Overview
With the retirement of the baby boom generation beginning in the first decade of the 21st century and increased global competition between rival systems of economic governance, pension systems are an important and growing area of research in economics and management. The relationships between social security (pillar I), sponsored pension and retirement plans (pillar II), and individual retirement income accounts (pillar III) are essential to any understanding of pension systems. There are significant differences between the Anglo-American world, much of continental Europe, and Latin America with respect to the structure of relationships between the three pillars of retirement income. Moreover, there are significant differences between whole sets of nations with respect to the current funding of future pension liabilities. While the Anglo-American countries do not all fully fund social security entitlements they do rely upon the full funding of pension fund (pillar II) obligations whereas continental European countries tend to rely upon unfunded social security (pillar I). These funding arrangements have had significant consequences for the financial management of large corporations, and for the structure of the related institutional investment industry. Anglo-American pension funds and the financial services industry have accelerated the process of financial dis-intermediation, in part contributing to the growth of the global market for corporate control. Even in countries not contemplating changing over to funded retirement income plans, the transformation of Anglo-American economies through the actions and investment
strategies of pension funds has been noted. In particular, this transformation has not been lost on continental Europe and the transition economies of eastern Europe as they redefine their social security and pension systems in the light of the looming demographic crisis.

Introduction

In large part, the literature on social security is about the historical roots and evolution of the twentieth century welfare state (Gosta-Esping 1989). Many studies stress the class bargain and intergenerational social contract underpinning welfare states, mediated by nation-specific customs and traditions. Few countries fully fund expected social security pension obligations, most contributions are less than expected benefits, and progressive redistribution towards low income earners is a common albeit often-times implicit policy. Governments carry the ultimate liability for social security pensions, operating on a pay-as-you-go (PAYG) basis (see Gruber and Wise 1997 for a survey). Even so, there is considerable debate about the future of social security in relation to other forms of pension and retirement income. Indeed, there have been proposals in the US and elsewhere to partially convert social security to funded individual retirement accounts (Feldstein 1998).

The role and significance of pension provision in relation to social security has gained increasing attention for two sets of related reasons. Encouraged by the Organisation of Economic Cooperation and Development (OECD) (see Leibfritz et al. 1995, and OECD 1998) and the World Bank (1994), policy makers in advanced industrialized economies have focused on the looming "demographic crisis". This crisis combines the coming retirement of the baby boom generation with projected longer average life expectancies, and lower fertility rates with much higher dependent
to working age population ratios. For countries such as France, Germany and Italy the demographic trends will be more significant than for Ireland and the UK, the US and Canada. Reinforcing the demographic crisis is the fact that countries like France, Germany and Italy rely upon under-funded or unfunded social security systems for the provision of future retirement income (Figure 1). Even German employer-sponsored pension plans are often significantly under-funded (Prigge 1998). By contrast, in the Anglo-American countries the majority of workers rely upon funded supplementary pensions for a significant portion of their retirement income (Davis 1995).

Not surprisingly, there is considerable interest in many European countries in discounting long-term social security obligations while promoting those pension systems that might shift the financial burden of retirement to employers (and other plan sponsors) and individuals. This is especially apparent in the transition economies of eastern Europe. Having privatized large state enterprises and having introduced policies aimed at enhancing the role of small and medium enterprises, these nations have also sought to introduce pensions systems designed to circumvent the inherited problems of the welfare state. Further more, for advocates of supplementary pensions the robust Anglo-American financial services industry is reason enough to shift retirement income obligations from the state sector to public and private pension plan sponsors. Apparent differences in the financial structures of developed economies can be explained by reference to quite profound differences in legal structures (see La Porta et al. 1997, 1998). But it is also true that the astonishing growth of pension fund assets over the past thirty years in the Anglo-American economies can help explain the vitality of Anglo-American financial markets (Clark 2000). Venture capital, initial public offerings (IPOs) and the liquidity of Anglo-
American securities markets are indicative of the power of pension funds and their closely related partners--institutional investors (Davis and Steil 2000).

In this paper, I begin with the relationships between different forms of retirement income, making the connection between social security (pillar I), sponsored pension plans (pillar II), and individual retirement accounts (pillar III). From that model structure, I concentrate on pillar II and pillar III pension systems including reference to common types of defined benefit (DB) and defined contribution (DC) pension plans. The structure and management of pension fund investment is the focus of the third section while the connection between pension fund investment and financial markets is the topic of the fourth section. I conclude with reference to some of the unresolved or most problematic issues of supplementary pension systems: the problem of low coverage rates of poor groups of workers, the appropriate degree of paternalism, and the proper allocation of risk between individuals and institutions. Recognizing the virtues of supplementary pension systems, there are limits to their scope and significance in replacing state-sponsored social security schemes (Disney 1996).

Pillars of Retirement Income

Notwithstanding the significance of the welfare state for much of the 20th century, pillar II and pillar III pension systems have had a long history. The British government first introduced supplementary pensions for selected employees at the turn of the nineteenth century. The structure and Organisation of these schemes were the forerunners of twentieth century corporate and public sector sponsored pension plans across the English-speaking world (see Blake 1995, Hannah 1986 and Sass 1997). At much the same time, the British government also promoted mutual
insurance schemes, encouraging worker associations to pool health and retirement risks across their membership (Clark 2000, Ch. 3). Even in Germany, believed by many to be the bastion of state-sponsored social security, a number of employer-sponsored pension plans had been established by the end of nineteenth century. Many of these plans persist to the current day, despite the turmoil of the twentieth century.

Thus provision of retirement income can take a variety of forms (see Figure 2). For example, pillar I retirement income can be provided by social security systems that are framed by a social contract between the classes and between generations; benefit levels are typically set according to accepted entitlement criteria and need, not necessarily earned income. In some countries like Germany, however, this system is augmented by preferential tax-related schemes that reflect worker incomes, being a form of income replacement upon retirement. In the Netherlands and Switzerland, there is an intimate relationship between pillar I and II pension systems. As a matter of public policy, at retirement income replacement is set through a combination of state-funded social security and compulsory membership of sponsored pension plans. At one level, solidarity may be enforced by government policy. At another level, workers and employers may both desire solidarity. In effect, membership of pillar II schemes may be a means of sustaining loyalty and collective commitment (to a union, a corporation etc.) through the pooling of risks (death, disability, retirement etc.) across different age groups within and/or between firms.

Pillar II pensions are also offered because other employers (competitors) offer plans. Likewise, professional (affinity) groups often offer plan participation as a membership benefit. In this context, pension plan contributions are treated (in law and in practice) as a deferred part of workers' current earnings whose value is enhanced by preferred tax benefits on contributions. In Anglo-American countries,
there is a clear distinction between pillar II and III pension systems. Workers may be required to choose between the two forms of retirement income provision. Further more, different kinds of financial service firms are involved in the provision of pillar II and pillar III pension systems. For many larger employers, pension funds draw upon actuaries, custodians, investment consultants, and investment managers whereas smaller employers often rely upon insurance companies to provide pillar III insurance and pension schemes. But this is changing in the US as increasing numbers of pillar II pension funds have evolved to become more like pillar III schemes, offering individual participants the option of investing in mutual funds and related defined contribution (DC) accumulated value retirement products. There is demand amongst beneficiaries for DC plans and related investment products, going beyond the historical boundaries of DB plans and entitlements (compare with UK, Blake 1995).

In many countries, pillar II schemes began as targeted employee benefit schemes, providing professional and related clerical staff defined benefits based upon years of service and final salary (Clark 2000 and Sass 1997). Modest tax benefits encouraged shared contributions, with benefits supplementing pillar I or pillar III arrangements. In the Anglo-American world, however, after 1950 pension benefits were directly related to wages and working conditions. This dramatically increased coverage rates through to the late 1960s as the actual numbers of covered workers exploded through the entry of the baby boom generation into the workforce. Coverage rates peaked at about 50 per cent (and have marginally declined) in the Anglo-American world, excepting countries like Australia that have introduced mandatory pillar II schemes (Edey and Simon 1998). And, as noted above, in the US DB schemes have been undercut by defined contribution (DC) schemes; few new DB schemes have been established over the past ten years whereas many DB schemes
have been terminated and DC and 401(K) schemes introduced in their place (Logue and Rader 1998).

Many attempts have been made to explain the US shift towards DC schemes, focusing upon the diminished supply of DB schemes (see below). With the ownership of plan surpluses highly contested in US federal courts, and the escalating costs of administrating DB plans in the light of the increasing complexity of the Employee Retirement Income Security Act (ERISA) of 1974, DB plans are relatively expensive propositions (Mitchell 1998). Elsewhere, though, DB schemes dominate the Anglo-American world and much of continental Europe including the Netherlands, Germany, Sweden and Switzerland. In Latin America and eastern Europe, however, it is apparent that the transition from welfare state dependence has been accompanied by a shift towards individual retirement accounts based upon the principle of accumulated value rather than towards sponsored pension plans (DB or DC) (Queisser 1999). Not surprisingly in the UK, the introduction of minimum funding requirements and the statutory reforms of 1995 in the wake of the Maxwell scandal separating plan sponsorship from its administration, may well have prompted the beginning of a slow shift towards DC plans.

Design, Structure and Management

Pillar II pension systems are complex institutions. Where workers are covered by collective bargaining agreements, pensions and related insurance and health care benefits are important items of negotiation between management and labor. This was especially true in the US and the UK, for example, and is also important in the Netherlands, Germany, Sweden and Switzerland. For employers, concerned to manage their human resources in the most efficient ways, pension benefits have been
a means of locking-in older skilled workers while stabilizing labor turnover in competitive labor markets. For many years, long vesting periods for pension entitlements combined with age and working-life service requirements for maximum benefits conspired to limit the burden of pension liabilities and the actual value of workers' pension payments. The benefits to employers were perceived to out-weigh costs. During the 1970s and early 1980s it was not unusual in US industry for initial vesting periods of 10 years and age and service requirements of 75 years (eg. 50 years of age and 25 years of service).

During the 1970s and 1980s, however, the progressive extension of civil-rights inspired anti-discrimination legislation to pension and related benefit entitlements broadened coverage within firms, encouraged the reduction of vesting periods, and allowed for the interruption of service (even, in some cases, for the portability of entitlements). Further more, sustained corporate and industrial restructuring in American industry over the past thirty years brought pension benefits into the process of labor-management bargaining over distributing the costs of "down-sizing". In effect, early retirement pension and related insurance benefits were used to encourage older workers to retire early thereby sheltering younger workers from the immediate threat of unemployment. For DB pension systems, the combination of entitlement liberalization and corporate restructuring added enormous expected liabilities to plan sponsors. Celebrated bankruptcies, the threatened collapse of the US Pension Benefit Guaranty Corporation (PBGC), and subversion of collective bargaining encouraged the introduction of DC plans but also brought to the fore the structure and management of pillar II pension systems (see Nussbaum 1999).

In the Anglo-American world, sponsored pension plans are organized around three institutional imperatives. These can be summarized as: (1) the formal separation
between sponsors' interests and plan beneficiaries' interests; (2) a legal regime of trusteeship designed to protect the interests of beneficiaries, and; (3) the delegation of expertise (internal or external to the fund) in the management and investment of fund assets (Langbein 1997). In conjunction with legal requirements that DB plans are to be currently funded with respect to future expected liabilities, these kinds of plans tend to be semi-autonomous financial institutions. With DC plans, by necessity fully funded and by design managed in order to maximize the accumulated value of plan participant's separate and joint contributions, the formal separation between sponsors and beneficiaries is virtually complete. In both cases, trustees are individually liable for their decisions although liability is best understood in relation to malfeasance rather than well-intended mistakes or failures of investment strategy. For many fund trustees, delegation is the operative strategy. Hence, the growth and importance of the Anglo-American financial services industry over the past thirty years.

This organizational structure carries with it various problems, including monitoring and assessing the value of agency relationships (Ambachtsheer and Ezra 1998). Just as trustees are the agents of plan participants, so too are financial service providers the agents of trustees. Various strategies have evolved over the years to manage these agency problems. One response has been to employ consultants, acting between trustees and service providers to constantly evaluate the value and performance of agency relationships in accordance with industry benchmarks. Another response has been to use competing financial service providers for the same functions, thereby using competition to discipline costs and service quality. Yet another response has been to build trust relationships between privileged service providers, thereby sharing knowledge about the demand and supply of services. In
effect, there is a hierarchy of trust and distrust between pension funds and different types of service providers (summarized in Clark 2000, ch. 4 and Figure 3).

Over the 1990s, it became increasingly difficult for even the largest plans to maintain internal funds management functions. The salaries, bonuses, options, and career prospects for internal managers have not kept pace with those offered by leading companies like Goldman Sachs and J P Morgan. Moreover, given the increasing importance of recurrent investments in computer systems, the scale economies of the largest service providers have driven many funds to out-source the provision of needed financial services.

In continental Europe, however, the market for pension-related financial services is quite different, country to country. The Dutch, for example, have developed hybrid financial service conglomerates, intimately linked to pension fund sponsors. Boards of directors overlap one-another, with many of the largest funds acting both as the consumers and suppliers of financial services. Custodial services, insurance, and investment management services can be found in Dutch pension fund related companies. Nevertheless, perhaps more than any other continental country, the Dutch have sought to purchase expert advice and advanced financial products from London and Wall Street firms. For the German and Swiss funds, by contrast, long term relationships with banks and related actuarial firms have dominated the provision of pension fund management services. Thus, until very recently, the market for financial services in many European countries is an internal market either between directly related "firms" or between long-term partners with substantial cross-representation on boards of management. This stands in contrast with the dis-intermediated market for services that characterizes the Anglo-American world (see Dufey 1998 and Edwards and Fischer 1994).
In law, pension fund trustees act to maximize beneficiaries' interests. Those interests may vary considerably according to the type of plan, its relative maturity and the preferences of beneficiaries. For instance, a relatively mature DB plan with many retirees compared to active contributors would have a very different investment strategy than a DC plan open to beneficiaries' age-related preferences regarding asset allocation, investment products, and retirement account accumulated value. In the first example, the plan sponsor bears the risk of the whole plan whereas in the second example, the plan participant bears the risk of his/her final accumulated retirement income value. Inevitably, these kinds of differences are often reflected in the nature and structure of financial services demanded by pension plans. At the same time, however, there is considerable evidence that pension plans tend to under-perform against the relevant standards of excellence (see Blake, Lehmann, and Timmermann 1999 and Ellis 1998). Accounting for sub-optimal performance is an important field of research, implicating trustee and board decision making, principal-agent relationships, market-non-market relationships and the cost structures of service providers (Clark 2000).

Investment Management and Financial Markets

By this account, financial service providers and financial markets are deeply interrelated with pension fund systems (at least, in the Anglo-American world). Indeed, it can be reasonably argued that the performance of global financial markets is closely related to the investment decisions of institutional investors (pension funds and their agents). In this respect, the investment management process can be thought guided by theories of financial markets (for instance, the efficient markets hypothesis) as well as the observed patterns and practices of market agents. For a standard treatment see
Sharpe and Alexander (1990). Here, I will not deal directly with the theory of efficient financial markets; there are many useful treatments including Houthakker and Williamson (1996) as well as entries in this volume. Rather, I will consider the investment management process relevant to pension funds.

For pension funds, three principles tend to drive investment decision-making: (1) matching assets and liabilities, year-to-year and over the long term; (2) risk management through portfolio diversification; and (3) cost management through the market for financial services. By statute and customary practice, Anglo-American DB pension funds are required to match the current value of fund assets against expected liabilities (as indicated by the UK minimum funding requirement). For relatively immature funds, with large numbers of active participants compared to retired beneficiaries, the time horizon of expected liabilities is often very long. Therefore, such funds often pursue aggressive investment strategies aimed at maximizing returns biased towards equities and high-risk asset classes (Blake 1998). On the other hand, mature funds concerned with meeting immediate obligations tend to manage expected liabilities, allocating assets to fixed income products like bonds backed by guarantees. Likewise, younger DC plan participants often assume higher levels of risk in their early years while focusing upon less risky more reliable investments in their latter years (before retirement). Inevitably, there is a vibrant market for pension related investment products differentiated by risk and return profiles.

Given the demand for investment products, risk management is at the core of the investment management process (Ambachtsheer and Ezra 1998). Here, modern portfolio theory (MPT) has become an essential principle guiding investment decision-making. From its earliest versions to its latest incarnations, MPT has
significant implications for asset allocation, the demand for investment products, and the selection of investment managers. In this respect, risk is more about the profile of a fund's whole investment portfolio in relation to its asset-liability model (ALM). This theoretical point is sometimes lost in debate about the virtues or otherwise of specific investments. Likewise, it may be discounted by investment managers and pension funds alike when participating in bull markets and speculative bubbles. There appears to be a natural temptation to shift assets towards currently high performing assets and investment products and against a "balanced" portfolio approach when it seems that markets are accelerating upwards unsullied by the risks of a "correction". Indeed, accounting for this kind of herd behavior and mentality is an important aspect of financial research (in general) and investment management (in particular) (Thaler 1992).

A common observation made about the performance of investment managers is that future performance according to accepted benchmarks is difficult to predict. Although investment managers routinely declare that "past performance is not a guarantee of future performance", their advertised reputations and claimed peer-status tend to imply the opposite. Empirical evidence suggests that future performance is more akin to a lottery than a predictable management process notwithstanding claims made to the contrary. It also appears that, on average, active investment managers under-perform market indices like the DJIA and the FTSE 100. Thus, pension funds face considerable uncertainty about expected returns on invested assets compared to the relative stability of expected liabilities. Over time, as institutional consumers of investment products have come to distrust claims made by investment managers, various defensive policies have evolved. Whereas one option may be to focus upon the selection of investment managers so as to reduce the risk of under-performance,
another option is to focus upon minimizing the costs of investment management eschewing active management for passive management or some combination of both. It appears that larger funds are especially concerned about cost-management protocols, recognizing the uncertainties of predicting returns.

In this environment, the investment management industry has responded in two, rather different ways. Given client concerns about cost-management, there have been mergers and acquisitions in the industry so as to reap the economies of scale. At the same time, the largest managers have also become more selective about taking on smaller clients unless those clients are willing to pool their assets into common management systems and investment products. In this context, passive index-based equity products became more popular over the 1990s because of the transparency of management costs and the apparent increasing rates of returns in the Wall Street bull market. On the other hand, notwithstanding the growth of extremely large investment houses, there remains an important market for niche players; investment managers who, by virtue of their expertise, experience, and information sources, are able to generate higher than average rates of return at a competitive price. In the Anglo-American economies there seems to be less room for medium-size investment managers who have neither the advantages of scale nor the expertise necessary to justify higher per unit costs of production (Clark 2000).

Most importantly, it is argued that the close links between Anglo-American pension funds and financial markets has prompted the development of new financial products and new financial institutions (Berlinski and Western 1998). By contrast, it is argued that those countries dependent upon banking institutions and internalized lending practices between overlapping networks of representation are now less innovative than the Anglo-American financial world. Evidence for this argument can
be found in the remarkable growth of US-based technology and Internet stocks (the "new" economy), based upon venture capital investment groups and the unmediated market for initial public offerings (IPOs). Clearly, the growth of venture capital markets allied with the increasing role of pension fund institutions in this field of financial development has distinguished the Anglo-American economies from continental Europe. But this argument remains contentious, suggesting a cause-and-effect relationship that may be less robust than a simple correlation between related overlapping processes. Nevertheless, the apparent differences in developed economies' financial and economic structures may be closely related to the "astronomical growth" of pension fund assets in the Anglo-American countries since the early 1970s (Langbein 1997).

Issues--Open and Unresolved

With the collapse of eastern European and Soviet communism, there have been opportunities to re-think the provision of retirement income and the balance between social security and supplementary pension systems. For some, the solution is clear: the discounting of welfare-state pensions in favor of the introduction of defined contribution plans and individual retirement accounts. In doing so, comparatively little attention has been paid to the limits of Anglo-American pension systems and the persistent diversity of western European pension systems (but see Disney 2000).

For all the financial benefits of DB and DC funded pension systems for the Anglo-American world, coverage rates have remained stagnant at about 50 percent of the eligible working population for the last thirty years. Historically, coverage rates have been highest amongst older male unionized workers and lowest amongst younger female un-unionized workers. More importantly, coverage rates are
currently very vulnerable to firm size, the nature of job tenure, wage levels and industry affiliation. In effect, there is a large segment of the working population that is unlikely to garner sufficient contributions over their working lives to have an adequate retirement income separate from social security. As a consequence, significant numbers of people will be very poor through their retirement years. Proffered solutions to this problem vary. For instance, Australia and Switzerland (amongst a number of countries) have introduced mandatory participation in supplementary pensions, while the UK government has introduced a low-cost "stakeholder" option. Neither solution will solve the low-wage and variable income problem (hence the low retirement income problem).

At the same time, the shift towards DC plans amongst those participating in employer-sponsored pension plans has introduced a measure of individual risk previously thought the proper burden of employers and related institutions (Smallhout 1999). Some industry commentators believe that this risk will be rewarded with higher than expected retirement incomes. But the reliance of many DC participants on the performance of domestic and global equity markets suggests that there is a real risk of lower than expected retirement income. Here there remains an unresolved practical and theoretical issue: the proper allocation of risk between plan sponsors and participants. This problem can be re-expressed as the extent to which paternalism ought to play a role in insuring individual participants from the costs of their actions.

One important distinguishing characteristic of many European supplementary pension systems is the continuing link between pension benefits and insurance. There is a presumption that individuals are properly more risk adverse than their employers.

Finally, it should also be noted that the design and structure of many European countries' pension systems owes a great deal to the immediate post-war (1945) era.
For many countries, but largely excluding the Anglo-American economies, promised pension benefits were explicitly linked to current wages. But in countries like Germany, the Netherlands and Switzerland pension arrangements were also directly integrated with jointly administered collective bargaining institutions. Works councils, joint boards of representation, and boards of pension management are all closely inter-related. For many, this the proper structure of the social market as opposed to Anglo-Saxon market society; that is, pension plan participants are equally employees with democratic rights of representation throughout the firm and its related institutions. Much has been written about this model of corporate capitalism, its virtues and vices (see Hutton 1995 and Prigge 1998). Whether it will survive through the next few decades of this century remains an open question, given the corrosive processes of globalisation and European integration. If it does, the structure of European supplementary pensions will remain at odds with Anglo-American pension systems. In this respect, there is a profound theoretical issue hidden just behind the imperatives driving plan sponsors and participants towards DC plans: who should bear the risks and rewards of corporate and economic restructuring?

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Figure 1. Interaction between European demography and social security programmes.

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Figure 2. Interaction between the pillars of retirement income and the social organisation of pension provision.

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Figure 3. Interaction between trust and contract in the financial services industry.

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<td>Custodians</td>
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<td>Short</td>
<td>Investment Companies</td>
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Web Page Sources

www.pionline.com (data bases, news and information on the Anglo-American pension fund investment management industry)

www.pensions-research.org (academic electronic forum for pension and insurance research based at the Department of Economics, Birkbeck College, London)

www.ssrn.com (the largest on-line source of academic literature on financial markets, economics and regulation related to pensions and insurance)

Further Reading


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Hutton, W. 1995. The State We Are In. London: Jonathon Cape. (Argues German co-determination is a better system of corporate governance.)


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