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Private Markets 2.0 Use Case Series

PRIVATE EQUITY & INFRASTRUCTURE FUND ALPHA TRACKING USING A PRIVATE MARKET EQUIVALENT

Scientific Infra & Private Assets
An EDHEC Venture

Executive Summary

Measuring and tracking the alpha of private market funds is key GPs and LPs alike but the two most common methods used for private asset fund selection and monitoring analyses have significant limitations.

- Benchmarking managers or funds against their peers amounts to finding 'top quartile' returns is hindered by poor contributed fund performance data (fewer than 20% of funds report their cash flows and net asset values (NAV) in various databases) makes it difficult to create a granular and robust dataset.
- Using a public market equivalent (PME) return is of little use in assessing the relative performance of a private equity fund in private markets. Typical PME calculations simply translate the long-term performance of the stock market to private equity cash flows, but private investments have different risk and return profiles.
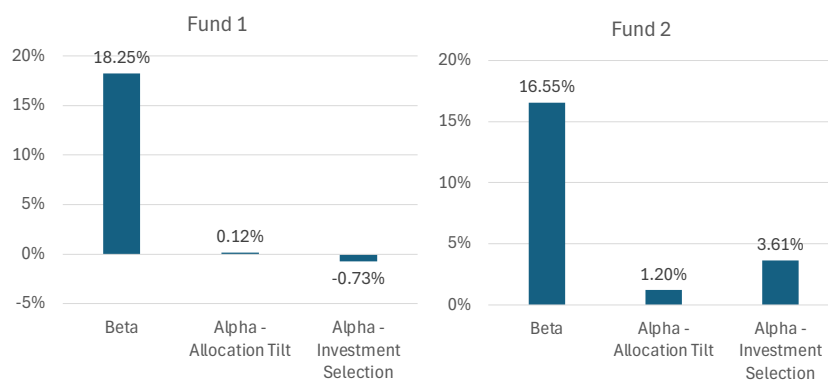
Instead, we propose to use a **Private Market Equivalent**.

privateMetrics indices capture the bottom-up performance of the private market and thus are more representative of the asset class in measuring performance. Using the Direct Alpha (DA) method in combination with privateMetrics or infraMetrics benchmarks allows objectively assessing the performance of a fund. We show how using private market indices that are representative allows measuring the market risk (beta) of a fund and therefore its outperformance, which can be broken down between allocation vs selection decisions.

This document shows how to use the privateMetrics API to calculate directly in a spreadsheet:

- Total Alpha or Calculating the alpha of the fund against a broad market index.

- Alpha from Investment Selection vs. a bespoke benchmark representing the fund allocation by PECCS® or TICCS® segments

- Alpha from Strategic Allocation: The difference between the total alpha and the investment selection alpha.

In what follows, this approach is applied to several fund examples, employing private equity benchmarks from privateMetrics and private infrastructure benchmarks from infraMetrics.

Fund 1 — Beta: 18.25%, Alpha - Allocation Tilt: 0.12%, Alpha - Investment Selection: -0.73%

Fund 2 — Beta: 16.55%, Alpha - Allocation Tilt: 1.20%, Alpha - Investment Selection: 3.61%

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Objective

This privateMetrics and infraMetrics use case shows how to measure the market outperformance (alpha) a private closed-ended fund using a private market index and the fund's cash flows. The resulting computation enables funds to be ranked funds by market outperformance on a consistent and directly comparable basis, allowing selection or reinvestment in the best strategies and managers. Using this method, one can also distinguish between the value-added return created by allocation choices (segment or factor tilts) of the manager and that created by selecting individual assets, and operational improvements.

Today, 80% of the private market investments are channelled through funds. With more than 19,000[1] private equity and infrastructure funds, selecting the right manager and continuously monitoring fund performance become essential fiduciary responsibilities for any fund investor.

The most common approaches to this are either to compare fund performance metrics, such as IRRs or TVPI, against a peer group and to aim to invest with 'top quartile' managers, or to compute one or other flavour of the public market equivalent (PME) using a public equity benchmark. However, both approaches have important limitations and drawback (see below).

To address these challenges, in this use case we present an approach using privateMetrics data-to-measure and track the alpha of private market funds, allowing robust and representative fund selection and monitoring. infraMetrics® & privateMetrics® provide access to hundreds of benchmarks across the infrastructure and private equity asset class, respectively, enabling investors to create the most representative benchmark for the fund they invest in.

We follow the Direct Alpha method of Gredil et al (2023), which measures a fund's performance by calculating its alpha through a direct comparison with a benchmark, and calculate a **private market equivalent** return for a private equity or infrastructure fund. With this approach, investors gain actual insights into the excess returns (or alpha) generated by a given fund. This alpha measure can be compared directly across funds, facilitating an objective and unbiased decision-making process for fund selection and monitoring. Additionally, this method supports the ongoing monitoring of fund investments and enables meaningful engagement with managers to understand the sources of return in private asset strategies.

Beyond peer grouping and the PME

The two most common methods used for private asset funds selection and monitoring analysis each have significant limitations.

The first method requires benchmarking a manager or fund against their peers. Typically, investors look for managers that generate 'top quartile' returns i.e., funds in the top 25% of reported performance for a given peer group. This approach necessitates a representative yet granular peer database to ensure robust style, geography and strategy comparisons. However, we know that less than 20%[2] of funds report their cash flows and net asset values (NAV) in various databases. Consequently, contributed datasets typically suffer from reporting[3] and survivorship

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[1] https://www.sec.gov/files/investment/private-funds-statistics-2022-q3.pdf
[2] The Preqin database has more than 2,400 funds raising capital in 2023 and only 419 funds in the 2023 vintage which contribute performance data to peer group benchmarks.
[3] Reporting bias occurs as private equity firms may selectively disclose positive performance data and downplay negative outcomes. It can also occur due to delays in reporting.

biases[4] and lack the granularity needed for a robust comparison to be made. In some segments, very few peers exist to being with, making robust comparisons impossible even if data was available for the entire population.

Due to this representativity bias and a small dataset, it is possible for a Limited Partner (or LP) to invest in a top quartile fund and yet to underperform the market benchmark… Comparing a core infrastructure strategy fund to a global dataset of infrastructure funds, or assessing a US Tech fund against a small group of other Tech funds that have different strategies, geographies, or size, can lead to significant misrepresentation of relative performance.

Example 1: Bias in peer group quartile ranking

Fund: GI Partners Fund IV	Geographic focus: United States		
Vintage: 2013	Strategy: Buyout	Fund size: $2.04bn	Industry focus: Technology

The Fund IRR as of 31/12/2023 is 15.57%.

The true quartile rank of this fund can only be determined if it is compared against a peer group that reflects all the characteristics of the fund. However, limited contributed fund performance data makes it difficult to create a very granular dataset. In Table 1 below, we show the relative performance of this fund against different benchmarks to highlight how performance can be misrepresented by the wrong choice of referential. Using Pitchbook data, we build a peer group including all of the fund's relevant characteristics, (i.e., US-based buyout funds of 2013 vintage with a size of more than $1bn and investing in the technology sector), and we're left with a small sample of only six funds. The relative performance of GI Partners Fund IV puts it in the top quartile. But this sample is heavily biased and consequently a quartile rank isn't a robust estimate of relative performance. The alternative is to relax the peer group definition to increase the sample size. Here, depending on the selection, the quartile rank of the same fund is lower but the sample becomes less and less representative of the fund strategy.

TABLE 1: PEER GROUP BENCHMARKING OF PRIVATE EQUITY FUND

#	Peer Group Description	Top quartile	Median	Bottom quartile	No. of Funds	Quartile Rank
1	US PE Funds of vintage 2013	23.53%	15.06%	10.15%	89	2
2	Global PE Tech Funds of vintage 2013	29.55%	15.62%	10.70%	36	3
3	US PE Buyout Tech Funds of vintage 2013 and greater than $1bn size	15.34%	14.09%	10.15%	6	1

Source: privateMetrics, Pitchbook. As of 31/12/2023

The second method consists of computing a public market equivalent (PME) return, taking into consideration the timing and magnitude of a fund's cash flows. Although this method can help making allocation decisions between public and private markets, it falls short in accurately assessing the relative performance of a private equity fund *in private markets*.

A fundamental flaw of the PME approach is its reliance on the public markets to capture beta, a measure of systematic risk, which is pivotal in determining the relative risk of a fund's investments compared to the market. Typical PME calculation simply translate the long-term performance of the stock market to private equity cash flows. However, private investments have different risk and return profiles. They are influenced by factors such as the stage of investment, industry sector, and market cycles. The assumption of a fixed and unique beta for private investments that

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[4] Survivorship bias occurs when only the performance of successful or surviving investments is considered, while failed investments are ignored. This can lead to an overestimation of the overall performance and returns of private equity portfolios.

comes with a public market proxy fails to capture such differences, leading to an inaccurate assessment of risk and performance.

Secondly, the PME does not capture the dynamics of private markets. The valuations of private companies are more complex and often involve negotiations between buyers and sellers. The participants in private equity markets differ markedly from those in public markets. Private equity transactions typically involve a limited number of sophisticated investors, often with long-term strategic interests, while public markets include a diverse range of participants, including retail investors, institutional investors, and high-frequency traders.

Finally, a critical issue with PME is the contrast between the composition of private equity portfolios and public market indices. Not only are there differences in the market segments, such as industrial activities, or business models, there are also differing objectives and management styles between private and public investments which further complicate direct performance comparisons.

Example 2: Performance misrepresentation with public market proxies

To illustrate how performance calculation against the wrong market proxy can be misleading, we show an example of two private equity funds. In Table 2 below, we've computed a PME using the Direct Alpha approach (see below and appendix) of both funds using either a public or a private equity index. The Morgan Stanley Private Markets Fund VI outperforms the public equity market and delivers an alpha of 0.88%. This information can be useful for allocation decisions as it isolates the cash flow timing effect between public and private markets. However, to assess whether the fund manager delivered any value, the fund's performance must be calculated against a private equity index. And when we do this, we find that the fund actually underperformed the market by -3.42%.

On the other hand, the Blackstone Total Alternatives Solution IV fund delivered a much higher alpha (5.53%) against a private market index than a comparison against public markets would have implied.

To summarise, if a fund investor assesses these funds just by the alpha against public markets, both appear to give a similar performance. But when the performance is measured properly against a representative market, the difference between their alphas is close to 9%.

TABLE 2: DIRECT ALPHA OF TWO PRIVATE EQUITY FUNDS USING PUBLIC PROXY AND REPRESENTATIVE PRIVATE MARKET INDEX

Fund	Vintage	IRR	Direct Alpha (public equity index)	Direct Alpha (private equity index)
Morgan Stanley Private Markets Fund VI	2014	11.19%	0.88%	-3.42%
Blackstone Total Alternatives Solution IV	2017	14.14%	1.95%	5.53%

Source: privateMetrics, Pitchbook. As of 31/03/2024. Private Equity is represented by private2000 equal-weighted local currency index. Public Equity is represented by MSCI World Local currency index.

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Approach

We use the Direct Alpha (DA) method, in combination with privateMetrics or infraMetrics benchmarks, to allows fund investors to objectively assess the performance of a fund.

DA is a financial analysis technique designed to evaluate the performance of investment funds against a market benchmark. In modern financial theory, a portfolio's investment returns have two components: alpha and beta. Beta represents the part of the asset or portfolio return obtained from being exposed to the market (supply and demand), while alpha (the excess return) reflects a manager's asset allocation (segment and factor tilts compared to the market benchmark), asset selection and market timing skills. In essence, alpha generation summarises the ability of asset managers to create value.

It should be noted that, even if the underlying market is not directly investible, as if the case for the private equity and private infrastructure markets, these markets still exist! As a result, the notion of alpha, beyond the marketing of fund managers, remains very valid when it comes to comparing funds and managers.

Thus, even if passive investment in private equity is not directly available to private fund investors, it remains the case that the performance of private assets is in part determined by market movements and the exposure of these assets to private markets (beta). For instance, if demand is high for pharmaceutical companies, the average price of these companies increases and the return on any given pharmaceutical company is partly determined by this increase in the average market price. A PE fund that invests only in pharmaceutical company has a *beta* of 1 to this market. Other high-profile examples of large, demand-driven price movement in a private market include renewable energy companies or data centre providers.

In turn, the alpha of a given fund would arise thanks to the selection, timing, structuring and operational decisions taken by the fund manager. The notion of alpha thus only makes sense relative to the market i.e. the average performance of the opportunity set available to all fund managers. Hence, measuring alpha requires first measuring beta!

DA measures the excess return of private equity investments over a chosen benchmark. Clearly, the choice of benchmark is pivotal in DA calculations, as the economic significance of the results heavily depends on the selected index, as highlighted above in our short discussion of the PME. The validity of the DA outcome is contingent upon the benchmark incorporating all systematic components of returns.

As argued above, using Public market indexes in DA calculations does not adequately capture the risk profile associated with private equity investments. As discussed above, its relies on the wrong beta and uses data from the wrong market. Consequently, its application in performance assessments is limited and does not provide an accurate evaluation.

Instead, in what follows, we show how using market indices that are representative of private markets can lead to a robust measurement of the risk (beta) and therefore of the outperformance of private asset funds broken out by allocation vs selection decisions.

First, we measure the total alpha that a fund generates over a market using a representative market index. Then, we use a bespoke benchmark for the fund which captures its allocation strategy and again calculate DA against this bespoke benchmark. Given both the fund and the bespoke benchmark have similar allocation strategy, the alpha calculated in this step would represent a manager's investment selection. Allocation tilt between the fund and the market can

be proxied by the difference in the allocation of the market index and the bespoke benchmark. Therefore, the difference in the total alpha calculated against the market index and the alpha generated due to investment selection (calculated against the bespoke benchmark) would result in the alpha generated due to the strategic allocation preferences of the fund manager. Thus, a fund investor can obtain a full picture of the performance and its drivers:

- Performance generated by taking on the market risk, i.e., beta.
- Alpha generated due to the strategic allocation decisions.
- Alpha generated due to the investment selection of the manager.

Next, we implement this methodology to evaluate the performance of several funds, employing private equity benchmarks from PrivateMetrics and private infrastructure benchmarks from infraMetrics.

Technical Framework

To apply the Direct Alpha (DA) methodology, fund investors need the following information:

1. Cash Flows of the Private Market Fund:
   - **Contributions**: The amount of capital invested into the fund by investors over time.
   - **Distributions**: The amount of capital returned to the investors from the fund over time.
2. Net Asset Value (NAV):
   - The value of the remaining investments in the fund at the end of the measurement period.
3. Fund strategy:
   - Allocation of the fund by the segments of the market. It could be a broad category (e.g. US Private Equity Market) or more granular (e.g. US Technology Buyout Fund). Investors could use the TICCS taxonomy for private infrastructure funds or the PECCS taxonomy for private equity funds.
4. Benchmark:
   - The value of a market index representative of the private fund strategy.

The calculation of DA of any closed-ended private asset fund then involves the following steps:

1. Adjust Private Asset Fund Cash Flows:
   - Adjust the cash flows by "replicating" what would have happened if the same cash flows were invested in the market index instead of the private fund. This involves calculating what the value of each cash flow (contribution and distribution) would be if it were invested in the index at the time of the cashflow and held until the end of the measurement period.

$$\text{Adjusted Cashflow} = \text{Fund Cashflow} \times \frac{\text{Index Level at End Period}}{\text{Index Level at Cashflow Date}}$$

2. Calculate the Direct Alpha using the adjusted cash flows:
   - Use the adjusted contributions and distributions, along with the fund NAV at the end of the period, to calculate the IRR as you would for the private fund cash flows.
   - Because of the index return already captured in the adjusted cash flows, the resulting IRR reflects the alpha of the fund against the market index.

Understanding the privateMetrics and infraMetrics indices & benchmarks

privateMetrics and infraMetrics indices and benchmarks measure the time-weighted returns of private (unlisted) companies and private infrastructure companies, respectively. They are asset level indices computed as the weighted-average total returns of individual private companies that meet their respective universe definition criteria. They are not fund manager performance indices but instead represent the performance and risk of the underlying market for private equity investments in which fund managers and investors select assets. As such they are well-suited for the measurement of private investment beta and alpha.

The infraMetrics® and privateMetrics® pricing technologies[5] produce demonstrably robust average valuations for thousands of private companies using risk factors developed specifically for private markets that capture the systematic risks of these companies. They are recalibrated every month using the latest observed transactions.

This valuation model is robust because it produces valuations with very low average errors at the PECCS or TICCS segment level: the average asset price predicted by the model is very close (typically less than 2% error) from the average transaction price observed in the market. Model robustness is tested against more than 10,000 private equity transactions and more than 1,200 private infrastructure transactions.

privateMetrics Data

The privateMetrics universe consists of three tiers: a Broad Private Market Universe, a "PE-backed" Universe and the private5000 Universe.

1. The **Broad Private Market Universe** consist of 791,000 uniquely identified private companies in early 2024, located in 150+ countries across more than 60 industrial activity sectors. Over the past decade, it includes more than 1.2 million companies. As of early 2024, the Broad Market Universe represents more than USD54 trillion of market capitalisation.

2. The **PE Universe** represents approximately 81,000 firms that exhibit a "PE-backed" profile in terms of size and EBITDA to sales profile found in PE-backed deals over the past decade. As of early 2024, the PE-Backed universe represents approximately USD13 trillion of market capitalisation.

3. The **private5000 Universe** is a subset of 5,000 companies, drawn from the PE-Backed universe that is representative of the private equity market in 30 countries. To determine the private5000 universe, country-sector weights are first determined for each country using macro-economic data, then companies in the PE-backed Universe are ranked by market cap and added to the private5000 universe until the country-sector allocation is met. As of early 2024, the private5000 Universe represents more than USD6 trillion of market capitalisation.

TABLE 3: PRIVATEMETRICS UNIVERSE SIZE

	privateMetrics Broad Market	privateMetrics PE-backed	private5000 Universe
Market Cap.	54.4	13.4	6.2
Enterprise Value	101.5	35.3	13.2
Total Assets	101.6	37.9	15.0
Revenue	50.2	13.6	5.7
Constituents	791k	81k	5k

Notes: January 2024, current USD trillion.

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[5] https://docs.scientificinfraprivateassets.com/docs/1-asset-pricing-approach

privateMetrics market indices are built from the private5000 universe. They include the private2000, private3000, privateUSA, privateEurope and privateAPAC indices, each of which is built to capture different aspects of the price dynamics of the private equity markets. The private2000 and private3000 indices include the top 2,000 and the subsequent 3,000 constituents by size of the private5000 universe. The privateUSA, privateEurope and privateAPAC indices include constituents from each geography same universe (see Table 4).

TABLE 4: PRIVATEMETRICS MARKET INDICES

Index Name	Index Description	Number of Sectors*	Number of Countries	Mkt Cap**	Start Date
private2000	2,000 private companies representing the largest investable universe in the top 30 countries that are most attractive for Private Equity & Venture Capital investments.	12	30	4.1	June 2013
private3000	3,000 private companies representing the middle-market investable universe in the top 30 countries that are most attractive for Private Equity & Venture Capital investments.	12	30	2.1	June 2013
privateUSA	All constituents of private2000 and private3000 that are based in the United States.	12	1	2.1	June 2013
privateEurope	All constituents of private2000 and private3000 that are based in Europe.	12	15	2.3	June 2013
privateAPAC	All constituents of private2000 and private3000 that are based in the Asia Pacific.	12	13	1.8	June 2013

* Based on PECCS Activity Classes. ** In USD trillions as of February 2024.

The **privateMetrics benchmarks** draw from the entire set of potential index constituents (Broad Private Market or PE-Backed) to produce different combinations of PECCS segments and geographies. More than 4,000 combinations of PECCS segments are available, allowing significant granularity and wide range of customisations by segment, industry, geography, revenue model, lifecycle stage, etc.

The PECCS categories available to access privateMetrics benchmarks include:

- Industrial Activity (12 classes, 67 subclasses)
- Revenue model (4 classes, 14 subclasses)
- Lifecycle phase (3 classes, 7 subclasses)
- Customer model (2 classes, 8subclasses)
- Value chain (3 classes, 6 subclasses)

The respective weights of each segment and geography can also be customised to match the strategy or portfolio of a given investor or fund. To know more about PECCS, the Private Company Classification Standard, see [link]

FIGURE 1: PECCS BREAKDOWN OF THE PRIVATEMETRICS INDEX UNIVERSE AS OF EARLY 2024.
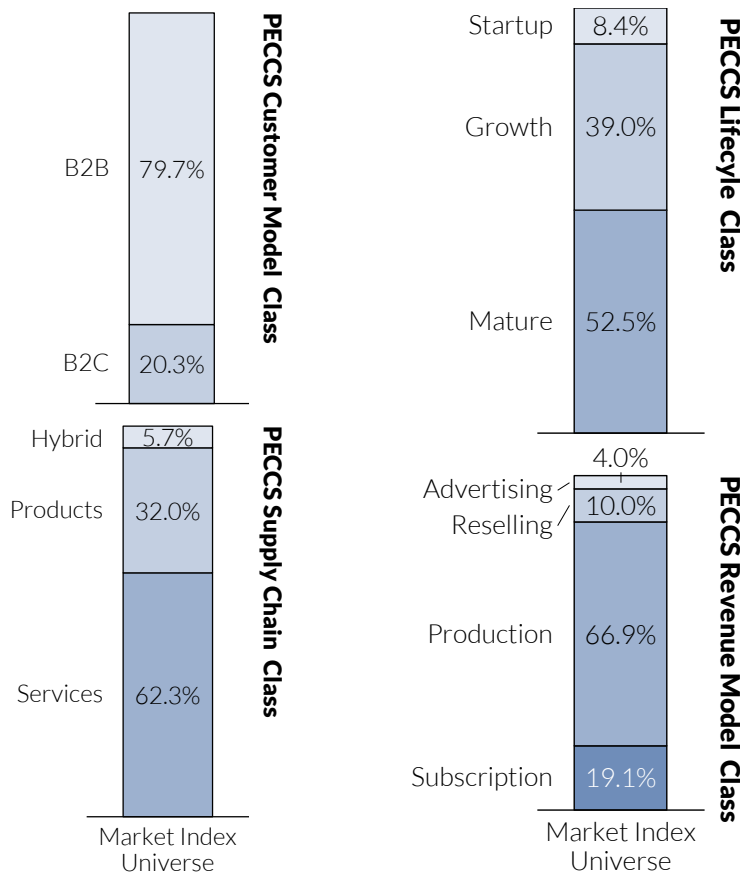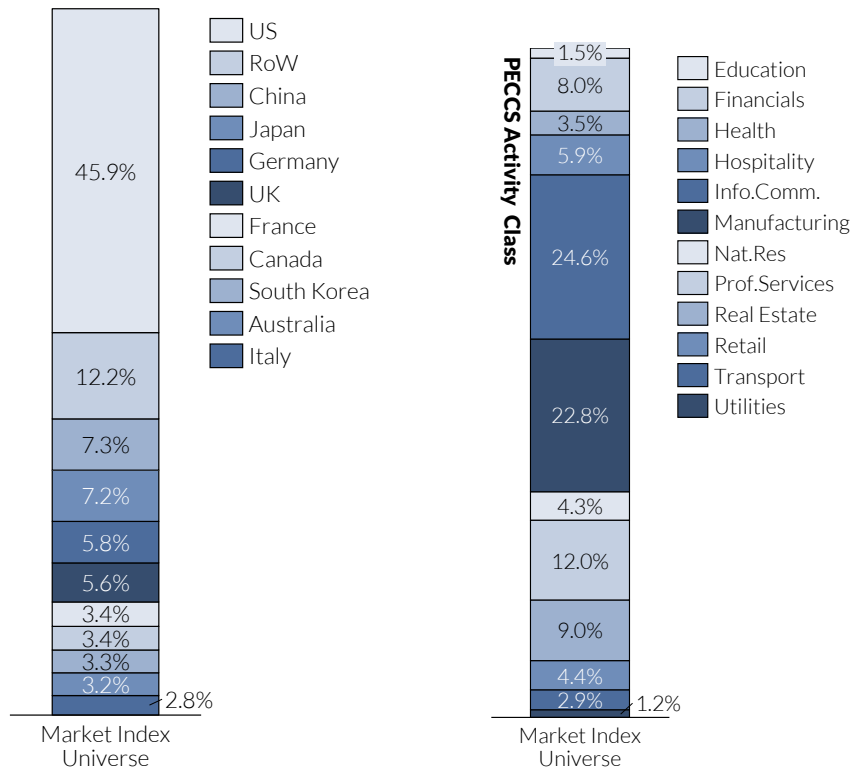
infraMetrics Data

The infraMetrics universe consists of more than 9,500[6] uniquely identified private infrastructure companies, located in 27 countries across 35 industrial activity sectors. This universe has been created in two steps:

1. **National-market inclusion**: Relevant national markets are determined based on clearly defined inclusion criteria:

   - A minimum number or volume of primary or secondary market trades, indicating that more than a few isolated transactions took place on each measurement date.
   - A minimum size (expressed in book value) relative to the existing broad market universe, suggesting that the addition of the market in question would increase the information content of a broad market index.
   - A minimum level of audited financial information about the relevant investable infrastructure companies in the market.

2. **Individual-company inclusion**: Within the markets that qualify under these criteria, potential index constituents – whether they are equity or debt issuers – must also meet a set of minimum inclusion criteria:

   - Investability: an infrastructure company is considered "investable" if it is majority-owned by the private sector: all or part of its equity capital can be sold to a third party.
   - TICCS® qualification: an investable infrastructure company or borrower can be fully classified under the four-pillar taxonomy.
   - Infrastructure revenues: the overwhelming majority (more than 70%) of an infrastructure company's revenue comes from infrastructure-related activities as defined under the TICCS® second pillar, which lists relevant industrial activities considered to correspond to infrastructure activities.
   - Minimum available data: companies must be uniquely identified and named, and key start dates must be available (incorporation, financial close).
   - Minimum size (Total Assets Book Value): USD500,000

From this broad data universe, more than 800 companies have been selected to be included in the infraMetrics database that makes the foundation for creation of market indices and benchmarks.

infraMetrics indices and benchmarks measure the time-weighted returns of unlisted infrastructure companies. They are asset level indices computed as the weighted total returns of individual private companies that qualify as "infrastructure" under the TICCS taxonomy[7]. They are *not* fund manager performance indices but, instead, represent the performance and risk of the underlying market for private infrastructure equity investments in which fund managers and direct investors select assets. They complement fund manager performance data by providing an unbiased market reference that represents the infrastructure asset class as a whole before any fees, asset selection or market timing on the part of investors.

infraMetrics market indices are built to represent the performance of different segments of this universe, while infraMetrics benchmarks draw from the entire set of potential index constituents to produce different combinations of TICCS segments and geographies. The respective weights of each segment and geography can also be customised to suit a given investor or fund. Index constituents are priced monthly using the latest market information, going back 20+ years.

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[6] As of 31/12/2024
[7] https://scientificinfra.com/private-infrastructure/ticcs/

The **infraMetrics market indices** include the infra300, infra100 and infraGreen index families, each of which is built to capture different aspects of the price dynamics of private infrastructure market in a representative manner. The infra300 is the infraMetrics flagship broad market index and the most widely used. The infra100 and infraGreen families are thematic market indices that represent different broad strategies such as Core, Core+, Project Finance, etc. Market indices are registered with ESMA and managed by an Index Committee ensuring the implementation of the methodology.

TABLE 5: PRIVATE INFRASTRUCTURE MARKET INDICES

Equity Index Name	Description	Constituents	Countries	Sectors	Approx. market cap*	Start date
infra300®	The infra300® index is an equally weighted index designed to match the TICCS® allocations of the global unlisted infrastructure equity investment universe. It is designed to track the structure of global infrastructure market by business model, industrial activity and corporate structure.	300	20	27	c. USD290 bn	31 March 2000
infra100 Global	The infra100 Global equity index represents the performance of the largest 100 unlisted infrastructure companies in the global unlisted infrastructure equity universe.	100	16	21	c. USD250 bn	31 March 2005
infraGreen™	The infraGreen index represents the performance of 100 wind (onshore and offshore) and solar projects in the global universe.	100	12	2	c. USD13 bn	31 December 2005

* As of 30/6/2024

The **infraMetrics benchmarks** draw from the set of 800+ potential index constituents. As of early 2024, this data represents more than USD680bn of market capitalisation and more than 450 combinations of TICCS segments are available in infraMetrics, enabling significant granularity and wide range of customisations.

In addition to many countries and regions, the TICCS categories are also available to access infraMetrics benchmarks:

- Industrial Activity (8 super-classes, 35 classes)
- Business Risk (3 classes)
- Corporate Structure (2 classes)

FIGURE 2: TICCS BREAKDOWN OF THE INFRAMETRICS UNIVERSE OF 817 COMPANIES
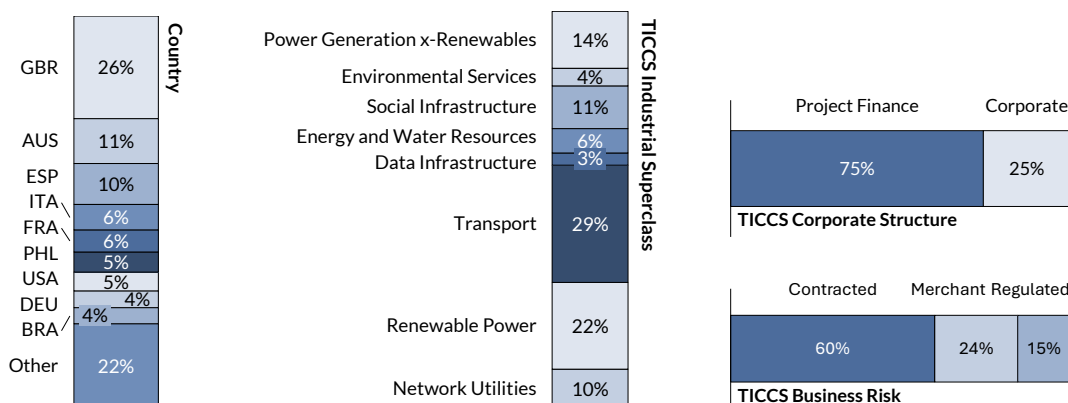
Note: As of December 2023.

Implementation using the privateMetrics® API

Thanks to its API (Application Programming Interface), accessible via a range of software, privateMetrics enables a seamless and customised implementation of the DA approach when an investor needs to make a quantitative selection of a manager or for regular monitoring of a private equity fund's performance.

For example, say a fund investor decides to invest in one of two funds and has access to the track record of the fund managers including all the historical cash flows and NAVs of the funds.

Next, the investor needs to define a benchmark that represents the strategy of the funds. This benchmark will reflect the Beta (systematic risks) of the investments. Using this benchmark and the DA approach described above, they can compute alpha of each fund which can be used in performance assessment.

Implementing the direct alpha calculation using the privateMetrics API requires the following inputs:

Select a Market Index

The private2000 index is designed to capture the pricing dynamics of the largest 2,000 companies in 30 countries that rank as the most attractive for private equity investors in the world. The companies in the private2000 form the Market Index Universe (or MIU), which are then segmented into three key geographical markets, including the United States (privateUS), Europe (privateEurope), and Asia-Pacific (privateAPAC).

In addition to this, privateMetrics provides many granular indices to represent different segments of the Private Infrastructure or Private Equity asset classes.

The DA calculated against this index would result in the estimation of Beta, i.e., the market risk fund has taken to deliver the return, and the total alpha that the fund generated.

Select a representative benchmark

This step is essential to isolate the drivers of alpha into allocation vs selection. While privateMetrics offers many indices and benchmarks, it requires a good understanding of the fund and its allocation to different industries and geographies. Most fund investors can easily obtain this information from their manager, or it is sometimes even available in the fund prospectus.

Users have a few options to select a representative benchmark that reflects their allocation strategy:

Option 1: select one of the **standard benchmarks** in privateMetrics. (see in the example below).

Option 2: use a **weighted benchmark** of standard indices and benchmarks by TICCS or PECCS. For e.g. if the fund has an allocation of 40% technology and 60% healthcare, the two individual benchmarks of technology and healthcare can be combined to create a weighted benchmark for the fund.

Option 3: construct a **custom benchmark** bottom up at the asset level from the privateMetrics database using a combination of market segments:

This is a four-step process:

Define TICCS®/PECCS® Weights → **Download universe of constituents** → **Solve for constituent weights** → **Compute custom benchmark**
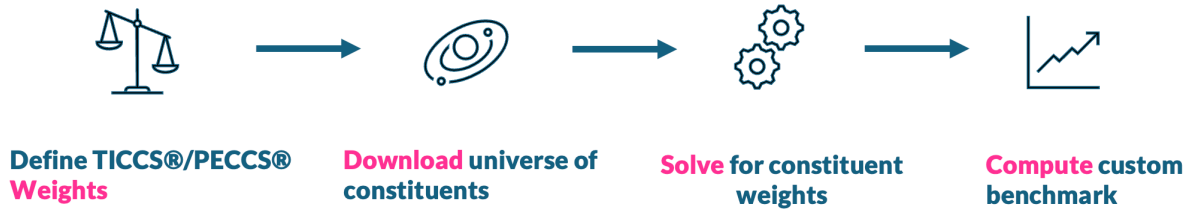
Step 1: Create a TICCS or PECCS weight profile in the spreadsheet and set a start date for the benchmark.

USER INPUTS					
TICCS Classes	Name	Benchmark weight			
				Start Date	31/1/19
Business Risk	Contracted	50%			
	Merchant	50%			
	Regulated	0%			
Industrial Activity	Power Generation x-Renewables	5%			
	Environmental Services	0%			
	Social Infrastructure	10%			
	Energy and Water Resources	0%			
	Data Infrastructure	5%			
	Transport	35%			
	Renewable Power	40%			
	Network Utilities	5%			
Corporate Structure	Project Finance	100%			
	Corporate	0%			

Step 2: Obtain benchmark constituents from the privateMetrics database directly into Excel.

=privateMetrics.ConstituentValueWeights(StartDate='USER VIEW'!G5)

Date	Unique Security Identifier	Name	infraMetricsWeight	Business Risk	Industrial Activity	Corporate Stucture
31/1/19	1.14258E+12	M5 South West Motorway	0.22%	Merchant	Transport	Project Finance
31/1/19	1.14258E+12	Port Kembla Coal Termin	0.01%	Merchant	Transport	Project Finance
31/1/19	1.14258E+12	Pacific Hydro	0.43%	Contracted	Renewable Power	Corporate
31/1/19	1.14258E+12	Sydney M1 Eastern Distri	0.20%	Merchant	Transport	Project Finance
31/1/19	1.14258E+12	Macarthur Water Filtrati	0.01%	Contracted	Environmental Services	Project Finance
31/1/19	1.14258E+12	Sydney Airport Link	0.02%	Merchant	Transport	Project Finance
31/1/19	1.14258E+12	Osborne Power Station	0.01%	Contracted	Power Generation x-Ren	Project Finance
31/1/19	1.14258E+12	Port of Portland	0.04%	Merchant	Transport	Project Finance
31/1/19	1.14258E+12	Adelaide Airport	0.13%	Merchant	Transport	Corporate
31/1/19	1.14258E+12	Oakey Power Station	0.01%	Merchant	Power Generation x-Ren	Project Finance
31/1/19	1.14258E+12	Brisbane Airport	1.53%	Merchant	Transport	Corporate
31/1/19	1.14258E+12	Melbourne Airport	0.72%	Merchant	Transport	Corporate
31/1/19	1.14258E+12	Perth International Airpo	0.32%	Regulated	Transport	Corporate
31/1/19	1.14258E+12	Envestra	0.45%	Regulated	Network Utilities	Corporate

Step 3: Use a Solver to find the weights of the benchmark constituents.

It is an optimisation problem to find weights of each constituent in the benchmark such that the pre-defined constraints in step 2 (allocation strategy) are met. With 500+ possible constituents in the benchmark, a direct optimisation to find solution for so many parameters is difficult to achieve and computationally heavy. Therefore, we break down the problem the problem into two steps:

- Break down the benchmark constituents into granular categories of the market segments identified in the allocation strategy. For example: Contracted + Renewable Power + Project Finance is one category.
    - In this example, the maximum number of such categories is 3 (Business Risk) * 8 (Industrial Super-classes) * 2 (Corporate Structure) = 48 categories.
    - In this way, we've reduced the optimisation problem from solving weights directly for all the 500+ constituents to solving weights of these 48 categories while meeting the allocation constraints.
- With the weight of each category known, we then rebalance the constituent weights in proportion to their valuations.
    - For example, let's say the solved weight of the category "Contracted + Renewable Power + Project Finance" is 10%. Then all the companies which belong to this category will be weighted by their values and rebalanced such that the sum of their weights is 10%.

All calculations are done within Excel using the downloaded allocation and privateMetrics constituent data.

Solved Weights

Business Risk	Corporate Structure	Industrial Activity	31/1/19	28/2/19	31/3/19	30/4/19
Contracted	Project Finance	Power Generation x-Renewables	0.0%	0.0%	0.0%	0.0%
Contracted	Project Finance	Environmental Services	0.0%	0.0%	0.0%	0.0%
Contracted	Project Finance	Social Infrastructure	0.0%	0.0%	0.0%	0.0%
Contracted	Project Finance	Energy and Water Resources	0.0%	0.0%	0.0%	0.0%
Contracted	Project Finance	Data Infrastructure	1.6%	1.6%	1.6%	1.6%
Contracted	Project Finance	Transport	22.8%	22.8%	22.8%	22.8%
Contracted	Project Finance	Renewable Power	25.6%	25.6%	25.6%	25.6%
Contracted	Project Finance	Network Utilities	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Power Generation x-Renewables	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Environmental Services	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Social Infrastructure	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Energy and Water Resources	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Data Infrastructure	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Transport	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Renewable Power	0.0%	0.0%	0.0%	0.0%
Contracted	Corporate	Network Utilities	0.0%	0.0%	0.0%	0.0%
Merchant	Project Finance	Power Generation x-Renewables	5.0%	5.0%	5.0%	5.0%
Merchant	Project Finance	Social Infrastructure	10.0%	10.0%	10.0%	10.0%
Merchant	Project Finance	Energy and Water Resources	0.0%	0.0%	0.0%	0.0%
Merchant	Project Finance	Data Infrastructure	3.4%	3.4%	3.4%	3.4%
Merchant	Project Finance	Transport	12.2%	12.2%	12.2%	12.2%
Merchant	Project Finance	Renewable Power	14.4%	14.4%	14.4%	14.4%
Merchant	Project Finance	Network Utilities	5.0%	5.0%	5.0%	5.0%
Merchant	Corporate	Power Generation x-Renewables	0.0%	0.0%	0.0%	0.0%
Merchant	Corporate	Energy and Water Resources	0.0%	0.0%	0.0%	0.0%
Merchant	Corporate	Data Infrastructure	0.0%	0.0%	0.0%	0.0%
Merchant	Corporate	Transport	0.0%	0.0%	0.0%	0.0%
Merchant	Corporate	Renewable Power	0.0%	0.0%	0.0%	0.0%
Merchant	Corporate	Network Utilities	0.0%	0.0%	0.0%	0.0%

Step 4: Compute the Benchmark. privateMetrics calculates the returns of the benchmark using the weights of each constituent in the benchmark and total return of each constituent. From the returns time series, a level of the benchmark is calculated within excel.

	=privateMetrics.CalculateIndexReturns(Weights=CONSTITUENTS!A4:H38262)					
Date	TotalReturn	Benchmark				
31/1/19	1.27485791	1012.74858				
28/2/19	-0.0835911	1011.90201				
31/3/19	3.22921825	1044.57854				
30/4/19	-1.806181	1025.71156				
31/5/19	5.02579162	1077.26168				
30/6/19	3.1721895	1111.43446				
31/7/19	1.49542347	1128.05512				
31/8/19	6.06377779	1196.45787				
30/9/19	6.42826396	1273.36934				
31/10/19	-3.0456256	1234.58728				
30/11/19	-1.1867744	1219.93551				
31/12/19	1.19904793	1234.56313				
31/1/20	4.93850927	1295.53214				
29/2/20	1.2655337	1311.92754				
31/3/20	-7.6711428	1211.2877				
30/4/20	1.2090431	1225.93269				
31/5/20	0.33547625	1230.0454				
30/6/20	7.44232978	1321.58944				
31/7/20	1.71979878	1344.31812				
31/8/20	-2.2174687	1314.50829				
30/9/20	3.3142458	1358.07432				
31/10/20	0.88593905	1370.10603				

Fund cash flows and NAV

Fund investors would also need to input the historical cash flows and NAV of the funds under consideration. The required columns for this input are Date, Manager name, Fund name, Contribution, Distribution, NAV. The data from all the funds under consideration can simply be appended in the same excel sheet.

privateMetrics API call

Using the privateMetrics API (see below for an example using MS Excel), an API call is made to the privateMetrics database that returns the historical data (index level, total returns, etc.) of the corresponding index or benchmark.
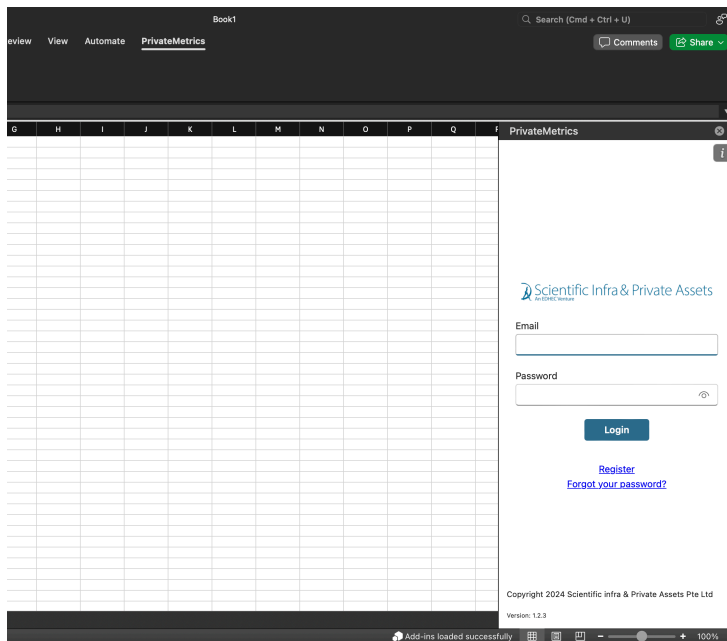
Example: comparing two private equity funds

Here, we use this methodology for the performance assessment of two private equity funds using the privateMetrics indices. The goal is to show how investors can isolate the performance of a private asset fund (infrastructure or equity) into Beta and Alpha. The alpha of each fund reflects the value a manager has added and can be used for performance monitoring or to make relative investment decision between multiple funds.

To calculate alpha of funds, users can take the following steps:

Download the excel template for "Active Manager Analysis" with privateMetrics add-in installed.

Login to privateMetrics with their credentials.

Enter the fund cash flows in the "USER INPUT" tab

	A	B	C	D	E	F
1						
2		USER INPUTS				
3						
4						
5	Period	Manager	Fund	Contribution	Distribution	NAV
6	30/09/2023	Manager 1	Fund 1	4,673.38	5,427.29	1,079.96
7	30/06/2023	Manager 1	Fund 1	4,683.84	5,381.77	1,062.11
8	31/03/2023	Manager 1	Fund 1	4,714.87	5,877.62	1,098.40
9	31/12/2022	Manager 1	Fund 1	4,714.87	5,852.39	1,127.31
10	30/09/2022	Manager 1	Fund 1	4,703.59	5,681.32	1,217.09
11	30/06/2022	Manager 1	Fund 1	4,699.38	5,676.63	1,240.59
12	31/03/2022	Manager 2	Fund 2	4,699.38	4,240.84	2,709.93
13	31/12/2021	Manager 2	Fund 2	4,692.54	3,529.04	3,325.56
14	30/09/2021	Manager 2	Fund 2	4,665.34	3,274.43	3,369.62
15	30/06/2021	Manager 2	Fund 2	4,659.73	3,089.35	3,578.39
16	31/03/2021	Manager 2	Fund 2	4,634.51	2,106.08	4,090.16
17	31/12/2020	Manager 2	Fund 2	4,645.71	2,502.33	3,870.38
18	30/09/2020	Manager 2	Fund 2	4,618.60	2,500.46	3,410.38

Select a market index from the privateMetrics API.

In the "Index 1" and "Index 2" tabs, call the privateMetrics function to load the market index data for public equity and private equity markets.
'=PRIVATEMETRICS.METRICS('private2000 EW LCL', 'Index Price')

Users also have the option to load the index data from the privateMetrics Add-In task pane as shown below.

Select the preferred index from the list with the appropriate weighing scheme and currency and select the data metric of interest.
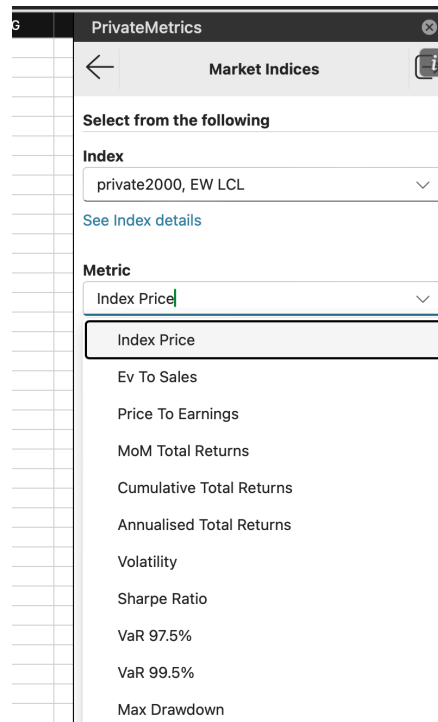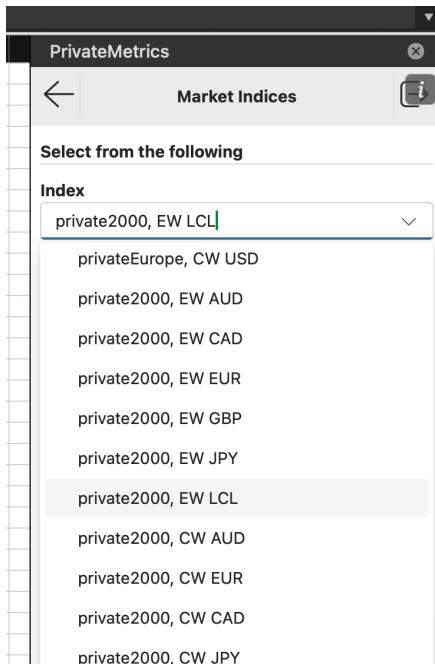
Construct a bespoke benchmark with privateMetrics API reflecting the strategies of the funds under consideration. Users can also design a custom benchmark at this stage.

The "TOTAL ALPHA" tab performs the calculations to compute Direct Alpha of each fund against the market indices specified in Index 1 and Index 2 tabs.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1														Index 1			
2	Date	Manager	Fund	Cumulative Contribution	Cumulative Distribution	NAV	Contribution	Distribution	Net CF	TVPI	IRR	Index	FV Factor	FV_contribution	FV_Distribution	Net Cash Flow	IRR
3	31/12/2016	Manager	Fund 2	114.63	2.82	116.44	114.63	2.82	(111.81)	1.04		1,374.70	2.58	(295.29)	7.26	(288.02)	
4	31/03/2017	Manager	Fund 2	201.16	31.25	170.23	86.53	28.43	(58.10)	1.00		1,532.38	2.31	(199.96)	65.70	(134.26)	
5	30/06/2017	Manager	Fund 2	203.43	136.60	156.37	2.27	105.35	103.08	1.44		1,682.31	2.10	(4.78)	221.76	216.98	
6	30/09/2017	Manager	Fund 2	306.79	100.48	206.84	103.36	-	(103.36)	1.00		1,753.34	2.02	(208.76)	-	(208.76)	
7	31/12/2017	Manager	Fund 2	306.79	50.47	267.02	-	-	-	1.03		1,713.99	2.07	-	-	-	
8	31/03/2018	Manager	Fund 2	382.08	76.49	334.90	75.29	26.02	(49.27)	1.08		1,991.29	1.78	(133.89)	46.27	(87.62)	
9	30/06/2018	Manager	Fund 2	388.55	76.49	343.00	6.47	-	(6.47)	1.08		1,890.90	1.87	(12.12)	-	(12.12)	
10	30/09/2018	Manager	Fund 2	390.10	78.05	346.31	1.55	1.56	0.01	1.09		2,212.40	1.60	(2.48)	2.50	0.02	
11	31/12/2018	Manager	Fund 2	394.45	130.22	311.36	4.35	52.17	47.82	1.12		2,412.58	1.47	(6.38)	76.58	70.19	
12	31/03/2019	Manager	Fund 2	439.97	133.18	364.32	45.52	2.96	(42.56)	1.13		2,378.69	1.49	(67.77)	4.41	(63.36)	
13	30/06/2019	Manager	Fund 2	422.71	133.18	376.15	-	-	-	1.20		2,550.40	1.39	-	-	-	
14	30/09/2019	Manager	Fund 2	439.87	155.27	380.31	17.16	22.09	4.93	1.22		2,667.72	1.33	(22.78)	29.32	6.54	
15	31/12/2019	Manager	Fund 2	477.59	175.92	396.97	37.72	20.65	(17.07)	1.20		2,902.70	1.22	(46.02)	25.19	(20.82)	
16	31/03/2020	Manager	Fund 2	476.08	189.94	394.68	-	14.02	14.02	1.23		3,196.43	1.11	-	15.53	15.53	
17	30/06/2020	Manager	Fund 2	481.43	209.88	382.74	5.35	19.94	14.59	1.23		3,445.72	1.03	(5.50)	20.49	14.99	
18	30/09/2020	Manager	Fund 2	514.85	249.32	383.87	33.42	39.44	6.02	1.23		2,791.11	1.27	(42.40)	50.04	7.64	
19	31/12/2020	Manager	Fund 2	552.70	304.90	413.71	37.85	55.58	17.73	1.30		2,865.58	1.24	(46.77)	68.68	21.91	
20	31/03/2021	Manager	Fund 2	551.27	311.54	424.79	-	6.64	6.64	1.34		2,800.74	1.26	-	8.40	8.40	
21	30/06/2021	Manager	Fund 2	589.93	335.70	486.45	38.66	24.16	(14.50)	1.39		3,153.49	1.12	(43.41)	27.13	(16.28)	
22	30/09/2021	Manager	Fund 2	649.69	403.71	511.85	59.76	68.01	8.25	1.41		3,499.75	1.01	(60.47)	68.82	8.35	
23	31/12/2021	Manager	Fund 2	651.03	449.47	488.00	1.34	45.76	44.42	1.44		3,396.01	1.04	(1.40)	47.72	46.32	
24	31/03/2022	Manager	Fund 2	654.87	522.57	443.67	3.84	73.10	69.26	1.48		3,599.59	0.98	(3.78)	71.91	68.14	
25	30/06/2022	Manager	Fund 2	663.78	528.40	462.86	8.91	5.83	(3.08)	1.49		3,526.96	1.00	(8.95)	5.85	(3.09)	
26	30/09/2022	Manager	Fund 2	678.62	469.05	475.57	14.84	-	(14.84)	1.39		3,302.75	1.07	(15.91)	-	(15.91)	
27	31/12/2022	Manager	Fund 2	679.56	498.01	459.54	0.94	28.96	28.02	1.41		3,630.59	0.98	(0.92)	28.25	27.33	
28	31/03/2023	Manager	Fund 2	667.65	586.19	466.30	-	88.18	88.18	1.58		3,762.12	0.94	-	83.00	83.00	
29	30/06/2023	Manager	Fund 2	692.50	568.74	442.06	24.85	-	(24.85)	1.46		3,791.68	0.93	(23.21)	-	(23.21)	
30	30/09/2023	Manager	Fund 2	687.17	581.66	423.88	-	12.92	436.80	1.46	21.37%	3,541.22	1.00	-	12.92	436.80	4.8

The "ALPHA – SELECTION" tab performs the calculations to compute Direct Alpha of each fund against their representative bespoke benchmarks.

Date	Manager	Fund	Cumulative Contribution	Cumulative Distribution	NAV	Contribution	Distribution	Net CF	TVPI	IRR	Index	FV Factor	FV_contribution	FV_Distribution	Net Cash Flow	IRR
													Benchmark			
31/12/2016	Manager 2	Fund 2	114.63	2.82	116.44	114.63	2.82	(111.81)	1.04		1,880.74	2.76	(316.87)	7.80	(309.07)	
31/03/2017	Manager 2	Fund 2	201.16	31.25	170.23	86.53	28.43	(58.10)	1.00		1,898.96	2.74	(236.90)	77.83	(159.06)	
30/06/2017	Manager 2	Fund 2	203.43	136.60	156.37	2.27	105.35	103.08	1.44		2,113.02	2.46	(5.59)	259.20	253.62	
30/09/2017	Manager 2	Fund 2	306.79	100.48	206.84	103.36	-	(103.36)	1.00		2,118.33	2.45	(253.67)	-	(253.67)	
31/12/2017	Manager 2	Fund 2	306.79	50.47	267.02	-	-	-	1.03		2,154.70	2.41	-	-	-	
31/03/2018	Manager 2	Fund 2	382.08	76.49	334.90	75.29	26.02	(49.27)	1.08		2,315.07	2.25	(169.08)	58.43	(110.64)	
30/06/2018	Manager 2	Fund 2	388.55	76.49	343.00	6.47	-	(6.47)	1.08		2,643.79	1.97	(12.72)	-	(12.72)	
30/09/2018	Manager 2	Fund 2	390.10	78.05	346.31	1.55	1.56	0.01	1.09		2,818.50	1.84	(2.86)	2.88	0.02	
31/12/2018	Manager 2	Fund 2	394.45	130.22	311.36	4.35	52.17	47.82	1.12		2,905.91	1.79	(7.78)	93.34	85.55	
31/03/2019	Manager 2	Fund 2	439.97	133.18	364.32	45.52	2.96	(42.56)	1.13		2,995.20	1.74	(79.01)	5.14	(73.87)	
30/06/2019	Manager 2	Fund 2	422.71	133.18	376.15	-	-	-	1.20		3,242.84	1.60	-	-	-	
30/09/2019	Manager 2	Fund 2	439.87	155.27	380.31	17.16	22.09	4.93	1.22		3,457.02	1.50	(25.81)	33.22	7.41	
31/12/2019	Manager 2	Fund 2	477.59	175.92	396.97	37.72	20.65	(17.07)	1.20		3,299.58	1.58	(59.43)	32.54	(26.90)	
31/03/2020	Manager 2	Fund 2	476.08	189.94	394.68	-	14.02	14.02	1.23		3,712.32	1.40	-	19.63	19.63	
30/06/2020	Manager 2	Fund 2	481.43	209.88	382.74	5.35	19.94	14.59	1.23		3,606.46	1.44	(7.71)	28.74	21.03	
30/09/2020	Manager 2	Fund 2	514.85	249.32	383.87	33.42	39.44	6.02	1.23		3,302.00	1.57	(52.62)	62.10	9.48	
31/12/2020	Manager 2	Fund 2	552.70	304.90	413.71	37.85	55.58	17.73	1.30		3,251.95	1.60	(60.51)	88.86	28.34	
31/03/2021	Manager 2	Fund 2	551.27	311.54	424.79	-	6.64	6.64	1.34		3,638.02	1.43	-	9.49	9.49	
30/06/2021	Manager 2	Fund 2	589.93	335.70	486.45	38.66	24.16	(14.50)	1.39		4,339.05	1.20	(46.32)	28.95	(17.37)	
30/09/2021	Manager 2	Fund 2	649.69	403.71	511.85	59.76	68.01	8.25	1.41		4,247.77	1.22	(73.14)	83.24	10.10	
31/12/2021	Manager 2	Fund 2	651.03	449.47	488.00	1.34	45.76	44.42	1.44		4,121.75	1.26	(1.69)	57.72	56.03	
31/03/2022	Manager 2	Fund 2	654.87	522.57	443.67	3.84	73.10	69.26	1.48		4,582.33	1.13	(4.36)	82.94	78.58	
30/06/2022	Manager 2	Fund 2	663.78	528.40	462.86	8.91	5.83	(3.08)	1.49		4,843.65	1.07	(9.56)	6.26	(3.31)	
30/09/2022	Manager 2	Fund 2	678.62	469.05	475.57	14.84	-	(14.84)	1.39		4,888.68	1.06	(15.78)	-	(15.78)	
31/12/2022	Manager 2	Fund 2	679.56	498.01	459.54	0.94	28.96	28.02	1.41		5,105.75	1.02	(0.96)	29.49	28.53	
31/03/2023	Manager 2	Fund 2	667.65	586.19	466.30	-	88.18	88.18	1.58		4,903.18	1.06	-	93.50	93.50	
30/06/2023	Manager 2	Fund 2	692.50	568.74	442.06	24.85	-	(24.85)	1.46		4,968.93	1.05	(26.00)	-	(26.00)	
30/09/2023	Manager 2	Fund 2	687.17	581.66	423.88	-	12.92	436.80	1.46	21.37%	5,198.88	1.00	-	12.92	436.80	3.61%
31/12/2016	Manager 1	Fund 1	1,653.15	37.37	1,919.98	1,653.15	37.37	(1,615.78)	1.18		1,880.74	2.76	(4,569.76)	103.30	(4,466.46)	

The "RESULTS" tab shows the direct alpha of each fund and manager against the specified privateMetrics index (and in the template a public equity index). It also breaks down alpha attributions into allocation vs selection effects.

		Fund 1	Fund 2
Fund IRR		17.64%	21.37%
Fund TVPI		1.39	1.46
Public Equity Benchmark			
	Beta	11.63%	10.64%
	Alpha	6.01%	10.72%
Private Market Benchmark			
	Beta	18.25%	16.55%
	Alpha	-0.61%	4.81%
	Alpha - Allocation Tilt	0.12%	1.20%
	Alpha - Investment Selection	-0.73%	3.61%

Fund 1

	Beta	Alpha - Allocation Tilt	Alpha - Investment Selection
	18.25%	0.12%	-0.73%

Fund 2

	Beta	Alpha - Allocation Tilt	Alpha - Investment Selection
	16.55%	1.20%	3.61%
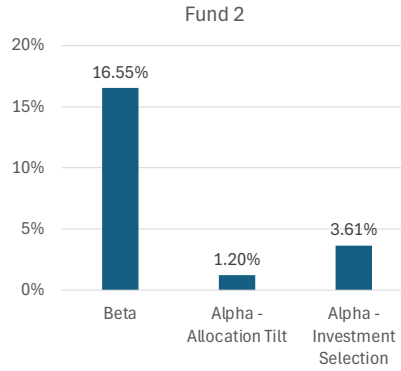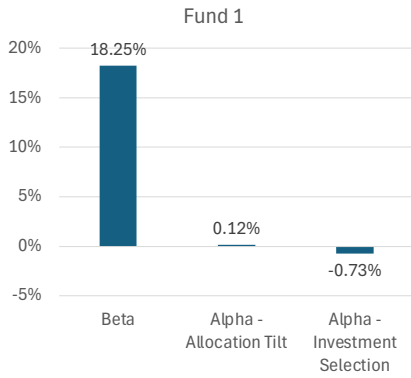
DA can allow you to assess the performance of each fund and manager fairly against a representative benchmark and determine which managers are over/under-performing the market, or simply to monitor the alpha-generating capability of a fund on an ongoing basis.

In this example, while both funds appear to have outperformed public markets, only Fund 2 has been able to generate alpha against the representative private market benchmark.

Fund 1 has delivered an IRR of 17.64% but underperformed the market with an alpha of -0.61%. Fund allocation resulted in small positive alpha but was offset by underperforming investments.

Fund 2 has delivered an IRR of 21.37% and outperformed with an alpha of 4.81%, primarily driven by superior investment selection by the manager.

Appendices

PECCS™

PECCS™ stands for The private Company Classification Standard. It classifies a private company into five pillars:

1. Industrial Activity (12 classes, 67 subclasses)

2. Revenue model (4 classes, 14 subclasses)

3. Lifecycle phase (3 classes, 7 subclasses)

4. Customer model (2 classes, 8subclasses)

5. Value chain (3 classes, 6 subclasses)
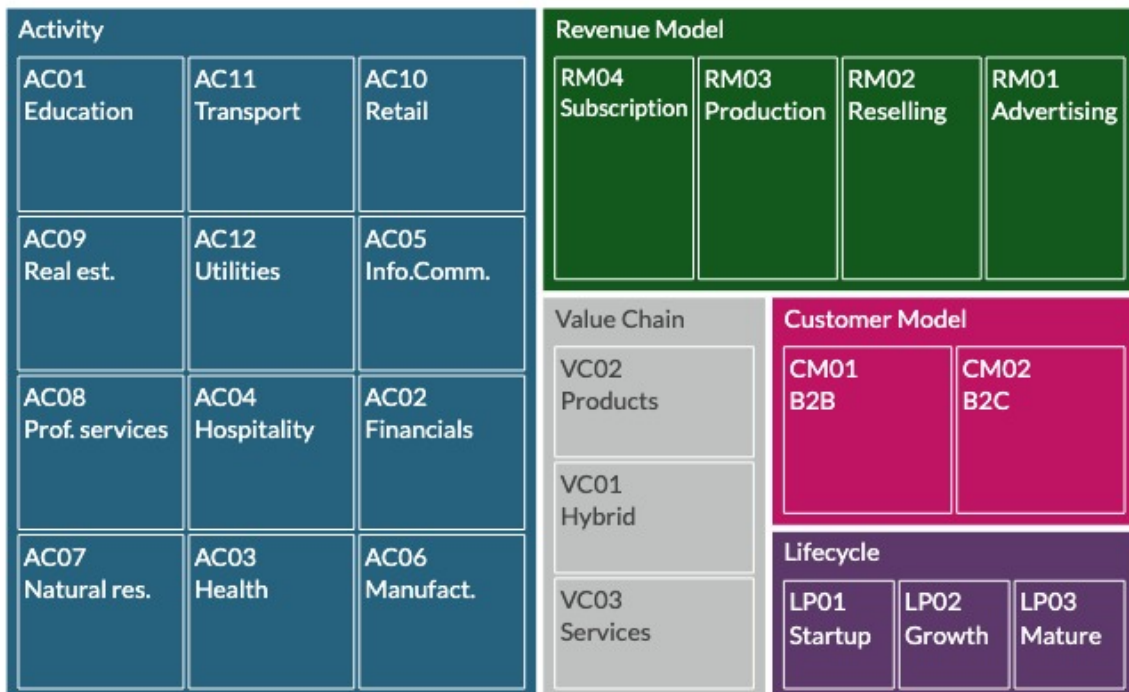
The key features of PECCS taxonomy include:

1. The five pillars are objective and independent.

2. Exhaustive and mutually exclusive classes.

3. Activity pillar can be mapped to other schemes (NACE, GICS, TICCS).

TICCS™

TICCS stands for The Infrastructure Company Classification Standard (to find out more about TICCS and its governance see this link). In infraMetrics, asset valuation data is available according to the four TICCS pillars: Industrial Activity, Business Model, Geo-economic Classification and Corporate Structure.

These classes can be used as discriminant between asset prices. In other words, there is a systematic different of average price between the infrastructure projects with a Contracted business model that have more predictable revenues, and projects with a Merchant business model that have more variable revenues linked to the economic cycle. Likewise, differences or Industrial Activity or Corporate Structure (project finance vs corporates) do correspond to systematic differences in the market prices observed over time.

Sector	TICCS Name	Price/Sales
IC10	Power	2.3x
IC20	Env. Services	2.2x
IC30	Social	1.6x
IC40	Nat. resources	3.4x
IC50	Data	4.3x
IC60	Transport	3.7x
IC70	Renewables	6.3x
IC80	Net. Utilities	3.4x

Company structure	Price/Sales
Corporate	3.8x
Project Finance	3.3x

Company structure	Price/Sales
Contracted	2.5x
Merchant	3.7x
Regulated	2.5x

Direct Alpha (DA)

This section describes the calculation of DA.

Consider the following notations whereby the subscript counts equally spaced intervals from the fund's first cash flow at period 0:

- A sequence of contributions into the PE portfolio: $C = \{c0, c1, \dots, cn\}$

- A sequence of distributions from the PE portfolio: $D = \{d0, d1, \dots, dn\}$

- A residual value of the PE portfolio at time n: NAV_{PE}

- A reference benchmark: $B = \{m0, m1, \dots, mn\}$

The series B must be such that:

- The future value of contributions at time n is: $FV(C) = \sum_{i=0}^{n} c_i . m_i$

- The future value of distributions at time n is: $FV(D) = \sum_{i=0}^{n} d_i . m_i$

- The present value of contributions is $PV(C) = FV(C).\frac{m_0}{m_n}$

- The present value of distributions is $PV(D) = FV(D) \cdot \frac{m_0}{m_n}$

Where 'future value' refers to the point in time n of the analysis, e.g., the last occurrence of a cash flow or the latest residual value (i.e., NAV_{PE} >0).

Similarly, the term 'present value' refers to the time of the first cash flow. C and D are nonnegative for each period and are coded as zeros if the fund made no capital calls or distributions in that period.

Denote with $IRR(C, D, NAV_{PE})$ the function that computes an IRR of the fund given the contributions C, distributions D, and the residual value NAV_{PE}. DA is then given by:

$$DA = IRR(FV(C), FV(D), NAV_{PE})$$

Thus, DA is simply the IRR of the fund that is computed using the discounted values of the fund's cash flows with the benchmark series.

References

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