July 2018

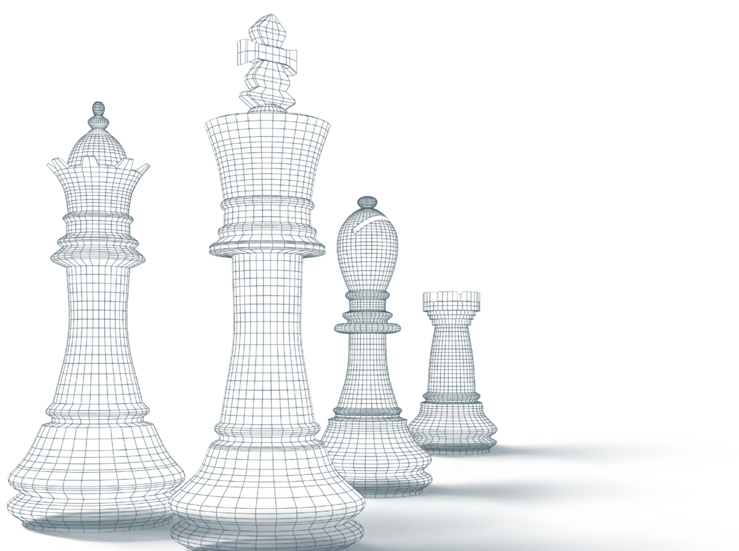
EQUITY MARKET STRESS MONITOR

A Perspective on the Current Stability of Global Equity Markets

The Intech Equity Market Stress Monitor™ is a collection of five metrics we believe are reliable indicators of equity market stress based on Intech's 30-year history of studying volatility. You can use the monitor to gain insight to market risk regimes, contextualize beta risk management and complement your conventional risk metrics.

Executive Summary

- Equity markets recorded solid gains during the second quarter, which helped move major developed market indexes back into positive territory for the year to date period. However, markets remained volatile. In April alone, the number of days the S&P 500 Index had returns' swings greater than 1% matched the amount of days it happened in all of 2017. On average, we experienced moves like this almost every third day in the first half of 2018 – nearly four times the amount experienced all of last year.
- European equity markets continue to exhibit the most strain relative to other major market segments, with four of five measures now at extreme levels. Global developed markets, as represented by the MSCI World Index, now reflect the market segment demonstrating the least amount of risk, with only two measures at extreme levels.
- Coming down from close to historical high levels, we observe a decrease in the skewness of return levels on many developed market equity indexes since the end of last quarter. This notable decline in the skewness of return measure indicates that market returns are showing a more balanced distribution. This reflects that investors are probably becoming less optimistic and reacting more normally to negative news as opposed to being blindly bullish.
- While still historically low, we also observe an increase in correlation of returns across most of the indexes since the end of last quarter. Capital concentration continued to increase, especially in the U.S. markets, driven by the continued strong returns of mega cap technology stocks.
- Our equity market stress metrics measured on various indexes continue to exhibit extreme levels when compared to history, but we have seen some improvement since the beginning of the year. Overall, we believe investors should continue to prepare for the less likely but more significant move lower in global equity markets given that extreme readings, on average, continue to exist within and across indexes.



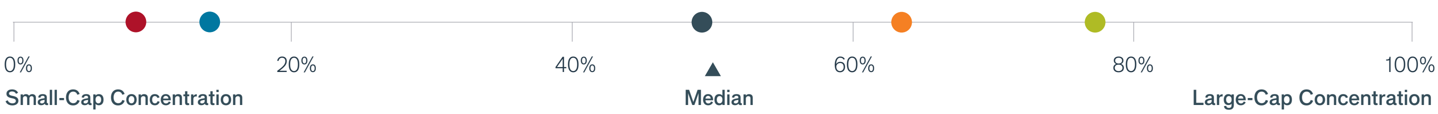
Janus Henderson INVESTORS

Intech Equity Market Stress Monitor Data as of 06/30/2018

We've identified a collection of risk metrics that we believe are reliable indicators of equity market stress. For each of these metrics, our observations have shown that when markets deviate substantially from typical levels, they eventually return to it. Moreover, the greater the deviation and persistency of extreme values across a larger collection of metrics, the more likely it is that the return to the mean will be abrupt, and accompanied by substantial volatility.

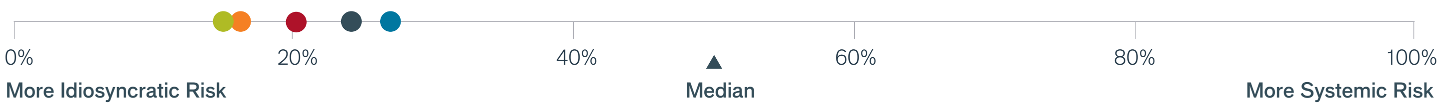
Capital Concentration

Do winners take all? Capital concentration measures how the capital is distributed between stocks within an index. An increase means that more capital is allocated to larger-cap stocks. A decrease indicates that capital is moving to smaller-cap stocks. Our research has shown that the capital distribution among stocks is remarkably stable over the long term and tends to revert to median levels.



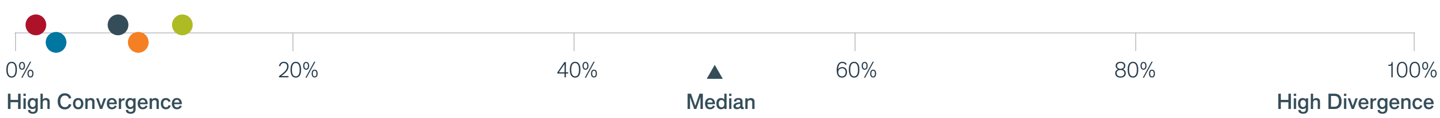
Correlation of Returns

How similar are stocks' absolute returns? Correlation measures the market-weighted average pair-wise correlation of stocks in the index. It quantifies the similarity of stocks' returns, as a fraction of their volatility. As correlations rise, stocks' returns tend to move in tandem with each other as the common component of return – the market – begins to dominate. As correlations decline, stocks' returns exhibit less similarity between stocks because idiosyncratic factors dominate the market component.



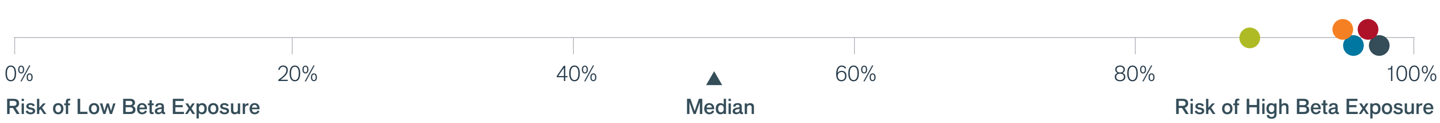
Dispersion of Returns

How different are stocks' relative returns? Also known as cross-sectional volatility, dispersion measures whether stocks' returns relative to their benchmark are converging (low dispersion) or diverging (high dispersion). As dispersion increases, underlying stock or portfolio returns begin to diverge from the overall benchmark. We find that the market eventually reverts to long-term levels when return dispersion is substantially low or high, which is associated with strain on the market.



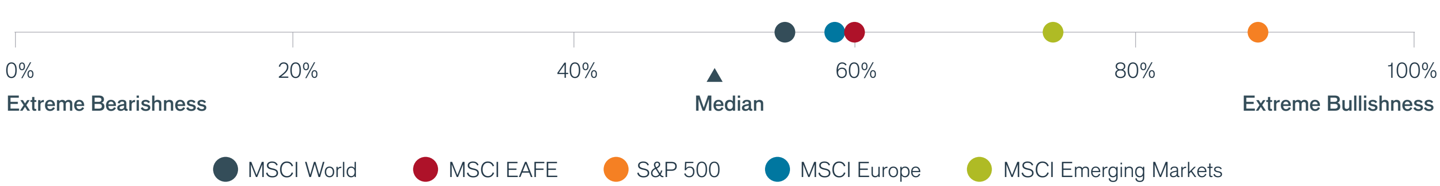
Index Efficiency

How much beta risk should you take? Market efficiency measures the level of index diversification versus the potential diversification available given the volatility characteristics of index constituents. Low market efficiency makes it possible for a skilled manager to achieve above-market outcomes with lower beta exposure, but the risk is lower upside capture potential. Conversely, high market efficiency means that reliably outperforming the index requires a manager to have similar beta risk, exposing a portfolio to higher downside capture.



Skewness of Returns

How fat are the tails? Skewness measures the asymmetry of index returns around the mean. Logarithmic returns tend to exhibit a left-skewed distribution, meaning the most extreme returns are below the mean, as investors tend to react more strongly to negative news. When there is irrational exuberance among investors, market returns tend to become less negatively or, even, positively skewed. Conversely, low levels of skewness often coincide with the market shock itself, and eventually manifest into positive outcomes as markets stabilize.



Regional Insight by Index

● Global Equity Market – MSCI World Index℠

- Only two risk metrics measured on global developed equity markets continue to point to extreme levels, a decline from a quarter ago.
- Correlations of returns increased significantly during the quarter and are now no longer reflecting extreme levels when compared to historical values.
- This change reflects an increase in the amount of systematic risk in this market segment, as the common component of stock returns, the market, begins to have a larger influence on return.
- Consistent with other regions, the skewness of returns measure declined notably during the quarter, which may suggest less optimism by investors in this segment after experiencing increased volatility during the first half of the year. While the change is a return to more normal levels, the decline was noticeable and occurred over a short time frame, and a continued decline increases the risk that investors may start to become overly pessimistic.

● Non-U.S. Developed Equity Market – MSCI EAFE® Index

- International equity markets continue to demonstrate strain, with four of five risk indicators pointing to extreme levels.
- Similar to what we observed in the U.S. equity markets, the skewness of return is coming down, reflecting a more balanced distribution of the market returns.
- As volatility picked up since the beginning of the year, the returns of the markets are less positively skewed. While a stabilization of the skewness metric around median values would point to a more normal level of optimism, there is also the risk that the decline of the skewness of return may accelerate and shift to the other extreme (pessimism).
- Capital concentration in international equity markets continued to decline this quarter, reflecting investors' continued preference for smaller-cap stocks over mega caps in this specific universe.

● U.S. Equity Market – S&P 500® Index

- There continues to be signs of some strain in U.S. markets, with three of five risk metrics currently reflecting extreme levels and some significant changes in the sources of risk occurring during the second quarter.
- The skewness of returns measure declined notably during the quarter, which may suggest less optimism by investors in this segment after experiencing increased volatility during the first half of the year. While the change is a return to more normal levels, the decline was noticeable and occurred over a short time frame, perhaps suggesting that investors may be starting to react more normally to negative events.
- Capital concentration continued to increase in the second quarter, as larger technology stocks have continued to perform strongly in 2018, a trend that began about three years ago.

● European Equity Market - MSCI Europe Index℠

- The European equity market continues to be the region where we observed the most market strain.
- The only change worth noting from last quarter is an increase in the correlation of returns level reflecting less idiosyncratic risk in the market. However, the correlation level remains below median when compared to history.
- The dispersion of returns measure currently ranks in the 3rd percentile when compared to history. This extremely low level of the dispersion of returns indicates that stocks' returns in excess of the index are pretty similar. We find that the market will eventually revert back to the long-term levels when return dispersion is substantially low, which is often associated with strain on the market.

● Emerging Markets Equities – MSCI Emerging Markets Index℠

- The changes in the risk indicators measured on emerging markets during the second quarter gave mixed signals. While correlation of returns, dispersion of returns and index efficiency are coming down from extreme levels, capital concentration and skewness of returns both increased during the quarter.
- A decline of the index efficiency suggests that a portfolio needs to take less beta risk in order to improve the risk and return efficiency of the market. Despite the decline, this measure still remains at extreme levels, and may suggest that there is still significant beta risk should an increase in volatility cause a selloff in this region in the future.
- While it remains low relative to our historical observations, the correlation of returns has increased over the quarter, which is consistent with what we observed in developed market regions.

Intech Equity Market Stress Monitor

Intech® is a specialized global asset management firm that harnesses stock price volatility as a source of excess return and a key to risk control. Founded in 1987 in Princeton, NJ, by pioneering mathematician Dr. E. Robert Fernholz, Intech® serves institutional investors across five continents, delivering relative return, low volatility, adaptive volatility and absolute return investment solutions.

Richard Yasenchak, CFA
Senior Managing Director, Head of Client Portfolio Management

Valerie Azuelos
Managing Director, Product Specialist

Kevin Armstrong, CFA
Senior Product Specialist

For more information, please visit **janushenderson.com.**

Janus Henderson INVESTORS

FOR MORE INFORMATION CONTACT JANUS HENDERSON INVESTORS

151 Detroit Street, Denver, CO 80206 | www.janushenderson.com

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