TOTAL PORTFOLIO APPROACH & PRIVATE ASSETS

Part I: Measuring exposures with private markets data

March 2026

This paper is the first in a three-part series on the Total Portfolio Approach (TPA). In this paper, we discuss some of the key components and objectives of TPA and explore using high-frequency private markets data to document risk factor exposures, dynamic correlations, co-tail dependency, and hurdle rates. Future papers will examine several case studies of TPA by large investors and make use of factor exposures calculated with privateMetrics and infraMetrics indices to design a multi-asset portfolio.

Executive Summary

TPA with Private Assets. The Total Portfolio Approach aims to find a common risk language across the portfolio, including measuring portfolio level factor exposures, dynamic co-movements, tail-risk, and other risk measures. Implementing TPA can seem difficult with private assets since it requires high frequency, market based private markets pricing and risk metrics. Appraisal-based private asset proxies, with their lagged and stale valuations, materially understate marginal risk contributions, making it impossible to compare investment opportunities on an apples-to-apples basis. In effect, risk measurement errors are likely to lead to excessive allocations to private assets, defeating the point of TPA. Using listed proxies is even more clearly self-defeating since risk factor exposures between public assets and the private asset proxy would be the same by design.

The TPA Framework. Several institutions employ a "reference portfolio" as a governance mechanism to set a risk tolerance level, or as a quasi-benchmark (sometimes both). This reference portfolio is typically comprised of listed equities and bonds and used in part to validate a risk budget with the Board. With the TPA framework, the reference portfolio can both set the risk budget and opportunity cost for active risk: active risk comes in the form of deviations from the reference portfolio, including through the inclusion of private asset classes. Moving from the reference portfolio to a diversified portfolio including public and private assets is expected to improve risk adjusted returns (Sharpe ratio). Unlike alpha which is manager-specific, TPA targets improved diversification and the harvesting of risk premia available across imperfectly correlated risk exposures.

privateMetrics and infraMetrics: Using private market indices like SIPA's is key to implementing TPA with private assets:

1. Higher frequency private assets data can be used to quantify both **macro and style factor exposures**, allowing for a linkage with listed securities. This can inform on risk at total portfolio level and may facilitate rebalancing using factor exposures.
2. **Dynamic correlations** between private and listed assets, detailing how the relationship evolves in different regimes and stress periods.
3. **Dynamic risk premia** (produced monthly) allowing for comparison of market priced risk premia across private and listed assets.
4. More realistic risk and return data that can be used to establish sensible **hurdle rates** for adding private equity, private infrastructure equity (or debt) to the portfolio.

Data and Methods

Drawing on data from infraMetrics® and privateMetrics®, this paper illustrates how market-based private asset data can be used to determine risk exposures and establish a common language for comparison with other assets across a portfolio.

Both infraMetrics® and privateMetrics® databases can be used to download monthly index prices and risk metrics for private infrastructure equities, private infrastructure debt, and private equities. The flagship indices, infra300 and private2000, represent broad market indices diversified by sector, geography, and risk profile, best capturing the systematic risk of their respective markets. Both represent excellent starting points for capturing systematic risk and returns in their respective markets, private equity and infrastructure. Find infraMetrics indices (here) and privateMetrics indices (here). Further, our MSExcel Add-in allows for seamless download of the index data (see here).

A brief description of each index is below:

The infra300 index is a representative set of 300 unlisted infrastructure companies. The companies are selected to form a representative sample by TICCS® categories from an underlying universe of close to 9100+ firms in 27 countries. The index is represented globally in both corporate and project finance companies.

The private2000 index includes the top 2000 private companies by value across 30 countries and diversified by sector. The companies are selected to form a representative sample by PECCS® categories from an underlying universe of close to 1 million firms.

Total Portfolio Approach and Private Assets

Under the Total Portfolio Approach, one goal is to understand and target factor exposures independent of traditional asset class definitions. TPA is now employed by many leading institutional investors.[1]

In practice, investors still need to access the various macro and style factors by investing across asset classes, normally with very specialized teams (e.g. private equity, infrastructure). At the total fund level, ideally the fund can look through to the rolled-up exposure to equities, interest rates, credit, and other exposures that can overlap across asset classes. Some of the components of and motivations of TPA include[2]:

- Measure against long term fund goals rather than asset class benchmarks
- Diversify across factors rather than asset classes
- Measure marginal contribution of risk or return
- Allow asset classes and opportunities to compete against each other for inclusion, considering marginal impact to risk, returns, and liquidity

[1] Including New Zealand Super, GIC, CPP Investments, TCorp NSW, ATP, HOOPP, Future Fund
[2] Anson (2024). CAIA (2024).

- Understand cross asset class co-tail dependencies

By identifying common factor exposures across different assets, the fund could reduce overlapping diversification efforts at both the asset class level and the total fund level. To do so, a common language is required, as listed and private markets differ in the frequency of market pricing. Moreover, most of the tactical or dynamic changes are likely to happen with listed assets, given the illiquid nature of private assets. This requires a clear understanding of private asset exposures to ensure that any adjustments enhance factor exposures as intended.

An additional benefit of this approach is related to rebalancing the portfolio when there exists a significant allocation to private assets. If listed markets sell off, private assets, due to their smoothed and stale valuations, will appear overweight (denominator effect). To rebalance, either private assets would have to be sold (expensive on secondary market), or listed assets increased via leverage. This could impose additional risk at a time of heightened volatility. If exposures are quantified, listed (or liquid) assets can be used temporarily to maintain desired risk factor exposures, while private asset exposures adjust more gradually through valuations, contributions, and distributions.

Importantly, this analysis needs to be conducted with private markets asset level data. If relying on listed proxies, correlations and betas are likely to provide misleading risk exposures. The co-movements of listed vs private assets can vary in different regimes, as evidenced by the diverging performance in the post Covid high interest rate environment.

We can explore an example of using infraMetrics® data for infrastructure equities by looking at the common exposures across the infra300 index, major listed equities indices, government, and corporate bonds of various durations.

TABLE 1: INFRA300 EQUITY, LISTED BONDS AND EQUITIES MACRO AND STYLE FACTOR EXPOSURE (COEFFICIENTS)

Factor	infra300	SP500	R2K	IG Bonds	TLT	UST 7-10Y	UST 1-3Y	TIPS
MACRO FACTORS								
Equity	0.27***	0.98***	1.16***	0.23***	-0.02	-0.00	-0.00	0.12***
Int. Rates	1.17***	-0.05*	-0.22*	0.88***	1.84***	1.00***	0.17***	0.72***
Credit	-0.01***	0.00***	0.00	-0.00	0.00	-0.00	0.00	-0.01***
STYLE FACTORS								
Size	-0.77**	0.09*	0.28**	-0.03	-0.20**	0.00	0.03*	0.05
Leverage	-0.01	-0.02	0.08	0.03	-0.09	-0.00	0.02	-0.01
Investment	0.64***	-0.04	0.16	0.17*	0.20***	0.00	-0.02	0.01
Profit	-0.50***	0.02	-0.02	0.18**	0.04	0.02***	0.01	0.00
Country	-0.17**	-0.07***	-0.17**	0.05	-0.08*	-0.00	0.00	-0.08***

*Source: infraMetrics, DataStream. Regression Coefficients. Monthly data - Jan 2004 to Dec 2025. All in USD. Equity: MSCI World, Int Rates: 7-10yr Govt Bonds, Credit: Change in OA HY spreads MoM. Significance: * p < 0.10, ** p < 0.05, *** p < 0.01.*

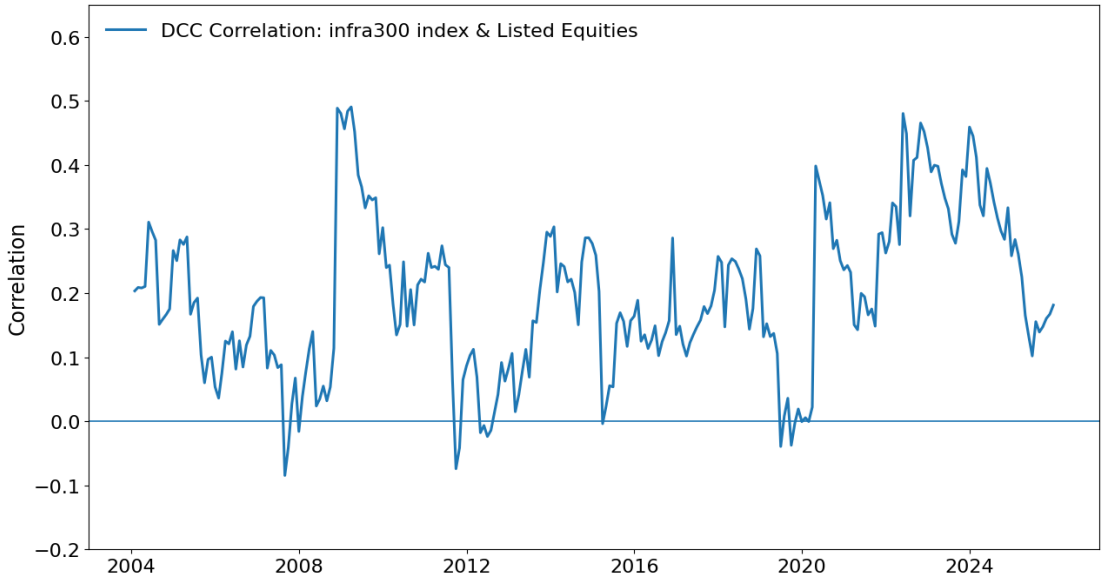
Table 1 shows how the infra300 VW index, several listed equities indices, and bonds load on three macro exposures including equity, interest rates, and a change in high yield credit Additionally, there are five infrastructure asset-class-specific style factors (Size, Leverage, Investment, Profit, Country).

Infrastructure's characteristics relative to other asset classes are clear. As expected, more exposure to the equity factor than investment grade and government bonds (but far less than listed equities). A significant loading to interest rates, consistent with fixed income, and mild exposure to changes in credit spreads. Any rebalancing done via listed proxies will have to consider these interactions. Furthermore, infrastructure equity investment has style factors (Size, Leverage, Investment, and Profit) that may be unique exposures relative to other classes.

infraMetrics® data allows an investor to look through to a private asset class like infrastructure equities and understand how it contributes to total fund exposures. This is valuable when looking to add exposure as investment opportunities can be compared with a common framework, whether listed or not.

While OLS coefficients are useful, it is helpful to observe how the relationships hold up through different periods. In Figure 1, we observe the dynamic conditional correlation (GARCH model) for infra and equities since 2004. We can see that correlations between private infra equities (infra300 index) and listed equities spiked in 2008/09 and 2020, coinciding with the GFC and Covid events, respectively. The diversification is designed for bad times, so it is important to understand how the correlations behave throughout cycles.

FIGURE 1: INFRA300 EQUITY DYNAMIC CONDITIONAL CORRELATION WIH FAMA FRENCH (FF) MARKET FACTOR



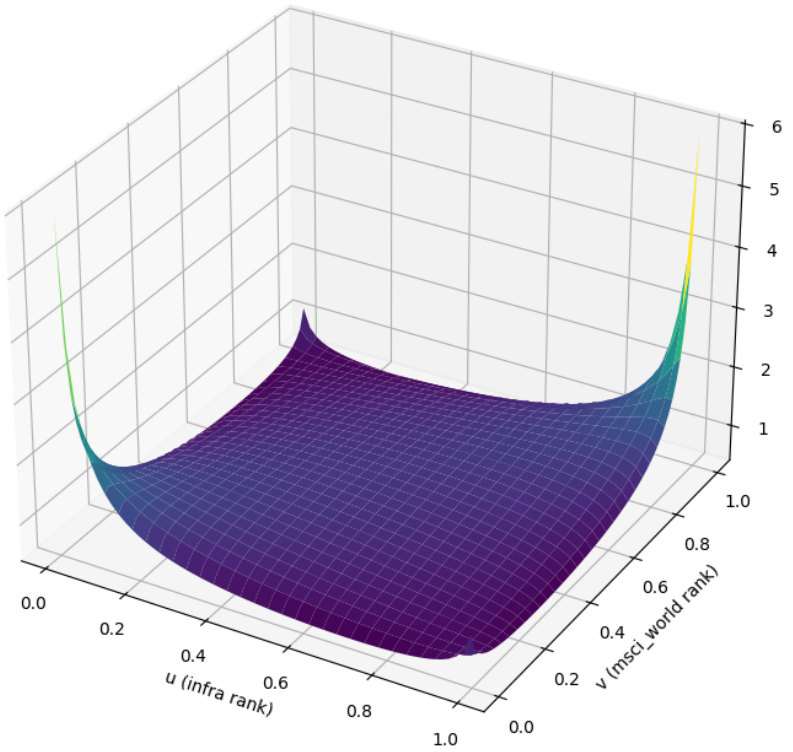
Source: infraMetric.

We can explore this further using a t-copula surface, which evaluates how assets move together, particularly in joint extreme outcomes. Do infrastructure equities tend to crash at the same time as global equities?

Figure 2 shows that the infra300 index (u-axis) and global equities (v-axis) exhibit moderate positive dependence, with a tendency to move together in both strong and weak market conditions. The elevated density in the lower-left corner indicates some

joint downside risk, consistent with an estimated tail dependence of roughly 8%. However, the relatively smooth surface suggests that infrastructure does not behave like a fully equity-like asset in severe downturns.

FIGURE 2: INFRA300 EQUITY INDEX T-COPULA SURFACE



Source: infraMetric, Bloomberg. Calculations by SIPA. Monthly Data since January 2004.

In the next section, we look at how dynamic private assets data can be used to help assess the relative attractiveness across opportunities. In the following section, the latest data can be used to compare expected returns against hurdle rates, incorporating market-based risk and correlation assumptions.

Dynamic Risk Premia in Private Assets

One of the challenges[3] of incorporating private assets in either a Strategic Asset Allocation or TPA framework is the lack of dynamic inputs to allow for comparison across investment opportunities. Risk premiums change, volatility and correlations can behave differently in stressed conditions, as shown earlier. If one wants to be agnostic across assets classes, higher frequency private assets data to is a requirement to evaluate expected returns, valuations, and risk against listed or other private assets in the portfolio.

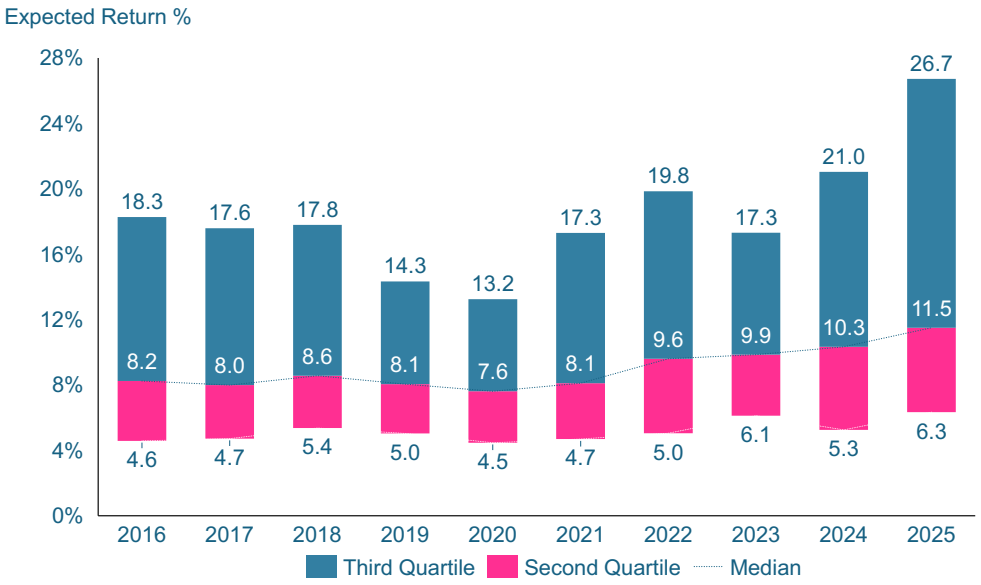
[3] Elkamhi, Lee (2025)

In figure 3, we observe the inter quartile range of expected returns for the private2000 index constituents over the last ten years. This data is calculated monthly, based in part on observed transaction pricing in the market, allowing for a real-time view of risk premiums in private equities. In figure 4, we show the time varying equity risk premiums for infrastructure equities.

Median expected returns were 11.5% as of 31 December 2025, up close to 400bps from 2020 levels of 7.6%. The increase in expected returns (discount rates) explains the current challenge in private equities. A large pool of assets was acquired at very low implied discount rates in 2020 and now have to exit or be re-valued based on a higher rate deck.

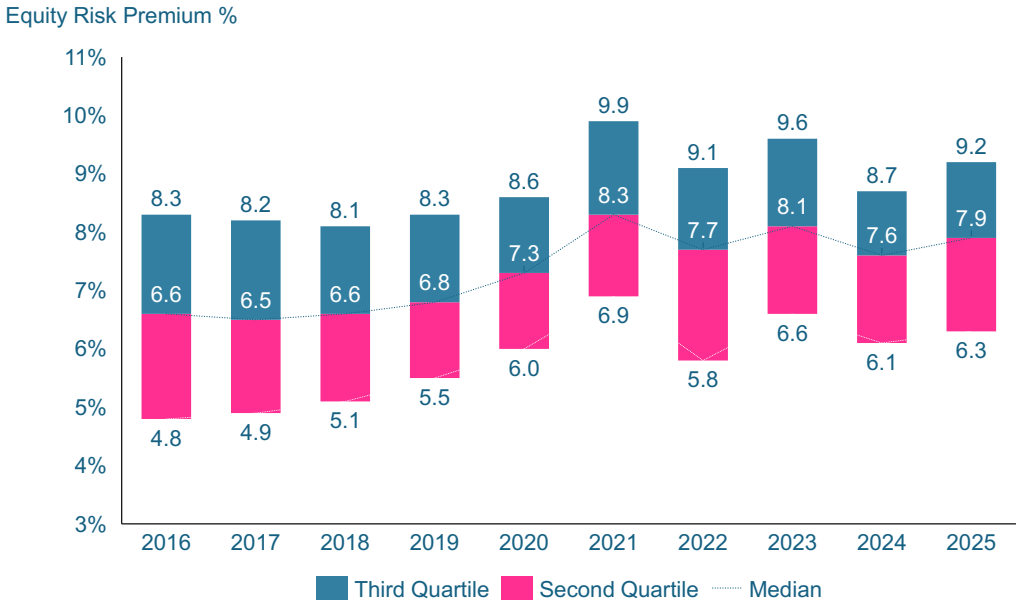
For investors with a more flexible mandate, this real time data can help assess the relative attractiveness of adding an investment or segment. One needs to know the current pricing environment, while also understanding how an opportunity will interact with the existing investments or asset classes. Moreover, the relative attractiveness is continuously changing.

FIGURE 3: PRIVATE2000 VW INDEX EXPECTED RETURNS IQR (RETURNS ARE GROSS OF FEES)



Source: privateMetrics. Expected Returns are Index Level and thus Gross of Fees.

FIGURE 4: INFRA300 VW INDEX EQUITY RISK PREMIA IQR



Source: infraMetrics

Competing for Capital and Hurdle Rates

We can use the time-varying expected returns outlined in the previous section, together with risk, pricing, and correlation data, to assess how an appropriate hurdle rate for private assets might be constructed.

We will rely on expected returns to reflect current market pricing dynamics, as provided by PrivateMetrics. For private equity, the expected return is 11.5% on a gross basis. After accounting for fees of approximately 250 basis points, the net return decreases to roughly ~9%, depending on the structure through which an institution invests in private equity.

Table 2 explores adding private equities to the portfolio based on its current expected returns and beta to the portfolio. If we assume this will be funded from a simple reference portfolio composed of equities and bonds, we can calculate the marginal return requirement for private equities if added to the portfolio based on its assumed correlation with the portfolio and risk. We can then compare that with the latest net of fees expected returns of private equities.

In this case, though private equities will add diversification with a 0.8 correlation[4], it's more volatile than the reference portfolio, leading to a beta of 1.2. The hurdle to add private equities would be the portfolio expected return of 6.4% times the private equities beta to the portfolio of 1.2, equalling 7.7%. This compares to the ~9% net of fees median

[4] Do Private Equities Track Public Markets (and when)? Horizon Correlations in Private Equities

expected returns of private equities as of the end of 2025. This represents a starting point for comparing the relative attractiveness of adding a particular investment or asset class. Though the current expected return of private equities exceeds the hurdle, an investor may also consider other elements associated with the addition, including its impact on liquidity.

TABLE 2: REFERENCE PORTFOLIO

Asset	Weight	E(R)	Volatility	Correl	Beta to Port	Hurdle Marginal $
Equities	80%	7.0%	14.0%	0.99	1.21	7.75%
Bonds	20%	4.0%	6.0%	0.30	0.16	1.00%
Portfolio	100%	6.4%	11.5%			na
private2000		~9.0%	17.3%	0.8	1.20	7.70%

Source: privateMetrics, Bloomberg. Private2000 Expected Return is 11.5% less 250bps of fees.

Importantly, if we do this simple exercise with appraisal data, we get low volatility and beta figures, and thus much lower hurdle rates for marginal investment dollars. This highlights a risk of the TPA approach. When the overall risk budget is derived from a reference portfolio of listed assets, large allocations to private assets with understated marginal risk contributions can result in capital misallocation.

If public market indices are used as proxies for the risk of private assets, they do not provide accurate pricing or expected return estimates for private markets. In our example, even if an imperfect hurdle rate were set based on an assumed beta to listed equities, there would still be limited visibility into the current market valuation and pricing dynamics of private equity.

Conclusion

The Total Portfolio Approach has gained significant attention and has been adopted by several leading pension funds and sovereign wealth funds. However, its effectiveness with private assets exposure depends on the quality and frequency of the underlying data used to measure volatility, correlations, and risk premia.

As discussed above, market-based, higher-frequency private asset data materially changes the assessment of diversification benefits and hurdle rates, relative to appraisal-based measures that smooth volatility and understate relationships. In this context, privateMetrics® and infraMetrics® provide a practical solution to the challenge institutions face when adopting TPA with significant private asset holdings.

Unless investors can look through to the private asset holdings to capture the true exposures, there is also a risk that TPA serves to obfuscate the true risk exposure in the portfolios. The ability to line up listed and private asset classes to understand both macro and style exposures enables investors to understand their total portfolio exposure.

In Part II, we will examine these topics in more detail across infrastructure and private equities, and tie risk exposures to the reference portfolio.

privateMetrics API integration

Access all privateMetrics data programmatically and build your own applications for private market investing and reporting

Index Catalogue

Browse our catalogue of hundreds of private equity, infrastructure and infra debt indices, inc. market indices like the infra300 and private2000, and thematic indices representing specific market segments.

Taxonomies

Query the PECCS® and TICCS® taxonomies used to create the privateMetrics universe. Access class codes, names and definitions to build your own index and comps customisations applications.

Index Data

Access a comprehensive set of performance and risk metrics for hundreds of private equity, infrastructure and infra debt indices tracking numerous geographies and segments.

Custom Benchmarks

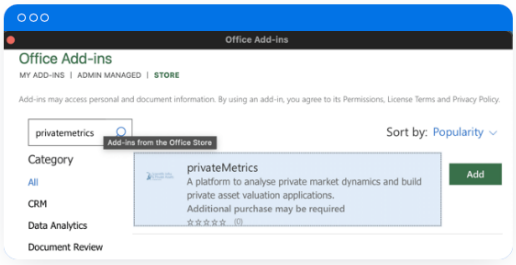
Build custom benchmarks setting target weights by PECCS, TICCS, style and geography that align with your strategy. All index metrics are recalculated for you.

Custom Comps

Create customised comp sets using PECCS® and TICCS® segments, geography and systematic risk profiles. Get metrics like discounts rates and EBITDA multiples.

Yield Curves

Query risk-free rates for a given pricing and maturity date to support discounted cash flow (DCF) calculations, valuation models, and other financial analyses.



Install our MSExcel Add-in

With the **SIPA Assets Excel add-in**, you can integrate market data about private asset markets directly into your investment workflow.

privateMetrics Excel Add-in Documentation

The privateMetrics® Valuation Model

Our approach to the valuation of private companies is designed to maximise the available transaction and financial data in private markets and provide a standardised and systematic manner to update prices with every observed transaction.

First, we construct a multi-factor model of prices using a sample of observed transactions over time which can infer the unbiased and precise factor prices that investors pay for different characteristics of a private asset. Although every transaction is idiosyncratic or unique, in a large sample of transactions, the individual errors in each transaction price can be diversified away to discern the price attributable to each factor. Factor prices refer to the premium (or discount) that an investor is willing to pay to seek exposure to a specific factor of return in private companies. For example, observing the relationship between size and valuation among reported transactions, it can be inferred how much premium or discount an investor is willing to pay for purchasing a larger private company.

Second, an important and key application of this approach is that, with the estimated factor prices, say for size, it would then be possible to price unlisted private companies whose size information is available, irrespective of whether they are traded or not. This approach provides a more robust estimate for FV and enables the creation of representative indices of private companies.

Our approach's novelty is calibrating the model to newly observed transactions obtaining the factor price evolution over time, which allows us to update the valuation for all tracked unlisted private companies.

Common Risk Factors

If investors trade unlisted private companies from each other in mutually negotiated transactions, there must be some common characteristics that at least partially explain prices. For example, private companies that have higher profits or growth opportunities may be more valuable to investors than those that are not.

To arrive at a potential list of factors, we follow simple criteria that there needs to be an economic rationale for the factor to affect valuation. The factor should also be statistically related to the valuation. Moreover, the factor should also be objectively observable or measurable. With a potential list of factors, our factor selection is the result of a statistical approach, where the factors that can satisfactorily explain the variation in observed transaction valuations are included in the final model while trading off being parsimonious with being able to explain a higher variance in valuation. The privateMetrics asset pricing model uses five key risk factors as below:

- **Size**: Larger companies may be more complex, have higher transaction costs, and be less liquid, all of which can make them trade at a lower valuation per $ of revenue.

- **Growth**: As traditional PE strategies rely on growing the entry multiple, that may involve both increasing its top and bottom lines, i.e., revenue and profits. Thus, companies that can grow faster can be more sought after, making them more valuable.
- **Leverage**: Leverage can make a company riskier as it increases the risk of default. However, there is also a signaling effect of leverage, as companies with stable consistent cash flows can support a higher leverage, and vice versa. Thus, leverage is expected to influence the valuation of a company.
- **Profits**: More profitable companies have more predictable (less risky) future payouts and hence attract a lower risk premium, making them more valuable.
- **Maturity**: Younger companies have fewer track records and face higher information uncertainty. Studies have shown that firms with high uncertainty tend to be overvalued and earn lower future returns. Thus, the maturity negatively affects valuation.
- **Country risk**: Investors may require a high return when investing in a high-risk country, thus depressing the current valuation. In other words, in countries with lower risk, investors may be willing to purchase assets at a higher valuation as government policies may be more predictable with lower macroeconomic risks.

TABLE A1: KEY FACTORS, THEIR EFFECT ON VALUATION, & THE ECONOMIC RATIONALE FOR INCLUDING THEM IN THE MODEL

Factor	Definition (Proxy)	Effect on price	Economic Rationale	References
Size	Revenues	Negative	Larger firms are more illiquid and trade a lower price	Fama & French (1993)
Growth	Change in Revenues	Positive	Companies with higher revenue growth trade at a higher price	Fama & French (1992), Petkova & Zhang (2005)
Leverage	Total debt / Revenues	Positive	Companies that can borrow more have a lower cost of capital and a higher value	Gomes & Schmid (2010), George & Hwang (2010)
Profits	Ebitda Margin	Positive	Companies that have higher profits have a higher value	Novy-Marx (2013), Hou et al. (2015)
Maturity	Years since incorporation	Negative	Companies that are mature exhibit less growth potential and trade a at a lower price	Jiang et al. (2005)
Country Risk	Term Spread	Negative	Companies in high-risk countries face more uncertain prospects	Chen & Tsang (2013)

SOURCE: CALCULATED USING OVER 10K DEALS FROM PITCHBOOK, CAPITALIQ, FACTSET, AND OTHER PRIMARY SOURCES BETWEEN 1999-2022

Our factors have been documented in prior academic studies to be associated with valuation. We also include factors that have been identified as key determinants of valuation from a survey of private equity practitioners that we conducted in 2023. Table A1 summarises the key factors that we use in the model, how they are measured, each factor's effect we document in the data on average, the economic rationale for their inclusion, and citations for the work that underpins their inclusion.

Model Set Up

The privateMetrics asset pricing model uses the Price-to-Sales ratio of observable transactions (the entry price multiple) as the modelled variable. The model is estimated

as the linear sum of the product of factor exposures and factor prices. The estimation can then separate the systematic part of the valuation while leaving out "noise" in each valuation.

$$\frac{P}{S} = a + \sum_{k=2}^{K} b_k l_k + e$$

Following standard asset pricing notation, the factor exposure or factor loading is called a beta (β), and the factor premium is called a lambda (l) for the k factors in the model. a is the intercept and e is the noise or idiosyncratic part of the valuation.

Model Calibration

The privateMetrics model uses a carefully curated dataset of more than 10k+ unlisted private company investments going back two decades sourced from a wide variety of datasets including PitchBook, Factset, Capital IQ, fund manager reports, and other publicly available data sources.

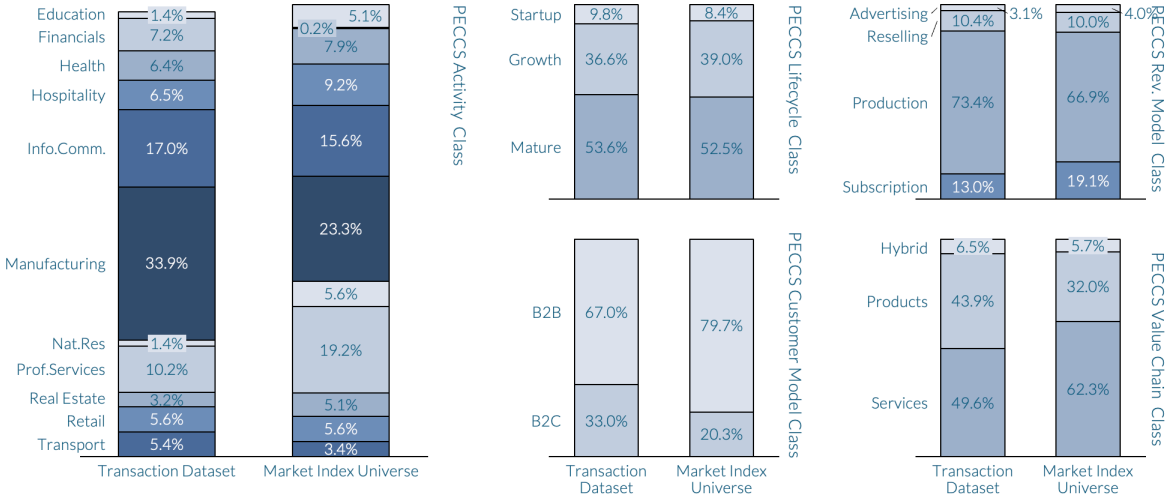
We calibrate this model using new observations monthly to update its estimation of the price of risk of each factor. In other words, each transaction observed is then used to 'update' this model (i.e., obtain new ls) through a dynamic estimation (using a Kalman filter), which retains the memory of past ls while also allowing the new transaction to influence the relationship while keeping the average e close to zero. More details on the implementation of the model are available in our online documentation and Selvam and Whittaker (2024). The dataset covers all key segments of the market as shown in Figure1.

A good application of using the model to value unlisted private companies is to create a representative marked-to-market index of private companies that are regularly valued. The privateMetrics index universe in Figure 1 includes the constituents of the private2000® index constructed by Scientific Infra and Private Assets, which is developed on this shadow pricing idea and captures the performance of private companies in 30 countries globally that are important for private equity investors (read more about the index here).

How Precise are the Predictions across PECCS® Pillars?

To examine how closely the predicted valuations track the raw modelled valuations in transactions, we compute the average estimation errors of the full sample, and also by classes within each PECCS® pillar. What stands out is that although the model by design is expected to have lower estimation errors in the full sample, the within PECCS® class estimation errors are also very small. All the errors are within ±10%, reassuring that the model predictions on average even within each segment of PECCS® are reasonable. The errors are summarised in Table A2.

FIGURE A1: PRIVATEMETRICS TRANSACTION DATASET COMPARED TO THE PRIVATEMETRICS INDEX UNIVERSE BY PECCS PILLAR & CLASS



The most commonly used metric of valuation in private markets is EV/EBITDA as PE owners have the flexibility to alter the capital structure of their holding company and hence are more interested in operational profitability without factoring interest costs. However, our model is based on P/S because P/S is statistically better, stable, and not affected by loss-making companies. Thus, one may be concerned whether our predictions for EV/EBITDA might be biased.

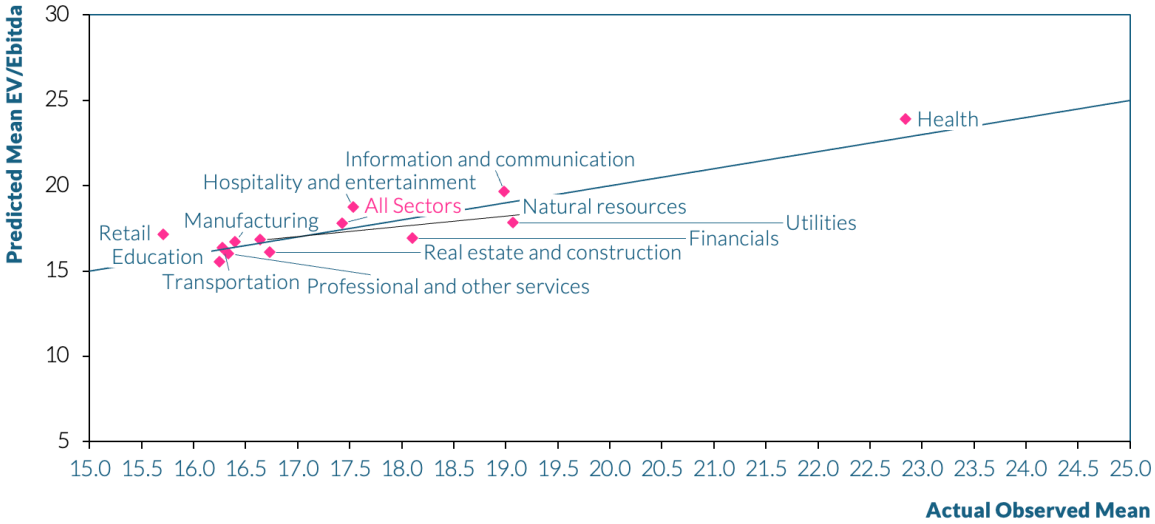
To ensure that is not the case, we compute the EV based on the book value of debt and predicted equity valuation and divide the sum by the EBITDA to get a predicted EV/EBITDA and compare it to transaction implied ratios. Figure A2 presents the average predicted and observed EV/EBITDA by PECCS® activity classes. We find that the predictions are very close to the observed values, thus mitigating this concern.

TABLE A2: AVERAGE ESTIMATION ERRORS ACROSS PECCS® CLASSES, BASED ON THE DIFFERENCE BETWEEN TRANSACTED VALUATIONS AND FACTOR MODEL PREDICTIONS

PECCS Pillar	PECCS Class	Mean Estimation Error	PECCS Class	Mean Estimation Error	PECCS Pillar
PECCS Activity	Education and public	0.9%	Startup	0.1%	PECCS Lifecycle Phase
	Financials	1.8%	Growth	-1.7%	
	Health	2.6%	Mature	2.8%	
	Hospitality and entertainment	-1.1%	Advertising	1.2%	PECCS Revenue Model
	Information and communication	-4.4%	Reselling	4.6%	
	Manufacturing	2.5%	Production	2.9%	
	Natural resources	9.4%	Subscription	-6.9%	
	Professional and other services	3.3%	B2B	1.5%	PECCS Customer Model
	Real estate and construction	1.9%	B2C	0.9%	
	Retail	0.5%	Hybrid	0.6%	PECCS Value Chain
	Transportation	7.2%	Products	1.1%	
Full Sample		**1.1%**	Services	3.4%	

SOURCE: CALCULATED USING OVER 10K DEALS FROM PITCHBOOK, CAPITALIQ, FACTSET, AND OTHER SOURCES BETWEEN 1999-2022

FIGURE A2: PREDICTED VERSUS ACTUAL EV/EBITDA RATIOS BY PECCS® ACTIVITY CLASSES



SOURCE: CALCULATED USING OVER 10K DEALS FROM PITCHBOOK, CAPITALIQ, FACTSET, AND OTHER SOURCES BETWEEN 1999-2022

About Scientific Infra & Private Assets

Our products come from the cutting-edge R&D of the EDHEC Infrastructure & Private Assets Research Institute, established in 2016 by EDHEC Business School. In 2019, we transformed this academic research into a commercial enterprise, providing services like private market indices, benchmarks, valuation analytics, and climate risk metrics. We take pride in our unique dual identity, bridging scientific research and market applications.

The EDHEC Infrastructure & Private Assets Research Institute (EIPA) continues to advance academic research and innovate with technologies in risk measurement and valuation in private markets, especially utilising artificial intelligence and language processing. Our company, Scientific Infra & Private Assets (SIPA), supplies specialised data to investors in infrastructure and private equity.

Merging academic rigor with practical business applications, our dedicated team excels in integrating quantitative research into private asset investing. Our products, infraMetrics® and privateMetrics®, are unique in the market, stemming from thorough research rather than being ancillary services of larger data providers. We are the Quants of Private Markets, leading with innovation and precision.

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