DB Versus DC Investment Returns: The 2009 – 2011 Update

By Brendan McFarland

Towers Watson has been comparing annual investment returns in defined benefit (DB) and defined contribution (DC) plans for more than 15 years.[1] This latest analysis adds investment returns for 2009 through 2011 and, for the first time, looks at the asset allocations of a subset of large plan sponsors for 2010 and 2011, comparing DB and DC plan performance to simulated investment returns.

Using an asset-weighted measure of returns,[2] DB plans outperformed DC plans by an annual average of 76 basis points from 1995 to 2011. Over the last five years, however, the average gap in annual performance shrank to 39 basis points. The smaller gap mostly results from the 2009 stock market boom — the Russell 2500 Index increased by 34% — during which DC plans realized the highest returns since our first analysis. DC plans received a much greater boost because they held significantly higher equity allocations than did DB plans. Over the last few years, the equity share has been about 14 percentage points higher in DC plans compared with DB plans. When stock market returns were poor in 2011, DB plans outperformed DC plans by 300 basis points, likely due to strong performances in long bond markets coupled with lower equity holdings.

In a comparison of actual returns with simulated returns based on asset allocations, DB plans approximated their simulated returns (using an appropriate average of representative benchmark performance) on a plan-weighted basis and outperformed their simulations on an asset-weighted basis. DC plans consistently underperformed their simulated results in 2010 and 2011 on both plan- and asset-weighted bases.

Like our earlier studies, this analysis is based on Form 5500 financial and pension disclosures through 2011 released by the Department of Labor. We also use the same formula to calculate average rates of return:

$$\text{Rate of return} = \frac{(2 * \text{investment income})}{(\text{beginning balance assets} + \text{ending balance assets}) - \text{investment income}}$$

Investment income is often reported net of investment expense, especially for mutual funds, common/collective trusts and master trusts. Expenses for other plan investments, however, are reported explicitly in Schedule H of Form 5500. To more accurately compare investment performance, giving due weight to implicit and explicit expenses, we subtract explicit investment costs from the income components for all years in this analysis, which reduces the average difference in returns by about 20 basis points, and is reflected in the results given above.

We initially include only employers that sponsor one DB and one DC plan with at least 100 participants to minimize the effects on the results of specific company workforce characteristics that are uniquely associated with the sponsorship of one plan type. This approach enables us to concentrate on the differences in rates of returns more strongly associated with different retirement plan types.[3]

"Over the last few years, the equity share has been about 14 percentage points higher in DC plans compared with DB plans."

Plan size still makes a difference

We first measure median rates of return weighted by plan asset size (*Figures 1a* and *1b*, next page).

Equity markets imploded in 2008, making it the worst investment year for both DB and DC plans. Nevertheless, as measured by asset-weighted medians, in 2008 DB plans outperformed DC plans by 2.7 percentage points. Equity markets rebounded during 2009, and on an asset-weighted basis, median returns were 5.4 percentage points higher for DC plans than for DB plans. During 2010 and

[1] Earlier analyses appear in "DB Versus DC Plan Investment Returns: The 2008-2009 Update," Towers Watson *Insider,* March 2011; "Defined Benefit vs. 401(k) Investment Returns: The 2006-2008 Update," Towers Watson *Insider,* January 2010; "Defined Benefit vs. 401(k) Plans: Investment Returns for 2003-2006," *Watson Wyatt Insider,* July 2008; "Defined Benefit vs. 401(k): The Returns for 2000-2002," *Watson Wyatt Insider,* October 2004; "Defined Benefit vs. 401(k) Returns: An Updated Analysis," *Watson Wyatt Insider,* September 2003; "Defined Benefit vs. 401(k) Returns: The Surprising Results," *Watson Wyatt Insider,* January 2002; "Investment Returns: Defined Benefit Versus 401(k)," *Watson Wyatt Insider,* June 1998.

[2] An asset-weighted measure assigns greater weight to plans with more assets, while a plan-weighted measure weights all plans equally.

[3] Investment returns for all DB and DC plans were similar to those for the one-to-one comparison group.

"Consistent with other down stock market years, DB plans outperformed DC plans in 2011 by one of the largest margins since 1995."

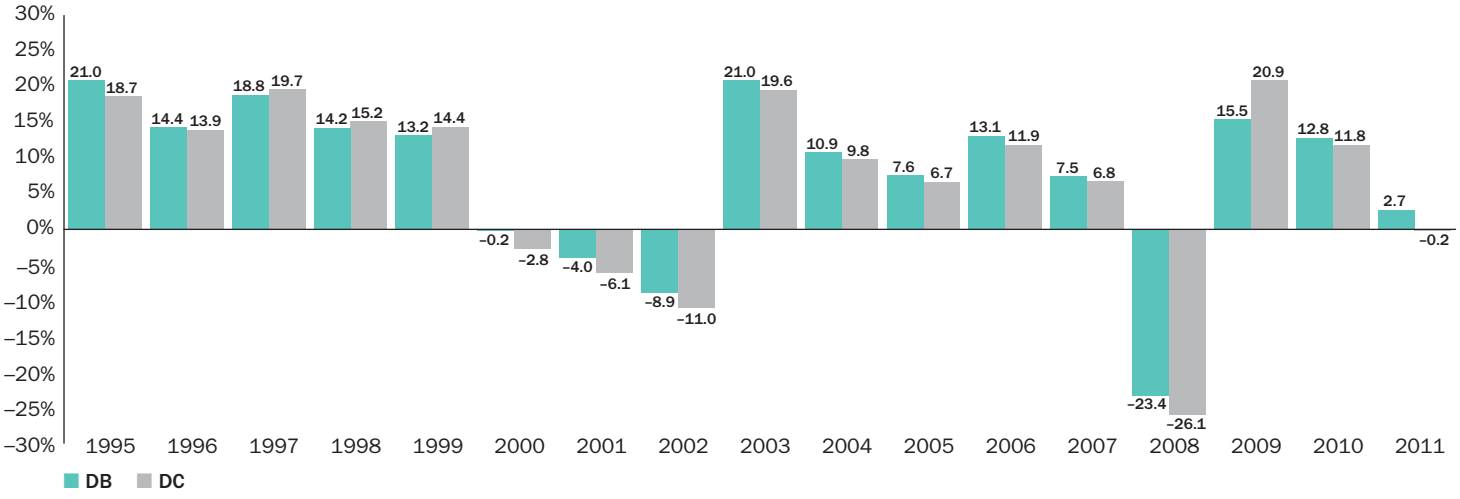
2011, DB plans again realized higher returns than DC plans — a differential of roughly one percentage point in 2010 and of three percentage points in 2011. Returns were low in 2011, although not nearly as bad as in 2008. Consistent with other down stock market years, DB plans outperformed DC plans in 2011 by one of the largest margins since 1995.

Figure 1a. Asset-weighted median rates of return for DB and DC plans, 1995 – 2011

Year	N	DB	DC	Difference
2011	2080	2.74%	–0.22%	2.96%
2010	2584	12.79%	11.81%	0.98%
2009	2655	15.46%	20.86%	–5.40%
2008	2464	–23.44%	–26.12%	2.68%
2007	2246	7.49%	6.77%	0.72%
2006	2331	13.07%	11.89%	1.18%
2005	2584	7.57%	6.69%	0.88%
2004	2583	10.94%	9.78%	1.16%
2003	2514	21.00%	19.63%	1.37%
2002	2085	–8.88%	–10.96%	2.08%
2001	2239	–4.02%	–6.07%	2.05%
2000	2058	–0.16%	–2.76%	2.60%
1999	1472	13.23%	14.41%	–1.18%
1998	2958	14.22%	15.24%	–1.02%
1997	2931	18.80%	19.65%	–0.85%
1996	3034	14.36%	13.91%	0.45%
1995	3063	20.99%	18.72%	2.27%
Average		8.01%	7.25%	0.76%
Average last 10 years		5.87%	5.01%	0.86%
Average last 5 years		3.01%	2.62%	0.39%

Source: Towers Watson

Figure 1b. Asset-weighted median rates of return (%) for DB and DC plans, 1995 – 2011



Source: Towers Watson

Figure 2, next page, shows rates of return on a plan-weighted basis for the largest one-sixth and smallest one-sixth of plans (based on assets in the DB plan to roughly control for plan sponsor size) from 1995 to 2011.

Among the largest one-sixth of plans, DB plans have outperformed DC plans by almost a percentage point since 1995. Similar to asset-weighted results, the difference between DB and DC plans has diminished over the last five years. For the smallest one-sixth of plans, however, the advantage reverses: DC plans outperformed DB plans by an average of 1.1 percentage points over the analysis period but by only 40 basis points over the last five years.

Among both DB and DC plans, larger plans outperformed smaller ones, as shown in *Figure 2*. For example, from 1995 to 2011, large DB plans outperformed their smaller counterparts by almost three percentage points per year. The gap has narrowed over the last five years, but large DB plans still outperformed smaller plans by roughly 1.5 percentage points. Large DC plans outperformed small DC plans by an average of 76 basis points a year over the same period and by an annual average of 68 basis points over the last five years. Presumably, larger plans outperform smaller plans because they have access to a wider variety of investment options, economies of scale, more investment expertise and lower average expense.

Investment returns with all plans weighted equally

On average, both plan types performed better on an asset-weighted basis than on a plan-weighted basis. In 2008, plan-weighted returns were slightly higher

Figure 2. Comparison of plan-weighted median returns by plan size, 1995 – 2011

Largest 1/6th based on DB assets				
	N	DB	DC	Difference
2011	346	2.35%	–0.76%	3.11%
2010	430	11.98%	11.81%	0.17%
2009	442	17.34%	21.51%	–4.17%
2008	410	–23.70%	–26.30%	2.60%
2007	374	7.23%	6.92%	0.31%
2006	388	12.49%	11.42%	1.07%
2005	430	6.93%	6.53%	0.40%
2004	430	10.33%	9.45%	0.88%
2003	419	20.43%	19.06%	1.37%
2002	346	–8.78%	–11.23%	2.45%
2001	373	–4.14%	–6.28%	2.14%
2000	342	–0.50%	–2.99%	2.49%
1999	244	13.22%	14.69%	–1.47%
1998	493	13.57%	14.69%	–1.12%
1997	488	18.80%	18.44%	0.36%
1996	504	14.18%	12.71%	1.47%
1995	510	23.11%	18.35%	4.76%
	Average	7.93%	6.94%	0.99%
	Average last 10 years	5.66%	4.84%	0.82%
	Average last 5 years	3.04%	2.64%	0.40%

Smallest 1/6th based on DB assets				
	N	DB	DC	Difference
2011	346	–0.30%	–1.51%	1.21%
2010	430	9.54%	11.30%	–0.18%
2009	442	15.57%	20.97%	–3.40%
2008	410	–22.45%	–27.55%	2.97%
2007	374	5.43%	6.58%	–0.31%
2006	388	10.01%	11.39%	0.33%
2005	430	5.24%	6.54%	–0.12%
2004	430	7.41%	9.19%	0.18%
2003	419	14.47%	19.65%	–0.81%
2002	346	–8.62%	–12.57%	3.14%
2001	373	–4.12%	–7.53%	2.71%
2000	342	0.40%	–5.83%	3.07%
1999	244	8.68%	15.91%	–3.73%
1998	493	9.25%	13.26%	–1.42%
1997	488	11.55%	16.26%	–0.10%
1996	504	10.13%	12.16%	0.96%
1995	510	13.53%	16.87%	3.64%
	Average	5.04%	6.18%	–1.14%
	Average last 10 years	3.63%	4.40%	–0.77%
	Average last 5 years	1.56%	1.96%	–0.40%

Source: Towers Watson

than asset-weighted returns in DB plans. In 2009, plan-weighted returns were higher in both DB and DC plans.[4] On a plan-weighted basis, DB plans outperformed DC plans by an annual average of 12 basis points between 1995 and 2011, and by an average of 11 basis points over the last five years *(Figure 3)*.

Figure 4, next page, shows the standard deviation of returns for both plan types. Standard deviation is a measure of how closely observations cluster around the mean in a data set. With the exception of 2002 and 2003, DC plans had a wider distribution of investment returns before 2008.

But from 2008 to 2011, standard deviations were higher for DB plans. A possible explanation is that DB plan sponsors are shifting to more varied asset allocations in an attempt to right-size risk in their investment portfolios, which is leading to a wider distribution of performance across plans (including those that have not changed their investment strategies recently). The implementation of the Pension Protection Act prompted many DC plan sponsors to install target date funds as the default investment arrangement for workers, which might be causing less dispersion in DC returns.

[4] In 2009, returns for the two largest plan sponsors in this analysis were much lower than the norm. DB returns were lower because of greater real estate holdings, which incurred substantial losses. DC returns were lower because one plan held significant amounts of its sponsor's stock, which realized negative returns in 2009.

Figure 3. Plan-weighted median rates of return for DB and DC plans, 1995 – 2011

Year	N	DB	DC	Difference
2011	2080	0.36%	–1.15%	1.51%
2010	2584	11.20%	11.74%	–0.54%
2009	2655	17.65%	21.42%	–3.77%
2008	2464	–23.16%	–27.13%	3.97%
2007	2246	6.28%	6.91%	–0.63%
2006	2331	11.19%	11.39%	–0.20%
2005	2584	6.17%	6.62%	–0.45%
2004	2583	8.87%	9.30%	–0.43%
2003	2514	17.29%	19.65%	–2.36%
2002	2085	–8.64%	–12.26%	3.62%
2001	2239	–4.02%	–7.31%	3.29%
2000	2058	–0.23%	–4.33%	4.10%
1999	1472	10.92%	16.07%	–5.15%
1998	2958	12.17%	14.22%	–2.05%
1997	2931	16.29%	17.26%	–0.97%
1996	3034	12.72%	12.59%	0.13%
1995	3063	19.35%	17.39%	1.96%
	Average	6.73%	6.61%	0.12%
	Average last 10 years	4.72%	4.65%	0.07%
	Average last 5 years	2.47%	2.36%	0.11%

Source: Towers Watson

Effect of plan expenses on rates of return

The results thus far show investment returns based on income performance, with investment expenses deducted. DB plans typically report income net of investment expenses. Expenses for DC plans include administrative costs, which are usually deducted from investment returns. As a result, Form 5500 data do not reflect differences in returns for DB and DC plans arising from embedded non-investment costs, especially for mutual funds. In 2011, 48% of DC plan assets were invested in mutual funds versus only 14% of DB plan assets.[5]

Mutual funds in DC plans had a weighted average expense of 65 basis points in 2011,[6] which reduced overall plan returns by roughly 31 basis points. According to Towers Watson's DC plan fee database, roughly one-third of mutual fund fees are actually bundled administrative costs, so DC plan returns lose an average of 10 basis points from bundled administrative costs incorporated into investment fees.

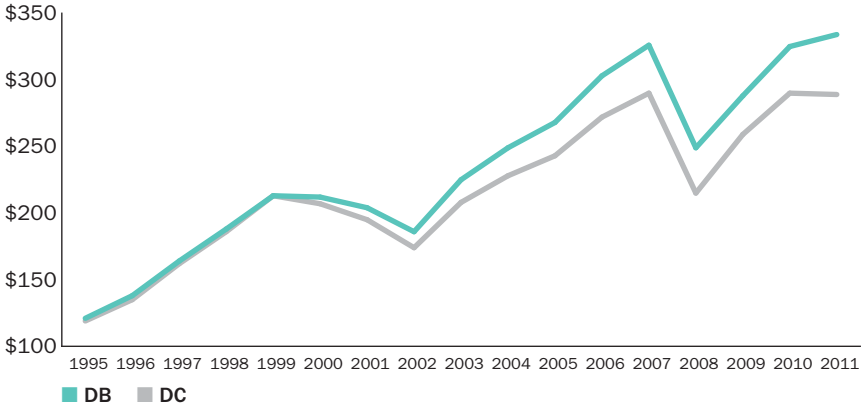
Between 1995 and 2011, asset-weighted median annual returns were 76 basis points higher in DB plans than in DC plans (but only 39 basis points higher since 2007). For an apples-to-apples comparison, we added 10 basis points to asset-weighted DC plan returns for implicit bundled administrative costs. The calculation brings the average annual DB plan advantage down to 66 basis points over the entire analysis period and to 29 basis points over the last five years.

Figure 4. Standard deviation of returns across plans, 1995 – 2011

Year	DB plan	DC plan	Difference
2011	4.06%	3.42%	0.64%
2010	4.66%	3.18%	1.48%
2009	8.07%	6.23%	1.84%
2008	10.40%	6.54%	3.86%
2007	4.17%	4.61%	–0.44%
2006	3.30%	3.90%	–0.60%
2005	3.08%	4.16%	–1.08%
2004	3.40%	4.20%	–0.80%
2003	7.09%	6.04%	1.05%
2002	6.13%	6.04%	0.09%
2001	5.30%	6.58%	–1.28%
2000	8.17%	9.38%	–1.21%
1999	8.64%	10.26%	–1.62%
1998	6.49%	8.33%	–1.84%
1997	7.51%	9.68%	–2.17%
1996	5.82%	6.18%	–0.36%
1995	7.75%	8.85%	–1.10%
Average	6.12%	6.33%	–0.21%
Average 10 years	5.44%	4.83%	0.60%
Average 5 years	6.27%	4.80%	1.48%

Source: Towers Watson

Figure 5. Asset-weighted median returns net of expense for hypothetical plans, 1995 – 2011



Source: Towers Watson

Hypothetical case: Real dollar effects on differential rates of return

To further develop the analysis, we simulate the growth of hypothetical DB and DC plans in dollar terms using asset-weighted returns since 1995 *(Figure 5)*.

At year-end 1994, the DB and DC plans held $100 million each. We assume these plans had the same inflows and outflows, so differences in growth were based entirely on investment performance. The balances for both plans remained fairly even through 1999, but starting in 2000, DB assets began to pull ahead. By year-end 2011, the DB plan held $334 million in assets, while the DC plan held $289 million — a difference of $45 million or 13%.

Equity allocation and its effects on returns

On the basis of asset-weighted medians, DB plans consistently outperformed DC plans during the 2003 – 2006 bull market as well as the 2007 – 2008 and 2011 bear markets. During the 2009 – 2010 bull market, DC plans significantly outperformed DB plans in 2009, but DB plans again outperformed DC plans in 2010. In 2009, investment returns were similar to those in the second half of the 1995 – 1999 bull market, where DC plans outperformed DB plans. This outcome could have been due to differences in equity allocations, owing to both cyclical and trend factors.

[5] U.S. Board of Governors of the Federal Reserve System, Flow of Funds data (2012).

[6] Investment Company Institute, "The Economics of Providing 401(k) Plans: Service Fees and Expenses, 2010," *ICE Research Perspectives,* June 2011; and "Trends in the Expenses and Fees of Mutual Funds, 2011," *ICE Research Perspectives,* April 2012.

As shown in *Figure 6*, from 1995 through 1999, DC accounts had higher and growing allocations to equity compared with DB plans, so they reaped the rewards of high returns when the market was up.

The return advantage to DB plans was particularly striking during the 2000 – 2002 bear market, when DB plans outperformed DC plans despite having similar or even higher allocations to equities. Many DC plan participants seem to have bought high and sold low in the stock market, so when the bubble burst, their returns fell accordingly.

Equity allocations also changed dramatically in 2007 and 2008. In DB plans, equity allocations were highest in 2006, and plan sponsors started reducing the equity share after the markets peaked in 2007. By the end of 2008, equity allocations were considerably higher in DC plans than DB plans, so the losses were lighter for DB plans.

The difference in asset allocations became even more pronounced in 2009. As equity holdings in DB plans dropped to around 48%, equity allocations in DC plans rose along with the market, reaching roughly 62% — higher than in 2008 but below 2007 levels. This benefited DC plan participants in 2009 when equity returns were strong.

DB plan sponsors have been replacing equities with more fixed-income and alternative investments to diversify their investment portfolios and better match assets to liabilities. Over the last few years, some DB sponsors have shifted to long duration bonds to hedge rapidly growing liabilities against continuously declining interest rates.

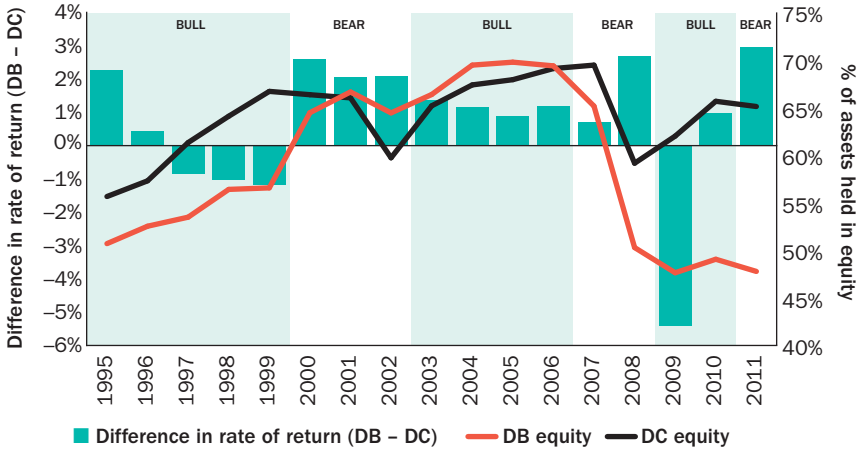
During 2010 and 2011, long duration bonds realized strong gains *(Figure 7)*. In 2010, Barclays Long Government/Credit Index underperformed Standard & Poor's 500 index by less than 6% in a bull market. In 2011, the advantage to DB plans holding long duration bonds was even more pronounced. While equity markets realized losses over the year, long duration bonds realized significant gains, similar to equity markets in 2010.

Differences in bull and bear cycles

Figure 8 shows rates of return for DB and DC plans in bull and bear markets between 1995 and 2011, and the contrast between the two is stark. As plan sponsors continue de-risking their DB plans, the DB/DC difference in asset allocations should become even larger.

On an asset- and plan-weighted basis during bear markets, both plan types realized losses, but DB plans lost less than DC plans. On an asset-weighted basis during bull markets, the difference in returns

Figure 6. Equity share and rate-of-return difference for DB versus DC plans, 1995 – 2011



Source: Towers Watson

Figure 7. Annual change in total return indexes, 1995 – 2011

	Equity indexes			Bond indexes	
	S&P 500	Russell 2500	MSCI EAFE	Barclays Aggregate	Barclays Long Government/Credit
1995	38%	32%	11%	18%	19%
1996	23%	19%	6%	4%	3%
1997	33%	13%	2%	10%	10%
1998	29%	0%	20%	9%	9%
1999	21%	24%	27%	–1%	–2%
2000	–9%	4%	–14%	12%	12%
2001	–12%	1%	–21%	8%	9%
2002	–22%	–18%	–16%	10%	11%
2003	29%	46%	39%	4%	5%
2004	11%	18%	20%	4%	4%
2005	5%	8%	14%	2%	2%
2006	16%	16%	26%	4%	4%
2007	5%	1%	12%	7%	7%
2008	–37%	–37%	–43%	5%	8%
2009	26%	34%	32%	6%	2%
2010	15%	27%	8%	7%	10%
2011	2%	–3%	–12%	8%	22%

Source: Towers Watson

Figure 8. DB and DC plan return differentials: Bull versus bear markets, 1995 – 2011

	DB plans	DC plans	Difference
Asset-weighted			
Bear (00 – 02, 07 – 08, 11)	–4.38%	–6.56%	2.18%
Bull (95 – 99, 03 – 06, 09 – 10)	14.77%	14.78%	–0.01%
Plan-weighted			
Bear (00 – 02, 07 – 08, 11)	–4.90%	–7.54%	2.64%
Bull (95 – 99, 03 – 06, 09 – 10)	13.07%	14.33%	–1.26%

Source: Towers Watson

Figure 9. Asset allocations for selected *Fortune* 1000 companies, DB versus DC, 2010 – 2011

2010 n=189

	Average DB asset allocation, plan-weighted	Average DC asset allocation, plan-weighted	Average DB asset allocation, asset-weighted	Average DC asset allocation, asset-weighted
Public equity	48%	60%	47%	61%
Debt	34%	34%	34%	34%
Real estate	2%	0%	4%	0%
Other	16%	6%	15%	5%

2011 n=142

	Average DB asset allocation, plan-weighted	Average DC asset allocation, plan-weighted	Average DB asset allocation, asset-weighted	Average DC asset allocation, asset-weighted
Public equity	48%	60%	47%	63%
Debt	36%	32%	36%	29%
Real estate	2%	0%	4%	0%
Other	14%	8%	13%	8%

Source: Towers Watson

Figure 10. Total investment returns by duration of fixed-income instruments, 2011

Duration of debt	% of sample	Average total investment return	% of assets in fixed income
0 – 3 years	3%	-0.56%	24%
3 – 6 years	31%	0.23%	31%
6 – 9 years	18%	2.72%	34%
9 – 12 years	23%	6.09%	43%
12 – 15 years	15%	6.34%	39%
15 – 18 years	5%	9.01%	41%
18+ years	4%	5.30%	37%

Source: Towers Watson

Figure 11. Simulated returns, 2010 and 2011[7]

	Returns for DB plans in 2010	Returns for DC plans in 2010	Returns for DB plans in 2011	Returns for DC plans in 2011
Public equity	17%	20%	–4%	–1%
Debt (mixed for DB shown)	8%	7%	15%	8%
Real estate	13%	13%	14%	14%
Other	5%	5%	–9%	–9%

Source: Towers Watson

[7] Equity returns for DB plans are based on a 70/30 mix of domestic and international equities. Equity returns for DC plans are based on a 90/10 mix of domestic and international. Domestic equities are based on an even split of S&P 500 and Russell 2500 indices. Global equity returns are based on the MSCI EAFE index. Debt returns for DB plans are based on duration of fixed income from Schedule R. Where duration was under 4.5 years, aggregate returns were used. Where duration was between 4.5 and 13.5 years, we based returns on a mix of Barclays Aggregate Index and Barclays Long Government/Credit Index. We used Barclays Long Government/Credit Index for durations over 13.5 years. In 2010, the average duration was 8.3 years on a plan-weighted basis (7.8 on an asset-weighted basis). In 2011, duration of fixed-income investments increased to 9.0 years on a plan-weighted basis and 9.0 years on an asset-weighted basis. We based debt returns for DC plans on Barclays Aggregate Index. Returns for "Other" are based on Hedge Fund Research's Global Hedge Fund Index.

was negligible. On a plan-weighted basis, however, DC plans outperformed DB plans by roughly 1.3 percentage points.

These differences have become more striking recently, with DC plans outperforming DB plans in market booms, while DB plans are better equipped to weather downturns. But given the widespread adoption of target date funds in DC plans, this disparity might diminish over the next decade as more DC plan participants age into larger bond allocations.

A look at investment returns controlling for asset allocation

Significant differences between DB and DC asset allocations have emerged over the analysis period, especially during the last five years. In 2000, equity allocations in DB and DC plans were similar (as shown in *Figure 6*). By 2008, DB and DC plans were following different investment paths, with DB plans steering away from equities and DC plan participants staying the course. The divergence has made apples-to-apples comparisons of returns more difficult.

For the first time, our analysis includes plan-specific asset allocations for 2010 and 2011 for more than 140 *Fortune* 1000 sponsors of both a DB and DC plan (and for which asset allocation data were readily available). We obtained the data for DB plans from Schedule R in Form 5500 filings and the data for DC plans from Standard and Poor's Money Market Directory.

Figure 9 depicts average asset allocations for these companies on plan-weighted and asset-weighted bases.

Public equity holdings are smaller in DB plans than in DC plans. DB plans are shifting more to alternative investments and, to a lesser extent, to fixed-income instruments. On an asset-weighted basis, the duration of fixed-income instruments in DB plans increased from 7.8 years in 2010 to 9.0 years in 2011. The move to longer bonds to hedge falling interest rates benefited DB sponsors in 2011. *Figure 10* depicts total rates of return as well as the percentage of assets held in fixed-income instruments for *Fortune* 1000 DB plans in 2011 by the duration of the sponsor's fixed-income portfolio.

To measure any professional investing advantage for DB plans, we ran simulated investment returns based on plan-specific asset allocation data to compare actual performance with simulated performance for 2010 and 2011 *(Figure 11)*.

Figure 12. Actual investment returns versus simulated returns, 2010 and 2011

	DB plan-weighted	DC plan-weighted	DB-DC difference plan- weighted	DB asset-weighted	DC asset-weighted	DB-DC difference asset-weighted
2010						
Median actual rate of return (ROR)	**12.33%**	**12.16%**	**0.17%**	**13.04%**	**11.80%**	**1.24%**
Median simulated ROR	**12.34%**	**14.29%**	**–1.95%**	**12.02%**	**14.32%**	**–2.20%**
Difference between actual and simulated returns	**–0.01%**	**–1.95%**	**2.12%**	**1.02%**	**–2.52%**	**3.54%**
2011						
Median ROR	**2.16%**	**–0.06%**	**2.20%**	**2.92%**	**1.37%**	**1.55%**
Median simulated ROR	**1.74%**	**1.84%**	**–0.10%**	**2.02%**	**1.72%**	**0.30%**
Difference	**0.40%**	**–1.90%**	**2.30%**	**0.90%**	**–0.35%**	**1.25%**

Source: Towers Watson

Figure 12 shows median rates of return on both plan- and asset-weighted bases for DB and DC plans in 2010 and 2011. Among the selected *Fortune* 1000 plan sponsors, using the plan-weighted measure, DB plans outperformed DC plans by only 17 basis points in 2010. On an asset-weighted basis, DB plans outperformed DC plans by 1.2 percentage points. During 2011, the *Fortune* 1000 DB plans outperformed their DC counterparts by more than two percentage points on a plan-weighted basis and by 1.5 percentage points on an asset-weighted basis.

In 2010, on a plan-weighted basis, actual DB returns approximated simulated returns, whereas actual DC returns underperformed simulations by 195 basis points. This contrast is even more striking on an asset-weighted basis: DB plans outperformed their simulation by 1.0%, while DC plans underperformed theirs by –2.5%

On a plan-weighted basis for 2011, actual returns in DB plans surpassed simulated results by 40 basis points, while DC plans underperformed their simulated returns by 1.9%. On an asset-weighted basis, actual returns for DB plans once again outperformed simulations in 2011, this time by 90 basis points. While DC plans underperformed their simulated returns on an asset-weighted basis in 2011, the difference was much smaller (35 basis points).

In a difference-in-differences analysis,[8] DB plans have the advantage. On a plan-weighted basis, the analysis favored DB plans in 2010 and 2011 by 2.1% and 2.3%, respectively. This advantage to DB plans also emerges on an asset-weighted basis, favoring DB plans by roughly 3.5% and 1.25% in both 2010 and 2011, respectively.

Conclusion

Distinct trends have emerged over the 17-year analysis period. From 1995 to 2011, DB plans outperformed DC plans by an annual average of 76 basis points (on an asset-weighted basis). This gap has been narrowing over the last five years.

The shrinking gap mostly results from the 2009 stock market boom during which DC plans realized the highest returns since our first analysis. Over the last few years, the equity share has been roughly 14% higher in DC plans compared with DB plans. While stock returns were poor in 2011, DB plans outperformed DC plans by 3 percentage points, likely due to strong performances in long bond markets coupled with lower equity holdings as sponsors sought opportunities to hedge growing liabilities in a low interest rate environment.

In terms of plan-weighted medians, DC plans outperformed DB plans in 2009 and 2010. The results are different for plan-weighted returns than for asset-weighted returns over the recent bull-to-bear cycle. On both measures, DB plans outperformed DC plans during bear markets (2000 – 2002, 2007 – 2008 and 2011), but on a plan-weighted basis, DC plans outperformed DB plans in bull markets (2003 – 2006, 2009 – 2010).

As DB plans move away from public equities, asset allocations in DB and DC plans are becoming increasingly different. In a comparison of actual returns versus simulated returns based on real asset allocations, DB plans outperformed their simulated results on an asset-weighted basis, while coming very close to simulations in 2010 and 2011 on a plan-weighted basis. Over the same period, DC plans

"During 2011, the *Fortune* 1000 DB plans outperformed their DC counterparts by more than two percentage points on a plan-weighted basis and by 1.5 percentage points on an asset-weighted basis."

[8] In a difference-in-differences analysis, the impact of a policy on an outcome is estimated by computing a double difference: in this case, one between actual and simulated returns and one between DB and DC plans.

underperformed their simulated results on both a plan- and asset-weighted basis. An analysis of difference in differences between DB and DC plan returns gives DB plans the advantage on both plan- and asset-weighted bases.

DB plan sponsors and the professionals they hire usually have considerable financial education, experience and access to sophisticated investment tools — advantages DC plan participants typically lack.

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