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DEFINED CONTRIBUTION PLANS HAVE COME A LONG WAY!

In this update of an earlier CEM research article comparing DB and DC performance, you will find the net return difference between DB and DC plans has greatly decreased because of:

- Improved DC asset mix
- Improved DC plan design: more automatic enrollment and better default option
- Lower DC cost

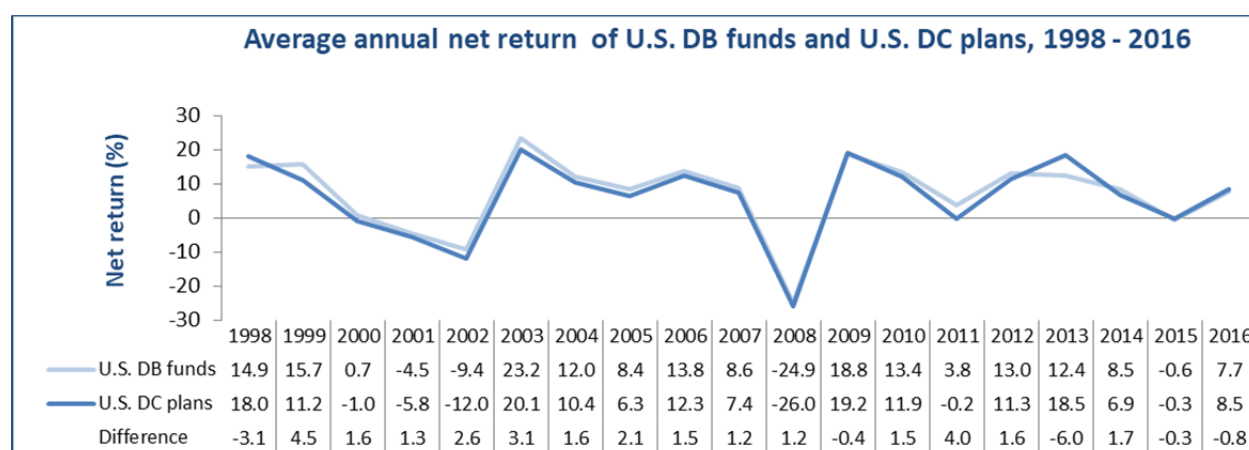


Defined Contribution Plans Have Come a Long Way!

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1 Past performance of DB and DC pension plans

CEM has been collecting data on DB and DC plans since 1991 and 1997, respectively. As calculated in our 2006 study, DB funds outperformed DC plans from 1998-2005, by 1.80% (Flynn and Hubert, 2006¹). A return difference that in 25 years would result in a 34% smaller account value for the DC participant compared to the account value of the DB participant that started with the same dollar amount. However, in the last ten years, this margin has decreased considerably. This paper discusses why.



2 DB and DC performance over the last 10 years

There have been many new developments in the DC world since CEM wrote the 2006 paper, so we thought it was time for an update. Below (table 1) is a comparison of the last 10 years.

Table 1: DB versus DC Performance, 2007 - 2016, U.S. Universe

	DB (10-yr avg)	DC (10-yr avg)	Difference (DB-DC)
Total return	5.96%	5.28%	0.68%
- Costs	0.60%	0.39%	0.22%
=Total net return	5.36%	4.89%	0.46%

DB funds outperformed DC plans by 0.46% from 2007-2016, a substantial narrowing of the gap from the 1.80% net return difference from 1998-2005. These findings were based on 1,967 observations in our

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U.S. DB database and 1,647 observations in our U.S. DC database. Total 2016 participant assets were \$3.6 trillion from 168 U.S. DB funds and \$1.0 trillion from 147 U.S. DC plans.

What has changed since we last compared DB and DC plan performance?

3 DC plans' asset mix has improved

The 2006 paper identified asset mix as the main driver of the underperformance of DC plans. Specifically, 8-year (1998-2005) average holdings of cash, stable value and company stock of 41% compared to the corresponding 8-year average of 1% for DB plans. Allocation to these lower expected return asset classes, in the case of cash and stable value, or an undiversified asset, in the case of company stock, have decreased. In 1998, these assets represented on average 44% (26% company stock + 18% stable value & cash) of the holdings in the DC plans. In 2016, they represent 25% (10% company stock and 15% stable value & cash), a sizable reduction. See Table 2 below for more details.

Table 2. Average asset mix U.S. DC plans

Asset Type	1998	2016
Stocks	37%	38%
Company Stock	26%	10%
Target and Balanced	15%	26%
Fixed Income	3%	7%
Stable Value & Cash	18%	15%
Other	1%	4%
Total	100%	100%

These allocations have mainly moved to Target Date and Balanced funds. Target Date Funds in particular have exploded in popularity. In 2007, 46% of the plans in our DC database offered Target Date Fund, compared to 87% in 2016. In addition to the benefit of an asset mix that changes automatically with time horizon to retirement, Target Date Funds also provide a much more diversified asset mix.

4 Changes in plan design

Behavioral economic studies have shown that plan participants are often overwhelmed by the amount of decisions they need to make in a DC plan. Thus, participants will overwhelmingly choose the default option (the option that contributions will be invested in unless the participant chooses otherwise) and if automatically enrolled in the default option, it is unlikely that these assets will be moved because of inertia (Beshears et al., 2006²).

Many DC plan sponsors have taken these lessons to heart and have made plan design changes to help plan participants make more informed and better decisions.

4.1 More automatic enrollment

One plan design change; more plan sponsors are offering automatic enrollment in both primary plans (where the DC plan is the sole retirement vehicle) and supplemental plans (where the DC plan is in addition to a DB plan) as shown on Table 3 (next page).

Table 3. Automatic enrollment in U.S. DC plans

	2007	2016
Primary Plans (%)	62%	80%
Supplemental Plans (%)	51%	70%

4.2 Better default option

Another plan design change is more plan sponsors have a default option. In 2016 only 5% of DC plans in our database did not have a default option, down from 21% in 2007. Table 4 shows the type of default option offered by plans in our database. Target Date Fund is the most popular default option with 84% of plans in our database choosing this as their default option compared to 30% in 2007. The biggest asset mix improvement would be realized by plans that previously had a default option that was in the category of GICs/Stable Value/Cash. By 2016 only 1% still have this asset category as their default option, down from 21% in 2007. Target Date Fund provides a diversified asset mix which evolves automatically as the plan participant nears retirement.

Table 4. Type of default option

Option type	2007	2016
GICs/Stable Value/Cash	21%	1%
Balanced Funds	25%	7%
Target Date Funds	30%	84%
Other	3%	3%
No default	21%	5%
Total	100%	100%

These plan design changes will likely mean that the return difference between DB and DC plans will continue to reduce in the future.

5 Lower DC cost

In contrast to the 2006 study, costs had a notable impact on the difference between the total net returns. As shown in table 1, average DB plan costs were 0.60%, a 0.21% increase from the average cost of 0.39% observed during the initial 8-year period (1998-2005). Average DC plan costs have not increased, and hence cost differences contributed to the observed decrease in the net return difference between the two plan types.

Costs for DB plans have risen primarily because they are increasingly adopting more sophisticated investment strategies including a higher allocation to more expensive 'alternative' private market strategies such as private equity, venture capital, and hedge funds. For U.S. DB plans, combined policy weights for real assets, private equity and hedge funds increased from 14% in 2007 to 23% in 2016. In comparison, less than 1% of DC plan assets were directly invested in 'alternative' assets in our 2016 database. As a rule of thumb, the cost of alternative investment strategies range between 2X - 10X the cost of traditional public market active strategies.

Furthermore, DC plan sponsors have embraced low cost indexed options. By 2016, 58% of the indexable assets were indexed versus 40% in 1998. Why have DC costs not decreased more given the substantial increase in lower cost indexed options? Because as discussed previously, DC plans' asset mix have also changed, as participants have reduced their holdings of lower cost assets such as cash and company stock and moved to Target Date Fund.

Table 5 shows the cost difference between indexed and active mandates for investment options in our database. Of course, active management has the potential to generate higher returns compared to index funds and hence, paying more may pay off in the long run.

Table 5. Average cost for U.S. DC plans in 2016

Investment option type	Indexed	Active
Stock U.S. Broad / Large Cap	0.03%	0.42%
Stock U.S. Small Cap	0.05%	0.65%
Stock U.S. Mid Cap	0.05%	0.62%
Stock Non U.S. & Global	0.08%	0.58%
Bonds	0.05%	0.31%
Target & Balanced	0.09%	0.36%

6 Conclusion

DC plans have come a long way! The changes plan sponsors have made such as offering Target Date Fund, automatic enrollment and making Target Date Fund the main default option have reduced the net return differential between DB and DC plans. DC plans have become better retirement savings vehicles than we thought they would be just a decade ago. This is good news for DC plan participants.

About CEM Benchmarking

CEM Benchmarking is a Toronto based provider of investment cost and performance benchmarking for large institutional investors including pension funds (defined benefit and defined contribution), sovereign wealth funds, buffer funds, and others. We have been benchmarking managed asset pools for over 25 years. For information on benchmarking with CEM or other data inquiries please contact:

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2. Beshears et al., 2006. The importance of default options for retirement savings outcomes: Evidence from the United States.