Private Equity Research Consortium

INSTITUTE for PRIVATE CAPITAL

Should defined contribution plans include private equity investments?[1]

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Abstract

This paper evaluates the pros and cons of including private equity fund investments in defined contribution plans. Potential benefits include higher returns and improved diversification as well as a relatively safe method for accessing investments previously only available to institutions and the very wealthy. Despite these enticing benefits, they need to be weighed against potential challenges and costs that may arise from creating this broader access to private funds. The complicated structure and uncertainty around the mechanism to provide required liquidity backstops may bring increased fees or even disrupt the private fund model.

Keywords: Private Equity, Retirement Plans, Defined Contribution

1. Introduction

Investors want access to the best performing assets for their portfolios. Driven by the strong performance of private investment funds in recent decades, many providers of defined-contribution (DC) investment services have advocated for broader access to private investments. Inclusion of private funds in DC plans, such as 401(k)s, could potentially improve investment portfolios for investors, while at the same time benefitting providers (e.g., by providing additional management fees).

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But introducing private investment funds into DC plans involves a number of tricky operating, regulatory, and legal constraints. Should we expect the purported benefits of private investment to accrue to retail investors in light of these challenges? In this analysis we draw on existing research to shed light on this question. While a wide range of private investment strategies could be included in DC plans, we will focus our quantitative analysis primarily on investments in private equity (PE) buyout funds. However, much of our qualitative analysis, and the regulatory changes motivating our analysis, apply equally to other types of private equity funds such as real estate, infrastructure, natural resources, venture capital, and private credit.

Recently, the prospects for investments in private funds by retail investors through U.S. DC plans were boosted by an 'Information Letter' written by the Department of Labor (DOL) that provided a clear path for DC plans to invest in private funds. On June 3, 2020, the DOL sent a public response letter that evaluates whether an investment structure proposed by Pantheon Ventures (U.S.) L.P. and Partners Group (USA), Inc., which allows for the inclusion of private equity investments in individual account plans, would be compliant under ERISA.[2] The letter was not a simple question of yes or no on the inclusion, but rather provided a detailed outline of how to create such an investment.

There are four key elements to the investment outline. First, a mechanism that would allow retail investors exposure to private funds: either a fund-of-funds structure with one of the underlying funds being primarily PE, or a target date fund with a separately managed account and an investment committee that would maintain responsibility for PE investments. Second, diversification requirements: these multi-asset class vehicles must have sufficient exposure to other assets and the proportion allocated to PE must remain below a specified threshold. Third, liquidity provisions: plans must maintain a sufficient level of investments in public securities or other relatively liquid assets to

[2] https://www.dol.gov/agencies/ebsa/about-ebsa/our-activities/resource-center/information-letters/06-03-2020

handle the necessary capital calls and distributions. In addition, PE funds would not be available for direct investment by plan participants. The guidelines provided by the DOL letter are critically important. Additionally, the letter provides plan providers an outline of how to avoid financial liability. While the DOL does not specifically indemnify plan providers, it can nevertheless be argued that with these guidelines there is now some method to avoid losing a litigation battle. This is a vital component for plan providers given the extensive legal action against plan fiduciaries around high fees or risky assets, but also specifically related to private investments such as in cases brought against Verizon and Intel.[3]

The DOL suggested that there are differences when deciding to include PE in a defined benefit plan and when PE investments are offered as part of a participant directed plan that a fiduciary must consider. Furthermore, the DOL outlined the following concepts a fiduciary should examine when making such a consideration. First, a fiduciary must be convinced that adding a PE component would provide a more diversified investment opportunity with an appropriate net return once considering risk and fees. Second, it must determine if an appropriate plan fiduciary with the required knowledge and skill to understand the PE investment will manage the fund. Third, a fiduciary must ensure that the fund has limited exposure to PE and has established a method of responding to liquidity events.

Ultimately, the DOL concluded that an offering that falls in line with the structure outlined above would not violate Title I of ERISA. Also, a fiduciary who takes the recommended considerations would not be in violation of a fiduciary's duties in sections 403 and 404 of ERISA for solely including a PE portion in an offering. The DOL finished the letter by stating the

[3]https://www.reuters.com/article/us-usa-court-intel/u-s-supreme-court-allows-retirement-plan-lawsuit-against-intel-idUSKCN20K2B1. The Supreme Court allowed continuation of a lawsuit against Intel by a former employee who claimed that Intel's company retirement plan was over-allocated to hedge funds and private equity and therefore created a breach of their fiduciary duties. The crux of the argument was that even though employees were informed via email with links to the documents, this was not enough for the plan participants to have "actual knowledge" around the investments.

recommendation that, "in making such a selection for an individual account plan, the fiduciary must engage in an objective, thorough, and analytical process that compares the asset allocation fund with appropriate alternative funds that do not include a private equity component, anticipated opportunities for investment diversification and enhanced investment returns, as well as the complexities associated with the private equity component."

Reactions to the DOL letter have been generally positive. An article in the Wall Street Journal noted that this could change the landscape for retail investors by removing barriers and could potentially give PE firms access to a portion of the $6.2 trillion in 401(k) plan assets. [4] A Bloomberg article stated that while this is a welcomed development, careful due diligence and caution were needed.[5] While another Bloomberg article pointed out that additional consideration is needed as litigation protection is not guaranteed by the DOL letter and as such brings a new level of uncertainty to investors and plan providers. [6] It should also be noted that on December 21, 2021, the DOL issued a Supplemental Statement clarifying the June 2020 letter that was perceived by some market participants as striking a more cautious tone the inclusion of PE in DC plans.[7]

With more and more of the capital of our economy being allocated to private markets we want to better understand the impact of allowing private funds in defined-contribution plans. As highlighted by a recent Bloomberg opinion piece, the merits of inclusion of PE investments in DC plans are not easily understood and are open to much speculation and interpretation.[8] In this analysis, we contrast the desire to allow equal access to investment opportunities with the need to protect unsophisticated

[4] https://www.wsj.com/articles/u-s-labor-department-allows-private-equity-in-401-k-plans-11591229396
[5]https://news.bloombergtax.com/daily-tax-report/insight-dols-private-equity-investment-information-letter-what-it-means-for-401k-plans
[6] https://news.bloomberglaw.com/employee-benefits/private-equity-options-for-401ks-bring-litigation-uncertainty
[7] See, https://www.dol.gov/newsroom/releases/ebsa/ebsa20211221 and https://www.pionline.com/defined-contribution/dol-letter-intel-ruling-pave-way-private-equity-dc-plans.
[8] https://www.bloomberg.com/opinion/articles/2020-09-16/does-private-equity-warrant-a-spot-in-retirement-accounts

investors with regulated "seatbelts and airbags" to keep them from harm. We also consider the need to educate investors of the possibility of lower-than-expected returns.

In addition to the DOL letter, in August 2020 the SEC provided an update on the definition of an accredited investor.[9] This rule change on who qualifies for PE investments provides additional evidence of the changing landscape for private investments. "Today's amendments are the product of years of effort by the Commission and its staff to consider and analyze approaches to revising the accredited investor definition," said Chairman Jay Clayton. "For the first time, individuals will be permitted to participate in our private capital markets not only based on their income or net worth, but also based on established, clear measures of financial sophistication." As mentioned by the Chairman, this "modernizing" of the definition of who is an accredited investor now includes some measure of financial sophistication, which was lacking before. This means that people who are deemed to understand the characteristics of a private market investment will now be allowed to participate. For example, this includes people holding stockbroker certifications (Series 7, 65 and 82), "knowledgeable employees" of a private fund, and LLCs and "family offices" with $5 million in assets. Although this rule change may not bring a large wave of new capital to private markets, it widens the door of public availability to the private market.

Given these recent developments, it is clear that the landscape is shifting to allow private fund exposure for a wider set of individual investors. This change has the potential to impact the return on savings for tens of millions of individuals in the U.S. Our analysis seeks to understand and document the pros and cons of including PE in defined contribution plans so that both plan providers and consumers can make better decisions. We draw on the growing empirical academic literature to inform this discussion.

[9] https://www.sec.gov/news/press-release/2020-191

Arguments in favor of PE in defined contributions point to historically superior risk-adjusted returns as well as a need for greater public participation in financial markets. Numerous studies have shown that households that invest in equities end up with more wealth than those that sit on the sidelines.[10] Private equity might be one way to increase participation. To the extent that retail investors earn higher returns in PE or may feel more comfortable investing in certain companies that might not be publicly traded, this may increase their overall financial well-being. The arguments against PE rely on the illiquid and relatively opaque nature of the asset class and that future risk-adjusted returns may not be superior to public market returns. Additionally, it is not clear how to take into account the generally higher fees and new risks retail investors would be exposed to.

2. Potential Benefits of Access to Private Equity Funds

A necessary condition for including private funds in DC plans is that participants should reasonably expect to obtain overall portfolios with better returns, lower risk, or both. Or put differently, including private funds in DC plans should improve the available Sharpe ratio for DC investments either through increasing returns, lowering risk, or increasing diversification. Given developments in the marketplace and research examining historical trends, there is good reason to believe that DC plan participants could benefit.

Better portfolio diversification amid the changing composition of investment opportunities

We start by analyzing the changing nature of financial markets. In particular, over the last two decades there has been a substantial decline in the number of publicly-listed stocks in the U.S. and massive growth of private funds. The growth in private funds has occurred globally but is concentrated in developed markets like the U.S. Data from Burgiss shows that the cumulative capitalization of private capital funds has grown to over $9 trillion as of the end of 2021. The largest portion of the

[10] See, for example, Fermand, Kuhnen, Li, Ben-David (2020) and citations therein.

market is PE, accounting for over 60% of value, or over $5.5 trillion. The level of PE fundraising activity has risen substantially over the past two decades despite dips around the dot-com bust and the Global Financial Crisis (GFC). Buyout funds claim the largest share of PE capital with about $3.5 trillion in commitments representing about 61% of PE capital.

As the private fund market has been growing, the number of publicly-listed companies has been declining. Kahle and Stulz (2017) show that there are fewer public companies now than 40 years ago and that current listings are on average much larger and older than 20 years ago. The decline in U.S. listings has effectively resulted in a drastic decline in the number of small-cap stocks and especially small-cap value stocks. Of course, many portfolio companies held by private equity buyout funds would be characterized as small-cap value stocks if they were publicly listed, so the decline in public listings and growth of PE over the last two decades represent an important shift in the investment opportunity set of retail investors (rather than a change in the composition of all companies in the economy). This change in opportunity set for retail investors has (at least) two important components: the effect on investible portfolio returns and the effect on portfolio diversification and risk. We consider these in turn.

Not only has the number of publicly traded firms declined, Schlingemann and Stultz (2020) document a sharp decline in the share of non-farm employment and a modest decline in the share of GDP publicly traded firms account for since 1973. Schlingemann and Stultz (2020) also show that the industrial composition of publicly traded firms has declined, a finding corroborated by Flynn and Ghent (2022) using an alternative data source. Finally, Flynn and Ghent (2022) and Feldman et al. (2021) show that, even within industry, private firms have different growth dynamics than public ones such that an investor that only has access to publicly traded equities is less able to invest in the market portfolio even with appropriate reweighting of stocks towards their composition in the US economy.

The trend by small companies and some industries away from public markets toward private markets thus suggests that access to private markets is increasingly important for diversification by retail investors. A potential benefit to the inclusion of PE funds in DC plans is access to otherwise unavailable companies with risk profiles different than those of publicly-traded companies. While the decline of small-cap value companies has already been discussed, retail investors would likely gain access to a wide range of growth companies, as well as firms in industries such as innovative technology and health care that yield higher returns for investors willing to have exposure to higher risks. While these were traditionally the realm of venture capital funds, increasingly buyout funds and "growth equity" funds are investing in these sectors.[11]

A major consideration is that even if the PE investments only offer a fair return per unit of total risk (*ex ante*), there are potential diversification benefits to a portfolio. Risks unique to the private fund investments would be mitigated in a portfolio that also holds a broadly diversified set of stocks and bonds. A recent analysis by Goetzmann, Gourier, and Phalippou (2019) decomposes private fund returns into a set of risk factors and finds substantial diversification benefits from private funds. The authors note, "Perhaps some assets perform better, or more true to their underlying factor exposures, when held by private capital. … private markets provide exposures that public markets do not, thereby offering an additional source of factor risk premia. This may help to understand why institutional investors regard private markets as a source of diversification." Another recent study by Brown, Hu, and Kuhn (2019) creates simulated diversified portfolios with an allocation to buyout funds for the years 1987-2017. They find that the inclusion of PE investments into the portfolio increases average returns, reduces portfolio standard deviation (after adjusting for serial correlation in returns), and thus improves portfolio Sharpe ratios. These findings suggest that the inclusion of PE funds in DC plans

[11] See, for example, Brown et al. (2020).

has the potential to give plan participants a more diversified investment with a better risk-return reward.

While the DOL letter considered private equity buyout firms specifically, the diversification arguments apply to many other types of private equity such as infrastructure, venture capital, private credit, and real estate. While there is not strong evidence that real estate private equity has outperformed publicly traded real estate, real estate private equity funds likely contain different types of assets than publicly traded real estate given the limited allocations Real Estate Investment Trusts (REITs) can make to development. As real estate development likely carries different risk factors, allowing investors access to real estate private equity would likely increase diversification.[12]

Access to potentially better risk-adjusted returns

Of all the potential benefits of the inclusion of PE investments in a DC plan, the most fundamental is access to higher returning assets. As noted already, the two-decade decline in publicly-listed small-cap value stocks suggests retail investors may have lost the opportunity to invest in what has been the highest returning segment of the U.S. stock market historically.[13] In fact, at the same time that public markets were shrinking, the returns to private equity funds consistently exceeded returns on major public market indices.

Using data from Burgiss, Harris, Jenkinson, and Kaplan (2014) show that buyout funds raised from 1984 to 2008 provided higher returns net of fees than the S&P 500 by 3-4% per year on average.[14] Using an independent data set, Robinson and Sensoy (2016) also find that for vintage years 1984 to

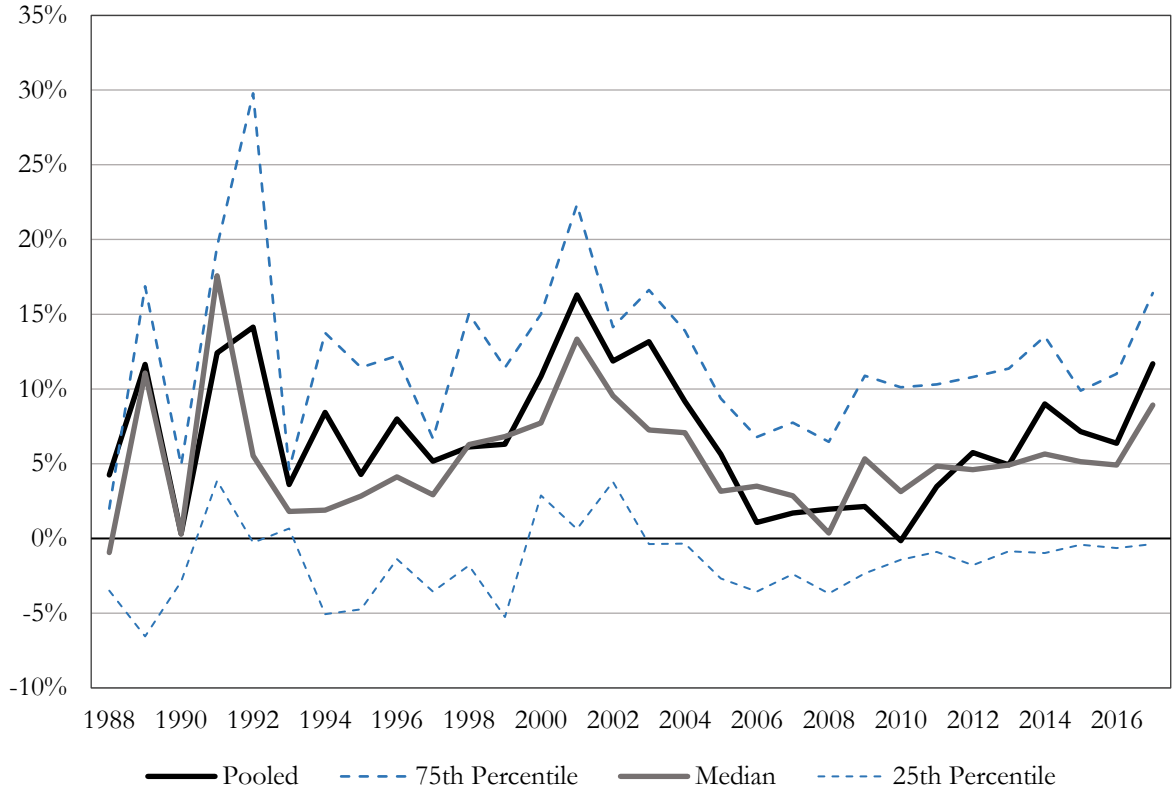
[12] For a discussion of how the returns of publicly traded real estate compare with private equity real estate, see Ghent, Torous, and Valkanov (2019).
[13] See, for example, Fama and French (1993).
[14] Harris, Robert, Tim Jenkinson, and Steven Kaplan, 2014, Private Equity Performance: What Do We Know?, *Journal of Finance*, 69(5), 1851-1882.

2010, buyout funds outperformed public markets by around 3% on average.[15] More recently, Brown and Kaplan (2019) using data through mid-2018 document that U.S. buyouts have outperformed the S&P 500 by around 3.5% and find only a modest decrease in this outperformance when considering the more recent vintage years 2009-2014.[16]

Here we update performance statistics for buyout funds through September 2021 and provide the results in Figure 1. Values reported are annual direct alphas (see Gredil, Griffiths, and Stucke, 2014) based on all 2,399 buyout funds in the Burgiss manager universe with vintage years from 1987 to 2017.[17] The figure plots quartile breakpoints as well as the pooled estimate for all funds using the MSCI All Country World Index (ACWI) as the benchmark index for the direct alpha calculations. Direct alphas are positive for the median and pooled estimates (solid lines) for almost all vintage years. However, the dashed line showing the 75th percentile reveals that typically a quarter or more buyout funds had negative direct alphas in a typical vintage year. In contrast, the dashed line plotting the 25th percentile shows that many funds have direct alphas in excess of 10%. Overall, Figure 1 reveals substantial cross-sectional variation in fund performance suggesting investors may need to hold many funds to diversify fund-specific risk in buyouts and that there may be differences in the levels of market risk between buyout funds and the broader public market indices.

[15] Robinson, David and Berk Sensoy, 2016, Cyclicality, Performance Measurement, and Cash Flow Liquidity in Private Equity, *Journal of Financial Economics* 122(3), 521-543.
[16] Brown, Gregory and Steven Kaplan, 2019, Have Private Equity Returns Really Declined?, *Journal of Private Equity* 22(4), 11-18.
[17] While we report up-to-date performance data in our tables and figures we do not include funds with vintages after 2017 because most of these funds are still in their investment periods and have made few distributions.

Figure 1. Global Buyout Fund Direct Alphas by Vintage



Source: Burgiss. Data through September 30, 2021. Calculations use MSCI-ACWI as benchmark index.

These updated performance results are important because the validity of buyout fund outperformance has been a hotly contested issue both in the media as well as in academia recently. For example, in a recent paper Phalippou (2020) finds that for vintage years 2006-2015 private equity funds performed about the same as the S&P 500.[18] However, as shown in Figure 1, the lower performance may be tied to relatively weak performance for buyout vintages around the GFC. Ilmanen, Chandra, and McQuinn (2019) also suggest that net of fees PE investments no longer offer an attractive risk-adjusted return, but these conclusions rely at least partially on stale performance data now more than 7 years old.

[18] Phalippou, Ludovic, 2020, An Inconvenient Fact: Private Equity Returns & The Billionaire Factory, SSRN working paper #3623820.

When considering the returns of any investment, one needs to evaluate the risks underlying that return. In general, the academic literature indicates that PE funds are riskier than public market indices so estimates of risk-adjusted returns to PE are less favorable to the asset class than unadjusted return comparisons. For example, some studies estimate high market betas for PE investing (Axelson, Sorensen, Stromberg (2013); Driessen, Lin, Phalippou (2011); and Buchner and Stucke (2014); Boyer et al. (2018)). However, Korteweg (2019) conducts a broad survey of risk estimates in the PE literature and concludes that while the risk of PE funds tends to be higher than that of the market index the average estimated beta is in the range of 1.3. In addition, risk can vary considerably across funds and by private fund type. For example, Korteweg and Nagel (2016), calculate generalized public market equivalents (GMPEs) and find that, net of fees, venture capital funds have relatively high market betas and underperform after adjusting for their systematic risk exposures. More recently, Brown, Ghysels, and Gredil (2022) has estimated betas for buyout funds at the fund-level and estimates an interquartile range of 0.96 to 1.31.[19]

Table 1 shows direct alphas for funds with a North American focus (first three rows) and all global buyout funds including North American funds (next 3 rows). As before, these direct alphas measure net-of-fee performance over and above public market benchmarks. We also report results with levered benchmarks of 1.25X and 1.5X which is equivalent to assuming that the typical buyout fund has a beta of 1.25 or 1.5 respectively. The benchmark for North American funds is the Russell 3000 index and the benchmark for global funds is the MSCI-ACWI. The results show that while there is variation in performance based on time horizon, global buyout funds have outperformed broad public benchmarks by about 1-5% when the unlevered market is the benchmark. The results are weaker for the past 5-year and 10-year horizons. One caveat to this result is that weaker recent

[19] Brown, Gregory, Ghysels, Eric and Gredil, Oleg, 2022, Nowcasting Net Asset Values: The Case of Private Equity, SSRN working paper #3507873.

performance is due in part to known lags in reported (smoothed) net asset values (NAVs) which probably understate fund values as of September 2021.

As should be expected, results for global funds with the levered benchmarks show historical returns are lower than for the unlevered benchmark. Buyout fund historical returns for 15-, 20-, and 25-year horizons are better than the public benchmark by roughly 2-4% per year whereas the performance for the 5-year and 10-year has been below the levered benchmark. The second part of Table 1 shows results just for North American buyout funds with the Russell 3000 as the benchmark and reveals similar, but uniformly weaker, adjusted performance. The same caveat applies for recent historical performance being affected by stale NAV estimates.

Table 1. Buyout Composite Direct Alphas through September 2021

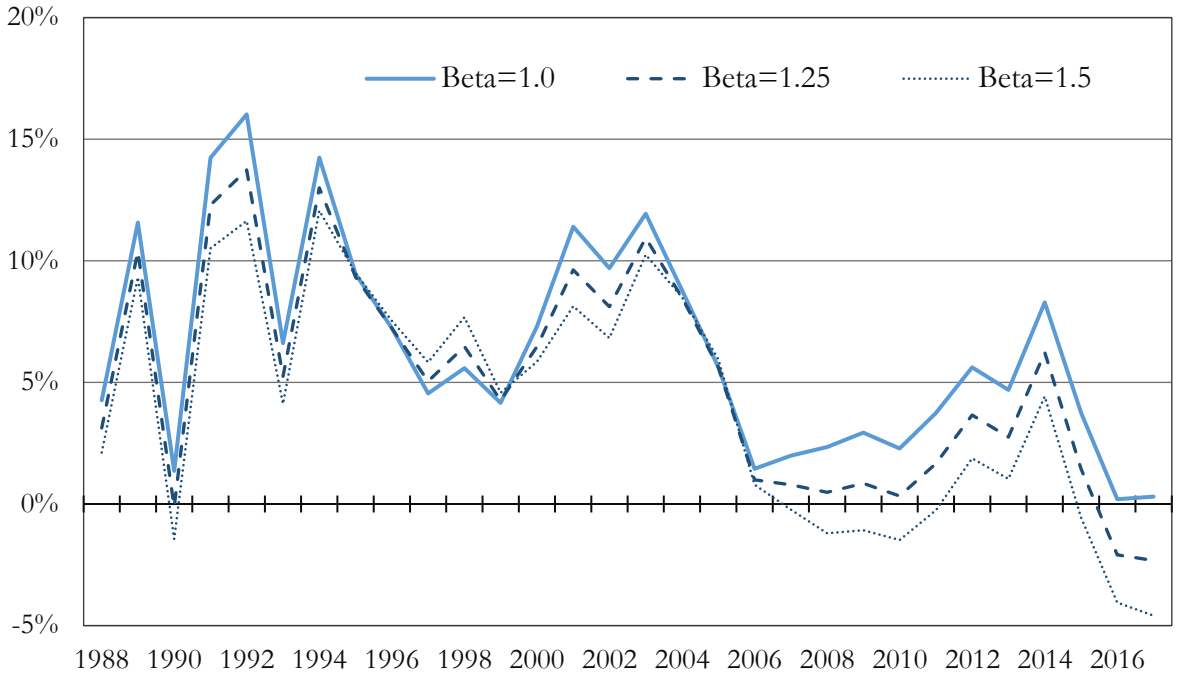
	Assumed PE	Historical Returns for Past:				
	Fund Beta	5-years	10-years	15-years	20-years	25-years
Global (vs. MSCI-ACWI)	1.0	1.42%	1.02%	4.16%	4.11%	5.14%
	1.25	-0.91%	-1.51%	3.12%	2.85%	4.25%
	1.5	-2.96%	-3.84%	2.33%	1.82%	3.58%
North America (vs. Russell 3000)	1.0	0.48%	-1.18%	2.67%	3.30%	3.83%
	1.25	-2.37%	-4.54%	1.08%	1.80%	2.61%
	1.5	-4.89%	-7.63%	-0.26%	0.52%	1.60%

Source: Burgiss. Data through September 30, 2021 for fund with vintages from 1987-2017.

Figure 2 plots the pooled direct alphas of global buyout funds by vintage using the MSCI-ACWI as the benchmark. Values are reported for the unlevered benchmark as well as leverage of 1.25 and 1.5. The results indicate that direct alphas for both unlevered and levered benchmarks are generally

positive. The exception is several vintages after 2006 with the 1.5X levered benchmark and the 2016-2017 vintages for the 1.25X levered benchmark.[20]

Figure 2. Direct Alpha by Vintage (Global Funds)



Source: Burgiss, data through September 2021. Calculations use MSCI-ACWI as benchmark index.

Another approach to examining risk-adjusted returns has been to compare PE fund returns with public market portfolios that share the same risk factors as PE funds via a replication strategy. For example, Stafford (2022) shows that constructing a levered public-equity portfolio with similar size and value (low EBITDA multiple) characteristics results in superior performance to PE funds with similar risk exposure.[21] Other analyses have reached similar conclusions. These replication strategies, however, require specific structures and may not hold up in future periods. As discussed

[20] Additional results and discussion of benchmarking are provided in the IPC whitepaper "Performance Analysis and Attribution with Alternative Investments." Available at, https://uncipc.org/index.php/publication/performance-analysis-and-attribution-with-alternative-investments/

[21] Stafford, Eric, 2022, Replicating Private Equity with Value Investing, Homemade Leverage, and Hold-to-Maturity Accounting,*Review of Financial Studies* 35, 299-342. See also, Chingono, Brian and Daniel Rasmussen, 2015, Leveraged Small Value Equities, SSRN working paper #2639647.

earlier, there is also the issue that the composition of public market securities is changing as more companies stay private and so matching assets are more limited in number.

Other potential benefits

In addition to an increase in risk-adjusted returns, there are other potential benefits. Expanding the set of investors with the ability to invest in private capital will likely expand the pool of capital available for private fund investments. Given that many of the fastest growing and innovative companies are increasingly preferring to stay private longer, the increase in capital supply should expand access to capital for these companies. The increase in supply could potentially lead to more business investment and broad economic gains benefiting even those without direct exposure to investment returns. DC plan investors may also benefit from the self-imposed discipline of investing in private markets, precisely because private funds are illiquid, institutional restrictions on portfolio redemptions could prevent some investors from panic selling during a market downturn.

On a closely related note, Bernstein and Sheen (2016) illustrates how private equity firms create value through operational improvements. One potential advantage to allowing private investment access for DC participants is that retail investors would have exposure to the financial returns that accrue to investors as a result of these real operational improvements.

It is also possible that target date funds in DC plans will be better positioned as limited partners (LP) in PE and thus able to garner superior returns even within the private fund space.[22] To the extent that these target date funds could be less subject to severe liquidity shocks (e.g., retail investors infrequently reallocate assets in their retirement portfolios), DC plan providers may get beneficial access or allocations to top-performing general partners (GPs) who want to avoid liquidity shocks as

[22] See for example, Maurin, Vincent, David Robinson, and Per Stromberg, 2020, A Theory of Liquidity in Private Equity, Swedish House of Finance Research Paper No. 20-8.

they craft strategies for how to deploy capital. (As we discuss later in the paper, however, there are access arguments that also cut the other way.) The inclusion of PE funds in DC plans could also have a positive impact on liquidity in the rapidly growing secondary market for PE funds that would benefit all market participants. As documented by Nadauld et al. (2019) transactions in the secondary PE markets come with significant price discounts. Thus, an increase in activity in the secondary fund market from investors in DC plans could help alleviate this price discount. At a fundamental level, research suggests that the private ownership model can allow for value-creation through improved governance in ways not attainable for public companies.[23] In such cases, an investor in a DC plan with access to private equity may own a public company that is taken private and then own the company in the private portfolio (benefiting from value created in the process). Without access to private equity the investor would miss out on the excess returns after the take-private transaction.

Finally, there is a fundamental question of equity and liberty -- is it fair to restrict access to the highest returning investments? This is an especially poignant question given trends toward higher wealth and income inequality in the U.S. If proper fiduciary conduct is enforced, it seems unethical to categorically exclude investors from substantial and still growing opportunities in private investment funds that are afforded to all types of institutional investors and wealthy individuals.

3. Potential Drawbacks of Access to Private Equity Funds

While there are clearly potential benefits to providing access to private funds in DC plans, there are also potential disadvantages. For one, the exact structure for the implementation of such a plan is still to be determined and there is uncertainty around which method will prove to be best. Beyond just being complicated, the precise mechanisms for liquidity backstops are a source of specific

[23] See a summary of the literature and related arguments in Brown, Gregory, Andrea Carnelli, and Sarah Kenyon, 2020, Public or Private? Determining the Optimal Ownership Structure, SSRN working paper #3529421.

concern. Ultimately it is the responsibility of the fiduciary to handle concerns of liquidity needs, however there may be pressure on PE funds to assist.

Fees will be higher than in public equity

By the nature of the investment, fees are likely to be higher for plans that include private equity sleeves. Private investments require additional due diligence as well as more complex monitoring and internal accounting. While these costs may be effectively outsourced to a specialized manager or fund-of-funds (FoFs), they ultimately must still be borne by investors. It is not guaranteed that excess returns in PE would cover additional costs. Harris et al. (2018) find that private equity FoFs outperform public markets historically, but also that they underperform direct fund investments.

Furthermore, Begenau and Siriwardane (2022) document that different types of investors face different fees in private equity funds. In particular, smaller investors and those with less experience pay higher fees such that the average DC fund may be higher fees than the typical historical investor in PE funds such that they may realize lower net-of-fees performance than historical returns suggest.

Future returns may be lower

One current concern surrounding PE is the growing amount of committed but unused capital or "dry powder" across the industry. Although having deployable assets may not be a problem, Braun and Stoff (2016) find that the cost of PE investing has increased in recent years and this increase is driven by factors related to higher levels of dry powder as capital has moved into the PE industry. As noted previously, the 401(k) market is over $6 trillion and although only a portion of that will go towards PE funds, this still has the potential to significantly contribute to the level of dry powder. Currently, private equity buyout funds have a record level of dry powder in excess of $1.0 trillion USD.[24] A further increase in dry powder from investments through DC plans could create additional

[24] Source: Burgiss.

pressure on private funds to put capital to work on deals that are potentially less attractive and thus have lower returns. Moreover, the increased capital may entice the creation of more private funds which could lead to additional competition among GPs, pushing up deal prices and reducing returns. In this view of the market being "flooded with capital", the problem may only be exacerbated in certain geographical areas by gaining allocations from DC plans. Hochberg and Rauh (2013) find that institutional investors exhibit a "home-bias" and that these local investments tend to underperform. In what could be analogous to DC plans going forward, Andonov, Bauer, and Cremers (2017) find evidence that U.S. public pension funds act on incentives to be more risk-taking which in turn drives underperformance. Although more research is needed on the impact of dry powder on PE funds, it seems that the inclusion of PE in DC plans is only adding to any problems that may already exist.

Liquidity risk is inherent in the asset class and may not be properly addressed

It is widely believed that a portion of the historical return premium earned by PE investors is compensation for bearing illiquidity risk. For example, Sorensen, Wang, and Yang (2014) provide evidence that such an illiquidity premium exists. Franzoni, Nowak, and Phalippou, (2012) find that PE returns are strongly subject to the same liquidity risk factor as displayed by the public market. Furthermore, when adjusting for this liquidity risk, the authors find that PE abnormal returns (i.e., over a benchmark) drop to zero.

These studies raise the question of what would happen to an illiquidity premium for DC plan investors. In order to gain access to the trillions of dollars in the 401(k) market, GPs may need to devise costly mechanisms that provide additional avenues for liquidity to plan participants. As such, the cost of these new facilities may inherently absorb a private markets illiquidity premium so as to provide no net (or even a negative) benefit. In addition, plan providers may run into liquidity shocks that surpass the ability of safeguards and impose additional risk on plan participants. This need for

differential liquidity has the potential to interrupt the "something special" of the private fund model that generated the historical return premium.

More specifically, imposing the requirements for quarterly liquidity, annual refunds, and other liquidity provisions could lead to costs for liquidity guarantees or fire-sale price effects. In addition, plan providers must contend with the timing and quantity uncertainty of fund capital calls. Another complication is undertaking portfolio rebalancing of the DC plan given the illiquid secondary market for funds, especially during times of large market moves when actual PE allocations may exceed benchmark allocations (via so-called "denominator effects"). At a fundamental level holding illiquid securities in DC plans prevents plan participants and plan sponsors from easily rebalancing their portfolios. Even in more liquid vehicles such as traditional "40-act" mutual funds, the literature has documented fragility resulting from fire sale spillovers, coordinated redemptions, concentrated ownership, and risk-shifting behaviors.[25] Of specific concern is that DC plan flows tend to be more volatile and more sensitive to performance than non-DC flows since plan sponsors adjust the investment options after poor performance (Sialm, Starks, and Zhang (2015a)). For example, outflows from equity funds and inflows to bond funds were more pronounced during the great financial crisis for DC mutual fund assets than for non-DC assets (Sialm, Starks, and Zhang (2015b)).

Traditionally, the best estimates for interim fund performance are obtained from the inherently flawed quarterly estimates of NAV. These estimates are provided with a lag and are not suitable for higher frequency value reporting. Any systematic bias in value reporting has the potential to benefit one plan participant over another. Even investors who simply begin making drawdowns to support retirement needs will face issues of having paid fees on earlier years in some PE funds' lives without enjoying the later fund payouts. DC investors in the same fund may withdraw assets from their DC

[25] See, for example, Chen, Goldstein, and Jiang (2010), Coval, and Stafford (2007), Falato, Goldstein, and Hortacsu (2021), Goldstein, Jiang, and Ng (2017), Greenwood and Thesmar (2011), Kacperczyk and Schnabl (2013).

plan at very different points in time, making vintage planning for fund managers difficult, especially as the target date draws closer. This is not the same as a DB retiree who simply receives a periodic fixed amount regardless of the pension fund's return. The DC investor gets to spend only what he or she earns (and withdraws).

Plan providers would need a way to deal with benefit distributions from portfolios as participants withdraw from the plan (e.g., in a target date fund structure). If withdrawals were made more quickly than anticipated by plan participants, this would generate the potential for forced sales of funds into the secondary market at a discount. Managing these risks could potentially limit the size of the appropriate PE allocation and would therefore reduce any potential benefits from allocations to PE funds. Overall, these practical considerations mean that either plan providers would restrict allocations in target date funds or an additional measure of liquidity must be created to mitigate risks from plan withdrawals.

Private equity is a long-term investment with a J-curve, i.e., retail investors will often observe low or negative returns early in the allocation cycle as they meet capital calls and pay fees but do not yet receive distributions. Some could interpret this incorrectly and withdraw funds further increasing the risk of fire sales in the secondary market. The risk of these liquidity shocks could make the target-date funds inferior investors to GPs. Better performing GPs are often oversubscribed, and thus, this perception could result in better GPs not wanting commitments from DC plans. If plans cannot access better funds, return benefits are less likely.

Illiquidity opens the plan up to attempted gaming by participants. Specifically, an ability to exit and enter midstream through "alternative liquidity structures" creates opportunities where more sophisticated participants will recognize the opportunity inherent in entering into these vehicles at a point where the PE funds in the sleeve are on average under-valued. Even with multiple PE funds of

different vintages there may still be opportunities for identifying and exploiting biased portfolio valuations. Some recent work such as Brown, Ghysels, and Gredil (2022) has attempted to track PE performance more frequently which could facilitate this behavior.

Finally, PE reported returns are based on the period the money is actually invested – from drawdown to distribution. But once capital is committed, enough of a liquid position must be kept to make the capital calls. Actual returns for the retail investor may end up blending lower cash-like returns with PE fund returns, resulting in a lower return profile. This problem is potentially exacerbated by the fact that more and more GPs are turning to subscription lines of credit, further compressing the time that the investment funds are actually earning "PE" returns.

Taking all the necessary steps to deal with these considerations for providing the needed liquidity to the DC plan will come at a cost. Providing the liquidity could effectively offset the illiquidity premium as discussed before and this in turn removes one of the key aspects of the return benefits of the private markets. Effectively this can occur as the additional layers of liquidity backstops drive up the level of fees (or equivalently, drive down the expected return) of the plan. As such these costs could negate the purpose of including the PE fund in the DC plan in the first place.

Lack of transparency and access

Beyond the aspect of the complicated structure and additional fees, there are reasons for restrictions on private funds. The issue of disclosure, or lack thereof, is likely a component of value to the private market as private funds and firms do not need to spend the time and resources on mandated regulatory disclosure. Not only are investors subject to dealing with a lower quantity of disclosure by private funds, but studies have found that the quality of reporting for private firms (e.g.,

portfolio companies) is lower than for public firms in a variety of dimensions.[26] As demonstrated by the Intel litigation it is critical that plan providers create a sufficient understanding of the investments they are making including the underlying risks. Plan providers must ask themselves the question of how they ensure those who are allowed to participate are actually knowledgeable enough to be considered well-informed participants. Ultimately, plan participants will bear the additional cost of education. Clearly the DOL letter provided some guidance for what plan providers can do to stay compliant with ERISA, however this does not shut down the possibility of litigation by investors. Thus, just the ability for retail investors to sue plan providers around private funds will bring with it increased legal costs for funds, possibly prompting changes to the fee structure. Again, higher fees reduce the possibility that the return benefit from private funds goes away. An additional concern is the organization complexity that will likely arise in some cases with plan sponsors subcontracting to funds-of-funds. These structures could exacerbate agency costs associated with delegated portfolio management.

As discussed previously, there are now thousands of PE funds. This leads to the concern of how plan providers will choose and access specific funds for their portfolios. The historical data shown in Figure 1 suggest much wider variation in PE fund performance than is observed for public asset portfolio performance (e.g., for mutual funds). Because it is not practical to invest in all PE funds (in contrast to a public market index fund that invests in all stocks), there is then potential for substantial fund selection risk. Selection of which funds will perform well in the future remains a challenge, and Harris et al. (2022) suggests that the ability to predict performance using metrics like previous fund performance has been declining for PE funds.[27] Moreover, even if investors want to

[26] Hope, Ole-Kristian, Wayne B. Thomas, Dushyantkumar Vyas, 2013, Financial Reporting Quality of U.S. Private and Public Firms, *The Accounting Review* 88(5), 1715–1742.
[27] However, Braun, Jenkinson, and Stoff (2017) suggest that deal-team performance remains persistent.

place capital in what is perceived as a high-performing fund, they may be unable to if the fund limits allocations to select investors (often those who participated in prior funds raised by the same general partner). Fund access can be particularly difficult in venture capital, and access to high performing funds is often cited as a key ingredient for success in venture capital investing, as illustrated by high returns for some university endowments such as Yale. Harris et al. (2018) demonstrate the reduction in returns to VC investing if even a relatively small set of funds is not accessible. If such a broad sweep approach to owning exposure to the full array of PE investment opportunities is not feasible, then perhaps the true diversification play for retail investors is not possible, and plan providers may be exposing their clients to risks the retail investors do not understand.

Open and evolving questions

Despite the extensive literature cited above, there remains a number of open and evolving issues. For example, there are already examples of illiquid sleaves in large DC-style plans in other countries with perhaps the best-known example being the Australian superannuation funds. In addition, other public systems, such as those in the Netherlands, have been developing DC plans with illiquid asset allocations. But because these plans are small in number and have relatively short track records in private equity, there is limited research on the realized net benefits. Yet, some of the challenges related to illiquid investments became apparent during the market disruptions in early 2020 related to the covid pandemic. In the case of the Australian plans, changes in withdrawal rules to beneficiaries (to mitigate financial constraints caused by shutdowns) and allocation shifts to safe assets stressed the plan allocations and generated liquidity concerns.[28]

Other evolving issues include the rise of GP-led continuation funds which can effectively increase illiquidity by extending investment periods and the growing interest in interval funds which

[28] See, for example, https://www.rba.gov.au/publications/fsr/2021/apr/box-c-what-did-2020-reveal-about-liquidity-challenges-facing-superannuation-funds.html

can provide regular liquidity to investors. In addition, anecdotal evidence suggests that liquidity in the secondary market for private funds has increased substantially over the last decade, but rigorous research on the impact to investors is scant. Overall, recent developments in private market fund structures are not well understood and present potential additional challenges to the fiduciary model of DC plans which is already complicated. In fact, we are unaware of any academic research that examines how additional intermediaries and inclusion of illiquid assets into DC plan portfolios would affect agency issues that are already known to exist (and are often litigated) in DC plans.

4. Conclusion

In sum, a number of potential benefits may come from allowing DC plans to invest in private funds. As PE becomes an increasingly greater component of the overall economy, retail investors may need access to this market to be fully diversified. Specifically, private funds may be the only way for retail investors to obtain meaningful exposure to higher-returning assets that are increasingly closed to them including growth companies (e.g., innovative technology and health care companies) as well as small value companies. Even if the higher returns are only fair compensation for the higher risk borne by the investor (rather than an excess risk-adjusted return), this inclusion of PE funds still provides access for greater diversification and higher overall portfolio returns. Access to PE through well-structured DC plans also provides retail investors with relatively safe access to investments previously only available to institutions and the very wealthy.

Despite these enticing potential benefits, they need to be weighed against challenges and costs that may arise from creating this broader access to private funds. The complicated structure and uncertainty around the mechanism to provide required liquidity backstops may bring increased fees or even disrupt the private fund model. If liquidity is provided and fees are incurred this may remove both the diversification and return benefits and therefore remove the incentive for including PE funds

in DC plans to begin with. Furthermore, consideration must be made for how to ensure that retail investors understand the risks of private fund investments and to create appropriate structures and incentives for plan providers in light of litigation or other unanticipated risks.

Whether access to private investments provide a net benefit for DC plan participants will depend both on how private fund investments perform in the future as well as how institutional features around plan participation evolve.

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