Capital Commitment

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Institutional investors' exposure to private market funds has increased rapidly, reaching $12 trillion in 2022. These funds span a wide range of investments, from real estate to leveraged buyouts and venture capital. A defining feature of private market funds is that they require investors to commit capital to a fund before it is used (“called”). The capital is called at the discretion of the fund manager, meaning outside investors relinquish control over their portfolio allocation. This defining feature is absent from traditional asset allocation problems, but it accounts for $3.5 trillion in outstanding obligations as of 2022.

The prevalence of private market investments and the size of the aggregate outstanding commitment raise important questions: How much of a premium should investors require for their willingness to make these commitments? Is the premium driven by uncertainty over the timing of the call or price fluctuations of liquid assets between commitment and call? Can commitments be diversified to reduce the importance of commitment risks? How can multiple commitments be managed, and how does this impact investors’ willingness to participate in private markets?

We solve the dynamic portfolio optimization problem of a risk-averse investor with an infinite horizon and access to liquid stocks and bonds and to private equity (PE) funds. At time 0, the investor commits some amount to a PE fund, not knowing when the capital will be called or when investment proceeds will be distributed. We use Poisson processes to model the stochastic timing of capital calls and distributions. The first jump triggers the capital call, which is when the investor transfers the committed amount to the fund manager. If the investor is unable or unwilling to make this transfer, they default on the commitment. If the investor makes the transfer, the capital is invested by the fund manager and accumulates returns. If the investor does not sell the claim on the invested capital on the secondary market, then the second jump of the Poisson process marks the time at which the fund manager distributes the proceeds from the fund back to the investor. A new capital commitment can be made to a new PE fund, and the process is repeated. We also add liquidity cycles: two persistent states in which the bad state has lower returns, higher volatility, higher correlation between public and private equity, longer average commitment and holding periods, and a larger haircut on the secondary market.

Our main result is that out of all the frictions generated by the presence of capital commitment, only one is a significant issue for investors. The commitment period averages about three years, and during that period the amount of committed capital remains constant, but the investor’s liquid

wealth can change dramatically. These changes place the PE portfolio weight outside the investor's control ("denominator risk") and make it volatile. To compensate, investors undercommit to PE on average. Because of both the average and volatility effects, investors are willing to pay a significant amount to change the quantity committed when the capital is called. This effect is exacerbated by liquidity cycles. Moreover, it helps explain the source of the value added by newly popular institutional details, like co-investment, that allow investors to increase their exposure post-commitment.

In contrast, investors are willing to pay essentially zero to eliminate timing risk — to change the commitment period from an average of three years to a definite three years.

Diversification through investment in multiple PE funds allows the investor to smooth both cash flow shocks and investment timing. However, the commitment issue we identified is driven by the denominator of the commitment-to-wealth ratio, and the denominator is the same for all funds. In addition, investing in multiple funds creates the potential for a funding externality: using distributions from earlier funds to meet later capital calls implies that if one fund distributes late and another calls early, the investor may be short of liquid assets. We find that, unlike in public equity, the benefits of PE diversification are moderate and the impact on commitment risk is relatively small.

Finally, we find that investors do not value an improvement in secondary market liquidity much. However, secondary market liquidity and commitment risk are complements: secondary market liquidity allows investors to take a larger position in PE, thereby increasing their exposure to commitment risk. In response, investors will be willing to pay larger premiums to adjust the quantity committed to funds when the capital is called.