



# Investment Risk Summit

NAVIGATING UNCERTAINTY AND  
BUILDING TOTAL PORTFOLIO RESILIENCE

# Beyond silos: An integrated framework for multi-asset class portfolios



**Oleg Ruban**

Head of APAC Research

# The Total Portfolio Approach: Introduction

---

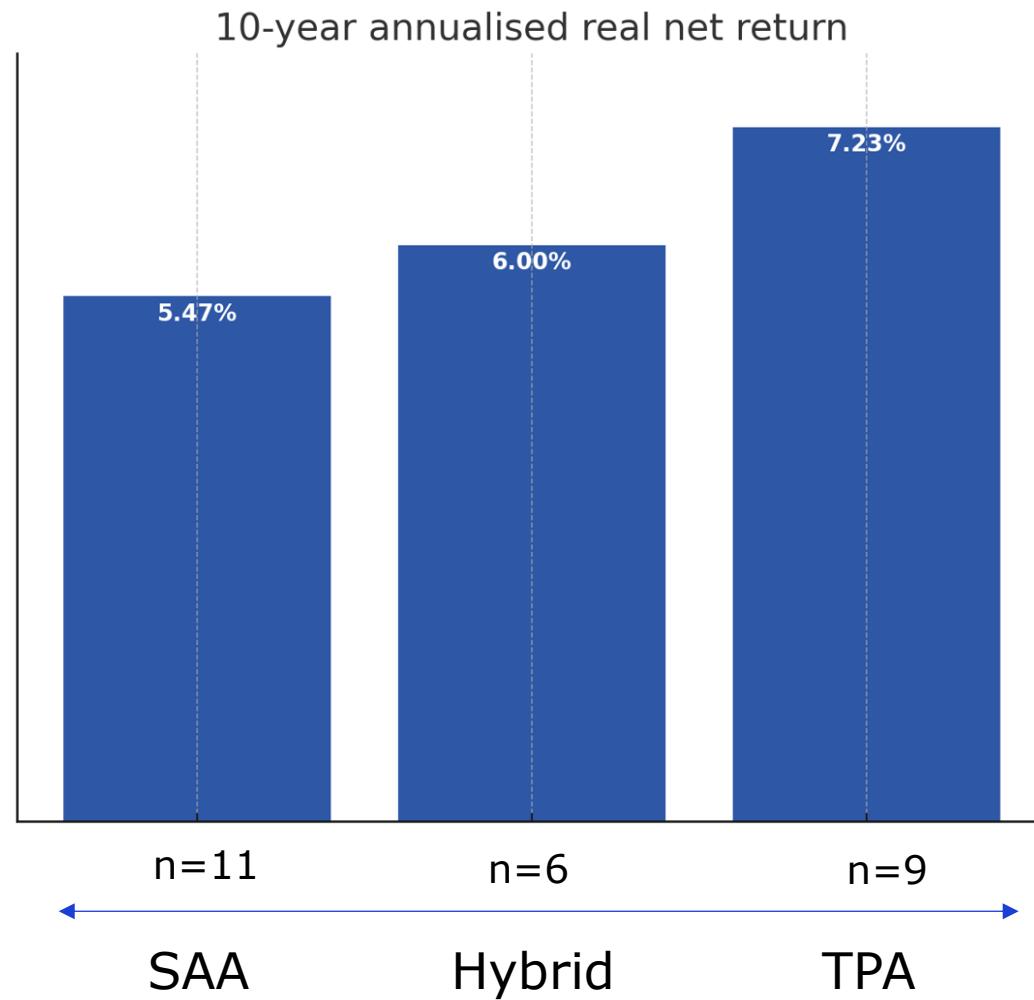
# The total portfolio approach (TPA) : A flexible investment philosophy

- TPA centers on managing the portfolio holistically, integrating all assets to optimize for total risk-adjusted returns rather than focusing on individual asset classes.
- “*No One-Size-Fits-All*”: Unlike traditional models, TPA offers no step-by-step guide—each organization customizes it based on unique goals, governance, and resources.
- “*A Philosophy, Not a Formula*”: TPA is about fostering a mindset of adaptability, collaboration, and alignment with mission-driven goals. Each organization’s TPA journey is unique, but several core principles unify the approach and guide implementation.

# Core principles of TPA



# Some studies suggest that implementing TPA improved performance outcomes



→ **Broader Opportunity Set:** Unlike strategic asset allocation (SAA), which is constrained by predefined asset classes, TPA evaluates all investments based on their contribution to total portfolio outcomes, opening the door to a wider variety of assets and strategies

→ **Enhanced Returns Through Flexibility:** TPA allows real-time adjustments, enabling the portfolio to better capture short-term opportunities and avoid risk exposures that no longer align with market conditions

# A continuum of approaches to asset allocation

## SAA

Allocates capital to fixed asset classes (e.g., equities, fixed income) with set benchmarks

## Factor-aware allocation

Integrates awareness of factors into allocations to traditional asset classes

## Reference portfolio

Uses a simple, passive benchmark to guide portfolio risk exposure, with more flexibility than SAA

## Factor-based allocation

Allocates risk budget based on underlying factors, rather than capital to asset classes

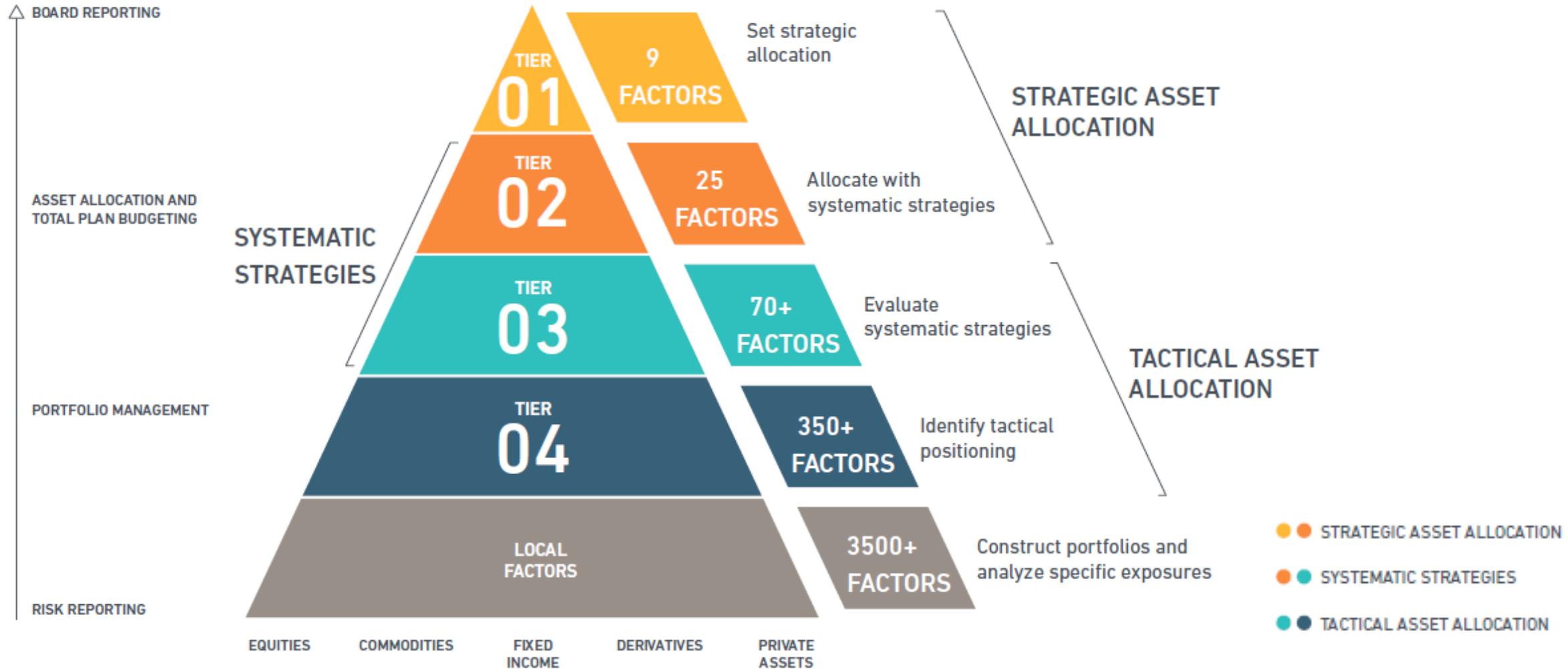
SAA

TPA

# Common elements shared across TPA adopters

- **Emphasis on Risk-Adjusted Return:** Success is measured by contribution to total portfolio outcomes rather than outperforming narrow benchmarks.
- **Factor-Based Diversification:** Instead of focusing solely on asset classes, TPA emphasizes risk factors to build resilience.
- **Integrated Governance:** Decision-making often shifts to a more agile model that allows for fast, efficient adjustments.
- **Sustainability and Climate Integration:** Some TPA adopters incorporate include Climate considerations in their implementation

# The MSCI MAC model



# Research and new product development to support TPA

We developed a [prototype tool](#) that combines inputs from the [MSCI Macro Finance Model](#) and the [MSCI MAC Model](#) in Total Portfolio Allocations

Metric Name	Total	Diversifying
Expected return	6.9%	7.2%
Income yield	2.6%	3.5%
Risk	11.9%	12.5%
Concentration	15.5%	16.5%
Uncertainty (exp. return)	0.6%	0.5%

Core private asset size (%):  25

Expected return (%):  7

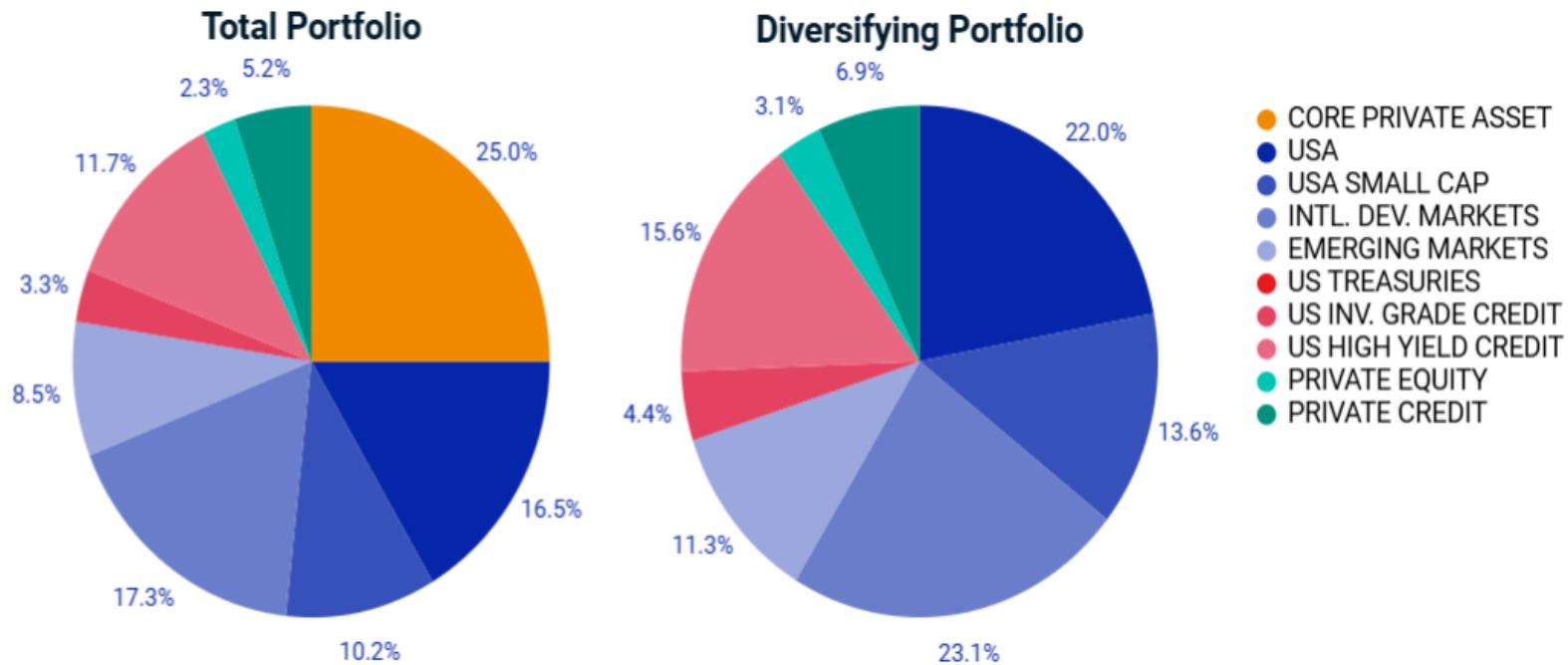
Required income yield (%):  3.5

Risk tier:  Conservative  Balanced  Growth

Illiquidity preference:  None  Low  Medium  High

Uncertainty penalty:  None  Moderate  Strong

Diversification incentive:



The total portfolio allocations shown on these charts are based on a [prototype asset allocation tool](#) that combines expected returns (Capital Market Assumptions) from the [MSCI Macro Finance Model](#) with risk forecasts from the [MSCI Multi Asset Class Model](#) and leverages the [MSCI Open Optimiser](#) to construct an optimal asset allocation according to a set of investor specified portfolio parameters. This prototype tool is based on research that was published in a recent MSCI Research Insight titled [Total Portfolio Allocation for Modern Wealth \(March 2025\)](#).

# Bringing clarity to credit: Advanced approaches to managing risk across markets



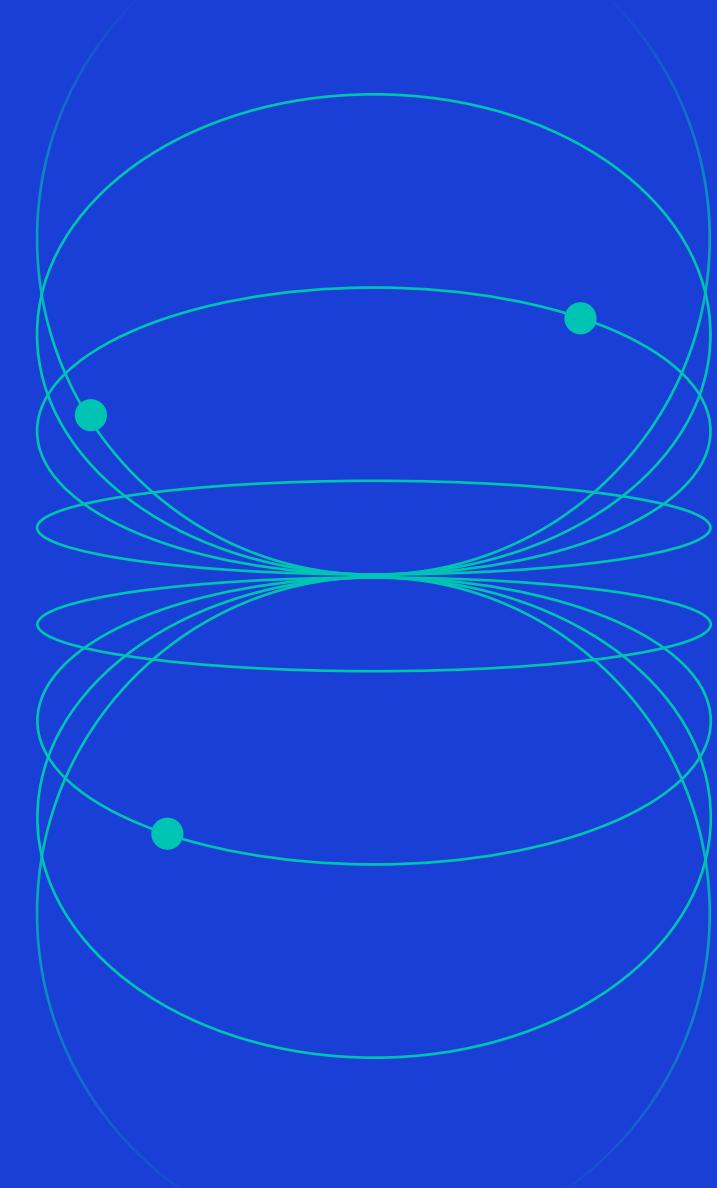
**Afsaneh Mastouri**

Global Head of Fixed-Income Investing Research



# Private Credit at a Turning Point

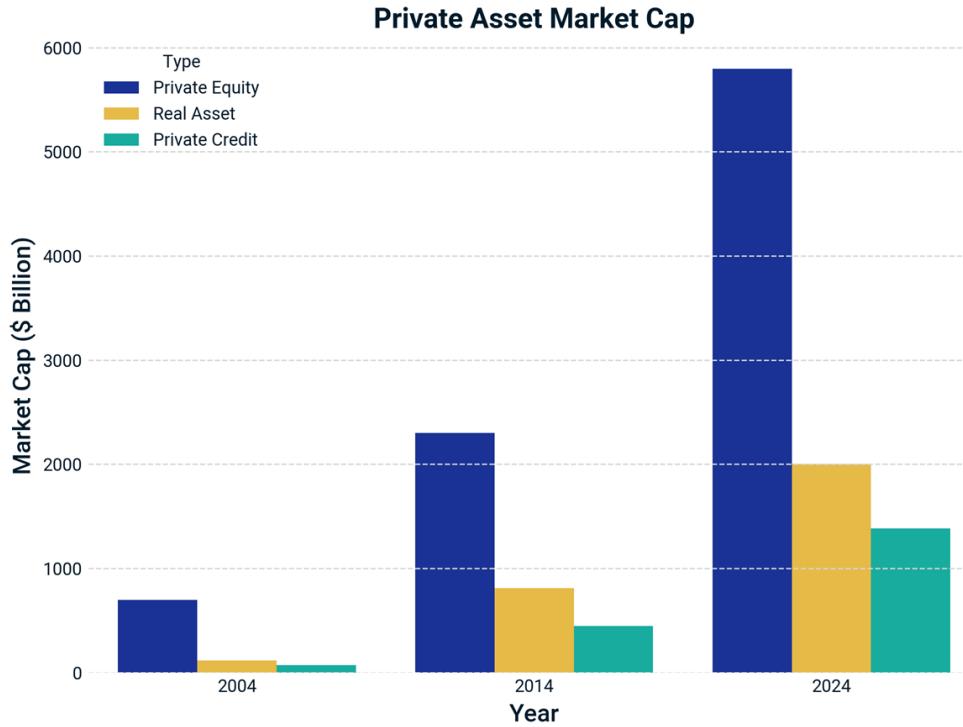
October 2025



# A new standard in private credit transparency.

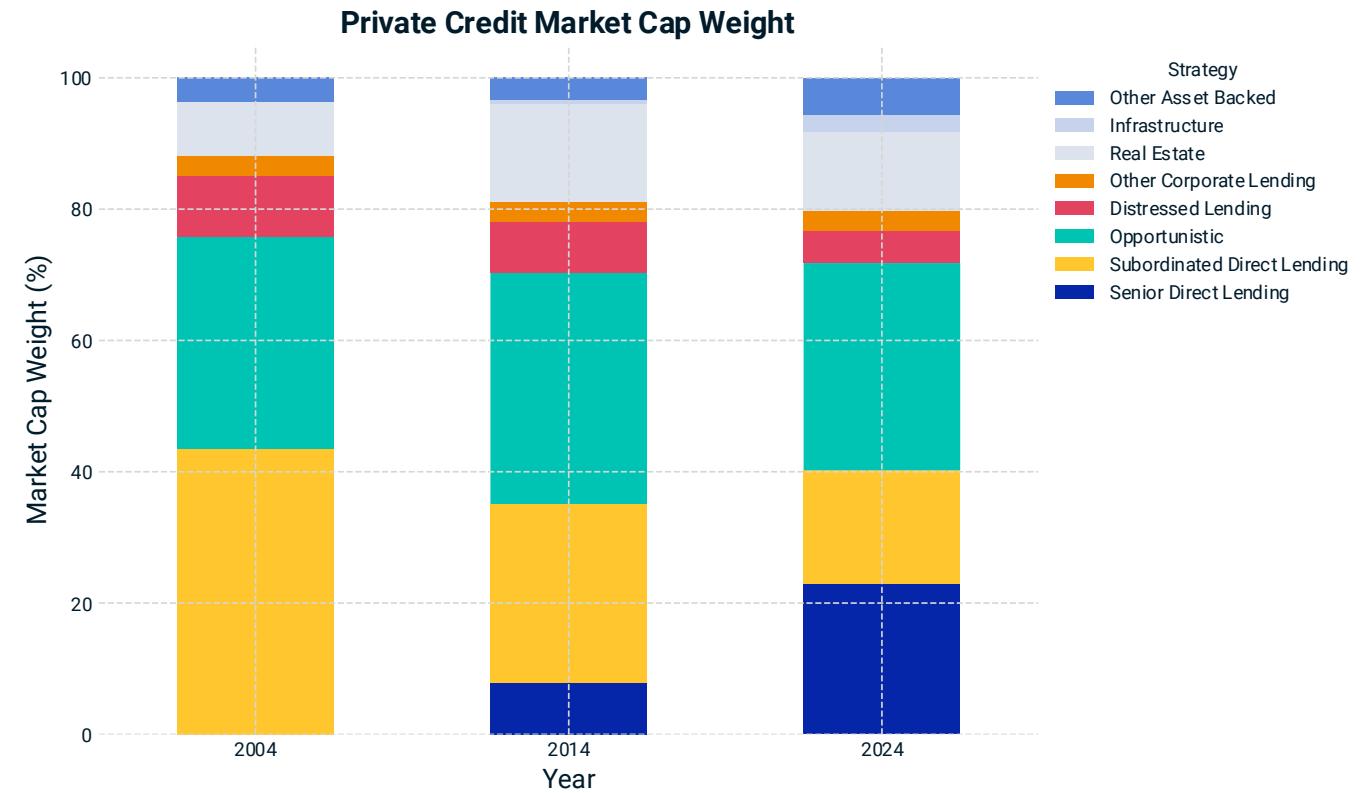
Recognising the momentum in Private Credit asset class, MSCI is positioned to offer independent, standardized risk assessment tools for private credit investments — giving LPs the insight required to scale allocations with greater risk control.

# Private credit is evolving



Private credit has moved from niche to core — now too significant to model with legacy tools

Source: MSCI Research (Data as of June 2025)



Institutional allocations are driving a strategic pivot: from distressed debt to direct, senior, and infrastructure lending.

# A shifting private credit landscape

The private credit market is undergoing a transformation driven by macroeconomic shifts and growing investor interest:

## Massive growth

The market is approaching a \$40 trillion addressable size, with institutional investors steadily increasing their allocations to private credit as traditional bank lending retrenches.

## Shift in lending dynamics

Regulatory constraints and capital pressures are pushing banks to pull back from middle-market lending, opening the door for private capital to fill the gap.

## Transparency deficit

Despite its growth, private credit remains fragmented, with limited transparency into the credit quality of underlying borrowers and facilities.

## Inconsistent risk assessment

GPs often apply divergent and opaque methodologies to assess borrower risk, making it difficult for LPs to compare credit quality across funds or align private and public exposures.

## Urgency for standardization

As LPs deepen their exposure, there is a growing demand for consistent, independent metrics to evaluate credit risk and benchmark performance.

MSCI aims at addressing these structural challenges by bringing a new level of clarity and confidence to private credit risk analysis.

# Agenda

→ 01 MSCI Private Credit Indexes

---

→ 02 MSCI Private Credit Risk Factor model

---

→ 03 MSCI | Moody's Private Credit assessment

---

# MSCI Private Credit Indexes

Fund level

# MSCI Private Credit Taxonomy

→ Over the past year, we've been developing a new Private Credit-focused taxonomy

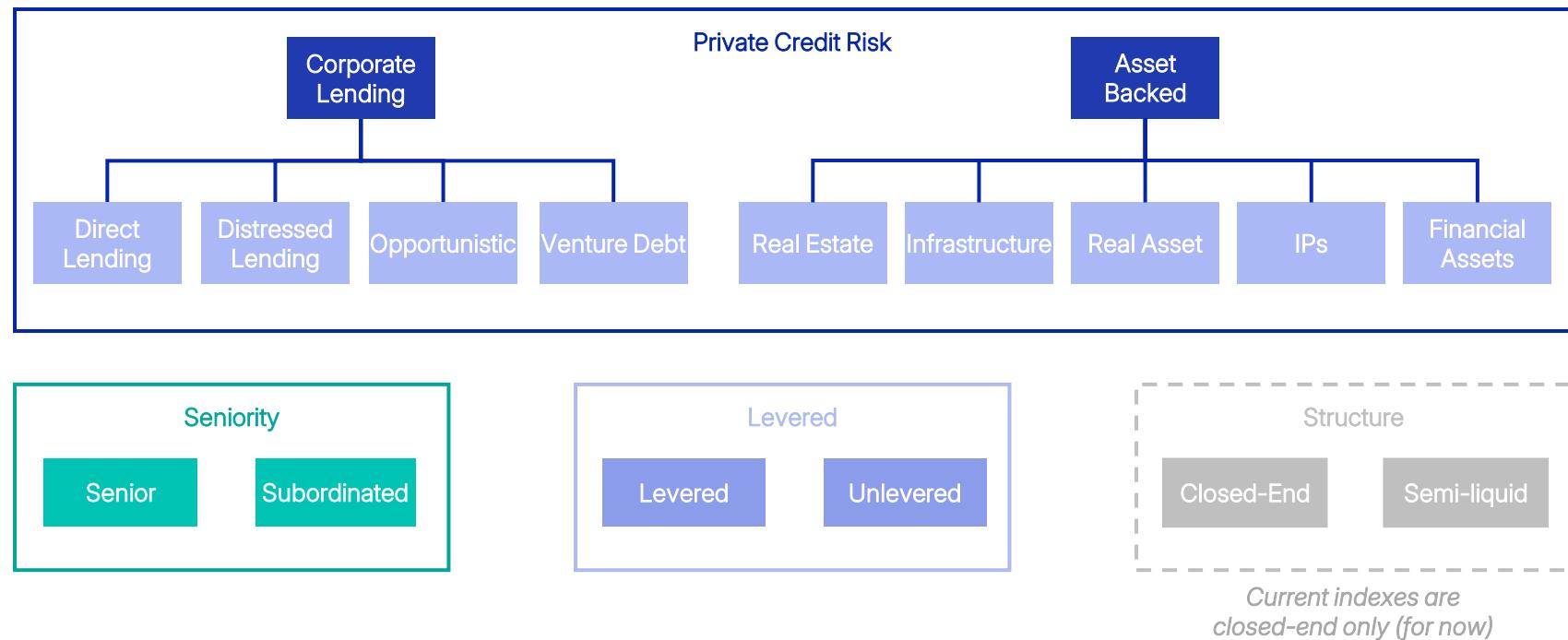
→ Instead of using a single Asset Class, funds are assigned:

→ 1.) Risk

→ 2.) Seniority

→ 3.) Levered

→ Etc.



# MSCI Private Credit Fund Indexes

MSCI has launched 69 new, more granular private credit indexes

## MSCI Global Private Credit Closed-End Fund Index

### Corporate Lending

MSCI Global Corporate Lending Closed-End Fund Index

- Opportunistic Lending
- Direct Lending (Un/levered)
  - Senior Direct Lending
  - Subordinated Direct Lending

### Asset Backed Lending

MSCI Global Asset Backed Lending Closed End Fund Index

- Real Estate Debt

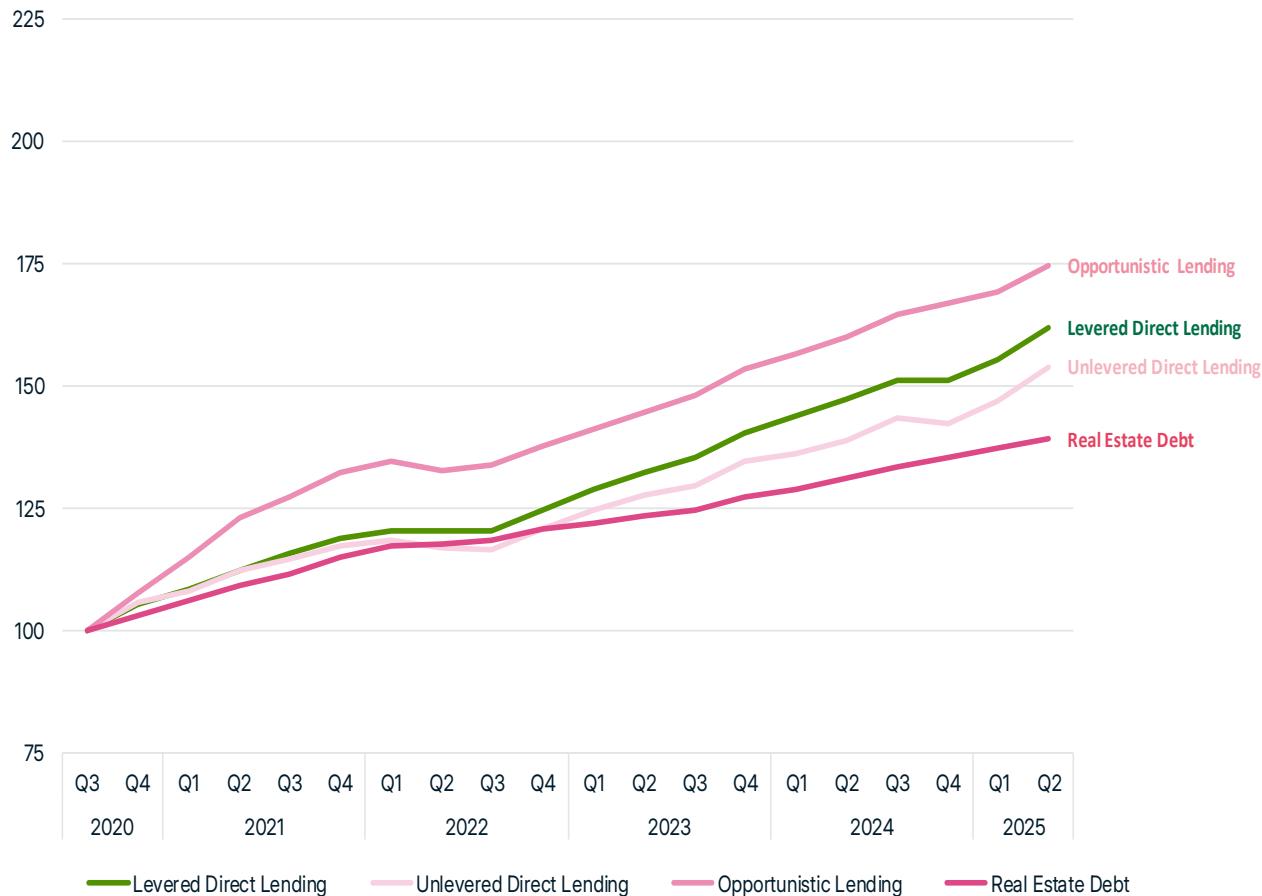
Calendar Year and Quarterly Returns (%)

	2020	2021	2022	2023	2024	Q3	Q4	Q1	Q2
MSCI Global Private Credit Closed-End Fund Index	5.8%	15.4%	3.8%	10.2%	7.2%	2.7%	0.6%	2.1%	3.4%
Corporate Risk	8.1%	16.5%	3.9%	11.2%	7.5%	3.0%	0.5%	2.2%	3.8%
Direct Lending	8.3%	11.3%	3.7%	12.0%	6.3%	3.1%	-0.5%	3.2%	4.6%
Senior Direct Lending	8.2%	8.1%	3.1%	12.4%	5.4%	3.2%	-1.0%	3.6%	4.9%
Subordinated Direct Lending	8.3%	17.7%	5.7%	11.2%	8.3%	2.3%	0.8%	2.0%	3.7%
Opportunistic Lending	5.9%	22.9%	4.1%	11.3%	8.9%	2.9%	1.4%	1.5%	3.2%
Asset Backed Lending	0.6%	12.7%	4.3%	7.5%	6.8%	2.2%	1.1%	1.7%	2.2%
Real Estate	-0.2%	11.9%	4.8%	5.6%	6.2%	1.6%	1.5%	1.4%	1.5%
Private Credit (Levered)	4.2%	16.2%	4.3%	10.8%	7.3%	2.2%	1.0%	1.7%	3.2%
Direct Lending (Levered)	8.2%	13.1%	4.7%	12.8%	7.7%	2.7%	0.1%	2.7%	4.3%
Senior Direct Lending (Levered)	7.1%	11.4%	4.9%	12.7%	6.8%	2.7%	-0.3%	3.0%	4.5%
Subordinated Direct Lending (Levered)	9.4%	16.9%	4.1%	13.9%	10.8%	2.4%	1.3%	1.9%	3.7%
Private Credit (Unlevered)	6.5%	15.5%	3.5%	9.9%	7.3%	2.9%	0.6%	2.2%	3.4%
Direct Lending (Unlevered)	8.5%	10.8%	3.1%	11.6%	5.7%	3.4%	-0.7%	3.3%	4.7%
Senior Direct Lending (Unlevered)	8.7%	6.7%	2.0%	12.5%	4.5%	3.8%	-1.6%	4.0%	5.5%
Subordinated Direct Lending (Unlevered)	8.5%	18.8%	6.4%	9.3%	7.0%	2.0%	0.8%	2.0%	3.5%

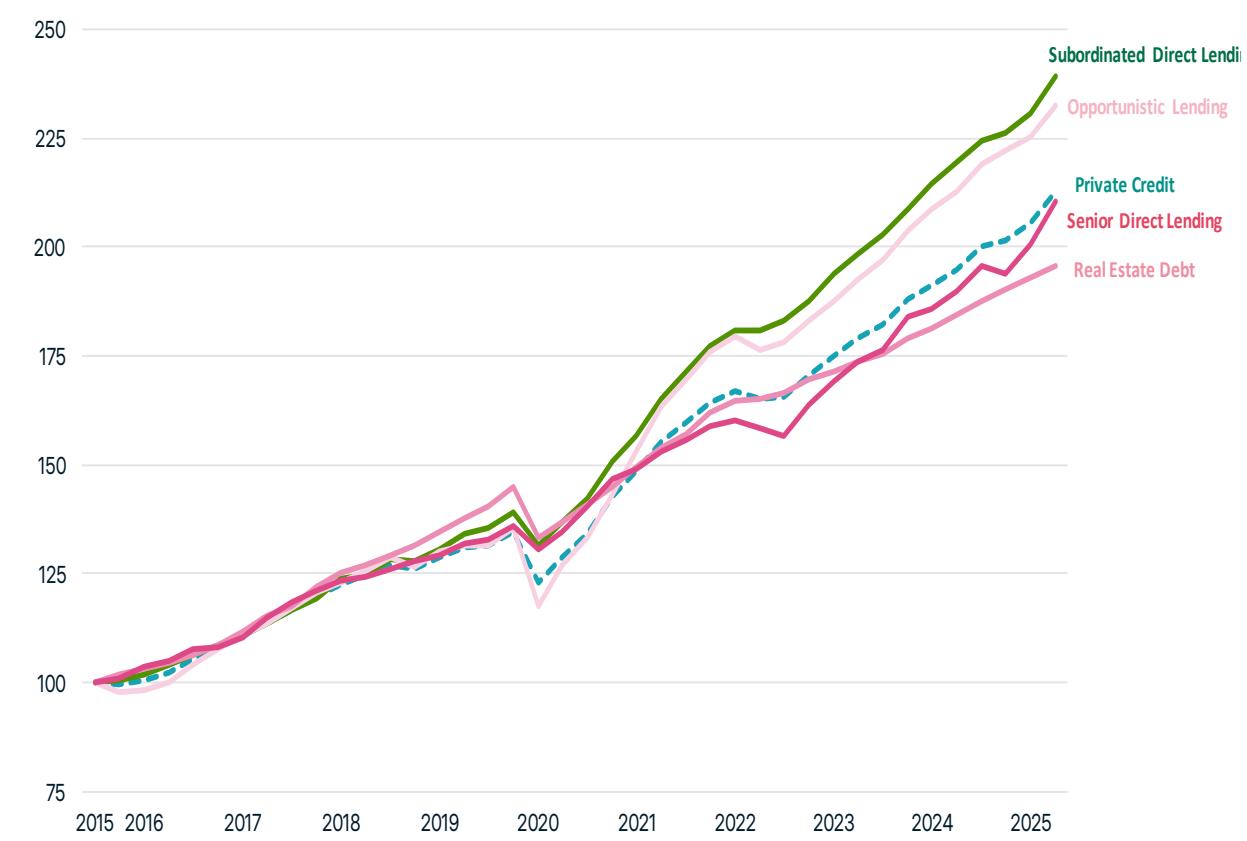
For illustrative purposes only

# MSCI Private Credit Fund Indexes

Cumulative Index Returns



Cumulative Index Returns



Source: MSCI Research

# MSCI Private Credit Factor Model

Fund level

# Features and framework

The MSCI Private Credit Factor Model gives institutional investors a purpose-built, risk-aware lens into one of the fastest-growing — and least transparent — segments of the portfolio.

## Key Features

- Regional coverage of North America (NA), Europe (EU), Asia (AS) and a global Diversified Region (DR)
- 30 granular factors covering both corporate lending and asset backed lending
- Incorporates both a **strategy-level approach** to support top-down risk analytics and a **deal-level approach** to support bottom-up risk analytics
- Leverages MSCI's private credit data to isolate and quantify the distinct "pure private" risk component.
- Integrates with MSCI's public fixed income analytics for a consistent view of risk across public and private assets
- Uses Bayesian de-smoothing methodology to analyze exposures and risk in private assets by addressing data smoothness and linking them to public markets.

## A framework accommodating different needs for granularity and precision

Use Case	Positions Covered	Details
Portfolio-level allocation modeling	Funds and loans	<p>Top-down</p> <ul style="list-style-type: none"> <li>• Customizable public proxies based on sector &amp; coupon type, or client-specification determining relevant public factors</li> <li>• Exposures to public factors based on Bayesian de-smoothing beta, differentiated via region / strategy</li> <li>• (Loan-level) Tailored exposures given optional credit quality inputs, e.g., from the MSCI-Moody's partnership</li> </ul>
Detailed loan-level risk attribution	Senior corporate loans	<p>Bottom-up</p> <ul style="list-style-type: none"> <li>• Public bank loan factor exposure determined by sector</li> <li>• Loan-specific duration-times-spread calibrated from the MSCI Bank Loan Pricing Model</li> </ul>

## Private credit return decomposed to public DTS and pure private credit

$$\text{De-smoothed return innovation} = \text{Beta} \cdot \text{Public proxy} + \text{Pure private factor} + \text{Specific return}$$

Strategy-level example:

$$\text{US Senior loan fund} = \text{US Senior Beta} \cdot \text{Public Proxy FI Exp Public FI Factors} + \text{Pure US Senior} + \text{Specific return}$$

Sample Public Proxy Exposures:      US Leveraged Loan Index (LLI)      = LLI KRDs Rates Factors + LLI DTS Bank Loan Spread Factors



Deal-level example:

$$\text{US Senior loan ABC} = \text{US Senior loan ABC FI Exp} \cdot \text{Bank Loan FI Factors} + \text{Pure US Senior} + \text{Specific return}$$

Source: MSCI Research

# Improved risk attribution beyond public proxies for risk managers

More information about a fund can drive more detailed modeling.

Modeling Approach	Leveraged Public	Strategy level	Strategy level	Leveraged Public	Strategy level	Strategy level
Available information	Strategy/Region	Strategy/Region	Strategy/Region/Sector	Strategy/Region	Strategy/Region	Strategy/Region/Sector
Total Risk:				5.20%	5.07%	6.46%
	Exposures	Exposures	Exposures	Risk Contribution	Risk Contribution	Risk Contribution
Local Market Risk				100.00%	100.00%	100.00%
Common Factor Risk				96.56%	95.79%	97.33%
Term Structure	0.09	0.09	0.09	0.14%	-0.30%	-0.26%
Spread				96.42%	73.63%	85.14%
US Bank Loan Consumer Discretionary Spread	5.71	5.40	25.88	26.52%	20.25%	85.14%
US Bank Loan Consumer Staples Spread	0.21	0.20	0.00	0.99%	0.76%	0.00%
US Bank Loan Energy Spread	0.53	0.51	0.00	3.27%	2.50%	0.00%
US Bank Loan Financials Spread	2.35	2.23	0.00	12.91%	9.86%	0.00%
US Bank Loan Health Care Spread	1.71	1.62	0.00	6.37%	4.87%	0.00%
US Bank Loan Industrials Spread	4.65	4.40	0.00	23.26%	17.76%	0.00%
US Bank Loan Materials Spread	1.29	1.22	0.00	7.02%	5.36%	0.00%
US Bank Loan Telecommunication Services Spread	1.45	1.37	0.00	6.38%	4.87%	0.00%
US Bank Loan Transportation Spread	1.26	1.19	0.00	7.57%	5.78%	0.00%
US Bank Loan Utilities Spread	0.36	0.34	0.00	2.12%	1.62%	0.00%
US Bank Loan All Spread	0.00	0.00	0.00	0.00%	0.00%	0.00%
Private Credit					22.47%	12.45%
NA Corporate Credit - Senior Loans	0.00	1.00	1.00		22.47%	12.45%
Selection Risk				3.44%	4.21%	2.67%

**Total risk is similar under public proxy and default strategy-level modeling but increases when sector detail is incorporated.**

**Risk contributions are different due to the introduction of the pure private factors and tailored sector exposures.**

**Exposures are based on Leveraged Loan DTS under the public proxy approach and private to public credit sensitivities under the strategy-level model.**

**Exposure to the pure private factor capturing pure private credit risk.**

# PCR1 asset and deal level analysis – Sample senior direct lending fund

Deal level insights reveal the equity and mezzanine debt allocation. | Loan valuation reveals the fund's higher credit quality, reduces spread risk.

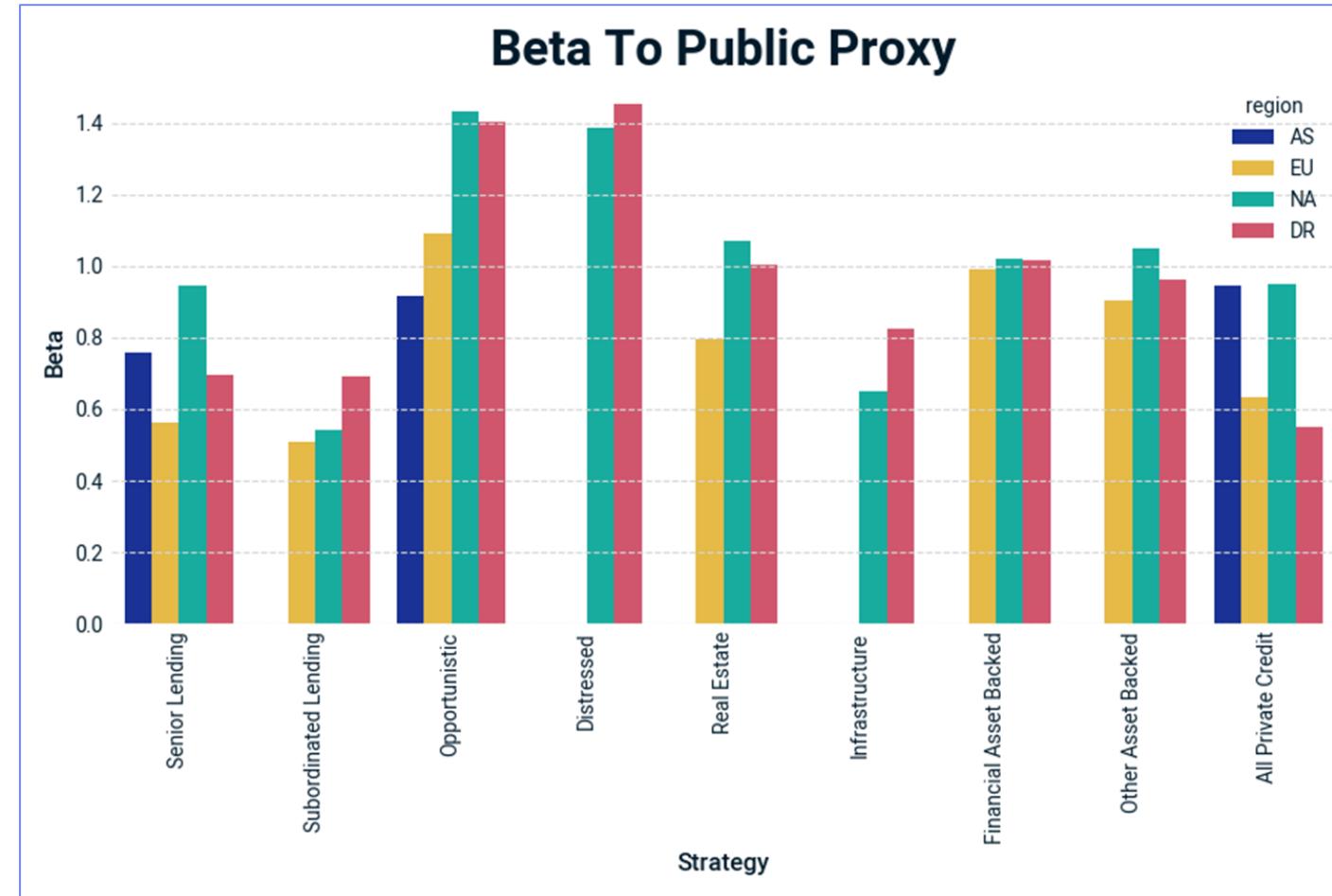
Fund Name	PEQ2 Total Risk	Strategy Level Total Risk	Holding Level Total Risk
Sample Senior Direct Lending Fund	<b>9.54</b>	6.48	<b>6.27</b>
<b>Strategy Level with Fund Info Only</b>		Portfolio Risk	Portfolio Risk Contribution (%)
Total Risk		6.48	100.00%
Local Market Risk	6.48	100.00%	
Common Factor Risk	6.44	98.83%	
Term Structure	0.15	-0.57%	
Spread	5.78	78.78%	
US Bank Loan Consumer Discretionary Spread	1.80	24.34%	
US Bank Loan Consumer Staples Spread	0.03	0.40%	
US Bank Loan Energy Spread	0.24	2.46%	
US Bank Loan Financials Spread	0.98	13.01%	
US Bank Loan Health Care Spread	0.58	7.61%	
US Bank Loan Industrials Spread	1.15	15.47%	
US Bank Loan Materials Spread	0.35	4.72%	
US Bank Loan Telecommunication Services Spread	0.37	4.81%	
US Bank Loan Transportation Spread	0.35	4.37%	
US Bank Loan Utilities Spread	0.13	1.60%	
Private Debt	2.94	20.62%	
NA Corporate Credit - Senior Direct Lending	2.94	20.62%	
Selection Risk	0.70	1.17%	
Currency Risk	0.00	0.00%	
US Dollar	0.00	0.00%	

Holding Level	Portfolio Risk	Portfolio Risk Contribution (%)
Total Risk	6.27	100.00%
Local Market Risk	6.27	100.00%
Common Factor Risk	6.23	98.78%
Industry	0.11	0.16%
Style	0.21	1.24%
Term Structure	0.32	-1.04%
Spread	4.76	63.61%
US Bank Loan All Spread	0.72	9.61%
US Bank Loan Consumer Discretionary Spread	1.26	16.70%
US Bank Loan Consumer Staples Spread	0.02	0.27%
US Bank Loan Energy Spread	0.17	1.68%
US Bank Loan Financials Spread	0.68	8.92%
US Bank Loan Health Care Spread	0.41	5.24%
US Bank Loan Industrials Spread	0.81	10.66%
US Bank Loan Materials Spread	0.25	3.23%
US Bank Loan Telecommunication Services Spread	0.26	3.31%
US Bank Loan Transportation Spread	0.25	2.98%
US Bank Loan Utilities Spread	0.09	1.09%
Market	0.98	8.93%
US Country	0.98	8.93%
Private Equity	0.75	2.79%
US PE Large Buyouts	0.75	2.79%
Private Debt	2.92	23.08%
NA Corporate Credit - Senior Direct Lending	2.68	20.90%
NA Corporate Credit - Subordinated Direct Lending	0.43	2.18%
Selection Risk	0.69	1.22%
Currency Risk	0.00	0.00%
US Dollar	0.00	0.00%

Source: MSCI Research. For illustrative purposes only.

# Private credit has significant exposures to public credit

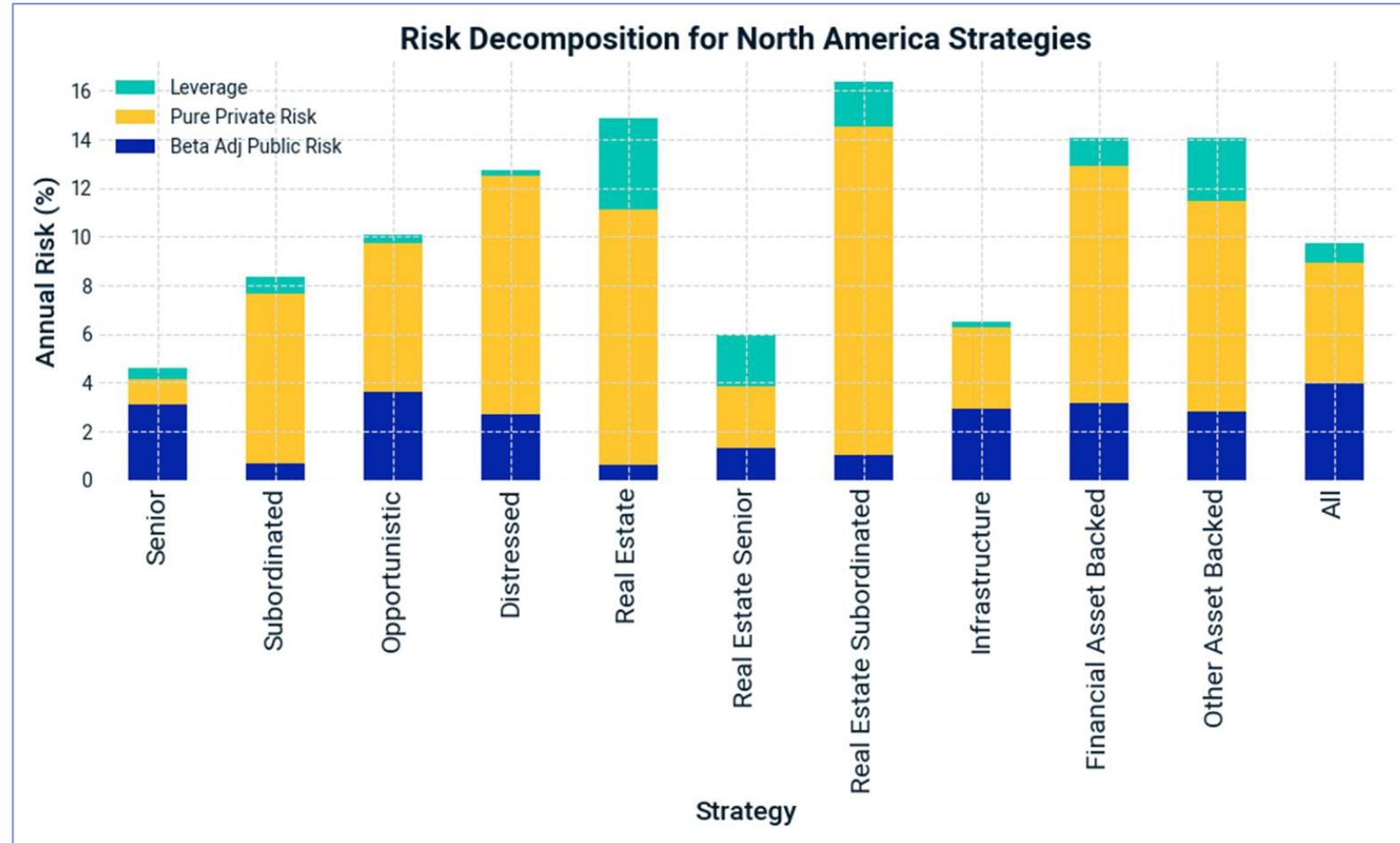
- Opportunistic and distressed strategies exhibit higher beta, reflecting their sensitivity to economic cycles and dependence on turnaround or recovery outcomes.
- Lower beta estimates for European private credit stem from limited public benchmarks, not necessarily from lower actual risk.



# Private credit can enhance portfolio diversification

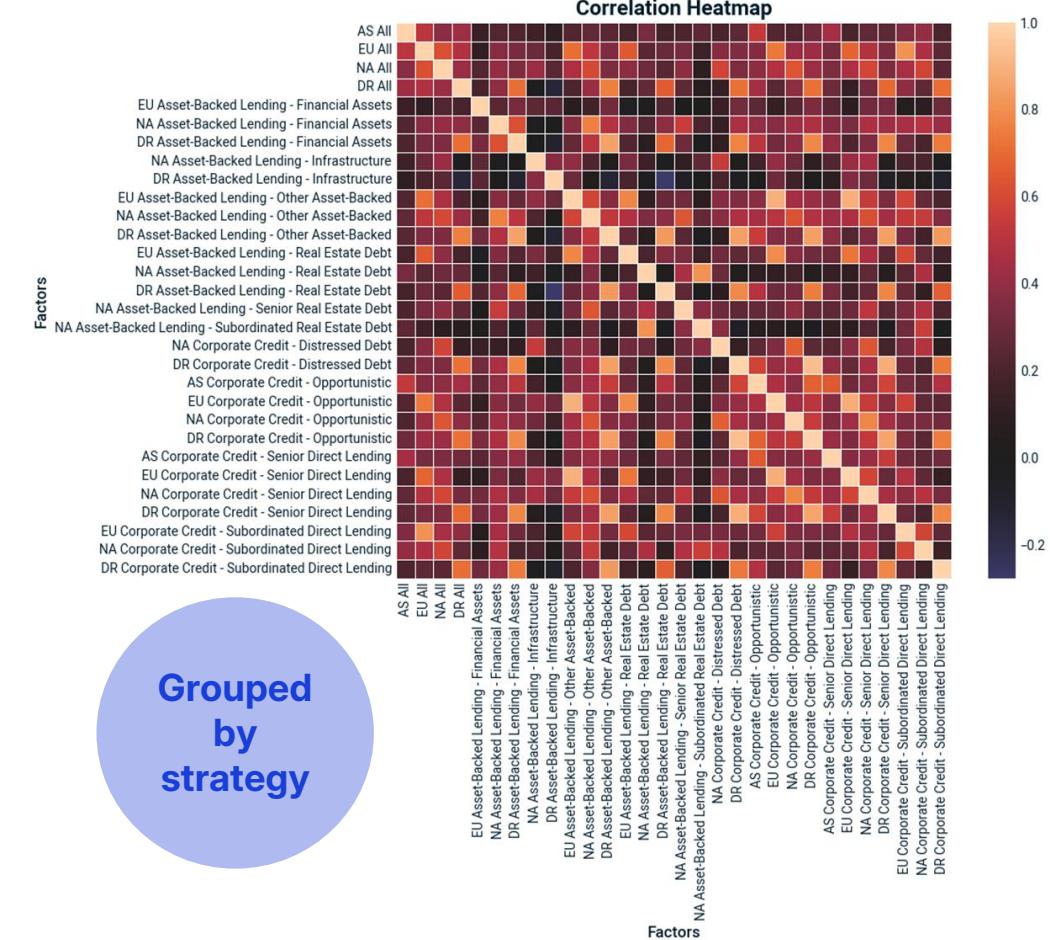
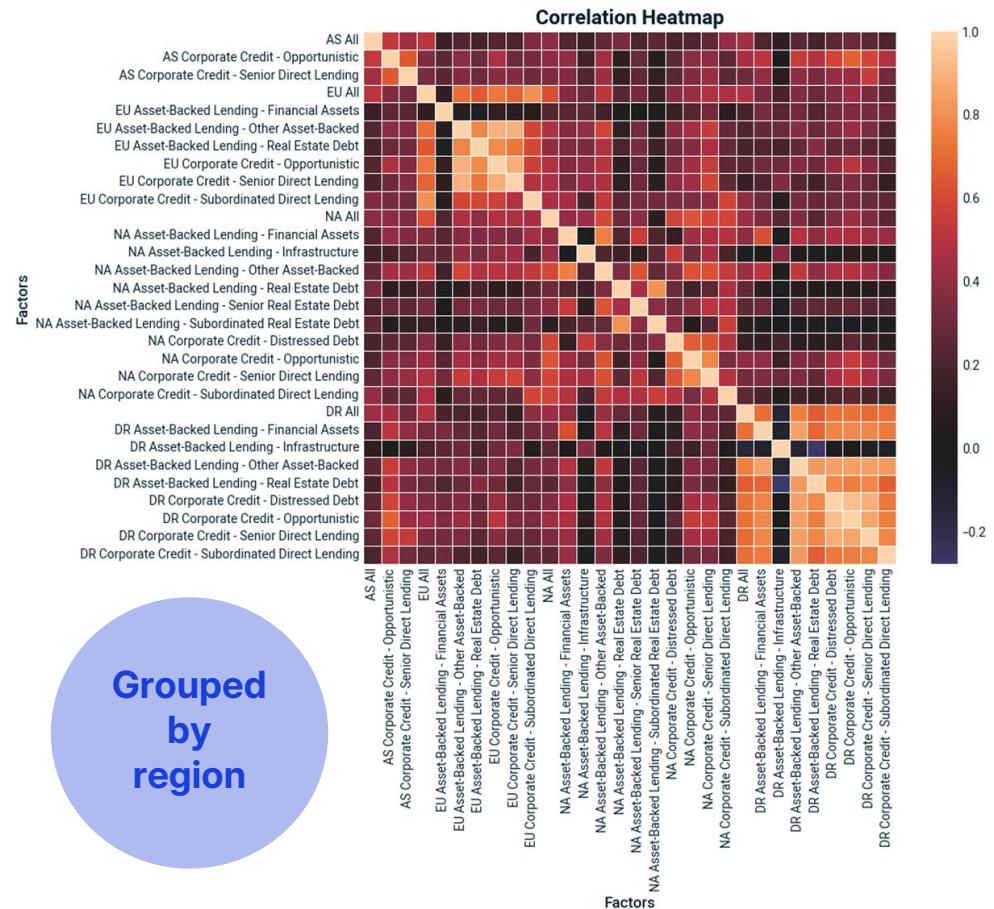
→ Private credit risk aligns with capital structure positioning: Senior strategies show the lowest risk, while subordinated and distressed strategies contribute significantly more.

→ Pure private risk dominates across strategies, reinforcing private credit's value as a diversifier within a total portfolio framework.



## Private credit appears to be more correlated within regions

→ Private credit strategies correlate more strongly within regions than across them, indicating that regional economic and regulatory environments play a larger role than strategy labels in driving returns.



Source: MSCI Research.

# MSCI | Moody's Private Credit assessment

Borrower /Deal level

Fund/ Portfolio level

# MSCI | Moody's Solution – A new standard for private credit risk assessment

Independent credit risk assessments powered by Moody's credit models and MSCI's extensive private fund, loan, and company data.

## → Borrower- and facility-level scores

- Probability of Default (PD), Loss Given Default (LGD), and Implied ratings
- Standardized and intuitive scoring

## → Fully integrated into MSCI platforms—**now available in Private i®**, and coming soon to Total Plan Manager, BarraOne, and Risk Manager

Independent credit scores for 14,000+ private companies and LGD for 60,000+ loans/facilities<sup>1</sup>

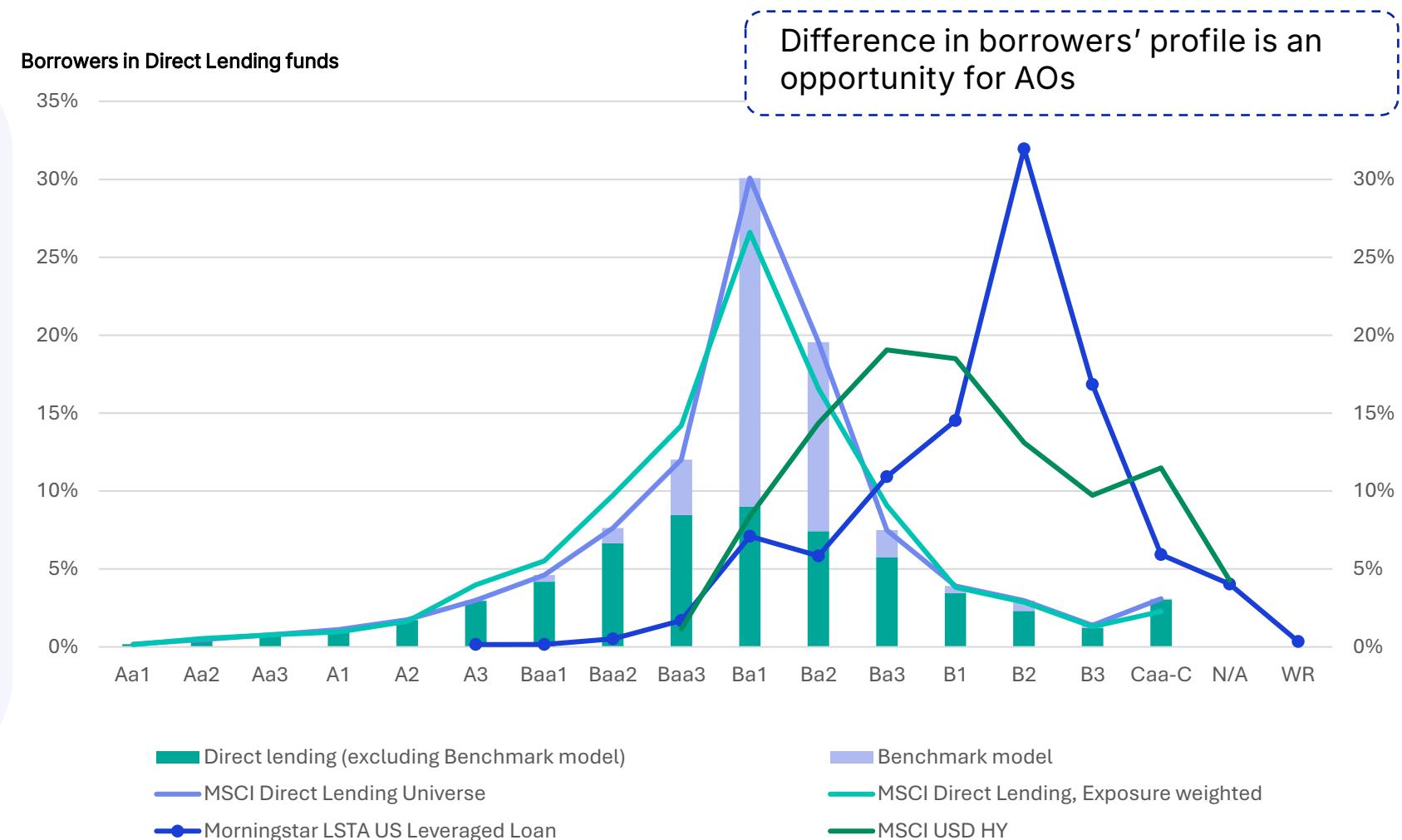
# MSCI | Moody's Credit Assessment – creditworthiness of borrowers in private market vs those in public markets

## Observations:

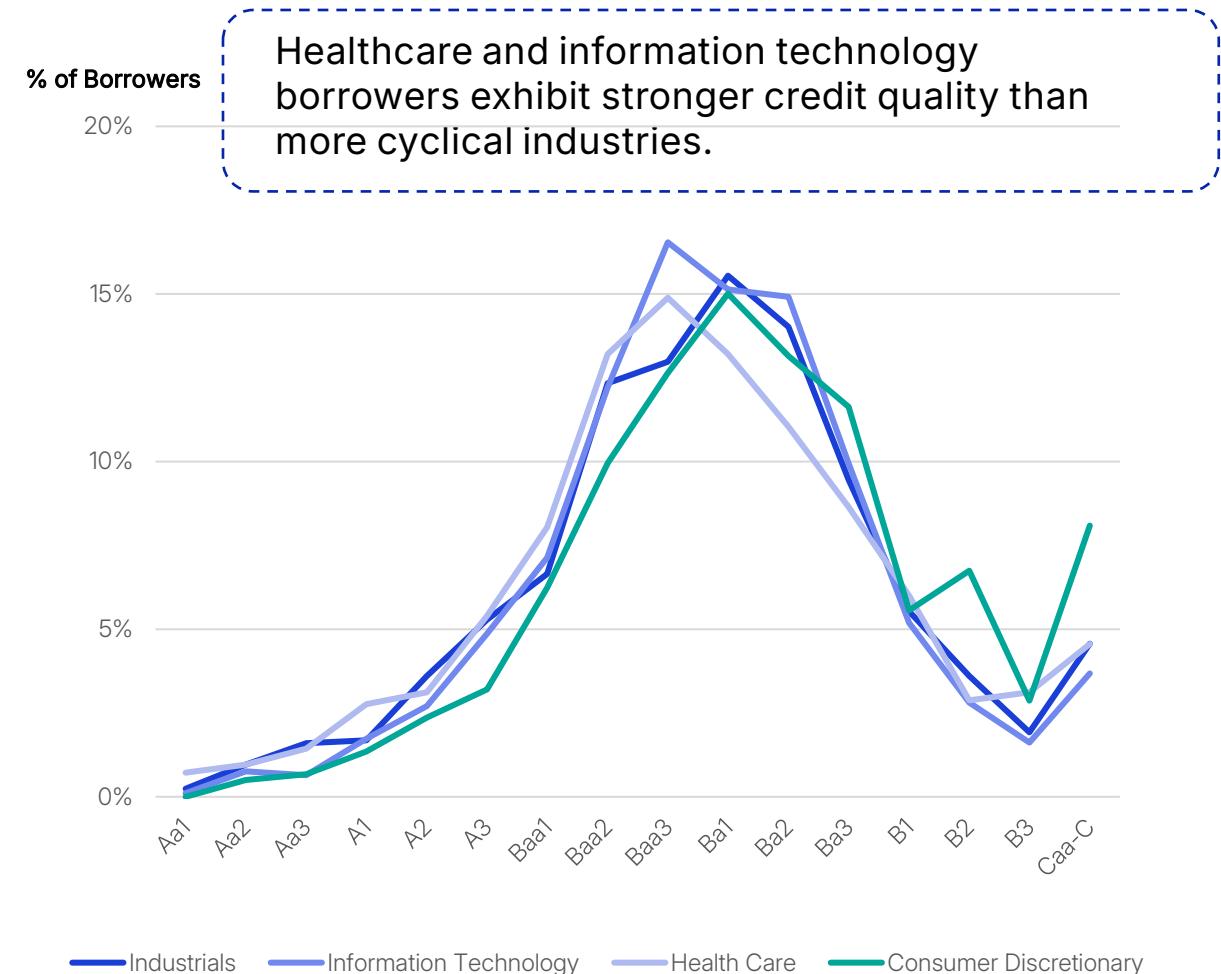
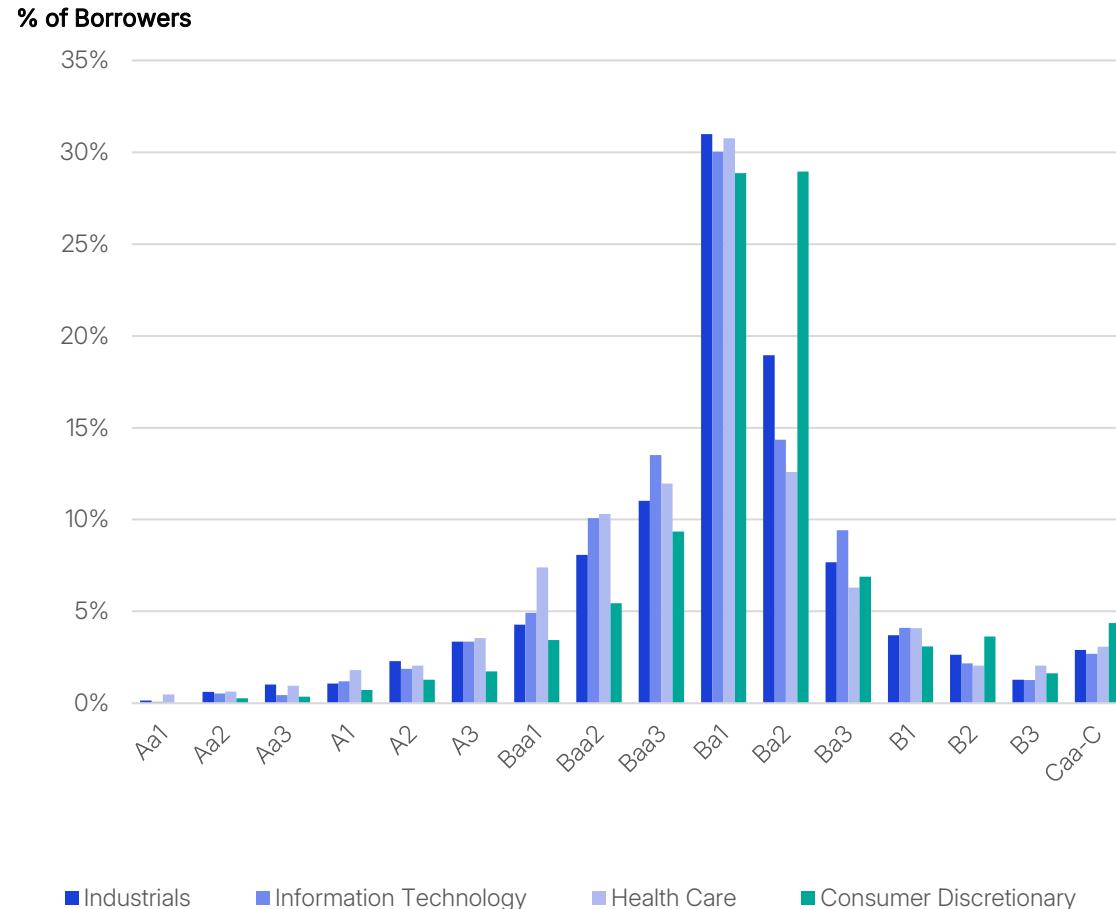
- Borrowers in private direct lending funds are predominantly Ba rated. Borrower disclosures significantly shape these patterns
- Syndicated loans: a broader dispersion , with larger number of them in B and CCC.
- High-yield bond markets : larger representation of distressed and low-quality borrowers.

## Differences between borrowers' creditworthiness reflects:

- Market segmentation.
- Origination models.
- Structural protections.

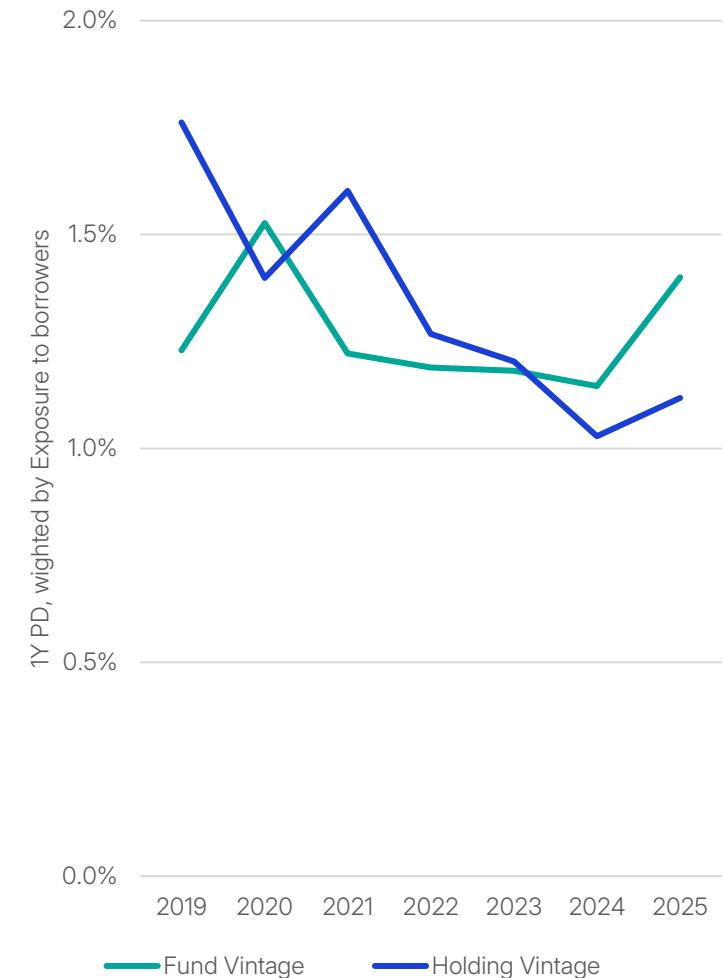
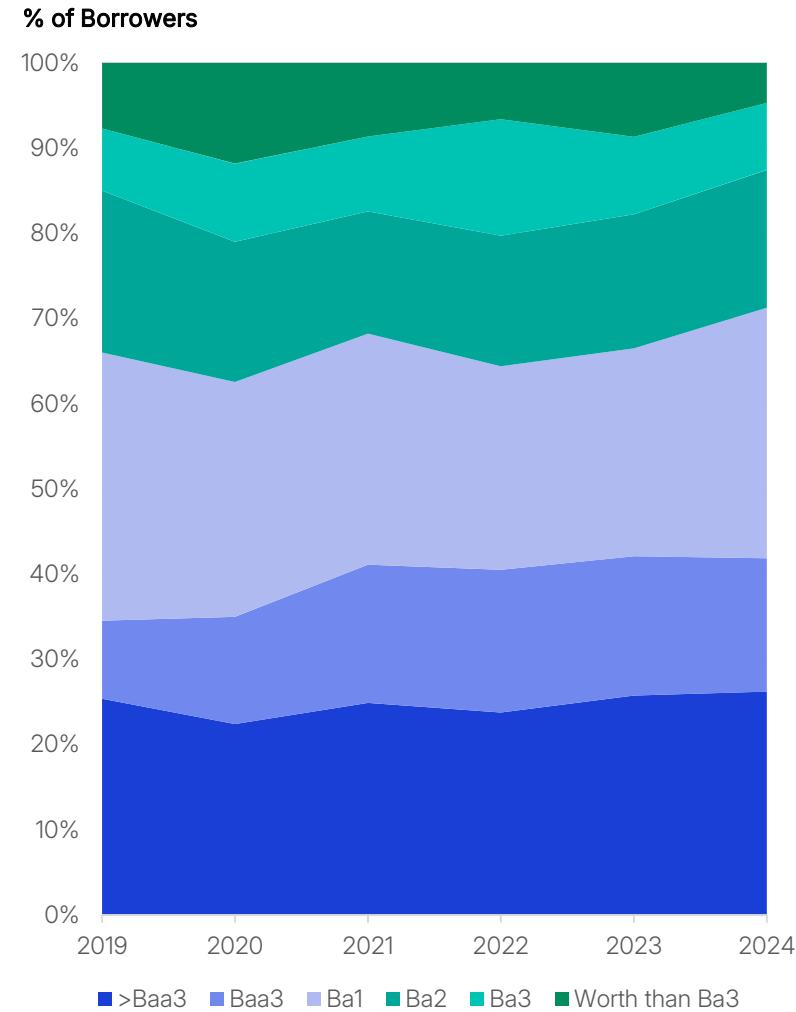


# MSCI | Moody's Solution – What about Sectoral differences?

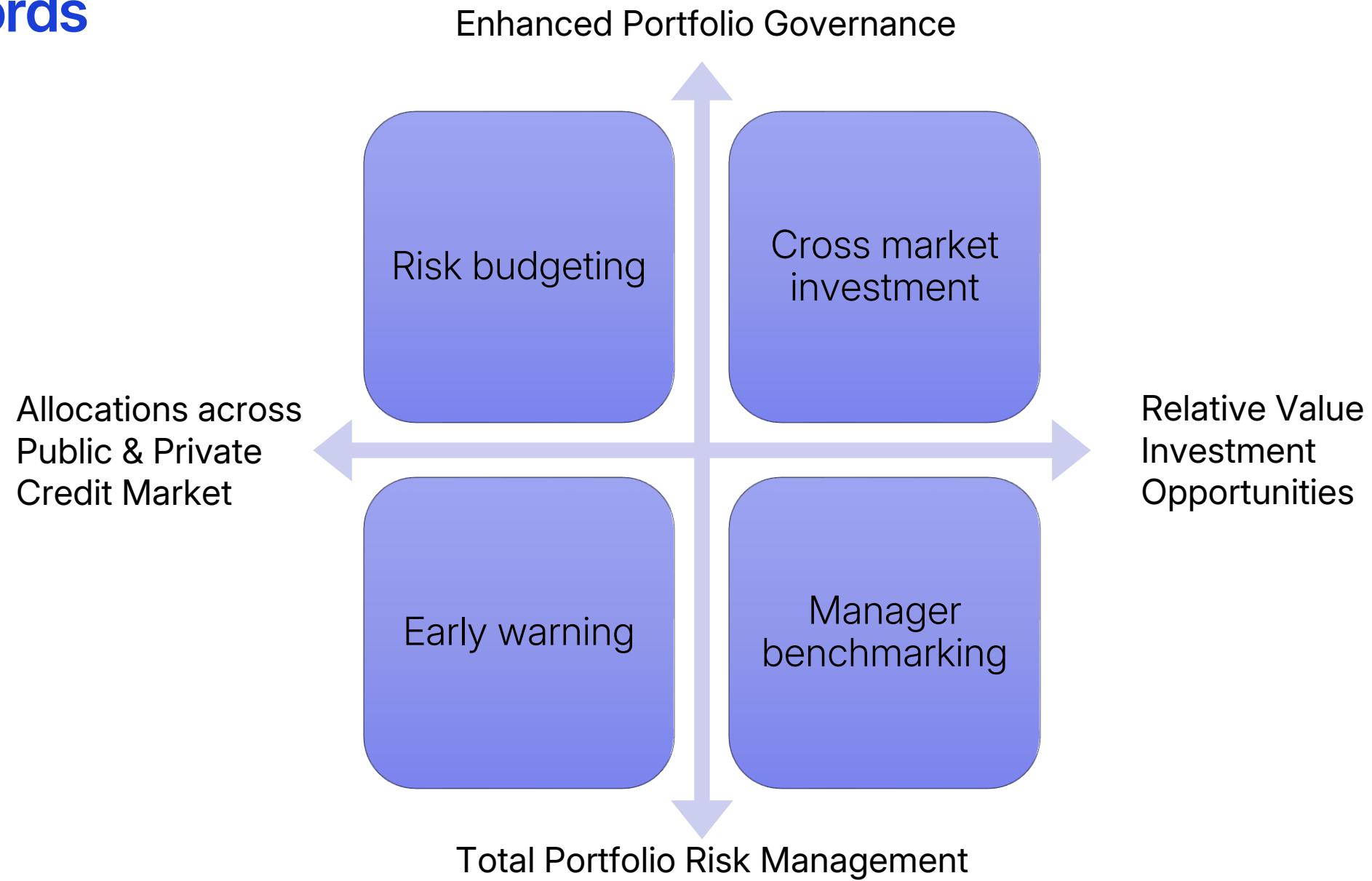


# MSCI | Moody's Solution – What about different vintages?

- Late-cycle assumptions on business outputs.
- Deals originated during 2020–2021 were underwritten with optimistic EBITDA growth projections that are now moderating. The average PD of new borrowers is lower for more recent vintages.
- Vintage selection.
- Newer vintages have sought stronger borrowers, but it might not be enough to offset a broader negative drift, especially in older vintages.



# Last words



# MSCI Private Credit Fund Indexes

MSCI has launched 69 new,  
more granular private credit indexes



New Private Credit Indexes | August 2025

## New Private Credit Indexes

On September 20, 2025, new Private Credit Indexes will be added to MSCI Private Capital Closed-End Fund Indexes. The new suite of indexes will cover more granular Private Credit strategies, including Corporate Lending (Direct, Opportunistic) and Asset-backed Lending (Real Estate), as well as Senior/Subordinated and Levered/Unlevered versions of indexes. The table below is a list of the new Private Credit Indexes.

The names of the MSCI Private Capital Closed-End Fund Indexes follow a defined formula such that the constituents and key calculation methodology for each index is clearly defined within the name of the index. The formula for the Index names is as follows:

*MSCI {Geography} {Asset Class} {Fund Structure} Index {{History} {Currency}}*

Index Name	Seniority	Leverage
MSCI Global Levered Private Credit Closed-End Fund Index (Unfrozen; USD)		Levered
MSCI Global Unlevered Private Credit Closed-End Fund Index (Unfrozen; USD)		Unlevered
MSCI Global Corporate Lending Closed-End Fund Index (Unfrozen; USD)		
MSCI Global Direct Lending Closed-End Fund Index (Unfrozen; USD)		
MSCI Global Levered Direct Lending Closed-End Fund Index (Unfrozen; USD)		Levered
MSCI Global Unlevered Direct Lending Closed-End Fund Index (Unfrozen; USD)		Unlevered
MSCI Global Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)	Senior	
MSCI Global Levered Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)	Senior	Levered
MSCI Global Unlevered Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)	Senior	Unlevered
MSCI Global Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)		Subordinated
MSCI Global Levered Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)	Subordinated	Levered

© 2025 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

msci.com Page 2 of 13



New Private Credit Indexes | August 2025

## Index Name

MSCI Global Unlevered Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)

Seniority

Subordinated

MSCI Global Opportunistic Lending Closed-End Fund Index (Unfrozen; USD)

Leverage

Unlevered

MSCI Global Asset-Backed Lending Closed-End Fund Index (Unfrozen; USD)

MSCI Global Real Estate Debt Closed-End Fund Index (Unfrozen; USD)

MSCI US Levered Private Credit Closed-End Fund Index (Unfrozen; USD)

Levered

MSCI US Unlevered Private Credit Closed-End Fund Index (Unfrozen; USD)

Unlevered

MSCI US Corporate Lending Closed-End Fund Index (Unfrozen; USD)

MSCI US Direct Lending Closed-End Fund Index (Unfrozen; USD)

MSCI US Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)

Senior

MSCI US Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)

Subordinated

MSCI US Levered Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)

Senior

Levered

MSCI US Unlevered Senior Direct Lending Closed-End Fund Index (Unfrozen; USD)

Senior

Unlevered

MSCI US Levered Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)

Subordinated

Levered

MSCI US Unlevered Subordinated Direct Lending Closed-End Fund Index (Unfrozen; USD)

Subordinated

Unlevered

MSCI US Levered Direct Lending Closed-End Fund Index (Unfrozen; USD)

Levered

MSCI US Unlevered Direct Lending Closed-End Fund Index (Unfrozen; USD)

Unlevered

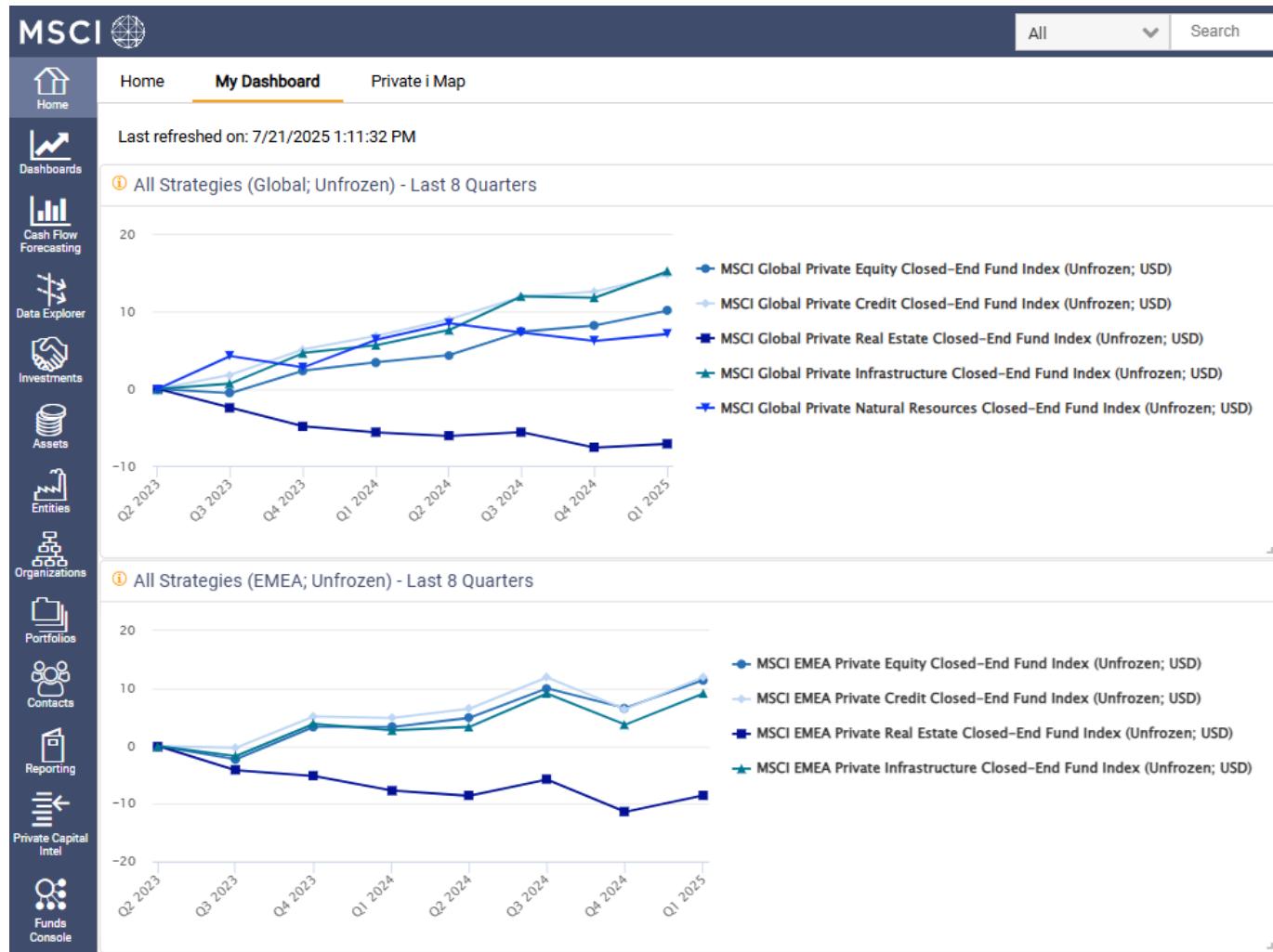


Information Classification: GENERAL 35

© 2025 MSCI Inc. All rights reserved. Please refer to the disclaimer at the end of this document.

msci.com Page 3 of 13

# Accessing the Private Capital Closed-End Fund Indexes



## Private i

- Via the 'Index Visualizer' available in 'Configurable Dashboards'
- Via 'Time Series Calculator' in 'Private Capital Intel'. *That will be available from December onwards*

## Total Plan Manager

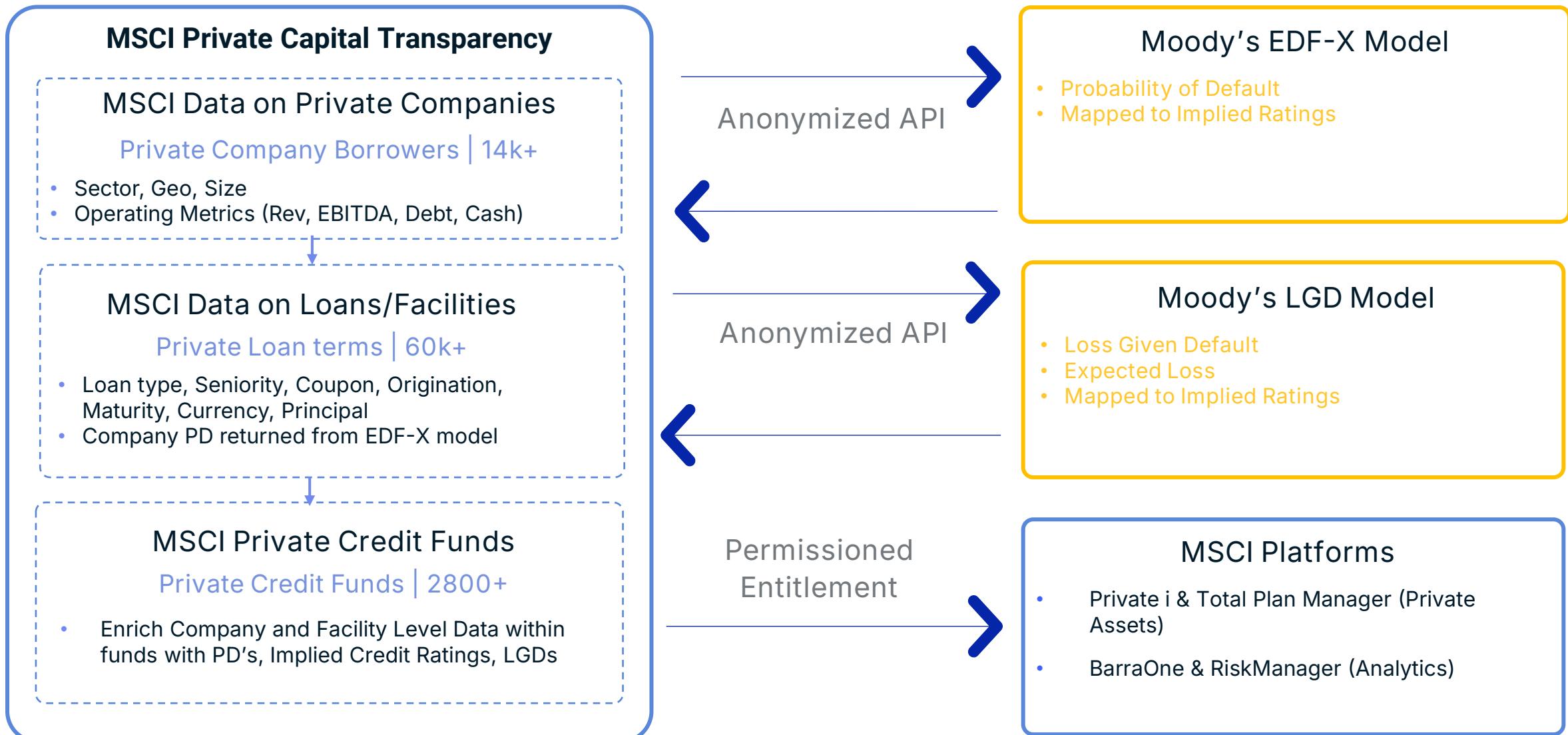
- Via 'Benchmark Browser'.

Flat File - Quarterly CSV delivery via SFTP

Snowflake

Third-Party distributors - BNY Mellon, FactSet, Rimes

# How it works: Overall View



# Contact

The process for submitting a formal index complaint can be found on the index page of MSCI's website at:  
<https://www.msci.com/index-regulation>.

## Americas

**United States**  
+1 888 588 4567 (toll free)

**Canada**  
+1 416 628 1007

**Brazil**  
+55 11 4040 7830

**Mexico**  
+52 81 1253 4020

## Asia Pacific

**China**  
+86 21 61326611

**Hong Kong**  
+ 852 2844 9333

**India**  
+ 91 22 6784 9160

**Malaysia**  
1800818185 (toll free)

**South Korea**  
+82 70 4769 4231

**Singapore**  
+65 67011177

**Australia**  
+612 9033 9333

**Taiwan**  
008 0112 7513 (toll free)

**Thailand**  
0018 0015 6207 7181 (toll free)

**Japan**  
+81 3 4579 0333

## Europe, Middle East & Africa

**South Africa**  
+ 27 21 673 0103

**Germany**  
+ 49 69 133 859 00

**Switzerland**  
+ 41 22 817 9777

**United Kingdom**  
+ 44 20 7618 2222

**Italy**  
+ 39 02 5849 0415

**France**  
+ 33 17 6769 810

# About Us

MSCI (NYSE: MSCI Inc.) strengthens global markets by connecting participants across the financial ecosystem with a common language. Our research-based data, analytics and indexes, supported by advanced technology, set standards for global investors and help our clients understand risks and opportunities so they can make better decisions and unlock innovation. We serve asset managers and owners, private-market sponsors and investors, hedge funds, wealth managers, banks, insurers and corporates.

To learn more, please visit [www.msci.com](http://www.msci.com)

# Notice and Disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or re-disseminated in whole or in part without prior written permission from MSCI. All rights in the Information are reserved by MSCI and/or its Information Providers.

Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. **NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.**

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information may include "Signals," defined as quantitative attributes or the product of methods or formulas that describe or are derived from calculations using historical data. Neither these Signals nor any description of historical data are intended to provide investment advice or a recommendation to make (or refrain from making) any investment decision or asset allocation and should not be relied upon as such. Signals are inherently backward-looking because of their use of historical data, and they are not intended to predict the future. The relevance, correlations and accuracy of Signals frequently will change materially.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, "Index Linked Investments"). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investible assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. The calculation of indexes and index returns may deviate from the stated methodology. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance is not actual performance but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on [www.msci.com](http://www.msci.com).

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.'s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of [msci.com](http://www.msci.com).

Neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such, provided that applicable products or services from MSCI ESG Research may constitute investment advice. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from any regulatory body. MSCI ESG and climate ratings, research and data are produced by MSCI ESG Research LLC, a subsidiary of MSCI Inc. MSCI ESG Indexes, Analytics and Real Estate are products of MSCI Inc. that utilize information from MSCI ESG Research LLC. MSCI Indexes are administered by MSCI Limited (UK) and MSCI Deutschland GmbH.

Please note that the issuers mentioned in MSCI ESG Research materials sometimes have commercial relationships with MSCI ESG Research and/or MSCI Inc. (collectively, "MSCI") and that these relationships create potential conflicts of interest. In some cases, the issuers or their affiliates purchase research or other products or services from one or more MSCI affiliates. In other cases, MSCI ESG Research rates financial products such as mutual funds or ETFs that are managed by MSCI's clients or their affiliates, or are based on MSCI Inc. Indexes. In addition, constituents in MSCI Inc. equity indexes include companies that subscribe to MSCI products or services. In some cases, MSCI clients pay fees based in whole or part on the assets they manage. MSCI ESG Research has taken a number of steps to mitigate potential conflicts of interest and safeguard the integrity and independence of its research and ratings. Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P Dow Jones Indices. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and S&P Dow Jones Indices.

**MIFID2/MIFIR notice:** MSCI ESG Research LLC does not distribute or act as an intermediary for financial instruments or structured deposits, nor does it deal on its own account, provide execution services for others or manage client accounts. No MSCI ESG Research product or service supports, promotes or is intended to support or promote any such activity. MSCI ESG Research is an independent provider of ESG data.

**Privacy notice:** For information about how MSCI collects and uses personal data, please refer to our Privacy Notice at <https://www.msci.com/privacy-pledge>.