Oxera

Agenda

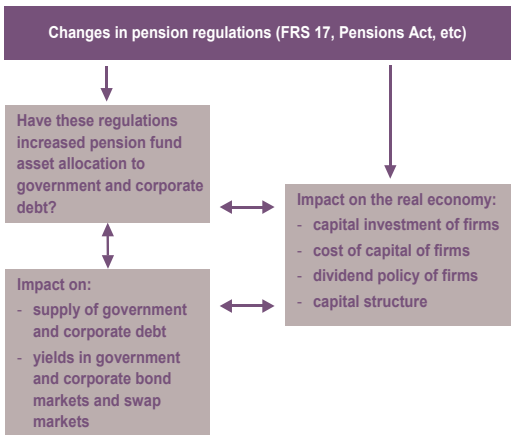
Advancing economics in business

Towards debt? The impact of pension regulations on capital markets

Regulatory and accounting changes implemented in the UK since 2001 have altered the way in which firms' defined-benefit pension schemes affect their profit-and-loss statements and cash flows. Market-based discount rates in estimating pension liabilities, requirements to reflect pension funds' positions on balance sheets, and regulations requiring firms to close pension gaps, have all led to greater incentives to allocate pension fund investments to long-term fixed-income securities. How has this affected the asset-allocation behaviour of UK pension schemes, and could it affect wider capital markets and the real economy?

The introduction of accounting standard FRS 17 and the Pension Act 2004 have altered the way in which firms treat their pension liabilities. Following the implementation of FRS 17, firms' liabilities are estimated using market-based discount rates tied to long-term bonds, while pension deficits must now be reflected in sponsoring firms' balance sheets. At the same time, following the introduction of the Pension Act 2004, firms are required to close the pension funding gap in a timely manner, and regulators can intervene if assets fall short of liabilities (eg, by requiring firms to commit to increases in contributions). These changes have increased the costs associated with funding shortfalls, thus incentivising firms to minimise the likelihood of these shortfalls by matching assets and liabilities more accurately. Moreover, since the value of liabilities is measured with reference to market-based long-term interest rates, investment in long-dated fixed-income securities is likely to provide an asset–liability mix that minimises volatility in the funding shortfall. For example, an increase in the value of pension fund liabilities due to a reduction in the reference yields used to value them would be offset by the increasing value of portfolios invested in the bonds on which reference yields are determined.

Figure 1 Outline of arguments



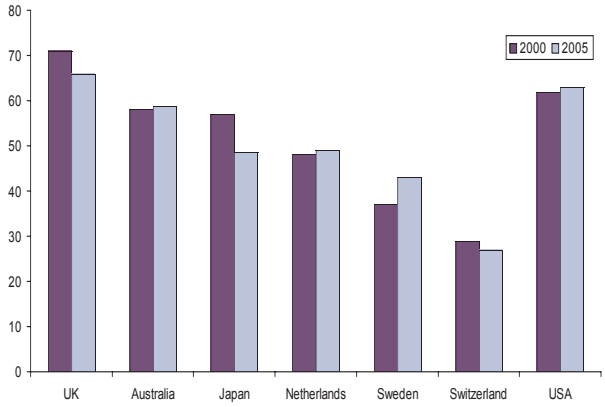
Source: Oxera.

Figure 1 sets out various links between the demand and supply of bonds, prices in the capital markets, and the actual behaviour of firms that is likely to determine the overall effect of the changes in pension regulations and accounting rules.

This article addresses a sub-set of issues depicted in Figure 1, considering evidence on the way in which changes in pension regulations and accounting rules may have affected the supply and demand for government and corporate bonds, and the effect that these changes in behaviour have had on the capital markets.

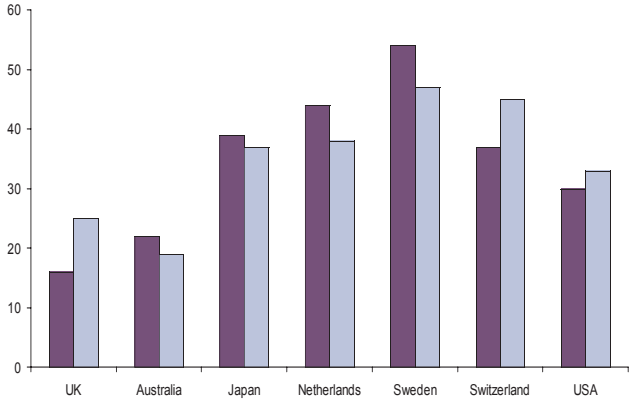
- **Demand side**—what evidence is there to suggest that changes in regulations and accounting rules are affecting the asset-allocation behaviour of UK defined-benefit pension schemes?
- **Supply side**—what evidence is there to suggest that (in response to changes in demand and/or capital market distortions) firms are changing their borrowing behaviour?
- **Redemption yields**—what evidence is there to suggest that these changes in asset allocation are having distortionary effects on the capital markets?

Figure 2 Pension fund asset allocation into domestic and foreign equities (% of total portfolio)



Note: Equities include UK and overseas equities.
Source: UBS Pension Fund Indicators.

Figure 3 Pension fund asset allocation into domestic and foreign debt (% of total portfolio)



Note: Bonds include UK and overseas government and non-government fixed-income securities.
Source: UBS Pension Fund Indicators.

In addition to the effects addressed in this article, changes in pension regulations and rules are likely to have other impacts—eg, on firms' capital investments, their costs of capital, and dividend policy and capital structure decisions (see Figure 1).

Presenting the evidence

Increased demand by pension funds?

There is evidence to suggest that, as a result of changes in pension rules and accounting regulations, firms' pension funds are increasing debt allocations in their investment portfolios. For example, a comparison of the equity and debt allocation of pension funds in seven major investing countries in 2000 and 2005 suggests that, since 2000, UK pension funds have increased their asset allocation in bonds and reduced their asset allocation in equities (see Figures 2 and 3). This pattern is consistent with the prediction that, as a result of regulations and accounting-rule changes, UK pension funds have increasingly changed their asset allocation towards debt securities. Similar trends can be observed in Switzerland and the USA (although there is no reduction in equity allocation in the latter).

Further analysis of the maturity composition of debt investments provides additional evidence that is consistent with the impact of pension regulations. In particular, between 2001 and 2005, UK pension funds increased their asset allocation to long-dated bonds, while their asset allocations to short- and medium-term bonds have remained stable or have decreased:[1]

- asset allocation to long-term government bonds (maturity of 15+ years or undated) increased from 2.0% in 2001 to 3% in 2005;
- asset allocation to short-term government bonds remained relatively stable (0.6% in 2001 compared with 0.6% in 2005); and
- asset allocation to medium-term bonds (3–7 and 7–15 years) declined (1.4% and 1.5% in 2001 compared with 0.9% and 1.1% in 2005).[2]

Similar patterns are not observed in the UK insurance sector, suggesting that they are likely to be driven by factors specific to pension funds. UK insurance companies have increased their debt asset allocation since 2001,[3] but this increase has been concentrated in short- and medium-term bonds, as opposed to long-term bonds.

Changes in firms' borrowing behaviour?

Increased demand for debt by pension funds raises the question of whether firms alter their borrowing behaviour to take advantage of changing capital market conditions, and whether these effects are strongest in the segment that is most likely to be affected by these regulations (ie, the GBP-denominated market segment).[4]

The analysis of changes in the maturity composition of new bond issues of UK firms is based on a sub-sample of issues with fixed-interest payments (ie, excluding issues with variable and floating rates). The analysis is conducted for GBP-denominated and non-GBP-denominated bonds separately, thus highlighting differences in firms' borrowing behaviour in different bond market currency segments.

Table 1 reports the maturity composition of new GBP-denominated fixed-coupon issues of UK firms.[5] The results reported in Tables 1 and 2 suggest that, since 2001, long-term debt issues (maturity of 25+ years) have increased, although there have been variations in the patterns of change whereby, between 2001 and 2003, the share of long-term debt issues declined somewhat, followed by a significant increase in new long-term issues in 2003 to 2006.

Table 1 Share of new GBP fixed-interest issues (% of total)

Maturity	2001	2002	2003	2004	2005	2006[1]
0–5 years	5.7	11.4	8.9	32.8	8.2	10.4
5–10 years	20.9	15.7	22.7	5.1	7.5	16.5
10–15 years	15.5	21.9	24.9	14.4	13.9	7.5
15–25 years	23.4	13.7	29.4	25.1	18.3	12.2
25+ years	34.6	37.3	14.0	22.6	52.1	53.5

Note: [1] Issues undertaken before June 24th.
Source: Bloomberg and Oxera calculations.

Table 2 Share of new non-GBP fixed-interest issues (% of total)

Maturity	2001	2002	2003	2004	2005	2006[1]
0–5 years	31.1	21.2	14.0	20.2	21.0	11.6
5–10 years	42.2	56.9	47.5	53.7	26.8	49.7
10–15 years	21.0	15.7	25.5	16.4	30.5	27.5
15–25 years	0.1	0.0	6.2	5.4	13.2	7.8
25+ years	5.7	6.1	6.7	4.4	8.4	3.3

Note: [1] Issues undertaken before June 24th.
Source: Bloomberg and Oxera calculations.

This evidence is consistent with the prediction that firms would respond to an environment of excess demand for long-dated GBP-denominated bonds and/or artificially low yields by issuing long-dated fixed-coupon bonds. In particular, a proportion of the new issues with a maturity of more than 25 years in 2005 (52.1%) and 2006 (53.5%) was considerably greater than during previous years. Similar patterns are observed in a sample of UK non-financial firms.

At the same time, if the capital market distortions are mainly present in the GBP-denominated segment, such patterns would not be observed in the non-GBP-denominated market segment. Table 2 reports the maturity composition of non-GBP-denominated issues by UK-domiciled firms. This evidence suggests that, unlike the GBP-denominated bonds, maturity of the new non-GBP-denominated debt does not show the same significant increase in long-dated issues. Moreover, the overall proportion of long-dated bonds is considerably lower than in the case of GBP-denominated bonds.

This analysis therefore provides support for the hypothesis that changes in pension fund regulations may be having an effect on capital markets—either by creating artificially low yields or by relaxing borrowing constraints in the GBP-denominated market segment—and thus affecting the borrowing behaviour of firms.

Impact on yields?

The evidence on yields in UK government bond markets is consistent with the predicted impact of increased demand for long-dated government bonds from UK pension funds. Figure 4 suggests that, since 2002, the GBP government yield curve has become more inverted. The figure also suggests that long-term yields observed in the UK during 2006 are low compared with those of earlier years, although this effect is present across most maturities. At the same time, Figure 5 suggests that that the yield curve in the UK is more inverted than those in the Eurozone and USA.

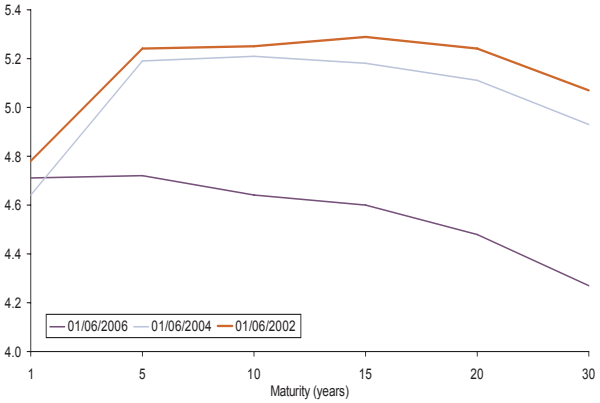
This evidence is consistent with the hypothesis that yields in long-term government bonds in the UK are artificially low, although there are various other factors—eg, differences in inflation and growth expectations—that could explain these differences between countries.

At the same time, similar effects can be observed in the corporate bond markets. The analysis of corporate (AAA-, AA-, A- and BBB-rated) yield curves suggests that:

- there has been a downward shift and a (small) reduction in the slope of GBP corporate yield curves;
- the current GBP yield curve is flatter than the USD and euro yield curves;
- trends in levels and degree of inversion of corporate spreads across currencies are generally similar.

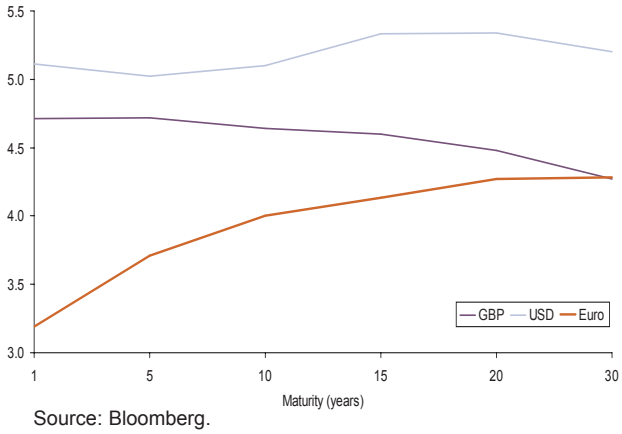
Overall, this data indicates that, in recent years, long-term corporate borrowing in GBP has become more attractive. This is consistent with the notion that increased demand in the long end of GBP government and/or corporate bond markets has potentially resulted in the artificially low yields.

Figure 4 UK government bond yield curve over time (%)



Source: Bloomberg.

Figure 5 UK, US and Eurozone government bond yield curves, June 2006 (%)



Source: Bloomberg.

Conclusions

The evidence set out in this article suggests that regulations and accounting changes have affected the behaviour of pension funds, and that price patterns observed in government and corporate bond markets are consistent with artificially low yields in the long end of the market. Moreover, it would appear that government and firms are increasingly accessing the long end of the market—behaviour that is consistent with the perception of an attractive level of yields in this segment of the market.

This raises questions about the likely future impact of these regulations, and the longevity of any capital market distortions. In particular, although the evidence on the demand pattern of pension funds suggests that those regulatory changes have affected their asset allocation, the most recent changes in regulations arising from the Pensions Act 2004 are only just beginning to have an impact. There is therefore likely to be considerable scope for further changes in asset allocation towards debt securities, and reinforcement of any resulting capital market distortions.

[1] This data may underestimate the degree to which UK pension funds have changed their asset allocation over this period. The analysis is based on National Statistics data that captures only pension funds' direct investments in particular debt securities. In other words, these trends do not capture any changes in the level and maturity of pension fund debt investments that are undertaken through UK authorised and unauthorised unit trust units, UK investment trust shares, UK open-ended investment companies, and overseas mutual funds.
[2] National Statistics (2005), 'MQ5: Investments by Insurance Companies, Pension Funds and Trusts', July, and Oxera calculations.
[3] This increase coincides with changes to the Financial Services Authority's solvency regime for insurers.
[4] Since most of the liabilities of pension funds are GBP-denominated, for the same asset and liability matching reason as discussed above, it would be expected that increased demand for long-dated bonds would primarily materialise in the GBP-denominated market segment.
[5] The sample consists of all new fixed-interest issues (these include issues of Eurobonds, Euro-MTNs, domestic and foreign bonds, etc) of UK firms that are reported in Bloomberg's underwriter league tables. Issues with missing data on issue date, maturity date, coupon type, or currency of issue are excluded.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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