrate the difficulty in assessing the pension valuation used by the equity markets we will illustrate some example valuations using a very simple 10 times EBITDA multiple model - versions of which are used by a number of private equity firms
- Note that this model is not intended to provide a particularly accurate valuation of the pension liability but more to demonstrate the difficulties with such analysis



The UK Equity Market

British Airways plc – Simple EBITDA Model

	£ billion
Normalised EBITDA	1.0
EBITDA Multiple	10
Enterprise Value	10.0
(less Net Debt ex pensions)	(5.9)
Equity value (pre pension)	4.1
(less Market Value)	(3.0)
Implied Pension	1.1
FRS 17 Deficiency (Net of Tax)	1.4
Proportion of FRS 17	77%

- On this simple model the market is valuing only 77% of the FRS 17 deficit
- However were we to increase the normalised EBITDA to £1.1 billion then the market would be valuing the FRS 17 deficiency in full, conversely, were we to reduce the normalised EBITDA to £0.9 billion the market would be making no allowance for the pension deficiency



The UK Equity Market

BAe Systems plc – Simple EBITDA Model

	£ billion
Normalised EBITDA	1.7
EBITDA Multiple	10
Enterprise Value	17.0
(less Net Debt ex pensions)	(4.3)
Equity value (pre pension)	12.7
(less Market Value)	(10.5)
Implied Pension	2.2
FRS 17 Deficiency (Net of Tax)	3.0
Proportion of FRS 17	73%

- On this simple model the market is valuing only 73% of the FRS 17 deficit
- However were we to increase the EBITDA multiple to 11 (effectively reducing the cost of capital or increasing the expected growth rate) then the market would be valuing the FRS 17 deficiency in full, conversely, were we to reduce the EBITDA multiple to 9 the market would be making no allowance for the pension deficiency



The UK Equity Market

Royce Rolls plc – Simple EBITDA Model

	£ billion
Normalised EBITDA	0.7
EBITDA Multiple	10
Enterprise Value	7.0
(less Net Debt ex pensions)	(0.5)
Equity value (pre pension)	6.5
(less Market Value)	(6.0)
Implied Pension	0.5
FRS 17 Deficiency	1.0
Proportion of FRS 17	49%

- On this simple model the market is valuing only 49% of the FRS 17 deficit
- The result is sensitive to the calculation of net debt, for example if one were to write down the value of stocks by 50% for obsolescence the market would be placing no value on the pension deficiency



The UK Equity Market

Conclusions

- It is impossible to determine from the broad market what price is placed on pensions as it makes up such a small part of the total UK market valuation (less than one year of dividends)
- Looking at sectors to find comparator companies is also unlikely to provide robust results due to the diversity of companies listed on the London Stock Exchange
- Simple models of companies with significant pension issues may, at first blush, suggest that the market is not fully pricing in the FRS 17 deficiency but, as we have demonstrated, these models are highly dependent on the other assumptions made
- Therefore we believe it is not possible to study market valuations and directly infer the market value of pensions
- This view is supported by the fact that investment professionals cannot agree on valuation methodologies with some analysts rating a stock a “Buy” believing that the true value of the stock is greater than the current market price while, at the same time, other analysts will rate the stock a “Sell” and believe that the true value of the stock is lower than the current market valuation
- Whilst pension liabilities may seem a significant issue for the UK stock market the amount of other “noise” prevents any meaningful analysis



Equity Market Research

- We mentioned equity analysts in the previous section of the report and we will now look at their practices because, even though they will not generally agree on stocks, they do have significant influence on market prices

The Economic Theory

- The efficient market hypothesis states that share prices in the market accurately reflect all the information available to investors
- Details of pension scheme deficits must be recorded in company accounts and therefore, according to the efficient market hypothesis, a deficit in a defined benefit pension arrangement would be factored into the pricing of that company's shares by the market

The Analysts Approach

- In our conversations with equity analysts and brokers we have gained some insight into their approach to valuing pension schemes as part of their assessment of the worth of a sponsoring employer's shares
- The message we are hearing on a fairly consistent basis is that analysts believe that pension scheme deficits should be recognised as a debt on the sponsoring employer's balance sheet. However, due to differences in the way in which companies have accounted for pensions in the past, it has not always been obvious to investors what the impact of pension liabilities has been on their sponsor's operations



Equity Market Research

- As a result, the true cost of pension promises are often not accounted for fully by the market as many investors fail to appreciate pension economics and still ultimately believe the data presented in financial statements. In practice there is little actual adjustment to reported earnings in respect of pensions

Why do investors not agree with the analysts?

- Many companies claim that FRS17 deficits don't matter and have commented negatively on FRS17 measured deficits, suggesting to investors that they are not relevant and should be ignored. Often analysts are pushed in the direction of a different funding calculation that invariably shows a much more favourable position
- Alternatively, the company emphasises the short-term cash flow costs of the fund, based upon the actuarial valuation, suggesting that it is this and not the FRS17 deficit that really matters
- The actuarial funding valuation based upon a discount rate equal to the expected return on the related assets effectively recognises the expected higher returns from equity investment (via the lower valuation of the liabilities) without recognising the associated risk for the sponsoring company
- While there is nothing wrong with investing in risky investments in the hope of generating a superior investment return (as long as one is aware of and accepts those risks) equity analysts argue that one should not anticipate that extra income in advance



Equity Market Research

- Some analysts believe that this lack of understanding by investors has contributed to excessive equity investment by pension funds. Companies are not only rewarded for equity investment by accountants in terms of presentation in financial statements, but also probably in terms of their stock price, given that investors largely base investment decisions on the resulting biased measures of earnings

So Much for the Theory

- Many investment banks and other firms that undertake equity market research have house rules or guidelines for their analysts that show the deduction of the FRS 17 deficit as very much part of the calculation of the value of a stock
- However when we review the notes put out by brokers we see that this is not the approach that is used. Indeed many brokers notes take a simple Price/Earnings ratio approach – calculating the P/E ratio based on reported earnings and comparing this against sector comparators – which fails to take account of the differences in pension liabilities. Indeed this is the same trap that was identified by the various academic studies we have discussed
- Generally equity market researchers understand the theory of financial economics but then are caught in a trap such that, if they apply the concepts of financial economics, they generally find that any company with a defined benefit pension deficiency is a sell



Equity Market Research

- Therefore analysts tend to take a less prudent view of the pension deficiency than they might ordinarily do because they believe that other market participants will fail to take into account the full pension liabilities

Conclusion

- It is quite clear that equity market analysts follow the financial economics argument and would, in an ideal world, be treating the FRS 17 deficit as a debt of the company
- However they also have trouble reconciling this approach with the reality of market prices and investors reactions to changing pension news. Therefore they tend not to follow their first instincts and instead treat the pension deficiency as some form of “quasi-equity” rather than a debt

“We treat pension deficits as no different than any other form of debt financing but I don’t think that the market factors in the full FRS 17 deficiency.”

Stephen Cooper, Head of Valuation and Accounting Research, UBS



Special Situations

Special Situations

- Our previous analysis suggests that it is very difficult to isolate the pension issue from the other factors that affect equity market prices. However there are certain situations whereby an exogenous event, that perhaps could not have been predicted by the market in advance, occurs such that the position of a company's pension arrangements are significantly changed in an instant
- With changes in legislation or taxation this can even happen with companies in general
- When such things occur we can look at the impact on the market valuation of the company (or companies) and determine whether these changes are in line with our expectations

Section 75 Deficiencies

- A crucial announcement was made in the House of Commons on 11th June 2003 by Andrew Smith that removed the option for companies to walk away from their pension scheme liabilities
- Instead a company wishing to close down its pension scheme would have to secure annuities for all its members – a process that is impossible for most of the largest schemes but if it were possible then the aggregate deficiency on this basis across the FTSE-100 could well be in excess of £200 billion



Special Situations

- Whilst most UK companies had no current intention to walk away from their pension liabilities the option to do so in the future if they hit financial difficulties was very valuable indeed. As discussed earlier the fact that this option was removed would, under financial economics analysis, substantially increase the liabilities of UK companies with pension schemes
- Our expectation is therefore that the stock market would suffer some damage from this announcement with the market falling
- In reality the market rose by 0.6% that day and by 1.6% the following day. Whilst there is obviously a whole host of factors driving the equity market at any one time one would have expected an announcement of this magnitude to have had a negative impact

Dividend Taxation

- The Budget announcement by Gordon Brown on 2nd July 1997 removed from pension funds the ability to reclaim tax credits on their dividend income with immediate effect. This was a very valuable benefit for pension schemes and reduced the attractiveness of equity investment for them
- One could summarise that either the pension funds were going to sell equities or, if they retained them, that they would be a less tax beneficial investment for pension schemes causing costs for companies to increase



Special Situations

- Either way one would have expected the stock market would suffer some damage from this announcement with the market falling
- In reality the market rose by 0.4% that day and by 1.4% the following day. Again one would have expected an announcement of this magnitude to have had a negative impact

Individual Company Announcements

- Companies often make new announcements about their pension liabilities and these are opportunities to study the reaction of the market
- BAE Systems plc announced their preliminary results on 24th February 2005. One of the significant issues shown was an increase in the FRS 17 deficiency (mainly due to updated mortality assumptions) as reported in the press:
 - “*BAE pension deficit hits £4 billion*” in the Guardian
 - “*Hole in BAE pension fund grows by £1.2 billion*” in the Independent
 - “*Gigantic pensions black hole dwarfs BAE’s £1 billion profits*” in the Daily Mail
- The shares of BAE Systems of course rose on the day of the announcement and for the following two days even though the non-pension aspects of the results were broadly in line with expectations



Special Situations

PPF Levies

- On 12th July 2005 the Pensions Protection Fund (“PPF”) announced that the levy was likely to be considerably higher than the £300 million per annum previously announced and gave details of how the risk based levy would fall hardest on those companies with the largest deficiencies
- One would expect therefore companies with large deficiencies in relation to market capitalisation to have suffered from the additional costs that they would have to take on
- However of the five companies on the UK market with the largest pension deficit to market capitalisation ratio (BT Group plc, BAE Systems plc, Rolls Royce Group plc, British Airways plc and Imperial Chemical Industries plc) only BAE Systems plc saw their share price fall on that day with all the others seeing their share price rise

Conclusion

- The special situations we have looked at would seem to indicate that the equity market does not factor in pension issues to valuations quite as efficiently as finance theory suggests
- However one has to be careful when considering these situations as there are a multitude of factors that affect the share price of companies which could be offsetting the pension implications we have identified



Debt Markets

Structure of the Debt Markets

- The major way that companies can raise debt is not from direct loans from banks but instead from the issuing of corporate bonds. The market in UK corporate bonds is now estimated to be larger than the UK government bond market with a total capitalisation in excess of £250 billion
- As in other global debt markets the key players in the bond markets are the three main ratings agencies – S&P, Fitch and Moody's – who rate each corporate bond on a proprietary creditworthiness scale

The Rating Agencies Methodology

- All three of the main ratings agencies provide a public domain document that sets out their methodology, including how they deal with pension liabilities in their assessment of creditworthiness, which we have reviewed in detail
- All three agencies follow the same methodology – the pension liability, calculated on an FRS 17 approach, is treated as a debt of the company. This is the same approach that the equity market analysts tend to favour but they find hard to reconcile with the reality of market prices. However the ratings agencies are all powerful in the bond market and this approach holds sway
- It is important to note that they take this approach for no other reason than they believe that it is the theoretically correct approach



Debt Markets

Other Debt Markets

- Of course not all corporate debt is raised in the bond market and there are other sources of financing significant debt issues – in particular the syndicated bank loan market used by many smaller borrowers and leveraged buy-out specialists
- Evidence on modelling in these markets is harder to come by as the banks involved do not disclose their methodologies in the same way as the ratings agencies however there is significant evidence, from our survey of private equity firms, that these lenders treat pension deficiencies in an identical fashion

Private Equity Market

- Private equity firms, because they rely heavily on debt funding, are likely to price their transactions taking account of the full FRS 17 deficit because they know that the lenders on whom they will rely for financing will treat any FRS 17 deficiency as a debt
- Of course there are other reasons for treating the FRS 17 deficiency as debt in private equity transactions not least the position taken by the new Pensions Regulator on leveraged transactions. However, our experience in Punter Southall Transaction Services working on significant leveraged buy-outs suggests that this trend goes back many years - long before the Pensions Regulator was dreamt up by the government



Debt Markets

- Alternatively we could see this as a consequence of the introduction of FRS 17. If the private equity firms were likely to have to account for pensions on this basis in the future then why not price on this basis? This is fairly unconvincing given the focus of private equity firms on cash to cash multiples and other non-accounting driven measures in determining the success of their investments
- Our experience tends to suggest a more complicated explanation
 - The introduction of the disclosure requirements of FRS 17 gave all users of company accounts a clear understanding of the funding position of pension plans for the first time
 - Ratings agencies adopted the use of the FRS 17 figures as soon as available as they have used the similar disclosures under FAS 87 in the US for many years
 - Banks operating in the syndicated loan market followed the ratings agencies down this path
 - Private equity firms, faced with the suppliers of their capital treating pension deficiencies as debt, followed suit in their pricing models
- This sequence of events fits with our experience and the results of our investigations for this report



Debt Markets

Summary

- We believe that the debt markets treat pension liabilities, as identified under the FRS 17 measure, as being a debt of the sponsoring company
- Subsequently debt providers will be willing to lend less capital to a company with a significant FRS 17 deficiency compared to an identical company without one - even if the companies face the same immediate cash costs of their pension arrangements



Conclusion

- Our conclusions from each section of our report can be now drawn to give an overall picture of the market pricing of pensions
- Our survey of transactions professionals demonstrated that private equity firms are pricing on FRS 17. However our study of the debt markets showed that this is because their suppliers of capital treat the FRS 17 deficiency as debt. In addition the survey showed that the private equity firms felt that placing a company with a significant pension deficiency back onto the equity market would get the most beneficial pricing. This indicates that these professionals do not believe that the equity market prices on an FRS 17 basis
- This view is supported by the academic studies that have been completed on this issue albeit that they are mostly US focused
- Studying the UK equity market valuation and trying to draw any conclusions is fraught with difficulties and, whilst we could model certain companies and show that the market is not pricing FRS 17 deficits in full, this analysis is not robust
- Discussions with equity analysts indicates that, whilst they believe that the correct view is to price companies on the basis that the FRS 17 deficit is a debt of the company, they find it hard to align their views with market prices. In reality therefore a lot of equity market analysts tend not to treat the FRS 17 deficiency as a debt



Conclusion

- Looking at some special situations where there was expected to be a significant negative impact on equity market valuations due to pension issues failed to discern any significant impacts
- Although one can never be definitive on these issues the weight of the evidence seems to be clear and therefore we conclude

The UK public equity market does not treat an FRS 17 deficiency as a debt of the sponsoring employer as financial economics would suggest. Instead the market treats such deficiencies as “quasi-equity” and places a lower valuation on such liabilities. The UK private equity and the debt markets by contrast do treat the FRS 17 deficiency as a debt of the sponsoring employer.



Implications of Results

- Our conclusion is that the equity market does not price the FRS 17 deficiency in full as a debt of the firm whilst the debt market does. We now go on to discuss some of the possible implications of this difference

UK Equity Investment

- Our conclusion is that the FRS 17 deficiency is not recognised in the UK equity markets valuation of a company, further we have seen that the UK equity market reacts indifferently to most pension related issues
- Proponents of the financial economics approach to pension fund liabilities will therefore consider that the shares of companies with defined benefit pension obligations might be severely overvalued. This is the conclusion of the academic studies we have considered and has been borne out by the future returns earned on shares in companies with large defined benefit obligations
- Therefore investors might be wary of investing in companies such as BT Group plc, BAE Systems plc, Rolls Royce Group plc, British Airways plc and Imperial Chemical Industries plc
- For some investors, such as pension funds, there is an additional reason for avoiding such investments in that these companies are likely to suffer poor performance due to their very significant pension liabilities just when the pension scheme needs them to perform well



Implications of Results

- Certain investors however may also find companies with large pension issues an attractive investment, whether in a long position or short position, if they believe that the market is taking an incorrect view on the pension position

The Market for Corporate Control

- Quite clearly an FRS 17 deficiency acts as a significant barrier to a takeover from a private equity firm even before we consider the attitude of the Pensions Regulator towards leveraged transactions
- A company with a very significant FRS 17 deficit, such as British Airways plc, is almost immune to a hostile takeover from a private equity house. The equity market does not fully reflect the FRS 17 deficiency whilst the capital providers to private equity houses will raise the hurdle for the operational improvements that the private equity house will have to extract from the business to meet its investment criteria
- There is some comfort for a private equity buyer in that they would not necessarily have to make good the FRS 17 deficiency and would not be penalised on exiting through an IPO back to the equity market. Although given the recent frequency of secondary buy-outs this optimism is tempered
- As was seen in the survey the majority of private equity houses have already called off transactions due to pension issues and we expect this to continue



Implications of Results

- Poor management have an incentive to under-fund a pension scheme to prevent the company being taken over and them losing their jobs
- Equity investors may therefore be well served by encouraging companies to reduce their FRS 17 deficiencies in order to limit the agency costs imposed by an ineffective market for corporate control

Stock Options & Executives

- Stock options are intended to align the interests of management and shareholders. Holders of options who know that the market discounts an FRS 17 funding deficiency have an incentive to under-fund the scheme and instead buy back shares knowing that they will be rewarded through their options and be long gone by the time that the pension deficiency bites the company back

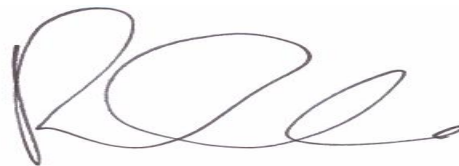
Acquisitions & Funding

- A company that under-funds its pension scheme will be limited in its choices as to funding acquisitions. Debt providers will balk at providing capital to what may seem a relatively under-leveraged business prior to taking account of the pension deficit and thus these companies will have to rely on the less tax efficient and less flexible equity market
- There is a real “option” cost in limiting funding options in this way



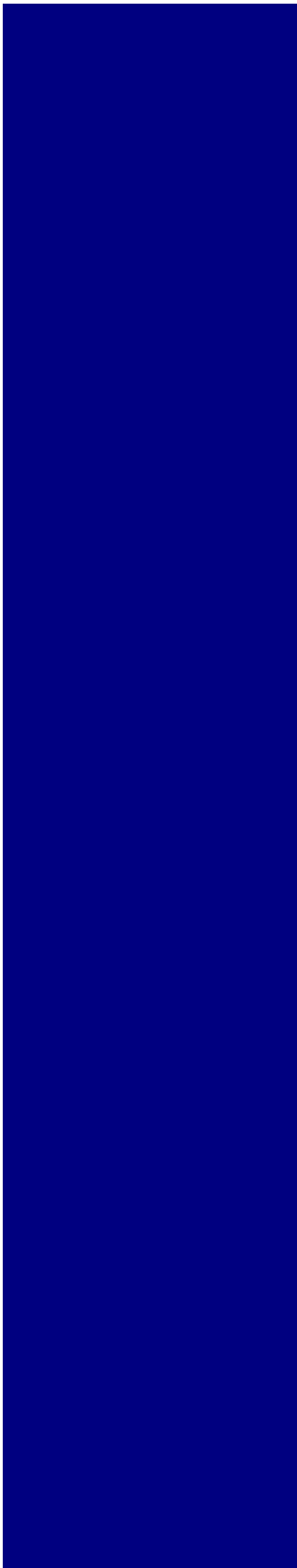
Summary

- We have studied the issue of how the equity market values pension liabilities and it seems clear that, in contrast to the debt markets, the FRS 17 deficiency is **not** treated as a debt of the sponsoring employer but more as some form of “quasi-equity”
- This has a number of significant implications including:
 - A weakening of the UK market for corporate control with pension funds acting as a defence against private equity takeovers
 - Executives with share options have an incentive to under-fund their pension scheme knowing that the equity market will forgive a pension deficit but not a foregone dividend
- Please do not hesitate to contact us should you wish to get further copies of this report or discuss the research and implications in further detail



Richard Jones FIA
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Appendices



Survey Participants

We would like to thank the representatives of the following companies for their participation in our survey

Alchemy Partners
Duke Street Capital
Ellerman Investments
Exponent Private Equity
Goldman Sachs
Graphite Capital
Hardy Transaction Management
HG Capital
J O Hambro Private Equity
Kaupthing
Kleinwort Capital
Lion Capital
Montagu Private Equity
Phoenix Equity Partners
Rutland Partners
Vision Capital

The individuals contacted at each of these firms were speaking in a personal capacity and their views do not necessarily reflect those of their firms

We would additionally like to thank the brokers and other equity analysts with whom we have spoken or who provided notes and other documents for us to analyse

In particular we give special thanks to Stephen Cooper of UBS for his significant input



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- Richard is a Principal in Punter Southall Transaction Services working in the London office. Richard has eight years of experience in advising corporate entities on pension and investment issues
- Prior to rejoining the London office, Richard worked for Punter Southall & Co LLC in their Framingham, USA office for eighteen months
- Richard has spent the past five years with Punter Southall working on a variety of UK and international pension issues from the corporate perspective. Richard has been involved in a large number of international mergers and acquisitions particularly involving UK and US interests for both corporate buyers and private equity firms
- Richard is the lead consultant for an investment company for whom he provides actuarial and investment advice on a number of global pension schemes with more than \$3 billion in assets
- Richard has a degree in Business Economics and became a Fellow of the Institute of Actuaries in 2002



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- Paul is a Principal in Punter Southall Transaction Services working in the London office. Paul has fourteen years of experience in advising corporate entities on pension and actuarial issues
- Paul joined Punter Southall in January 2003 to assist in the launch of Punter Southall Transaction Services our specialist M&A division focussed on providing a complete pensions due diligence package to financial buyers
- Prior to joining Punter Southall he worked for six years at a leading firm of international accountants where he led the pension M&A practice providing specialist international pension and benefit advice to both financial and trade clients undertaking disposals, mergers or acquisitions.
- Paul also has experience in a broad range of pensions accounting work and ongoing pensions advice to multinational companies
- Paul graduated from Imperial College London in 1991 with a degree in Mathematics and qualified as a Fellow of the Institute of Actuaries in 1998



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Punter Southall Transaction Services (“PSTS”) is the specialist transactions consulting division within the leading actuarial firm Punter Southall & Co. PSTS advises private equity houses, investment companies and other corporate entities on the acquisition and disposal of defined benefit pension schemes as well as the ongoing management of the pension liabilities.

For further information on Punter Southall Transaction Services please visit our website: www.pstransactions.co.uk

