

**Why Defined Contribution Plans Won't Save the Day:
Lessons from the Shift to DC Plans in the Private Sector**

**Research Brief
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SUMMARY

The debate over the future of public sector pension plans continues to grow. Various constituents on both sides of the argument are squaring off to protect their interests. Proponents of shifting from defined benefit (“DB”) to defined contribution (“DC”) plans have contended that DB plans are poorly managed, under funded, and expensive compared to alternative plans. They maintain the migration to defined contribution plans, where the burden of retirement planning is largely shifted to the employee, will solve for these challenges.

The private sector, which has led this migration from DB to DC plans, offers some insights and experience for public sector pension providers to consider. It is useful to view this data in the context of what possible outcomes the public sector could expect from a wholesale shift to DC plans.

With regard to the investment performance debate, The Center for Retirement Research at Boston University conducted an analysis of investment returns of defined benefit plans versus 401(k) plans. Their findings were insightful:

“The bottom line is that over the period 1988-2004, defined benefit plans outperformed 401(k) plans by one percentage point.”¹

These results would seem to indicate that the case for performance variance between plan types may not be as represented by defined contribution supporters. In the same study, the authors addressed the issue of plan expense:

“This outcome occurred despite the fact that 401(k) plans had a higher portion of their assets in equities during the bull market of the 1990’s. Part of the explanation may rest with higher fees which are deducted before returns are reported to participants.”²

Other independent research supports this view. According to the Investment Management Institute, the operating expense ratio for defined benefit plans averages 31 basis points (31 cents per \$100 of assets) compared with 96 to 175 basis points for defined contribution plans.³

Regarding the issue of under funded plans, the Public Fund Survey reports that the average funded ratio for more than 100 of the nations largest public plans was 87% in 2005, with two thirds of plans at least 80% funded. A recent article in *PlanSponsor* offered the following analysis of the Survey findings:

¹ Center for Retirement Research, Investment Returns: Defined Benefit vs. 401(k) Plans, September, 2006

² Ibid

³ “The Expenses of Defined Benefit Pension Plans and Mutual Funds”, Investment Management Institute Perspective, Vol. 9, No. 6, December 2003. Sean Collins. DC plan expenses include 12-b1 marketing and distribution fees.

“... pension liabilities are long-term liabilities that are amortized over up to 30 years, similar to a mortgage. Homeowners who had paid 87% of their mortgages with 30 years to pay the remainder would not consider themselves in financial crisis.”⁴

While the conversation will likely continue and intensify over these issues, there are other considerations which must be factored into the debate. The notion of having plan participants take more personal responsibility for their retirement is ultimately the correct path to take. Everyone needs to exhibit higher responsibility for their financial success in retirement. However, the premise that solely shifting to defined contribution plans solves all problems for both employers and employees is flawed and, moreover, potentially disastrous for many current plan participants for the following reasons:

1. Defined benefit plans are, for the most part, a mandatory benefit.

DB plans represent a forced savings alternative. In most cases, a portion of the participant’s salary is automatically allocated to their future pension benefit along with employer contributions. Given the choice to opt out, many might elect not to participate in a defined contribution plan at all, or elect to participate at rates that would not provide an adequate replacement rate for retirement income. The 2004 Survey of Consumer Finances shows that 21% of eligible workers fail to participate in employer based DC plans. The Study also showed that only 11% of all participants contribute the legal maximum. Of those earning \$40,000-\$60,000, less than 1% contribute the maximum amount.

Further, recent studies have suggested that employer matching on defined contribution plans may in fact lead to a decline in employee contributions in some cases.⁵ This may result from employees adopting a false sense that they will have adequate retirement savings based on employer matching contributions.

Finally, we can turn once again to the track record of defined contribution plans to date as a proxy for the average employees’ success at planning for their future. Today, the median balance for all 401(k) participants is approximately \$35,000. Among those aged 55-64, the median balance is approximately \$60,000.⁶ Clearly, these current savings rates will not sustain a twenty to thirty year retirement span.

⁴ PlanSponsor, “Three Myths About State and Local Government Pension Plans”, Paul Zorn and Keith Brainard, October 2006.

⁵ Saving for Retirement on the Path of Least Resistance, James Choi, David Laibson, Brigitte Madrian, Andrew Metrick, NBER, July, 2004

⁶ Center for Retirement Research, Boston University, “Will We Have to Work Forever?”, July, 2006

2. Shifting responsibility for retirement to individuals must come with a presumption that they are prepared to accept the responsibility and have the skills necessary to provide for their own investment success.

One would not give car keys to their teenager simply because the teenager was of legal age to drive. A study prepared for the Nebraska Public Employees Retirement System (PERS) found that from 1983-1999, that system's defined benefit plan generated an average of 11% annually, but the system's defined contribution plan participants experienced returns of 6% over the same time period. This occurred despite ongoing efforts by the PERS to educate participants on the importance of proper asset allocation.⁷

According to Boston College economist Alicia Munnell, defined benefit plans outperformed defined contribution plans by 0.8% annually, on average, between 1985 and 2001.⁸ For a person contributing \$5,000 to a defined contribution plan each year for forty years, the difference between an 8% annual return and a 7.2% annual return amounts to a loss of over \$244,000 in retirement benefits.⁹

This data illustrates a central flaw in the assertion of DC plan proponents. Many current plan participants simply do not have the skills, investment experience, or interest in managing their retirement plan assets. In addition, most plan providers are not equipped to provide the education and training required to assist employees in making the transition to self managed retirement plans.

When one considers current financial literacy statistics, the prospect of charging most Americans with their retirement success becomes even more troubling. A recent survey of defined contribution plan participants yielded the following insights:

- 38% of respondents said they had little or no financial knowledge
- 40% of respondents believe that a money market fund contains stocks
- Two-thirds of respondents did not know that it is possible to lose money in government bonds (assuming liquidation prior to maturity)
- Respondents on average believed that employer stock was less risky than a stock mutual fund¹⁰

In reviewing the actual allocation of 401(k) plan assets, one can see this lack of literacy in action. In 2004, 31.6% of 401(k) plan participants held no equity in their plan assets, while 21% held more than 80% or more in equity assets.¹¹ The

⁷ Profitable Prudence: The Case for Public Employer Defined Benefit Plans, Gary W. Anderson and Keith Brainard. Pension Research Council, Wharton School of the University of Pennsylvania.

⁸ Alicia Munnell and Annika Sunden, Coming Up Short: The Challenge of 401(a) Plans. Brookings Institution Press, 2004

⁹ Authors calculations

¹⁰ John Hancock Financial Services, 2002

¹¹ Center for Retirement Research, 2006

implications are obvious. A non-diversified portfolio increases the risk that retirement income will be inadequate.

3. The notion of insured income until death (for a participant and/or spouse) in a defined contribution plan will depend upon the ending account balance at retirement, which can be dramatically affected by market forces prior to retirement.

A defined benefit plan offers a defined future benefit, regardless of market or economic conditions. These future benefits from the employee's perspective are impervious to external forces. What happens to the benefit in a defined contribution plan if market conditions are unfavorable in the years immediately preceding retirement?

Consider the following example. Assume a pre-retiree has saved \$500,000 in a defined contribution plan upon retirement and elects the life income with 50% survivorship benefit option. Assume this results in an annual income stream of \$22,000 to the participant. Now, suppose the same pre-retiree elects to work an additional four years, and capital markets experience a protracted decline, leaving the retiree with a balance of \$400,000 in year four. Electing the same annuitization option would result in a significant decline in annual income, thereby jeopardizing the employee's ability to retire comfortably.

Given the previous data cited regarding financial literacy, it is difficult to imagine how employers can adequately educate employees with regard to asset allocation, diversification, and other matters of importance in order to provide themselves with a secure strategy as they approach retirement.

This sequence of returns issue becomes more important in DC plan decisions when the retiree elects not to annuitize at retirement, but simply takes a withdrawal on the DC plan balance each year. Consider two different scenarios in the following illustration – one where early plan returns are negative, and one where early returns are positive.

Assumptions:

- \$250,000 beginning balance at retirement
- 5% annual withdrawals indexed for 3% inflation
- 7% average annual return

**SEQUENCE OF RETURNS:
IT CAN BE HARD FOR A PORTFOLIO TO RECOVER FROM EARLY LOSSES**

5% Withdrawals Begin at Age 62	Hypothetical Annual Rate of Return	Hypothetical \$250,000 Portfolio Value: <i>Negative Returns Early</i>	Hypothetical Annual Rate of Return	Hypothetical \$250,000 Portfolio Value: <i>Positive Returns Early</i>	Hypothetical Annual Rate of Return	Hypothetical \$250,000 Portfolio Value Uniform 0% Return
Beginning Value		\$250,000		\$ 250,000		\$250,000
62	-17.6%	\$193,500	16.6%	\$ 279,000	0.0%	\$237,500
63	-12.8%	\$155,857	7.4%	\$ 286,771	0.0%	\$224,625
64	-3.5%	\$137,141	12.0%	\$ 307,922	0.0%	\$211,364
65	6.4%	\$132,259	11.3%	\$ 329,058	0.0%	\$197,705
66	8.3%	\$129,167	3.3%	\$ 325,848	0.0%	\$183,636
67	15.4%	\$134,568	20.7%	\$ 378,740	0.0%	\$169,145
68	-3.0%	\$115,605	3.3%	\$ 376,313	0.0%	\$154,219
69	7.1%	\$108,440	8.8%	\$ 394,055	0.0%	\$138,846
70	16.9%	\$110,932	9.7%	\$ 416,444	0.0%	\$123,011
71	6.7%	\$102,054	14.3%	\$ 459,686	0.0%	\$106,702
72	7.2%	\$ 92,603	9.7%	\$ 487,476	0.0%	\$ 89,903
73	11.9%	\$ 86,320	7.2%	\$ 505,272	0.0%	\$ 72,600
74	12.1%	\$ 78,943	14.9%	\$ 562,735	0.0%	\$ 54,778
75	8.1%	\$ 66,981	9.1%	\$ 595,588	0.0%	\$ 36,421
76	12.0%	\$ 56,111	-3.2%	\$ 557,621	0.0%	\$ 17,514
77	-3.2%	\$ 34,841	12.0%	\$ 605,061	0.0%	\$ 0
78	9.1%	\$ 17,953	8.1%	\$ 634,013	0.0%	\$ 0
79	14.9%	\$ 0	12.1%	\$ 690,067	0.0%	\$ 0
80	7.2%	\$ 0	11.9%	\$ 750,905	0.0%	\$ 0
81	9.7%	\$ 0	7.2%	\$ 783,051	0.0%	\$ 0
82	14.3%	\$ 0	6.7%	\$ 812,939	0.0%	\$ 0
83	9.7%	\$ 0	16.9%	\$ 927,073	0.0%	\$ 0
84	8.8%	\$ 0	7.1%	\$ 968,943	0.0%	\$ 0
85	3.3%	\$ 0	-3.0%	\$ 915,205	0.0%	\$ 0
86	20.7%	\$ 0	15.4%	\$1,030,737	0.0%	\$ 0
87	3.3%	\$ 0	8.3%	\$1,090,116	0.0%	\$ 0
88	11.3%	\$ 0	6.4%	\$1,132,926	0.0%	\$ 0
89	12.0%	\$ 0	-3.5%	\$1,065,507	0.0%	\$ 0
90	7.4%	\$ 0	-12.8%	\$ 900,523	0.0%	\$ 0
91	16.6%	\$ 0	-17.6%	\$ 712,574	0.0%	\$ 0
Average Annual ROR for 30-year period	7.0%		7.0%		0.0%	

Negative returns early
deplete savings after
17 years

Positive returns early can
extend savings more than
30 years despite the same
average annual rate of return

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As the example illustrates, the prospect of negative returns early in retirement can have a dramatic effect on the sustainability of a future income stream. In the above example, the participant runs out of money in year 17, well before joint average life expectancy. The lesson? Calculating sustainable withdrawal rates

¹² Courtesy Prudential Financial, 2006. This example is hypothetical and is for illustrative purposes only and not meant to represent the performance of any particular investment. It assumes a 7% average annualized return on a \$250,000 value rounded to the nearest decimal. The various columns are intended to demonstrate the impact of sequence of returns, assuming 5% annual withdrawals of \$12,500 increasing 3% annually for inflation.

on self-managed assets requires detailed analysis, proper asset allocation, and consideration of taxes and inflation. It is indeed difficult to imagine that the majority of plan participants have either the capacity or the interest in managing their own financial destiny. These concerns are mitigated under traditional defined benefit plan design, where disciplined processes and proper oversight for all participants takes place.

Conclusions

There is little doubt that the changing retirement landscape will present plan providers of all types with new challenges. Clearly, longer lifespans will require plan stewards to consider alternatives that require employees to take more personal responsibility for their future to some degree. The solution for many public plan providers may lie with a hybrid plan design. In 2000, the State of Nebraska reviewed its two DC plans for state and county workers, and concluded a hybrid plan combining both DB and DC plan features provided a more plausible strategy for attracting and retaining employees.¹³ Under the hybrid design, a defined benefit plan provides a baseline benefit, while a defined contribution component shifts partial responsibility to the participant. Ongoing research in this area should be closely followed by DB plan providers.

In summary, the argument that defined contribution plans are a panacea for all that ails the public pension plan system appears to have significant pitfalls. Further, the track record of thrusting personal responsibility upon individuals who have neither the skill sets nor expertise to self manage their retirement plans has been less than encouraging. When these facts are coupled with the historical savings habits of self directed investors, the outcomes could be potentially disastrous for many.

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¹³ Definedbenefits.org, Traditional Defined Benefit Pension Plans: A Tried and Trued System That Benefits Taxpayers, 2005

