

| Mackenzie Global Quantitative Equity Team

A systematic framework for small-cap equity investing

Executive summary

Small cap equities remain among the most structurally inefficient segments of global markets. A broad investable universe, lighter and uneven analyst coverage, and slower information diffusion create wider cross-sectional dispersion than in large caps. These characteristics expand the opportunity for systematic stock selection while elevating the need for disciplined risk control, cost aware implementation and explicit capacity management.

We believe a fully integrated quantitative equity framework that is core, nimble, research-led and risk-managed provides a way to harness these opportunities. Such a framework expresses stock selection through diversified factor exposures rather than concentrated style bets, refreshes portfolio views frequently enough to capture shorter horizon signals and keeps portfolio risk aligned with clearly defined guidelines. Signals are supported by economic rationale and empirical evidence, and factors are designed with clear economic intuition. Economically intuitive factors link to fundamentals, risk or investor behaviour, ensuring that ideas translate into implementable strategies.

In our view, small cap equities are particularly suited to this approach. Their inherent characteristics of breadth, dispersion and implementation challenges magnify both the opportunities for and the necessity of a robust, well-integrated quantitative process. While the objective for a small-cap strategy is to deliver consistent, risk-aware, benchmark-relative returns after costs, success is uniquely dependent on the effective use of breadth, the careful management of transaction costs and liquidity, and explicit capacity discipline. This paper outlines how such an approach can be applied to small cap investing and defines the key principles of a robust framework.

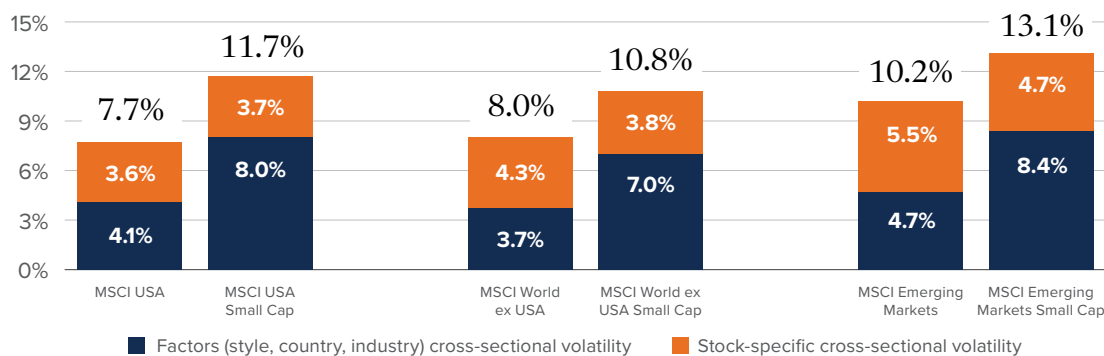


Why small caps benefit from a systematic approach

The small cap universe is larger and more diverse than its large cap counterpart, spanning early-stage growth, cyclical recoveries and mature niche leaders. Variation in profitability, leverage, capital intensity and governance is material. Return spreads between top and bottom performing stocks are wider, and differences in fundamentals exert a greater impact on performance, as illustrated in Figure 1.

FIGURE 1: Greater return dispersion in small caps

Small caps exhibit higher stock specific volatility, creating greater potential for alpha through stock selection



Source: Morningstar. Analysis period from January 2002 – September 2023. Monthly averages. Cross-sectional volatility (CSV) calculated using the MSCI Global Equity Model for Long-Term Investors (GEMLT).

Analyst coverage is lighter and uneven. Many smaller companies receive sporadic attention, and new information is incorporated into prices at varying speeds. This is particularly true in international and emerging markets, where domestic and regional investors can dominate information flow. This scale and heterogeneity challenge traditional analyst-driven fundamental research, which is resource intensive and impractical to apply with depth and consistency across thousands of companies. In contrast, specialized quantitative models can evaluate the entire universe frequently and objectively, identifying patterns and opportunities that a manual approach is unlikely to surface.

Trading conditions in small caps are more restrictive. Bid ask spreads are wider, available depth is thinner and intraday liquidity can vary substantially, leading to higher volatility and more pronounced idiosyncratic risk. These features increase the payoff from disciplined research-driven stock selection, but also heighten the importance of fully accounting for liquidity, trading costs and data quality in portfolio design and execution.



A core, nimble and research-led, risk-managed framework

A robust systematic process rests on four interdependent pillars, each grounded in economic intuition and designed to work together to convert market opportunities into consistent, risk-aware returns.

FIGURE 2: The four pillars of a systematic framework

- 1 Core**

A core orientation aims to construct all-weather portfolios that add value across varied market environments. Balanced exposure to economically intuitive factors that link to fundamentals, risk or investor behaviour — most commonly value, growth and quality — ensures that stock selection remains the primary source of active risk. In small caps, this balanced positioning helps avoid dependence on a single style phase in a universe where dispersion is high and cycles can be abrupt.
- 2 Nimble**

Nimbleness reflects how quickly the process translates new information into portfolio changes while accounting for costs and liquidity. Many small cap effects, such as earnings revisions or post event price drift, decay within days or weeks. A nimble process refreshes models and rebalances portfolios frequently enough to act on timely signals where the expected benefit clearly exceeds estimated cost. In small caps, where liquidity windows can be brief, this responsiveness is critical to capturing modeled effects net of transaction costs.
- 3 Research-led**

Research begins with factors that have clear economic intuition and a well-defined thesis, such as improvements in cash flow durability, changes in capital allocation or risk premia linked to valuation dislocations or behavioural underreaction. Signals are supported by economic rationale and empirical evidence before they are researched and tested. Each idea is evaluated under realistic trading assumptions, including liquidity, volatility and costs — with robustness examined across time, regions and industries. Adoption occurs only when results persist net of costs, align with the thesis and add diversification to the existing signal set. Ongoing monitoring ensures that signals remain effective and economically valid, with re-specification or retirement when conditions change.
- 4 Risk-managed**

Risk management relies on factor and constraint-based tools. Multi-factor risk models monitor tracking error, volatility and risk contribution by stock, sector and region. These tools support portfolio construction and oversight, keeping behaviour aligned with stated objectives rather than driven by unintended concentrations. In small caps, where adverse company specific events and sudden liquidity shortages can be more severe, such tools are essential to maintain active risk aligned with intended sources.



From signals to portfolios

In a systematic process, stock selection is driven by signals. These are quantitative indicators derived from fundamentals, prices and other inputs. How these signals are combined into alpha models and implemented is particularly important in the small-cap space.

- **Breadth:** Breadth is fundamental to achieving more consistent returns in systematic portfolios. In small cap markets, idiosyncratic risk is elevated, and reliance on a handful of concentrated positions creates material downside risk. Expressing views across hundreds of securities shifts performance to a function of the model's statistical accuracy across the entire portfolio, smoothing the return profile and supporting more consistent alpha generation.
- **Context:** The predictive power of a given signal varies by company and industry. A sophisticated process emphasizes contextual economic relevance, the mechanism that should drive outcomes for each stock. For example, traditional value measures often drive returns for banks, where earnings are tied to net interest margins and credit cycles, but may be less effective for high-growth technology companies, the economics of which are dominated by scalability and intangible assets. An adaptive approach adjusts signal weights dynamically based on industry structure, growth characteristics and volatility, facilitating peer relative comparisons and avoiding structural biases. The result is a more robust and economically intuitive selection process.
- **Decay:** Signals operate over different horizons. Structural indicators, such as balance sheet strength or sustainable profitability, persist for months or years, whereas shorter term effects like earnings revisions fade within weeks or days. Higher trading costs in small caps increase the risk that short horizon alpha is eroded. An effective process calibrates rebalancing cadence with signal economic half-life, capturing both short- and long-term indicators while controlling cost erosion.

Implementation: costs, liquidity, capacity and risk

- **Transaction costs and liquidity:** Because small caps are less liquid and more costly to trade, implementation is central to any systematic framework. An effective approach incorporates transaction costs into portfolio construction through explicit cost models that account for liquidity, volatility and order size. Trades are executed only when the expected benefit clearly exceeds the estimated cost, protecting modeled alpha from erosion during execution.
- **Capacity:** Capacity is a critical constraint in small caps. As assets grow, the ability to trade without price impact diminishes, creating a nonlinear relationship between assets under management and expected after-cost alpha. Capacity should be viewed not as a marketing talking point, but as a fundamental constraint that directly informs portfolio design and execution.
- **Risk tools:** Systematic strategies rely on multi-factor risk models to understand and control portfolio exposures. The objective is to align portfolio risk with client objectives, not to eliminate risk. A well-designed process articulates how much risk is taken through stock selection versus broader style effects and sets firm bounds on concentrations and scenario sensitivities. Examples of unintended exposures include hidden sector tilts, regional imbalances or currency bets that are inconsistent with mandate objectives. Effective controls help ensure that active risk reflects intended sources rather than residual uncompensated exposures.



- **Governance and ongoing research:** Signal governance formalizes the economic intuition standard. Each signal maintains documented hypotheses, implementation assumptions and performance diagnostics. Review triggers include degradation of economic rationale, changes in trading conditions, cost dynamics or interactions with other signals. The governance framework prioritizes capital toward signals that continue to deliver after costs and remain consistent with their economic thesis, while retiring or re-specifying those that do not.

Conclusion

Small caps can offer a rich stock picking opportunity set, yet higher volatility, thinner liquidity and complex trading patterns demand a robust process. We believe a systematic quantitative framework that is core and balanced, nimble, research-led and risk managed provides a disciplined way to harness small cap breadth and dispersion while controlling implementation risk. Balanced factor exposure keeps stock selection at the centre of results. Nimbleness allows models to respond to new information when signals are supported by economic rationale and empirical evidence. A research-led approach grounded in economically intuitive factors that link to fundamentals, risk or investor behaviour, supported by cost-aware portfolio construction, explicit capacity limits and rigorous risk controls, links ideas to returns net of costs. This framework illustrates how alpha can be pursued in small caps through disciplined design and execution.

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