

# An Evolving Pension System: Trends in Defined Benefit and Defined Contribution Plans

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Issue Brief

- This *Issue Brief* updates the October 1997 *EBRI Issue Brief* examining trends in employment-based defined benefit (DB) and defined contribution (DC) pension plans. It includes an appendix on plan design and operational issues to provide basic background on how retirement plans work.
- Between 1975, when the Employee Retirement Income Security Act (ERISA) became effective, and 1998, the latest year for which data are available, the total number of private-sector tax-qualified retirement plans more than doubled, from 311,000 to 730,000. The total number of participants in these plans—including active workers, separated vested, survivors, and retirees—rose from 45 million to 99 million over the period, while active participants in these plans increased from 31 million to 52 million.
- An increasing number of employers have been offering primary and supplemental DC plans as well as an array of hybrid plans, with the result that the share of qualified DC plans, participants, and contributions has grown substantially, relative to DB plans. Like the growth in the number of private-sector plans, the growth in DC participants has been concentrated primarily among smaller private firms, with DB plans tending to be more prevalent among public- and large private-sector employers.
- Among DB plans, the number of plans has decreased since ERISA, while the number of participants has remained fairly constant and assets grew. According to their most recent published report, in 2001 the Pension Benefit Guaranty Corp. (PBGC) insured just over 35,200 DB plans, down from an all-time high of 114,400 plans in 1985.
- When ERISA was enacted in 1974, approximately 29 percent of the total private qualified plan assets were held in DC plans. This figure held relatively constant until the early 1980s—when 401(k) plans became available. This share rose consistently to more than 50 percent in 1998, where it remained through 2001.
- Suggested explanations why DB plans have been steadily losing ground as the preferred plan type include: government regulation; changes in the work place, such as increased employee and employer appreciation and demand for DC plans; business environment and risk associated with funding and managing pension plans; firm size; the increase in global competition faced by employers in recent years, which has increased the need for more flexibility in plan design; and the successful marketing efforts of consultants and DC plan service providers.

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## Introduction

Pension benefits provide a critical ingredient to the income security of today's Americans. As early as 1921, favorable tax treatment of employment-based retirement programs encouraged the expansion of the U.S. pension system (Salisbury, 2000). Following World War II and into the 1970s, the preferred model was the defined benefit (DB) plan for large employers and defined contribution (DC) for small employers. The adoption of the Employee Retirement Income Security Act of 1974 (ERISA) affected plans from a legal, tax, investment, and actuarial standpoint, and established new reporting disclosure and fiduciary requirements as well as a new agency—the Pension Benefit Guaranty Corporation (PBGC). The enactment of ERISA—with its resulting higher administrative costs and more complex legal, actuarial, and fiduciary requirements—occurred at a time when businesses were under increasing financial pressures in the 1970s, and DC retirement plans became more attractive to many employers as a consequence.

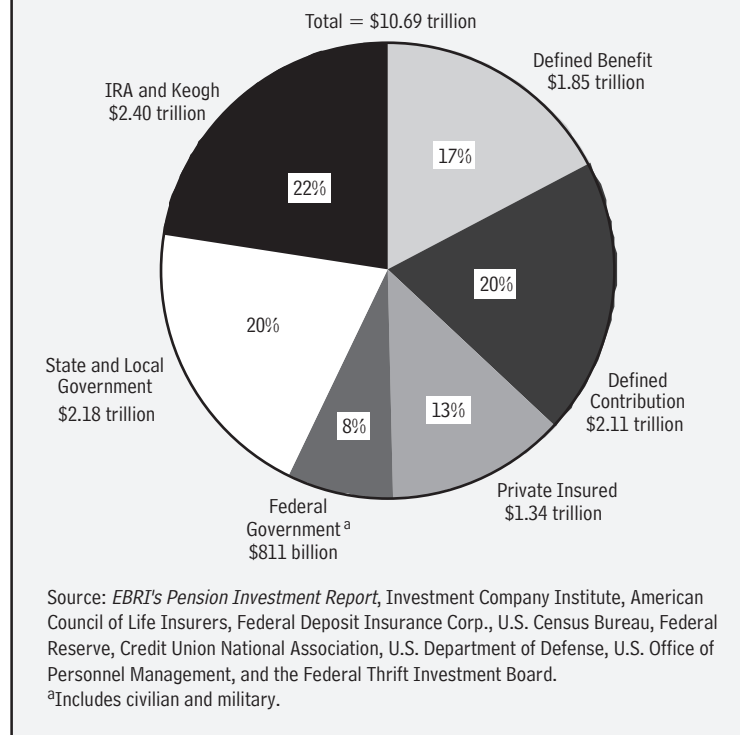
While many plan sponsors continued to use DB plans, legislators facilitated the attractiveness and use of DC plans through various regulations, and employers and employees responded. Congress provided employers with more options when, in 1978, it added Sec. 401(k) and Sec. 457 to the Internal Revenue Code (IRC), which expanded the means for employees to make before-tax plan contributions. Other IRC provisions have since increased the relative attractiveness of two other types of DC plans: employee stock ownership plans (ESOPs) and tax-deferred annuities for educational and nonprofit employees (Allen et al., 1997). In 1986, the movement toward DC plans received a further incentive when the federal government initiated the Thrift Savings Plan (TSP), a voluntary defined contribution plan for federal employees, and partially paid for it by estab-

lishing a new DB plan that was substantially less generous (and thus less costly) than the pre-1984 DB plan. A more recent incentive for a new type of DC option for small businesses was enacted in 1996, the savings incentive match plan for employees (SIMPLE) plan.<sup>1</sup> Most recently, broad-based changes to the retirement system came about with the enactment of the Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001, which contains provisions favorable to participants and sponsors of both DB and DC plans.

The trends in DB and DC plans may be presented in a number of ways.<sup>2</sup> One method of analyzing private DB plans only would look at changes in those plans insured by the Pension Benefit Guaranty Corporation (PBGC). According to their most recent published report, in 2001 the PBGC insured just over 35,200 DB plans, down from an all-time high of 114,400 plans in 1985 (Pension Benefit Guaranty Corporation, 2002). This was a decline from the total recorded in 1998 of 43,300 insured plans. The trend in total participants (active, retired, and separated vested) covered by those plans has fared differently, rising each year since 1980. In 2001, the number of total participants equaled 44 million—an increase from the 42.4 million total participants reported for 1998.<sup>3</sup> This *Issue Brief* refers to the total number of qualified plans and participants in both DB and DC plans through 1998 as taken from the Form 5500 reports submitted by plan sponsors and published by the U.S. Department of Labor (1997–2002). This dataset is quite extensive in terms of the amount of information available—on plans, participants, assets, and contributions—and tracks the record of tax-qualified plans beginning in 1975, after ERISA was passed.

Since the 1970s, qualified<sup>4</sup> private DC plans, participants, and contributions have grown as a percentage of the employment-based retirement system. From 1975 to 1998, the number of qualified private-sector DC plans rose rapidly from 208,000 to 673,000, with growth concentrated primarily among smaller firms. Meanwhile, the number of private DB plans declined from 103,000 to 56,000. In 2000, an estimated 40 percent of all private-

Figure 1  
**SOURCES OF ASSETS FOR THE RETIREMENT MARKET, 2001**



sector workers covered by a retirement plan participated in a DB plan—a decline from 84 percent 20 years earlier (U.S. Department of Labor, 1997–2002; U.S. Department of Labor, 2002).<sup>5</sup> During 1975–1998, the number of total participants in private DC plans increased from 12 million to nearly 58 million, while total participants in DB plans remained roughly steady at slightly more than 41 million. Among federal public-sector plans, participation in the federal TSP grew to 28 percent of total participants and 46 percent of active participants by 1999,<sup>6</sup> and strong evidence suggests increased use of DC arrangements among state and local governments as well. Like the growth in number of plans through 1998, the growth in DC participants was concentrated primarily among smaller private firms, with DB plans tending to be populated by large participant groups and more prevalent among public and large private-sector employers. At year-end 2001, private trustee pension funds represented approximately 37 percent of total retirement market assets, estimated at \$10.7 trillion (Figure 1)—which also included state and local government plans, federal government plans (both military and civilian employees), private life insurance pension funds, as well as individual retirement accounts (IRAs) and Keogh plans. These amounts included 17 percent in defined benefit (DB) plans and 20 percent in defined contribution (DC) plans—of which 78 percent of the latter were held in 401(k) plans.

This report represents an effort to explain these trends by touching on many issues surrounding changes in the retirement system. It examines recent data, building on others' analyses and past Employee Benefit Research Institute (EBRI) private plan tabulations to

assess the current state of these trends in terms of the types of firms that are being affected by the increased use of DC plans, the number of participants involved, and the amount of fund resources. The sections that follow discuss some of the more frequently proposed explanations for this trend, identifying

the state of research in this area. It also discusses potential policy implications of the increasing use of DC plans, focusing primarily on implications for retirement income security. In addition, it highlights legislative and regulatory efforts to amend the current employment-based system, and explores these efforts in terms of their potential impact on the use of DC versus DB plans. Finally, the report provides an appendix in an effort to orient newcomers to the field, identifying the fundamental and typical differences between qualified DB and DC plans in relation to the current regulatory environment, as well as the types of decisions employers may consider in plan choice.

## Private Plan Trends

Between 1975, when ERISA became effective, and 1998, the latest year for which these data are available, the total number of private tax-qualified plans<sup>7</sup> more than doubled, from 311,000 to 730,000. The total number of participants in these plans, including active workers, separated vested, survivors, and retirees, rose from 45 million to 99 million over the same period (Figure 2). Data on active participants<sup>8</sup> in private primary plans

Figure 2  
**PRIVATE PENSION PLANS AND PARTICIPANTS**  
*Summary of Private-Sector Qualified Defined Benefit and Defined Contribution Plans and Participants, Selected Years 1975–1998*

	1975	1980	1985	1990	1992	1993	1994	1995	1996	1997	1998
	(thousands)										
Total Plans <sup>a, b</sup>	311	489	632	712	708	702	690	693	696	720	730
Defined benefit <sup>a</sup>	103	148	170	113	89	84	74	69	64	59	56
Defined contribution <sup>a</sup>	208	341	462	599	620	619	616	624	633	661	674
Defined contribution as percentage of total	67%	70%	73%	84%	87%	88%	89%	90%	91%	92%	92%
	(millions)										
Total Participants <sup>b, c</sup>	45	58	75	77	82	84	85	87	92	95	99
Defined benefit <sup>c</sup>	33	38	40	39	40	40	40	40	41	40	42
Defined contribution <sup>c</sup>	12	20	35	38	42	44	45	48	51	55	58
Defined contribution as percentage of total	26%	34%	47%	50%	52%	52%	53%	55%	55%	57%	58%
Active Participants	31	36	40	42	45	45	46	47	47	50	52
Primary plan is defined benefit <sup>d</sup>	27	30	29	26	25	25	25	24	23	23	23
Primary plan is defined contribution <sup>d</sup>	4	6	12	16	19	19	21	23	24	27	29
Defined contribution as percentage of total	13%	16%	30%	38%	42%	42%	46%	49%	51%	54%	56%

Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports* (Winter 2001–2002).

<sup>a</sup>Excludes single-participant plans.

<sup>b</sup>Due to rounding, sums of individual items may not equal totals.

<sup>c</sup>Includes active, retired, and separated vested participants not yet in pay status. Not adjusted for double counting of individuals participating in more than one plan.

<sup>d</sup>For workers covered under both a defined benefit and a defined contribution plan, the defined benefit plan is designated as the primary plan unless the plan name indicates it provides supplemental or past service benefits.

show similar trends. The number of active participants increased from 31 million in 1975 to 52 million in 1998.<sup>9</sup>

While the number of private employment-based pension plans and plan participants has been increasing, proportionately fewer of these plans are DB plans. An increasing number of employers have been offering primary and supplemental DC plans as well as an array of hybrid<sup>10</sup> plans. The total number of private DB plans increased from 103,000 plans (33 million total participants) in 1975 to 175,000 plans (40 million total participants) by 1983, and then decreased to 56,000 plans (42 million total participants) by 1998—much of the volatility in these periods driven by the rise and subsequent decline of small plans. The total number of private DC plans increased from 208,000 plans to 674,000 plans between 1975 and 1998, increasing from 67 percent to 92 percent of total private pension plans.

The number and percentage of individuals participating in private DC plans is increasing relative to the number and percentage participating in DB plans. The total number of participants in all DB plans was 33 million in 1975. As indicated above, participation increased to 40 million by 1985, and climbed slowly toward 42 million in the following 13 years. The total number of participants in DC plans increased from

12 million in 1975 to 58 million in 1998, eclipsing the number of participants in DB plans by 1992.

The trends for workers in private primary plans are similar to those for total participants.<sup>11</sup> In 1975, there were 27 million workers in primary DB plans. This number decreased to 23 million by 1996, where it has remained through 1998. Between 1975 and 1998, the number of workers with a primary DC plan significantly increased, from 4 million to 29 million.

Financial trends for DB and DC plans in past decades support the plan and participant figures described above. Accumulated assets in these qualified plans grew from \$260 billion in 1975 to more than \$4 trillion in 1998 (Figure 3). Changes in the relative shares for DB and DC plans are predictable, based on the trends in plans and participants just mentioned. Assets in DB plans grew from \$186 billion in 1975 to more than \$1.9 trillion in 1998.<sup>12</sup> At the same time, assets in DC plan rose from \$74 billion to nearly \$2.1 trillion—an increase in the relative share for DC assets with respect to all assets in qualified plans from 28 percent (1975) to 52 percent (1998). Key points thus far discussed with respect to comparative trends in Figure 2 and Figure 3 are captured in the series of graphics presented collectively as Figure 4a (number of

Figure 3  
**PRIVATE PLAN FINANCIAL TRENDS<sup>a</sup>**  
*Summary of Private-Sector Qualified Defined Benefit and  
 Defined Contribution Plan Trends, Selected Years 1975–1998*

	1975	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998
	(\$ billions)										
Assets <sup>b, c</sup>	\$260	\$564	\$1,674	\$1,936	\$2,094	\$2,316	\$2,299	\$2,724	\$3,136	\$3,554	\$4,022
Defined benefit	186	401	962	1,102	1,147	1,248	1,211	1,402	1,585	1,736	1,937
Defined contribution	74	162	712	834	947	1,068	1,088	1,322	1,551	1,818	2,085
Defined contribution as percentage of total	28%	29%	43%	43%	45%	46%	47%	49%	49%	51%	52%
Contributions <sup>b, d</sup>	\$37	\$66	\$99	\$111	\$129	\$154	\$144	\$159	\$170	\$178	\$202
Defined benefit	24	43	23	30	35	52	39	41	36	30	35
Defined contribution	13	24	76	81	94	102	105	117	134	148	167
Defined contribution as percentage of total	35%	36%	77%	73%	73%	66%	73%	74%	79%	83%	83%
Benefit Payments <sup>b, e</sup>	\$19	\$35	\$129	\$136	\$152	\$156	\$164	\$183	\$213	\$232	\$273
Defined benefit	13	22	66	72	78	79	83	85	97	97	111
Defined contribution	6	13	63	64	75	77	81	98	116	135	162
Defined contribution as percentage of total	32%	37%	49%	47%	49%	49%	50%	53%	55%	58%	59%

Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin: Abstract of 1994 Form 5500 Annual Reports* (Spring 1998); and *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports* (Winter 2001–2002).

<sup>a</sup>Excludes single-participant plans.

<sup>b</sup>Due to rounding, sums of individual items may not equal totals.

<sup>c</sup>Excludes funds held by life insurance companies under allocated group contracts for payment of retirement benefits. These funds make up roughly 10–15 percent of total private pension plan assets.

<sup>d</sup>Includes both employer and employee contributions.

<sup>e</sup>Includes both benefits paid directly from trust and premium payments made by plans to insurance carriers. Excludes benefits paid directly by insurance carriers.

plans), Figure 4b (active participants), and Figure 4c (assets). Assets in 401(k) plans, a subset of DC plans, rose from nearly \$92 billion in 1984 to more than \$1.5 trillion in 1998—an amount equal to 38 percent of all private assets and 74 percent of all private DC plan assets (Figure 5). Assets in DC plans exceeded those in DB plans from 1996 to 1998.

## Putting the Past in Perspective

The above discussion of changes in the aggregate number of private pension plans and participants can be misleading because it ignores trends in plans by size. Examining DB and DC plans by plan size shows the number of participants being affected by trends in plan sponsorship. This section examines private DB and DC plan trends using EBRI and U.S. Department of Labor (DOL) tabulations of 1985, 1993, and 1998 Form 5500 annual reports filed with the Internal Revenue Service (IRS) and presents the number of plans and participants in these plans by participant size categories, using various participation definitions. The analysis examines DB and DC plan trends individually and then combines them to evaluate the extent to which the relative shares of DB and DC plans have changed.

**DB Plans**—An examination of private primary DB plan trends by plan size over the 1985–1998 period shows not only a decline in the absolute number of plans but a remarkable transformation in the distribution across plan sizes (Figure 6). In 1985, nearly 80 percent of DB plans were accounted for by plans with fewer than 50 active participants; by 1998, the corresponding share had dropped to 60 percent. During this time, it can be seen that the majority of plan terminations, particularly from 1985–1993, took place in the very small plans: those with two to nine active participants. Between 1985 and 1993 and then again between 1993 and 1998, the net number of primary DB plans decreased by 54 percent, or 86,000 plans, and by 37 percent, or 27,000 plans, respectively—for an overall net loss of almost 113,000 plans from 1985 to 1998. The net number of plans with two to nine active participants decreased by about 56,000 plans and 16,000 plans, during 1985–1993 and 1993–1998, respectively. This represented a decrease of 65 percent and 58 percent of the total reduction in DB plans for the two periods, respectively. It is sometimes suggested that very small plans were often top-heavy plans<sup>13</sup> used by employers as tax shelters, and that enactment of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), which imposed penalties on top-heavy plans, and the Tax

Figure 4a  
**DEFINED BENEFIT-DEFINED CONTRIBUTION TRENDS: NUMBER OF PLANS**

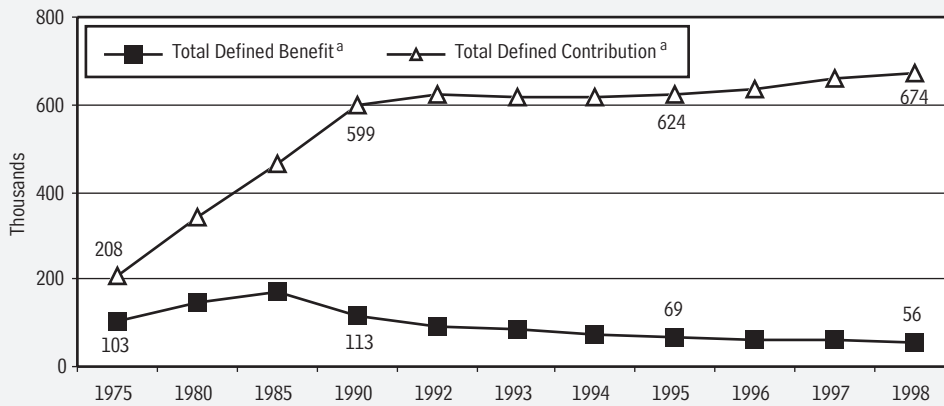


Figure 4b  
**DEFINED BENEFIT-DEFINED CONTRIBUTION TRENDS: PARTICIPANTS**

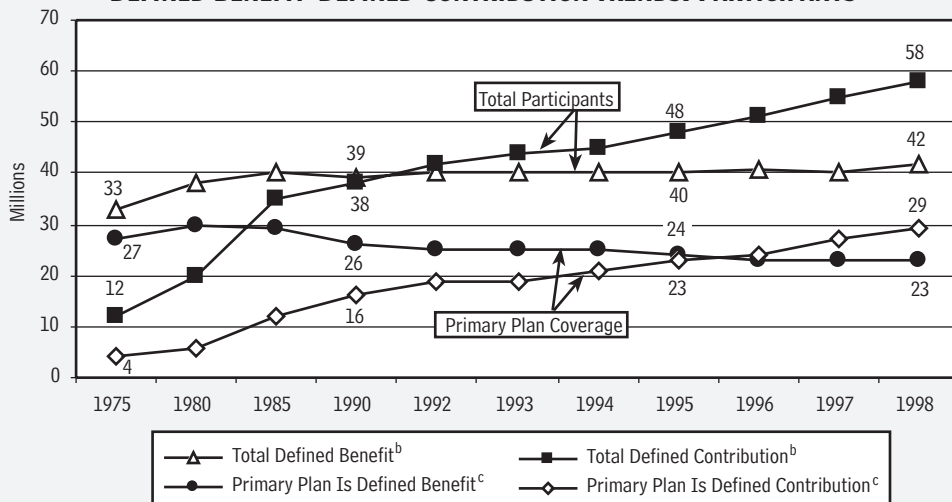
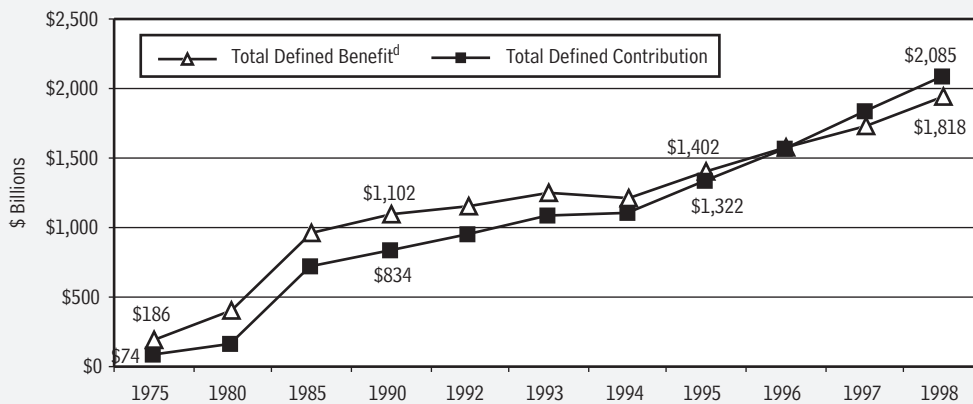


Figure 4c  
**DEFINED BENEFIT-DEFINED CONTRIBUTION TRENDS: ASSETS**



Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin: Abstract of 1994 Form 5500 Annual Reports* (Spring 1998); and *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports* (Winter 2001–2002).

<sup>a</sup>Excludes single participant plans.

<sup>b</sup>Includes active, retired, and separated vested participants not yet in pay status. Not adjusted for double counting of individuals participating in more than one plan.

<sup>c</sup>For workers covered under both a defined benefit and a defined contribution plan, the defined benefit plan is designated as the primary plan unless the plan name indicates it provides supplemental or past service benefits.

<sup>d</sup>Excludes funds held by life insurance companies under allocated group contracts for payment of retirement benefits. These funds make up roughly 10 to 15 percent of total private pension plan assets.

Figure 5  
**401(k) FINANCIAL TRENDS**  
*Private-Sector Qualified 401(k) Cash or Deferred Arrangement Financial Trends, 1984–1998<sup>a</sup>*

	1984	1986	1988	1990	1992	1994	1996	1997	1998
	(\$ millions)								
Assets	\$91,754	\$182,784	\$276,995	\$384,854	\$552,959	\$674,681	\$1,061,493	\$1,264,168	\$1,540,975
Percentage of all private assets	9%	13%	18%	23%	26%	29%	34%	36%	38%
Percentage of all private defined contribution assets	27%	37%	47%	54%	58%	62%	68%	70%	74%
Contributions	\$16,291	\$29,226	\$39,412	\$48,998	\$64,345	\$75,878	\$103,973	\$115,673	\$134,659
Percentage of all private contributions	18%	32%	43%	50%	50%	53%	61%	65%	67%
Percentage of all private defined contribution contributions	38%	50%	61%	65%	69%	72%	78%	78%	81%
Benefit Payments	\$10,617	\$22,098	\$25,235	\$32,028	\$43,166	\$50,659	\$78,481	\$93,070	\$120,693
Percentage of all private benefits	13%	17%	21%	25%	28%	31%	37%	40%	44%
Percentage of all private defined contribution benefits	33%	35%	43%	51%	58%	62%	67%	69%	75%

Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefit Administration, *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports* (Winter 2001–2002).

<sup>a</sup>Excludes single-participant plans.

Figure 6  
**PRIMARY PLAN TRENDS BY PLAN SIZE**  
*Primary Defined Benefit and Defined Contribution Plan and Active Participant Trends, Selected Years 1985–1993*

Active Participants	Primary Plans					Active Participants (thousands)				
	1985	1993	1998	Net Change 1985–1993	Net Change 1993–1998	1985	1993	1998	Net Change 1985–1993	Net Change 1993–1998
<b>Defined Benefit Plans</b>										
2–9	88,124	32,121	16,223	-56,003	-15,898	353	141	79	-212	-62
10–24	24,267	10,903	6,978	-13,364	-3,925	369	168	111	-201	-57
25–49	14,178	7,252	4,862	-6,927	-2,390	491	252	173	-239	-79
50–99	11,303	7,499	5,790	-3,804	-1,709	808	537	421	-271	-116
100–249	9,534	6,209	4,606	-3,325	-1,603	1,498	978	741	-520	-237
250–499	4,670	3,444	2,745	-1,226	-699	1,651	1,224	976	-427	-248
500–999	3,149	2,450	1,927	-699	-523	2,222	1,751	1,362	-471	-389
1,000–2,499	2,360	2,122	1,713	-238	-409	3,636	3,285	2,666	-351	-619
2,500–4,999	847	790	725	-57	-65	2,930	2,790	2,550	-140	-240
5,000–9,999	455	428	430	-27	2	3,141	2,966	3,016	-175	50
10,000–19,999	198	223	230	25	7	2,749	3,088	3,219	339	131
20,000 or more	175	167	167	-8	0	8,985	7,912	8,010	-1,073	98
Total <sup>a</sup>	159,260	73,608	46,396	-85,652	-27,212	28,834	25,091	23,322	-3,743	-1,769
<b>Defined Contribution Plans</b>										
2–9	199,704	266,284	193,079	66,580	-73,205	852	1,165	1,034	313	-131
10–24	70,424	112,889	141,841	42,465	28,952	1,056	1,735	2,207	679	472
25–49	31,406	55,094	79,487	23,688	24,393	1,091	1,915	2,789	824	874
50–99	17,620	33,835	54,693	16,215	20,858	1,224	2,374	3,873	1,150	1,499
100–249	8,878	16,902	23,906	8,024	7,004	1,331	2,572	3,687	1,241	1,115
250–499	2,552	5,187	8,431	2,635	3,244	737	1,786	2,916	1,049	1,130
500–999	1,185	2,376	3,870	1,191	1,494	808	1,632	2,661	824	1,029
1,000–2,499	784	1,400	2,253	616	853	1,194	2,144	3,436	950	1,292
2,500–4,999	219	372	686	153	314	752	1,272	2,354	520	1,082
5,000–9,999	97	148	277	51	129	683	984	1,892	301	908
10,000–19,999	34	50	128	16	78	460	683	1,747	223	1,064
20,000 or more	29	35	74	6	40	1,100	1,518	3,409	418	1,891
Total <sup>a</sup>	332,932	494,572	508,726	161,640	14,154	11,420	19,779	32,005	18,359	12,226

Source: Employee Benefit Research Institute tabulations of 1985, 1993, and 1998 Form 5500 annual reports filed with the Internal Revenue Service.

<sup>a</sup>Total may not equal the sum of individual items due to rounding.

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Reform Act of 1986 (TRA '86), which lowered basic income tax rates and imposed faster minimum vesting standards, thus potentially reducing the incentive for such employers to maintain their DB pension plans (Olsen and VanDerhei, 1997). TRA '86 also included a minimum participation provision<sup>14</sup> that eliminated the tax-qualified status of some small DB plans, primarily single-participant plans. Under this provision, a plan was not qualified unless it included the lesser of 50 employees or 40 percent of an employer's work force. It is likely that this provision also caused many small plans to terminate—especially those covering a relatively small number of higher-paid employees, such as partnerships.

More recently, many employers have tried to control personnel costs by structuring their retirement programs with greater dependence on defined contribution alternatives (see below), where workers bear a significant share of the costs (Schieber, 1998). This has occurred with greater frequency among smaller plans—although the trend has been broad-based. Between 1985 and 1998, the net change in the number of primary DB plans was generally greater for plans with fewer active participants. The number of DB plans with 10–24 active participants decreased 55 percent between 1985 and 1993, while the number of DB plans with 500–999 active participants decreased 22 percent (Figure 6). During 1993 to 1998, losses in those same categories equaled 36 percent and 21 percent, respectively. Changes in individual plans' demographics account for some of the change in the number of plans by plan size. For example, a plan that had 400 participants in 1985 may have had 600 participants in 1998. Between 1985 and 1998, the number of large primary plans with 5,000 or more active participants increased 7 percent.

Because most of the decline in primary DB plans between 1985 and 1988 occurred in plans with two to nine participants, the decline in the number of employees covered by a primary DB plan is relatively small (5.5 million active participants in both periods). The impact in terms of actual numbers of participants was greater during the earlier (1985–1993) than the latter

(1993–1998) period—3.7 million active participants versus 1.8 million active participants, respectively.

*DC Plans*—Between 1985 and 1993, the number of private primary DC plans increased by 49 percent, or 162,000 plans. However, most of this increase occurred in plans with two to nine and 10–24 active participants. The net number of such plans increased by 67,000 plans, or 36 percent of the total increase in primary DC plans (Figure 6). In 1993–1998, the number of private primary DC plans increased only by 3 percent, or 14,000 plans due to the sizable decrease in plans with two to nine active participants of 73,000, which offset increases in all other categories. In comparison, the number of plans with 10–24, 25–49, and 50–99 active participants grew substantially by 29,000 (26 percent), 24,000 (44 percent), and 21,000 (62 percent), respectively during that time.

In the earlier 1985–1993 period examined, the net increase in the number of primary DC plans is smaller as plan size increases. Primary DC plans with 10–24 active participants increased by 42,000 plans, while plans with 100–249 active participants increased by 8,000 plans. Primary DC plans with 1,000 or more active participants increased by 842 plans, or 0.5 percent of the total increase. In 1993–1998, this trend holds beyond primary DC plans with two to nine active participants.

Much of the earlier growth observed in DC plans has been through primary and supplemental 401(k) plans. Some sense of trend for the latter can be found in (Figure 7). The growth in 401(k) plans has been quite remarkable since the early 1980s. Beginning in 1984 with slightly more than 17,000 plans (3 percent of all private plans and 4 percent of all private DC plans) and 7.5 million participants (12 percent of all active private participants and 25 percent of all private DC plan participants), usage of 401(k) plans grew by 1998 to more than 300,000 plans (41 percent of all private plans and 45 percent of all private DC plans) and more than 37 million participants (51 percent of all private plans and 74 percent of all private DC plans).<sup>15</sup>

Figure 7  
**401(k) TRENDS**  
 Summary of Private-Sector Qualified 401(k) Cash or  
 Deferred Arrangement Trends, Selected Years, 1984–1998

	1984	1986	1988	1990	1992	1994	1996	1997	1998
Plans <sup>a</sup>	17,303	37,420	68,121	97,614	139,704	174,945	230,808	258,341	300,593
Percentage of all private plans	3%	5%	9%	14%	20%	25%	33%	36%	41%
Percentage of all private defined contribution plans	4%	7%	12%	16%	23%	28%	36%	39%	45%
Active Participants <sup>b</sup>	7,540	11,559	15,203 <sup>c</sup>	19,548	22,404	26,206	30,843	33,865	37,114
Percentage of all active private participants <sup>d</sup>	12%	18%	24%	32%	30%	40%	45%	48%	51%
Percentage of all private defined contribution plan participants	25%	33%	45%	55%	58%	62%	69%	71%	74%

Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports* (Winter 2001–2002).

<sup>a</sup>Excludes single-participant plans.

<sup>b</sup>401(k) participants may participate in one or more additional plans.

<sup>c</sup>Includes some employees who are eligible to participate in the plan but have not elected to join.

<sup>d</sup>Includes active participants in both private-sector defined benefit and defined contribution plans.

A relatively small universe comprises the DB and DC multi-employer plans that operate under the provision of the Taft-Hartley Act (see Appendix under “Single-Employer versus Multi-Employer Plans”). While DC plans make up about half of all multi-employer

pension plans, they cover only about 20 percent of multi-employer participants (Drinkwater, 2000). However, the increased usage of DC plans made by plan sponsors in this area (Figure 8) gives further evidence of the acceptance of DC plan arrangements.<sup>16</sup>

Figure 8  
**NUMBER OF PENSION PLANS BY TYPE OF PLAN, 1979–1998**

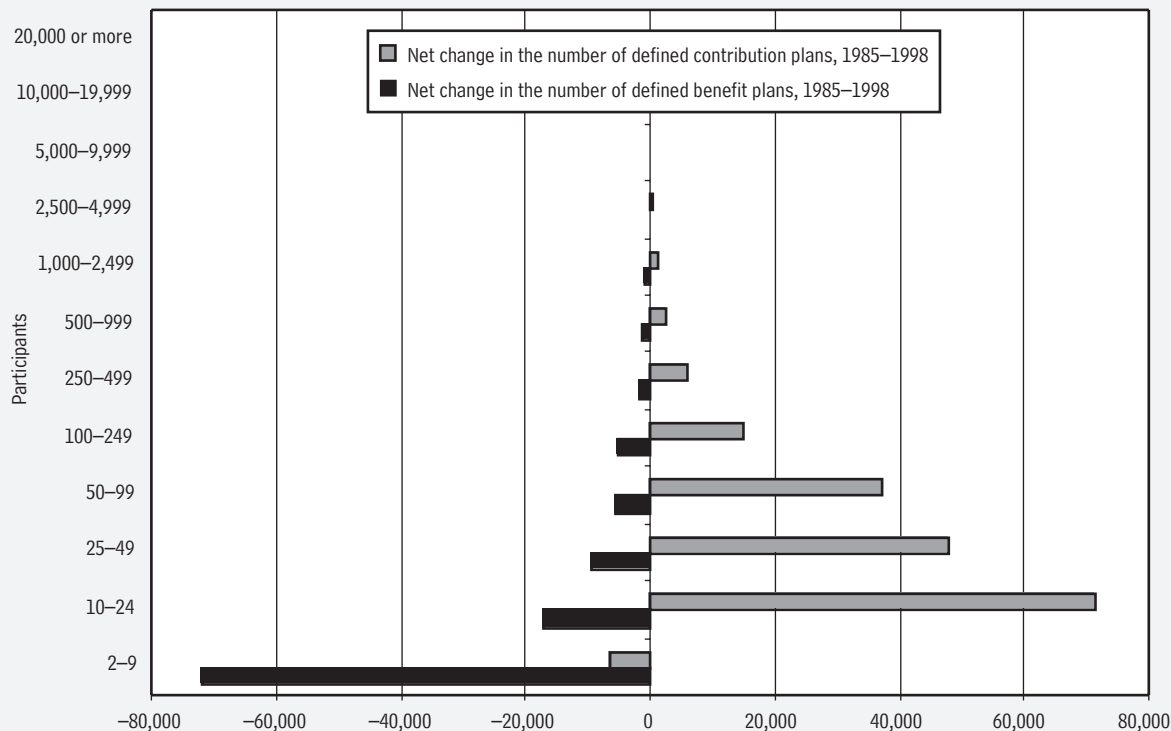
	Total Plans			Single Employer Plans <sup>a</sup>			Multi-Employer Plans <sup>b</sup>		
	Total	Defined benefit	Defined contribution	Total	Defined benefit	Defined contribution	Total	Defined benefit	Defined contribution
1979	470,921	139,489	331,432	468,265	137,243	331,022	2,656	2,246	410
1980	488,901	148,096	340,805	486,142	145,764	340,378	2,759	2,332	427
1981	545,611	167,293	378,318	542,789	165,042	377,747	2,822	2,252	570
1982	594,456	174,998	419,458	591,417	172,662	418,755	3,039	2,336	703
1983	602,848	175,143	427,705	599,822	172,843	426,979	3,026	2,300	726
1984	604,434	168,015	436,419	601,413	165,732	435,681	3,021	2,283	738
1985	632,135	170,172	461,963	629,069	167,911	461,158	3,066	2,261	805
1986	717,627	172,642	544,985	714,563	170,431	544,132	3,063	2,210	853
1987	733,029	163,065	569,964	729,909	160,904	569,005	3,112	2,157	955
1988	729,922	145,952	583,971	726,648	143,833	582,815	3,275	2,119	1,156
1989	731,356	132,467	598,889	728,276	130,472	597,804	3,080	1,995	1,085
1990	712,308	113,062	599,245	709,404	111,251	598,153	2,904	1,812	1,092
1991	699,294	101,752	597,542	696,300	99,931	596,369	2,994	1,821	1,173
1992	708,335	88,621	619,714	705,226	86,797	618,429	3,109	1,824	1,285
1993	702,097	83,596	618,501	698,918	81,737	617,180	3,179	1,859	1,320
1994	690,344	74,422	615,922	687,158	72,555	614,603	3,186	1,867	1,319
1995	693,404	69,492	623,912	690,265	67,682	622,584	3,139	1,810	1,328
1996	696,224	63,657	632,566	692,957	61,790	631,167	3,267	1,867	1,399
1997	720,041	59,499	660,542	716,912	57,720	659,192	3,130	1,779	1,351
1998	730,031	56,405	673,626	726,997	54,699	672,297	3,035	1,706	1,329

Source: U.S. Department of Labor, Pension and Welfare Benefit Administration, *Private Pension Plan Bulletin: Abstract of 1998 Form 5500 Annual Reports*, No. 11 (Winter 2001–2002): table E1, p. 64.

<sup>a</sup>Includes single-employer plans, plans of controlled groups of corporations, and multi-employer noncollectively bargained plans.

<sup>b</sup>Includes multi-employer plans and multi-employer collectively bargained plans.

Figure 9  
**COMPARISON OF THE NET CHANGE IN THE NUMBER OF PRIMARY DEFINED BENEFIT AND DEFINED CONTRIBUTION PLANS, 1985–1998**



Source: Employee Benefit Research Institute tabulations of the 1985, 1990, and 1995–1998 Form 5500 annual reports filed with the Internal Revenue Service.

## Interpreting the Trends

Previous research in this field has concentrated on the change in the number of DB and DC plans, the number of participants, and assets and contributions to explain why plan sponsors may have moved from a DB model to one or more DC approaches in providing retirement income to their employees.

*Number and Size of Plans*—Between 1985 and 1993, an inverse relationship existed between the net change in primary DB plans and that in primary DC plans across plan sizes. The smaller the plan size, the greater the net increase in primary DC plans and the greater the net decrease in primary DB plans. Across all plan sizes, the net increase in DC plans was greater than the net decrease in DB plans, indicating that the growth in DC plans must have resulted from something more than the supplanting of DB by DC plans. In the following period from 1993 to 1998, this relationship changed to some extent. The relationship between DB and DC plans continued to hold for plans larger than two to nine active

participants, but the net loss was more severe for DC than for DB plans.<sup>17</sup> The net result can be observed in Figure 9, where predominantly large increases in DC plans correspond to decreases in DB plans—the only exception being in the smallest plan category.

The trends in the number of DB and DC plans may be analyzed either: (1) in the aggregate on a time series basis or (2) by examining individual sponsors for evidence of direct substitution. As an example of the first method, aggregate data on a time series basis, Warshawsky (1995) used IRS statistics on determination letters<sup>18</sup> to analyze the growth of both qualified DB and DC plans, and concludes that the 1988–1993 trend was more dramatic when compared with longer-term secular trends going back to the early 1960s (Figure 10a and Figure 10b).<sup>19</sup> For example, his figures show that the net growth (defined as formations less terminations) of both types of plans accelerated from 1960 to 1973. This was followed by slow or negative growth in the next four years, presumably as a result of the severe recession in 1973–1975 and the impact of ERISA in 1974. Positive growth of both types of plans resumed in 1977; however,

Figure 10a  
**PENSION PLAN INTRODUCTIONS AND TERMINATIONS—NUMBER OF DEFINED BENEFIT (DB) AND  
 DEFINED CONTRIBUTION (DC) PLANS AND PARTICIPANTS, 1988–2001**

	New Plans						Terminated Plans					
	Plans			Participants			Plans			Participants		
	Total	DB	DC	Total	DB	DC	Total	DB	DC	Total	DB	DC
1988	63,077	16,821	46,256	na	na	na	24,323	11,573	12,750	na	na	na
1989	28,358	5,461	22,897	na	na	na	29,079	15,848	13,231	na	na	na
1990	13,321	1,867	11,454	na	na	na	33,383	16,293	17,090	na	na	na
1991	12,223	370	11,853	2,449,784	857,471	1,592,313	21,693	10,064	11,629	0	na	na
1992	14,345	264	14,081	1,391,664	304,563	1,087,101	19,390	8,714	10,676	960,876	433,961	526,915
1993	11,905	384	11,521	684,919	228,009	456,910	14,744	7,098	7,646	1,263,516	356,139	907,377
1994	16,668	961	15,707	1,048,178	91,039	957,139	11,688	5,200	6,488	1,371,058	952,763	418,295
1995	44,387	4,116	40,271	8,958,293	657,531	8,300,762	11,294	4,089	7,205	749,499	387,135	362,364
1996	35,414	4,835	30,579	9,454,448	969,373	8,485,075	14,813	5,654	9,159	6,384,504	1,961,266	4,423,238
1997	23,230	2,979	20,251	5,120,148	678,397	4,441,751	10,676	4,027	6,649	2,388,958	908,719	1,480,239
1998	20,710	2,485	18,225	2,780,956	678,397	2,102,559	10,030	3,141	6,889	2,004,877	825,780	1,179,097
1999	13,322	1,743	11,579	1,149,346	162,423	986,923	10,741	3,023	7,718	796,038	290,644	505,394
2000	8,634	1,501	7,133	1,956,504	393,435	1,563,069	10,572	2,952	7,620	1,789,404	524,159	1,265,245
2001	9,568	1,415	8,153	988,313	140,451	847,862	9,183	2,267	6,916	1,613,253	173,510	1,439,743

Net Change

	Net Change					
	Plans			Participants		
	Total	DB	DC	Total	DB	DC
1988	38,754	5,248	33,506	na	na	na
1989	-721	-10,387	9,666	na	na	na
1990	-20,062	-14,426	-5,636	na	na	na
1991	-9,470	-9,694	224	na	na	na
1992	-5,045	-8,450	3,405	430,788	-129,398	560,186
1993	-2,839	-6,714	3,875	-578,597	-128,130	-450,467
1994	4,980	-4,239	9,219	-322,880	-861,724	538,844
1995	33,093	27	33,066	8,208,794	270,396	7,938,398
1996	20,601	-819	21,420	3,069,944	-991,893	4,061,837
1997	12,554	-1,048	13,602	2,731,190	-230,322	2,961,512
1998	10,680	-656	11,336	776,079	-147,383	923,462
1999	2,581	-1,280	3,861	353,308	-128,221	481,529
2000	-1,938	-1,451	-487	167,100	-130,724	297,824
2001	385	-852	1,237	-624,940	-33,059	-591,881

Figure 10b  
**401(K) PLAN INTRODUCTIONS AND TERMINATIONS, 1988–2000**

	New Plans		Terminating Plans		Net Changes	
	Plans	Participants	Plans	Participants	Plans	Participants
1988	na	na	na	na	na	na
1989	na	na	na	na	na	na
1990	na	na	na	na	na	na
1991	na	na	na	na	na	na
1992	1,032	414,244	0	0	na	na
1993	982	129,418	0	0	na	na
1994	na	na	na	na	na	na
1995	21,078	5,936,944	1,195	96,076	19,883	5,840,868
1996	15,598	4,733,300	1,757	795,393	13,841	3,937,907
1997	10,887	3,626,753	1,517	804,221	9,370	2,822,532
1998	10,005	1,628,820	1,737	223,464	8,268	1,405,356
1999	6,897	828,453	2,122	180,860	4,775	647,593
2000	3,500	1,351,053	2,372	185,226	1,128	1,165,827

Source: Data for 1988–1994 taken from Warshawsky (1995); remaining data from Internal Revenue Service.

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growth in DC plans clearly began to dominate that of DB plans. By 1989, the growth of DB plans turned negative and remained so until 1995, suggestive of the cumulative impact of TRA '86, when the trend stopped momentarily (net DB plan terminations and formations were roughly the same). The post-1995 trend through 2001 (the most recent year for which data are available) is decidedly different, marked by a low level of net loss<sup>20</sup> (Figure 10a). Regarding net changes in DC plans, there were actually more terminations of DC plans than formations in 1990. The trend was reversed by 1992; and the annual net growth of DC plans rose dramatically. Net growth peaked in 1995 and declined until 2000, when terminations exceeded formations, and the trend reversed yet again in the following year. Data for 401(k) plans are shown in Figure 10b, indicating large net growth beginning in 1995 (when these data are first available) that declines fairly quickly by the end of the decade.

In an approach similar to that taken by Warshawsky, Kelly (1998) examines a number of sources, including IRS records of net plan formation, IRS Form 5500 filings, and data from the PBGC to explain the decline in DB plan usage. Kelly concludes that the decline in DB plans was primarily a small plan phenomenon and the result of fundamental shifts in the economy. He goes on to note that IRS data on net plan formation serve as an early predictor of trends because they only examine the net effect of new plans—not the size or significance of the existing base of plans that remain throughout the period examined. As an early predictor, Kelly states that this IRS information showed the rate of *decline* in the early post-ERISA period, when other information (Form 5500 filings and PBGC premium reports)—showed continued *growth* in DB plans throughout the late 1970s and early 1980s (Kelly, 1998).

Regarding the second approach—examining individual sponsors for evidence of direct substitution—there are two methods. Using the first method, Papke, Petersen, and Poterba (1996) found only one sponsor in their sample of 43 plans that reported a DB termination as a result of introducing a 401(k) plan between 1986

and 1990. The other method involves meticulous matching of plan information for more than 10,000 distinct sponsors for various time periods. Papke et al. compared pension plan offerings by DB plan sponsors in 1985 with their offerings in 1992 and found evidence that 401(k) and other DC plans were substituted for terminated DB plans. In a subsequent paper, Papke (1999) examined employers that offered at least one DB plan in 1985 and compared their pension offerings in 1985 and 1992, accounting for changes in 401(k)s and other DC plans. She found widespread evidence of significant firm-level substitution between 401(k)s and DB plans, between 401(k)s and non-401(k) DC plans, and between non-401(k) DC plans and DB plans.

Recognizing that changes in DB plans have not been uniform across plan sizes, Ippolito (2000) examines movement in the number of plans from 1980 to 1998 and argues that the growth in the number of large plans can be attributed to three factors. First, the decision to terminate a DB plan in favor of a DC plan has been more frequently observed among plans in the small-to-medium range. This trend is suggested by the data presented earlier in Figure 6 and Figure 8. Second, the rapid growth of inactive participants has pushed some plans into larger plan categories.<sup>21</sup> A third factor emphasized is the considerable merger activity observed during the 1980–1998 period. To the extent that retaining the status quo is more manageable for firms, larger plans are likely to emerge following such mergers. A study by Ippolito and Thompson (2000) of a longitudinal sample of DB plans during the 1987–1995 period indicates that plan mergers partly explain the reduction in the number of DB plans in general and the relative growth of plans with at least 1,000 participants. Importantly, Ippolito and Thompson arrive at a conclusion similar to Kruse (1995) and Papke et al. (1996): termination of a DB plan in favor of a DC plan is relatively rare.

*Participants*—Although trends in the number of plans may differ between DB and DC types, the total number of participants has actually grown for both since 1975

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(Figure 2). Such figures are not indicative of the respective future trends of these plans, because *total* participants include retirees and separated vested participants (Ippolito, 2000).<sup>22</sup> As mentioned earlier, a more forward-looking measure is the category of *active* participants, those who are currently earning pension accruals. In this case, the trend for DB plans is unmistakably on the decline, while active participation in DC plans has risen over time. For active participants with a primary DC plan, the share among all active participants exceeded DB plans in 1996 and grew to 56 percent in 1998 (Figure 2).

Research has shown that some of the increase in the proportion of pension plan participants covered by primary DC plans can be explained by employment shifts in the economy or by federal regulation of pension plans.<sup>23</sup> Kruse (1995) found that very little of the growth in DC plan coverage between 1980 and 1986 was due to companies terminating DB plans. He attributed the decline in DB plan participation primarily to a decrease in participants in these plans rather than a decrease in plans.<sup>24</sup>

Ippolito (1995, 2000) considers the hypothesis that the introduction of 401(k) plans may have caused the increase in the percentage of pension plan participants covered by primary DC plans that could not be explained by employment shifts in the economy or by federal regulation of pensions. According to his analysis, roughly 50 percent of this increase in DC plan market share can be explained by employment shifts away from union jobs, large firms, and industries that traditionally offered DB plans toward firms and industries that traditionally favor DC plans, such as smaller, nonunion firms in the service sector. In addition, he emphasizes that federal regulations affecting administrative costs are only relevant to small plans, because plans with 500 or more workers have roughly equivalent costs for both DB and DC plans. He finds that, following their introduction in 1981, 401(k) plans absorbed market share from both DB plans and the then-existing forms of DC plans.<sup>25</sup> The significant inroads made by 401(k) plans

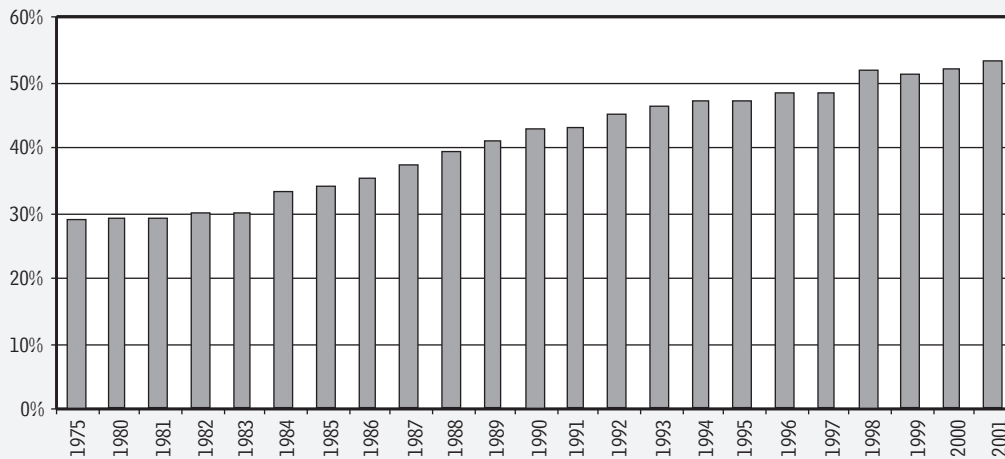
into both private plan types (DB and DC) were already noted in Figures 5 and 7 with respect to both plans and participants. That dramatic growth notwithstanding, it is also possible that the creation of 401(k) plans helped to expand the DC plan market rather than, or in addition to, taking market share away from other plan types (Olsen and VanDerhei, 1997).

*Assets and Contributions*—The financial aspects of these plans—what they will likely provide for individuals at retirement, separation, etc.—are as important as the numbers of plans and participants.<sup>26</sup> One way to analyze the financial aspects of these trends is to consider the percentage of total qualified retirement assets held in DC plans. Figure 11 shows that at the time ERISA was passed, approximately 29 percent of the total assets were held in DC plans. This figure held relatively constant until the early 1980s—when 401(k) plans became available. This share rose consistently to more than 50 percent in 1998, where it remained through 2001.

Data in Figure 12 show the percentage of qualified retirement plan contributions made to DC plans through 1998. Again, the time series remains relatively constant from the passage of ERISA to the early 1980s, and then increases annually throughout the decade. However, the trend initially peaked in 1990, and by 1993 resumed an upward direction to 1997. A possible explanation for this trend would be that DB plans were relatively more generous vis-à-vis DC plans in the early 1990s, but the booming stock market into the late 1990s attracted the attention of plan sponsors and participants, who flocked to the newer DC plan designs that were becoming available.

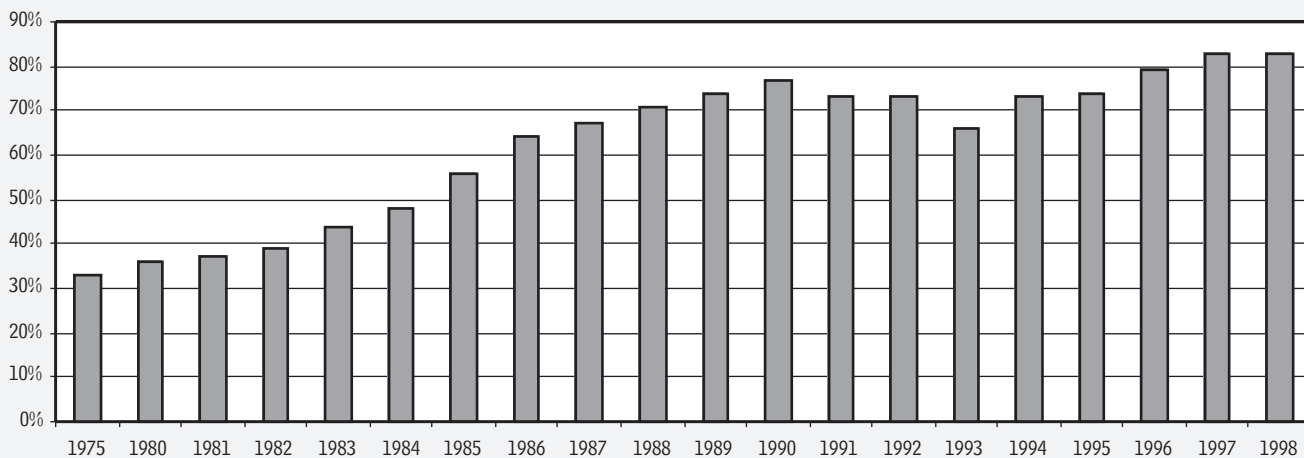
There is no precise method of measuring DB plan benefit accruals in order to compare them with contributions made to DC plans. Still, one can get a first order approximation of the trends (albeit on a lagged basis) in Figure 13. This figure reveals that the trends in benefit payments between DB and DC plans were extremely consistent over time, even as the contribution

Figure 11  
**DEFINED CONTRIBUTION GROWTH: AS A PERCENTAGE OF TOTAL ASSETS, 1975-2001**



Source: 1975-1998: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (several issues through Winter 2001); *EBRI Pension Investment Report* (1999-2001).

Figure 12  
**DEFINED CONTRIBUTION GROWTH: CONTRIBUTIONS AS A PERCENTAGE OF TOTAL ASSETS, 1975-1998**



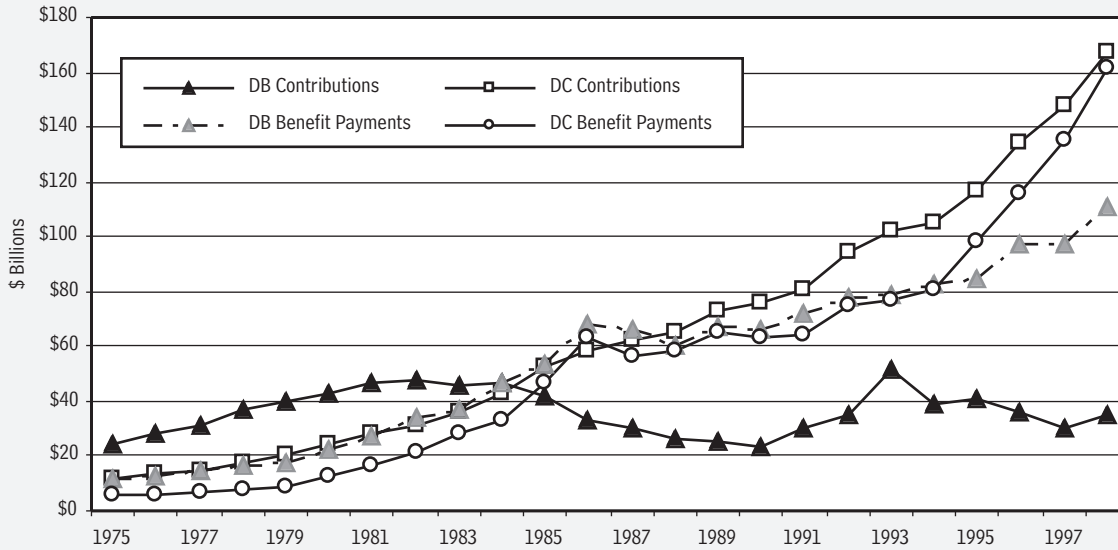
Source: 1975-1998: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (several years through Winter 2001).

trends varied considerably. In other words, the relative drop in DB contributions in the late 1980s, which maintained their level over time, and their subsequent rise in the early 1990s, came without a corresponding modification in benefits paid out by DB plans.<sup>27</sup> After 1993, only DB plan contributions remained flat, while DC plan contributions and DC plan benefit payments rose in tandem, shadowed closely by DB benefit payments.

The time series results shown in Figure 12 and Figure 13 reflect a number of factors. For example, the

bull market in stocks and bonds in the early 1980s resulted in full funding of a large percentage of private DB plans (Munnell and Ernsberger, 1987)—a phenomenon that did not materialize in the 1990s in spite of the favorable situation in the financial markets through 1998.<sup>28</sup> It also partially reflects the minimum required contributions and the full-funding limitation modifications made in the Omnibus Budget Reconciliation Act of 1987 (OBRA '87). The former theoretically increased annual contributions for all underfunded DB plans with more than 100 participants, and the latter artificially

Figure 13  
**CONTRIBUTIONS VS. BENEFITS, 1975-1998**  
 (\$ Billions)



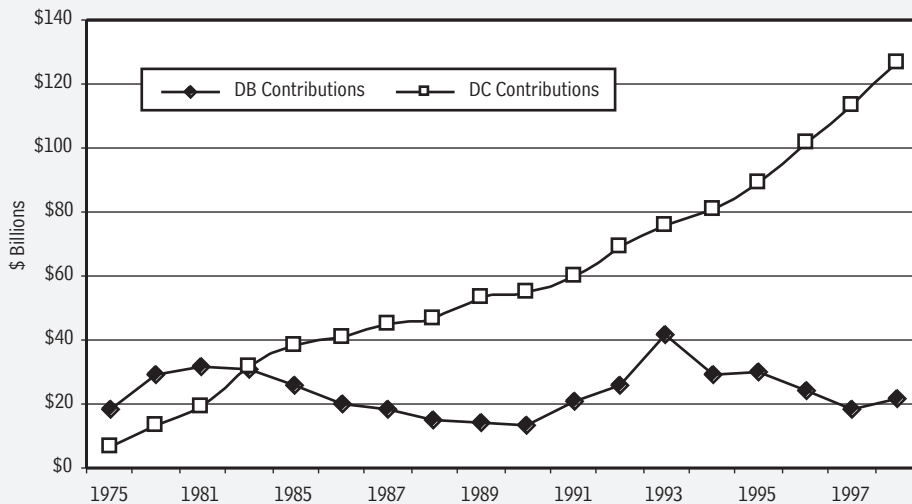
Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (various issues through Winter 2001).

suppressed aggregate DB contributions for plan years beginning after 1987 until the funding ratios among the overfunded plans fell below 150 percent in the 1990s (Olsen and VanDerhei, 1997).<sup>29</sup> If 1993 is factored out, DB contributions have remained relatively flat in nominal dollars during the 1975-1998 period.

Due to differences in legislative treatment for

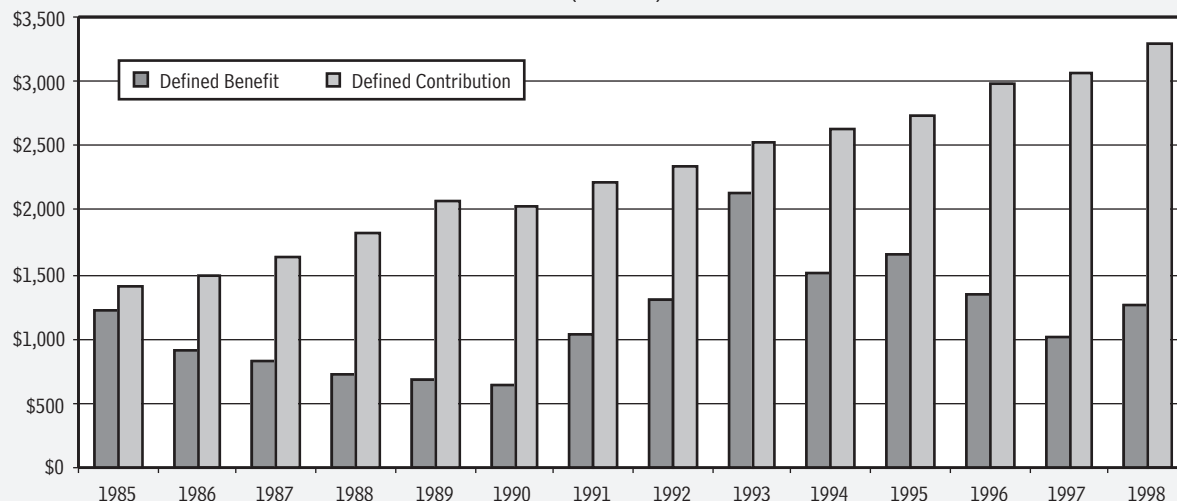
the funding of multi-employer plans and plans with fewer than 100 participants, this report concentrates only on contributions (both employer and employee) to single-employer plans with at least 100 participants for the remaining analysis in this section.<sup>30</sup> As of 1998, these single-employer plans accounted for nearly 68 percent of the DB contributions and 97 percent of the

Figure 14  
**CONTRIBUTIONS OF SINGLE-EMPLOYER PLANS WITH 100 OR MORE PARTICIPANTS, 1975-1998**  
 (\$ Billions)



Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (various issues through Winter 2001).

Figure 15  
**CONTRIBUTIONS PER ACTIVE PARTICIPANT<sup>a</sup> FOR SINGLE-EMPLOYER PLANS  
 WITH 100 OR MORE PARTICIPANTS, 1985-1998**  
 (current \$)



Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (various issues through Winter 2001).

<sup>a</sup>Includes both employer and employee contributions.

contributions to DC plans (Figure 14). Figure 14 is similar to Figure 13 except that only *large* single-employer plans (those with at least 100 participants) are included.<sup>31</sup>

Figure 15 shows the contributions (both employer and employee) from Figure 14 as a dollar amount per active participant for the years 1985–1998. This time period was chosen for the following analysis for two reasons. First, it begins in 1985, after plan sponsors had an opportunity to react to the proposed regulations for 401(k) plans published in November 1981 but prior to the introduction of the new nondiscrimination requirements in TRA '86 and the new funding requirements in OBRA '87. Second, it utilizes the most recent Form 5500 data currently available (1998).<sup>32</sup> The rise for DC plans is matched by DB plans over time, before the DB began to decline starting 1995. This could well reflect the favorable financial market results experienced by some well-funded DB plans, which began to allow contribution holidays in the early 1990s (Dunn, 1997; England, 2001).

administrative and fiscal resources to fund these plans, which tend to be more unpredictable to fund than DC arrangements. Unlike private plans, public employees often finance part of the defined benefit that they receive from DB plans, and their contributions are given tax-favored treatment under certain circumstances.<sup>33</sup>

Governments' ability to control their incomes and hire administrative staff through tax increases and revenue borrowing has given the public sector more funding flexibility than private plans enjoy. In addition, public DB plans are exempt from many of the regulations pertaining to private-sector DB plans,<sup>34</sup> obviating the need in the public sector of one of the private sector's main arguments for the use of DC arrangements as opposed to DB plans. Because supply and demand for DC plans have been lower in the public sector, DB plans remain the primary plan type for state, local, and federal employees. However, the level of DC activity in this area has grown in recent years.

## DB Plans Are Predominant in State and Local Jurisdictions

The public sector is characterized by a relatively small number of large systems and a large number of small systems. According to the U.S. Census Bureau, there were 2,208 state or local-level retirement systems nationwide in 2001 (U.S. Census Bureau, 2002). Public employee retirement systems range in size from those with several hundred thousand participants (e.g.,

## Public Plan Trends

In the public sector, employers have been more likely to sponsor DB plans. A major reason is that public employers are more likely overall to have had the required

Figure 16  
**STATE AND LOCAL RETIREMENT PENSION PLANS<sup>a</sup> AND PARTICIPANTS**  
*Summary of State Plan Trends, Selected Years 1981–2001<sup>b</sup>*

	1981	1985	1990	1991	1993 <sup>c</sup>	1994 <sup>c</sup>	1995 <sup>c</sup>	1996 <sup>c</sup>	1997 <sup>c</sup>	1998 <sup>c</sup>	1999 <sup>c</sup>	2000 <sup>c</sup>	2001 <sup>c</sup>
Number of Plans	3,075	2,589	2,387	2,362	2,213	2,233	2,284	2,285	2,276	2,203	2,209	2,209	2,208
	(number in thousands)												
Total Participants <sup>d</sup>	14,687	15,234	16,858	17,502	13,272	13,685	14,735	15,156	15,194	16,154	16,195	16,834	16,805
Active Participants <sup>d</sup>	10,330	10,364	11,345	11,696	11,768	12,099	12,525	13,018	12,817	13,051	13,472	13,917	13,937

Source: U.S. Department of Commerce, Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, selected years 1982–1991 (Washington, DC: U.S. Government Printing Office, 1984–1994); *Census of Governments, Government Finances, Employee Retirement Systems of State and Local Governments*, 1987 and 1992 (Washington, DC: U.S. Government Printing Office, 1989 and 1995; data for years 1993–2000: [www.census.gov/govs/www/retire.html](http://www.census.gov/govs/www/retire.html))

<sup>a</sup>Excludes state and local plans that are fully supported by employee contributions.

<sup>b</sup>Data expressed in fiscal years, beginning on October 1 of prior calendar year and concluding on September 30 of calendar year indicated.

<sup>c</sup>Data for years 1993–2000 represents fiscal years from July 1 through June 30.

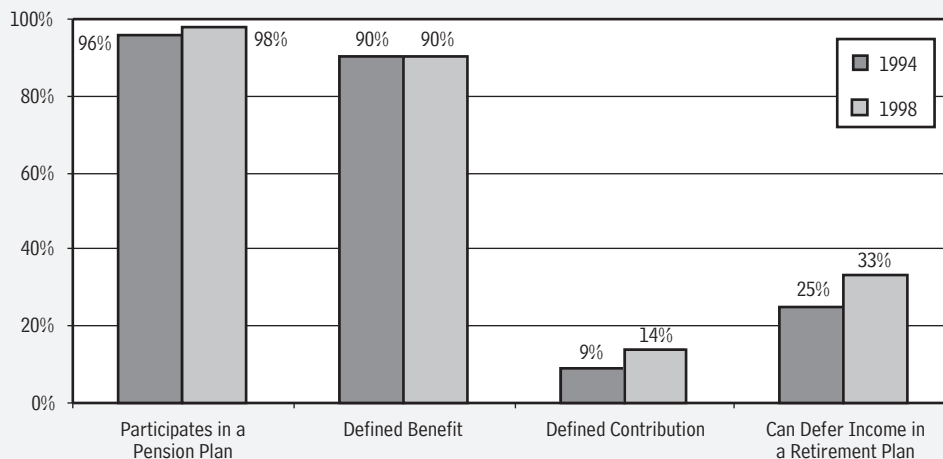
<sup>d</sup>State and local plans are not adjusted for double counting of individuals participating in more than one plan.

statewide retirement systems) to plans covering fewer than five employees (e.g., plans in townships or boroughs). There are fewer *general* coverage systems than there are *limited* coverage (chiefly occupation-specific) systems in operation. Figure 16 provides historical data on the number of pension plans and participants for selected years beginning with 1981. Nearly 14 million active participants were in state and local plans in 2001.<sup>35</sup>

Nearly all state and local employers sponsor DB retirement plans for their workers, although DC plans are becoming more common. The DB plan has been predominant for both full- and part-time eligible employees throughout the 1990s. Of the 98 percent of full-time employees participating in a general retirement plan in 1998, 90 percent were in a DB plan and 14 percent were

in a DC plan.<sup>36</sup> Prior to 1998, there was an increase in DC participation among both full- and part-time employees. For full-time employees, participation rates rose from 9 percent in 1994 to 14 percent in 1998 (Figure 17). During this time, DB participation by full-time workers remained steady at 90 percent. In addition, the data show that a third of full-time employees (33 percent) were able to defer a portion of their current earnings (thereby sheltering the income from current income taxes) by contributing to some type of cash or deferred arrangement in 1998, compared with one-quarter in 1994.<sup>37</sup> These arrangements often take the form of a salary reduction plan, which allows employees to contribute part of their earnings toward retirement but defer income taxes on those contributions and their earnings until distribution. The increased participation from 1994

Figure 17  
**ESTIMATED PERCENTAGE OF FULL-TIME EMPLOYEES OF STATE AND LOCAL GOVERNMENTS PARTICIPATING BY PENSION PLAN AND TYPE, 1994 AND 1998**



Source: U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in State and Local Governments*, 1994 and 1998 (Washington, DC: U.S. Government Printing Office, 1996 and 2000).

Figure 18  
**FEDERAL PUBLIC PENSION PLAN PARTICIPANTS**  
 Summary of Selected Federal Public-Sector Participation Trends, Selected Years 1981–1999<sup>a</sup>

	1981	1983	1985	1987	1989	1991	1993	1995	1997	1998	1999
	(thousands)										
Total Participants	6,408	8,321	8,591	9,849	10,644	10,919	10,779	10,825	10,867	10,848	11,015
Defined benefit plans	6,408	8,321	8,591	8,860	9,190	9,143	8,743	8,630	8,564	8,548	8,615
Civil Service Retirement System	4,756	4,754	4,919	4,295	4,332	4,086	3,808	3,731	3,518	3,423	3,362
Federal Employees Retirement System	b	b	b	800	1,086	1,325	1,764	1,512	1,679	1,757	1,879
Military Service Retirement System <sup>c</sup>	1,652	3,567	3,672	3,765	3,790	3,732	3,511	3,387	3,367	3,368	3,374
Defined contribution plans	d	d	d	989	1,454	1,776	2,036	2,195	2,303	2,300	2,400
Thrift Savings Plan <sup>d</sup>	d	d	d	989	1,454	1,776	2,036	2,195	2,303	2,300	2,400
Defined contribution as a percentage of total	0%	0%	0%	10%	14%	16%	19%	20%	21%	21%	22%
Total Active Participants	3,043	4,838	4,992	6,056	6,448	6,643	6,418	6,345	6,188	5,905	6,020
Defined benefit plans	3,043	4,838	4,992	5,109	5,158	5,050	4,606	4,415	4,177	4,105	4,120
Civil Service Retirement System	2,755	2,690	2,800	2,080	1,918	1,726	1,525	1,525	1,189	1,099	1,042
Federal Employees Retirement System	b	b	b	800	1,052	1,260	1,318	1,318	1,497	1,547	1,640
Military Service Retirement System <sup>c</sup>	288	2,148	2,192	2,229	2,188	2,064	1,763	1,572	1,491	1,459	1,438
Defined contribution plans	d	d	d	947	1,290	1,593	1,812	1,930	2,011	1,800	1,900
Thrift Savings Plan <sup>d</sup>	d	d	d	947	1,290	1,593	1,812	1,930	2,011	1,800	1,900
Defined contribution as a percentage of total	0%	0%	0%	16%	20%	24%	28%	30%	32%	30%	32%

Source: U.S. Department of Defense, Office of the Actuary, *DOD Statistical Report on the Military Retirement System*, fiscal years 1981–2000 (U.S. Department of Defense, n.d.); U.S. Office of Personnel Management, *Civil Service Retirement and Disability Fund Annual Report*, fiscal years 1986–1999 (Washington, DC: U.S. Office of Personnel Management, n.d.); *U.S. Civil Service Retirement System Annual Report*, fiscal years 1983–1985 (Washington, DC: U.S. Office of Personnel Management, n.d.); and unpublished data from the Office of Personnel Management, the Federal Retirement Thrift Investment Board [http://www.tsp.gov/forms/F&Pintro\\_frameset.html](http://www.tsp.gov/forms/F&Pintro_frameset.html), and the Department of Defense, Office of the Actuary.

<sup>a</sup>Data for the Civil Service Retirement System, Federal Employees Retirement System, Military Service Retirement System, and state and local retirement systems are expressed in fiscal years, beginning on October 1 of prior calendar year and concluding on September 30 of calendar year indicated. Data for the Thrift Savings Plan are expressed in calendar years.

<sup>b</sup>The Federal Employees Retirement System was established June 6, 1986.

<sup>c</sup>Includes all personnel and their families with the exception of reserves.

<sup>d</sup>The Thrift Savings Plan was established April 1, 1987.

to 1998 in these plans suggests that state and local employees are being given increased opportunities and/or are taking advantage of such opportunities provided through supplemental DC pension plans.<sup>38</sup>

## DC Plans Attract Interest and Use at the Federal Level

The public sector has nevertheless increased its use of DC arrangements, although not to the same extent as the private sector. Federal plan trends show movement over the past decade toward increased utilization of DC arrangements, following the adoption of the Federal Employees Retirement System (FERS) (Figure 18). Enacted on Jan. 1, 1987, FERS was created in part to replicate the mix of DC and DB arrangements increasingly available to private-sector workers (Merck, 1994). FERS includes a voluntary DC plan—the Federal Thrift Savings Plan (TSP)—in addition to its DB base. Until 1987, federal employees were covered under a DB plan exclusively, the Civil Service Retirement Service (CSRS). Employees hired prior to Jan. 1, 1984, were given the option of switching to FERS or staying with CSRS. All

employees hired after that date are required to participate in FERS. Both FERS and CSRS employees have the option of participating in the TSP, although FERS employees are allowed to contribute a higher percentage of basic pay on a pretax basis because the DB plan under FERS is less generous than that under CSRS.<sup>39</sup> As a result of the implementation of FERS, the percentage of active federal employees participating in a DC plan has grown from none in 1985, to 19 percent in 1987, and to 46 percent in 1999 (Figure 18). As of 2002, voluntary TSP participation by employees covered by FERS stood at 84.7 percent, and voluntary participation by employees covered by CSRS was approximately 66.5 percent (Mehle, 2002). Military personnel have been allowed to participate on a voluntary basis in the TSP since October 2001.

## Individual State and Local Plans Innovate by Exploring DC Approaches

Some DC plans have been offered to state and local employees for decades. For example, many public educators have traditionally been covered by Sec. 403(b)

Figure 19  
**SIGNIFICANT STATEWIDE PENSION PLAN DESIGN CHANGES BY STATE, SINCE 1990**

State (year)	Description of Change to State System
West Virginia (1991)	Closed teachers DB plan to new hires and created a DC plan due to underfunded DB plan.
Washington (1995)	Created a third retirement plan for members of Teachers Retirement System, consisting of a hybrid (combined DB and DC) with employer funding the DB portion and the employee funding the DC portion.
Colorado (1995)	Created a voluntary hybrid plan to better attract and retain employees and to satisfy local government demands for a DC option.
California (1996)	State teachers' retirement system (CalSTRS) adopted a cash balance plan.
Michigan (1996)	Replaced the DB plan with a DC plan for both state employees (SERS) and public school employees (PSERS) hired after March 31, 1997, but membership for PSERS members was later repealed; conversion of previous employee balances permitted under certain circumstances; in 1995; initiated a DC plan for participating local governments in the municipal retirement system.
Maine (1998)	Extended eligibility for its DC plan for higher education personnel to new employees of the Technical College System.
Illinois (1998)	Created a DC plan and hybrid alternative plans for members of the State Universities Retirement System, a DB plan.
Vermont (1998)	Created an optional DC plan for new hires and then-current employees choosing to join at that time; it was felt that the new plan would assist in the hiring and retention of talented workers.
Ohio (1998)	Created a new alternative retirement DC plan for new education employees and to existing employees with less than five years' service.
Virginia (1998)	Allowed very large school districts to offer a DC retirement plan to superintendents.
Colorado (1999)	Allowed statewide elected officials, legislators, staff of the governor, and legislative staff to choose as DC plan in lieu of the existing DB plan.
North Dakota (1999)	Created a DC plan for elected and appointed officials and non-classified state employees; the predominant DB plan was modified to include (1) an employee 457 match (401(a) account) to encourage participation and (2) allow departing employees to take both employer and employee contributions to make the DB plan more portable.
Montana (1999)	Created an optional DC plan for PERS members effective in 2002; PERS includes state, municipal, and school district employees other than teachers.
Missouri (1999)	Replaced the existing DB plan for state employees and law enforcement officials and replaced it with another DB plan that does not provide a separate benefit schedule for law enforcement.
Arizona (1999)	Created an optional DC plan for exempt state employees and elected state officials subject to term limits and created a 401(a) plan for term-limited officials and legislative staff members.
Louisiana (1999)	Extended eligibility for its Optional Retirement Plan for academic and administrative personnel in higher education to employees of governing boards.
South Carolina (2000)	Created optional DC plan for teachers and school administrators in the state's K-12 system; available to all state workers hired after June 30, 2002.
Utah (2000)	Allowed legislators to choose to join the existing DC plan for elected officials instead of the regular DB legislators' retirement plan.
Ohio (2000)	Created an optional DC plan for the state teachers' system (STRS); contributions will be same as for the DB plan.
California (2000)	Created the DB Supplemental Program for all STRS members; a tax-deferred account is set up for each teacher.
Florida (2000)	Created an optional DC plan (effective June 2002) for all state and local government employees, teachers, and school employees; it will allow current and new public employees a one-time option to switch between the DB and the new (401(a) DC plan; the new plan individual investment retirement and is 100 percent funded by the employer at the same rate as the co-existing DB plan; a key consideration in taking this step was to increase the public employers' ability to compete with the private sector in attracting and retaining workers.
Washington (2000)	Created a mandatory retirement plan for employees of state agencies, higher education, and local governments consisting of DB and DC portions; employers' contributions fund the DB portion while employee contributions fund the DC portion; the arrangement is similar to one created for teachers in 1995.
Idaho (2001)	Started a 401(k) plan to share in the excess of the overfunded DB plan; referred to as gain-sharing, the excess would be deposited into employee accounts.
Nebraska (2002)	Scheduled to introduce cash balance (DB) plans in January 2003 for state and county employees currently covered by DC plans; cash balance plans will be required for new hires, while current employees will have an option to remain in the DC plan.

Sources: Changes to state and local retirement systems tracked by EBRI staff.

plans. In addition, a portable (DC) retirement plan for municipal managers has existed since 1972, and Sec. 457 plans began in the late 1970s. For some government employees, DC plans have supplemented DB plans, and for others, DC plans have been their primary plan. In 1994, 67 percent of state and local government workers with a money purchase (401(a)) retirement plan were not covered by any other type of employment-based retirement arrangement (U.S. Department of Labor, 2000).<sup>40</sup>

The number of DC plans in state and local governments has grown significantly. Much of the variety and pace of change taking place in state and local retirement plans is occurring at the state level (Figure

19). It is interesting to note the timing of these changes: After West Virginia in 1991, no state took action to modify its benefit design until 1995–1996, when four states (Washington, Colorado, California, and Michigan) enacted benefits legislation. Three of these states utilized DC plans in a hybrid or a cash balance format. Among these four states, Michigan is unique in replacing its DB plan with a DC plan only for new hires. By 1998, as more states began to change their systems, DC plans increasingly were used as a supplement, enhanced by employer matches—and sometimes as an alternative to—a pre-existing DB plan. This pattern still holds through 2001, although the alternative DC plans enacted

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in North Dakota (1999), South Carolina (2000), and Florida (scheduled for implementation 2002) signal that states are considering this alternative. Nebraska is expected to replace the 401(a) DC plans for its state and county employees with a cash balance plan in 2003 (Kaller, 2001; Schneyer, 2002).

Overall, employee choice is often mentioned as a major reason not only for introducing DC plans but also for retaining them—either as the primary component or as a significant component of the overall package. In this way, states have addressed concerns about retaining current employees while attracting the talent needed for the work force of the future (Rajnes, 2001a). A major added factor has been the exceptional stock market performance of the late 1990s, which significantly reduced pension fund liability ratios in most states and increased the attractiveness of DC plans among public employers, legislatures, and rank-and-file union members. In recent years, the allocation of total state and local retirement assets (from both defined benefit and defined contribution plans) has dramatically shifted away from fixed-income instruments into equities; from virtually nothing in 1950, equities accounted for 56 percent of all state and local retirement assets in 2001.

In 1994 (the most recent year for which data are available), the Bureau of Labor Statistics reports that 97 percent of full-time employees in state and local governments who were offered a DB plan were not offered a DC plan (U.S. Department of Labor, 1996). However, these data may change, as other states with increased interest in DC plans<sup>41</sup> implement changes, and these changes affect aggregate state and local data.

## *Evolving Pension Structure*

As employment-based retirement plan usage continues to evolve, DB plans are steadily losing ground as the

preferred plan type (Clark and Schieber, 2000). Many explanations have been suggested as to why DC plans have grown to such an extent in terms of plans, participants, assets, and contributions. However, much remains unknown about the causes and effects of this trend (Gale et al., 1999). This section discusses a number of explanations for the increased use of DC plans, and cites the research and lines of reasoning used to support them.

First, government regulation has had a profound impact on plan choice (VanDerhei and Copeland, 2001; Clark and Schieber, 2000; Ippolito, 2002). Second, changes in the work place may have contributed to the rise of DC plans, including the increased employee and employer appreciation and demand for DC plans (Ostaszewski 2001; Gale et al., 1999). Third, a number of economic explanations have been proposed as well (Brown and Liu, 2001; Ostaszewski, 2001; Salisbury, 1997; VanDerhei and Copeland, 2001), including the business environment and the risk associated with funding and managing pension plans, issues with firm size, and the increase in global competition faced by employers in recent years, which has led to the subsequent need for more flexibility in plan design.

## **Impact of Government**

Intentionally or not, government legislation and regulation have greatly increased the attractiveness of DC plans over DB plan arrangements. This section highlights some of the governmental actions most frequently cited as contributing to the trend toward DC arrangements in the private sector.

### *Administrative Complexity and Frequent Regulatory Change Have Disproportionately Affected DB Plans—*

The major federal law that governs the operation of most private pension and benefit plans is the Employee Retirement Income Security Act of 1974 (ERISA), which was enacted after a string of highly publicized corporate bankruptcies left thousands of workers without promised defined benefit pension benefits. Prior to ERISA, federal regulations governing retirement plans were neither as

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complex nor as comprehensive as they subsequently became. ERISA's efforts to improve the security of pension promises made by employers to employees brought about significant changes—primarily designed to ensure that employers actually funded the retirement benefits they promised—but which created important new financial and regulatory obligations for plan sponsors.<sup>42</sup>

Although administrative complexity and expenses have risen for DC plans as a result of the multitude of regulatory and legislative initiatives over the past two decades, DB plans have been most affected. Many argue that new laws and regulations have raised DB administrative costs enough to make DC plans more attractive to many plan sponsors (Warshawsky, 1985; Clark and McDermed, 1990; Hustead, 1998),<sup>43</sup> especially smaller employers that do not have the economies of scale available to mitigate the administrative costs of larger plans.<sup>44</sup> However, others in the business community argue that the growth in DC plans is primarily fueled by the relative frequency with which DB plan regulations change, not the complexity of DB plan administration itself (VanDerhei and Copeland, 2001).

*Increasing PBGC Premiums Add to the Cost of Private DB Plans*—Because DC plans are not insured by PBGC, rising PBGC premiums increase the relative cost of private DB plans (VanDerhei and Copeland, 2001). Although the premium was a flat rate of \$1 per participant per year when the program was established, legislation has since increased it to a flat rate of \$19 per participant along with an additional variable premium that increases with underfunding.<sup>45</sup> In addition to increasing the cost assessed to sponsors of existing underfunded plans, the higher premiums have raised the cost of starting new DB plans, because many new plans begin with unfunded liabilities for older workers who have been “grandfathered” into the plan with past service credits (Olsen and VanDerhei, 1997).

*Full-Funding Limitations and Liquidity Requirements Mitigate One DB Advantage*—Funding flexibility re-

mains a funding advantage of DB plans. However, the numerous changes in the funding rules for DB plans made by the Omnibus Budget Reconciliation Act of 1987 (OBRA '87) significantly restricted the allowable accumulation of assets, thereby lessening their attractiveness as a tax shelter (Warshawsky, 1995). Given the funding ceiling under this law, some plan sponsors may have been persuaded to pursue one of several alternatives: terminate an existing DB plan and start a DC plan in its place; freeze the existing DB plan and set up a supplemental DC plan; or increase contributions to an existing DC plan. The Taxpayer Relief Act of 1997, however, established a gradual increase in the full-funding limit from 150 percent to 170 percent over time. Provisions of another law, the Retirement Protection Act of 1994, also mitigated the funding flexibility of DB plans. This act increased minimum contributions for many underfunded DB plans by imposing liquidity requirements, which mandate that a plan have enough liquid assets to cover approximately three years of benefit payments. If the plan misses a liquidity contribution, there are restrictions on paying distributions other than regular annuities, such as lump-sum distributions (Allen et al., 1997). EGTRRA (2001) phases out the full-funding limit in 2004 and applies a new full-funding rule that is expected to provide plan sponsors with greater flexibility in funding their DB plans.

*Reversions*—After the passage of ERISA (1974), withdrawals from ongoing pension plans were generally prohibited except to pay benefits, but employers sometimes terminated their plans and recaptured excess benefits beyond the amount needed to fulfill current obligations (VanDerhei, 1988). At the time, there were no restrictions on this use of recaptured (excess) assets following termination, and assets recovered in reversions from terminated pension plans could be used by employers to reinvest in plant and equipment, retain or create jobs, etc.<sup>46</sup> Major reasons offered to explain the increasing use of reversions by employers in the early 1980s included: the increased overfunding of DB plans; the

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sponsor's desire to switch to a DC approach; and the pursuit of an option to withdraw funds without renegeing on promised benefits, among others. In time, these activities attracted the interest of policymakers.

Guidelines restricting plan reversions were issued jointly in 1984 by PBGC, the U.S. Treasury Department, and the U.S. Department of Labor. Later, the Tax Reform Act of 1986 introduced an excise tax on reversion amounts. This legislation followed a series of reversions, some involving corporate transactions, and was intended to ensure that existing funding for promised pension benefits was maintained (Ippolito, 2001). The tax rate (nondeductible), initially set at 10 percent, was increased to 15 percent in 1988, and then to 50 percent in 1990. Ippolito (2002) argues that when Congress changed the tax treatment of excess pension assets in 1986, it set in motion a trend that would lower overall funding ratios and eventually discourage future DB plan sponsorship.<sup>47</sup> His analysis suggests that since the mid-1980s, the reversion tax may have changed some plans target funding ratios, especially for plans with excess assets (often those with a relatively higher proportion of older workers and retirees) and possibly led plan sponsors to convert to a cash balance plan.

*Impact on DB Plans by Suspension of 30-Year Bonds*—Not yet visible in the data examined in this report is the potentially negative impact on DB plans in the form of the rapidly disappearing 30-year Treasury bond rate. On Oct. 31, 2001, the U.S. Treasury Department announced that it would no longer issue 30-year bonds. The fate of the 30-year Treasury bond is important for DB plans because it serves as a benchmark for many DB pension plan required calculations as specified by the IRC. For example, this interest rate is important in determining current liability of underfunded plans and for determining premiums paid to the PBGC. It also is critical to the calculation of lump-sum amounts and other requirements of qualified plans (Parks, 2002; Buck Consultants, 2001).<sup>48</sup>

As prices on outstanding long-term Treasury bonds increased following the announcement, corresponding yields declined. The lower level of interest raised plan sponsor expenditures across the board. For example, the resulting drop in the long bond rate has been projected to increase employer contributions for some plan sponsors by as much as 10 times over the rates used in 2001 (Orszag and Gunter, 2002). President Bush signed into law the Job Creation and Worker Assistance Act of 2002 (JCWAA) on March 9, 2002. This legislation includes temporary adjustments to the permissible interest rates used by DB pension plans (Buck Consultants, 2002). However, a more permanent solution remains to be established. Until then, long-run cost projections will leave DB plan managers less certain about their funding requirements.

## Changes in the Work Place

*The Employer-Employee Relationship*—The vast majority of workers are not likely to remain with the same employer throughout their careers. According to recent government data, the average U.S. worker holds about nine jobs by the age of 32, and high rates of job change have always been found among students and young workers (U.S. Department of Labor, 1999a; Rajnes, 2001b). Thus, it has been argued that employees desire direct ownership of their retirement accounts (Ostaszewski, 2001). In general, changes as varied as culture, technology, and education have led employees to become more independent and more receptive to DC plans. The increase in job mobility and the greater portability of DC plan assets have made them attractive in today's work place environment. Importantly, in contrast to back-loaded DB benefits, which provide the majority of benefits in the final years before retirement, most DC plans benefits are less age-sensitive, with benefits payable upon job termination. Many DB plans now pay lump-sum distributions as well. A major result of this trend is that various risks are shifted from the

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employer to the employee. These include the danger of outliving one's accumulated assets (longevity risk) and the risk of accumulating insufficient retirement assets (investment risk) (see Appendix under "Assuming Retirement Income Risk"). Given the rapid rate of restructurings and layoffs in recent years, employers, too, are often seen as far less attached to their employees. Plan sponsors find that a DC plan (with contributions often linked to profits), better reflects their organizational philosophy (Campbell, 1996).

#### *Economic Explanations—*

**Business Environment:** Pension benefits continue to be an important tool for employers to attract and retain workers. As mentioned above, DC plans are attractive in the current work place for many firms. Increased competition, reorganizations, restructurings, and mergers have forced businesses to become leaner in order to survive in the global economy (VanDerhei and Copeland, 2001). As global competition increased with the onset of widespread globalization beginning in the 1980s, many businesses have sought benefit plan designs that align retirement benefits with employee performance.<sup>49</sup> In a world of increasingly uncertain profit margins, the ability to quickly divest a business venture or to go out of business with the fewest obligations can be a competitive advantage for a firm competing internationally. DC plans, because they tend to have fewer regulatory constraints, may also be preferred to DB plans by some firms that are unsure of their stability and profits (Olsen and VanDerhei, 1997). Finally, the volatility of financial markets in recent decades has caused DB funding requirements to be less predictable (Ostaszewski, 2001), also causing employers to favor some type of DC or hybrid plan design over a conventional DB plan.

**Firm Size:** When DC plans first started to increase their share of the pension market in the mid-1970s, traditional (final pay) DB plans declined in number. DB plan participation has been linked to union membership and

with workers in large firms. However, it is sometimes argued that the presence of unions, firm size, and industrial composition fail to explain much of the growth in the overall share of DC plans (Gale et al., 1999). As noted above, however, the largest employer (the federal government) in the nation led the redesign trend with its early 1980s reduction of DB generosity and introduction of a 401(k)-type plan.

**Changing Nature of Defined Contribution Plans:** The remarkable growth of participant market share of DC plans relative to DB plans since the early 1980s should not obscure the fact that DC plans themselves underwent a structural transformation just prior to the time when the DC market began its dramatic growth (Schieber, Dunn, and Wray, 1998). Noted earlier in the discussion on DC plans was the fact 401(k) plans provided a prime ingredient for this trend, rising from only a few percent in 1984 to a significant 41 percent of private plans (45 percent of private DC plans) and 51 percent of participants in private plans (74 percent of private DC plans) by 1998 (figure 7). In his analysis of participant market share for the 1979–1988 period, Ippolito (1995) presents not only an explanation for the relative decline in DB participation, but for the disposition of lost DB share to DC plans. He suggests that the introduction of 401(k) plans in 1979 provided an attractive new alternative to both DB and existing DC plans during that time. In a subsequent paper, he argues that 401(k) plans are a superior variety of DC plan that possess unique characteristics (Ippolito, 2000). First, because workers can make voluntary (pre-tax) contributions, it allows them more freedom to attain desired savings rates—even beyond the employer's contribution. Secondly, the matching feature of 401(k) plans, whereby an employer can match all or a part of worker contributions, permits the firm to selectively pay higher wages to workers who reveal themselves as savers—who possess characteristics that may make them high-quality workers as well (Ippolito, 1998).<sup>50</sup>

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## Marketing of Retirement Plans

Often overlooked among explanations for the growth in market share of DC plans since the early 1980s are the marketing efforts of consultants and DC service plan providers. Plan design consultants and vendors offering defined contribution arrangements, chiefly 401(k) plans, have taken advantage of a number of favorable circumstances during this time, including especially strong financial markets, the growing interest by individuals in equity investing, and a revolution in technology, to succeed in capturing the market for retirement plans in the private sector. While public-sector retirement systems have generally continued to operate defined benefit plans, DC plan providers have made inroads there as well. In fact, some of the more visible marketing efforts can be observed in the public sector, where intense legislative lobbying has been highlighted in media accounts.<sup>51</sup>

DC plan providers can provide a range of services to suit plan sponsors' needs. In the DC industry of the late 1980s and early 1990s, service providers began to make available to customers (plan sponsors) daily valued funds, record-keeping systems, and enhanced participant features, such as ready access to account information (*Pensions & Investments*, 1996). The number of investment options has grown since that time, as had a trend toward increased customization of participant statements and paperless loan processing. Services available to plan sponsors for their employees today may include an array of investment options, investment and retirement education, and flexible account access methods (Vanguard, 2000). The Internet is the latest in a series of technological developments making these options possible. For example in DC plans, a variety of Web-based account access services has evolved—motivated by participant control over their investment decisions.

## *Public Policy Implications*

Both the public and private sectors have moved away from sponsoring fewer plans that only pay benefits at or near retirement (traditional DB accrual-annuity-based) and have created more and more plans that pay at the termination of covered employment (Salisbury, 2002). The result has been dramatic changes in DB pension plans, which traditionally promised a fixed accrual and a determinable benefit without worker investment risk, but that more recently include development of DB individual account (cash balance) plans. There has also been growth in the number of DC plans, which promise payment of funds contributed (once the employee is vested), adjusted for investment earnings, but without a fixed benefit, as the worker bears the investment risk/reward. Thus, the growth in the relative share of DC benefit plan sponsorship, as documented in this report, will have important repercussions. A movement away from DB toward DC plan designs—and perhaps toward hybrid (such as cash balance) plans—will affect retirement income security for future generations. Several important issues in this regard are mentioned below.

## What Form Will Retirement Income Take?

Traditional DB plans typically required active participants (except those for whom the present value of benefits was less than an established legal threshold) to wait until retirement age before receiving any benefits,<sup>52</sup> at which time a life annuity was issued to the participants (and possibly their spouses). Annuity payments (typically monthly) continued until the participants' death (or the death of the survivor if a

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joint-and-survivor annuity was purchased). While some retirees receiving a pension may have needed to worry about having enough money, none were at risk of running out of money altogether. As long as they were alive, they could look forward to another pension payment.

Many DB plans have offered lump-sum distributions at retirement for decades, but they gained little attention. Now, more lump sums are appearing, and with them has occurred an ongoing change in perception about retirement plans. Whereas the word *pension* once meant an annuity payment, since ERISA was enacted in 1974, the term is also used to describe any employer or government-sponsored capital accumulation program with a stated purpose of providing funds for retirement (Salisbury, 2002). DB plan, DC plan, annuity payment, and lump-sum distribution—all fall within this new ERISA definition. While both the public and private sectors have moved in the direction of sponsoring fewer plans that pay only benefits at or near retirement, and increasingly created more plans that pay when covered employment is at an end, the result has been quite significant: a movement away from DB plans promising a fixed accrual and a determinable benefit without worker investment risk; the development of DB plans with individual account balances (cash-balance plans); and growth in the number of DC plans with promised payment of funds contributed (once the employee is vested) adjusted for investment earnings but without a promised fixed benefit, as the employee bears the investment risk/reward.

According to model projections run by EBRI on the long-term implications of this change on the composition and levels of future retirement income (VanDerhei and Copeland, 2001), a number of implications for retirees can be cited. First, there will be a decrease in the relative percentage of retirement wealth coming from DB plans (with the attendant consequences for annuity income) and a definite increase in retiree income that will need to be managed by individuals themselves—with important implications for future retirees. Because of this, individuals rather than plan sponsors will have

to shoulder the risk of investment losses and benefit from investment gains, while they manage their retirement assets. Finally, as fewer retirees receive their non-Social Security income in the form of an annuity from a DB plan, retirees will need to decide what to do with the lump-sum distributions or periodic payments available to them from a DB plan, DC plan, or an IRA. The purchase of an annuity from an insurance company, or careful money management to avoid outliving their assets, is critical. The societal challenges raised by this analysis suggest a greater role for financial education and a greater need for financial literacy in the years ahead, and a new focus on the “decumulation” phase.

## Impact of Job Stability

The recognition in recent years of high job turnover and low long-term tenure, going back decades, has led to increased discussion of how to address portability and preservation of lump-sum distributions for departing employees (Burman et al., 1999; Poterba et al., 1999). Tenure patterns, a more balanced work force across gender lines, and weaker attachments to employers in recent decades help to explain the trends in plan design discussed in this report (Rajnes, 2001b). Because Americans work in an environment of job churning, in addition to the portability of retirement benefits, benefit preservation and decumulation will be important policy issues.

*Lump-Sum Distributions*—In a world where job changers are increasingly faced with selecting what to do with their lump-sum distributions, that choice can have a profound impact on the resources available in retirement (Copeland, 2002a). The changes in job stability (mentioned above) raise issues for retirement income security, particularly the increase in payment of lump-sum distributions (LSDs) and whether LSDs are preserved for retirement. After leaving employment, individuals may either: leave the money accumulated in the retirement plan, roll it over into another tax-qualified savings vehicle (another employment-based plan or an IRA), or

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cash it out. Data show that the smaller the distribution, the less likely it is to be rolled over (Yakoboski, 1996 and Yakoboski, 1997; Copeland, 2002a). Plan participants who do not roll over their LSDs tend to have smaller distributions, lower incomes, less retirement savings, and are most at risk of retiring without sufficient savings. Significantly, they are also apt to cash out their lump sums most frequently. Finally, some employers believe that offering employees preretirement access to their accounts entices them to save in the first place, which then encourages them to contribute to retirement saving after they have met their more immediate consumption needs.<sup>53</sup>

## Plan Choice: DB, DC, or a Hybrid?

This report has generally emphasized a dichotomy (defined benefit or defined contribution) concerning how retirement plans may be designed. However, some employers may recognize that no single program can adequately address the needs of both the employer and the employee. As a consequence, they are seeking new alternative plan designs or options to best address those particular needs. By introducing features from both a DB and a DC plan, an organization can maintain roughly the same commitment to retirement income plans but redistribute the dollars in ways that they hope will enhance employee and employer satisfaction. Combining features of both plan types can be achieved three ways.

The first way to offer both plan types in one package is simply to offer both a DB and a DC plan. Because these plans tend to benefit different groups of employees, and each plan type has its own advantages, using both plans can sometimes satisfy a wider range of employees and objectives than sponsoring one type of plan exclusively. For example, DC plans can be used to supplement DB plans so that the overall retirement package is more attractive to younger workers, while retaining the DB base for employees nearing retirement age. According to a 1996 General Accounting Office (GAO) report, only 3 percent of employers offering a retirement plan in 1993 sponsored both a DB and a DC

plan simultaneously (U.S. GAO, 1996). However, because those offering both plans tend to be larger firms, 43 percent of employees offered any type of retirement plan were given both a DB and DC option. An EBRI report, based on the Survey of Consumer Finances, noted that in 1998, 21.3 percent of working family heads who were covered by a pension plan were in a DB plan exclusively, 60.7 percent were in a DC plan exclusively, and 17.9 percent were in both a DB and DC plan—a difference from the 42.3 percent, 40.8 percent, and 17 percent, respectively, reported for 1992 (Copeland and VanDerhei, 2000).

A second approach would be to sponsor an otherwise traditional DB plan that is funded exclusively by the employer, but offer a lump-sum distribution at termination of employment, as well as a DC plan. The latter may be funded by both the employee and the employer.

A third approach is to implement a hybrid retirement plan. The existence of hybrid plans shows that not all benefits and shortfalls attributed to traditional DB or traditional DC plans are inherent in these plans. Hybrid retirement plans are widely discussed (Campbell, 1996; Quick, 1999; VanDerhei, 1999; U.S. GAO, 2000). Their adoption by large U.S. companies has received much attention. Among Fortune 100 companies, for example, hybrid pension plans grew from 1 percent in 1985 to 32 percent in 2000 (Watson Wyatt, 2000). More broad-based surveys indicate a similar trend. For example, a survey by Hewitt Associates of major U.S. employers that offer a DB plan to salaried employees showed that 18 percent of such plans were of the cash balance variety in 2000, an increase from the 3 percent of DB plans offered by employers in its 1990 survey (Hewitt Associates, 2001; Hewitt Associates, 1990). In the same way, the Hay Group reports an increase in cash balance plans as a percentage of all DB plans offered by large employers it surveyed, from 3 percent in 1993 to 14 percent in 2001 (Hay Group, 2001).

While hybrid plans are neither fundamentally DB nor DC in nature, they combine features of both.

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Hybrid plan types include cash-balance plans, age-weighted profit-sharing plans, target-benefit plans, and life-cycle pension plans.<sup>54</sup> Cash-balance plans are more prevalent, so this discussion focuses on them. Advocates of cash-balance plans state that they are relatively easy to understand and appreciate because they resemble DC plans. Cash-balance plans have hypothetical individual accounts for each participant, but are really DB plans since their benefits are determined by formulas in pension plan documents as opposed to the assets in a participant account plans (Sher, 1999).<sup>55</sup> In addition, because they are DB plans, they have the flexibility in their design and funding (discussed earlier), and the benefits are guaranteed by the employer and insured by the PBGC. The employee generally doesn't contribute anything in the typical cash-balance plan, and the employer bears the investment risk. When the participant reaches retirement, the account is converted to an annuity or taken as a lump sum.

The implementation of hybrid plans and some DB conversions to hybrids in recent years have raised a number of issues. One area involves the attraction for employers to these plans (Clark and Schieber, 2001). First, some employers appear to want to reduce early retirement incentives present in DB plans. In the case of conversions, this allows them to retain more of their productive senior employees. A second reason (already mentioned) is that management may feel these plans are easier for employees to understand. A third reason is that, because benefit accruals for participants are relatively smoother and more predictable throughout their careers than accruals in traditional DB plans, this may make employer funding of hybrid plans more stable for plan sponsors. Some other key issues have arisen with respect to the conversion of traditional DB plans to cash balance plans (VanDerhei, 1999). For example, a conversion from a final-average DB plan to a cash-balance plan is less complex than terminating the same plan and setting up a successor DC plan that may trigger a reversion tax of either 20 percent or 50 percent. From a paternalistic standpoint, the noncontributory nature of

most (if not all) cash balance plans eliminates the need to worry about employees who might choose not to participate or make minimal contributions, as in a 401(k) plan. Moreover, since employers directly bear the investment risk under cash-balance plans, they need not worry about overly conservative worker-investors. Potential limitations cited by some with respect to converting from a traditional DB plan to a cash-balance plan include (VanDerhei, 1999): smaller accruals for older workers (vis-à-vis the traditional DB plan); the potential for some benefit uncertainty with respect to pre-retirement income replacement under the new plan; and the post-retirement longevity risk that typically accompanies lump-sum distributions.

## *Looking Ahead*

### Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001

On June 7, 2001, President Bush signed into law H.R. 1836, the Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16), which reduces federal taxes by an estimated \$1.35 trillion over 10 years. Title VI of the law addresses pension and retirement plan provisions, and is estimated to cost the government about \$49.6 billion in lost revenue over the next 10 years. For individual participants in retirement plans, key provisions of EGTRRA increased limits on contributions to qualified retirement plans; provided faster vesting of employer matching contributions to plans; and allowed greater flexibility with respect to withdrawals, rollovers, and continuation of plans. For plan sponsors, EGTRRA does several things, such as encouraging the establishment of plans, increasing the deductibility of contributions, and streamlining administration. The provisions of the 2001 law are set to expire as of Dec. 31,

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2010, a “sunset” provision included to ensure that the legislation complied with Senate budget rules. Legislation to make permanent several provisions aimed at increasing savings and pension coverage is being debated in Congress.

*Increasing Portability for Participants*—Starting in 2002, rollovers of retirement plan and IRA distributions are allowed, thus easing restrictions for eligible rollover distributions among qualified retirement plans. For Sec. 403(b) annuities, IRAs, and governmental Sec. 457 plans, including rollover of after-tax amounts, surviving spouses will have the same rollover options that the deceased participant would have had if living. The “same desk rule” for 401(k), 403(b), and 457(b) plans, which prevented a participant from taking a distribution from a retirement plan if he or she separated from service but continued in the same job for a different employer—as a result of a liquidation, merger, consolidation, or similar corporate transaction—was modified to permit such a distribution to occur. From 2002 forward, the purchase of service credits under governmental pension plans is permitted for Sec. 403(b) and Sec. 457 assets to purchase service credits in public-sector DB plans by allowing the transfer of funds (direct trustee-to-trustee exchange) to a governmental DB plan. Beginning in 2002, the IRS may waive the 60-day deadline for rollovers under hardship circumstances.

*Vesting*—Faster vesting of employer matching contributions may result under EGTRRA. Matching contributions made after 2001 must become fully vested after an employee has completed three years of service (formerly five years) or must become vested in increments of 20 percent each year beginning with the employee’s second year of service, with full vesting accomplished after six years of service (formerly seven years).

*Contribution and Benefit Limits*—Changes under EGTRRA increase the annual elective deferral dollar

limits<sup>56</sup> for 401(k) plans, 403(b) annuities, and 457 plans to \$11,000 in 2002, \$12,000 in 2003, \$13,000 in 2004, \$14,000 in 2005, and \$15,000 in 2006, respectively, with the amounts indexed thereafter. *For DC plans*, changes to the compensation-based DC plan limits increase the dollar limit on annual additions under Sec. 415(c) from \$35,000 to \$40,000, then indexed in \$1,000 increments, and also increase the 25 percent of compensation limit on DC plans to 100 percent. *For DB plans*, Sec. 415 dollar limits increase from \$140,000 to \$160,000 at age 62, with late-retirement adjustments for benefits starting after age 65, then indexed in \$5,000 increments. EGTRRA will also allow “catch-up” contributions to 401(k), 403(b), and governmental 457 plans for participants who are age 50 or older, up to \$1,000 in 2002, \$2,000 in 2003, \$3,000 in 2004, \$4,000 in 2005, \$5,000 in 2006, and indexed thereafter. There will be an increase in the 401(a)(17) compensation limit to \$200,000 from \$170,000 and indexed thereafter in \$5,000 increments. EGTRRA 2001 repealed the 403(b) exclusion allowance applicable to contributions to Sec. 403(b) annuities; therefore, such annuities are subject to the limits applicable to tax-qualified plans. In addition, there was an increase of the 33 1/3 percent of compensation limits on deferrals under 457 plans to 100 percent.

*IRA Changes*—IRA changes brought about by EGTRRA affect both traditional and Roth IRAs. Beginning in 2003, 401(k) and 457(b) plans will be allowed to permit employee contributions to separate accounts or annuities and to elect to treat the contributions as traditional IRAs or Roth IRAs. Also, beginning in 2006, 401(k) and 403(b) plans will be permitted to allow participants to designate a portion of their elective deferral as a Roth contribution. EGTRRA also established a rollover IRA as the default option for lump-sum distributions of less than \$5,000 but more than \$2,000.

*Other Pension Provisions*—EGTRRA provides federal income tax credits for low- to moderate-income individuals to match part of the salary-reduction contribution of

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individuals with incomes below \$50,000 for those who participate in 401(k), 403(b), or governmental 457 plans, or to IRAs, of up to \$2,000 with the size of the credit declining from 50 percent to 10 percent as income increases. Finally, EGTRRA acknowledges that retirement planning services generally provided to employees by an employer maintaining a qualified employer plan are to be excluded from the employee's gross income for tax purposes.

## Corporate Governance Reform and Financial Disclosure

Among the more far-reaching results of the Enron and WorldCom failures have been their impact on accounting rules, regulatory oversight, and enforcement. Management at Enron allegedly devised a number of ways to avoid the disclosure of important financial obligations that, in turn, led to the dramatic increase in the value of equity shares and the corresponding rise (and ultimate fall) in employee 401(k) account balances. Accounting irregularities, misstatements, and alleged fraud have not been confined to Enron, as allegedly criminal fraud contributed to the collapse of WorldCom, leading to federal indictments Aug. 1 against WorldCom's former chief financial officer and controller.

In response to growing public outrage over the Enron and WorldCom situations, Congress enacted corporate governance reform in July, which was signed into law July 30 by President Bush (H.R. 3763—P.L. 107-204). The new law tightens oversight of accountants, revamps securities law, and creates new and tougher penalties for corporate fraud. While the law initially was prompted by the collapse of Enron, it was the WorldCom bankruptcy—the largest in the nation's history—that created a powerful political climate in Congress for tougher new laws.

Some of the key provisions of the new law will establish an independent accounting oversight board subject to the SEC and funded by fees on all publicly

traded companies; prohibit non-audit services to audit clients, except with pre-approval by the oversight board; mandate audit partner rotation and establish a one-year client employment restriction on accountants who change jobs; require company officials to certify periodic reports (subject to civil and criminal penalties); enhance criminal penalties for a broad array of white-collar crimes; increase the statute of limitations for securities fraud lawsuits; and substantially increase SEC funding in FY 2003.

Of particular interest to retirement plan sponsors, the new law contains two major provisions originally sponsored by Rep. John Boehner (R-OH), chairman of the House Education and Workforce Committee and included in 401(k) reform legislation passed earlier this summer by the House. One requires that retirement-plan administrators give participants a 30-day notice before instituting a "blackout period" on investment changes while plan administrators are being changed. The other prohibits executives from selling their own stock in nonqualified retirement plans during blackout periods in the 401(k) plan. Both provisions were a direct result of the Enron experience, where thousands of employees were unable to reallocate their accounts during a blackout period at a time when the company's stock value was collapsing.

In addition, at this writing legislative leaders on Capitol Hill were planning to take up supplementary corporate-oversight legislation during the fall 2002 session of Congress, specifically including 401(k) reform bills. The House of Representatives April 11 passed 401(k) legislation (H.R. 3762) that would largely focus on greater financial disclosure by plan sponsors; in the Senate, the Health, Education, Labor, and Pensions (HELP) Committee and the Finance Committee had reported out significantly different versions of a related 401(k) measure (S. 1992, S. 1971, respectively) that is expected to come to the Senate floor in September. Although it is unclear at this writing what the Senate bill will include, it is likely to have considerably stronger "pension protection" provisions than were contained in

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the House-passed measure. One example of the increasing political appetite in Congress for “securing and protecting retirement benefits” was the sudden and overwhelming adoption in the House of Representatives July 24 of an anti-cash-balance amendment by Rep. Bernie Sanders (I-VT) to the Fiscal 2003 Treasury appropriations bill (H.R. 5120). The Sanders proposal would effectively forbid the Internal Revenue Service from approving future conversions of defined benefit pension plans to cash balance plans as a matter of age discrimination. Sanders had pushed his amendment without success for the past few years, until the Enron and WorldCom bankruptcies changed the political climate in Congress on retirement issues.

*Company Stock Limits*—Proposals to cap the amount of company stock in 401(k) plans have been considered since a 10 percent limit was imposed on qualified DB plans under ERISA.<sup>57</sup> EBRI staff tabulations from the 1996 version of the EBRI/ICI database indicate that less than 3 percent of 401(k) plans include company stock, although these are fairly large plans representing 42 percent of 401(k) participants in the database that year (VanDerhei, 2002b).<sup>58</sup> According to the 1998 Survey of Income Program and Participation (SIPP), among all salary reduction plan participants, 22.1 percent were investing some portion of their contributions in company stock (Copeland, 2002b). Data for 2000 from the EBRI/ICI database, however, indicate that participant asset allocation varies considerably with age: participants in their 20s have 15 percent of their plan balances in company stock, while participants in their 40s have 20 percent, and participants in their 60s have 16 percent (Holden and VanDerhei, 2001).

*Divestiture Rights*—Despite advice from financial advisors about the benefits of having a diversified portfolio, many employees concentrate their 401(k) accounts in company stock by investing their own contributions in stock in addition to what was received as a company match. Some other companies impose

restrictions on when employees could sell their company stock received as a match (employees could diversify their own contributions as desired). Recent anecdotal evidence and some small surveys indicate that some employers may be dropping these restrictions on company stock they provide as a match.<sup>59</sup> Several bills considered in Congress would compel diversification rights after participation in the plan or holding the stock for a certain period of time.

*Blackout Periods*—A transaction suspension period or “blackout” occurs during a DC plan’s conversion to a new service provider. Certain transactions on participant accounts are suspended, while participant funds and records are in transit. The timing of transaction suspensions was one of the significant circumstances during the Enron situation, when plan participants were unable to trade. The accounting reform legislation signed into law July 30 (H.R. 3763—P.L. 107-204) contains two provisions that address blackout periods (Knieriem et al., 2002; ERIC, 2002). The first provision requires a 30-day advance notice of pension plan blackout periods unless circumstances warrant otherwise, such as trading suspensions due to mergers and acquisitions, circumstances outside the plan sponsor’s control, etc. A second provision prohibits directors and executive officers from purchasing or selling an employer security—one they obtained in exchange for services rendered (i.e., not purchased on the open market)—during any period lasting more than three days in which trading in that security is suspended for at least 50 percent of the employer’s individual account plan participants.

*Increasing Employer Liability*—ERISA Sec. 404(c) provides some relief to plan sponsors of 401(k) plans from responsibilities in situations where participants exercise some control over assets in their account. More specifically, current law states that a plan may offer company stock (public-traded in a recognized market) as one investment option under the 404(c) “safe harbor,” provided the plan also offers three other investment

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options with different risk and return characteristics. Proposed congressional legislation would deny relief unless the fiduciary performs certain steps, including considering the reasonableness of the blackout period, acting prudently in instituting the blackout period, and providing the required notice to participants about the blackout.

## Conclusion

Into the early 1990s, the continuation of certain historical trends—the presence of large DB plans, the growing overall share of DC plans, and a decline in smaller DB plans—could be observed.<sup>60</sup> Despite the many changes in government regulation regarding DB plans and the increased prevalence of DC plans, DB plans still remain an important part of both the private-sector retirement system, especially in large companies and in plans covered by collective bargaining agreements, and the public-sector retirement system. As shown by the data in this *Issue Brief*, there has been a continuous increase in DC plans, in all but the smallest plan sizes.

However, the dynamics of government regulation, individual preferences, and the performance of capital markets make it difficult to predict the future roles of DB and DC plans (Olsen and VanDerhei, 1997). It seems clear that, for many employers, large DB plans will continue to remain a basic component of the retirement system for long-service employees, while employers of all sizes will continue to use DC plans for employees with all lengths of tenure. During the 1980s and the 1990s, despite increasing regulatory complexity and cost, reduction in marginal tax rates, increased minimum required contributions for underfunded plans, and tighter maximum contribution limits, large private employers continued to offer DB plans. The recent enactment of EGTRRA has provided new incentives to

encourage sponsorship of DB plans and/or DC plans.<sup>61</sup> Also, the federal government reduced its DB plan formula for federal workers in 1984, but it maintained the plan as an important first-tier supplement to Social Security.

This *Issue Brief* has attempted to analyze how plan distribution has changed. The retirement system continues to evolve in the United States, moving away from pensions (traditional DB annuity) toward capital accumulation and lump-sum distributions from both DB and DC plans. Although annuity-paying defined benefit pension plans remain a significant factor in the retirement system, they are no longer dominant, and have been eclipsed in usage by DB plans that offer lump-sum distributions and DC retirement plans. More workers are earning vested rights in plans than at any other time in history, and may continue to do so as a result of EGTRRA's pro-plan-formation incentives. Features of this law, including increased portability, higher contributions and benefits limits, etc., suggest greater flexibility for plan design in the future. The aging of the population suggests that both employers and employees will continue to find value in employment-based DB and DC plans—either as a primary plan, in combination, or in some hybrid version. However, the increasing frequency of workers having account balances and workers' and retirees' receipt of lump-sum distributions will increasingly demand of individuals a greater attention to their financial affairs, to their understanding of longevity, and to careful investment and decumulation strategies.

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## Appendix: Plan Design and Operational Issues

The following sections serve as a general introduction to pension plans. With minor modification, they are taken from the 1997 analysis by Kelly Olsen and Jack VanDerhei, "Defined Contribution Plan Dominance Grows Across Sectors and Employer Sizes, While Mega Defined Benefit Plans Remain Strong: Where We Are and Where We Are Going," *EBRI Issue Brief* no. 190 (Employee Benefit Research Institute, October 1997).

### DB and DC Plan Features

*Plan Definitions*—A traditional defined benefit (DB) plan is a retirement plan in which benefits are calculated according to a formula or rule. Formulas are more common and are usually based on either years of service and a percentage of pay or a negotiated flat dollar amount (Allen et al., 1997). Benefit levels, as determined by the formula used, are guaranteed as a stated retirement income commencing at a specified age. Although retirement benefits are usually expressed as a life annuity,<sup>62</sup> lump-sum distributions are increasingly available.

While similar to DB plans in the provision of a tax-favored vehicle through which savings can accumulate for retirement, defined contribution (DC) plans are an altogether different type of employee benefit arrangement. In the majority of DC plans,<sup>63</sup> contributions are allocated to individual accounts according to a predetermined formula.<sup>64</sup> Individual benefits are equal to account contributions (less any unpaid loans or withdrawals) and investment returns thereon,<sup>65</sup> and are usually paid in the form of a lump-sum distribution,<sup>66</sup>

but can also be paid as a life annuity at retirement if the employer offers this option. While DB plans are always designed as retirement vehicles, certain DC plan types and designs have features that resemble capital accumulation plans (i.e., plans used for savings, not necessarily for retirement).

Traditionally, DB and DC plans have different features associated with each. For example, DB plans usually pay benefits in the form of life annuities, whereas DC plans typically pay lump sums. However, one fundamental difference between DB and DC plans exists. Under a DB plan, a formula guarantees the final benefit level; in a DC plan, a formula stipulates how funds are allocated to individual accounts.<sup>67</sup> Because so few fundamental differences exist between plan types, employers have significant leeway to design individual plans tailored to their specific objectives.

In recent years, an increasing number of employers have attempted to combine traditional DB plan features with features usually associated with traditional DC plans, and vice versa with the result that differences between DB and DC plans are becoming less apparent. These arrangements are called hybrid plans.<sup>68</sup> Such plans offer a compromise between conventional DB plans and DC plans and can be designed to fit almost any organization's needs. A number of factors—the lack of appreciation by young workers for traditional benefit plans, the desire for pension portability, and complexities associated with conventional DB plans, among others—have combined to make hybrid plans attractive to both employers and employees (Campbell, 1996).

### Qualified Plans

Employers value maintaining qualified plans because of their tax advantages. One primary tax advantage for qualified private plans is the deferral of federal income tax on employer contributions and investment earnings until benefits are paid to the employee, who then pays any taxes due. Employee contributions to private DC plans are allowed on a before-tax basis if the plan has a

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401(k) feature. This tax advantage applies to public DC plan participants in Internal Revenue Code (IRC) sec. 457, 403(b), and 401(k) plans. In addition, public-sector DB plans often require employee contributions, which may be allowed on a before-tax basis. Of all tax advantages accorded qualified plans,<sup>69</sup> deferred federal income taxation on investment earnings until distribution is perhaps the most valuable, because this feature yields significantly greater benefit accumulations than if investment earnings were taxed annually (Ippolito, 1986).

## How DB and DC Plans Operate

*Benefit Calculation and Plan Funding*—When establishing a DB plan, employers usually choose between flat benefits and pay-related benefits. A *flat-benefit formula* bases benefits on a flat-dollar amount for each year of service recognized under the plan (e.g., \$400 in annual retirement multiplied by years of service).<sup>70</sup> Pay-related benefits can be divided into two variants, based on the definition of pay. *Career-average formulas* define pay as all earnings during plan participation in order to calculate benefits. *Final average formulas* define pay as only those earnings received during an averaging period just prior to retirement. Final retirement benefits can either equal: (a) the sum of a percentage of salary earned each year recognized by the plan (e.g., the sum of 2 percent of annual pay for each year of service) or (b) the average of all annual salaries recognized by the plan multiplied by a percentage (e.g., \$30,000 in average pay multiplied by 50 percent).<sup>71</sup>

Most DB plans retain an actuary to annually assess plan obligations based on the plan's specified formula and to determine the amounts the plan sponsor should place in the pension fund in order to comply with funding requirements. These amounts are based on the selected actuarial valuation method and appropriate actuarial assumptions.<sup>72</sup> The plan sponsor is then ultimately responsible for making required contributions as well as ensuring that the fund's assets are invested

and benefits are paid; however, these responsibilities are often delegated to third parties. Although it is uncommon, private-sector workers may have the option of contributing to the DB plan as well, but their contributions are not given tax-favored status.<sup>73</sup>

Employer contributions made to a worker's DC account are typically based on a percentage of annual compensation. In some types of plans, employees may opt to contribute a certain amount on a tax-favored basis. Employers sometimes make contributions based on the rate of employee contributions, called an "employer match." For example, an employer might fully match an employee's contribution up to the first 3 percent of pay and match one-half of the employee's contribution between 3 percent and 5 percent of pay. Who makes contributions and on what basis—as well as whose contributions receive tax-favored treatment—depends on the DC plan type and design, with several combinations available.

In terms of plan funding, some types of DC plans do not require fixed annual contributions from employers. Instead, employers are often given more flexibility. For example, contributions can be based on profits or on a discretionary basis.

### *Plan Distributions*—

*Retirement and Job Termination Benefits:* As mentioned above, DB plans have traditionally paid benefits in the form of annuities to retirees and those terminating employment with accrued benefits in excess of a particular threshold (currently \$5,000). However, there is some evidence that an increasing number of DB plans are offering lump-sum distributions (U.S. Department of Labor, 1999b).<sup>74</sup> DC plans, on the other hand, traditionally pay benefits in the form of lump-sum distributions to all departing plan participants. However, some DC plans also include an annuity option.

*In-service Withdrawals:* Plan distributions to employees (in-service withdrawals) are prohibited in DB plans and in DC money purchase plans,<sup>75</sup> although loans are

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available in some rare instances. In contrast, profit-sharing DC plan sponsors may permit participants to take loans and/or make in-service withdrawals of plan assets for various reasons.<sup>76</sup> As a result, DC plan participants (excluding those in money purchase plans) tend to have more pre-retirement access to their funds. This is one way that some DC plans resemble capital accumulation (i.e., savings) plans more than retirement plans.

*Assuming Retirement Income Risk*—There are many risks associated with participants' assets in retirement savings vehicles. These would include at least the following:<sup>77</sup>

1. Replacement rate inadequacy.
2. Private plan sponsor bankruptcy risk.
3. Longevity.
4. Investment risk.
5. Inflation risk.
6. Political risk.

Replacement rate inadequacy risk deals with the possibility that the combination of Social Security, employment-based retirement income, and individual savings will be insufficient to maintain the same standard of living a pre-retiree enjoyed when he or she retires. For DC plan participants, replacement rate inadequacy risk relates more to both the risk of not contributing enough to the plan to ensure adequate retirement income and to investment risk (discussed below). For DB plan participants, one aspect of replacement rate inadequacy risk relates to the exposure of plan participants to the private plan sponsor bankruptcy risk associated with scheduled DB plan benefits in excess of Pension Benefit Guaranty Corporation (PBGC)-covered maximums.<sup>78</sup> In the past, this second risk could be caused by financial instability of an employer sponsoring a private pension plan; today the PBGC will pay benefits (subject to prescribed limits) for most private DB plans<sup>79</sup> whose sponsors are unable to meet plan obligations due to bankruptcy. As a result, plan sponsor bankruptcy risk

among private plans today is limited to the risk of losing benefits above the amounts guaranteed by the PBGC, should the employer go bankrupt.<sup>80</sup> No equivalent protection exists for public-sector DB plan participants; however, it has been suggested that the taxpayer essentially provides the equivalent of plan termination insurance protection for public plans because the plan sponsor (government as employer) often has a direct call on additional contributions from the taxpayer.

The third risk—longevity risk—can be defined in several ways (Society of Actuaries, 2001). One definition (Bodie, 1990) defines it as the risk that the retiree will outlive the amount saved for retirement. A primary rationale for paying retirement plan benefits in the form of life annuities is to insure against this risk. Hence, this risk can be insured against either through the DB or DC approach only if benefits are paid in the form of an annuity or if participants effectively self-annuitize.<sup>81</sup>

The fourth risk—investment risk—is a relatively straightforward (albeit often misunderstood) concept. While many equate this term with variation in retirement benefits resulting from fluctuations in the financial markets, investment risk may also refer to the risk that investments will underperform the rate of return needed for sufficient retirement income. Indeed, underperformance can arise from down-side fluctuations in financial markets, but it can also stem from investing in low-risk assets that do not earn adequate return rates.<sup>82</sup> A related concern is the potential for interest rate risk, should the worker, at the time of retirement, plan on annuitizing his or her retirement resources and experience an unfavorable movement in interest rates prior to purchase of the annuity (Gale et al., 1999).

While a DB plan offers no direct investment risk to participants,<sup>83</sup> the amount of this risk participants are exposed to under a DC approach is often misunderstood. Many assume that DC investments are risky because asset allocation choices may be subject to wide market fluctuations. However, many DC plan sponsors provide guaranteed investment contracts (GICs) and/or short-term income funds as investment options,<sup>84</sup> which

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guarantee that participants' investments will not decline in nominal or real value. While many might assume that these options entail no investment risk for participants because investments are guaranteed, choosing such investments may entail investment risk if the rate of return on these investments is lower than that needed to grow a sufficient retirement nest egg.

The fifth risk—inflation risk—can only be directly addressed by the plan sponsor in DB plans,<sup>85</sup> and is perhaps the most difficult to deal with in the private sector. Social Security and many of the public DB pension plans have the perceived resources to commit to some type of guarantee<sup>86</sup> that inflation's impact on the purchasing power of this component of retirement income will be mitigated.<sup>87</sup> However, private sponsors generally have not been able to cope with this problem other than to hold out the possibility of providing ad hoc increases in pension payments on a somewhat periodic basis.<sup>88</sup>

The sixth risk—political risk—arises when political considerations dominate the feasibility of a given program or policy regulation.<sup>89</sup> As a consequence, programs sometimes lose their political support. Alternatively, policymakers may make changes that are inconsistent with the original program objectives or prevent them from being realized altogether. In the process, workers and retirees bear the risk of government's inability to continue a policy or, in the event of a political change, the new government repudiating the policies previously implemented.

In the area of Social Security, political risk generally refers to a situation where financial problems facing the system are resolved by a reduction in scheduled benefits. Potential examples of political risk can be cited (Olsen et al., 1997). For example, low levels of confidence expressed by younger workers toward Social Security suggest less future support for the program. Another example would be the use of DC OASDI accounts to augment the DB program, which raises the possibility of declining political support for the DB part of such a two-tiered system.

## Plan Choice Considerations

*Strategic Use of Plan Types to Influence and Attract Desired Work Force*—Because employers have different strategic objectives, the plan type suited to one employer may not suit another. While arguments have been made that one type of plan is better at providing retirement security, few would argue that, from a strategic business standpoint, one plan or combination of plans is always preferable. Thus, a plan's "pros" and "cons" often depend on the employer's plan sponsorship goals (Figure 20)

**Desired Employee Age:** Assuming that potential employees are aware of the relative advantages of different plan types, employers can strategically offer plans in order to attract younger or older, or mobile or less mobile, workers. Conventional DB plans favor older workers for at least three reasons: the value of benefit accruals increases as a percentage of compensation as employees approach retirement age, adverse selection in the annuity markets makes the employment-based group annuities that are often offered through DB plans difficult to purchase individually, and past service benefits can be awarded to older workers during the start-up of new DB plans.

Figure 21 shows the present value of benefits accrued as a percentage of compensation at various ages. The figure illustrates that it is the nature of a DB plan to provide present values<sup>90</sup> that are a significantly higher percentage of compensation for older workers. For example, assume that a conventional DB plan participant is age 25, is currently paid \$15,000 per year, and will retire at age 65. At that time, he or she will receive a pension benefit equal to 1 percent of average salary during the last five years times the number of years of service. This concept can be illustrated by computing the present value of the pension benefit accrued from working an additional year as a percentage of the participant's compensation at ages 30–64. The calculation is performed under two sets of assumptions: (a) that the participant has no wage growth and the discount

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rate is 3 percent and (b) that the participant's wage growth is 7 percent and the discount rate is 10 percent. Figure 21 shows the change in the present value of accrued benefits from an additional year's work (expressed as a percentage of compensation) against the participant's age under both scenarios.<sup>91</sup> The results indicate that the conventional DB pension plan allocates a larger portion of employer contributions to older employees when expressed as a percentage of compensation, and that this phenomenon becomes more pronounced (for final-average plans) when the inflation rate increases.

If, instead, we assume an employee participates in a DC plan providing a contribution of 8 percent of compensation (i.e., a flat line at 8 percent of compensation, regardless of the employee's age), what conclusions could be drawn about the allocation of employer contributions under a DC plan vis-à-vis those of the conventional DB plan? It is apparent that a DC plan in this instance would be preferred by younger employees. The cross-over point for an employee starting at age 25 occurs at age 46 in the no inflation example and at age 53 when the inflation rate is 7 percent. After that point, the DB plan is more advantageous for the employee and hence more costly for the employer. Everything else being equal, this would imply that older employees would be more costly to retain for employers sponsoring DB pension plans.

A second reason DB plans tend to favor older workers is that they are more likely to offer annuities. Most beneficiaries would find it impossible to purchase an annuity through the private market at the same cost they could get under an employment-based annuity (Friedman and Warshawsky, 1988; Orszag, 2000).<sup>92</sup>

Third, for strategic business reasons, such as the desire to attract older workers with special expertise or to please current older workers, employers may seek to provide older employees with a substantial benefit over a short period of time. Current older workers may be grandfathered into a conventional DB plan at its inception by being granted past service credits. These credits

allow them to retire with substantial benefits without having to participate in the system for the amount of time it would normally take a younger worker to earn those same benefits.<sup>93</sup> DC arrangements do not offer similar mechanisms by which older workers can accumulate benefits quickly.<sup>94</sup>

Desired Employee Tenure: Figure 22 shows that final-average DB plans penalize job change. If there is no variation in benefit formulas between plans (e.g., they all offer 2 percent of final average compensation per year of service), then a worker who is employed by several employers will receive a sum of retirement benefits from the various plans that will be smaller than if he or she had been consistently covered by one sponsor. As a result, conventional DB plans encourage employees (especially older ones) to continue service until reaching the plan's normal or early retirement age. On the other hand, mobile workers who are covered under various DC arrangements and who roll over their full benefits to another qualified plan or an IRA when changing employers may receive the same retirement benefits as workers covered under one plan for their entire careers. This explains why DC plans are often said to be more "portable" from job to job than DB plans.<sup>95</sup> Employers might wish to implement a DB approach to encourage employee tenure, especially if the employer believes long-term employees make special contributions that are not reflected in wage payments. These include the fostering of loyalty to the firm and its traditions and the transmission of technical skill from older to younger generation workers (McGill et al., 1996). In addition, long-term workers may lower employers' expenses for recruiting and training new employees. A potential downside to this scenario is that workers who would rather leave the employer—and whom the employer would prefer to see leave—may be influenced to stay until reaching the plan's early or normal retirement age.

Because they are more portable, DC plans do not provide financial incentives to encourage longer job tenure.<sup>96</sup> Because the accrual curve is typically flat

Figure 21

### COMPARISON OF TRADITIONAL DEFINED BENEFIT WITH TRADITIONAL DEFINED CONTRIBUTION PLANS

Strategic Business Considerations	Defined Benefit	Defined Contribution
Employees Attracted and/or Most Benefited	Longer-tenure and/or older employees.	Shorter-tenure and/or younger employees.
Job Tenure Patterns Encouraged	Longer-tenure because employees receive greatest benefit accruals at end of long-time service. May lock people into jobs they would otherwise leave.	Although employees receive benefits based on salary, not tenure, may encourage employees to change jobs in order to receive access to lump-sum distribution from retirement accounts.
Influence on Retirement Patterns	Can be designed to encourage early retirement; may financially penalize workers for working additional years beyond the normal retirement age. <sup>1,2</sup> May pressure workers who would not otherwise retire to do so.	Cannot be designed to encourage early retirement but instead rewards employees for working additional years. <sup>2</sup>
Cost/Funding Flexibility Concerns		
a. Cost variability/risk <sup>2</sup>	a. Employer assumes investment and possibly preretirement inflation risk <sup>2</sup> and therefore annual plan costs are less predictable. While costs might be higher than anticipated, pension costs in a booming stock market may be zero because of investment returns on past contributions.	a. Employer assumes none of the investment risk <sup>2</sup> on retirement fund assets. As a result, annual costs are more predictable although the employer cannot take advantage of high stock market or other investment returns on retirement plans' assets.
b. Annual funding flexibility	b. However, there tends to be more flexibility as to when employer may meet these costs contributions in defined benefit plans.	b. However, money purchase and some types of profit-sharing plans have less flexibility in when those costs are to be paid. In addition, defined contribution accounts can be designed to entail no employer contributions at all, unlike defined benefit plans.
c. Termination benefits	c. Termination benefits are usually small for employees with less job tenure.	c. Termination benefits equal account balances, when vested, based on both salary and years of plan participation. Tend to be larger than those for defined benefit plans, <i>cet. par.</i>
d. Plan termination	d. Can be very costly if plan is underfunded.	d. Not applicable, because defined contribution plans are by definition never underfunded.
e. Administrative costs	e. Managing a large pool of funds is less expensive than managing individual accounts, <sup>2</sup> but may be more expensive because of the provision of annuities (which can be relatively complex to administer) and the need for professional actuarial and investment advice to ensure compliance with regulations.	e. While actuarial services are not required to the extent necessary for defined benefit plans, the provision of participant investment education and the cost of administering many individual funds for loans, hardship, and/or retirement benefits may make defined contribution plans more expensive. Generally, however, defined contribution plans are less expensive to administer, especially for smaller employers.
Administrative Complexity	More.	Less.
Integration with Social Security Benefits <sup>2</sup>	Employers fulfill a specific retirement income objective (e.g., to replace 60 percent of preretirement income with Social Security and pension benefits), and therefore Social Security integration is accomplished more efficiently under defined benefit plans. <sup>2</sup>	Integration can be accomplished, but the process focuses on the disparity in contributions and does not attempt to target a specific replacement ratio.
Providing Substantial Benefits Over a Short Time Period	Employees can be grandfathered into a new defined benefit system so as to provide special benefits that are not possible under a defined contribution approach (e.g., the quick accumulation of benefits to participants who have not participated in the system for a substantial period of time).	Unless grandfathered into a defined benefit plan, shorter tenure workers leave service with more substantial benefits under a defined contribution arrangement.
Collective Bargaining	Unions prefer defined benefit plans.	Less favored as primary plans by union leaders.
Flexible Benefit Retirement Plan Provision	Defined benefit plans cannot be part of a flexible benefit package.	Some types of defined contribution plans (401(k), profit sharing, and stock bonus) may be included in a flexible benefit package.
Company Identity/Linking Benefits with Company Performance	Investment of pension assets in company stock is prohibited beyond 10 percent of assets.	Employer contributions may be in the form of employer stock so as to tie company performance to retirement funds. In addition, profit-sharing defined contribution plans tie employee productivity to retirement security.

(continued)

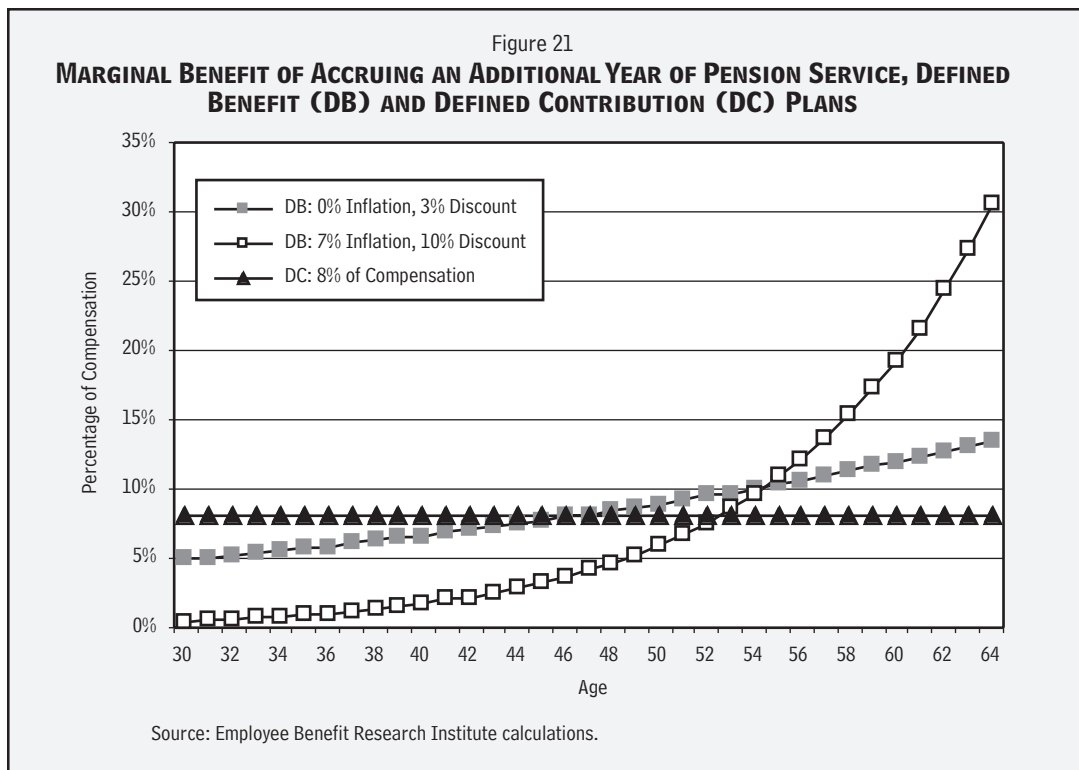
Figure 21 (continued)

More Philosophically Oriented Considerations	Defined Benefit	Defined Contribution
Paternalistic View		
a. Responsibility given to participants.	a. Generally do not require employee contributions. <sup>3</sup> Employer says, "Don't worry about your retirement plan. We'll take care of your retirement plan."	a. Employees usually help fund their own retirement accounts. Employer says, "We'll help you help yourself." Participant-directed accounts encourage financial literacy and awareness of savings.
b. Investment risk given to participants. <sup>2</sup>	b. Employer absorbs investment risk in exchange for investment control. <sup>2</sup>	b. Employees absorb investment risk in exchange for potential investment rewards. <sup>2</sup>
c. Inflation risk given to participants <sup>2</sup>	c. COLAs <sup>4</sup> may be provided and are often done so for public plans. Employer may share responsibility for inflation after retirement if ad hoc COLAs are used in private plans. <sup>2</sup> Employer assumes preretirement risk if defined benefit formula is based on final averages.	c. No room in plan design for COLA adjustments. Employees assume risk for inflation both prior to and after retirement. <sup>2</sup>
d. Access to funds.	d. No preretirement access to accounts is usually provided.	d. Preretirement access to accounts is often provided.
e. Benefit provided at retirement.	e. Benefits are usually paid in the form of life annuities.	e. Benefits are usually paid in the form of lump-sum distributions, which the employees may spend as they please.
f. Automatic enrollment.	f. Enrollment is automatic.	f. Enrollment is usually not automatic.
Investment Horizons and Expected Impact on Investment Income <sup>2</sup>	A defined benefit plan allows the burden of retirement security (including the attendant investment risk) to be spread over a long period of time. In theory, defined benefit plans may be expected to hold a larger percentage of more risky (and higher yielding) investments since their relevant investment horizon spans several decades if the plan is assumed to be an ongoing operation.	A defined contribution plan usually requires employees to invest for their retirement on an individual basis. This may cause them to increase their asset allocation in less risky (and lower yielding) investments to mitigate the impact of market downturns near retirement age. <sup>2</sup>
Tax Advantages	In defined benefit plans, only employer contributions are given tax-favored status.	In defined contribution plans, both employer and employee contributions may be given tax-favored status.
Best Use of Employer Retirement Funds	In defined benefit plans, all benefits accrue to retired workers and/or spouses.	In a defined contribution plan, account balances may be inherited by heirs other than spouse upon beneficiary's death.
Approach to Informational Parity	Dedicated governance: investment expertise means that those buying and selling pension investment services have informational parity.	Employers sometimes offer participant education to increase informational parity between investors and investment services.
Source: Employee Benefit Research Institute.		
<sup>1</sup> Normal retirement age.		
<sup>2</sup> Fundamental features of DB and DC plans that cannot be modified without changing the plan into another type.		
<sup>3</sup> Exception in state and local government plans.		
<sup>4</sup> Cost-of-living adjustments.		

across age groups,<sup>97</sup> employers can contribute the same percentage of compensation for two employees with the same earnings, despite any age or tenure differences. In addition, the lump-sum distributions that DC plans tend to offer more frequently than DB plans may actually encourage some workers to terminate employment in order to access their retirement funds (Ippolito, 1998). Assuming the same relative generosity in benefits, if younger workers were offered lump-sum distributions through a conventional DB plan, the amounts distributed

would often be smaller because of the nature of benefit accruals for younger employees (see figure 21).<sup>98</sup>

Early Retirement Considerations: DB and DC plans differ in the way they strategically influence the work force in terms of encouraging early retirement. First, early retirement may be preferable in an environment of downsizing, because employees can "elect" to take early retirement benefits instead of being displaced. Early retirement benefits may reduce the need to displace



workers while simultaneously preventing the negative publicity and lowered worker morale that can accompany downsizing (Kelly, 1996). Second, employers can deal with older workers who have lost productivity in three ways.<sup>99</sup> First, employers can displace (i.e., fire) them. However, old-age discrimination laws can create legal repercussions, and terminating older workers after many years of service can have negative implications for worker morale and the company's public image. Second, pay can be reduced commensurately. However, this too might cause the same negative consequences. Finally, employers can offer early retirement benefits to encourage older workers to retire in an orderly manner that does not cause low morale or negative publicity. The most common way to provide these benefits is through a traditional DB plan.<sup>100</sup>

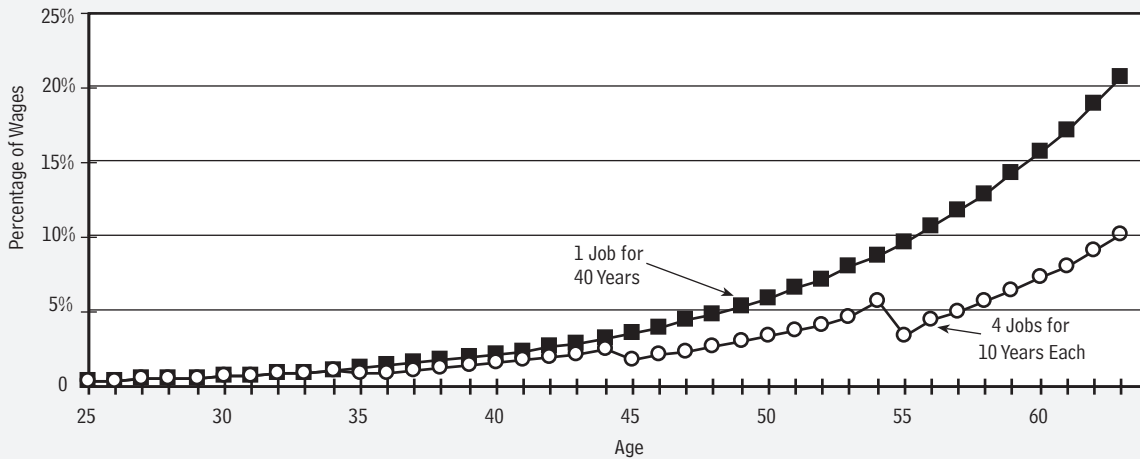
*Plan Cost Considerations*—Conventional DB plans enjoy several possible funding advantages over DC plans. First, employers may not need to make any annual plan contributions for several years during a booming stock market. This has been the case with some large corporate pension funds in recent years (Dunn, 1997; England, 2001). Until recently, prior contributions plus investment returns alone had provided sufficient plan funding for some plans for more than a decade.<sup>101</sup> Another funding advantage of DB plans is their ability to provide employers more flexibility than some DC plans (such as money purchase plans) in terms of when required plan

contributions must be deposited. In addition, neither participant investment education nor administration of preretirement withdrawals from individual accounts is a possible expense under a DB approach. Finally, because significant benefits (as a percentage of compensation) are not accrued under a conventional DB plan until after a certain age (see Figure 21), the employer's cost when a younger worker leaves the firm is usually smaller than the lump-sum distributions that would be offered from a DC plan. This is less of an issue with cash balance and other hybrid plans.

DC plans also enjoy some unique cost advantages. First, while qualified DC plans are required to meet certain tests,<sup>102</sup> they are not required to pay an actuary to annually assess plan obligations and assist with federal regulation compliance. Another primary advantage is that employer expenses as a percentage of compensation (as opposed to amounts contributed) are much more predictable under a DC approach.<sup>103</sup> This feature also characterizes hybrid DB arrangements such as cash balance plans. Just as an employer may have pension funding obligations lightened or eliminated by a temporary boom in the financial markets, an employer may be hit with large funding obligations during years that investment performance is poor and in which there is no credit balance in the funding standard account to serve as a buffer.<sup>104</sup> Moreover, future DB plan obligations—conventional and hybrid varieties—hinge on future investment returns. The uncertainty of annual

Figure 22

**COMPARISON OF THE MARGINAL CHANGE IN BENEFIT FOR ONE EMPLOYEE WITH 40 YEARS SERVICE IN ONE FINAL AVERAGE DEFINED BENEFIT PLAN AND A SIMILAR EMPLOYEE WITH 10 YEARS SERVICE IN FOUR IDENTICAL FINAL AVERAGE DEFINED BENEFIT PLANS<sup>a</sup>**



Source: Employee Benefit Research Institute simulations.

<sup>a</sup>The marginal change in benefit as a percentage of pay is the annual change in the present value of a deferred annuity for an employee in a final pay plan that pays an annual annuitized benefit of years of service times 1 percent of final pay. The present value of the deferred annuity is based on the annuity purchase price of 8.60 and a discount rate of 8 percent. Wages for both employees are assumed to increase 5 percent annually.

plan costs inherent in the DB approach is especially troublesome for businesses with very uncertain profit margins, which tend to include the majority of small and new firms.

In addition to the foregoing cost advantages of DC plans, terminating an underfunded DB plan can be prohibitively costly,<sup>105</sup> and DC plan sponsors do not pay insurance premiums to the PBGC. Finally, the joint-and-survivor group annuities paid by traditional DB plan sponsors<sup>106</sup> are more expensive to administer than the lump-sum distributions more often paid under traditional DC plans. Administrative costs are the most determinable cost differential between traditional DB and DC plans. The earlier discussion illustrated how the differential in annual administrative expenses between DB and DC plans has changed over time. However, depending on an employer's objectives, these additional costs associated with a DB plan may be outweighed by the plan's strategic advantages to the employer.

*Administrative Complexity*—Costs may not be the only administrative complexity about which employers are concerned. First, employers may not be attracted to plans they do not understand. More importantly, from a strategic business viewpoint, employees may not appreciate complex retirement plans unless they can be explained simply. In general, it is much easier for employees to understand a quarterly statement from a DC or cash balance plan than to understand a DB

formula (Aon Consulting, 1996). Also, from an employer's viewpoint, complexity means constraints on behavior, which can be a significant disadvantage in a competitive business environment.

*Single-Employer Versus Multi-Employer Plans*—The discussion above emphasizes the situation for DB and DC plans for a single employer. In contrast, a multi-employer plan covers workers from more than one employer.<sup>107</sup> On balance, the plan design issues faced by trustees in these plans are as varied and potentially complicated as in conventional DB and DC plans. The number of these plans is low relative to the number of single employer plans (Figure 8), so an emphasis is placed on single employers in this document. However, multi-employer plans can cover large numbers of workers. These plans are characterized by provisions that allow individual employees to gain credits toward pension benefits from work with multiple employers—often located in the same industry and area—that are involved in a collective bargaining agreement requiring plan contributions. This arrangement may enable individual workers moving from job to job to continue earning credits toward future pension benefits (Weinstein and Wiatrowski, 1999; VanDerhei and Yakoboski, 1999). This ability to move among employers enhances benefit portability more than is found typically with conventional DB plans.

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*Integration With Social Security*—The Social Security program has a redistributive component by which lower earners receive a higher proportion of benefits as a percentage of preretirement income than higher earners. However, everyone pays the same rate of Federal Insurance Contributions Act (FICA) taxes on earnings in order to qualify for Social Security benefits, and employers match the employee contribution. Because the Social Security program is redistributive, when employers fund one-half of a lower paid worker's Social Security benefit, employers are helping to provide a higher proportion of preretirement income than when they match the same proportion for higher-wage earners. Integration allows employers who sponsor their own retirement plan to take credit for the fact that their FICA matches for lower-income workers—although contributed at the same rate as for those earning higher incomes—“buy” proportionately more generous benefits than their matches for higher earners (EBRI, 1997).

An employer pension plan is integrated when it explicitly takes into account Social Security benefits in determining the pension benefit (Bender, 2001). Because both DB and DC plans can be integrated, the impact of integration on the labor force can be significant. DB and DC plans take different approaches to Social Security integration. Integration under DC plans basically focuses on the disparity in contributions as a percentage of pay for lower and higher paid workers. Although integration is accomplished through a more complicated procedure under DB arrangements, employers seeking maximum integration will often choose a DB approach (Allen et al., 1997).

*Other Considerations*—One unique advantage of DB plans is their traditional appeal as primary retirement plans to union leaders, who can heavily influence an employer's choice of retirement packages. On the other hand, a unique disadvantage of DB plans is their unavailability for use in *flexible benefit packages* in which employer contributions are fixed and employees are allowed to choose from a range of benefit options. An-

other difference is that DB plans are prohibited from investing more than 10 percent of the plan's assets in the plan sponsor's securities. Because some DC plans<sup>108</sup> have fewer company stock constraints, plan sponsors are able to more closely tie employees' retirement benefits to firm performance, which in turn may foster greater company identification and productivity.<sup>109</sup> A final private DB plan disadvantage is that employees cannot contribute to them on a before-tax basis, which they can do under some DC plans. While employees may contribute to some DB plans, they must do so on an after-tax basis.<sup>110</sup>

## Philosophical Considerations in Plan Choice

*Differing Views of Paternalism*—Practitioners often disagree as to whether paternalistic motives play a part in retirement plan sponsorship or plan design. However, to the extent that paternalistic motives do exist, different views on how to help employees save for retirement will lead to different plan types and designs (Figure 20). For example, some employers may be willing to assume all plan risk so that employees need not worry about preretirement inflation and investment performance. In such a case, a DB plan is required. Conversely, employers whose objective is to facilitate employees' preparation and responsibility for themselves would be more inclined to choose the DC approach.

Whatever the plan choice in terms of DB versus DC, plan design can be suited to meet the extent of the employers' paternalistic desires, which may or may not be influenced by cost constraints. For example, a DB plan sponsor may seek to minimize the paternalistic role by not providing a final-earnings DB formula (which protects against inflation to the extent wages are correlated with inflation), which does not provide ad hoc benefit COLAs, and paying benefits in the form of a lump-sum distribution. Alternatively, a DC plan sponsor requires employees to assume all investment risk but may maximize opportunities for paternalism under the

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plan by establishing extensive participant investment education programs and disallowing preretirement loans and/or hardship withdrawals. Finally, combined plan design, utilizing both a DB and a DC plan may satisfy several considerations deemed important by a plan sponsor.<sup>111</sup> A hybrid plan, capturing both DB and DC features, may prove even more attractive for that reason.

*Investment Horizons and Expected Impact on Investment Income*—A conventional DB plan allows the burden of retirement security (including the attendant investment risk) to be spread over a long period of time. In theory, DB plans may be expected to hold a larger percentage of more risky (and higher yielding) investments because their relevant investment horizon spans several decades if the plan is assumed to be ongoing. Conversely, a DC plan usually requires employees to invest for their retirement on an individual basis. Thus, those nearing retirement age may increase their asset allocation in less risky (and lower yielding) investments to mitigate the impact of market downturns.<sup>112</sup>

*Perceived Best Use of Plan Assets*—Employers (especially those funding a retirement plan) may want to ensure that plan contributions are used most appropriately. Some perceive a retirement insurance (i.e., a traditional DB) approach as the most appropriate use of plan resources, whereas others favor a personal property (i.e., DC) approach. The basic difference between these approaches is whether the perceived best use of plan assets is to use them solely for the benefit of plan participants and/or their joint annuitants (usually a spouse) or whether earned retirement benefits should be bequeathable wealth. Because traditional DB plans are essentially insurance plans, a worker who lives longer than expected—thereby costing the plan more if benefits are paid in the form of a life annuity—will be cross-subsidized with funds that would otherwise accrue to a worker who dies soon after retirement—thereby costing the plan less. As a result, plan assets benefit only retired

workers and/or their joint annuitants (usually spouses) in a DB plan. Some employers perceive this as the fairest approach because it pools risks that are largely unforeseeable for all workers, such as unexpected longevity. In response, some DC plan sponsors have incorporated a more insurance-type approach into their plan packages by requiring group annuitization of retirement benefits. However, some perceive this insurance approach as unfair, because life annuities cannot be left to a worker's estate.<sup>113</sup> As a result, employees who work their entire lives to earn an annuity benefit but die early and without a surviving spouse or other joint annuitant will not be able to pass on this accumulated wealth to their heirs. For example, under mandatory annuitization, a retiring worker with a terminal illness would essentially be forced to relinquish most of his or her earned retirement benefit to the annuity pool instead of having the option of leaving the money to benefit his or her adult children or grandchildren.

*Approach to Informational Parity Between Financial Service Consumers and Providers*—A final consideration relates to informational parity, which ensures that the buyers and sellers of a product are making equally informed transactions. A plan sponsor's approach to creating informational parity between the buyers and sellers of financial services and the importance assigned to it may influence plan choice. In a single-employer DB plan, sponsors select fund investment managers, whereas in a DC plan, plan participants choose among the investment options provided. To the extent that plan sponsors have a more sophisticated understanding of investment principles than plan participants, more informational parity exists between investment service consumers (e.g., the sponsors) and producers (i.e., financial service providers) in a DB plan. Some employers seek to reduce informational parity differentials that occur between DC plan participants and fund managers by providing participant education (Choi et al., 2001; Madrian and Shea, 2001).

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## Endnotes

<sup>1</sup> This plan was enacted with the passage of the Small Business Job Protection Act of 1996. For more information, see Tacchino and Littell (1997).

<sup>2</sup> While this paragraph refers to the total number of qualified plans published by the U.S. Department of Labor and the number of DB plans insured by the Pension Benefit Guaranty Corporation, other methods of analyzing these trends attempt instead to classify plans for sponsors offering multiple plans. In these methods, primary DB status will be assigned if participants within a taxpayer employer identification number (EIN) are either all covered by a DB plan only or are covered in approximately the same numbers by a DB and DC plan. See Ippolito (1995) for additional information.

<sup>3</sup> The PBGC and the plan termination insurance program it administers are described later in this *Issue Brief*.

<sup>4</sup> Qualified plans are those meeting the requirements of the IRC and associated regulations. For more detail on this highly technical topic, see Chapters 4 and 5 of Allen et al. (1997). There is also a universe of nonqualified plans such as Supplemental Executive Retirement Plans (SERPS) that are not subject to the same ERISA standards as qualified plans. This report examines qualified plans only.

<sup>5</sup> In addition to the low rate of DB plan formation (see Figure 10a below), the DB plan coverage rate declined as well due to large numbers of terminations by small- and medium-sized firms and the lack of growth in employment among large unionized manufacturing firms that maintained their DB plans (U.S. Department of Labor, 1997–2002).

<sup>6</sup> See Figure 18 for more detail.

<sup>7</sup> Tax-qualified plans must satisfy certain requirements in ERISA and the IRC that address accrual and benefits preservation for plan participants and beneficiaries. Meeting these requirements allows the employer (plan sponsor) to deduct contributions from income and makes investment earnings on plan assets exempt from current taxation (Salisbury, 2001).

<sup>8</sup> According to the Department of Labor, active participants include any workers currently in employment covered by a plan and who are earning or retaining credited service under a plan as well as nonvested former employees who have not yet incurred a break in service (U.S. Department of Labor, 1997–2002).

<sup>9</sup> These numbers are estimates of the net number of workers who participate in plans rather than active participants. The number of active participants, which includes double counting of workers in more than one plan, increased from 38 million in 1975 to 73 million in 1998 (see table E8 in U.S. Department of Labor, 1997–2002).

<sup>10</sup> Hybrid plans are neither fundamentally DB or DC in nature, but combine features of both DB and DC types.

<sup>11</sup> The best measure of plan participation is active participation (Kelly, 1998). Unlike DC plans, former employees in DB plans may remain participants long after terminating employment. By comparison, there is typically little difference between the total number of participants and the number of active participants included in DC plans. These participants represent individuals other than active participants who are still included in the plan, such as retired participants, participants who have separated from service and are vested in the plan, or survivors. Fewer individuals remain participants in a DC plan than remain in a DB plan after terminating employment with the plan sponsor because most DC participants receive lump-sum distributions on leaving (Olsen and VanDerhei, 1997).

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<sup>12</sup> As noted in Figure 3, asset totals are somewhat low because they exclude funds held by life insurance companies under allocated group contracts for payment of retirement benefits. Such funds make up approximately 10 percent to 15 percent of total private plan pension assets (see footnote 1 of table E11 in U.S. Department of Labor, 1997-2002).

<sup>13</sup> Top-heavy plans, established by the Tax Equity and Fiscal Responsibility Act of 1982, are pension plans in which more than 60 percent of the accounts or accrued benefits under the plan are attributable to key employees in the firm. Such a plan must satisfy special requirements for vesting and for contributions and benefits (Employee Benefit Research Institute, 1997).

<sup>14</sup> IRC sec. 401(a)(26).

<sup>15</sup> Unlike some other DC plans, these plans often require employee contributions before employer contributions are provided, and it is often up to the employee to decide how much current pay to defer (within plan and legal limits). Many 401(k) plan participants also receive employer contributions that match all or a fraction of the employees' contribution (see Appendix under "How DB and DC Plans Operate").

<sup>16</sup> Recently released data from the Employee Benefits Survey, 2000 indicate that of the 48 percent of employees in private industry covered by a retirement plan, about three-quarters were covered by a DC plan (U.S. Department of Labor, 2002).

<sup>17</sup> This net loss of DC plans from 1993 to 1998 could have been the result of firms expanding beyond the 2-9 participant category during an economic boom.

<sup>18</sup> A letter of determination is usually issued by the Internal Revenue Service (IRS) to a plan sponsor concerning its tax-qualified status upon formation or termination of a pension plan. Plans are not required to receive one, but most do to better protect themselves against disqualification in the event of an IRS examination (Warshawsky, 1995).

<sup>19</sup> An important contribution of the 1995 Warshawsky study is his time series regression analysis of the determinants of the net growth of pension plans by plan type from 1960 through 1992. Using the two time series of the net growth of qualified DB and DC plans as dependent variables, he concludes that external as well as economic forces impact these trends. Specifically, he finds that net business formation, bond yields, and marginal tax rates are important factors explaining DC plan growth, and that excess medical inflation and possible real earnings growth and marginal tax rates are factors in explaining DB plan growth.

<sup>20</sup> Data through 2001 for Figures 10a and 10b were provided to the author by Warshawsky.

<sup>21</sup> The distinction between active and inactive participants was made earlier in Figure 2.

<sup>22</sup> For DB plans, these actually are reflective of past coverage patterns (Ippolito, 2000).

<sup>23</sup> See Andrews (1989), Clark and McDermed (1990), and Gustman and Steinmeier (1992) for earlier results in this area.

<sup>24</sup> Ippolito and Thompson (2000) note that the use of Form 5500 Annual Pension Plan Reports by Kruse (1995) over the period 1980-1986 was problematic in that it relied on tax identification numbers of plan sponsors, which could change with the frequency of corporate transactions, thus affecting plan identification.

<sup>25</sup> Specifically, he finds that 74 percent of 401(k) plans in existence in 1988 would have been DB plans if 401(k) plans had not been allowed, and 26 percent of 401(k) plans would have been another type of DC plan. However, this analysis assumes that all firms that adopted a 401(k) plan would have sponsored a DB plan or another type of DC plan. It is possible, given the unique advantages of 401(k) plans and their rapid growth, that the creation of 401(k) plans caused employers that otherwise would not have sponsored a pension plan to establish a 401(k) plan (Olsen and VanDerhei, 1997).

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<sup>26</sup> A potential limitation of considering only the number of plans and/or participants is that many employers (especially those sponsoring larger plans) will provide both DB and DC plans for their participants. If there really has been a general change in the preferences for DC plans, it may be more likely to be implemented by a relative increase in the generosity of benefits offered through the DC plans as opposed to the DB plans. This may be done either by increasing the generosity of the DC plan (perhaps by increasing the employer match on a 401(k) plan) and/or by *prospectively* reducing the generosity of the DB plan (e.g., converting accruals for future service from final average to career average, or reducing the frequency and/or amounts of future ad hoc COLAs). Unfortunately, neither of these very significant changes in the overall portfolio of qualified retirement benefits can be accounted for by analyzing trends in either plans or participants.

<sup>27</sup> This obviously ignores the fact that timing of the receipt of the benefits in DC plans (and to an increasing percentage DB plans) is largely a function of the participant's decisions regarding rollovers and lump-sum distributions. See Yakoboski (1996), Poterba et al. (1999), and Copeland (2002a) for a discussion of this topic.

<sup>28</sup> This was true for pension funding in the public sector, however, which improved dramatically in the late 1990s (Rajnes, 2001a).

<sup>29</sup> In order to decrease the funding of tax-qualified pension plans, OBRA'87 instituted this current liability full-funding limit. The limit is being phased out, and will be eliminated completely by 2004.

<sup>30</sup> Multi-employer plans are discussed elsewhere in this report.

<sup>31</sup> The DB trend includes the very large contribution of plan 003 for General Motors in 1993, reflected in the obvious spike for that year.

<sup>32</sup> The earlier results for the DB trends are consistent with Gale (1994), who estimates that between 1987 and 1991 real contributions per covered worker fell by \$375, and that OBRA '87 reduced annual contributions by \$154. Both numbers are expressed in 1987 dollar amounts.

<sup>33</sup> The demand for the creation of DC plans is presumably smaller among public employees, who are allowed to make before-tax contributions to DB plans, which tend to provide higher benefit levels than those in the private sector. Governmental plans have a special exception in Sec. 414(h)(2) (the "pick-up rules") to the normal Sec. 414(h) rules of the Internal Revenue Code. These allow employee contributions so designated by the pension plan to be treated as employer contributions (search for "pick-up plans" at the Calhoun Law Group Website at <http://benefitsattorney.com>). However, this has not deterred public-sector employers from implementing DC and hybrid plans or studying their potential advantages in attracting a skilled work force.

<sup>34</sup> For example, ERISA applies only to private retirement plans. However, in 1978, Congress extended ERISA's financial and actuarial reporting standards to federal pension plans in Public Law 95-595. Standards in the IRC apply to state and local plans. In addition, state and local plans are subject to state trust laws and regulations. On the whole, public plan design and reporting regulations tend to be less strict than those applying to private pension plans. However, public plans are subject quite often to more stringent investment restrictions than private plans.

<sup>35</sup> The number of retirement systems reported by the U.S. Census Bureau is underrepresented (U.S. Census Bureau, 2002). In order to be surveyed, retirement systems must meet at least two criteria: (1) they are sponsored by a recognized unit of government as defined by the Bureau of the Census; and (2) their membership must be comprised of public employees compensated with public funds. In addition to state governments, the

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Census Bureau defines five types of local government: county, municipal, township, school district, and special district. Each retirement system covered is considered an agency of one of these government units, but survey coverage reflects only the retirement system portion. Public employees in these systems must be the same as those who are eligible for inclusion in the current Annual Survey of Government Employment. Finally, each retirement system must be a separately identifiable fund within a recognized unit of government and must be financed in whole or in part with public contributions.

<sup>36</sup> These percentages do not sum to 100 percent, since employees can participate in both types of plans.

<sup>37</sup> Cash or deferred arrangements are authorized under several sections of the IRC, including 401(k), 457, and 403(b).

<sup>38</sup> Participation in DC plans has risen, but not to the detriment of DB plans.

<sup>39</sup> TSP participants contribute either a percentage of basic pay or a fixed dollar amount each period through payroll deductions. FERS employees can contribute up to 12 percent of basic pay on a pretax basis, whereas CSRS employees may contribute up to 7 percent of basic pay on a pretax basis. Employees covered by FERS are eligible to receive an employer match, while employees under CSRS are not. Employees under FERS automatically have an amount equal to 1 percent of pay contributed to their TSP accounts by their employing agencies. They are also eligible for a 100 percent match on the first 3 percent of pay that they contribute to the TSP and a 50 percent match on the next 2 percent of pay contributed. This results in a maximum employer contribution equal to 5 percent of pay (of which 1 percent is automatic and 4 percent is a match (Mehle, 2002)). Participants are also subject to an annual deferral limit set by IRC sec. 402(g)—the same limit as for sec. 401(k) deferrals. The limit is subject to annual adjustment and was set at \$11,000 in 2002 (Gebhardtshauer, 2001).

<sup>40</sup> While the concept of deferred compensation plans originated from Private Letter Rulings of the IRS for individual private-sector retirement plans, applications from the public sector began in 1968 with a government employer in Utah, spreading to other localities and 22 states by 1977. In 1978, Congress enacted a new law (Revenue Act of 1978), which led to Sec. 457 of the IRC, paralleling a similar provision (Sec. 401(k)) for the private sector and explicitly authorizing salary deferral plans for the public sector (NAGDCA, 2002; DuBrin, 1979).

<sup>41</sup> States showing increased interest in DC plans include Arizona, Colorado, Idaho, and Iowa (Kaller, 2001).

<sup>42</sup> Among other things, ERISA established new participation, vesting, funding, reporting, fiduciary, and disclosure requirements and created the PBGC to provide plan termination insurance for most private DB plans.

<sup>43</sup> Husted's (1998) research for the period 1981–1996 indicates that the differential in cost between the annual administrative expenses of a DB plan and a DC plan changed over this time. While the relative advantage to a 10,000-employee DC plan remained constant since 1981, costs for a 15-employee DB plan rose from approximately 0.32 percent of payroll in 1981 to 1.66 percent in 1996.

<sup>44</sup> The Small Employer Retirement Survey (SERS), a joint effort by EBRI, ASEC, and MGA & Associates, typically reports administrative costs as a key reason why small firms (5–99 employees) do not sponsor a retirement plan for employees—not just a DC plan. This may change as a result of new provisions in EGTRRA 2001.

<sup>45</sup> For plan years beginning on or after July 1, 1996, for example, the variable rate premium is equal to \$9 per \$1,000 of unfunded vested benefits with no maximum (PBGC, 2002). This includes retirees and vested participants who have terminated employment with the plan sponsor.

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<sup>46</sup> At the time, opponents of reversions argued that contributions to a pension plan represented deferred compensation belonging to participants, while employers countered that they should have access to gains in the event of a termination because they bore the risks associated with investing plan assets (VanDerhei, 1988).

<sup>47</sup> The tax rate rose to 15 percent in 1988 before jumping to 50 percent in 1990.

<sup>48</sup> Details on the implications of the low rates for DB plans can be found in Turpin and Gebhardtshauer (2001) and Orszag and Gunter (2002).

<sup>49</sup> Ippolito (2000), in examining whether the trend toward DC plans might have important implications for employers who had previously relied on DB plans to help them manage the overall productivity of their work force, states that the most important impact of pensions may not be in their power to affect the behavior of employees but rather in helping the firm select and retain high-quality workers.

<sup>50</sup> Ippolito (1998) provides evidence that 401(k) savers have higher performance ratings, higher rates of future promotions, less absenteeism, and a lower likelihood of being fired or laid off.

<sup>51</sup> See the discussion concerning the activities of large financial services firms in Laursen (2000 and 2001) and in Opdyke (2000), especially the level of legislative lobbying.

<sup>52</sup> Federal law requires the plan sponsor to secure an employee's written consent before making a lump-sum distribution of \$5,000 or more (Purcell, 2000). The \$5,000 limit was established by the Taxpayer Relief Act of 1997, and DB plan participants could be forced to take a lump-sum distribution on termination if the accrued vested benefit was worth less than or equal to \$5,000 in present value. This amount was originally established at \$1,750 by ERISA and then changed to \$3,500 by the Retirement Equity Act of 1984. The Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA) modified this rule

by establishing a rollover IRA as the default option for lump-sum distributions of less than \$5,000 but more than \$2,000.

<sup>53</sup> For a more in-depth discussion of the issue, see ERIC (1996).

<sup>54</sup> For a thorough description of each of these plan types, see Campbell (1996).

<sup>55</sup> A cash balance document defines a pay credit that is added to one's notional account each year and defines the yield on that notional account.

<sup>56</sup> Tax-deferred employee contributions (made by the employer on behalf of the employee) in the form of a salary reduction.

<sup>57</sup> When ERISA was drafted in 1974, it required the fiduciaries to diversify plan investments for DB plans and some types of DC plans. Sec. 407(b)(1) included an exception for "eligible individual accounting plans" that invest in "qualifying employer securities." Both Employee stock ownership plans (ESOPs) and profit-sharing plans normally qualify for this exception (VanDerhei, 2002a).

<sup>58</sup> This occurred for a number of reasons, including the favorable stock market, plan generosity, and average employee tenure.

<sup>59</sup> For example, a recent Hewitt Associates survey reported that of the large firms included with such restrictions, most had either relaxed these rules or were contemplating doing so in the near future (Hewitt Associates, 2002).

<sup>60</sup> See Olsen and VanDerhei (1997).

<sup>61</sup> In addition, the willingness of plan sponsors to explore new plan designs has led to greater use of DC varieties in addition to new hybrid designs in the DB area, thus providing further evidence of the dynamics in which plan sponsors find themselves with regard to providing retirement benefits for employees.

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<sup>62</sup> Life annuities provide a payment on a periodic basis for the life of the participant and possibly his or her spouse.

<sup>63</sup> In contrast, Sec. 457 plans, a type of DC arrangement available to state and local government employers, individual accounts exist only as accounting devices, not real separate accounts. In actuality, all Sec. 457 plan contributions are placed in a common funding pool for the specific plan (Olsen, 1996).

<sup>64</sup> Although plan contributions may be made on a discretionary basis by the employer, how these contributions are allocated among individual employee accounts must be based on a specified, predetermined formula meeting certain requirements if the plan is qualified. For a discussion of plan qualification, see the section on “Qualified Plans” in the Appendix.

<sup>65</sup> Participants in both DB and DC plans, however, may forfeit some of their benefits if they leave before becoming fully vested (i.e., before earning a legal right to their pension benefits).

<sup>66</sup> Employers have the legal right to require terminated employees to take lump-sum distributions for amounts less than or equal to \$5,000 in both DB and DC plans. In addition, an increasing number of DB plans are paying retirement benefits in the form of lump-sum distributions. See endnote 52.

<sup>67</sup> There is often a mistaken notion that a DC plan will commit the employer to a specific contribution (typically a percentage of compensation) each year. While this is true of one type of DC plan (a money purchase plan requires the same contribution each year unless the plan is amended or terminated), employer contributions to a DC plan may be made as a percentage of profits, a percentage return on investment or equity, or as a discretionary amount decided annually. Usually DC plans allocate the contribution as a percentage of employees’ earnings or savings.

<sup>68</sup> For an in-depth introduction to hybrid plans, see Campbell (1996).

<sup>69</sup> If a DB or DC plan meets the requirements of the IRC and associated regulations, it is said to be qualified and thereby receives the following federal income tax advantages: (1) within limits, employer contributions are deductible as a business expense, (2) contributions are not counted as income to participants (and therefore not subject to federal income tax) until paid in the form of benefits, and (3) investment earnings, including capital gains, are not taxed until distribution (Allen et al., 1997; McGill et al., 1996). Thirty-two percent of respondents report that their company provides a retirement plan to its employees in order to receive favorable tax treatment (Society for Human Resource Management, 1996).

<sup>70</sup> Flat-benefit formulas are often encountered under collectively bargained plans.

<sup>71</sup> Under the latter formula, an employee would receive the same benefit at retirement regardless of the number of years worked (typically subject to some minimum threshold such as 10 years). Under the former, an employee typically earns more benefits for every year of additional service.

<sup>72</sup> If a DB plan is to operate on an acceptable basis, the accrual of benefit credits earned by employees needs to be offset over time by setting aside funds estimated by an actuary to be sufficient, with cumulative interest earnings. See Section IV of McGill et al. (1996) for a comprehensive treatment of the subject.

<sup>73</sup> Employees’ contributions to DB plans are only granted tax-favored status in public-sector plans.

<sup>74</sup> Seventy-seven percent of retiring workers participating in a DB plan in a medium or large establishment were not offered a lump-sum distribution in 1997—a decline from 90 percent in 1993 (U.S. Department of Labor, 1999b).

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<sup>75</sup> Although money purchase plans are DC plans, technically they are combined with defined benefit plans for IRC purposes in prohibiting in-service distributions from “pension plans.” Most of the other DC plans are instead treated as “profit-sharing plans” by the IRC and allow the plan sponsors to make in-service distributions available as a plan feature.

<sup>76</sup> In-service withdrawals from elective deferral contributions made to qualified 401(k) plans are strictly limited to hardship, defined narrowly as “immediate and heavy financial needs,” such as those involving certain medical, home purchase, education, or the prevention of eviction or foreclosure needs (for a more detailed explanation of the conditions for hardship withdrawals, see Allen et al., 1997, pages 194–195). For plan years after 1988, distributions from 403(b) arrangements of contributions made pursuant to an employee’s salary reduction arrangement and any investment income on such contributions are subject to similar restrictions (see pages 214–215 of Allen et al. for more detail).

<sup>77</sup> Bodie develops all but the last risk in a seminal article on the subject (Bodie 1990).

<sup>78</sup> While the focus of this section is participant risk, pension fund risk can also be addressed from the perspective of fund management. In addition to the market risk exposure of fund portfolios, pension plans have liabilities and other risks that the plan assets will be insufficient to fund the liabilities in the long-run. See Riskmetrics Group (2002) for more detail.

<sup>79</sup> For an exhaustive list of plans specifically excluded from coverage by the PBGC, see pages 278–279 of Allen et al., 1997.

<sup>80</sup> For pension plans ending in 2001, for example, the maximum guaranteed amount is \$3,392.05 per month for a worker who retires at age 65 (Pension Insurance Guaranty Corporation, 2002). Hence, DB plan participants expecting benefits exceeding this amount do bear some risk if their benefits under the plan would have exceeded this amount.

<sup>81</sup> An individual can use self-annuitization as a strategy to ensure that he or she does not outlive a particular amount of principal. This may be accomplished by dividing the account balance each year by his or her life expectancy at that point in time and limiting annual consumption to the amount determined by the calculation. This step is typically repeated each year, and the annual amount will vary from year to year, depending on investment income and changing life expectancies.

<sup>82</sup> In fact, a concern for the relatively low returns earned by employees has motivated officials in Nebraska to replace a DC plan with a DB cash balance plan effective January of 2003 (Schneyer 2002). Participation will be required of all new employees, while current employees may remain with the existing DC plan. See the entry for Nebraska (2002) in Figure 19.

<sup>83</sup> There may be second order impacts to consider. For example, a sponsor that has had extraordinarily favorable investment experience in recent years may be more likely to provide future benefit improvements or ad hoc cost-of-living adjustments (COLAs). Somewhat differently, investment options available to state and local retirement systems have been limited historically by legal lists—chiefly high-grade fixed income instruments (Rajnes 2001a).

<sup>84</sup> See chapter 21 of Allen et al. (1997) for a more complete description of these defined contribution investment options. Another possible option to limit this risk for plan participants is to incorporate some kind of rate-of-return guarantee in the plan design (Rajnes, 2002).

<sup>85</sup> DC plan participants can address inflation risk in their asset allocation decisions by taking inflation expectations into account when calculating how much to contribute and what rate of return is required.

<sup>86</sup> A major difference between private- and public-sector retirement plans is the prevalence of cost-of-living adjustments (COLAs), which are common in most public plans but rare in private plans. Nearly all state-level

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plans offer COLAs either on an automatic or ad hoc basis, while less than half of private plans offer such benefits (Rajnes 2001a). Regular yearly increases are often fixed at some percentage or may be tied to an index like the Consumer Price Index. Ad hoc increases occur when system finances can afford the expense.

<sup>87</sup> Note that this is not the same as guaranteeing that the standard of living will not be impacted. For an interesting discussion of the possible application of this concept to retirement plans, see Merton (1983).

<sup>88</sup> See Clark, Allen, and Sumner (1983) for a survey of practices among private sponsors.

<sup>89</sup> In the case of Social Security, Olsen, VanDerhei, and Salisbury (1997) offer a thorough discussion of the issue in the United States. An international perspective regarding risk is available from the World Bank (1993).

<sup>90</sup> A present value is the current value of future cash flows discounted at the appropriate discount rate. Additional detail can be found in any corporate finance text.

<sup>91</sup> The assumption in the calculations provided below is that all participants will survive to age 65 and live exactly 17 more years. Moreover, the pension benefits will be paid at the beginning of each year. Although a much higher degree of technical precision is obviously required for actuarial valuations, the assumptions make the example more tractable and do not modify the implications that would be obtained from a more realistic set of assumptions.

<sup>92</sup> Were older employees simply given a lump-sum, the amount of money that the employer spent in providing his or her defined benefits, most retirees would not be able to afford an equivalent annuity in the private market. This is because of the adverse selection experienced in the private annuity market as opposed to risk-pooling that can be achieved through group purchasing (i.e., covering all of a DB or DC plan sponsor's retirees).

<sup>93</sup> The purchase of service credits is common in the public sector, especially among retirement systems for teachers (Rajnes 2001a).

<sup>94</sup> An exception to this general rule is an age-weighted DC plan that, within limits, attempts to mimic the benefit structure of a DB plan. See Campbell (1996) for additional details on this type of plan.

<sup>95</sup> In the public sector, portability is available among DB plans through the purchase of service credits (Harris, 1998). EGTRRA 2001 significantly enhances the portability of DC plans by increasing the roll-over options available among plans (Rajnes 2001a).

<sup>96</sup> Paul Fronstin found that "workers whose primary pension plan was a defined benefit plan were more likely to expect to stop working before age 65 (23 percent) than workers whose primary plan was a defined contribution plan (18 percent)," (Fronstin, 1997). Friedberg and Webb (2000) found that workers covered by DC 401(k) plans work an average of two more years.

<sup>97</sup> Age-weighted DC plans are an exception.

<sup>98</sup> Age of recipient also appears to play a role in the preservation of lump-sum distributions with the likelihood of the distribution being rolled over entirely to tax-qualified savings increasing with the age of the recipient at the time of receipt (Copeland, 2002a).

<sup>99</sup> To the extent that employers may be unable to shed less productive workers, there is a potential risk for the employer. This might occur, for example, when the plan sponsor converts from a DB to a DC plan. When employees in a DC plan feel compelled to remain with a firm because of inadequate savings, their continued presence lowers overall firm efficiency.

<sup>100</sup> One of the more common methods of providing these benefits is through so called "bridge benefits" that will pay retirees a temporary additional benefit from the sponsor's plan until the individual reaches Social Security retirement age. At that point, the bridge benefit is discontinued. For a thorough economic analysis of this

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and other early retirement provisions offered by private pension plans, see Ippolito (1998).

<sup>101</sup> Even if sponsors had wanted to make contributions to fully funded plans, some were prohibited from doing so on a tax-favored basis because the Omnibus Reconciliation Act of 1987 placed a cap of 150 percent of current liabilities over plan assets on the deductible contributions an employer may contribute to a pension plan. However, 1997 legislation has scheduled this limit to rise to 170 percent gradually. The limit rises to 155 percent for plan years beginning in 1999, 160 percent in 2001, 165 percent in 2003, and 170 percent for plan years beginning in 2005.

<sup>102</sup> The actual deferral percentage (ADP) test is a mathematical test to determine if a 401(k) plan satisfies the nondiscrimination-in-contribution requirements. If a DC plan involves after-tax employee contributions and/or matching employer contributions, the actual contribution percentage (ACP) test must be met to satisfy nondiscrimination-in-contribution requirements.

<sup>103</sup> Exceptions apply in the case of employer contribution variations caused by offering matching contributions and under true profit-sharing plans.

<sup>104</sup> Each plan subject to the minimum funding standards must set up and maintain a special account called the 'funding standard account,' which provides a cumulative comparison between actual contributions and those required under the minimum funding standard (McGill et al., 1996).

<sup>105</sup> The cost of terminating an underfunded DB plan equals the entire amount of underfunding.

<sup>106</sup> Of all private DC plans, only money purchase plans require the offering of a joint-and-survivor annuity at retirement (Allen et al., 1997). Other plans are exempt if the plan provides that the employee's spouse is the beneficiary for 100 percent of the employee's account balance and if the employee does not elect an annuity option from the plan.

<sup>107</sup> These pension plans have a specific definition under the Labor Management Relations Act of 1947, known as the Taft-Hartley Act. Such a pension plan is established after an employer contribution is negotiated as part of a labor-management agreement followed by the setting up of a trust fund. Labor organizations then bargain with additional employers to extend coverage to their workers and fund the plan. For further details, see Weinstein and Wiatrowski, (1999).

<sup>108</sup> Money purchase plans are an exception.

<sup>109</sup> While this may still be touted as an advantage of DC plans, the demise of Enron, which spawned a wave of congressional legislative activity, indicates that this feature is indeed a mixed blessing. See Corporate Governance Reform and Financial Disclosure (above).

<sup>110</sup> Public-sector DB plans may allow employees to make before-tax contributions because the tax advantages that provide an incentive to private employers are less applicable to government entities, inasmuch as they are not subject to federal income taxes.

<sup>111</sup> See "Plan Choice: DB, DC, or Hybrid" under Public Policy Implications (above).

<sup>112</sup> This assumes that employees are able to direct the asset allocation of their entire retirement portfolio; however, DC plan sponsors may offer at least a percentage of the total contributions in employer securities. Investing a large percentage of the portfolio in employers' stock, as evidenced by Enron, increases the risks and is at odds with the modern portfolio theory of prudent investing, which emphasizes risk diversification.

<sup>113</sup> This will be mitigated to a certain extent if the participant chooses a joint-and-survivor, refund, or period certain option. See Allen et al. (1997) for further discussion of these options.

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# Issue Brief

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