Pensions in the Public Sector

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Chapter 13
Florida's Public Pension Reform Debate
A Discussion of the Issues and Estimates of the Option Costs

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With assets approaching $100 billion, the Florida Retirement System (FRS) is one of the largest pension plans in the United States. The FRS is comprised of nearly 800 employers and has approximately 600,000 active members and 166,000 annuitants.[1] The Florida Division of Retirement handles the administrative functions of the FRS, while the State Board of Administration's (SBA) responsibilities include the investment of the pension trust fund assets.

Two events transpired over the past year that heightened interest in the costs and benefits associated with the FRS—the elimination of the FRS's unfunded actuarial liability (UAL), and the introduction of optional defined contribution (DC) pension plan legislation. The FRS returned to full funding status mainly due to the bull market in equities, the secular decline in interest rates, and an aggressive asset allocation stance.[2] The defined contribution initiative arose primarily from public sector employer concerns over its ability to compete with the private sector in attracting and retaining workers (Bush 1999; Chiles 1999; Jennings, 1999).

In this chapter we focus on key elements of defined benefit (DB) and DC pension plans that are at the heart of Florida's pension reform debate. We then discuss goals and objectives of Florida's pension reform, including an examination of the DB and DC benefit accrual patterns with a focus on relative benefit portability comparisons. A range of pension reform option costs is then presented. We conclude with an assessment of future public pension reforms in Florida. Although we frame our remarks against the backdrop

of FRS data, we believe the discussion is pertinent to all public or private pension plans wrestling with pension reform issues.

Following the 1998 legislative session, Governor Lawton Chiles and the Florida legislature impaneled the Unfunded Actuarial Liability Working Group with a mandate to comprehensively study a number of pension finance issues.[3] The Working Group submitted its pension finance reform proposals to the president of the Senate, the Speaker of the House, and the Board of Trustees of the SBA, and the recommendations were incorporated in the current actuarial valuation (UAL Working Group 1999; Milliman and Robertson, 1998a).[4] The consequent elimination of the UAL (a $3.8 billion surplus was posted on July 1, 1998) and more realistic wage growth assumptions substantially reduced employer contribution costs. For the current fiscal year, the FRS's composite contribution costs fell 611 basis points—from 16.66 percent to 10.55 percent—translating into a systemwide budget savings of approximately $1.1 billion.

Governor Chiles requested that the Working Group also address the various pension reform issues circulating within the Legislature. The Working Group's discussions emphasized the value of a more portable benefit structure, the need to enhance the fairness in the distribution of pension benefits, and the lack of personal control of investment decisions present in all defined benefit pension plans (self-determination). A series of optional DC pension bills was introduced during the 1998 and 1999 Florida Legislative sessions, each with the commonalties of holding FRS employees (existing and future) and beneficiaries harmless while allowing workers to elect the optional DC plan or remain in the DB plan.[5]

Defined Benefit Pension Concerns

Among the many advantages and disadvantages of DB pension plans, two issues are central to the pension reform debate in Florida: the lack of self-determination and portability losses.

DB plan participants currently have no investment options, but they bear little investment risk. The lack of employee participation in DB investment decisions coupled with the fact that employees are insulated from most investment risks appeals to plan members who value guaranteed retirement benefits. But the rigidity of a DB plan's benefit structure and absence of employee choice has become an undesirable pension design element to a segment of FRS employees. Increased interest in self-determination among this segment of members has paralleled the extraordinary investment climate since the end of the 1981–82 recession, a period associated with an elevated rate of increase in stock prices and a secular decline in interest rates. The period from 1994 through 1998 posted the highest five-year return for large

company stocks in the 73-year history of the Ibbotson database (measured by the S&P 500 Index; Ibbotson and Associates 1999).[6]

It appears that many self-determination advocates have unrealistically high expectations of future investment returns because they extrapolate returns using one of the strongest bull markets in U.S. history.[7] Since 1988, FRS valuations assume an 8 percent investment return. While this is in step with the majority of public pension plans, according to the Society of Actuaries (Samet, Peach, and Zorn 1996), assumed investment returns proved well below those actually realized over this period. However, FRS member benefits have only marginally participated in these excess returns.[8] Instead, excess returns have mainly been channeled into reducing employer (taxpayer) costs that may have helped to fuel a desire for self-determination among a segment of the FRS membership.

Of course, there are no guarantees that historical financial market returns will be sustained in the future; indeed the last 18-year period stands out because of atypically strong equity and bond market returns.[9] And the desire for self-determination among a segment of the FRS membership probably goes beyond a discussion of financial market returns, since there always remains the possibility that future DB benefits can be changed. There is some risk that the legislature could change the forward looking benefit structure of the FRS, which would negatively impact benefit accumulation; it is also possible that the FRS might not continue its 3 percent cost-of-living adjustment for retired beneficiaries. Some parallel might be drawn by looking at the private sector, where conventional defined benefit plans are being converted to cash balance plans, in some cases adversely impacting the benefits of older, long service workers. In the case of the FRS, however, benefit reductions are highly unlikely. The opening premise of Florida's UAL Working Group formed in 1999 was that the benefits of existing FRS beneficiaries and workers would always be protected.[10]

A second perceived drawback of traditional DB plans pertains to portability losses, which affects workers with discontinuous work histories. This is salient to shorter service employees who might leave FRS covered employment prior to the normal retirement age of 62. Some fraction of short tenure could be voluntary, perhaps arising from opportunities in a dynamic labor market or the desire to remain at home to raise a child. But in many instances, short service is due to reasons that might deemed to be beyond a worker's control, such as a layoff, a forced relocation, or the need to be a caregiver for a parent with deteriorating health.

Workers who leave covered employment prior to meeting the FRS's ten-year vesting requirement (which is double the Employee Retirement Income Security Act's [ERISA's] maximum allowable cliff vesting in the private sector) are the most visible example of FRS portability losses because they leave with no retirement benefits (see Table 1). This group represents a non-

TABLE 1. Employee Termination Counts by Years of Service, Florida Retirement System

Years of service	*Number of employees*	*Percent of total*	*Cumulative percent*
<1	2,034	3.70	3.70
1	9,927	18.04	21.70
2	6,257	11.37	33.10
3	5,131	9.32	42.40
4	3,884	7.06	49.50
5	2,568	4.67	54.10
6	2,123	3.86	58.00
7	2,056	3.74	61.70
8	1,761	3.20	64.90
9	1,366	2.48	67.40
10–15	6,914	12.60	81.40
15–20	3,607	6.50	87.60
20–25	2,696	4.90	92.50
25–30	2,291	4.20	96.90
30 and over	2,421	4.40	100.00

Source: Authors' calculations from unpublished 1997–98 data kindly provided by the Florida Retirement System.

trivial number of workers; over two-thirds of the FRS workers who terminated employment over the last actuarial valuation period (July 1997–June 1998) left public service prior to vesting and are entitled to no FRS pension benefits. Some of these workers may eventually reenter FRS employment later in their working careers, but the longitudinal data needed to estimate this proportion is not available.

Another type of portability loss arises from the backloading of benefits found in most traditional DB plan designs. In Florida, FRS public employee benefits are based on the average of the highest five years of earnings, which typically occur at the end of a career, rather than lifetime earnings. Vested workers who leave FRS employment prior to the normal retirement age of 62 will find that the purchasing power of their retirement benefits is eroded, since the wage base is frozen in nominal terms. This can cause a substantial portability loss, nearly double the portability loss of nonvested workers who leave covered employment (Hay-Huggins and Mathematica Policy Research 1988).

Some skew in the distribution of pension benefits to reward long service may be considered desirable, but DB portability losses also contain two largely unintentional (and not mutually exclusive) components. First, the level of inflation affects the portability loss in a DB plan—which, of course, is beyond the control of employers (Bodie, Marcus and Merton, 1985; Turner 1993). Second, "an age bias" is embedded in portability losses, since shorter-term younger workers who lose benefits in effect transfer value to shorter-

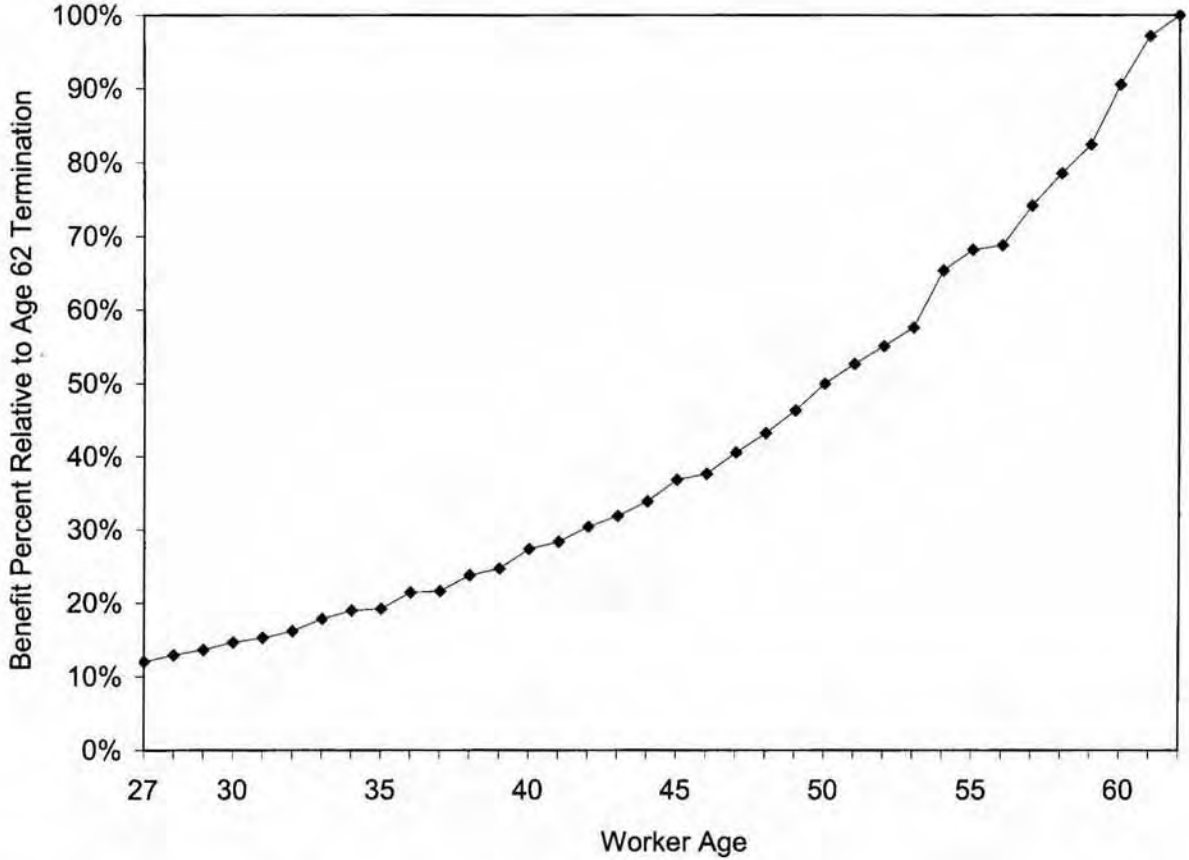

Figure 1. Distribution of FRS benefits for workers terminating employment with ten years of service. Source: authors' compilations of FRS data (7/1997–6/1998).

term older workers. The same can happen in the FRS formula. Figure 1 uses FRS data from the 1998 actuarial valuation to highlight the bias present for workers with ten years of service. Retirement benefits are computed for workers entering covered employment at different ages with equivalent salaries and ten years of service, relative to the benefits of a ten-year service, equal salaried worker terminating employment at the normal retirement age of age 62. The FRS's 6.25 percent salary growth assumption (which was lowered substantially from 7.25 percent in the prior year's valuation) is embedded for workers terminating employment prior to age 62.

The results show that a worker who terminates FRS employment at the age of 32, for example, receives only 16 percent of the pension benefits which an older worker receives, who terminates employment at 62, even though both workers had equivalent nominal salaries and years of service in the system. From another perspective, the pension costs to taxpayers for older workers are over six times that of younger workers hired (since all other variables other than age are identical, both workers are assumed to contribute equal amounts of public services). The age bias imbedded in the FRS penalizes younger mobile workers, while giving disproportional pension benefits to workers with equal years of service hired at older ages. Full-career employees fare relatively well in the current FRS, garnering benefits in excess of what a cost-equivalent DC plan would provide. It has been shown that the pension benefits of young, shorter service FRS workers are nearly 70 percent lower than what they would receive under a cost-equivalent DC plan (UAL Working Group 1999).[11]

Defined Contribution Pension Concerns

Although some groups of public sector employees are attracted by the self-determination and portability of DC plans, other DC plan characteristics are of concern to policymakers and some plan participants. These include the lack of preretirement death and disability insurance, the need to embrace investment risk to increase portability, the ease of preretirement lump-sum distributions and possible increases in labor turnover associated with DC plan portability.

As in most traditional DB plans, FRS benefits include preretirement death and disability insurance. Although these insurance benefits are not typically considered part of a DC pension plan, it is considered desirable to continue them, should optional DC pension plan legislation pass in Florida. The mechanics of assuring the continuation of these benefits are straightforward; the FRS could simply deduct the cost of the death and disability benefits (estimated to be from 50 to 100 basis points) from the DC plan's allocation.

Many workers are attracted to the portability and self-determination aspect of DC plans, but these plans also embody investment risks associated

with investment decisions which will fail to appeal to all. DC plan benefits are not guaranteed, and the risk-averse would gravitate toward the guaranteed benefits of DB plans, given the choice. The concern is that public sector workers who take on investment risks in a DC plan might find their retirement security adversely affected given a bad turn in the financial markets near retirement age. Of course DC investment risk during the retirement period could be mitigated if retirees could buy deferred annuities (Bodie, Marcus, and Merton 1985; Turner 1993). On the other hand retirement income security might be less due to the expenses associated with private annuity markets.[12] This in turn implies that plan participants will require extensive, and potentially expensive, financial education which would help workers decide how to invest and how to structure pension payouts. We note that the pension reform bill passed by the Florida Senate during the 1999 legislative session contained an educational program component.

A third type of portability loss occurs when workers cash out their pension as a lump-sum distribution, on leaving covered employment and prior to normal retirement. (It would be more logical to roll over the assets over into a qualified account, from a tax perspective.) The resulting erosion of retirement savings is substantial and it affects younger and lower paid employees, as well as low-dollar accounts (Andrews 1985; Piacentini 1990; U.S. DoD ERISA Advisory Council 1998). We also note that some DB plans permit workers to cash out their accruals at termination; a study by Atkins (1986) found that 40 percent of DB plans permitted this. During the 1999 Florida legislative session, interest was expressed in allowing a transfer of the discounted value of FRS benefits for terminated vested FRS members as part of the pension reform package.

Permitting workers to cash out lump-sum distributions prior to retirement reflects a tradeoff between the dual objectives of self-determination and retirement benefit adequacy, that often imply the need for limitations on preretirement distributions. The ERISA Advisory Council (1998), for example, recommended that preretirement lump-sum distributions in excess of $2,000 be rolled over into a qualified retirement savings vehicle, while also allowing for hardship withdrawals. The President's Commission on Pension Policy (1981) recommended that any cashout of pension benefits over $500 (approximately $900 in 1998 dollars) be prohibited unless it was transferred to an IRA or another qualified plan.

An additional concern to policymakers is the possibility that the increased portability afforded workers in DC plans may increase labor turnover, raise labor costs, and lower productivity. Employers often incur substantial training costs when hiring new employees and the reduced portability provisions of DB plans could increase the likelihood of employers recouping these training costs by offering a financial barrier to terminating employment. While this may be true in some cases, evidence suggests only a modest turn-

over disincentive of backloaded DB pension plans for short-term, recently trained workers (Gustman and Steinmeier 1987, 1995).

Another side of the pension-portability relationship concerns older workers. DB plans often seek to induce retirement at the so-called "normal" retirement age, when pension accruals are typically maximized and productivity is expected to start declining (e.g., Bodie, Shoven, and Wise 1988; Dorsey, 1995). However, this view has gained little currency in Florida; indeed, the FRS has moved in the opposite direction by providing additional benefits to encourage workers to remain in the workforce beyond the normal retirement age.[13] These targeted benefits impact a small—but costly—segment of FRS members and increase both the transfer of benefits from shorter to longer service workers, and the age bias.

The economics literature offers several theories seeking to explain why employers might want to use DB plans to deter mobility.[14] But to date there is no conclusive evidence of a portability-productivity link that would be useful to Florida policymakers seeking to assess the cost implications of pension reform (e.g., Dorsey 1987; Gustman and Mitchell 1992; Dorsey, Cornwell, and Macpherson 1998).

Goals of Public Pension Reform in Florida

Florida's UAL Working Group recommended that any pension benefit reform changes the Legislature enacted should be paid for (funded) on an actuarially sound basis. It was further recommended that in the course of its pension benefit reform deliberations, the Legislature should thoroughly evaluate the costs and benefits of each alternative and determine the most appropriate goal of pension benefit reform. To this end, a number of pension reform goals were identified in testimony to the Florida Working Group, including bolstering Florida's labor market competitiveness and increasing the fairness in benefits between various groups of employees (UAL Working Group 1999: 2).

A useful perspective for analyzing benefit fairness and portability is to summarize DB and DC benefit accrual patterns graphically by years of service. This approach collapses many variables into a two-dimensional plane, necessitating the selection of a specific worker profile for illustrative purposes. We show benefit accrual patterns for FRS regular service employees who start their careers at age 32 with an entry salary of $32,000. The measure of salary replacement used is the percent of average final compensation, which the FRS defines as the average of a worker's top five years of salary (typically salary at the end of a worker's career). Due to the backloading of FRS benefits and the presence of inflation, salary growth is assumed to grow from termination through age 62 at the current FRS actuarial valuation's 6.25 percent salary growth assumption for vested workers leaving covered

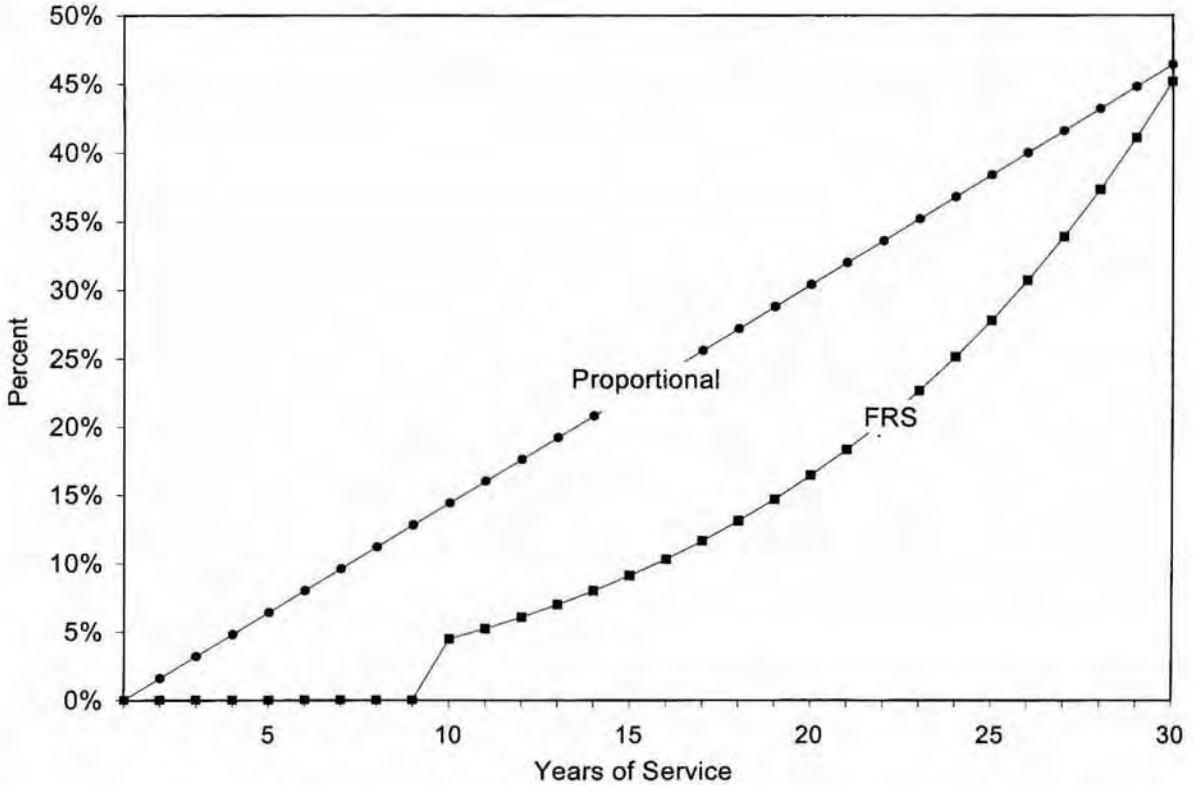

Figure 2. Benefit accrual by years of additional service. Source: authors' compilations of FRS data (7/1997–6/1998).

employment prior to the normal retirement age. For these workers, the vertical axis represents average future compensation.

In Figure 2, the 45-degree (proportional) line depicts the benefit accrual line of a pension plan with full portability, where equal benefit treatment is granted to workers entering and leaving the covered workforce with varying years of service. In this case, a given percentage change in years of service results in an equal percent change in average final (or future) compensation; career interruptions would have no bearing on benefit proportionality. Due to the backloading of benefits, the FRS's current DB benefit accrual line deviates substantially from proportionality. FRS workers accumulate no benefits up to their first ten years of covered employment, after which the benefit accrual line becomes concave from above (over half of the total benefits paid to a career FRS employee are accumulated in the last ten years of service).

When considering moving to a DC plan, it is essential to investigate the employer's position with respect to portability losses. That is, there is no inherent reason for an employer to have different portability provisions between DB and DC plans: rather, portability losses are determined by a plan's accrual pattern (Bodie, Marcus, and Merton 1988). In practice, portability losses can be eliminated or substantially reduced through two DB pension reforms: accelerating the vesting requirements, or indexing the benefits of workers who terminate employment before the normal retirement age of 62. And since high portability and age equivalence can hold in both DB and DC plans, it is reasonable to compare DB and DC plans that are equivalent along these dimensions, when assessing how an optional DC plan might affect funding levels and the contribution rate structure.

DC plans typically have accelerated vesting and do not have backloaded benefits. Providing faster vesting and higher benefits to shorter service employees through an optional DC plan are new benefits relative to the current FRS structure and will add cost unless benefits are reduced for other workers, or workers make the wrong decision in their pension plan election. (Reducing FRS retirement benefits was never a point of discussion in Florida.) Thus a reasonable benchmark for discussing pension reform options is to consider providing those same types of new benefits through reform of the FRS DB system. The two DB reforms suggested above will be sequentially added to the DC/DB accrual analysis.

Simulations were run for a number of vesting schedules. A graded two- to six-year vesting schedule (defined as 20 percent vesting after two years of service, increasing in 20 percent increments per year through the sixth year) was adopted in the Senate pension reform bill. The DC and DB pension plans contained identical vesting provisions (graded two- to six-year) to avoid a two-tiered benefit structure so that FRS members would not be forced into having to embrace a higher degree of investment risk in order to achieve increased pension benefit portability. In addition, a graded two-

to six-year vesting schedule permits some skew in the distribution of benefits away from short service workers to career workers, which is considered a desirable goal to many employers and policymakers as long as the transfer enhances productivity. Other attributes of a two- to six-year graded vesting schedule include employers recouping some of the training costs, increased portability when compared to the existing FRS's ten-year cliff vesting requirement and lower relative costs (over immediate vesting).

Determining the optional DC plan's contribution rate, which is a major determinant of the DB/DC election (and drives the ultimate cost of pension reform), is a final methodological issue that needs to be addressed prior to presenting the DC benefit accruals. One avenue is to peg the DC gross contribution rate to the FRS's DB normal cost in order to avoid the perception of a two-tier benefit structure (especially for new FRS members who are expected to gravitate to the DC option). This has a precedent in Florida—the contribution rates of the small optional DC plans for limited classes of FRS employees have historically been set equal to the FRS's normal cost for over a decade.

A number of ancillary issues impact the DC plan's contribution rate. As noted above, the UAL Working Group pointed out the value of having all public workers be covered by preretirement death and disability insurance. Cost estimates ranged from 50 to 100 basis points—and if the upper bound was deducted from the FRS's normal cost for the current fiscal year—the DC contribution rate would have been 8.21 percent for regular class members. Although one of the goals of Florida's UAL Working Group was to stabilize normal costs, year-to-year variability is the norm, and if DC contribution rates were not permanently pegged to the initial DB normal costs, future DB normal costs changes would, of course, change future DC contribution rates. An alternative method of establishing the DC contribution rate would be to establish a target income replacement level for participants.

A final point impacting the DC contribution rate is the treatment of the two offsets, which accompany the election (forfeitures and surplus gain). Forfeitures arise from workers terminating employment prior to vesting. Although the graded two- to six-year vesting schedule increases portability appreciably when compared to the existing FRS vesting schedule, some short-term FRS members will still walk away with either no, or partial, pension benefits. Regular class forfeitures associated with a perfect choice modeling perspective (the modeling assumptions are discussed in the following section) were estimated to be fifty-five basis points as a share of salary, while those associated with the imperfect choice model were estimated to be thirty-three basis points (Table 2). A surplus gain (the difference in the actuarial liability and the accumulated benefit obligation) arises when vested DB members elect the DC option. The DC offsets were not assumed to in-

TABLE 2. Florida Public Pension Reform Option Cost Estimates: Regular Class Members as a Percent of Total Payroll

	Cost Change (%)		*Cumulative Cost Change (%)*	
	1st year	*Long-term**	*1st year*	*Long-term**
Perfect choice model				
Optional DC Plan	0.38	1.55	0.38	1.55
Add two-to-six year graded DB vesting	0.44	0.06	0.82	1.61
Add 3% terminated vested indexation	0.67	0.08	1.49	1.69
Total Option Costs less surplus gain amortized over 30 years (0.23 percent)			1.26	1.46
Imperfect choice model				
Optional DC Plan	−0.76	0.43	−0.76	0.43
Add two-to-six year graded DB vesting	−0.23	0.64	−0.21	0.64
Add 3% terminated vested indexation	1.07	0.57	0.84	1.21
Total Option Costs less surplus gain amortized over 30 years (1.40 percent)			−0.56	−0.19

Source: Authors' compilation of unpublished data for 1997–98 provided by Milliman and Robertson, Inc. and Ennis, Knupp & Associates.
*Long-term is defined in the simulations as over a 30-year period.

crease the DC contribution rate but were used to lower total pension costs. This analysis assumes that a desirable goal of pension reform is cost management and that FRS members and beneficiaries will be held harmless. Given these constraints, the goal of increasing the portability of pension benefits will add to pension costs, and the DC offset was used to help push FRS pension reform toward cost neutrality. Issues surrounding the determination of the DC contribution rate will likely be revisited prior to the next legislative session.

Figure 3 summarizes DC and DB pension accruals under a dual choice structure for Florida plans having the same graded two- to six-year vesting schedules. The DC benefit accruals assume an annuity payout with a 3 percent annual cost-of-living increase to facilitate comparison to the FRS benefit structure and is one of a number of ways to present DB and DC benefit accrual comparisons. The reformed DB pension accruals become more proportional for shorter service workers than under the current FRS's ten-year cliff vesting requirement because the accelerated vesting schedule elimi-

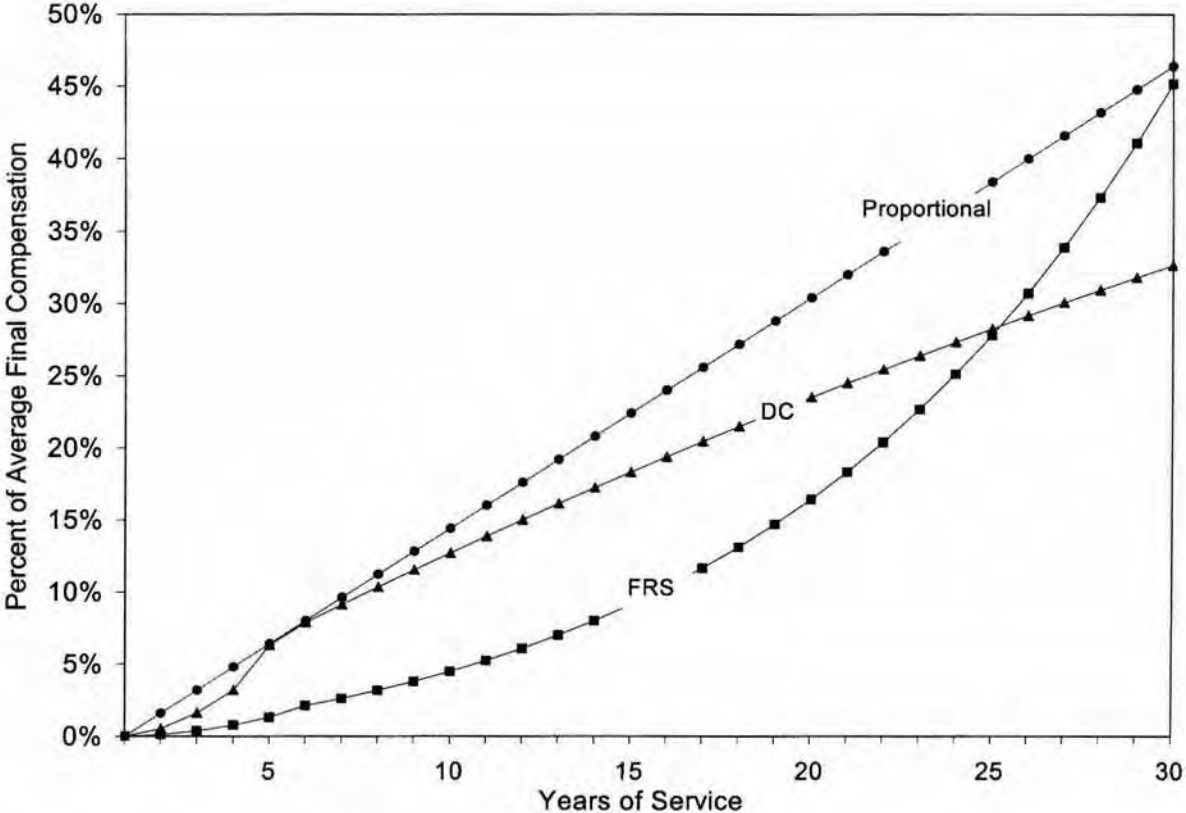

Figure 3. Benefit accrual patterns for FRS and DC plans with graded 2–6-year vesting. Source: authors' compilations of FRS data (7/1997–6/1998).

nates a portion of the forfeiture portability losses. But, as expected, career workers are still better off under a DB plan while the benefit accruals for shorter to intermediate-term workers remain higher under a DC option.

Protecting the purchasing power of FRS retirement benefits of vested workers who left covered employment prior to the normal retirement age of 62 is the last pension reform to be analyzed. DC plans, whose benefits are based on lifetime earnings, are by design fully portable as long as investment returns outpace expected salary growth, but vested FRS workers who terminate employment prior to age 62 suffer substantial portability losses. The portability losses associated with the backloading of DB benefits can be eliminated if the benefits of workers leaving FRS employment prior to the normal retirement age are indexed to the plan's assumed salary increases from the date of termination through age 62.[15] While the Senate bill's 3 percent index provision did not totally eliminate the backloaded portability losses, it took a major step in addressing the needs of the more mobile segment of the FRS workforce. Cost and administrative ease were the primary reasons for settling on a 3 percent benefit index. Secondly, an index below the assumed rate of salary increase permits some transfer of benefits from shorter service to career workers (as did the two-to-six year vesting schedule). Finally, a 3 percent index is considered by some to be equitable (or at least easily understandable) because it is the same annual cost-of-living adjustment FRS beneficiaries receive.

Figure 4 depicts the benefit accrual patterns for an optional FRS DC plan and a reformed DB plan with two- to six-year vesting and a 3 percent index of terminated vested benefits (the same provisions contained in the Senate bill). When compared to a DB plan with no indexation (Figure 3), the benefit accrual line shifts upward toward proportionality. The basic pattern of the DC and DB benefit accruals do not change—longer service workers are better served by a DB plan while shorter service workers receive higher benefit accruals under a DC plan. The crossover point (the years of service where a FRS member is indifferent between selecting the DB plan or DC option) falls by approximately four years of service—from twenty-five to twenty-one years.

Charting the benefits accrual line in this fashion (Figures 2 to 4) offers a useful tool for analyzing pension reform issues, but it is only one of many different perspectives. Focusing on years of service and accounting for entry and termination ages permits us to focus on a measure of portability losses. But by doing so, we are collapsing two key variables into the aggregate analysis: mortality risk, and income (and its associated tax rate). Abstracting from mortality risk misrepresents the benefit accruals by race and gender for individuals. The DB benefit accruals of white females, for example, are expected to greatly exceed those of black males for workers with equivalent average final compensation and equal years of service. Finally, due to the progres-

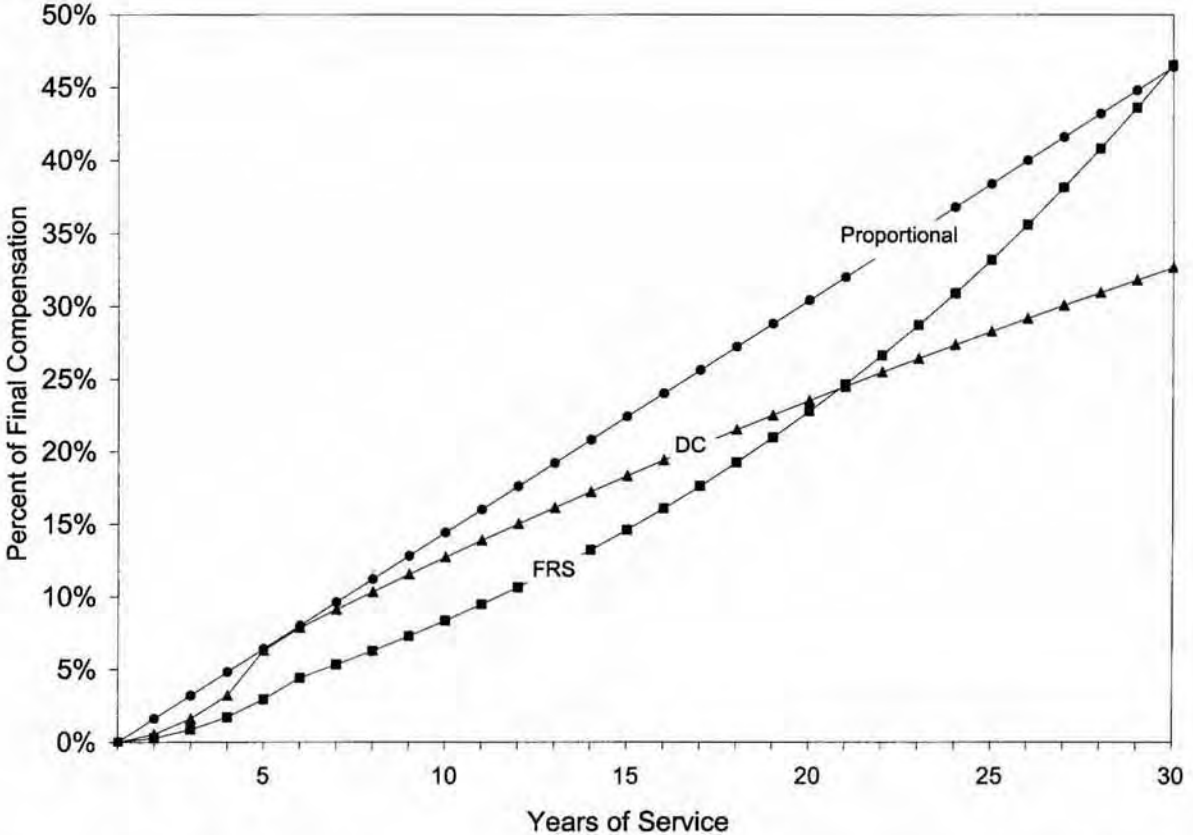

Figure 4. Benefit accrual patterns for FRS and DC plans assuming graded 2–6-year vesting and 3 percent indexation of terminated vested benefits. Source: author's compilations of FRS data (7/1997–6/1998).

sive federal tax structure (and progressive nature of social security benefits), the specific income level needs to be brought into any disposable income analysis of the adequacy of an individual's retirement benefits.

The analysis presented here includes the aggregate effects of mortality risk and income on benefit accruals, but these fields were not available at the individual record level. Although the omission of these two fields does not present much of a barrier to systemwide pension reform analysis, they are key factors influencing individuals' DB/DC election and their retirement decisions. Understanding the effects of these variables can be easily included in the educational material provided workers, including that proposed in Florida.

Option-Cost Estimates of Public Pension Reform in Florida

Since Florida's pension reform plan will permit a voluntary election between two alternative benefit structures, members who elect the DC option will change the resulting demographic profile and long-term cost structure (normal cost) of the DB plan. Logically, employees will select the option that they believe will maximize the future value of their pension benefits. To the extent that employees succeed in making benefit-maximizing choices, the total value provided to all FRS employees will be greater than in the two alternative plans on a stand-alone basis; in general, more benefits translate into higher costs. From the employer's perspective, this additional cost is often referred to as adverse selection (or the option cost) for a dual choice structure.

Currently the FRS relies on cross subsidies to control funding costs, like most traditional DB plans. Nonvested workers and vested workers who leave FRS employment prior to the normal retirement age of 62 subsidize career workers, enabling those long-career workers to receive higher benefits without increasing total plan costs. Under a choice-optional DC structure, younger members who opt out of the DB into the more portable DC plan will drive up the overall FRS retirement system costs. However, attempting to predict how many people would elect which option is a difficult task. Uncertainties surrounding workers' estimates of what their FRS working tenure and wage paths will be at the time of the plan election provides the greatest obstacle to estimating options costs. Other factors that increase the difficulty of costing the option include not knowing individual risk preferences, investment return expectations, what value is placed on self-determination, how much non-FRS savings people have, and mortality risk. Costs can be controlled somewhat by, for instance, equalizing the DB and DC vesting schedules, and offering a one-time, ninety-day irrevocable opt-out election.

But economic fluctuations due to the business cycle provide a dynamic environment in which plans will be selected and costs will be determined.

To make progress on modeling the reform options we differentiate between two modeling perspectives, we seek to quantify recurring costs, which can be objectively measured by assuming persons act in their own economic self-interest and choose to elect the pension option that gives them the greatest expected benefits at retirement. One approach assumes that FRS members have perfect knowledge regarding how many years of FRS service they will eventually attain and behave as income maximizers. This approach, which we dub the "perfect choice" costing model relies on a detailed database of FRS plan members maintained by the state's actuarial consultant, Milliman and Robertson, Inc. Under this scenario FRS members are assumed to choose the pension option that affords them the greatest benefit accruals. This model can also be used to relax certain assumptions, so as to explore the evolution of option costs over time from alternative perspectives.[16]

It is also useful to examine possible costs using an "imperfect choice" approach, which assumes that employee choice across plans will neither be perfect nor random. Specifically, half of the FRS members are assumed to make the wrong choice when they elect a pension option, and this half is assumed to be the 50 percent that will lose the *least* in absolute dollars. Two wrong choices are available: people could elect to remain in the DB plan though they would have been better off electing the DC plan, and vice versa. Assuming that half the members make a wrong election, and that this half has the lowest accumulation of pension assets to lose, provides a conservative pension reform scoring perspective.

Unfortunately there is a dearth of data relating to the election rates associated with dual choice structures, especially for DB and DC plans offering equivalent portability provisions. A few cases suggest that opt-out rates by DB-covered employees prove to be substantially below the DC election rate for new employees. Only 10 percent of the existing FRS DB employees at Daytona Beach Community College (Florida) facing a DC/DB election selected an optional TIAA-CREF DC plan, while approximately 80 percent of new employees elected the DC option (Shunk 1999). The same pattern for new employees was observed at North Carolina State University over a five-year period in the early 1990s when less than 20 percent of the new employees elected the state DB plan (Clark, Harper, and Pitts 1997). These data are not directly applicable to modeling the FRS regular service class election because the great majority of FRS workers do not face the uncertainties of a forced tenure decision. However, model runs using FRS data reveal the same election pattern—DC election rates were much lower for existing FRS members than for new employees. A long-term time horizon (thirty years

for the present simulations) offers a more realistic picture of option costs to policymakers because most employees are treated as new, which reduces the possibility of unpleasant cost surprises arising from faulty DC election rate assumptions of existing members.

Table 2 summarizes the option cost estimates associated with the simulated Florida pension reform for regular class service members, which comprise approximately 90 percent of FRS payroll. The estimates include changes in FRS regular class normal costs (9.21 percent) and the cumulative change in costs for regular class FRS members. Estimates are provided for two time horizons: first-year option cost estimates (which are based on the current FRS population), and the long-term impacts.

The evidence indicates that estimated costs for this form of pension reform vary widely, with an upper bound of long-term costs of 146 basis points under a perfect knowledge assumption, to a lower bound of near cost neutrality if enough participants make a poor pension choice. No point estimate can be released with an acceptable degree of certainty, since nonconvexities may be present in the models, making multiple equilibrium points possible. All that can be inferred is that the option costs will likely fall within this range.[17] But it is possible to break out the long-term costs of pension reform. Under the perfect choice model, most of the new costs arise from the introduction of the optional DC plan. If the existing FRS DB plan were not reformed and workers had perfect knowledge, workers with up to twenty-five years of service (the approximate crossover age) would receive greater benefits under the DC plan due to its accelerated vesting and portability provisions; this would increase employer pension costs by 155 basis points. If DB pension reform is layered in by matching the DC plan's accelerated two- to six-year vesting schedule and adding a three percent indexation of the benefits of vested workers leaving covered employment prior to age 62, the DB benefit reform costs add but fourteen basis points. This is largely attributable to new costs associated with accelerated vesting and increased portability, also accounted for in the optional DC plan. If FRS members are modeled as making the wrong choices by not maximizing their pension accruals, the attribution analysis becomes more muddled and the total option costs of Florida pension reform approach cost neutrality.

Conclusions and Implications

The subject of public pension reform has been a lively one in the Florida legislature in recent years. The 1999 analysis of Florida's public pension plan suggested that a lack of portability and self-determination were undesirable for certain segments of the public workforce, mainly mobile workers, younger workers and higher income workers. But other public sector

workers prefer to be insulated from most investment risks and do not seem to value employee participation in the FRS's investment decisions. Our examination of a possible reform of the FRS explored the cost implications of permitting employees to select between either a DB or a DC plan.

The specific plan examined would offer a DC option to all FRS regular service class members, pegging the gross DC contribution rate to the FRS's normal cost, and adopting a graded two- to six-year DC vesting schedule. The Senate bill increased the portability of DB benefits by offering the same accelerated vesting schedule, and by indexing the future pension benefits by 3 percent per year of vested FRS members who leave the covered workforce prior to age 62. The Senate's bill would have allowed all regular class members to select the plan that better matches their self-determination/investment risk/portability loss profile without an element of compromise.

Inevitably models of the cost impact of the proposed pension reform legislation produce results subject to wide error. Using a range of behavioral assumptions, offering this option was estimated to have costs ranging from neutral, if enough workers made incorrect pension elections, to 1.46 percent of regular class payroll, if all workers had perfect knowledge concerning their future career paths.

Future legislative sessions will certainly bring up public pension reform again. Several questions are salient:

1. What is the most appropriate DC contribution rate?
2. Should the DC election be open to all FRS workers or just the regular membership class?
3. Should limits be placed on lump-sum distributions?
4. What mechanism should be used for transfers of DB assets (if any) to the optional DC plan?
5. Should vested FRS members who left covered employment prior to the normal retirement age of 62 be included in the pension reforms, and if not, should they be allowed to transfer the discounted value of their FRS benefits into a qualified retirement savings vehicle?
6. Should the choice of moving from the FRS to the optional DC plan be a one-time, ninety-day irrevocable decision, or should there be an annual election window?[18]

The fact that the FRS pension system has eliminated its unfunded liability in recent years offers policymakers a unique opportunity to reform Florida's public pension program. Should optional DC pension legislation be passed that also brings about DB plan reform, it will afford all workers the opportunity to select the pension option best suited to their investment preferences and anticipated tenure. The retirement portion of the overall compensation

package offered by FRS employers would then be highly competitive relative to that offered in the private sector.

This paper reflects solely the views of the authors, and it is not necessarily the official position of the Florida State Board of Administration.

Notes

1. The FRS is predominantly a defined benefit pension plan. Limited classes of FRS members (State University System, Community College, and state senior management personnel) are allowed a one-time election into an optional defined contribution retirement plan. The DB accrual rate for regular class service members (which comprises approximately 90 percent of payroll) is 1.6 percent per year (increasing after normal retirement age), and retirees receive an annual 3 percent cost-of-living adjustment. The total compensation package includes pre-retirement death and disability insurance and a retiree health insurance subsidy ($5 a month per year of vested service with a $150 per month cap), and an optional, 100 percent employee contribution, deferred compensation plan. Although the deferred compensation plan is a DC plan, it has the portability constraints associated with Section 457 plans. A deferred retirement option plan (DROP) was established July 1998. The health insurance subsidy is not actuarially funded, and the DROP program is not addressed in the current valuation.

2. The FRS's investment returns for state fiscal years 1995–96 through 1998–99 were 16.6 percent, 20.9 percent, 21.9 percent and 13.8 percent respectively, exceeding the annualized 8 percent investment return assumption over this period. Since 1985, the State Board of Administration outperformed 94 percent of its peers—defined as public plans having assets exceeding one billion dollars (Ennis, Knupp & Associates 1999).

3. The Working Group was comprised of legislators, legislative staff, representatives of FRS employers, staff of the Lieutenant governor and the Division of Retirement, and the executive director of the State Board of Administration.

4. The Working Group's economic recommendations included continuing the investment return/discount rate 8.0 percent assumption and reducing the total salary assumption to 6.25 percent (from 7.25 percent). The salary growth assumption includes a 3.5 percent inflation rate, a real wage (productivity) increase of 1.5 percent, and an age-graded merit scale. Actuarial recommendations included amortizing the impact of future plan benefit changes, assumption changes and funding method changes separately within thirty years; amortizing the impact of future actuarial gains and losses on a rolling 10 percent basis as a level dollar amount (except for gains reserved for contribution rate stabilization); performing an experience study every third year; and utilizing updated mortality tables. In addition, the group expressed clear support for the recognition of contribution rate stability as a public policy goal, and formalized the actuarial assumptions and methods process (UAL Working Group 1999).

5. During the 1998 legislative session, an optional DC retirement bill (HB4333) open to all membership classes of the FRS was passed unanimously by the House but died in the Senate. An optional DC retirement bill, a revision of HB4333 (the portable retirement option or PRO), open only to school board employees (whose payroll accounts for approximately 45 percent of the total FRS payroll), was circu-

lated just prior to the opening of the 1999 legislative session. The Senate enhanced the bill substantially by broadening it to the entire regular membership and subsequently adopting two DB pension reform amendments: graduated two- to six-year vesting, and the indexation of the benefits of terminated vested FRS members at a 3 percent rate (CS/CS/SB356). The bill passed unanimously in the Senate, but died on the final day of the legislative session in the House. Legislation was included in the bill that set the FRS's contribution rates for fiscal year 1999–2000 (HB1883) that directs the Appropriation Committees to review the benefit structure of the FRS prior to the start of next year's legislative session (due February 2000). Pension reform issues will likely reemerge in 2000; see the Florida Legislature's website <www.leg.state.fl.us/>.

6. Financial markets had been experiencing atypically high market returns long before the FRS's existence. Annualized backcasted FRS returns, which reflect what the historical performance would have been given the FRS's current asset class weighting, averaged 10.8 percent over the 1952 through 1998 period. A case can be made to begin a historical analysis as far back as possible, but the 1952 starting point for the backcast is chosen for policy reasons. Foremost is that even though the Federal Reserve System was established in 1913, the role of the Federal Reserve was not clarified until Congress passed the Employment Act of 1946, and the operating procedures of the Federal Reserve were changed many times over the ensuing decades. Starting the historical analysis in 1946 would bias the fixed income returns, however, because the Treasury and Federal Reserve artificially kept interest rates low during World War II and its aftermath to aid in the financing of the war debt. The independence of the Federal Reserve was not established until March 1951.

7. Last year's surplus also arose, in part, from the low inflationary backdrop which held back actual salary increases to 4.9 percent, far below the last valuation's 7.25 percent assumed salary increase.

8. No portion of the excess returns (other than increasing the health insurance subsidy and opening a deferred retirement option plan for a limited subset of the FRS membership) has been used for benefit enhancements for broad classes of FRS members. The accrual rate for regular class members remains at 1.6 percent per year of service through 30 years and the FRS has not accelerated its 10-year vesting requirement, or enhanced benefit portability. The Florida legislature appears to have operated under the notion as if employers (taxpayers) have the right to all surplus assets because they bear all of the investment risk. Although this may be a common stance in traditional DB plans, it is not a universal interpretation. Bulow and Scholes (1981), for example, present a case for employees and stockholders to share in the ownership of corporate pension assets. Empirical evidence (cited below) supports the view that DB employees bear part of the investment risk and should, therefore, have a claim to share the surplus assets. The FRS's treatment of the independence of the pension claims from the value of the pension assets has probably prevented FRS workers from fully benefiting from the atypically high financial market returns that have accompanied the bulk of their working careers.

9. Studies of financial market returns extending prior to 1952 indicate that recent experience has been atypical (Bernstein 1997; Bogle 1991; Seigel 1992). Moreover, long-term analyses of financial markets that attempt to normalize equity market returns for cycles in valuations show that recent stellar performance has been driven by investors' willingness to pay more for expected earnings. History indicates that this cycle, too, will eventually ebb and act to depress intermediate-term equity market returns. Finally, controlling for cycles in inflation over time (inflationary expectations have fallen dramatically since 1981) also leads one to conclude that expected

returns on the FRS portfolio are likely to be well below historical backcasted results. Normalizing equity returns for cyclical valuations is currently a mainstream financial methodology, but its premise rests on a crucial assumption—the independence of the total return residuals over the long-term analysis. Not only are a number of non-contiguous market indices used in this type of analysis, implicit in the independence assumption is that structural changes in the economy over the past two centuries, including the increasing effectiveness of monetary and fiscal policy, do not influence long-term financial market returns. Monetary policy has been refined substantially since the post-World War II era, and has proven to be an effective buffer against external shocks to the domestic economy.

10. The first of the Working Group's guiding principles for redesigning the retirement program structure was: "Do no harm, i.e., current beneficiaries and members cannot be penalized by any changes. Any voluntary election to change to a new plan prospectively must be accompanied by detailed individual statements showing the potential impact on both short-term and long-term benefits." (UAL Working Group 1999, p. 485).

11. Many have recognized these portability losses associated with backloaded DB pension formulas; at the federal government level, the Departments of Treasury, Labor, and the Congressional Budget Office have also examined equity issues associated with the favorable tax treatment afforded private sector DB pension plans (President's Committee on Private Pensions 1965; Subcommittee on Private Pension Plans, 1993; Congressional Budget Office 1987; Hay-Huggins 1988). Recommendations for reducing DB plan portability losses have included accelerating the maximum allowable vesting requirement (President's Committee on Corporate Pension Funds 1965) and setting up a national pension clearinghouse, as is done in a number of industrialized countries (Hay-Huggins 1990; Turner and Watanabe 1995). A national minimum DC pension to be paid entirely by employers, for all workers over twenty-five years old having at least one year of service was recommended by the President's Commission on Pension Policy (1981).

12. We note that investment risk may also influence wage growth and real benefit accruals in DB plans. That is, higher employer DB contribution rates resulting from poor investment returns have been found to negatively impact both wage and benefit increases and ad hoc inflation adjustments (Hyatt and Pesando 1996; Allen, Clark and McDermed 1992).

13. Older FRS members receive increased accruals for service beyond normal retirement age and can elect to participate in a deferred retirement option plan.

14. Implicit long-term wage contract theories point to increased productivity, due to the deferred compensation incentives associated with the backloading of DB benefits that reduce labor turnover, thereby enhancing productive job matches. Short-term auction market theories, however, view the labor market from a totally different perspective. Here, the lack of DB portability reduces productivity because labor market efficiency mandates minimizing the costs and barriers to job change (Ross 1958; Choate and Linger 1986; Allen, Clark, and McDermed, 1993). Many studies analyze the relationship between worker turnover and productivity; see Gustman and Mitchell (1992), Dorsey (1995), Gustman and Steinmeier (1995), and Dorsey, Cornwell, and Macpherson (1998).

15. A national DB pension clearinghouse, previously proposed by Congress and established in a number of industrialized countries, would also facilitate this goal.

16. A two-track approach to estimating reform costs was taken. The state's actuarial consultant prepared estimates with the full valuation system used for regular biennial valuations of the FRS. Estimates were based on considering the actual

and potential economic position of narrow classes of employees, defined by age and sex. A second consulting actuary (Ennis, Knupp & Associates) used an independent model and more aggregated Florida actuarial data to check the first estimates and methods. Finally, both consulting actuaries provided sensitivity analysis of their estimates under varying actuarial assumptions and combinations of potential reforms. This final step provided considerable insight into the impact of certain assumptions and helped to refine the methods for estimating cost impacts.

17. A wide range of option costs associated with Florida pension reform was also recognized by the state's actuary, Milliman and Robertson, Inc., in its November 1998 special study of alternative DC legislation (Milliman and Robertson 1998b) and subsequent analysis focusing more on the likelihood of adverse selection.

18. Due the backloading of DB benefits, an election into a DC plan should be considered irrevocable because of the substantial costs associated with reentering a DB plan late in one's working career.

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