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Some thoughts on the decline of pension schemes

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Abstract

Purpose – The purpose of this paper is to present a review which brings together the existing literature on the reasons for the decline in pension schemes.

Design/methodology/approach – Adopting a positivist stance, where the reality of man as an adaptor, in a study of systems, processes and change is observed, the authors undertake a review of the existing literature on pensions and pension accounting.

Findings – What is absent from the existing literature is a review of the extent to which both a variety and a combination of factors affect companies' decisions to close their defined benefit pension scheme.

Originality/value – The paper provides an holistic overview of the diverse range of literature that addresses the decline in pension schemes.

Keywords Pensions, Financial management, Pensions accounting, Defined benefit, Defined contribution

Paper type Literature review

1. Introduction

The decline of defined benefit (DB) pension schemes in the UK and USA over the last 20 years has been widely documented by both the media and academics. Many claim it was the introduction of new pension accounting standards (IAS 19 (IASC, 1998); FRS 17 (ASB, 2000); SFAS 158 (FASB, 2006)) that drove firms to close their DB schemes. This argument is based on the fact that the requirements of these standards result in increased volatility reported in the financial statements. Others attribute the decline to different factors such as increasing costs, the changing structure of the economy, and increased employee mobility. This review examines the literature that has arisen, primarily in the UK and USA, that discusses the main causes and driving forces behind the decline in DB schemes.

Methodologically, the majority of mainstream accounting literature takes a positivist stance, and historically the majority of researchers have also adopted this approach (Ryan *et al.*, 2002). It has, however, been highly criticised by those following contrasting philosophical perspectives. An extreme criticism is found in Tinker *et al.* (1982, p. 167) who argue that "the notion of positive accounting is shown to be an illusion because research in accounting cannot be value free or socially neutral". However, although positivist research neglects normative issues and requires certain assumptions, there is still a large amount of credit to positivist research, which some critics conveniently fail to acknowledge.

The methodological position underlying this review is naturally adopted. Reality is taken to be a "concrete process" where the social world is an evolving process and everything changes as a result of various influences (Morgan and Smircich, 1980). Human nature assumptions view "man as an adapter" whereby humans are influenced by the society they live in, and each individual acts in their own best interests. This, in turn, leads to an epistemological study of "systems, process and change".

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The use of a positivist approach has many advantages and the method chosen to conduct research is appropriate to this methodological approach. Even Chua (1986, p. 602), among her criticisms of the mainstream approach, acknowledges that the positivist view has "produced benefits for the conduct of accounting research with its insistence on public, intersubjective tests and reliable empirical evidence". The reality of the world as "external and real" allows the researcher to determine relationships and explain behaviours between organisations and individuals. The adoption of this stance allows the researchers to draw upon the effects of pension accounting standards, as such regulation governs organisations and individuals, and thus to link these standards with the decline in DB schemes, which are seen as an object of reality. It is with this philosophical perspective that we now proceed.

2. The shift from DB to DC

The change in pension plan provision, from DB to defined contribution (DC), has been profound. The implications and consequences arising from this change should not be understated, and provide us with an idea of the importance of this change for the economy overall. This review highlights the widespread impact of the decline in DB schemes, and the consequential knock on effects that pension accounting (and other factors) have had.

Although it is argued that, in principle, a DB plan could be set up to mimic the fundamental characteristics of a DC plan through the sharing of risk and return (Banks *et al.*, 2005), there are key differences in the incentives and risks faced by holders, depending on whether they participate in a DB or DC scheme. Perhaps the most commonly researched implication arising from the shift from DB to DC is the transfer of investment risk from employer to employee. While the obvious disadvantage to the employee is that he will now bear the investment risk, the benefit to individuals is increased control over the portfolio allocation and their risk-return trade off (Banks *et al.*, 2005). However, if the portfolio is not well managed this may be costly, especially if portfolio allocations are confined to a single company or industry (Porterba, 2004).

This transfer of investment risk from employer to employee is regarded by many as an unwanted development. However, according to Watson (2008) the transfer of such risk is largely a fallacy, and DC schemes are not inherently riskier than DB schemes, as is usually believed. His argument is based on the idea that DC schemes make it obvious that employees bear both investment and annuity rate risks, but DB scheme members are subject not only to these risks, but also to additional non-diversifiable risks specific to the employer, and costs arising from reliance upon pension promises from the employer. Watson (2008) argues thus that DC plans are superior to DB plans (especially for the mobile employee, see Munnell *et al.*, 2007) and provide both employers and employees with the most cost-effective way of saving for a pension due to the low operational, governance and regulatory costs and flexibility.

From the employees' point of view, it seems that DC schemes are more attractive for newer, younger, more mobile employees (Aaronson and Coronado, 2005). The rise in the number of women in the workforce has resulted in employees with weaker attachment to a single employer and higher demand for more portable pensions, i.e. DC plans. This increase in women means, overall, the mobility of the workforce is increased, thus decreasing the demand for traditional long tenure rewarding DB pensions (Williamson and Howling, 2003). Shifts in worker demand (from changes in workforce characteristics)

play a large role in the overall shift from DB plans to DC plans where employees tend to favour more flexible employment contracts. However, employers should beware of enforcing new DC plans without first consulting those affected (see Clark and Knox-Hayes (2009), for a UK perspective; and Huberman *et al.* (2007), for the USA).

Employees have differing needs and expectations about what they want from a pension scheme (Strattan, 2003). New, younger employees would appear to care less about long term saving such as pensions, and are instead focusing on immediate saving such as saving for a deposit for a house or paying off student debts. A few employers have reacted to this – for example, the New Zealand organization, *KiwiSaver* (kiwisaver.govt.nz) allows employees to use a proportion of their pension savings to fund a deposit for a new home. A further implication of a shift to DC pension plans is that individuals are likely to pay greater attention to market rates of return when planning their retirement (MacDonald and Cairns, 2009), as the member bears the financial risk and so their pension depends largely upon their own investment strategy (Byrne, 2004; Yang and Huang, 2009). As the choice is no longer available between DB and DC schemes for employees, the importance lies in the minimising of DC plan risk, at whatever level it may be.

Another, less discussed, implication of the shift from DB to DC is that relating to the insurance of longevity risks and annuity market selection issues. Banks *et al.* (2005) discuss the difference in timing when the annuity rate is set in DB and DC schemes, where DB annuity rates are determined when a member joins the scheme (for example, say 30 years of age); whereas a DC annuity rate will be set when members are between the age of, say, 50 and 75, by which time there may be less uncertainty about the length of life. Banks *et al.* (2005) suggest that there is an advantage to committing to an early annuity rate (as happens in a DB scheme), and the change to a DC scheme will increase this risk and increase adverse selection costs for DC plan holders, and some evidence is presented that shows individuals reconsider probabilities of survival as they get older.

Banks *et al.* (2005) also suggest that the shift from DB to DC will have reduced some of the formal risks faced by certain employees, i.e. the risks over pension tenures and wage growth. This is the case with DB schemes which, by nature, tend to redistribute towards those employees with longer job tenure and wage growth (Disney and Whitehouse, 1996).

The final implication suggested by Banks *et al.* (2005) is that the movement towards DC plans should lead to later retirement age, and they report results which show a much stronger incentive to work longer in DC plans. This increase in retirement age, resulting from the pension coverage shift, is consistent with the findings of Friedberg and Webb (2005) in the USA, who focus on the retirement effect of DC plans, instead of analysing the savings effect which has already received extensive attention in literature. While much prior literature found that DB plans were a factor in the decline in retirement ages, as they have incentives that encourage retirement after a certain age, Friedberg and Webb (2005) find that as DC plans do not give the same incentive and lead to employees retiring two years later on average, compared to those with DB plans. The simulations used in the paper imply that the shift in pension coverage will increase the median retirement age of employees (full-time with a pension) by roughly two years, when comparing cohorts aged 53-57 in 1983 and in 2015. Although their study consists of data from the USA, the empirical findings are still relevant and have the same implications for the UK, as the UK is experiencing the same shift

in pension coverage. This increase in retirement age has important consequential implications for both DC pension holders, and the government, who are looking to raise the state retirement age (currently at 65 and 60 for men and women, respectively).

The shift in pension coverage has not been particularly welcomed by the majority of parties, and Byrne *et al.* (2008) find that it has been met by strong resistance from many employers and pension plan trustees. Evidence suggests they are reluctant to take an active role in pension scheme design and allocation and provide support and guidance to members due to a fear of legal liability (for adverse outcomes). In addition, the authors believe there is scope for "safe harbour" provisions which will allow employers and trustees to take a more active role in supporting their members.

In addition to the literature focusing on implications and results of the pension structure shift, there are several studies surrounding the event study that is the termination of a DB pension plan. However, the fundamental question addressed in most literature – "whether positive returns accrue to shareholders in the period surrounding firms' announcements to terminate pension plans" – still remains relatively unresolved. Earlier studies found that positive returns did accrue to sponsoring firms terminating pension plans, but later research argued that there were several specification problems in earlier works and subsequently found that reported positive returns were much smaller or insignificant. Also, the debate over shareholder wealth also extends to when this positive effect takes place. For example, Mitchell and Mulherin (1989) find, for the UK, that the termination of largely overfunded plans accrues small, but significantly positive, returns to shareholders. This small positive return occurs around the date of termination, and there is no significant stock price response found for the legal termination date. Moreover, Mittelstaedt and Regier (1993) find, for the USA, that share price response at the time of pension plan termination is affected by the replacement plan, and market anticipation to some extent.

Putting aside the controversy and debate over the market response to DB plans, if the market does indeed respond with an increase in shareholder value, then this could provide an extra incentive for companies looking to close such schemes.

3. Effect of pension accounting on pension provision

A limited amount of rigorous academic research exists that directly addresses the relationship between pension provision and pension accounting. Kiosse and Peasnell (2009) address the issue of whether the shift from DB to DC schemes which has occurred in both the UK and the USA can be attributable, at least to some extent, to the changes in rules surrounding the financial reporting of DB schemes.

Perhaps surprisingly, they find that new accounting rules do contribute to the change, but not as much as is sometimes claimed, and there have been many other factors that have contributed to the change (Kiosse and Peasnell, 2009). They comment that there has been a widespread perception that the changes in pension accounting regulation that increase volatility and show pension plan surpluses on deficits in the balance sheet will cause changes in companies' pension provision, namely closing their DB plans. Previous studies have shown that these decisions of companies to terminate, freeze, or convert their DB schemes have been "driven primarily by the desire to limit contributions, though financial reporting has played a part as well" (Kiosse and Peasnell, 2009, p. 255). In a discussion of this paper, Rangecroft (2009), although agreeing with the main points highlighted, argues that switching from a DB

to DC scheme is a complicated process where many different factors are considered, cost being only one of them. It is argued that it is much too simplistic to claim the move to DC schemes is to save money.

Kiosse and Peasnell (2009) also highlight a common criticism of pension accounting, that the figures included in the financial statements are extremely uninformative about the long-term costs of providing pensions. Thus, firms only consider these short term reporting implications which can lead to sub optimal decisions about pension provision in the company. In other words, the immediate increased volatility in the financial statements drives firms to terminate or replace their DB schemes with DC schemes where this increased volatility is not present in the reporting of these schemes. Many critics of FRS 17 also argue that this accounting standard was the cause of many firms' decision to terminate their DB plans – or at least provided incentives to close (Fore, 2004). They argued that terminating the DB plans removed the unnecessary volatility under FRS 17 reporting requirements.

However, empirical evidence on this point is still mixed (Fore, 2004). Klumpes *et al.* (2003) find that 37 out of 90 firms terminated their DB schemes after switching from SSAP 24 to FRS 17, but that the change in the discount rate under FRS 17 is not a statistically significant predictor of DB plan closure.

However, they do find that those firms who closed their DB plans were more likely to have a higher leverage, suggesting the DB plans were terminated due to the adverse impact of FRS 17 reporting on the balance sheets (Klumpes *et al.*, 2003). In other words the financial condition of the DB plan plays an important part in the decision to terminate it. Consistent with this evidence, Beaudoin *et al.* (2007) find that the larger the reported expense and the more underfunded DB plans are, the more likely the firm- is to freeze or terminate the plan. The authors interpret the result as implying that companies see financial reporting implications as a major factor in the termination decision, where the pension expense is largely increased by the new pension standards. Fore (2004) also suggests that convergence of international reporting standards is likely to result in further DB plan terminations, as standard setters are moving towards global convergence.

In response to research that suggests companies with DB schemes are often mis-valued by the market, the US study by Coronado *et al.* (2008) test the impact of pension accounting on stock values and conclude that investors still appear to mis-value DB pensions and therefore the stock of many companies. In a separate, earlier, study Coronado *et al.* (2008) find that pension plan accounting (FAS 87 at the time) inflated and overvalued the stocks of S&P 500 companies that provided DB plans, which in turn contributed, in part, to a stock market bubble. Again, this finding is based on US data but still proves relevant to the UK when FRS17 was not yet implemented. This mis-valuation of stock may have had an effect on companies' decisions to terminate DB plans.

There are also several studies that discuss how the shift in pension provision has resulted in a change in pension asset allocation, and Kiosse and Peasnell (2009) find that studies to date have shown that pension accounting standards have indeed affected the way in which assets are allocated in pension funds. Amir *et al.* (2007) find that when FRS 17 was introduced, UK companies moved pension assets from equities to bonds. Mashruwala (2007) also finds that a shift from equities to bonds was related to the introduction of FRS 17. The switch from pension assets from equities to bonds will have a large impact on pension fund returns, as bonds usually have a lower return due

to reduced risk. It seems that employers are accepting the lower returns which bonds yield, in order to reduce the exposure and volatility of their balance sheet brought about by new pension accounting standards.

While the existing literature addressing the direct link between the introduction of new pension accounting standards and the decline in DB schemes is limited, it does seem to show that pension accounting has been one of many causes of the dramatic decline in DB pension schemes. Most academic writings on pension provision do recognise that new pension accounting standards have played a part in the closure of DB schemes (Munnell and Soto, 2007; Munnell *et al.*, 2007; Hudson, 2008). There is, on the other hand, a large body of literature surrounding other causes for the decline in DB schemes, each of varying importance. While it is impossible to pin the shift away from DB schemes on one single factor, it is equally difficult to assign weights to each specific factor. The next section reviews these other explanations for the decline of DB schemes.

4. Other reasons behind the shift

In order to help understand why DB schemes have been in significant decline, we need to understand the risks that these schemes pose for employers: longevity risk; interest rate risk; inflation risk; and investment return risk, for example (Kiosse and Peasnell, 2009). Employers can mitigate these risks in a variety of ways, but increased regulatory changes in the UK have increased these risks for employers.

Historically, the termination of a DB plan was a rare event and the only companies to close their DB schemes were those facing bankruptcy or struggling to survive. Nowadays, even large healthy companies are exercising a freeze or termination over their DB plan (Munnell *et al.*, 2007, for the USA). Present in most relevant literature and often argued as the main determinant of decline in DB schemes is the increase in costs of DB schemes, where the cash contributions required by firms to support their DB schemes have increased significantly (Kiosse and Peasnell, 2009). We now discuss the factors which are deemed to have contributed to the increased costs of running a DB scheme.

Investment returns

Generally speaking, the cost of a DB pension scheme will depend upon the returns from its portfolio and investments. During the late 1980s and 1990s, growing asset values and high stock returns made it possible for firms to make minor contributions to their fund or to take "contribution holidays". According to the UK Pensions Regulator (2007), UK pension funds invest roughly 60 per cent of their assets in equities, and thus employers benefited from high returns from the long bull market in the 1990s (Kiosse and Peasnell, 2009).

These contribution holidays were brought sharply to an end when the stock market plummeted after 2000. As assets in pension funds rapidly declined and interest rates dropped companies were forced to inject substantial cash contributions into their pension funds (Munnell *et al.*, 2007). Sweeting (2008) argues that in actual fact the main determinant of the increased costs of DB schemes in the UK has been the fall in real and nominal long-term interest rates.

The current financial crisis, where stocks dramatically fell in 2007, has further hit pension schemes, especially those with a large portfolio holding in equity. Thus, market volatility can make DB plans considerably more risky and expensive, with profound implications for cash flow and financial condition (Munnell *et al.*, 2007).

The combination of the higher risk in holding large equity investments and the requirement of FRS 17 to discount pension liabilities using an AA bond rate has led many companies to reduce equity holdings and increase investment in fixed interest securities. An extreme example of this is Boots plc who, in 2001, decided to move all of its assets into bonds (previous investment was 75 per cent equity) (Kiosse and Peasnell, 2009). Bodie (1990) argues that equity investments are only optimal for those DB plans that are overfunded and, as most DB plans are underfunded, trustees have reduced their overall investment in equities.

Longevity increases

Another determinant of the increased cost of DB schemes is the fact that people are living longer (Aaronson and Coronado, 2005; Kiosse and Peasnell, 2009; Munnell and Soto, 2007). Firms face a large amount of longevity risk and it has become clear that longevity predictions made over the last few decades or so have been too conservative and people are living much longer than expected (Hudson, 2008). For example, the UK Government actuary's projection of the life expectancy of a 65-year old male in 2020 was five years greater than the equivalent projection made in 1983 (Turner, 2006).

If the beneficiaries of DB plans end up living longer than expected, companies or plan sponsors will face large financial losses (Munnell *et al.*, 2007) and is the case why most DB schemes are largely underfunded. The substantial longevity increases recognised over the past decade or so have had a massive impact on the cost of DB schemes, and many practitioners believe this is the main determinant in the cost increase, and the subsequent shift to DC schemes.

Increased regulation

Since the 1970s, there has been a large amount of new regulation which affects DB schemes and their benefits. In the UK these include Preservation of the Benefits of Early Leavers (1988), Inflation Protection (1991), Minimum Funding Requirement (1997), since replaced by the pension protection fund. Such regulatory changes have resulted in major increases in the cost of providing a DB plan. Ippolito (2003) also argued that some regulatory changes involving reversion taxes meant companies could get out of DB schemes and obligations more easily.

However, the increase in the costs of administering DB plans has also been present in DC plans, where the costs rose at a similar rate for all but the smallest plans (Ippolito, 1995). Overall, the amount of regulation over the years has been extensive (Hudson, 2008), where some has involved compulsory benefit increases, or increasing the tax on investment returns as discussed below.

Tax changes

An element of regulatory changes is the change of tax treatment for pension contributions. Up until 1997, UK pension schemes were given very favourable tax treatment (Hudson, 2008) where employer contributions were treated as expenses and employee contributions were tax-free and all investment returns were tax-free (Lee, 1986). In 1997, however, the UK Prime Minister, Gordon Brown ended this tax relief on pension funds which was a devastating blow to many companies. Thus, the abolition of tax relief made pension schemes more expensive to run, especially those with large holdings in equity.

More recently, other factors explaining the decline in DB schemes have emerged in literature. Where most academics acknowledge that increased costs do play a part in the decline, many argue there are other underlying forces which have had a bigger impact.

Global competition

One, less well-documented, possible driving force behind the change is the cutting of DB pensions to reduce overall compensation, in order to become competitive with other companies worldwide (Munnell *et al.*, 2007). The logic seems to be that cutting pensions will cause less commotion than cutting cash wages; also, workers may be less informed about what this means. Hewlett Packard, in the USA, for example, have declared that their pensions costs need to be reduced both to allow them to compete with foreign companies, whose governments provide the majority of pension benefits, and with younger companies on the domestic front, who may not have, or who may have terminated, an exiting pension scheme (Munnell *et al.*, 2007).

Structure of the economy

A variety of evidence suggests that the shifts in pension provision have been associated with structural shifts in the economy (Friedberg and Owyang, 2004, in the USA). Many papers using administrative plan data find that employees have shifted from jobs that typically offer DB plans to jobs that typically offer DC plans (see some US examples including: Clark and McDermed, 1990; Gustman and Steinmeier, 1992; Papke, 1999). In addition, Friedberg and Owyang (2004) find that pension coverage changed at varying rates dependent on industry, occupation and education level, and not uniformly in all jobs. Moreover, other papers have shown that changes in pension structure have mirrored patterns of increasing earnings inequality across skill groups (Bloom and Freeman, 1992; Even and Macpherson, 2000); another trend associated with structural changes in the economy. This evidence suggests that increased costs of DB schemes are not the main factor contributing to the decline.

Nature/structure of organisation

Munnell and Soto (2007) also argue that the changing nature of the industry plays a role in the changing pension provision as there is declining employment in large, manufacturing firms, which typically offered employees DB plans. This was matched by an increase in employment in high-tech firms and smaller companies in the service and trade sectors, which typically did not offer DB schemes. They claim that organisations were restructured and reorganised in a way which reduced the value of long-term relationships between the employer and employee. DB plans were, in actual fact, a hindrance, as rewards for excellence must be based on performance as opposed to long-term service.

In addition, for the specific group of employees that is CEOs and highly paid managers and executives who have experienced excessive growth in compensation, Munnell and Soto (2007) argue that traditional pensions have become irrelevant, as they receive most of their retirement benefits through non-qualified plans.

Job tenure

Several studies look at the link between job tenure, which has fallen over the last ten years, and the decline in DB schemes. Friedberg and Owyang (2004) find

that at the same time job tenure declined, DB schemes also declined. They show evidence that the value of long-term jobs has dropped, which supports their explanation for the decline in job tenure and DB schemes. They even suggest "that regulatory changes responded to an underlying increase in the gains from working mobility" (Friedberg and Owyang, 2004, p. 3).

Technology

A less commonly studied contributing factor is that of increased use of technology in firms. Friedberg and Owyang (2004) find that higher rates of computer use and overall investment across industries are associated with lower rates of DB schemes and lower job tenure, and these relationships were more negative in the 1990s than the 1980s. This suggests technological changes have had some impact and influence on both job tenure and the decline in DB plans. This result also complements other research addressing the shifting nature and pace of technological changes. Aaronson and Coronado (1995) also support the theory that changes in technology have reduced the value of DB plans to employees.

Theoretical papers by Ippolito (2003), Friedberg and Owyang (2004) and Balan (2003) suggest that "back-loaded" DB pensions are unsuitable with the present changes in production technology, as the need for skills transferrable across firms replaces firm-specific skills (Aaronson and Coronado, 2005). It is suggested the technological advancements are linked with changes in workforce characteristics, which can result in employee demand shifting from DB to DC schemes.

Information asymmetry

It can be argued that employees do not act rationally, through lack of knowledge (Sweeting, 2008). Many studies find evidence for this. For example, Mitchell (1988) finds in a US study that many people do not know what kind of pension scheme they are a member of, and many who think they know are incorrect. More recently, Sunden (2006) still finds, in a studying comparing Sweden with the USA, that many people do not know the main details and characteristics of their own pension schemes. Fidelity International (2006) investments find that most employees largely overestimate the level of income they will receive at retirement (Sweeting, 2008). It is easy to see how companies can take advantage of this lack of public knowledge by either closing their DB plans, or replacing them with less generous DC plans, where employees do not realise what they are sacrificing. This factor is also linked with increasing employee demand for DC schemes.

5. Conclusion

Where a lot of the existing literature differs on the main component driving the decline in DB schemes, it is generally agreed that there is not a single factor, but a combination of factors, which have caused the decline in DB schemes. Moreover, the closure of these schemes has been made to seem commonplace due to the well-publicised pension shutdowns at steel companies and large airlines. Now, perfectly healthy companies are following in their footsteps, and the shock value of pension terminations has now been eliminated (Munnell *et al.*, 2007).

We have discussed the profound implications of the trend away from DB schemes, and the impact of pension accounting standards. The introduction of pension

accounting standards (FRS 17/ IAS 19/ SFAS 158) is only one of many factors, and it is well recognised that they do indeed play a part in the shift away from DB schemes. However, the increased cost of DB schemes has been the most widely documented cause of the decline, and alternative factors have also been suggested such as job tenure, worker mobility, and increased global competition.

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