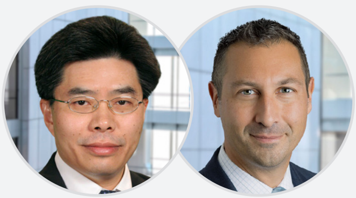
PGIM QUANTITATIVE SOLUTIONS

50 YEARS CELEBRATION

UNLOCKING ALPHA IN EMERGING MARKETS: WHY ACTIVE MANAGEMENT MATTERS

February 2025



WEN JIN, PHD, CFA
Portfolio Manager

CHRIS ZANI, CFA
Portfolio Manager

ABOUT PGIM QUANTITATIVE SOLUTIONS:

PGIM Quantitative Solutions is the quantitative equity and multi-asset specialist of PGIM. For 50 years, PGIM Quantitative Solutions has helped investors around the world solve their unique needs by leveraging the power of technology and data as well as advanced academic research. PGIM Quantitative Solutions manages $111 billion in client assets.*

FOR MORE INFORMATION

To learn more about our capabilities, please contact PGIM Quantitative Solutions by email at contactus@pgim.com or by phone in the US at +1 (866) 748-0643 or in the UK at +44 (0) 20-7663-3400.

EXECUTIVE SUMMARY

Global equity investors face a pivotal question about where — not just how — to allocate capital. Emerging markets are uniquely positioned as a powerful tool for diversification and performance enhancement. With recent analysis signaling that the long underperformance of emerging markets may be nearing its end, the debate between active and passive strategies in these regions takes on renewed relevance. While passive strategies have dominated performance in many developed markets over the last 20 years, inefficiencies inherent to emerging markets create fertile ground where active management can add decisive value.

- **Higher Return Dispersion:** Emerging markets exhibit greater stock return variability compared to developed markets. This wider dispersion creates opportunities for active managers, particularly those with robust stock selection skills and a quantitative edge. Data repeatedly highlights how effective stock selection drives superior results in these less efficient, more dynamic environments.
- **Elevated Transaction Costs:** Passive strategies face higher transaction costs in emerging markets due to frequent index-driven trades. Active managers, on the other hand, execute more strategic trades that aim to balance costs while capitalizing on alpha opportunities.
- **Mitigating Sector Concentration Risks:** Emerging market indexes suffer from significant sector imbalances, heavily tilted toward a few areas like Information Technology and Financials. This creates vulnerabilities to sector-specific shocks. By contrast, active managers can design portfolios with targeted diversification, mitigating concentration risks while preserving upside potential.

*PGIM Quant provides model portfolios for certain accounts, the assets of which (Assets Under Administration) are included in the total AUM/AUA figure of $111.3 billion, (AUM $108.5 billion and AUA $2.8 billion) as of Dec 31, 2024.

UNLOCKING POTENTIAL IN EMERGING MARKETS

Emerging markets remain a compelling option for allocators. With their lower correlation to developed markets, they can significantly enhance the risk/return profile of an overall equity allocation, making them a valuable diversifier. In a previous piece, we explored the timing of increasing exposure to emerging markets, noting that their underperformance, which has persisted for more than a decade, may soon turn a corner. Building on that analysis, we now examine the case for active versus passive emerging markets allocations. While passive mandates have generally delivered strong net-of-fee returns over the past 20 years, emerging markets present a unique opportunity for active managers. Their complex market dynamics, unique risks, and abundant mispricing opportunities create fertile ground for active investors to add value.

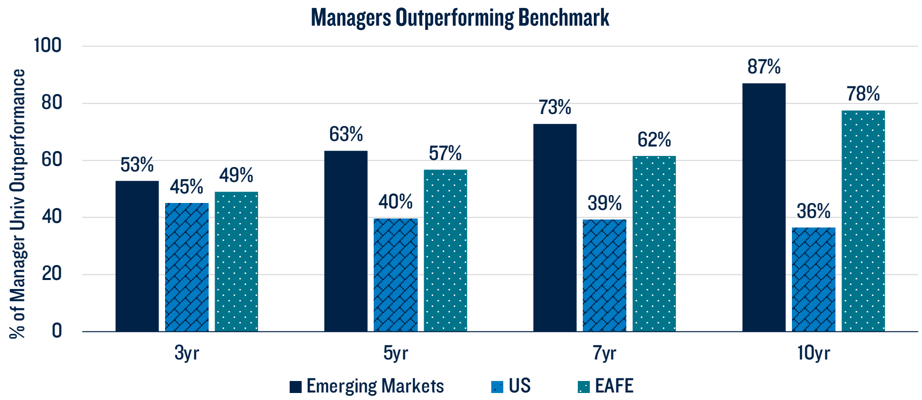
PASSIVE OVERSIGHT?

For years, allocators have leaned on a low-cost, passive approach for public equities, reserving management fees for specialized investments like private equity and credit. While this strategy has proven effective in highly efficient markets such as the US, emerging markets tell a different story. Taking a passive stance in emerging markets risks missing out on significant alpha opportunities.

Figure 1 (below) highlights the percentage of managers outperforming their benchmarks over 3,5,7, and 10 years. Predictably, US large-cap managers rarely outperform their benchmarks, beating them less than 50% of the time across all time periods, reinforcing the case for passive implementation in highly efficient markets. However, the story shifts dramatically in emerging markets, where active managers consistently beat their benchmarks across the same periods. The difference becomes particularly striking over the longer term — nearly three-quarters of active managers outperform over 7 years, and almost 90% deliver above-benchmark results over 10 years. This sustained outperformance underscores the significant edge active strategies provide in navigating the inefficiencies of emerging markets, making them an essential tool for investors aiming to capture lasting value.

> Taking a passive stance in emerging markets risks missing out on significant alpha opportunities.

Figure 1: Active Managers in Emerging Markets Consistently Deliver Value



Source: eVestment as of Sep 2024. Gross of fee returns using EAFE All Cap Core, US Large Cap Core, and EM All Cap Core eVestment universes.

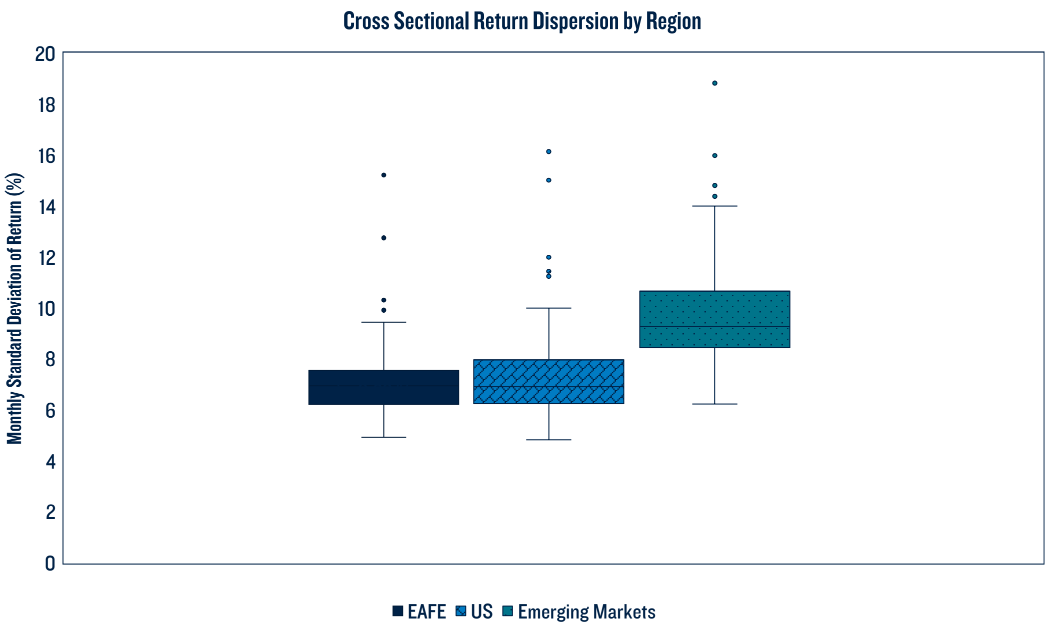
The question, then, is clear: Why are emerging markets ripe for active management?

UNEARTHING INEFFICIENCIES

The unique characteristics of emerging markets make them inherently more inefficient than developed markets. It starts with lower global investor attention, leading to fewer analyst opinions and greater mispricing. Unlike in developed, liquid markets, this mispricing is not arbitraged away as rapidly. Emerging market companies have historically seen limited analyst coverage and attention due to their lower transparency, limited disclosures, and less favorable shareholder protections. Furthermore, information in these markets tends to be less uniform and reliable, making the process of collecting, cleaning, and interpreting the data particularly important – yet challenging – which can deter many investors.

Given these limitations, one might expect a smaller opportunity set of high-quality companies to invest in. Yet, there are over 3,400 investible stocks spanning 11 sectors and 24 developing countries. This diverse universe, paired with less reliable information, underscores the importance of risk management and creates compelling opportunities for active investors. This is borne out in the data; over the past decade, cross-sectional stock return dispersion across the US, EAFE, and emerging markets shows that not only is the average return dispersion higher in emerging markets, but the range of outcomes significantly outpaces developed markets as well (Figure 2).

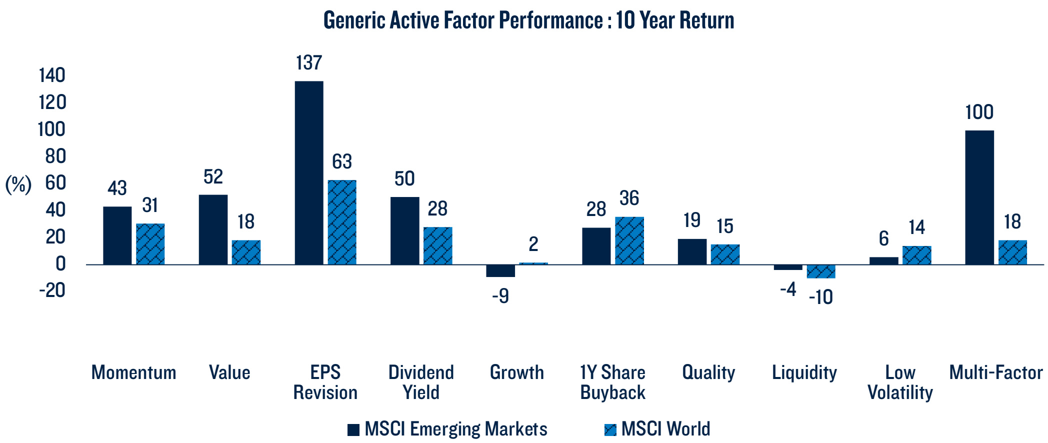
Figure 2: Emerging Markets Stand Out in Return Dispersion and Outcome Variability



Source: FactSet. Standard Deviation of 1-month returns for MSCI EAFE, MSCI Emerging Markets, and S&P 500 indexes. Data from Nov 2014 - Nov 2024.

This higher cross-sectional dispersion and vast market breadth in emerging markets create an ideal environment for quantitative equity managers to generate alpha. Figure 3 illustrates that, over a 10-year period, the performance of nearly all Bloomberg generic factors is stronger in emerging markets compared to developed. This expansive and inefficient universe provides a rich landscape for quantitative managers to actively identify and exploit mispricings, unlocking significant alpha opportunities.

Figure 3: Emerging Markets Dominate in Factor Performance



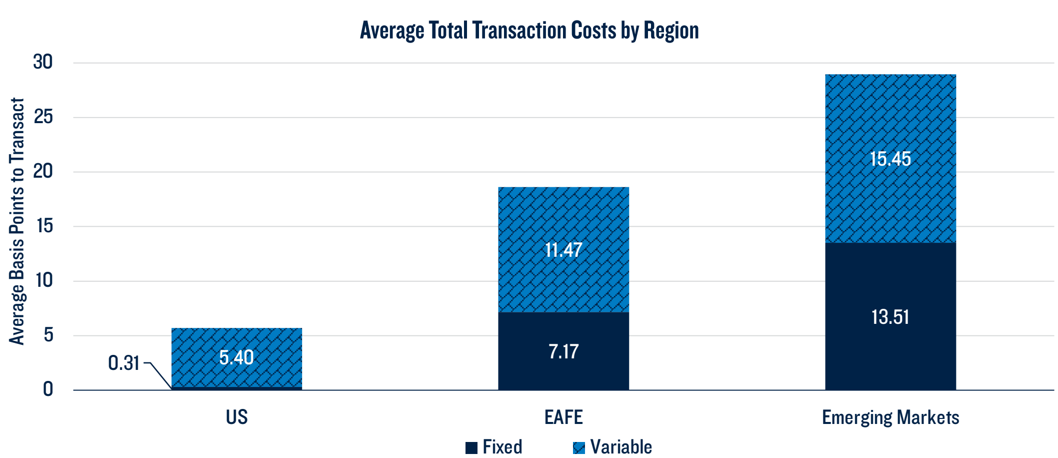
Source: Bloomberg (Factors to Watch): Active sector neutralized returns Q1 over 10 years as of Nov 30, 2024.

TRANSACTION COSTS AND ACTIVE MANAGER EFFICIENCY

While higher cross-sectional stock dispersion creates valuable opportunities for active managers, it comes with higher transactions costs. This distinction is crucial when comparing active and passive managers. Passive managers, generally 'price takers,' execute trades due to index changes rather than an information advantage, and are exposed to being front-run by short-term traders given the mechanical nature of their strategies. Active managers, on the other hand, apply targeted trading strategies to unlock alpha, making costs a tool, not a limitation.

Figure 4 depicts the live trailing 12-month transaction costs of PGIM Quant's active equity trades by region. Although the findings are intuitive, the scale is striking. In the US, fixed transaction costs like commissions and taxes are virtually non-existent. Additionally, narrower bid/ask spreads result in lower variable costs, favoring the use of passive strategies in mature, developed markets. However, in markets with higher transaction costs, active managers gain a clear advantage. Their ability to uncover alpha can offset these costs, making a persuasive argument for active management in markets where indexing struggles to make economic sense.

Figure 4: Transaction Costs Highlight Active Management's Edge in High-Cost Emerging Markets



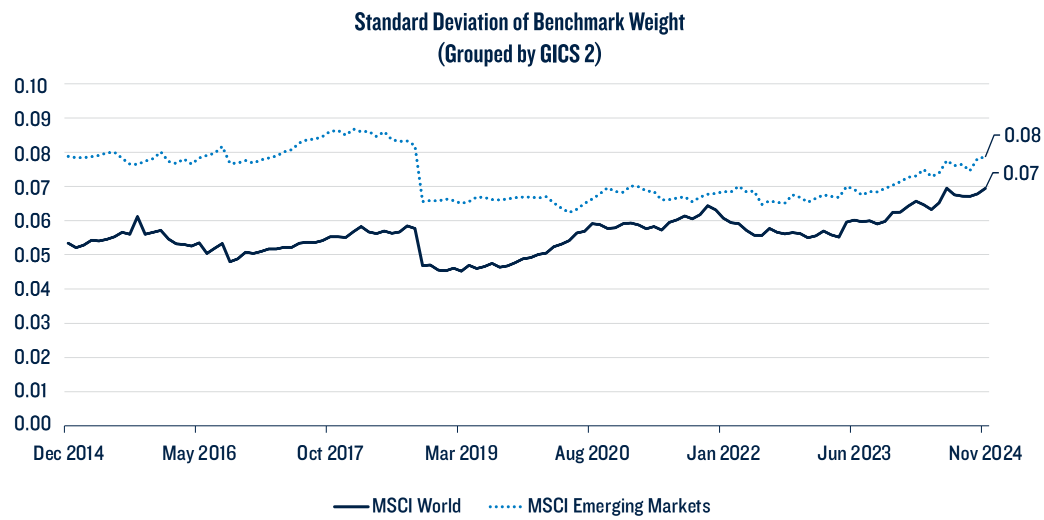
Source: PGIM Quant active equity live trading data, trailing 12 months as of Nov 30, 2024.

SECTOR CONCENTRATION RISKS

When constructing their equity sleeve, allocators must balance the pursuit of alpha with the risks tied to their allocation choices. Mathematically, we know that a smoother, less volatile path with fewer drawdowns can compound returns more effectively over time. Surprisingly, the MSCI Emerging Markets Index is significantly more concentrated and less diversified than global developed equity markets.

Figure 5 illustrates this through the standard deviation of sector weights in the emerging and developed MSCI benchmarks. The MSCI Emerging Markets Index is heavily concentrated in Information Technology and Financials, while the MSCI World Index offers broader sector representation. Active managers can skillfully address these concentration risks, constructing portfolios that provide strong exposure to the asset class while effectively managing potential challenges.

Figure 5: Sector Concentration Imbalances: Emerging vs. Developed Markets

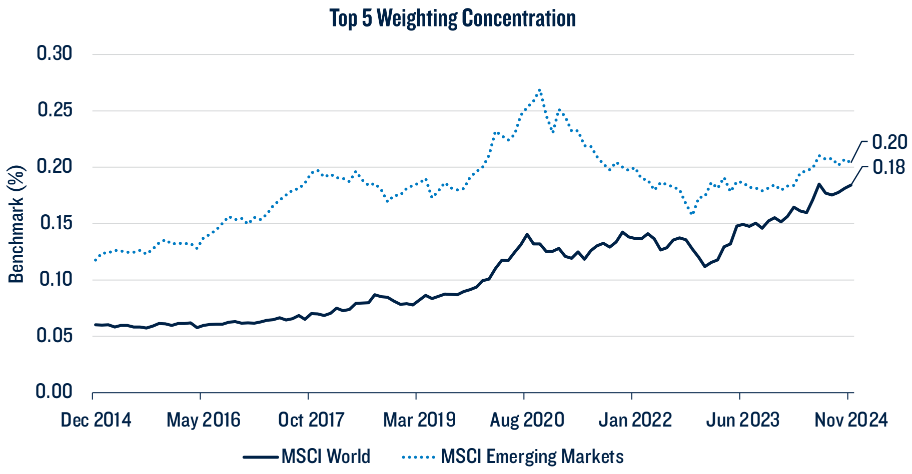


Source: MSCI. Monthly standard deviation of sector weights, MSCI World and MSCI Emerging Markets indexes. Data from Nov 2014 - Nov 2024.

Note: The sharp decline in the standard deviation of sector weights in late 2018 stemmed largely from a major GICS reclassification, including the renaming of the Telecommunication Services sector to Communication Services and the reallocation of stocks across the Information Technology, Consumer Discretionary, and Communication Services sectors.

This sector concentration highlights a challenge not unique to emerging markets. Over the past few years, many US managers have pointed to the difficulty of outperforming the S&P 500 Index, primarily due to the dominance of the 'Magnificent Seven'. However, as shown in Figure 6, the MSCI Emerging Markets Index has historically been, and remains, even more concentrated than the MSCI World Index. Yet, as illustrated in Figure 1, active managers often surpass the benchmark within emerging markets — likely because of their ability to skillfully manage these concentrated risks. Idiosyncratic shocks at the company level, driven by limited product lines or geographic focus, can lead to disproportionately large price swings in emerging markets. This makes diversification critical. Active managers must build well-balanced portfolios that spread exposure across numerous stocks while enforcing strict limits on individual stock bets to effectively mitigate risks.

Figure 6: MSCI Emerging Markets vs. MSCI World Index Concentration



Source: MSCI. Monthly sum of index weight for top 5 stocks in MSCI World and MSCI Emerging Markets Indexes. Data from Nov 2014 - Nov 2024.

ACTIVE MANAGEMENT IN EMERGING MARKETS: CASE CLOSED

Not all public equity markets are created equal, and we've highlighted why this holds true in emerging markets. Active managers in this space have demonstrated their expertise by leveraging informational advantages, mitigating higher transaction costs, and navigating the pronounced sector concentration risk within emerging markets. Quantitative managers in these markets hold an additional edge given their historical focus on risk management, construction of well-diversified portfolios that incorporate transactions costs in decision-making, and ability to successfully evaluate thousands of stocks simultaneously. For global investors considering increasing exposure to emerging markets, active management offers a dual advantage – it can enhance returns while effectively managing risks.

"Active managers in this space have demonstrated their expertise by leveraging informational advantages, mitigating higher transaction costs, and navigating the pronounced sector concentration risk within emerging markets.

NOTES TO DISCLOSURE

For Professional Investors only. All investments involve risk, including the possible loss of capital.

PGIM Quantitative Solutions LLC (PGIM Quantitative Solutions or PGIM Quant), formerly known as QMA LLC, is an SEC-registered investment adviser and a wholly-owned subsidiary of PGIM, Inc. (PGIM) the principal asset management business of Prudential Financial, Inc. (PFI) of the United States of America. Registration with the SEC does not imply a certain level of skill or training. PFI of the United States is not affiliated in any manner with Prudential plc, which is headquartered in the United Kingdom or with Prudential Assurance Company, a subsidiary of M&G plc, incorporated in the United Kingdom.

The content and materials presented here are for informational and educational purposes only and should not be construed as investment advice or an offer or solicitation in respect of any products or services to any persons who are prohibited from receiving such information under the laws applicable to their place of citizenship, domicile or residence.

In the **United Kingdom**, information is issued by PGIM Limited with registered office: Grand Buildings, 1-3 Strand, Trafalgar Square, London, WC2N 5HR. PGIM Limited is authorised and regulated by the Financial Conduct Authority ("FCA") of the United Kingdom (Firm Reference Number 193418). In the **European Economic Area** ("EEA"), information is issued by PGIM Netherlands B.V. with registered office at Eduard van Beinumstraat 6 1077CZ, Amsterdam, The Netherlands. PGIM Netherlands B.V. is authorised by the Autoriteit Financiële Markten ("AFM") in the Netherlands (Registration number 15003620) and operating on the basis of a European passport. In certain EEA countries, information is, where permitted, presented by PGIM Limited in reliance of provisions, exemptions or licenses available to PGIM Limited under temporary permission arrangements following the exit of the United Kingdom from the European Union. These materials are issued by PGIM Limited and/or PGIM Netherlands B.V. to persons who are professional clients as defined under the rules of the FCA and/or to persons who are professional clients as defined in the relevant local implementation of Directive 2014/65/EU (MiFID II). PGIM Quantitative Solutions LLC, PGIM Limited and/or PGIM Netherlands B.V. are indirect, wholly-owned subsidiaries of PGIM, Inc. ("PGIM").

In **Canada**, PGIM Quantitative Solutions LLC relies upon the "International Advisor Exemption" pursuant to National Instrument 31-103 in certain provinces of Canada.

In **Australia**, these materials are distributed by PGIM (Australia) Pty Ltd ("PGIM Australia") for the general information of its "wholesale" customers (as defined in the Corporations Act 2001). PGIM Australia is a representative of PGIM Limited, which is exempt from the requirement to hold an Australian Financial Services License under the Australian Corporations Act 2001 in respect of financial services. PGIM Limited is exempt by virtue of its regulation by the Financial Conduct Authority (Reg: 193418) under the laws of the United Kingdom and the application of ASIC Class Order 03/1099. The laws of the United Kingdom differ from Australian laws. PGIM Limited's registered office is Grand Buildings, 1-3 The Strand, Trafalgar Square, London, WC2N 5HR.

In **Singapore**, information is issued by PGIM (Singapore) Pte. Ltd. ("PGIM Singapore"), a regulated entity with the Monetary Authority of Singapore under a Capital Markets Services License to conduct fund management and an exempt financial adviser. This material is issued by PGIM Singapore for the general information of "institutional investors" pursuant to Section 304 of the Securities and Futures Act 2001 of Singapore (the "SFA") and "accredited investors" and other relevant persons in accordance with the conditions specified in Section 305 of the SFA.

In **Hong Kong**, information is provided by PGIM (Hong Kong) Limited, a regulated entity with the Securities & Futures Commission in Hong Kong to professional investors as defined in Section 1 of Part 1 of Schedule 1 of the Securities and Futures Ordinance (Cap.571).

In **Japan**, the investment management capabilities and services described in the attached materials are offered by PGIM Japan Co., Ltd (PGIMJ), a Japanese registered investment adviser (Director-General of the Kanto Local Finance Bureau (FIBO) No. 392). Retention of PGIMJ for the actual provision of such investment advisory services may only be effected pursuant to the terms of an investment management contract executed directly between PGIMJ and the party desiring such services. It is anticipated that PGIMJ would delegate certain investment management services to its US-registered investment advisory affiliate.

In **Korea**, PGIM Quantitative Solutions LLC holds cross-border discretionary investment management and investment advisory licenses under the Korea Financial Investment Services and Capital Markets Act ("FSCMA"), and is registered in such capacities with the Financial Services Commission of Korea. These materials are intended solely for Qualified Professional Investors as defined under the FSCMA and should not be given or shown to any other persons.

PGIM, PGIM Quantitative Solutions logo and the Rock design are service marks of PFI and its related entities, registered in many jurisdictions worldwide.