

An integrated, holdings-based risk and performance attribution platform for traditional, multi-asset class target date and liquid alternative strategies

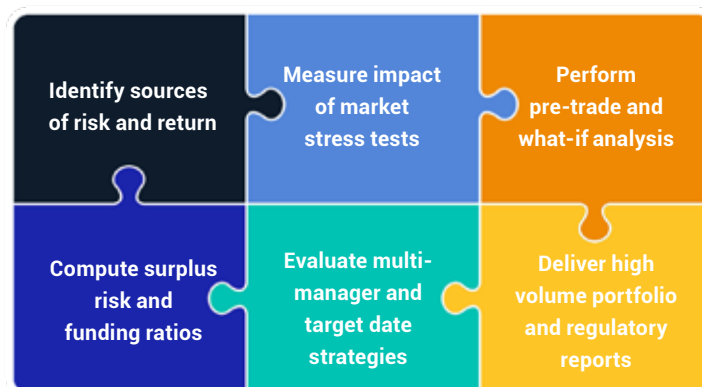
**BarraOne is a research-driven platform that helps asset managers identify and manage risk exposures to make more informed investment decisions. Powered by a long-horizon Barra factor model, BarraOne combines public, derivative and private asset classes under a unified analytical framework. Integrated performance analytics help managers match sources of risk with sources of return on an absolute or relative basis.**

## Key benefits and features

- Analyze traditional, multi-asset class, target date and liquid alternative strategies using multiple views of portfolio exposures, including:
  - Ex-ante Barra factor risk
  - Full-revaluation stress testing
  - Value at Risk (VaR) simulations and shortfall
  - Traditional exposures and sensitivities
- Identify sources of portfolio returns and measure the impact of risk exposures on return sources using integrated Performance Analytics.
- Perform on-demand what-if analysis and reporting
- Analyze the impact of liability hedges under market, funding, asset allocation and longevity scenarios.
- Deliver high volume and regulatory risk reports using extensive automation capabilities.
- Access the application using a web browser. No software to install or maintain.

## Analytical highlights

- A choice of models: macro-level to granular models across multiple ex-ante horizons.
- User-defined and historical cross-asset class stress tests using full revaluation.
- Historical and Monte Carlo VaR simulations and shortfall.
- Instrument-specific pricing models for derivative, cash bond, securitized and structured instruments.
- Integrated INTEX cashflow models for non-agency securitized deal analytics.
- Immunization and cash flow analysis.
- Asset Liability Management analytics including surplus risk and funding ratios.



## Integrated market data

- Global security master covering instruments across asset classes.
- Over 3,000 global constituent-level benchmarks, including MSCI, S&P, Russell, FTSE, Barclays and other major benchmark families.
- Equity prices, term structures, spreads and other global market data, updated daily.

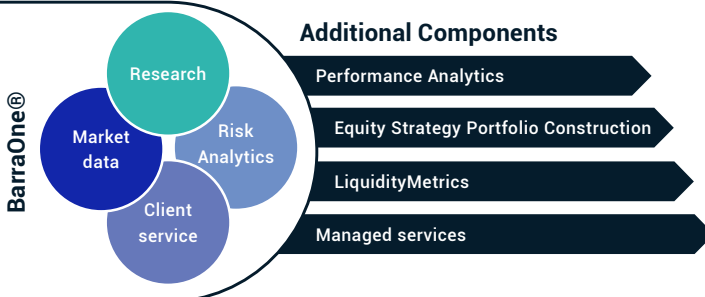
## BarraOne® client support

- Supported by a highly trained 24x5 Client Service team working from multiple offices around the world.
- Asset management risk specialists to provide product and analytics expertise, and disseminate risk management best practices.
- Access to our Applied Research team to provide analytical and industry expertise to help clients effectively implement and utilize our products.
- Customized training sessions and events, including national and local research conferences.

## The MSCI Risk and Portfolio Management Analytics Suite

BarraOne is part of MSCI's suite of Risk and Portfolio Management Analytics tools, which include:

- **Performance Analytics** – Identify sources of return using Brinson, Equity Factor and Fixed Income attribution methods. Clients can analyze their entire hierarchy of portfolios to understand sources of return and risk side-by-side, using the Multi-Portfolio Attribution model (MPA).
- **Equity Strategy Portfolio Construction** – Using the same portfolio storage and instrument analytics infrastructure as BarraOne, Barra Portfolio Manager is designed for research, reporting, strategy development, portfolio construction and performance attribution via a flexible and customizable user interface.
- **LiquidityMetrics** – A multi-asset class liquidity risk measurement framework that uses market impact models to compute liquidity risk analytics for multi-asset class portfolios.
- **Managed services** – Portfolio reconciliation, data cleansing and scheduled report generation under a Service Level Agreement framework.



## About MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 45 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

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

The information contained herein (the "Information") may not be reproduced or disseminated in whole or in part without prior written permission from MSCI. The Information may not be used to verify or correct other data, to create indexes, risk models, or analytics, or in connection with issuing, offering, sponsoring, managing or marketing any securities, portfolios, financial products or other investment vehicles. Historical data and analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. None of the Information or MSCI index or other product or service constitutes an offer to buy or sell, or a promotion or recommendation of, any security, financial instrument or product or trading strategy. Further, none of the Information or any MSCI index is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. The Information is provided "as is" and 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 MSCI INC. OR ANY OF ITS SUBSIDIARIES OR ITS OR THEIR DIRECT OR INDIRECT SUPPLIERS OR ANY THIRD PARTY INVOLVED IN THE MAKING OR COMPILING OF THE INFORMATION (EACH, AN "MSCI PARTY") MAKES ANY WARRANTIES OR REPRESENTATIONS AND, TO THE MAXIMUM EXTENT PERMITTED BY LAW, EACH MSCI PARTY HEREBY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WITHOUT LIMITING ANY OF THE FOREGOING AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL ANY OF THE MSCI PARTIES 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 be applicable law be excluded or limited.

©2019 MSCI Inc. All rights reserved | CFS1119