CALSTRS

Investment Committee

Item Number 9 – Open Session

Subject: Private Equity Pacing Report

Presenter(s): Margot Wirth and Tom Baker

Item Type: Information

Date & Time: January 11, 2024 – 15 minutes

Attachment(s): None

PowerPoint(s): None

Item Purpose

The purpose of this item is to provide a primer on modeling Private Equity portfolio cashflows and Net Asset Value, NAV, forecasting.

Executive Summary

Private Equity staff makes extensive use of cash flow and NAV exposure models to help manage the Private Equity portfolio. These models have sporadically been a topic of conversation at the Investment Committee level. The item aims to provide a primer on the topic to facilitate ongoing discussions. For simplicity, this discussion will focus primarily on partnership investing and buyout investments. The discussion below is presented in an "FAQ" format.

Background

1. Why does Private Equity need to do this type of modeling?

Private Equity is an illiquid asset class, meaning that the underlying investments in the portfolio are not traded on an exchange. It is costly and time-consuming to either acquire or divest private equity exposure. Therefore, predicting cash flows and managing the Private Equity asset class exposure is much more difficult than for the liquid (i.e., public) asset classes.

Cashflow and NAV modeling are not required for the liquid classes because the overall asset exposure for these asset classes can be controlled via buying and selling assets in a liquid market (i.e., on exchanges) at readily determinable values at any time, thus resulting in readily determinable cash flows.

Compounding these issues for Private Equity is the prevalent use of commingled partnership structures throughout the industry. Private Equity partnerships constitute approximately 80% of the CalSTRS Private Equity portfolio. Such structures have certain advantages (as discussed below) but present additional challenges.

In some respects, these partnership interests are like stocks in that they constitute fractional ownership in underlying businesses and assets, but in other ways, they are quite different. Private Equity partnerships are limited-duration vehicles that are sponsored by a general partner responsible for making all investment decisions for the partnership. An investor typically does not buy a partnership interest but instead makes a funding commitment to the partnership at the beginning of its life. The partnership's general partner may call down the limited partner's capital (e.g., CalSTRS) commitments in increments, at will, for a set period (typically five years). The general partner is then obligated to maximize the value of the businesses and assets it acquires during the holding period and is then further obligated to sell these businesses and assets within a certain timeframe (typically within 12 years from the beginning of the partnership).

This framework results in the following characteristics:

- There is a delay in getting money into this asset class. Typically, commitments are made to new partnerships that call money down over 5-year periods.
- There is a delay in getting money out of this asset class. Capital is typically returned during the 5th through 12th years of a partnership.
- Whereas there are contractual constraints regarding when commitments can be called and when capital must be returned following the sale of an investment, the exact timing of these cash movements within these constraints is at the general partner's discretion. Therefore, this structure introduces timing uncertainty for limited partner investors such as CalSTRS.
- Private Equity investments are self-liquidating in that partnerships are continually selling investments and returning capital to the limited partners. To maintain or grow NAV exposure levels in this asset class, limited partners must continually make new commitments at an adequate level – hence the need for modeling to determine the appropriate level of ongoing new commitments that will properly maintain the portfolio NAV exposure, keeping it close to the desired level (within the limitations of modeling's predictive accuracy).

2. Why does Private Equity invest through illiquid, commingled partnerships?

The private equity industry generates high investment returns by providing capital to skilled business owners and executives capable of deploying intensive resources aimed at improving and transforming businesses over a period typically spanning 4 to 7 years for each portfolio company (the portfolio company "hold" period).

Private equity investment vehicles are designed such that investors must commit to investing their capital for a certain number of years to provide the runway necessary to effectuate these changes. Accordingly, most of the capital in the industry is deployed through commingled partnership vehicles.

Over many decades, this long-term investment structure has proven effective and generated alpha for institutional investors like CalSTRS.

3. What is the relationship between Capital Contributions, Distributions, Cash flow, NAV, Unfunded Commitments, and Investment returns?

As shown in Figure 1, capital contributions increase the portfolio's Net Asset Value (NAV), and distributions decrease the NAV. Within contractual constraints, capital contributions and distributions are at the discretion of the fund's general partners. The net difference between capital contributions and distributions for any period (for example, a year) determines the portfolio's cash flow for that period.

NAV is also affected by investment returns (which can be positive or negative). Note that investment returns and cash flows are not synonymous. Investment returns can move in a different (or the same) direction as cash flow. Stated differently, investment returns do not directly translate to cash flow unless the underlying portfolio companies have been sold.

Staff can affect NAV exposure by adding to the portfolio's unfunded amount by making new partnership commitments. New commitments add to the amount of capital callable by general partners. However, as mentioned previously, there is uncertainty as to exactly when the capital will be called (typically within a 5-year window).

4. How is the modeling actually done?

Figure 2 shows the format in which the Private Equity portfolio is analyzed with respect to the models (but in this case, presented with historical data only).

The modeling starts with the existing portfolio and disaggregates the NAV and Unfunded accounts based on each commitment's vintage year. The model then projects how the remaining unfunded will be called down for each vintage year based on historical patterns and where each vintage year is in its life.

The NAV is projected to grow at any point based on historical return patterns. Note that the amount to be called down is proportional to the amount of unfunded commitments in the portfolio. Therefore, it is necessary to project unfunded commitment amounts, too. The unfunded amount is also affected by assumptions regarding the pace of new commitments in each vintage year. This results in an iterative loop in which various assumed future commitment patterns are modeled until the desired future NAV exposures are deemed to be optimal. Finally, the pace of distributions is based on historical patterns and where each vintage year "layer" of NAV is in its life.

The model is further refined based on the characteristics of each sub-asset class (i.e., buyouts, venture capital, and debt-related). Likewise, co-investments are modeled in a fashion appropriate for them.

There is subjectivity in the modeling based on how historical patterns are interpreted and how a model is constructed. Over the years, staff has constructed various versions of cash flow and NAV exposure models. The models are updated two to four times a year with new data (based on the changing characteristics of the portfolio) and assumptions (based on reinterpretations of historical data). For additional insight and as a reasonableness test, staff cross-references its results with similar modeling on the CalSTRS portfolio performed by our consultants and advisors (Meketa, Cambridge, and State Street).

5. What does the CalSTRS model forecast about future NAV exposures and commitment pacing requirements?

Without getting too specific, the CalSTRS model indicates that *over a 10-to-12-year period*, if an investor with a portfolio of similar size and characteristics as CalSTRS Private Equity portfolio desires to maintain the program at roughly its current size (~$50 billion) and composition, such an investor would need to make new commitments in funds and co-investments of approximately $10 billion per year.

To the extent an investor believes the current low level of activity in the private equity market is likely to persist for some time, such an investor would likely reduce this amount in the near term. To the extent that an investor wants to grow the portfolio to account for overall fund growth or other reasons, such an investor would likely invest more than this amount.

6. What does the CalSTRS model forecast about future cash flows to and from the Private Equity portfolio?

As illustrated in Figure 2, the program has had negative cash flow in recent years. This is the result of a deliberate effort to raise the exposure in this asset class from 8% of the fund in 2017 to 13% in 2023.

Now that this goal of higher exposure levels has been achieved (and exceeded by 300 bp), the pace of new capital commitments *relative to NAV* has declined. Based on our modeling, the ratio of NAV to unfunded commitments is also much higher than in recent years and is projected to stay that way for an extended period.

Considering the above factors, staff believes the Private Equity portfolio is poised to become strongly cash flow positive in coming years. The model indicates that the Private Equity portfolio can be expected to return between $10 and $20 billion of positive cash flow over the next five years.

Note the model is believed to be much more reliable over the medium term (e.g., five years) than the short term. Short-term results are more susceptible to the vagaries of the capital markets.

7. How accurate is the modeling?

As stated above, staff has found the models to be reasonably accurate in predicting portfolio cash flows and NAV exposures in the medium term. Staff tends to rely on the modeling to indicate rough order of magnitude estimates (say +/- 20%) for cash flows and NAV exposures over 5-year horizons.

Also, as discussed previously, uncertainty is introduced by the unpredictability of general partner capital calls and distribution patterns and the unpredictability of investment performance.

With respect to short-term cash flow forecasts, private equity activity waxes and wanes according to capital market conditions. When activity is high, trends are accelerated. When activity is low, forecasted trends are delayed. For example, private equity activity is currently in a multi-quarter lull, with a relatively large variance between forecasted and actual cash flows. In accordance with past observations, staff believes these variances will tend to self-correct over the longer term.

Although there is significant uncertainty regarding the timing of cash flows, staff believes there is high predictability regarding the eventual return of capital with profits based on the following observations:

- For 27 consecutive vintage years from 1988 to 2015, an average of 1.8x capital contributed has been returned (i.e., CalSTRS has received more distributions for these vintage-year investments than was contributed). The more recent vintage years are behaving as expected, and there is every indication that they will fully return capital.

- All vintages from 1988-2014 have returned capital within 10 years, except for 1999, which took 13 years.

- Excluding the five most recent vintage years (which have not had enough time to generate investment gains), since 1988 (the inception of CalSTRS PE), total investment multiples for Realized and Unrealized investments have ranged from 1.2x to 3.0x by vintage year. Over the last 15 years, the range has narrowed to 1.5x to 2.0x.

- Over the entire range of 34 vintage years through 2021, since inception IRR returns have ranged from 3.1% to 32.8%, with an average of 16.8%, with double-digit returns in all vintage years (except for six vintage years; 1996, 1999, and 2005-2008). No mature vintage years have lost capital (or, put another way, none have a negative IRR).

Strategic Plan Linkage: CalSTRS 2022-25 Strategic Plan – Goal 1: Trusted stewards

Board Policy Linkage: Investment Policy Statement 09-2023 (calstrs.com) and Private Equity Investment Policy (calstrs.com)

Optional Reference Material:

Figure 1 – Private Equity Cash Flow Schematic

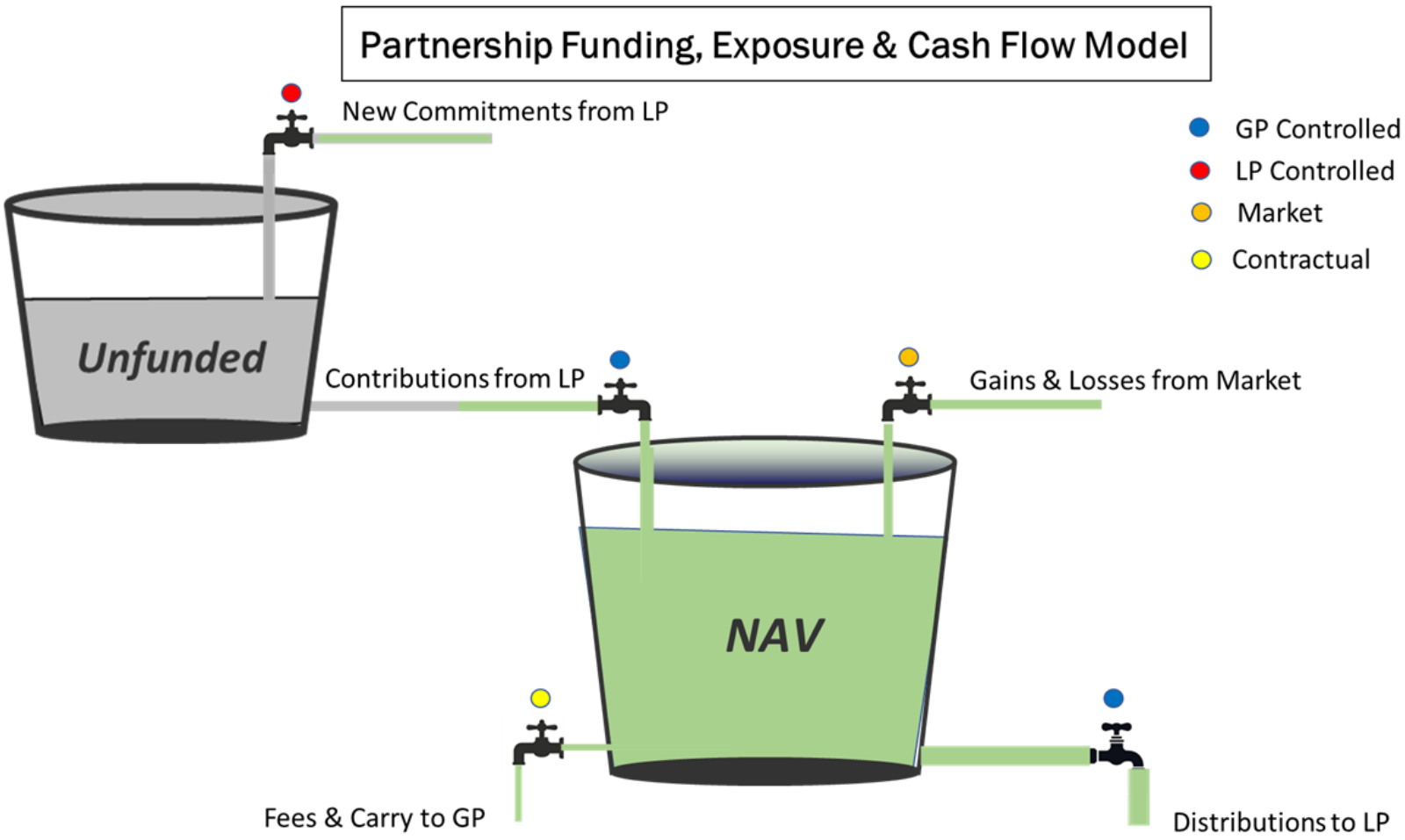

Figure 2 – Historical NAV / Unfunded / Commitments*/ Cashflow Chart