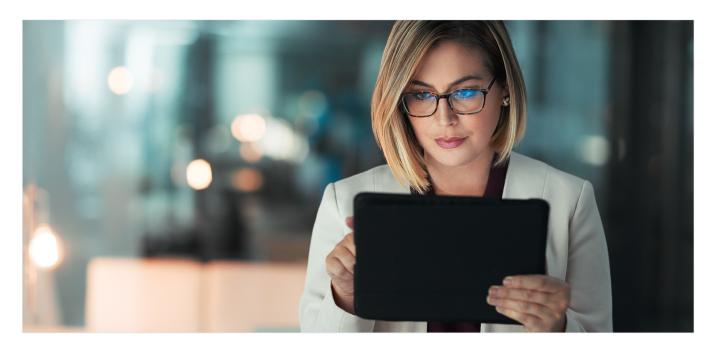**FACTSET**

FactSet Global Private Equity Model Summary

Accurately forecast economic risk for private equity holdings within multi-asset class portfolios using FactSet's Global Private Equity (PE) Risk Model.

MODEL OVERVIEW

Buyout (BO) funds and Venture Capital (VC) funds are types of PE Funds that invest directly in private companies. Capturing the complexities of PE is important when measuring and managing the risks of Multi-Asset Class portfolios that hold a composite of public equities, PE funds, and fixed income securities. As a result, one must incorporate the connection between the public and private markets while also modeling and forecasting the volatility of each investment.

The Global Private Equity Risk Model, integrated into FactSet's Multi-Asset Class (MAC) model uses the largest set of data points available to explain the returns of PE funds. The factors are separated into public market, systematic private, and residual components. The model also provides the granularity needed for asset selection through cash flow data reported by limited partners.

$$r_t^i = \underbrace{\beta^i \lambda_{\nu^i(t)} F_t}_{\text{public market}} + \underbrace{p_t}_{\text{systematic private}} + \underbrace{\alpha^i + \sigma_{\nu^i(t)} \epsilon_t^i}_{\text{fund-specific}}$$

MODEL STRUCTURE

Although it is structurally similar to other public equity models such as CAPM and Fama-French, FactSet's Global Private Equity Risk Model accounts for the intricacies of private funds, setting the model apart from other models in the industry who focus on more traditional measures like the internal rate of return (IRR). The model's public market components capture the connection between public markets and PE fund returns, while the systematic private components function as common drivers for PE fund returns that are distinct from the public market returns. With the FactSet Workstation, clients can override and modify model parameters for each of the funds using estimates from their in-house models.

		Definition	Dimensionality
r_t^i		fund return	time-series for each fund
β^i		fund long-term beta	one for each fund
$\nu^i(t)$		fund age at time t	one for each fund for each period
λ_χ		beta age dependence	for each class
F_t		public market return	time-series for each region
p_t		systematic private component	time-series for each class and region
α_i		fund alpha	for each class and region
σ_χ		fund-specific volatility	for each class and region
ϵ_t^i		fund residual	time-series for each fund

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MODEL COVERAGE

FactSet's Private Equity Fund database contains both descriptive and time-series data for funds. For this model, the estimation universe and the coverage universe are separate. The estimation universe only includes the funds that have both descriptive data and time-series data, while the coverage universe includes funds from the estimation universe and funds that only have descriptive data. The model groups funds by related characteristics using descriptive values such as region, vintage year, and currency.

	Coverage Universe	Estimation Universe
BO	2632	741
VC	3590	334

Size of Estimation and Coverage Universes

For funds held under management but not directly estimated by the model, fund descriptive information alongside cash flows can be uploaded to FactSet to provide risk estimates from the model.

ESTIMATING THE PRIVATE EQUITY MODEL

Estimating the risk parameters can be complicated because of the data gathering process. The impact of the public markets should be excluded when estimating and must be distinct from systematic private components. Therefore, the model must include a component separate from what can be inferred by the public market. The systematic Private Market Component of the model separates itself from the public market and contributes to the risk of private funds.

Due to the complexity and low data availability of the model, a Bayesian process is used to estimate the parameters. It can be run incrementally in each quarter to refine estimates of the risk parameters.

The approach described throughout this overview is covered in further detail in our white paper, *FactSet Global Private Model*. To request a copy, contact sales@factset.com.