

Barra US Small Cap Equity Model

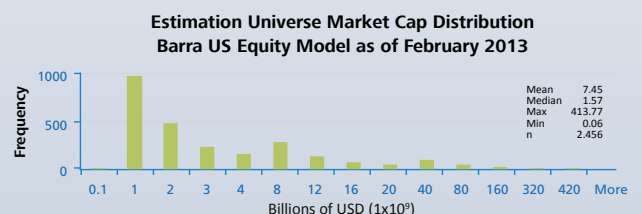
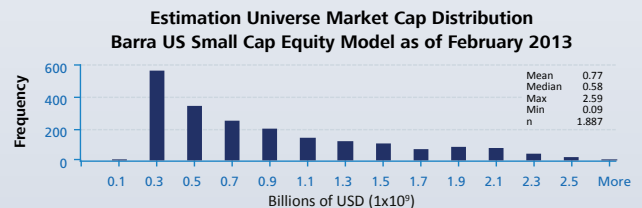
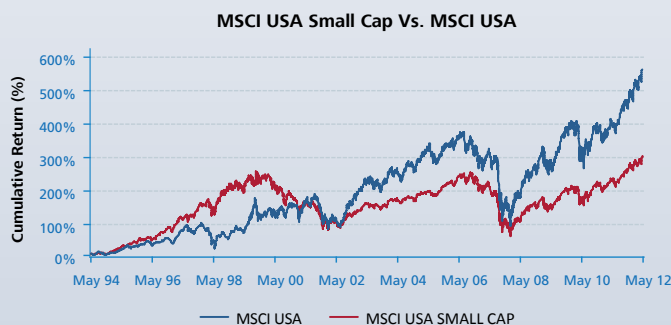
The **Barra US Small Cap Equity Model** is designed for managers who invest in small capitalization companies in the US. It leverages MSCI's experience in building single-country, multi-factor models and indexes, and incorporates the latest research and innovation in risk modeling, including Systematic Equity Strategies, Volatility Regime Adjustment, and Optimization Bias Adjustment. The Barra US Small Cap Equity Model aligns with the investment strategy and investment universe to deliver insight into drivers of risk and return.

Key Features

- » **Aligned with US small cap investment strategies.** The model is estimated from a universe that resembles the investment universe for a US small cap investment strategy.
- » **Incorporates new factors based on Systematic Equity Strategies.** The model delivers improved forecast accuracy and captures unique sources of risk from common sources of return.
- » **Broad coverage of US small cap and micro cap securities.** As of October 2013, coverage is over 20,000 securities including IPOs, pink sheets, OTC securities, and over 4,500 foreign-listed shares of US companies.
- » **Estimated daily for improved insight.** The model is estimated daily for improved risk monitoring, portfolio construction and rebalancing, 'what-if' and stress analysis, and backtesting. Factor exposures, correlations, and specific risk are updated daily.
- » **Available in daily, short-, and long-term horizons** for alignment with the investment strategy and portfolio turnover.
- » **Enhanced beta estimation** incorporates shrinking to industry betas to provide improved stability and decrease dispersion. This methodology can reduce errors in the predicted beta estimates.
- » **Optimization Bias Adjustment** improves risk forecasts for optimized portfolios. Clients can reduce forecasting bias by scaling volatility during periods of under- and over-forecasting.
- » **Volatility Regime Adjustment** allows clients to calibrate factor volatilities to current levels, resulting in faster response to market trends. This methodology can reduce the under-prediction of risk when entering a period of increased volatility and the over-prediction of risk when exiting a period of reduced volatility.
- » **Updated specific risk model** that incorporates Volatility Regime Adjustment and Bayesian Adjustment techniques for improved forecast accuracy.
- » **Utilizes the US Country factor** to isolate the market and industry effects, which allows clients to capture correlations between industries. The models use 60 industry factors based on the Global Industry Classification Standard (GICS®).
- » **Model history available from July 1995.**
- » **Model Receipts** are updated daily and posted on the Client Support site. The receipts provide a summary of the model quality controls, offering transparency and insight into model reaction from changes in underlying data.
- » **Available in Barra Portfolio Manager, Barra Aegis, and Barra Models Direct.**

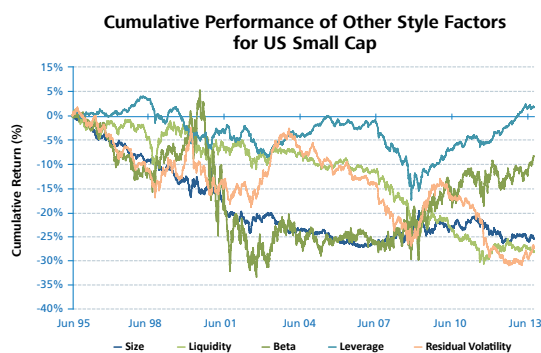
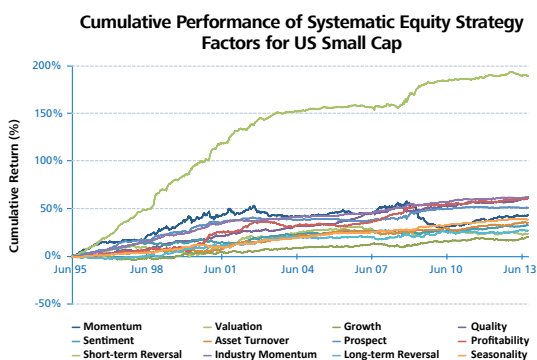
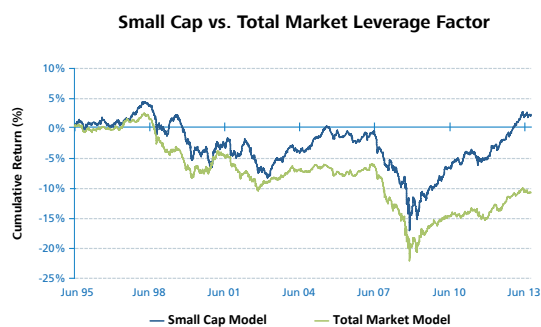
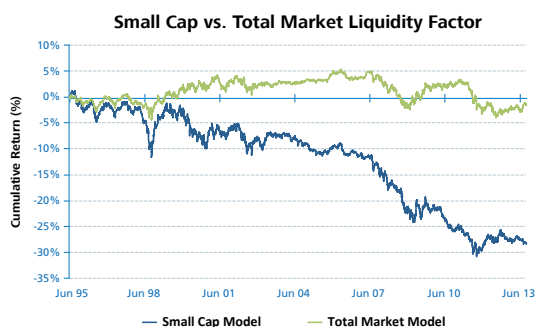
Motivation

Small cap securities in the US have significantly different performance from the broader US market and therefore exhibit different risk and return characteristics. An investment manager focused on the US small cap securities can gain better insight and construct more meaningful portfolios through alignment of the Barra US Small Cap Equity Model and the investment universe of their strategy.



Key Benefits

- » **Investment Universe Alignment** – The Barra US Small Cap Equity Model can provide transparency and insight into risk and performance of strategies focusing on small cap assets and **more accurately reflect the manager's investment philosophy** versus a broad-based risk model. The figures below compare the performance of the Liquidity and Leverage style factors between the small cap and the total market, and show the performance of the style factors for the small cap model over time.



- » **Systematic Equity Strategies** – Incorporating Systematic Equity Strategy factors helps to identify persistent market anomalies, track the seasonality or market-timing opportunities, and improves portfolio construction and monitoring. The following Systematic Equity Strategies are available in the Barra US Small Cap Equity Model.

VALUATION

Value

- Book-to-Price
- Sales-to-Price
- Cash Flow-to-Price
- Trailing Earnings-to-Price
- Forward Earnings-to-Price

QUALITY

Earnings Quality

- Accruals
- Cash Earnings
- Variability of Sales

Asset Turnover

Profitability

- Return on Equity
- Return on Assets
- Sales Profit Margin
- EBIT to Enterprise Value

SENTIMENT

Sentiment

- Analyst Ratings Changes
- Analyst Estimate Revisions

MOMENTUM

- Stock Momentum
- Industry Momentum
- Seasonality
- Short-term Reversal
- Long-term Reversal
- Prospect

- Skewness
- Drawdown
- Lottery

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The company's flagship product offerings are: the MSCI indexes with approximately USD 7.5 trillion estimated to be benchmarked to them on a worldwide basis¹; Barra multi-asset class factor models, portfolio risk and performance analytics; RiskMetrics multi-asset class market and credit risk analytics; IPD real estate information, indexes 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 FEI 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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¹As of March 31, 2013, as reported on July 31, 2013 by eVestment, Lipper and Bloomberg.