Goldman Sachs **Asset Management**

Pension Solutions

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Cash Flow Matching: The Next Phase of Pension Plan Management

Cash flow matching strategies look set to gain traction in the coming years due to a growing number of cash flow negative DB pension plans and rising demand for return-generating assets.

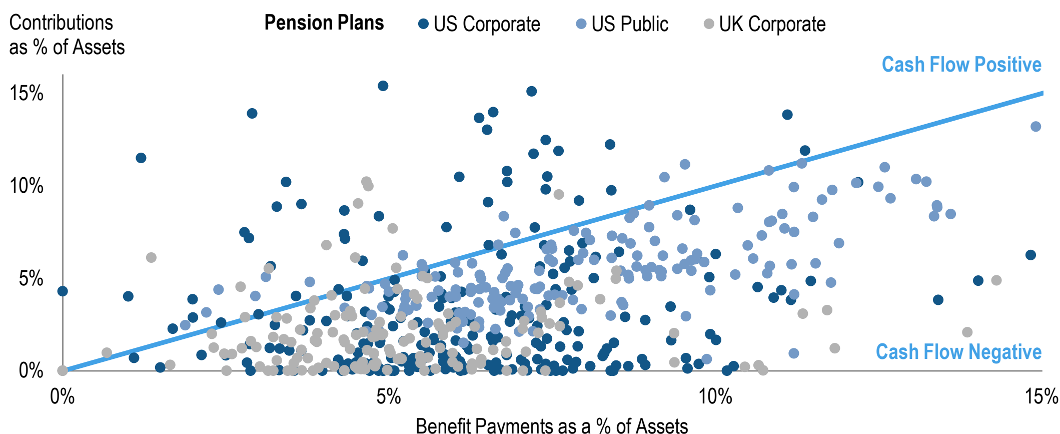
Executive Summary

We see cash flow matching strategies gaining traction among US and UK defined benefit (DB) pension plans—particularly those that are cash flow negative—due to their ability to balance short-term liquidity needs with longer-term investment objectives such as return generation.

- **The rise of cash flow negative DB pension plans.** A growing number of DB pension plans in the US and UK have annual benefit payments that exceed contributions received (Exhibit 1). For mature pension plans, entering this cash flow negative state is a trend that will continue and even accelerate in the coming years. As a result, funded ratios for underfunded plans will face downward pressure and may require higher returns to narrow their funding deficit.
- **Plans are looking to make assets "work harder" irrespective of their cash flow status.** Plans are increasingly seeking out return-generating assets that can narrow funding deficits and fund future benefit accruals. This is particularly true for US public DB plans, 72% funded in aggregate on a reported basis. Often such potentially higher-return investments are illiquid, forcing pension plans to consider the balance between short-term liabilities and long-term needs.
- **Cash flow matching strategies can balance short-term liquidity needs with longer-term investment objectives.** A cash flow matching strategy aligns short-dated liabilities with high quality liquid fixed income assets. This alignment allows plans to allocate more of their remaining funds in longer-dated assets that may have lower liquidity but higher return potential.
- **Strict adherence to a pre-defined cash flow schedule.** A cash flow matching strategy seeks to generate predictable income and principal cash flows with limited portfolio turnover. In effect, a cash flow matching portfolio will adopt a "buy and maintain" approach adhering to a pre-defined cash flow schedule, rather than a less-constrained active approach.

Exhibit 1: A Growing Number of DB Pension Plans are Cash Flow Negative

US and UK pension plan contributions and benefit payments as a percentage of assets



Source: GSAM, Company Reports. Based on data availables as of December 2019. Each dot represents one plan. Axes capped at 15%. For illustrative purposes.

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Balancing Short-Term Needs with Long-Term Investing

Cash flow matching strategies may allow DB pension plans to pursue higher-returning assets without hindering their ability to meet short-term funding needs.

Many DB pension plans have annual benefit payments that exceed the annual contributions they receive and are therefore characterized as being cash flow negative (or in a cash flow deficit). In addition, a number of plans remain underfunded, defined as an inadequate ratio of plan assets to reported pension liabilities. For example, US public and corporate DB plans are in aggregate 72% and 89% funded, respectively, albeit applying different regulatory standards.

To narrow funding deficits, management of pension plans has evolved in two key ways. First, plans increasingly seek out higher return-generating assets (the “Growth Portfolio”) venturing beyond traditional fixed income and public equity into alternative, less liquid assets such as private equity and credit, hedge funds and real estate. Second, many plans, in particular those in the corporate sector, increasingly adopt customized liability-driven investment allocations (the “Immunizing Portfolio”) with a goal of aligning asset and liability risks while seeking to make the most efficient use of the Immunizing Portfolio capital. In the US especially, where the pension liability discount rate is credit sensitive, the Immunizing Portfolio often includes an actively managed, typically long duration, credit sleeve.

In our view, cash flow matching is the next phase of this evolution. A cash flow matching strategy has two components: a dedicated sleeve within the Immunizing Portfolio of high quality, liquid fixed income assets that can meet benefit payments for a specified time period complementing the remaining Immunizing Portfolio investments and permitting the Growth Portfolio to pursue long-term return objectives through allocations to longer-dated, less liquid assets that may provide higher returns. Public plans that are open to new participants are especially dependent on future financial performance given the ongoing growth in liabilities. We think cash flow matching can be an effective strategy for several types of DB plans, including those with the following objectives:

1. **Optimal asset allocation.** High yields and diversification benefits have motivated public and private DB pension plan allocations to private assets; the prevailing low yield environment coupled with concerns around elevated public market valuations reinforces this demand. However, the higher a pension plan’s existing allocation to private assets, the lower its capacity is to allocate additional assets to illiquid assets. To address these liquidity constraints, plans could look to maintain a cash buffer, though this is an inefficient use of capital given low cash returns. We think a cash flow matching strategy—which seeks to maximize risk-adjusted returns while also meeting short-term liquidity needs—can serve as a more efficient option.

A cash flow deficit requires plan assets to “work harder” in order to maintain or improve a funded ratio.

2. **Narrowing asset-liability deficits to maintain or improve funded ratios.** As noted, a growing number of maturing DB pension plans in the US (corporate, public and Taft-Hartley) and the UK are turning cash flow negative. This status is not necessarily an indicator of distress; it is a natural occurrence for a mature pension plan and we expect the rise in the number of cash flow negative plans to continue and even accelerate in the coming years. That said, a cash flow negative position can pose two potential challenges. First, a plan may be required to sell assets at an inopportune time to meet near-term benefit payments. Second, when a plan is less than 100% funded, a cash flow negative status lowers both a plans funded ratio (assets relative to liabilities) and its asset base. A lower asset base requires remaining assets to generate a higher return in order to maintain (or improve) the beginning period funded ratio as illustrated in the example in Exhibit 2. Again, we think a cash flow matching strategy is an efficient way to achieve this.

Exhibit 2: The Impact of Negative Cash Flow on Funded Levels and Required Returns

Being cash flow negative and less than 100% funded means that benefit payments will *lower* a plan's funded ratio and require a *higher* rate of return on remaining plan assets to maintain or improve a funded ratio

	Beginning Funded Level	Benefit Payments Over Time Period	End Funded Level	Comments
Assets	900	-100	800	
Liabilities	1,000	-100	900	
Funded Status (US$) = Assets – Liabilities	**-100**		**-100**	**Unchanged**
Funded Ratio (%) = Assets/Liabilities	**90%**		**88.9%**	***Lower***
Annual Return Required for 100% Funded Ratio	**11.1%**		**12.5%**	***Higher***

Source: GSAM. For illustrative purposes only

Implementing a Cash Flow Matching Strategy

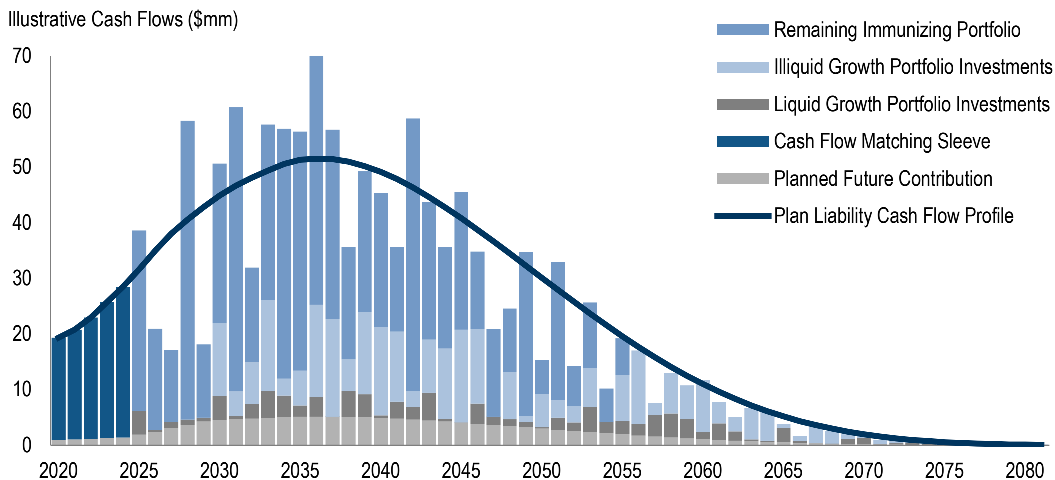
We think a cash flow matching strategy can be best implemented through a disciplined "buy and maintain" approach that seeks to limit portfolio turnover and avoid exposure to potential adverse credit events.

Cash flow matching strategies are an important part, and potentially even the largest part, of a highly customized liability-driven investment strategy and command unique considerations. In our view, there are five key elements that pension plans should consider for successful implementation of a cash flow matching strategy:

1. **Investment Universe.** Cash flow matching strategies typically invest in high quality, liquid corporate credit bonds from a pension plan's home market that offer a conservative spread over government bonds. We believe accessing the global corporate credit universe can enhance return potential and provide diversification benefits, though any allocation should consider a suitable currency hedging strategy. Depending on a plan's investment objectives and investment guidelines, the investment universe could be broadened further to include securitized credit as well as non-traditional sources of yield such as private credit.
2. **Investment Approach.** To ensure adequate compensation for credit risk, we believe cash flow matching portfolios should adopt a "buy and maintain" approach which seeks to: i) minimize trading costs through limited portfolio turnover and; ii) avoid potential losses due to defaults or downgrades. A buy and maintain portfolio differs from a 'laddered' portfolio of government bonds of various maturities in several important ways. First, the initial portfolio of credit assets is devised through tailored research and security selection. Second, bonds with low liquidity tend to be removed from the investment universe. And third, maximum exposure constraints—based on maturity, rating, sector, issuer or idiosyncratic factors—are often applied to limit exposure to adverse credit events.
3. **Cash Flow Optimization.** A pension plan's cash flows—including the schedule over which benefits will be paid—must be carefully analyzed and well understood in order to align liabilities with the cash flow matching portfolio (which would be comprised of assets from the universe of eligible assets identified in step 1 above). Optimization of this alignment requires active engagement among plan sponsors, plan actuaries, and portfolio managers skilled in both investment management practices and actuarial concepts.
4. **Active Monitoring.** A buy and maintain approach requires active oversight and rigorous sell discipline due to the potential for adverse changes in credit fundamentals over the investment time horizon. The goal of ongoing oversight is to mitigate changes in the profile of a cash flow matching portfolio that would deviate from a pension plan's liability schedule, rather than to generate alpha as would be the case with an actively managed, liability-driven strategy. In our view, this oversight requires innovative research systems and resources that are adept in the management of customized portfolios, with an ability to actively monitor downgrade risk, perform downgrade scenario analysis and exercise pre-emptive action if required. Cost-effective trading is also vital, with both the timing and cost of trading taken into consideration.

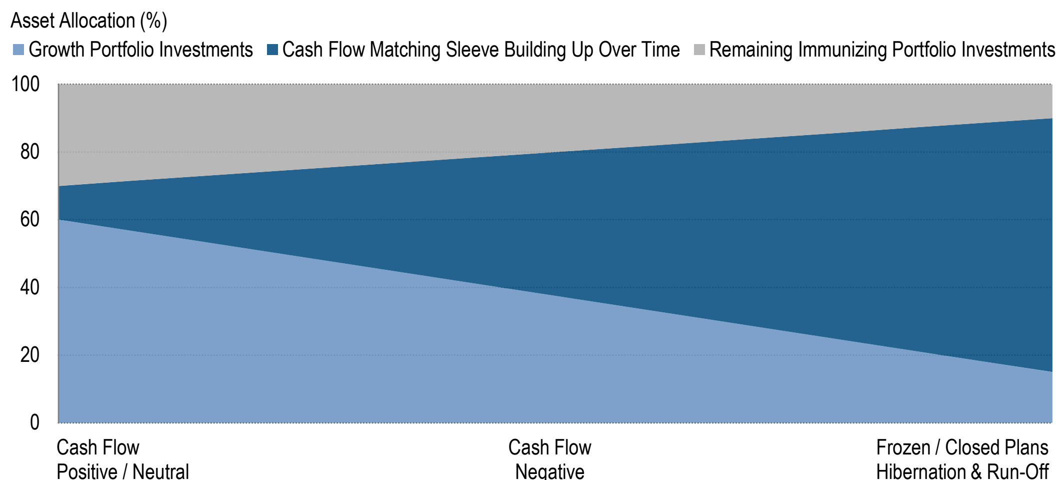
5. **Implementation Time Horizon.** The manner in which a cash flow matching portfolio is implemented over time depends on a pension plan's goals. For active public and private plans, implementing a cash flow matching portfolio on an annual basis may be a more efficient and effective way to match cash flows over a three- to five-year time horizon (Exhibit 3). A private plan with a target "end game"—such as self-sufficiency or buy-out—may wish to adopt a cash flow matching portfolio that evolves over time. Under this evolutionary approach, gains from return-seeking assets may be used to build up the cash flow matching portfolio, leaving the rest of the Immunizing Portfolio to hedge interest rate risk and other risks associated with unmatched liabilities (Exhibit 4).

Exhibit 3: Cash Flow Matching in Practice



Source: GSAM. For illustrative purposes only.

Exhibit 4: Cash Flow Matching As An Evolutionary Process



	Growth Portfolio	Cash Flow Matching Sleeve	Remaining Immunizing Portfolio
Goal	Maximize risk-adjusted returns	Deliver stable cash flows to meet liabilities for a specified time period	Hedge interest rate and inflation risks associated with unmatched liabilities
Evolutionary Strategy	Gradually reducing the asset allocation weight as funding position improves	Rising allocation as the plan becomes increasingly cash flow negative	

Source: GSAM. For illustrative purposes only.

Conclusion

The proportion of US and UK DB pension plans entering a cash flow negative state is set to rise given their natural progression to a more mature phase. In addition, a low yield and low return environment challenges pension plan assets to “work harder” in order to meet projected pension benefit payment liabilities. We believe a cash flow matching strategy can be a suitable investment approach for DB pension plans in all these environments. Under this strategy, a **cash flow matching** sleeve of high quality, liquid assets enables a plan to meet short-term liability requirements while simultaneously enabling a larger portion of remaining plan assets to be allocated to potentially illiquid investments that may generate higher returns.

In our view, dedicating a portion – even a large portion – of the Immunizing Portfolio investments to a cash flow matching sleeve can be best implemented through a buy and maintain approach that seeks to minimize portfolio turnover and avoid exposure to adverse credit events. Achieving the latter requires portfolio managers to select investments from a carefully curated investment universe that takes into consideration liquidity profiles, diversification benefits, maximum exposure constraints based on factors such as maturity or credit rating and, especially, the pension plan’s near-term liability payment profile. Aided by innovative research and risk management systems, we believe an experienced team steeped in actuarial concepts and adept at managing highly customized portfolios is best placed to facilitate optimal implementation of a cash flow matching strategy.

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