



## THE TIMES THEY ARE A-CHANGIN'

The North American Pension Finance train pulled into Vancouver in June 2003 where it met the U.K. Pension Finance Express. The U.K. Express had begun six years earlier with the publication of Exley, Mehta and Smith (1997). The North American train only began to chug in 2000; it picked up speed in the spring of 2002 with the formation of the AAA/SOA Joint Task Force on Financial Economics and the Actuarial Model, chaired by Ethan Kra, and kept on track by Judy Anderson, SOA Staff Pension Fellow. The task force developed the two-day, eight-session Vancouver seminar *The Great Controversy: Current Pension Actuarial Practice in Light of Financial Economics Symposium*.

The symposium attracted 25 high quality papers from Canada, the United States, the United Kingdom, Australia, Russia, and the Netherlands. The theatrical highpoint came when Mark Ruloff, wearing two wild and crazy hats, told the crowded assemblage:

“The train is coming. I’m not here to talk about the train—I’m telling you to get off the track.”

The “British Invasion” (Jon Exley, Timothy Gordon, Stuart Jarvis, David McCarthy, Jon Palin, and Cliff Speed) brought us six papers and compared their visit to that of the Beatles. In a brief note entitled “The Long and Winding Road” (*The Actuary*, U.K., January/February 2004), Jon Exley said:

“The North Americans claimed not only to have given us rock and roll but also to have invented financial economics, which we were now simply playing back to them.”

I prefer our homegrown version:

Come mothers and fathers, throughout the land  
And don’t criticize what you can’t understand  
Your sons and your daughters are beyond your  
command  
Your old road is rapidly agin’  
Please get out of the new one if you can’t lend your  
hand  
For the times they are a-changin’

-Bob Dylan, 1963

Three symposium papers appear in this issue of the *North American Actuarial Journal*. Two others appeared in the July 2004 issue. One paper (Coronado and Sharpe 2003) has been published as a *Brookings Paper*. Another (Bodie 1990) was previously published in the *Financial Analysts Journal*. McCarthy (2003) appeared in the *Journal of Pension Economics and Finance*. Todisco (2005) will appear in the SOA’s *Pension Forum* in 2005. Burrows (2005) will appear in another 2005 *Pension Forum*, where it will be joined by Mindlin (2005), a sequel to Mindlin’s symposium paper.

One may ask, “Controversy? Why is there a controversy? Haven’t pension actuaries been using financial economics, e.g., the efficient frontier, for decades? What about all the long-term asset allocation studies?” Exley (2003) makes an important distinction between two branches of financial economics and between two contending groups of pension actuaries:

- The “portfolio selection—asset pricing” branch including Markowitz (1952), Sharpe (1964), Ross (1976). This branch is used in “traditional actuarial” practices to guide asset allocation studies and to select expected returns on assets (ASB ASOP 27).
- The “modern corporate finance” branch including Modigliani and Miller (1958), Treynor (1972), Sharpe (1976), Black (1980), Tepper (1981) is unused (and little known) by traditional pension actuaries. “Pension finance actuaries” understand that this branch has powerful implications for DB plan liability measurement, funding, investments, accounting and benefit design.

Interestingly, the two economic branches are entirely compatible— with each other. The conflict arises from their application to the work of pension actuaries. We may all agree with the existence of the “equity risk premium” of the asset pricing model and with the “no-arbitrage” principle of the modern finance line, but we have not yet agreed on when to recognize the equity

premium and when to obey the no-arbitrage constraints.

Pension actuaries, who have practiced without ever hearing of Modigliani and Miller (1958), may be unsettled by the idea that a generally unstudied (by actuaries) branch of financial economics might challenge the last four decades of accepted pension actuarial practice—including the actuarial foundations of ERISA, FAS 87, and public plan valuation methodology. For many North American pension actuaries, the news arrived with Bader and Gold (2003), “Reinventing Pension Actuarial Science.”

North American actuaries can benefit from the earlier start of the U.K. Pension Finance Express, notably the work of Jon Exley. One of Exley’s symposium papers appears in this issue. In Vancouver, Exley also presented another paper (Exley, Mehta, and Smith, 1999). In 1997 this same trio wrote the seminal actuarial paper on financial economics; Exley, Mehta, and Smith (1997) ignited a multi-year actuarial “Battle of Britain” wherein the combatants openly ridiculed and derided each other’s papers and presentations. The British contingent in Vancouver expressed their surprise at how gently the debate has taken shape in North America. At the U.S. Enrolled Actuaries meeting in March of 2003, the U.K. government actuary, Chris Daykin, opined similarly.

Without trying to explain or resolve every element of the *Great Controversy*, I shall summarize the contributions made by the five Vancouver papers published in the *NAAJ*.

**Ralfe, Palin, and Speed (2004)**—*Pensions and Capital Structure: Why Hold Equities in the Pension Fund?*—use modern corporate finance to analyze the capital structure of the firm including its defined benefit (DB) plan assets and liabilities. They reiterate the findings of Tepper and Black: the assets and liabilities of the DB plan are assets and liabilities of the firm’s owners (shareholders); ignoring taxes and bankruptcy, shareholders should not care whether plan assets are invested in stocks or bonds; with tax considerations, an all-bond strategy is optimal for most solvent plan sponsors. They conclude with a case study of the Boots Company’s decision to adopt an all-bond strategy in 2000. John Ralfe was Boots’ Head of Corporate Finance at that time.

**Day (2004)**—*Financial Economics and Actuarial Practice*—begins with a brief literature review reinforcing Exley’s observation that pension financial economics belongs in the “Modigliani-Miller stream” rather than in the “somewhat dated subset of financial economics” represented by asset pricing and portfolio selection models. Day then adds to our understanding by turning to “limitations in applying financial economics.” Perhaps the paper’s greatest contribution is its analysis of the incomplete market for DB pension liabilities. Unlike some traditional actuaries who may cite this incompleteness as a reason to invest in equities or to discount at higher than bond-based rates, Day demonstrates that incompleteness implies *reduced* discount rates and higher liabilities. He notes: “One interpretation of this is that the DB contract is destroying value compared with direct compensation.” In his conclusion Day calls for practice changes that may be welcomed by traditional actuaries seeking to integrate pension financial economics with familiar practices.

**Exley (2005)**—*Pension Funds and the U.K. Economy*—reaches beyond the question of a single firm’s pension investments to the much broader question: What would happen to an entire economy if pension plans chose to invest in bonds instead of equities? Exley shows that such wholesale investment changes will have no first-order effect on the macro-economy. As pension plans demand bonds and supply equities, capital users (other firms) will increase the supply of bonds and reduce that of equities. Exley advances the discussion by addressing the substantial second order “frictional” (agency, signaling and utility) costs that “extreme” asset liability mismatches impose on society. An important Exley conclusion is:

“By eliminating equity cross-holdings, I argue that the U.K. economy could substantially reduce frictional costs, thereby reducing the cost of capital in the U.K. economy and increasing capital investment.”

Day (2004) and Exley (2005) advance the pension finance literature by introducing important second order effects. The importance of these effects will become progressively more apparent after we clear the current hurdle—getting practicing actuaries comfortable with the first-order indifference lessons of financial economics.

**Petertil (2005)**—*Measuring Terminable Postretirement Obligations*—explores the determination of liabilities when the defining promises may be ambiguous, implicit, and “unilaterally terminable.” Petertil suggests three “refinements” of the traditional actuarial model—a higher risk-adjusted discount rate, a plan termination decrement, or estimates of future reductions. Petertil connects to financial economics by suggesting a risk-adjusted discount rate, by recognizing the (very) incomplete markets for postretirement health liabilities, and by characterizing the employees’ uncertain rights as an “equity interest” in the sponsoring firm.

**Gold (2005)**—*Retirement Benefits, Economics and Accounting: Moral Hazard and Frail Benefit Designs*—picks up on the Petertil (2005) “implicit promise” theme and applies it to such pension-specific issues as long cliff vesting (of, e.g., early retirement subsidies), shutdown benefits and anticipation of nonguaranteed future pay increases. Although the author began with the intention—trust me, I know him well—of analyzing the accounting for implicit promises, he quickly turned to the nature of the promises themselves. Gold uses basic principles of labor contracting to characterize these promises and then addresses the opportunities for moral hazard (primarily for the employer to impose on the employees but sometimes vice-versa) that arise from traditional approaches to measuring value. He looks at several historic examples where the employer’s exercise of its moral hazard option was followed by political and regulatory turmoil. He concludes that more explicit contracts and transparent measurement may reduce the frictional costs associated with moral hazard and retributive rule-making.

The Vancouver symposium may now be recognized as a landmark—the introduction of modern corporate finance to North America’s practicing pension actuaries. Every pension actuarial meeting since has featured well-attended sessions dealing with financial economics and the actuarial model. The approximately 1000 practicing actuaries who viewed/listened to the Fall 2003 SOA webcast series, *Pension Financial Economics*, learned that economic relevance has led the accounting profession to favor market values for assets and liabilities and greater transparency in all financial reporting.

The lessons of modern corporate finance applied to DB plans (i.e., pension finance) have begun to influence the thinking of many actuaries

about funding rules, PBGC solvency and DB plan revitalization. The Tepper-Black argument, that employee benefit security and shareholder value can be simultaneously enhanced by investing plan assets in long liability-matching bonds, has gained traction with some pension actuaries who heretofore have argued that such immunizations are short-sighted and costly.

But the majority of practicing pension actuaries is not convinced. Many see the accounting move towards transparency, fair value, marked-to-market assets and liabilities as a potential dagger in the heart of a wounded DB industry. They, and their clients, worry about the volatility of pension costs and contributions that will follow such moves if plan assets are not reallocated in accordance with the pension finance model. In short, pension finance is seen as a threat coming at the worst possible moment.

I hope that the majority will recognize that pension finance actuaries share the majority’s commitment to the survival and revitalization of DB plans. We all believe that DB plans have much to offer our society. We understand that DB plans can be the vehicle of choice for employers who wish to use their benefit dollars (or pounds) to attract, retain, motivate and smooth the retirement transition of workers. We share a common regret that government regulation has overburdened DB plans.

Pension finance actuaries believe that the track towards more robust plans incorporates the lessons of financial economics. We encourage the majority to embrace transparency and the liability hedging that is likely to follow. Such a regime would reduce economic cost, as well as, the volatility of plan expenses and contributions.

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Jeremy Gold  
Coeditor, NAAJ