



ALTS FORUM
PART II

THE CHANGING LANDSCAPE FOR PRIVATE CREDIT



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A Fair Comparison Framework Measuring the Value of LP Fund Selection Skill

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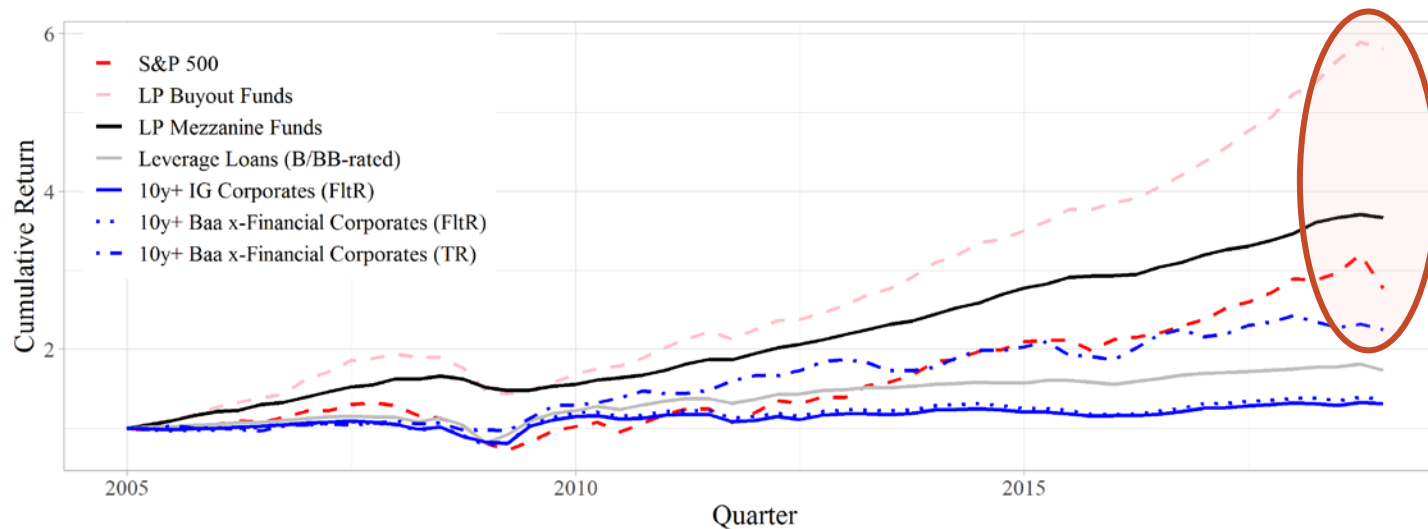
PGIM



What Do You Need to Build a Portfolio with Illiquid Alts?

- How to assess the relative risks and expected returns of Alts in a manner consistent across different Alts and liquid public markets?
- How to determine an optimal allocation to Alts that satisfies a CIO's expected return and cash flow (*i.e.*, liquidity) requirements?

Performance Comparison Using Quarterly-Linked Returns May Be Misleading



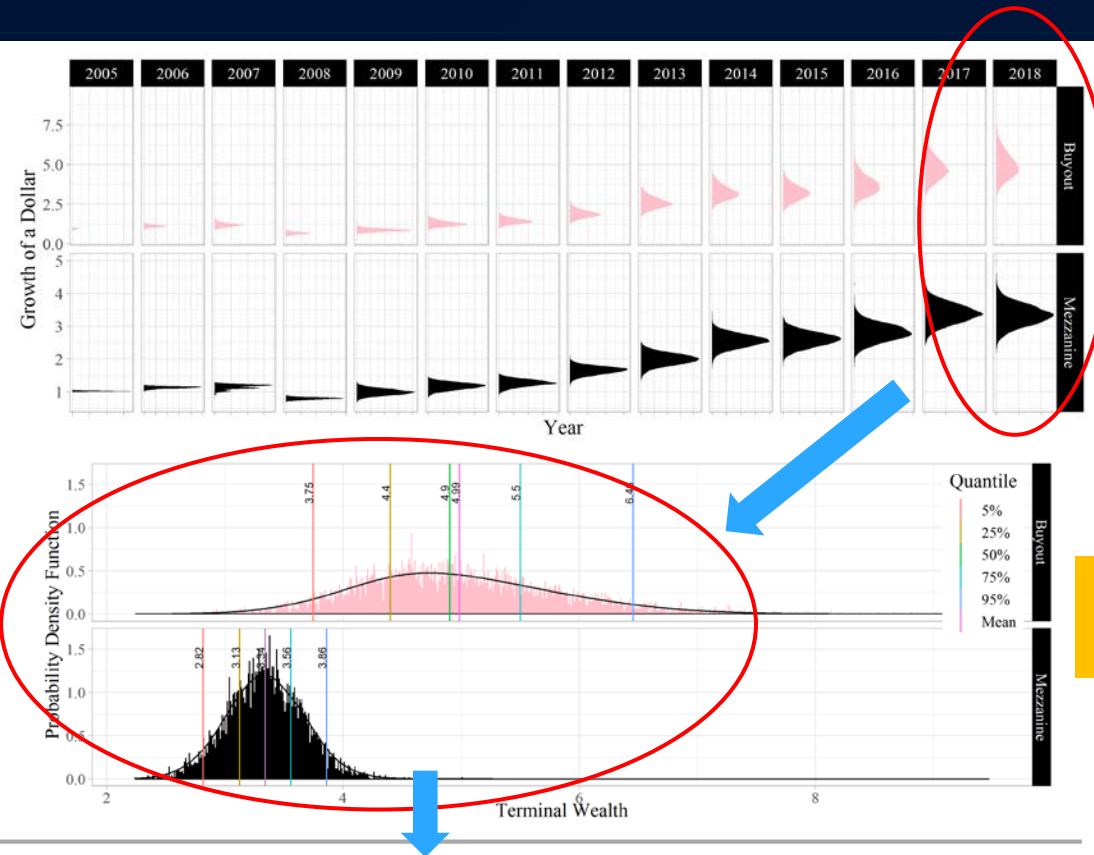
- **Published returns are not replicable**
 - Would require access (and commitments) to all funds, and an inordinate amount of capital
- **Published returns are not comparable with public market investments**
 - Would require private investment portfolios to be *self-contained* and *self-financed*
- **Published returns do not adjust for relative risk across different Alt and public markets**
 - Performance comparison must be done on a risk-adjusted basis

Source: PGIM IAS, S&P, Bloomberg, Barclays and Burgiss. Provided for illustrative purposes only. Please see additional disclosures.

Measuring Risk & Return of Alts – A Fair Comparison Framework

- **Measuring performance is not easy**
 - Long-term return measures are usually **not reliable**
- **Measuring risk (based on time-series of returns) is even more challenging**
 - Serial correlation in returns leads to **risk underestimation**
- **So, we estimate risk based using long-term measures**
 - How much wealth might we have at the horizon, and what is the potential variability of that wealth?
 - Terminal wealth dispersion (TWD)
- **Measure terminal wealth of realistic Alt portfolios using fund-level cash-flow data**
 - Generate synthetic cash-flow data using since-inception IRR and TVPI
 - Invest in few funds (sampled randomly) every vintage – **Investable**
 - Invest uncalled/uncommitted capital in a public index – **Self-contained, self-financed**
 - Follow a **commitment strategy** for several vintage years and measure the **terminal wealth**
 - Use simulation to generate a distribution of terminal wealth
 - Estimate the mean and volatility of periodic returns – **Risk-adjusted performance**

Distribution of Wealth over Years – Estimating Mean Returns and Volatilities



Buyouts have generated higher, but more variable wealth, than Mezzanine Credit

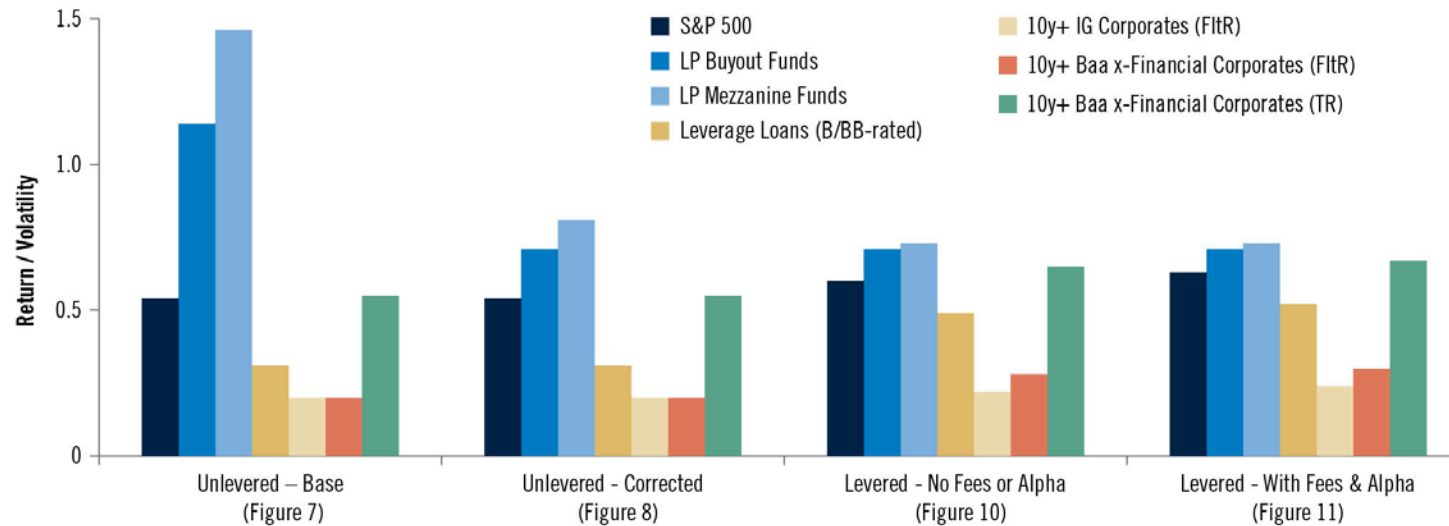
Subclass of Private Capital Funds	Estimated Mean (Annual)	Estimated Volatility (Annual)
Buyout	11.63%	16.44%
Mezzanine	8.64%	10.7%

Source: PGIM IAS, S&P, Bloomberg, Barclays and Burgiss. Provided for illustrative purposes only. Please see additional disclosures.

Comparing Alt Asset Performance with Public Assets

- Although reported private asset performance can be misleading, private assets have outperformed public assets

Comparison of Risk-Adjusted Annual Returns, Various Investments 2005-2018

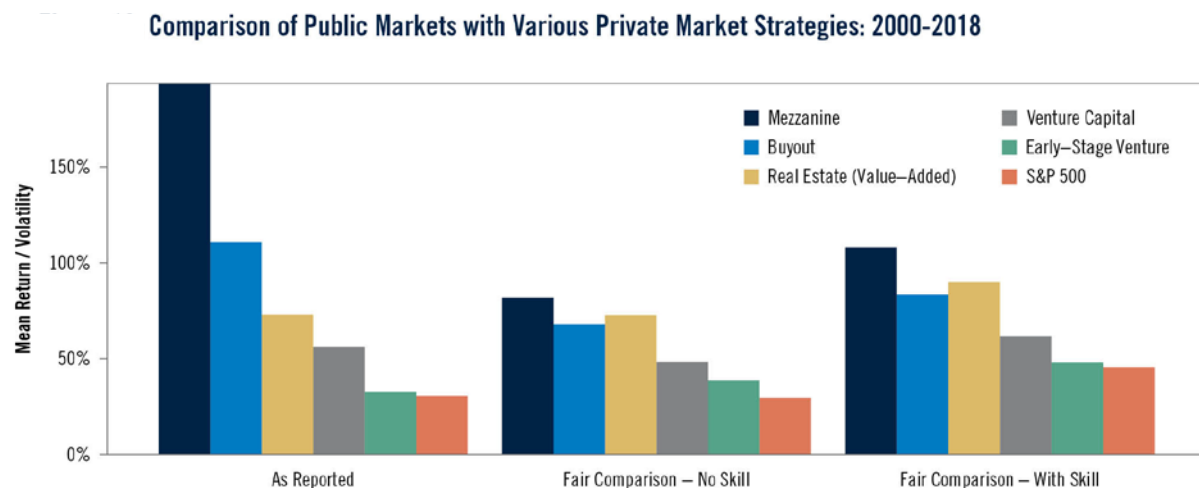


Note: All numbers have been annualized
 Source: PGIM IAS, Burgiss, Bloomberg, S&P and Barclays. Provided for illustrative purposes only.

A Fair Comparison Framework: Risk and Reward in Private & Public Investments,
 November 2019, PGIM IAS

Incorporating CIO Fund-Selection Skill in Expected Return and Volatility

- CIO fund-selection skill is important for private assets
 - Probably more important than for public assets
 - Many CIOs have experience in selecting good General Partners (GPs) and funds
 - Need to incorporate the CIO's fund-selection skill to do a better comparison
- Adjusting for modest CIO fund-selection skill, private assets enhance their edge over public assets



Some Skill, Commitments / Vintage = 5, Commitment Strategy = 50%, Default Investment = S&P 500

Note: The risk-adjusted returns for fair comparison are based on level up (or down) portfolios to match the volatility of buyouts. We assume that the capital leverage can be borrowed at the cost of 3ml plus spread of 100bp. We also assume a funding haircut of 10% across all investments.

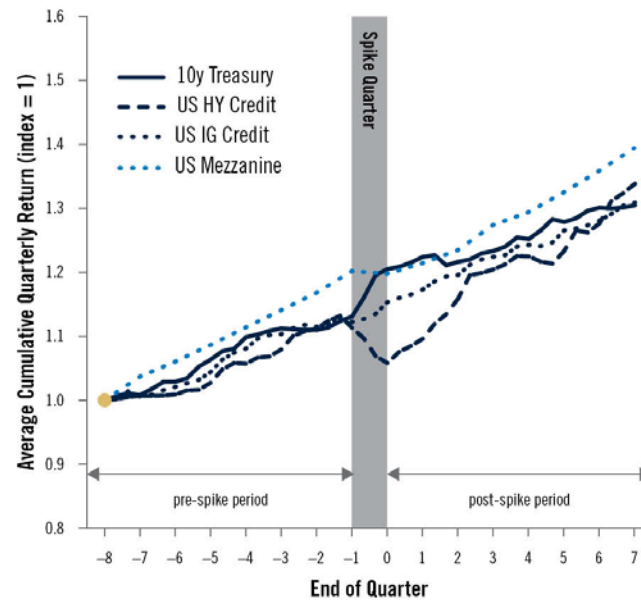
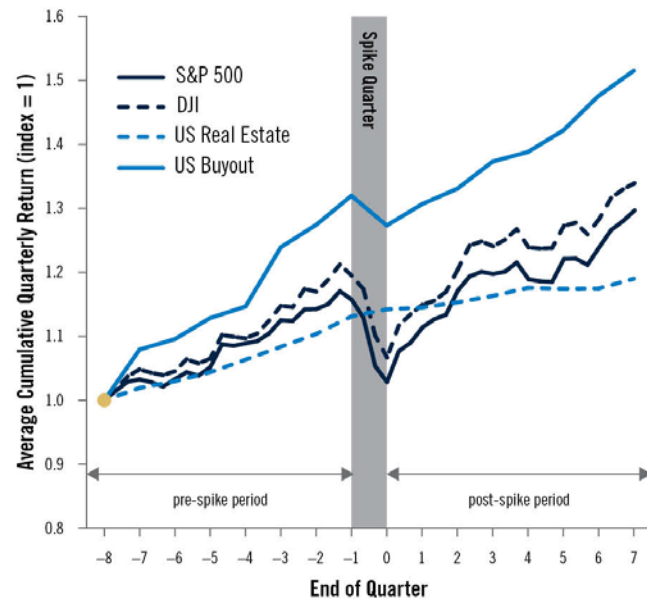
Source: PGIM IAS, S&P, Burgiss, eVestment. Provided for illustrative purposes only.

Measuring the Value of LP Fund-Selection Skill: A Fair Comparison Framework, April 2020, PGIM IAS

Alt Asset Performance & Market Volatility Spikes

- Illiquid private assets provide some cushion (in reporting terms) during volatile markets
- For this and other reasons, allocations to Illiquid private assets continue to grow in institutional portfolios

**Cumulative Quarterly Returns Surrounding VIX Spike Events
(Q4 1988 – Q2 2017; 9 VIX Spike Events)**



Past performance is not a reliable indicator of future performance.
Source: PGIM IAS, Burgiss, Datastream, ODCE, FRB St. Louis (FRED). For illustrative purposes only.

*"Riders in the Storm: How Volatility Events Affect Private Asset Class Performance,"
June 2020, PGIM IAS*

Bringing It All Together – How to Add Alts to Institutional Portfolios?

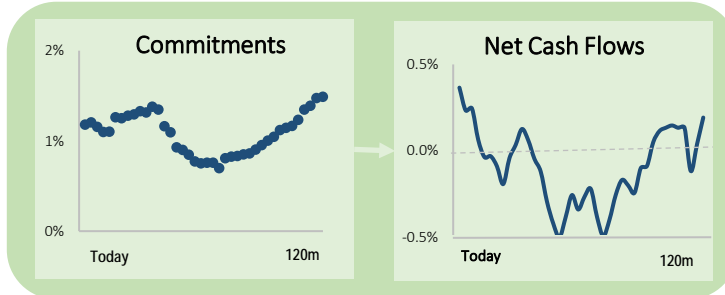
Top-Down
Asset
Allocation

Asset Type	Description
Public Passive % (β Stocks + Bonds)	no α - generally available for liquidity at low cost
Public Active % (α Stocks + Bonds)	α generating – liquid but costly to provide liquidity
Private % (NAV)	Unavailable for Liquidity

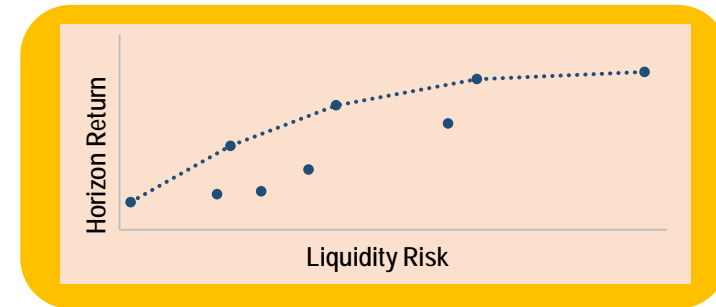
External &
Internal
Liquidity Needs

Liquidity Demands
Periodic Benefit Payments
Capital Calls
Dry Powder Creation
Rebalancing

Bottom-Up
Private Market
Investing



Portfolio Performance & Liquidity Tradeoff



Building a Better Portfolio: Balancing Performance and Liquidity, April 2020, PGIM IAS & GIC

Source: PGIM IAS. Provided for illustrative purposes only.



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Private Debt Investment Panel

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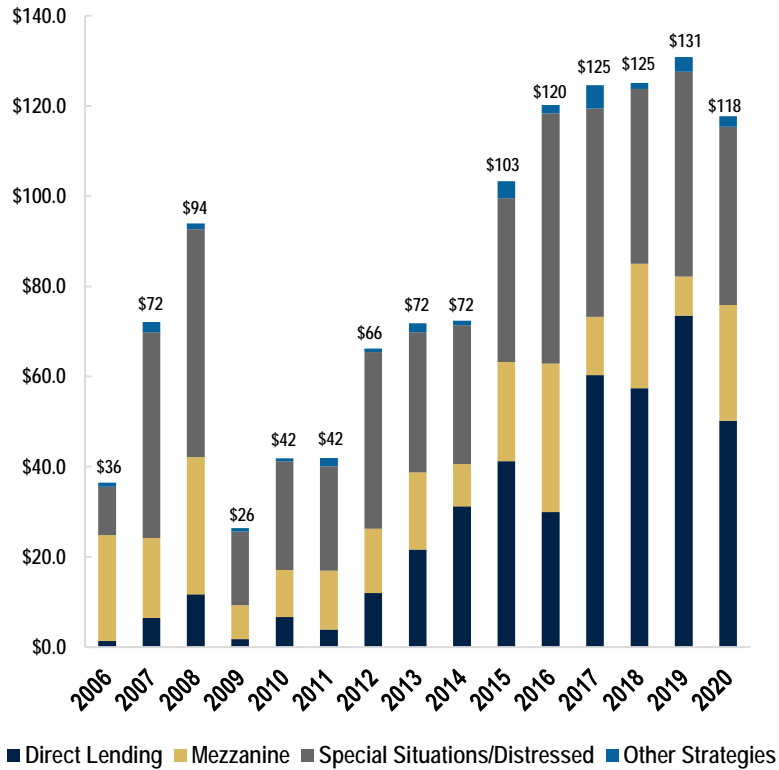
Global Head of Private Debt Strategy and Investor Solutions
PGIM Real Estate



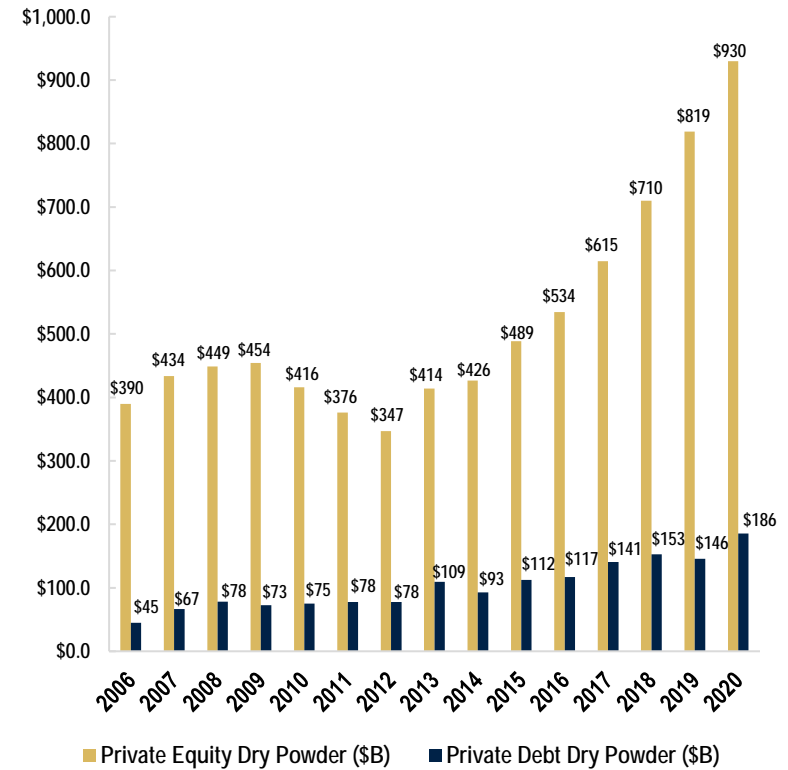
Direct Lending Remains Critical to Private Equity Deployment

Private equity dry powder c. 5x private debt dry powder, despite private debt capital formation

Global Private Debt Capital Fundraising (US\$ bn)

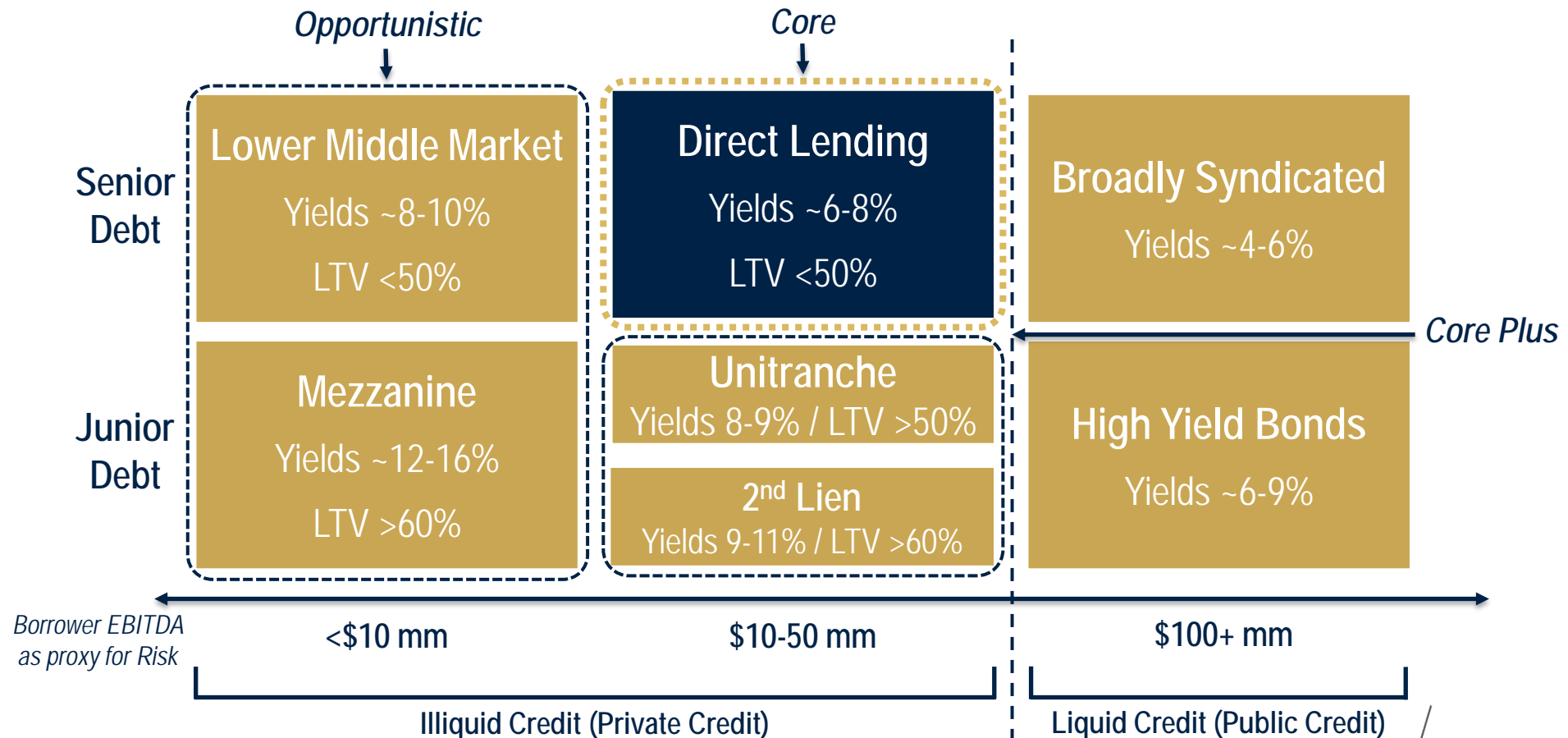


Global Private Equity and Debt Dry Powder (\$bn)



Private Debt Market Landscape

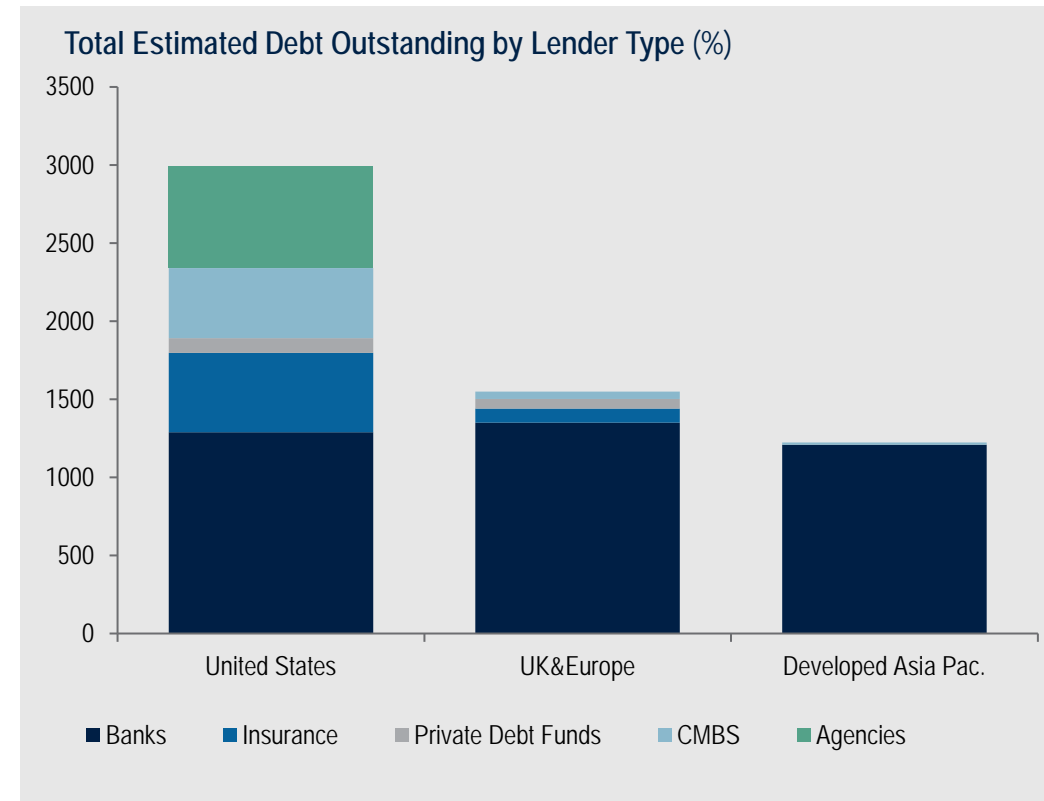
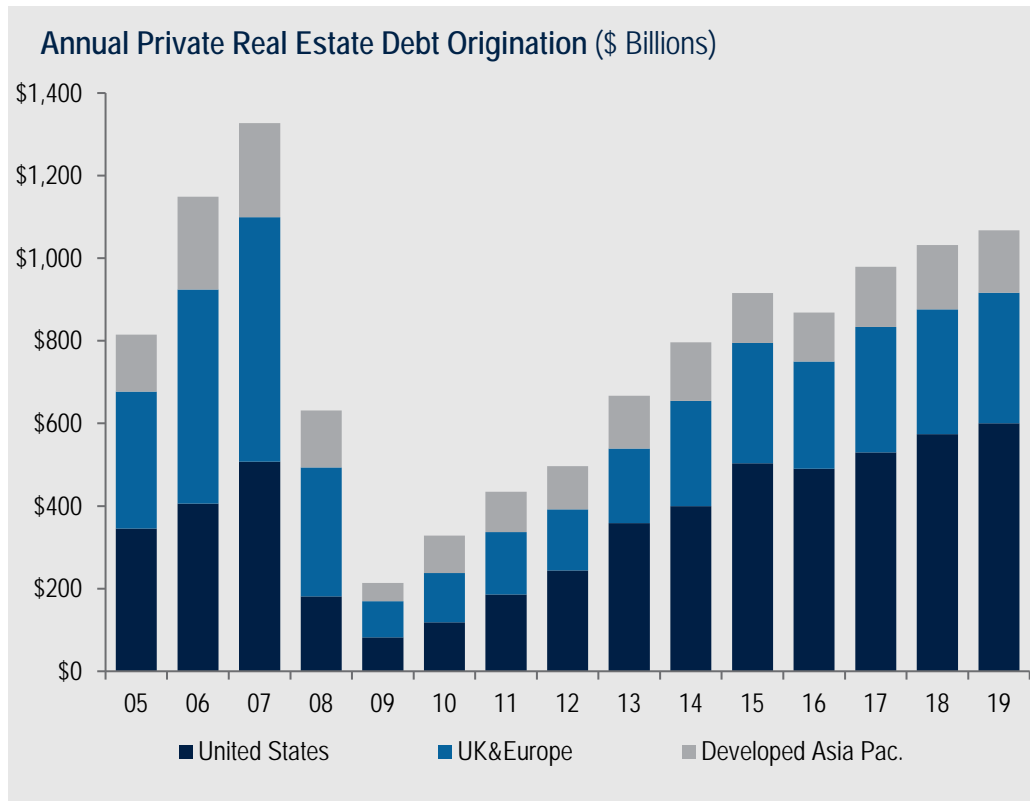
- Lending to **middle market** companies (\$10-50mm EBITDA average)
- **Event-driven** transactions (LBO, acquisition, recapitalisation)



Source: PPC Internal.



Global Real Estate Debt Origination & Composition



Note: origination data for Continental Europe and Asia Pacific estimated using data on transaction volume, debt holdings and LTV ratios.

Source: ACLI, Cass Business School, Cushman & Wakefield, PGIM Real Estate. As of Nov 2020

PGIM Real Estate | Real Estate Debt Proposal | February 2021 | REF:



Private Real Estate Debt: Investment Strategies

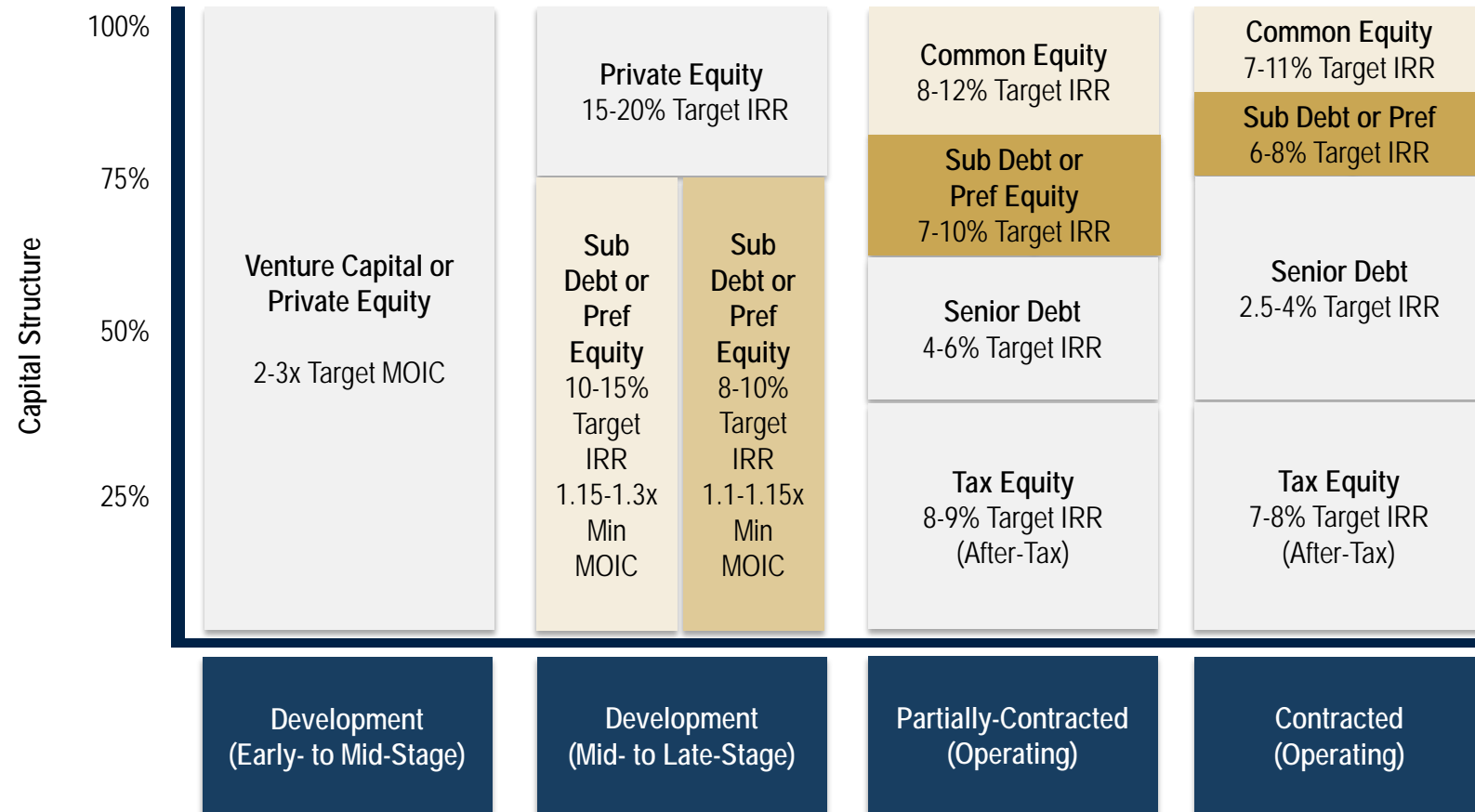
	Core Debt	Core Plus Debt	High Yield Debt
Description	Senior loans secured by core, stabilised properties	Senior and subordinated loans secured by pre-stabilized or light transitional properties	Whole loans and mezzanine debt with equity participations in value-add properties
Return Profile	Secured Income	Enhanced Income	Total Return
Loan Profile	<ul style="list-style-type: none"> Investment Grade Senior Fixed & Floating Rate Agricultural Loans 	<ul style="list-style-type: none"> Whole Loan Junior Debt & B-Notes Levered Senior 	<ul style="list-style-type: none"> Whole Loan Mezzanine Capital Appreciation
Return Target	2.0%-4.0% p.a. (Spreads: 150-250 bps)	4.0%-7.0% p.a.	8.0%-12.0%+ p.a.

Returns provided are targets, indicative only, stated in local currency, based on current market conditions and cannot be guaranteed.

PGIM Real Estate | Real Estate Debt Proposal | February 2021 | REF:



PGIM Sustainable Power: Investment Strategy



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