

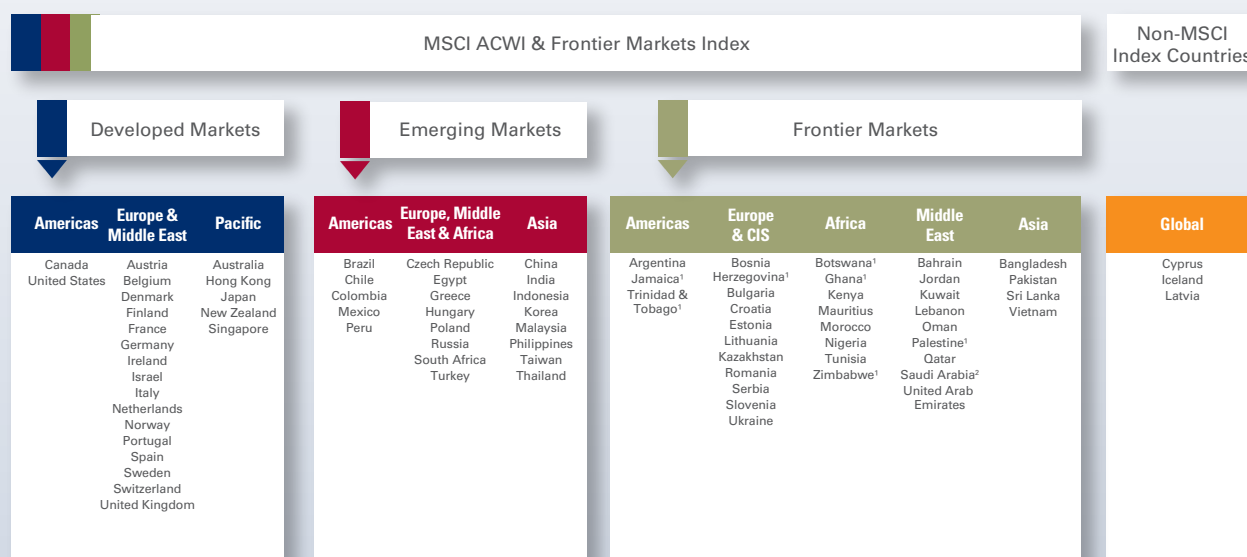
# Barra Global Equity Model (GEM3)

The **Barra Global Equity Model (GEM3)** incorporates the latest advances in our risk methodology that help fund managers construct, manage and analyze global equity portfolios. In addition, the model offers a refined style factor lineup and provides expanded coverage that includes frontier markets.

The Barra Global Equity Model is a global multi-factor equity model that provides a foundation for investment decision support tools via a broad range of insightful analytics for developed, emerging market, and frontier market portfolios. With its extensively researched and intuitive fundamental factors, fund managers can use it to help them identify sources of global equity returns that are common across a broad set of securities and estimate their associated risks. This Barra risk model has been specifically developed for global equity portfolio management and construction, and leverages MSCI's experience in developing and maintaining global equity multi-factor models and indices.

## Key Features

- » **Coverage of 22 new frontier markets** with full coverage of the MSCI Frontier Markets Index, bringing the total to 77 country factors and 63 currencies covered
- » **72,500 assets covered** including Depositary Receipts and cross-listed securities
- » **5,000+ new Frontier Market assets added**
- » **Daily model updates** designed to improve risk monitoring, exposure control, intra-month portfolio rebalancing, scenario/stress testing, and backtesting. Factor exposures, covariance matrices, and specific risk forecasts are updated daily.
- » **Optimization Bias Adjustment improves risk forecasts for optimized portfolios.** Forecasting bias is reduced within the factor covariance matrix by scaling up where risk is under-forecast and scaling down where risk is over-forecast.
- » **Volatility Regime Adjustment** calibrates factor volatilities to current levels. It aims to reduce the under-prediction of risk when entering a regime of increased volatility and the over-prediction of risk when exiting a period of elevated volatility, resulting in faster response to market trends.
- » **New factors include Residual Volatility and Beta** (replacing the GEM2 Volatility factor), and the GEM2 Value factor is split into three factors: Book-to-Price, Earnings Yield, and Dividend Yield.
- » **Daily model history** back to January 1997
- » **34 Industry factors** based on GICS®
- » **11 style factors** to model risk sources not captured by the market or industry factors
- » **Available in Short- and Long-horizon versions**
- » **Available in Barra Portfolio Manager, Barra Aegis, Barra Models Direct.**
- » **New MSCI Frontier Markets Indices available** for Barra Aegis clients.

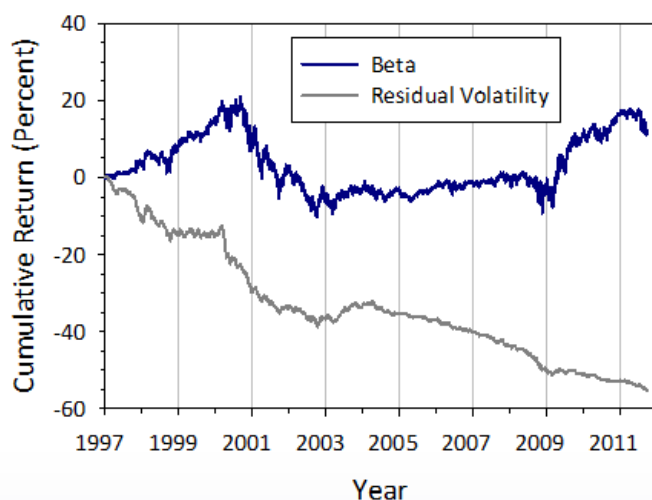


<sup>1</sup> The MSCI Bosnia Herzegovina Index, MSCI Botswana Index, MSCI Ghana Index, MSCI Jamaica Index, MSCI Trinidad & Tobago Index, MSCI Zimbabwe Index, and MSCI Palestine IMI are currently stand-alone country indices and are not included in the MSCI Frontier Markets Index. The addition of these country indices to the MSCI Frontier Markets Index is under consideration.

<sup>2</sup> The MSCI Saudi Arabia Index is currently not included in the MSCI Frontier Markets Index but is part of the MSCI Gulf Cooperation Council (GCC) Countries Index.

## Key Benefits

- » **Improved Risk and Performance Analysis** — Global equity managers can use the Barra Global Equity Model to gain a detailed understanding of the risks they are taking across countries, currencies, industries, and styles over short- or long-term investment horizons. Using this risk model, managers can analyze how their factor tilts affect their portfolio risk and performance.
- » **Insight into the Investment Process** — Chief Investment Officers, portfolio managers, researchers, and risk managers working with global portfolios can now benefit from the enhanced and more granular style factors that provide detailed and precise forecasts for long only or long-short portfolios. New factors include Residual Volatility and Beta (replacing the GEM2 Volatility factor), and the GEM2 Value factor is split into Book-to-Price, Earnings Yield and Dividend Yield.
- » **Improved Risk Forecasts for Optimized Portfolios** — The Barra Global Equity Model enhances the accuracy of risk forecasts for optimized portfolios while maintaining forecast accuracy for non-optimized cases. Portfolio managers who use a risk model and an optimizer in portfolio construction and hedging will gain additional benefits by using this model in their investment process.



- » **Cumulative Returns of Beta and Residual Volatility Factors** — The Beta factor performed well during the bull market of 1997-2000 and performed poorly during the bear market of 2001-2003. However, Beta was essentially flat during the 2003-2007 bull market. Furthermore, Beta did not experience a large decline during the market crash of 2008. Since 2009, the Beta factor has performed well. The Residual Volatility factor, by contrast, has experienced a consistent negative drift across different bull and bear markets.

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## About MSCI

MSCI Inc. is a leading provider of investment decision support tools to investors globally, including asset managers, banks, hedge funds and pension funds. MSCI products and services include indices, portfolio risk and performance analytics, and governance tools. The company's flagship product offerings are: the MSCI indices with approximately USD 7.5 trillion estimated to be benchmarked to them on a worldwide basis<sup>1</sup>; Barra multi-asset class factor models, portfolio risk and performance analytics; RiskMetrics multi-asset class market and credit risk analytics; IPD real estate information, indices and analytics; MSCI ESG (environmental, social and governance) Research screening, analysis and ratings; ISS corporate governance research, data and outsourced proxy voting and reporting services; and FEA valuation models and risk management software for the energy and commodities markets. MSCI is headquartered in New York, with research and commercial offices around the world.

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<sup>1</sup>As of March 31, 2013, as reported on July 31, 2013 by eVestment, Lipper and Bloomberg.