

Pensions Deficits: Mark-to-market valuation is the elephant in the room

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The chief economist of the Bank of England, Andy Haldane, has said he hasn't a clue about pensions. It is not surprising when so many occupational schemes have a deficit that stubbornly just keeps on growing. They have agreed a recovery plan with the pensions regulator to ensure there will be enough money to pay the pensions promised when they fall due - but still the deficit grows seemingly uncontrollably.

The latest estimate for the total deficit for defined benefit schemes eligible for entry to the pension protection fund was £383.6bn at the end of June 2016, up from £294.6bn at the end of May an increase of £89bn in one month. The combined funding level has fallen to 78 per cent, close to its lowest ever level. There were 4,995 schemes in deficit and only 950 schemes in surplus.¹

The blame for this is most often put on the fact that pensioners are living longer than expected. But that is not convincing and can be only part of the answer: deficits are changing too fast to be due to something as slow moving as longevity trends - that are anyway allowed for in the recovery plans that have been devised. The other explanation often trotted out is the catch-all 'market conditions' which covers a multitude of factors. This usually means low interest rates, casually and wrongly equated with poor investment returns.

No. It is the regulations governing pension scheme valuations that are mostly to blame for this unsustainable situation. They are the elephant in the room of the pension deficits story that is being ignored by most of the industry. They are not fit for purpose and urgently need to be revised. They force pension schemes to have to deal with extraneous – even spurious - risk factors which exaggerate deficits. The effect – as we have seen in recent years - is to force many schemes to close.

¹ www.pensionprotectionfund.org.uk/DocumentLibrary/Documents/PPF_7800_july_16.pdf

Deficits have grown substantially since the 1990s when minimum funding requirements were introduced. The 2004 Pensions Act set up the pension protection fund to reduce the risk of pensions failing due to the sponsoring company failing. But it also tightened up on funding rules and imposed an inappropriate market-based valuation methodology². Accounting regulations based on this methodology are at variance with real-world economics. They are based on a purist belief in markets as a source of information - ignoring all evidence from academic economics, both empirical and theoretical, showing the limitations of markets as providers of information. They were intended to prevent pension schemes needing to enter the pension protection fund but in fact have had the reverse effect by making sponsor failure more likely.

It is only policy makers who can deal with this problem. They need to take an overview of the consequences of mark-to-market accounting and revise the valuation regulations in the light of experience.

Funding methodology based on flawed efficient markets theory

The problem started with the minimum funding requirement. Before then actuaries addressed themselves to the *fundamental question: would a pension scheme be likely to have enough income coming in each year, in the future, from its investments and contributions, to be able to afford to pay the pensions to which workers were entitled.*

Since then they are required to produce separate figures representing the assets and liabilities at a particular point in time, valuing them using relevant market prices, in order that they can be put on the balance sheet of the sponsoring company as capital sums. These market-based figures do not directly help to answer the *fundamental question* at all. Many schemes are said to be in deficit because their assets fall short of their liabilities according to this approach; yet they could be sound when their projected income is compared to their projected benefits.

Actuaries were no longer required or expected to forecast flows of income and expenditure – to address the *fundamental question* - on the grounds

² Exley, C. J., S. J. B. Mehta, and A. D. Smith. "The Financial Theory of Defined Benefit Pension Schemes." *British Actuarial Journal* 3.04 (1997): 835-966.

that to do so would be unnecessary because the market had already done the calculations automatically as part of its normal operation.

The *efficient markets hypothesis* states that no individual investor can beat the market because market prices embody all publicly available information about future movements in the economic fundamentals that are meant to drive them, such as company dividends. Market prices of assets are just a reflection of these fundamentals. Therefore no forecasts of income and expenditure into the distant future compiled by an actuary can provide better information than can be got from simply looking at market prices - however good the information s/he is using and however skilled at analysis s/he may be.

Yet this theory had already been debunked many years earlier by the Nobel prizewinning economist Robert Stiglitz and co-author Sanford Grossman in an article in the *American Economic Review*³. This work is highly cited and well known among economists yet has had little effect on the thinking of actuaries, pension regulators and legislators. Despite this evidence against the efficient markets theory at its most basic level the government went ahead and imposed this pure form of neoliberalism on the pensions world anyway.

Valuing assets at market prices introduces risk unnecessarily - hence endangering the scheme

To see how the regulations for valuing pension schemes harm them, first consider the asset side. I will discuss the liabilities later. Assets such as company shares, government bonds or real estate are required to be valued at market prices on a particular date, the valuation date.

The assumption behind this is that the asset price fully reflects all expected future earnings; for example, the market price of a holding of some company shares is the appropriately discounted present value of expected dividends from those shares in every future year. There is no need for the actuaries to forecast what those dividends are likely to be because the market has already done all the work for them automatically.

³ Grossman, Sanford J., and Joseph E. Stiglitz. "On the impossibility of informationally efficient markets." *The American economic review* 70.3 (1980): 393-408.

But the thinking behind this, the efficient-markets theory, is not only false in economic theory, as I have shown above, it is also contrary to empirical evidence: economists have known for over 30 years that market prices of company shares are very much more volatile than theory would suggest. A large body of work by the American economist Robert Shiller⁴ (for which he was awarded the Nobel prize) and others⁵ has demonstrated conclusively that the stock market exhibits excess volatility.

This excess volatility is due to many factors internal to the stock market such as irrational exuberance, market sentiment, behavioural biases of all sorts and even simply poor investment decisions by some traders. And this effect is very large. The *efficient markets hypothesis* is one of the most empirically refuted ideas in economics. (It has also been blamed as a contributory factor in the financial crisis, but I will not discuss that literature further here.)

Yet all this economic evidence was ignored when the government decreed rigorous mark-to-market accounting. The result is that schemes are put in the position of having to treat this artificial volatility originating in the stock market as risk. The long-term economic fundamentals of the scheme may, in many cases, reasonably be assumed to be sound, yet the regulations require the trustees to deal with this short-term volatility as if it were true risk, increasing the liabilities. If the scheme is declared to be in deficit the regulator may require it to make a recovery plan to pay it off. The effect of mark-to-market valuation of assets as required by the regulations is to load pension schemes with irrelevant risk and consequently to bias them against success.

This is not simply a matter of normal cyclical variation in market prices, where asset prices swing from low for a few years then high for a few more. The fact of excess volatility, in itself, affects the funding requirements of the scheme. This is because the excess volatility must be treated as risk which has to be insured against in the technical provisions. This increases the

⁴ Shiller, Robert J. "Do stock prices move too much to be justified by subsequent changes in dividends?." (1980); Shiller, Robert J. *Irrational exuberance*. Princeton university press, 2015;

⁵ For example: Haugen, Robert A. *Beast on Wall Street: how stock volatility devours our wealth*. Prentice Hall, 1999; *The New Finance: The Case Against Efficient Markets*, 1999 (2nd Edition), Prentice Hall; *The New Finance: Overreaction, Complexity and Uniqueness*, 2009 (4th Edition), Prentice Hall.

calculated likelihood of the sponsoring company having to pay additional contributions and maybe failing and therefore weakens the employer covenant. Thus one consequence of the rigor of the current regulations (and the way they are implemented in practice) is to endanger the very schemes they were intended to protect: a case of 'reckless prudence' perhaps. This is entirely due to the regulations' exclusive focus on short term funding requirements and mark-to-market accounting, ignoring long term economic fundamentals.

Many liability valuations are to a large degree artificial

Actuaries have to come up with a single figure to represent all the future pensions payments that have been promised, so that it can be put on the sponsoring company's balance sheet as a liabilities figure. They do this by an artificial thought experiment using compound interest in reverse to answer the question: "How much cash would be needed to be invested now in order to be able to make all these payments?"

These pensions payments are defined by the rules of the scheme and depend on salaries, years of service, inflation and life expectancy, all of which the actuaries can forecast. But the next step in the calculation – rolling these up into a single figure - is problematic. It is where the unreliability and artificiality come in because there are no obvious market prices to use and the liabilities figure that results is purely hypothetical. It is an open question what investment rate (known as the discount rate) to choose for this calculation. But the discount rate used is absolutely crucial because the liabilities figure is extremely sensitive to it.

Although pension trustees have considerable discretion over choosing a discount rate, in many cases they use one based on government bonds. The law does not actually require this and allows them to use a discount rate based on the rate of return of the scheme's investment portfolio. That would make sense since it would ensure that the rate of return on the investments was consistent with the discount rate for calculating the liabilities. However there is pressure from the finance theory advocates which says they should use a "risk-free rate" – ie gilts rather than the actual rate of return on the scheme's investments. This is embodied in the accounting standard (known as IAS 19) which many actuaries follow.

But gilt rates as low as they are at present, as a result of quantitative

easing and associated monetary policies, make liabilities figures for many schemes both large and volatile. This is one of the main reasons – in some cases *the* main reason - for high deficits.

But this is another very artificial calculation and in most cases tells us little about the real liabilities. The ability of the scheme to pay the pension benefits depends on the returns on the assets in its investment portfolio not on the rate of interest on gilts.

If interest rates go down and calculated liabilities go up in consequence, it is not true to say that the actual pensions liabilities have really increased: they are unchanged. It is therefore highly misleading - as a guide to decision making - to rely on this calculation. Yet the regulations require precisely that.

Many pension experts even appear to fail to grasp that valuation rules are so artificial⁶. They often uncritically assume that deficits are mostly due to poor investment returns and increased longevity. (Increased longevity *is* of course a real influence on liabilities requiring scheme changes such as increased contributions and raised retirement ages.) But actually investment returns on the asset portfolio are irrelevant to the liabilities under the current regulations.

Pensions regulation should be grounded in macroeconomics not finance theory

The crisis surrounding pensions deficits does not in itself mean that pensions are intrinsically unsustainable, as has often been claimed. Pensions are a matter of securing incomes for retired people, which we can think of as a share of GDP for a section of the population. They ought therefore naturally to be seen as an aspect of macroeconomics, which is the branch of economics centrally concerned with income determination.

Both the income and outgoings of pension schemes - in the aggregate – are directly related to the overall size of the economy. Both investment income and the level of salary-linked defined benefits are shares of GDP (as also are contributions). Therefore, for example, a period of sluggish

⁶ For example: FT Lombard, 6 July 2016; former pensions minister Steve Webb, reported at <http://tinyurl.com/hpkas3c>

economic growth with low investment returns should not pose a particular problem, since the benefits, being linked to wages and therefore GDP, will also not grow.

Pensions are fundamentally a matter of macroeconomics. Government regulations should be constructed in such a way as to ensure a link to long-term economic growth. At the moment the regulations are not macroeconomics-compliant and instead they are based on the asocial microeconomics of financial economic theory where everything is a matter of individualistic risk and return. Basing pension regulation on financial economics, on market prices of assets rather than the underlying economics of income determination, has resulted in a situation where valuations in the aggregate are no longer related to GDP and therefore not sustainable in the long run.

From this perspective pension schemes ought optimally to adopt investment strategies which link the returns to economic growth - such as maintaining a diversified portfolio of investments in the real economy, that includes for example equities for the long term. Economic risk such as corporate bankruptcy or failure to pay a dividend is managed by traditional diversification. Risk due to macroeconomic cyclical variation is managed by intertemporal smoothing within the analysis of the *fundamental question* relating to income and expenditure described above. Adopting this different, though not new, approach requires acknowledging that the experiment with the efficient markets hypothesis has failed.

The government should legislate for a new regulatory regime for DB pensions based on this principle, and the present regulations based on naïve (however mathematically rigorous) theories from financial economics replaced. This is a vital matter because the alternative to adequate and properly sustainable occupational pensions is a future crisis of retirement poverty for millions.

It is only policy makers who can deal with this problem by going back to the regulations and revising them. It is to be hoped that they can reconsider the use of financial economics as the basis of regulation.