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## *policy brief*

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## Menu Choices in Defined Contribution Pension Plans

By *Clemens Sialm*

Over the last three decades there have been significant changes in the structure of retirement savings in the United States and across the world. Defined Contribution (DC) pension plans, such as 401(k) and 403(b) plans, have become a more important source of retirement funding for many households while the relative importance of government-provided social security has declined and while firms have switched from Defined Benefit (DB) to DC plans. Thus, more savings and investment decisions need to be taken by households, who might not have the time and knowledge to make these important investment decisions. In addition, there are potential conflicts of interest between DC pension plan service providers and retirement savers. The investment choices that maximize the profitability of the service providers do not necessarily correspond to the optimal choices

for retirement savers. It is therefore crucial to scrutinize the impact of the DC plan design on savings and investment decisions.

I discuss in this policy brief some key findings from two recent research projects that analyze the mutual fund investment options offered in DC pension plans. The structure of the retirement savings system affects the investment strategies, money flows, and performance of retirement savers. An optimal DC plan design needs to take into account behavioral biases and bounded rationality by retirement savers as well as conflicts of interests by service providers.

### **Mutual Fund Menu Options**

Mutual fund holdings in employer-sponsored DC plans are an important and growing segment of today's financial markets. Figure

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### **About The Author**

**Clemens Sialm** is the Mark and Sheila Wolfson Distinguished Visiting Associate Professor at the Stanford Institute for Economic Policy Research and an Associate Professor of Finance at the University of Texas in Austin. He is also a Research Associate in the Asset Pricing and the Public Economics Programs of the National Bureau of Economic Research (NBER). Sialm received a Ph.D. in Economics from Stanford University. He has taught at Stanford University, the University of Michigan, and the University of Texas at Austin. Sialm's research interests are in the areas of investments, asset pricing, and taxation. His research projects analyze the structure of Defined Contribution pension plans. In addition, he studies the investment strategies and the performance of mutual funds and hedge funds. His research has been published in the *American Economic Review*, the *Journal of Finance*, the *Review of Financial Studies*, the *Journal of Public Economics*, and the *Journal of Financial and Quantitative Analysis*, among others. Sialm's research has been frequently quoted in the *Wall Street Journal*, the *New York Times*, and the *Economist*.



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1 depicts the total value of mutual fund assets in the United States. Between 1992 and 2013, total mutual funds assets grew from \$1.6 trillion to \$15 trillion. Mutual funds can be held in DC pension plans, in Individual Retirement Accounts (IRAs), and in non-retirement environments. The growth of mutual fund assets has been particularly strong in DC plans. Currently, approximately 23% of mutual fund assets are held in DC plans, 20% in IRAs, and the remaining 57% in non-retirement accounts.<sup>1</sup> Thus, mutual funds have mixed clienteles that differ according to their distribution channels, their time horizons, and their tax implications, as discussed in more detail in Sialm and Starks (2012).

1 2014 Investment Company Handbook and ICI Report on the "U.S. Retirement Market, First Quarter 2014."

Whereas investors who own mutual funds in IRAs or in non-retirement accounts can choose among the universe of mutual funds, participants in employer-sponsored DC plans typically have limited choices. These choices arise through a two-stage process. In the first stage, plan sponsors (i.e., the employers) select the DC plan menus and adjust the investment options over time by removing or adding options. In the second stage, plan participants (i.e., the employees) allocate their individual DC account balances among the choices made available to them by the plan sponsors. Thus, the final allocations in DC plans reflect the decisions of both the sponsor and the participants.

### Sticky vs. Discerning Money

Despite the importance of DC mutual fund holdings, little is

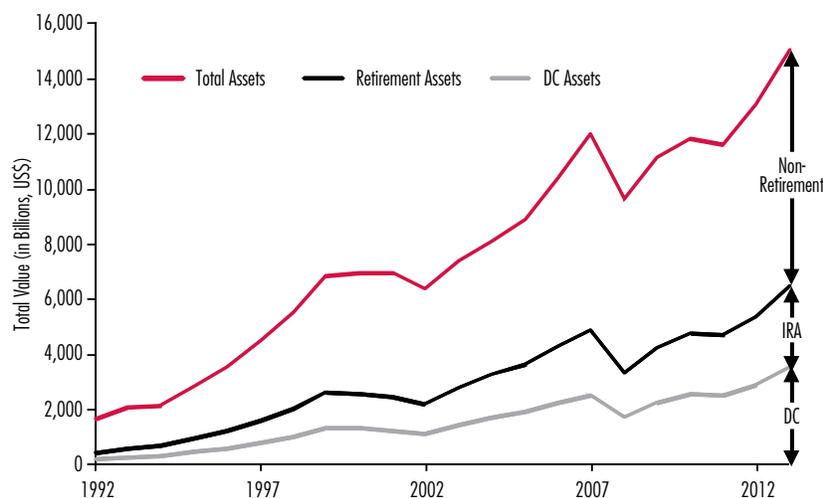
known about the properties of money flows in DC pension plans. Conventional wisdom suggests that the DC plan assets in mutual funds are sticky and not discerning, as many plan participants exhibit significant inertia in their investment decisions, follow default options, and are reluctant to rebalance and readjust their portfolios.<sup>2</sup> In addition, DC plan participants make periodic retirement account contributions or withdrawals, which lead to persistence in money flows.

To test whether DC money flows are sticky and not discerning, Laura Starks, Hanjiang Zhang, and I compare the flows of DC and non-DC mutual fund investors from 1997 to 2010 (Sialm, Starks, and Zhang, 2014). In contrast to the conventional wisdom, we find that money flows into mutual funds by DC plan participants are more volatile and exhibit a lower serial correlation than the flows into mutual funds by other investors. Furthermore, we show that DC flows are more sensitive to prior fund performance than non-DC flows. In fact, the flow-performance sensitivity of DC flows is particularly pronounced for the lowest and highest performance funds.

Figure 2 depicts the sensitivity of money flows to prior performance for DC and non-DC assets. We group all U.S. domestic equity funds into percentiles according

2 See, for example, Benartzi and Thaler (2001), Madrian and Shea (2001), and Choi, et al. (2002).

**Figure 1**  
**Total Asset Value Held in U.S. Mutual Funds**



to the fund performance over the prior year. Funds in the lowest percentile correspond to the 1% of mutual funds that exhibit the worst performance over the previous year, whereas funds in the highest percentile correspond to the 1% of funds that exhibit the best performance. The dots in the figure show the average money flows for the performance percentiles after controlling for other fund characteristics. The red diamonds correspond to DC flows and the grey circles correspond to non-DC flows. The solid curves show the least-squares cubic relation for DC and non-DC flows.

DC assets on average experience larger fund flows than non-DC assets due to the significant growth of tax-qualified retirement accounts over our sample period. Whereas the flow-performance relation is close to linear for non-DC assets, the relation is clearly nonlinear for DC assets. The flow-performance relation is particularly steep for DC assets corresponding to funds in the top and bottom performance groups. For example, funds in the bottom decile of performance experience an average outflow of 8.3% of their DC assets, and funds in the top decile experience an average inflow of 53.6% of their DC assets. On the other hand, funds in the bottom decile experience an average outflow of 11.8% of their non-DC assets and funds in the top decile experience an average inflow of 17.9% of their

non-DC assets. DC retirement flows react more sensitively to performance than non-DC flows.

This surprising result could either be driven by the actions of the plan participants or by the actions of the plan sponsors. SEC data allow us to decompose aggregate flows into flows resulting primarily from plan sponsor actions and flows resulting primarily from participant actions. The flow results are predominantly driven by the actions of the plan sponsors, and, consistent with previous research, we confirm that the plan participants themselves exhibit inertia and do not react sensitively to prior fund performance.

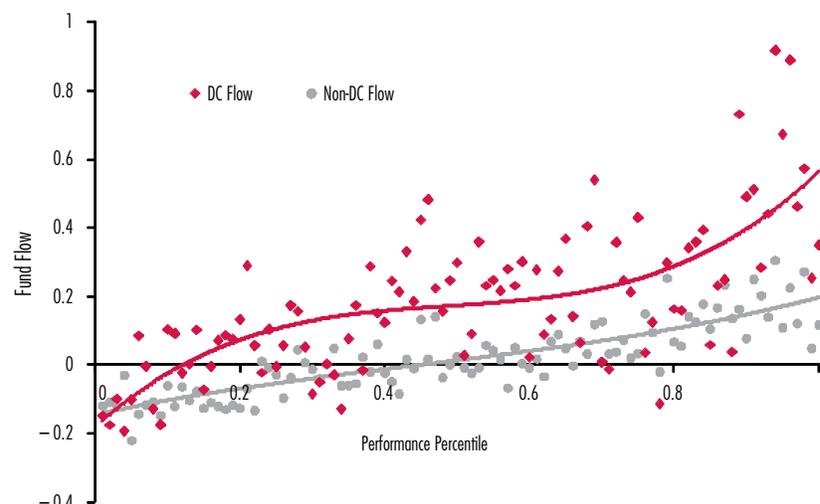
These results indicate that the actions of plan sponsors in changing their menus counteract the inertia of plan participants.

### Favoritism in DC Plans

Whereas DC plans provide valuable services to retirement savers by adjusting the menu options offered, DC plan service providers often face conflicting incentives concerning the plan's design. Veronika Pool, Irina Stefanescu, and I examine whether mutual fund families acting as service providers (i.e., trustees, record keepers) of 401(k) plans display favoritism toward their own funds (Pool, Sialm, and Stefanescu, 2014).

We study whether poorly performing funds are less likely to be removed from and more likely to be added to a 401(k) menu if they are affiliated with the plan service provider. Focusing on fund additions and deletions, we hypothesize that if the trustees'

**Figure 2**  
Sensitivity of Mutual Fund Money Flows to Prior Performance for DC and Non-DC Assets



decisions are driven by their own financial interests, mutual fund service providers may be more inclined to include funds from their own fund lineup – even when more suitable options are available from other fund families – and more reluctant to remove them. Additionally, mutual fund service providers may also be less sensitive to the performance of affiliated funds in menu-altering decisions as they have an incentive to support their own poorly-performing funds.

To investigate this favoritism hypothesis, we hand collect information on the menus of mutual fund options offered in a large sample of DC pension plans for the period 1998 to 2009 from annual filings of Form 11-K with the SEC. Most 401(k) plans in our sample adopt an open architecture

whereby investment options include funds not only from the family of the service provider but from other mutual fund families as well.

We find that service providers display significant favoritism toward their own funds. Affiliated funds are more likely to be included and less likely to be removed from 401(k) plans. The biggest difference between affiliated and unaffiliated funds occurs for the worst performing funds, which exhibit significant performance persistence.

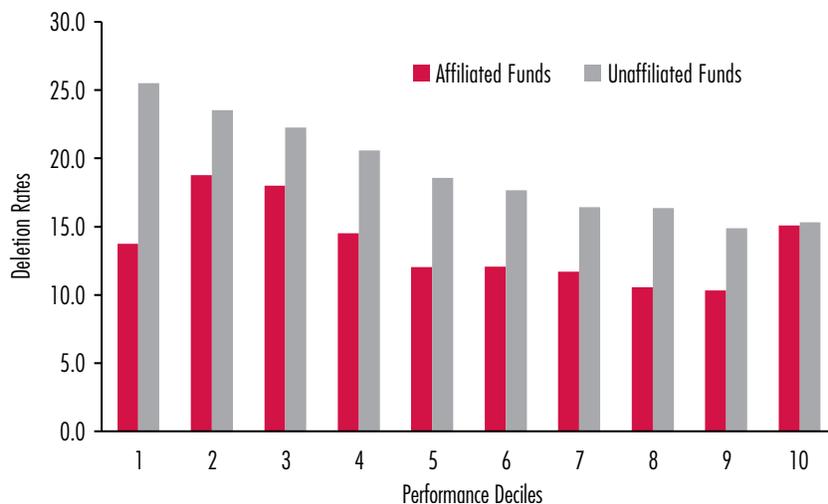
Figure 3 reports the mean annual deletion frequencies by trustee affiliation for funds grouped into deciles according to their prior percentile performance. Funds are less likely to be deleted from affiliated plans regardless of past performance. For example, the average affiliated fund has a

deletion rate over the subsequent year of 14% across all performance deciles, whereas an unaffiliated fund has an average deletion rate of 19%. Furthermore, we find that the difference in deletion rates widens significantly if we focus on poorly performing funds. For example, the probability of deletion for funds in the lowest performance decile equals 26% for unaffiliated funds and just 14% for affiliated funds. Indeed, the deletion rates of affiliated funds in the lowest performance decile are actually lower than the deletion rates of trustee funds in deciles two through four. On the other hand, the probability of deletion for funds in the highest performance decile equals around 15% for both unaffiliated and affiliated funds.

While our evidence on favoritism is consistent with adverse trustee incentives, 401(k) service providers may also have superior information about their own proprietary funds. Therefore, it is possible that they show a preference for these funds not because they are necessarily biased toward them, but rather due to positive information they possess about these funds. To investigate this possibility, we examine future fund performance. For instance, if – despite lackluster past performance – the decision to keep poorly performing trustee funds on the menu is information driven, then they should perform

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**Figure 3**  
**Annual Mutual Fund Deletion Rates from 401(k) Menus by Fund Affiliation**



better in the future. This is not the case: Trustee funds that rank poorly based on past performance but are not delisted from the menu do not perform well in the subsequent year. On average, they underperform by approximately 4% annually on a risk-adjusted basis. This figure is large in and of itself, but its economic significance is magnified in the retirement context by compounding. Our results suggest that the favoritism we document has important implications for the employees' income in retirement.

### Conclusions

As households are allocated more responsibility to manage their own retirement savings it becomes important to consider the optimal institutional structure of retirement savings. The two-stage process of asset allocation where the sponsor selects the menu and the participants decide how much to invest in the separate options has the advantage of mitigating the inertia of plan participants.

Sponsors, together with service providers, can monitor the available investment choices and decide whether to make adjustments to the lineup. On the other hand, the two-stage process can also create agency conflicts, as service providers have an incentive to attract and retain retirement contributions in their own proprietary funds. A systematic analysis of the advantages and disadvantages of different structures of retirement savings is crucial in an environment where retirement savers are subject to behavioral biases and bounded rationality and where financial intermediaries are subject to agency conflicts.

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Stanford University  
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Stanford, CA 94305  
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A publication of the  
Stanford Institute for  
Economic Policy Research

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