

S&P Dow Jones Indices

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INDEX INVESTMENT STRATEGY

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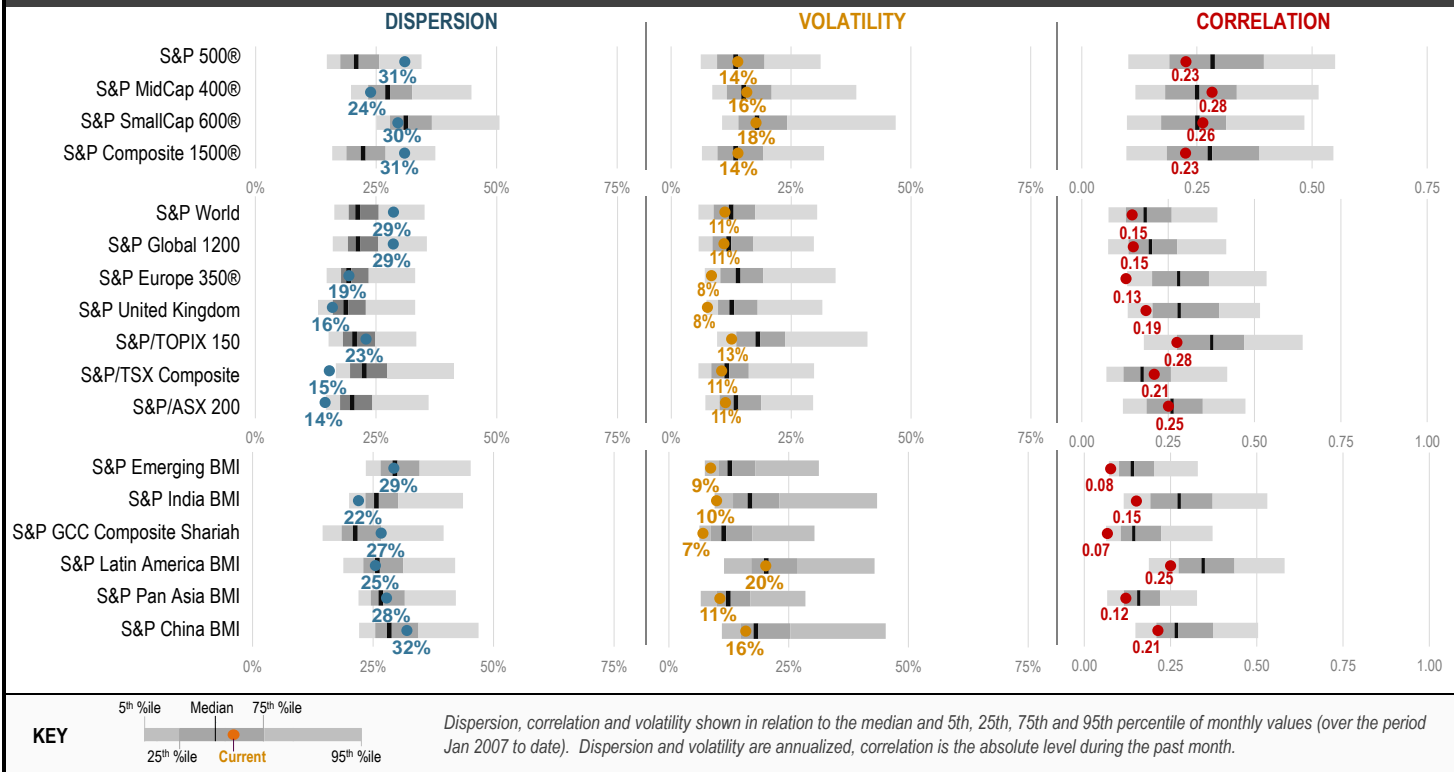
Index Dashboard: Dispersion, Volatility & Correlation

December 31, 2024

COMMENTARY

- Despite a high degree of uncertainty in sentiment, the S&P 500 completed 2024 with the lowest realized volatility in five years, sailing through with a maximum intra-year drawdown of just 8.5%.
- Diversification effects were strong in 2024. Monthly stock-to-stock correlations within the S&P 500 averaged just 0.18, the lowest since 2017, while single stock dispersion averaged 24.6% annualized, the third highest reading since 2009 and an unusually high level given the concurrent index volatility.
- High dispersion should have provided opportunities for benchmark outperformance to concentrated stock selectors, but a potential sacrifice in diversification arising from concentration may have meant that risk-adjusted outperformance proved harder to find.

GLOBAL DASHBOARD

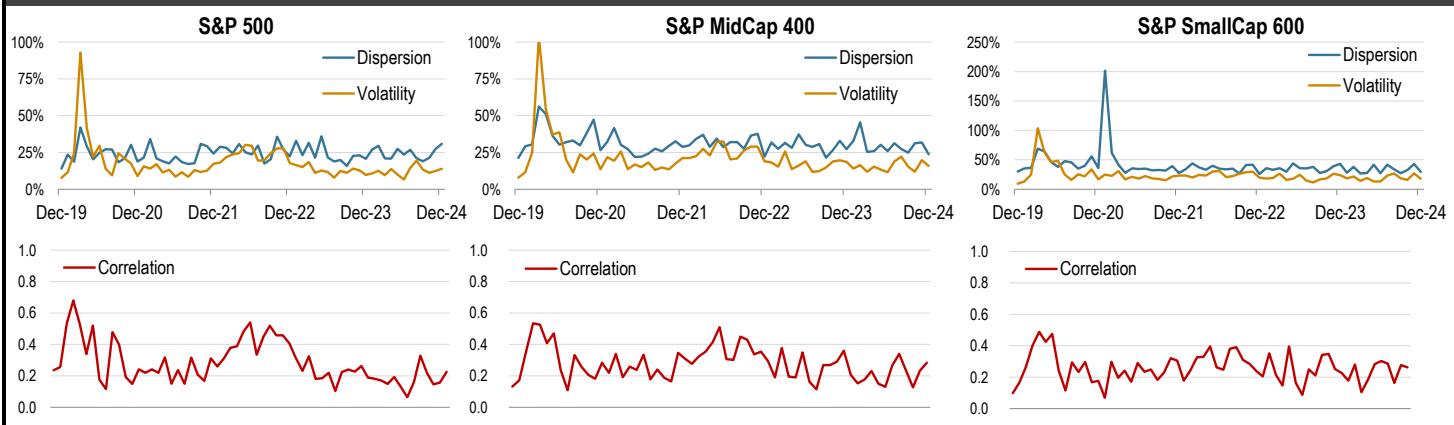


S&P 500 Implied Indicators

Indicator	Level	1M +/-
Volatility Index (VIX@)	17.35	↑ 3.84
Dispersion Index (DSPX)	30.92	↑ 4.49

The Cboe Volatility Index (VIX) and the Cboe S&P 500 Dispersion Index (DSPX) measure market expectations for S&P 500 index volatility and dispersion, respectively, over the next 30 days. The Dispersion Index was launched on September 27, 2023.

MAJOR BENCHMARKS - PAST FIVE YEARS



Source: S&P Dow Jones Indices as of Dec 31, 2024 * See "Notes" for explanations and definitions.

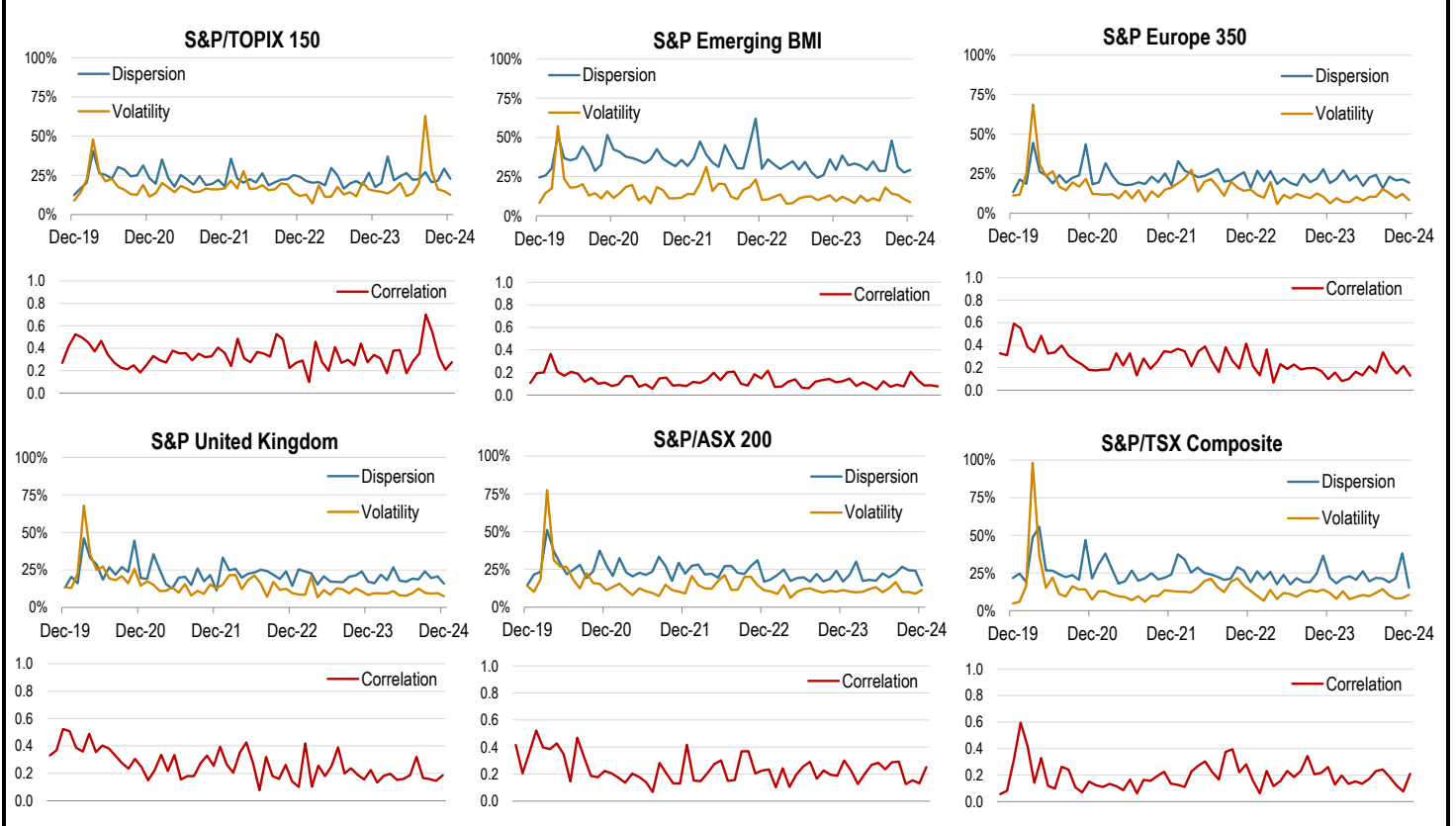
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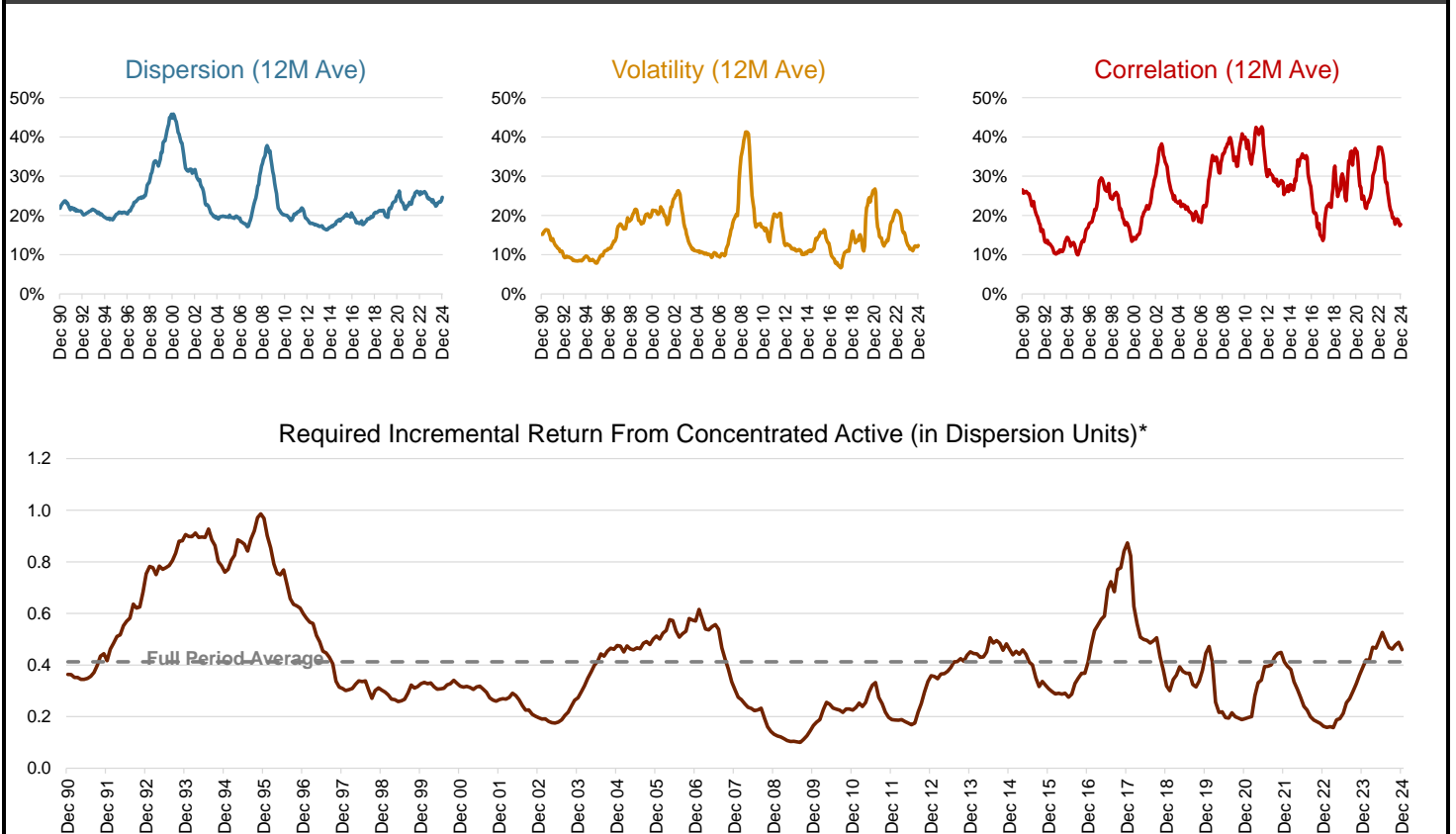
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MAJOR BENCHMARKS - PAST FIVE YEARS (cont'd)



S&P 500 - 12M TRAILING AVERAGES & ACTIVE RETURN DIFFICULTY



Source: S&P Dow Jones Indices as of Dec 31, 2024 * See "Notes" for explanations and definitions.

NOTES

Definitions

Dispersion for each index is the annualized, index-weighted standard deviation of the index constituents' full-month total returns. See "[Dispersion: Measuring Market Opportunity](#)" for a formal definition of dispersion and more information on its uses.

Correlation for each index measures the correlation among the daily returns of the index constituents during the month, calculated via the ratio of index variance to the index-weighted average constituent variance. See "[At the Intersection of Diversification, Volatility and Correlation](#)" for a more detailed explanation of the calculation.

Volatility for each index is the annualized standard deviation of daily index price returns during the month. See "[The Landscape of Risk](#)" for details on the relationship of correlation, volatility and dispersion.

Required Incremental Return From Concentrated Active (in Dispersion Units) provides the excess return, in multiples of 12M trailing average dispersion, required from a concentrated position in a single index constituent with 12M trailing volatility equal to the index-weighted average, such that the ratio of return to volatility of the position matches that of an investment with volatility matching the index's trailing 12M volatility, and an annual return of 10%. For further details, see "[The Active Manager's Conundrum](#)".

Measurement Periods For Historical Ranges (p1)

The time period over which the median and percentiles of dispersion and correlation are measured begins with January, 2007 and ends with the current month except in the case of the S&P GCC Composite Shariah (which has a history to April, 2007).

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