THE BUSINESS CYCLE'S IMPACT ON ASSET PERFORMANCE

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Key Points

- The global economy experiences upswings and downswings, which are often referred to as the business cycle. A variety of factors drive these economic growth changes, including changes in interest rates, credit availability, and consumer and business confidence.
- Using a simple methodology, we identify four different stages of the global business cycle: recovery, expansion, slowdown, and contraction. We review the distributions of asset performances across these stages.
- Asset performance is highly sensitive to the global business cycle, with many assets experiencing meaningful shifts in performance distributions across business cycle stages. At a high level, equity performance is strongest in recoveries and government bond performance is strongest in contractions.
- Understanding the distributions of asset performance across business cycle stages and considering where the global economy is headed are key inputs in a rigorous investment decision-making framework.

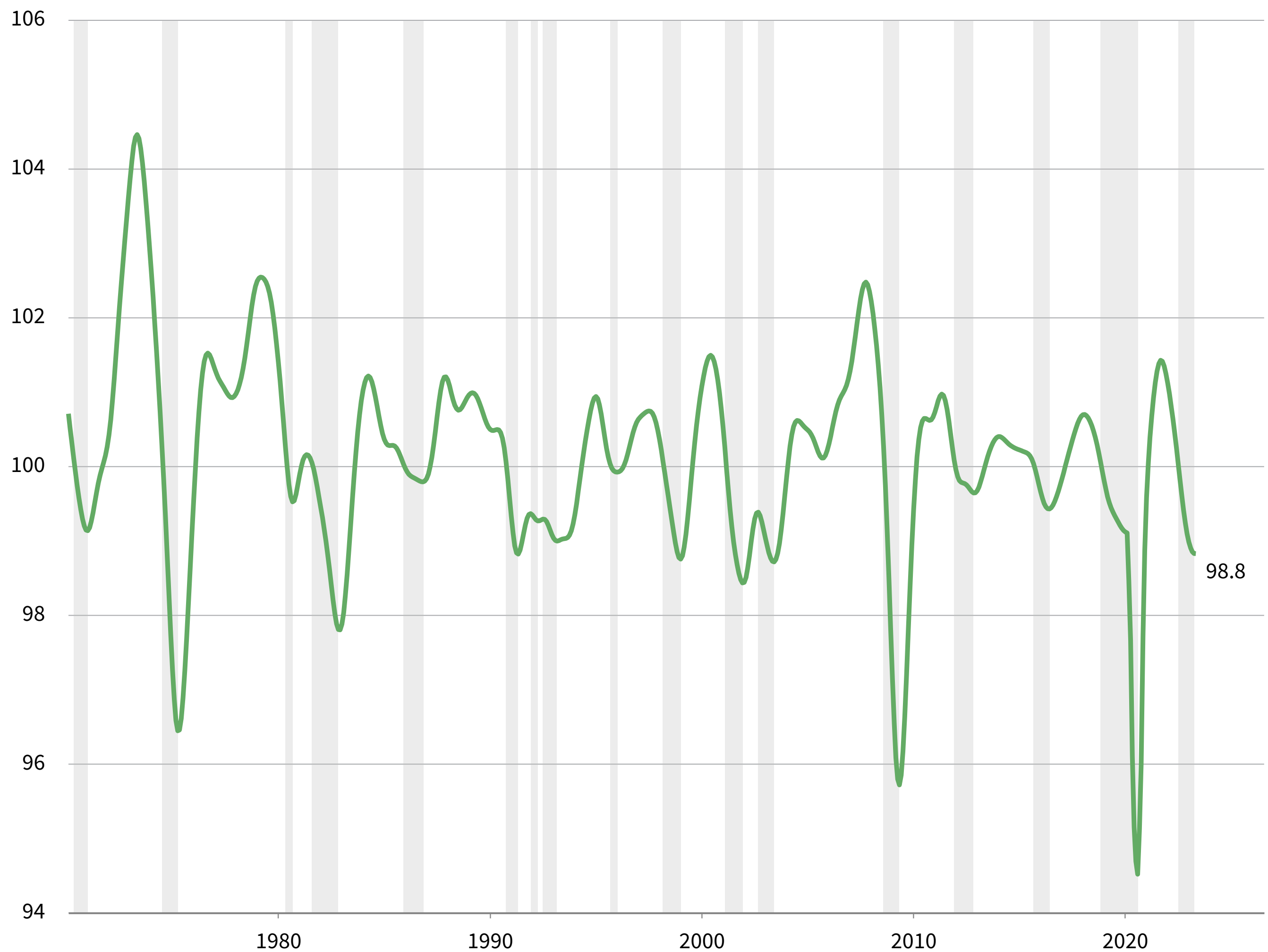
A simple methodology for identifying business cycle stages

- As investors, we want data that are timely and broadly representative of the global economy. With that criteria, we leveraged the OECD's composite leading indictor for the Group of 20 (G20).
  - This monthly index is thoughtfully constructed to summarize a variety of data, such as manufacturing survey data, housing construction, and yield spreads.
  - It is the OECD's broadest composite leading indicator, reflecting roughly 80% of the world's GDP and including the key markets of Brazil, China, Germany, India, and the United States.
  - Index values above (below) 100 indicate economic activity is above (below) the long-term trend.
- To determine the business cycle position, we first calculate a six-month moving average to reduce index volatility and better highlight meaningful changes in activity.
- Using the smoothed index, we categorize global economic activity into four different stages using both the index value and its monthly change, as highlighted below.

Business Cycle Stage	Index Value Interpretation	Index Value Change Interpretation
Recovery	Below-Trend Growth	Positive Momentum
Expansion	Above-Trend Growth	Positive Momentum
Slowdown	Above-Trend Growth	Negative Momentum
Contraction	Below-Trend Growth	Negative Momentum

The global economy is currently in the contraction stage of the business cycle

G20 COMPOSITE LEADING INDICATOR INDEX
January 31, 1970 – April 30, 2023 • 6-Month Moving Average of Index Value

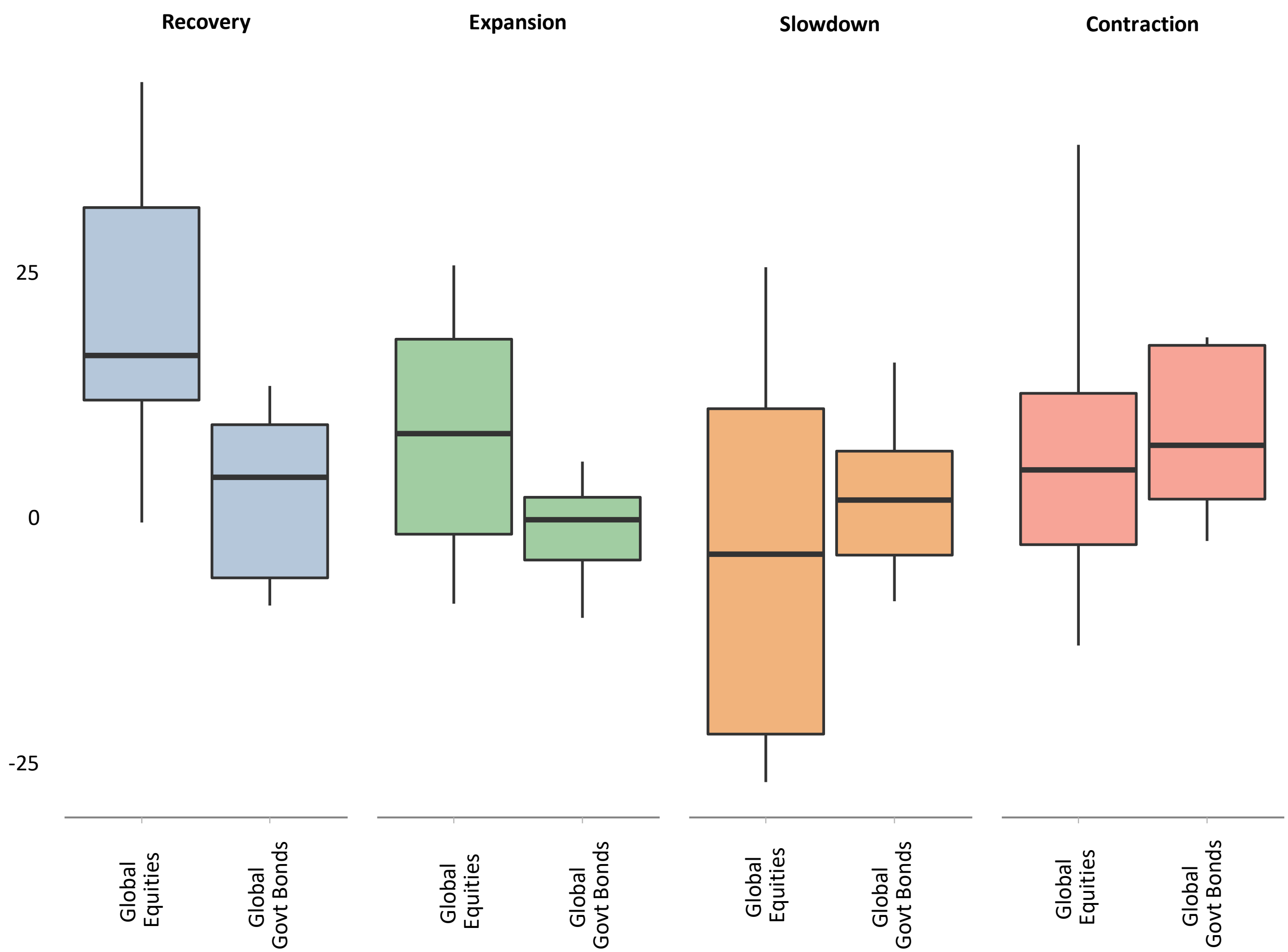


Global economic activity is below trend with negative momentum, which is consistent with the contraction stage of the global business cycle. We entered this stage in July 2022, which coincided with a period of rapid changes in interest rate expectations across several markets. Since 1970, there have been 17 contractions, with a similar number of expansions, recoveries, and slowdowns. A typical business cycle stage lasts slightly less than a year, but they've ranged from just a few months to a couple years. Periods of global contraction tend to overlap with government-defined periods of recession in individual G20 countries, but differences between individual countries and our aggregate exist.

Source: OECD.
Notes: Gray bars represent economic contractions, that are determined as periods during which the rolling six-month leading economic indicator (LEI) index was below 100 and the monthly change in that value was less than 0%.

Asset class performance varies across global business cycle stages

DISTRIBUTION OF ASSET CLASS PERFORMANCE
January 31, 1970 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

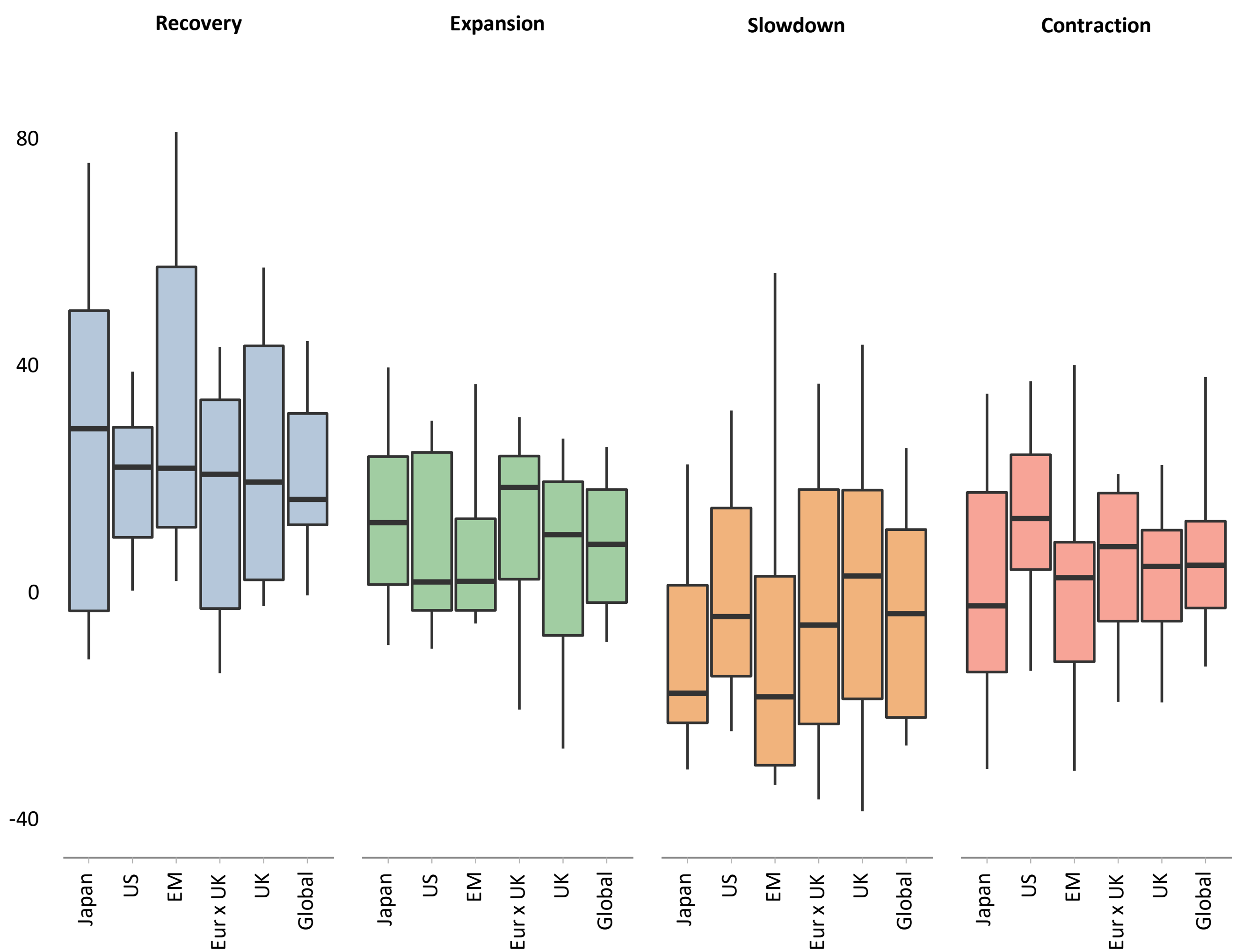


The box-and-whisker plots highlight that the distribution of both equity and government bond returns shift based on the stage of the global business cycle. Equities have tended to perform best in recoveries and government bonds have tended to perform best in contractions. This makes sense, given recoveries tend to coincide with increases in corporate sales growth and risk appetite, which benefits equities, and given contractions are characterized by falling interest rate expectations, which benefits government bonds. An interesting fact is that equity performance has typically been weaker in slowdowns than contractions.

Sources: Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index.

Certain equity regions show more sensitivity to the business cycle

DISTRIBUTION OF EQUITY PERFORMANCE BY COUNTRY BLOC
January 31, 1970 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

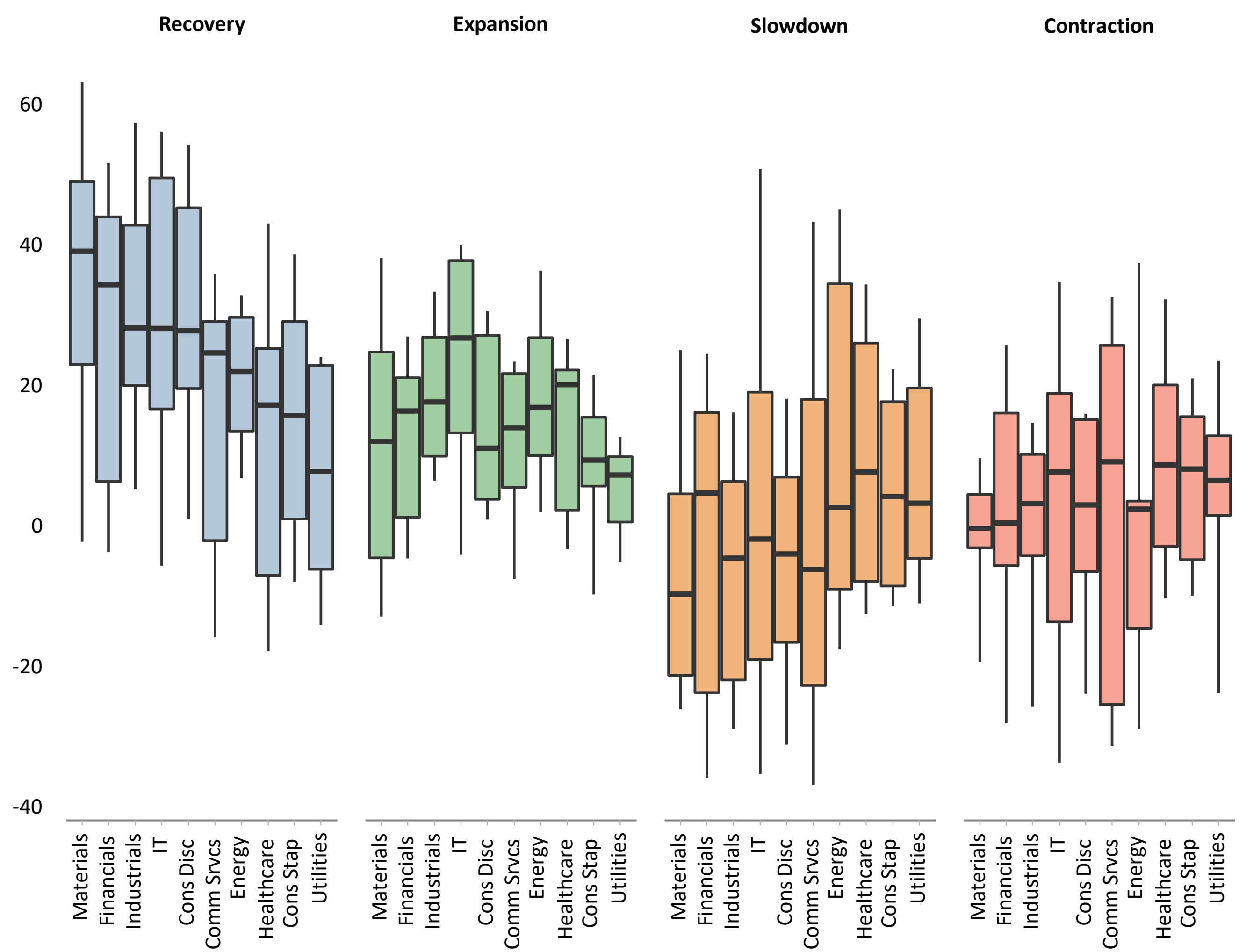


Within global equities, emerging markets and Japanese equities tend to be the most cyclically sensitive equity blocs, with the two lowest median slowdown and contraction performances across major equity blocs. These results for emerging markets and Japan are linked in part to a combination of currency, trade, and economic factors. US equities—the largest bloc in global equities and as a result the most diversified—had a less varied median performance across business cycle stages and less varied performances within each business cycle stage than most other major blocs.

Source: MSCI Inc. MSCI data provided "as is" without any express or implied warranties.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index. EM data begin January 31, 1988. See page 10 for further index methodology.

Cyclical sectors are more sensitive to business cycle stages

DISTRIBUTION OF EQUITY PERFORMANCE BY SECTOR
January 31, 1995 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

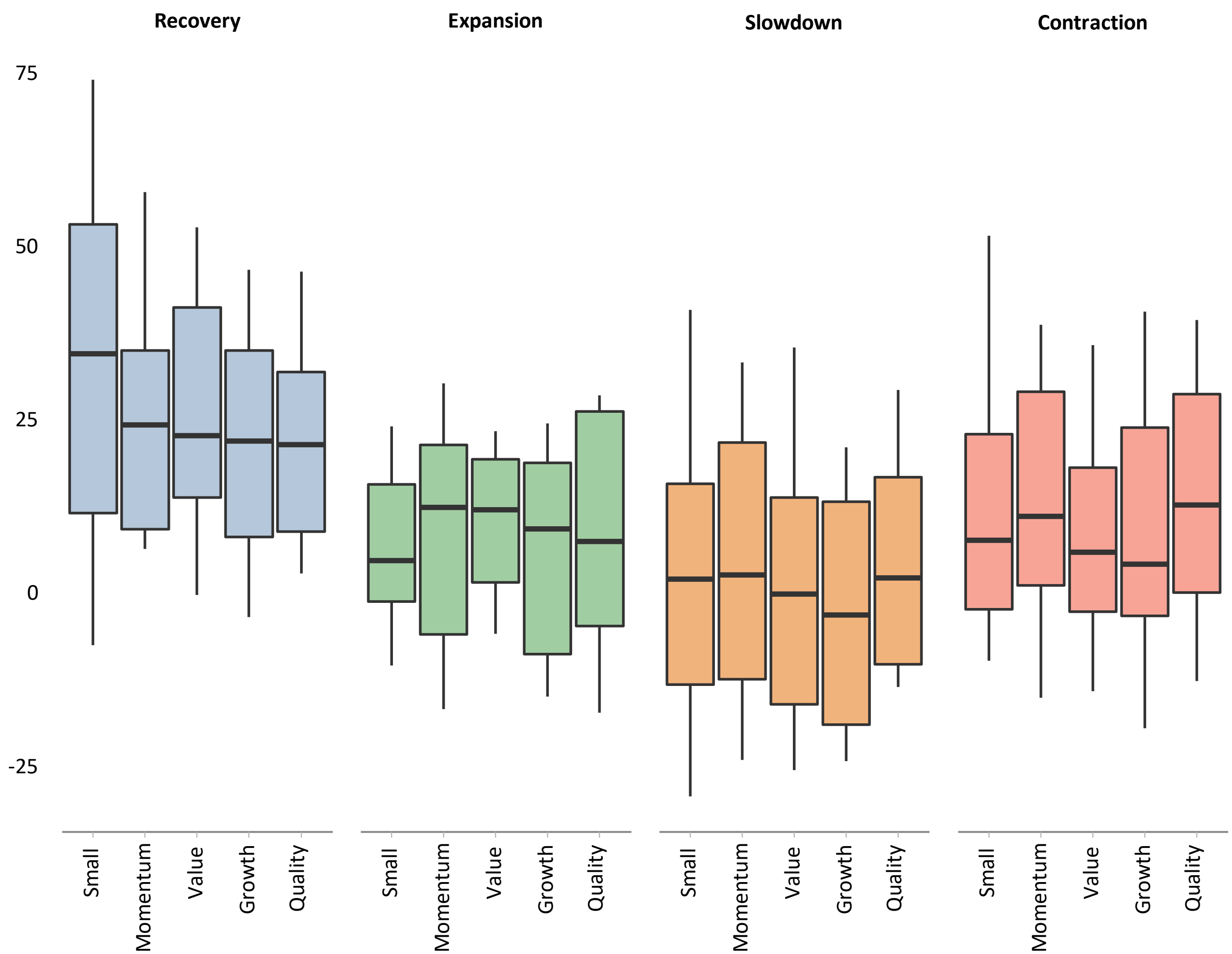


Global materials, financials, and industrials equities had median performances that varied across the global business cycle stages more so than other sectors. As a result, these sectors, along with the information technology and consumer discretionary sectors, are often thought of as cyclical sectors. This is in part because the profitability of companies in these sectors tends to be more sensitive to economic growth. More defensive sectors, such as healthcare, consumer staples, and utilities, have had the strongest median returns in both slowdowns and contractions.

Source: MSCI Inc. MSCI data provided "as is" without any express or implied warranties.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index.

Small-cap equities have exhibited more sensitivity to the business cycle than other styles

DISTRIBUTION OF EQUITY PERFORMANCE BY STYLE
December 31, 1975 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

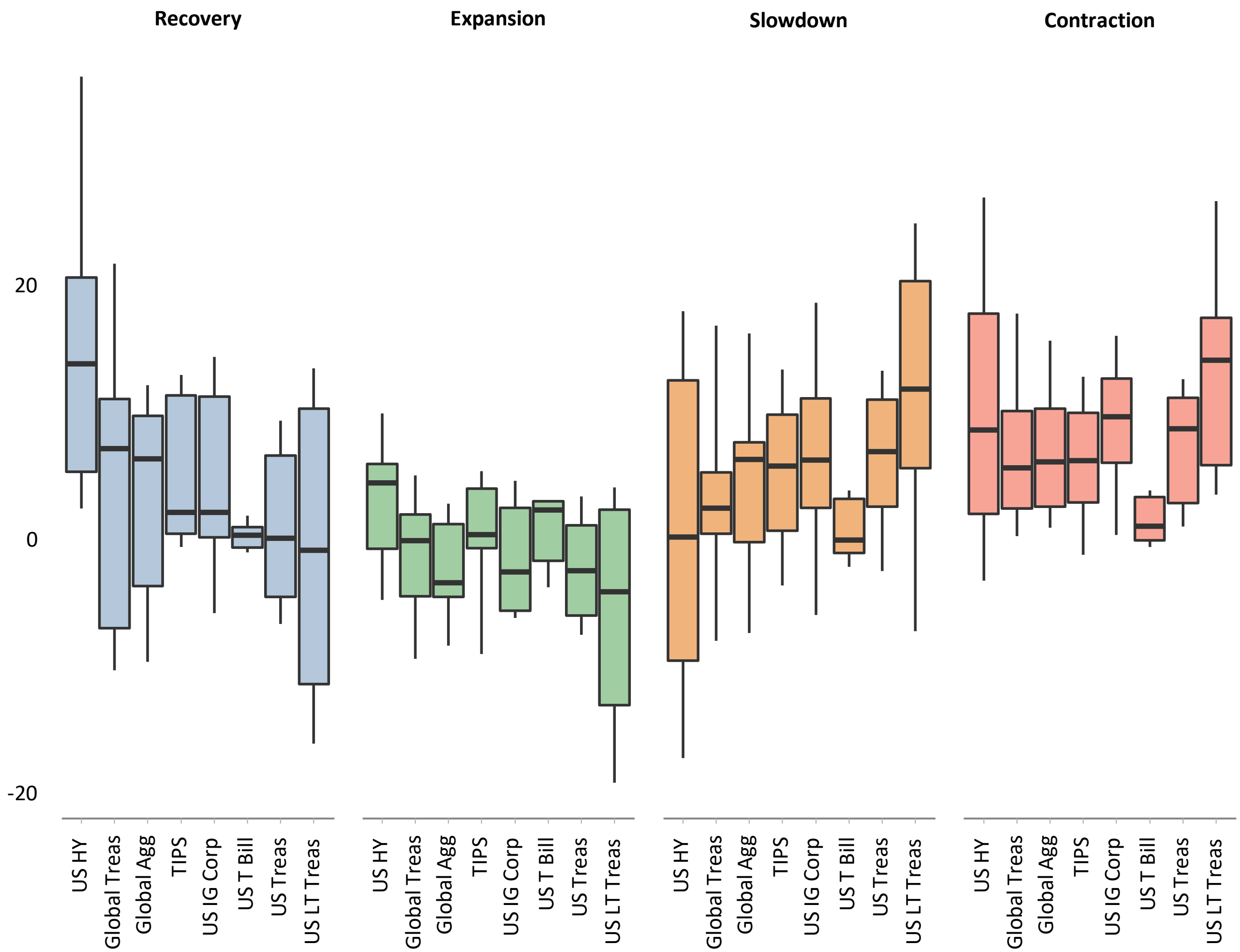


Small-cap equities, which tend to have a high beta to broad equity markets, have performed best in the recovery stage among major global equity styles. But within each business cycle stage, particularly the recovery and slowdown stages, small-cap equities have exhibited more volatility than other styles. This may be because the asset class is smaller, and as a result, less diversified. In periods of slowdown or contractions, quality equities have had a higher median performance. This is likely because this style has a higher exposure to profitable, mature companies, which investors can perceive as safe during periods of economic weakness.

Source: MSCI Inc. MSCI data provided "as is" without any express or implied warranties.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index.

Credit and duration risks have impacted fixed income's sensitivity to business cycle stages

DISTRIBUTION OF FIXED INCOME PERFORMANCE
January 31, 1987 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

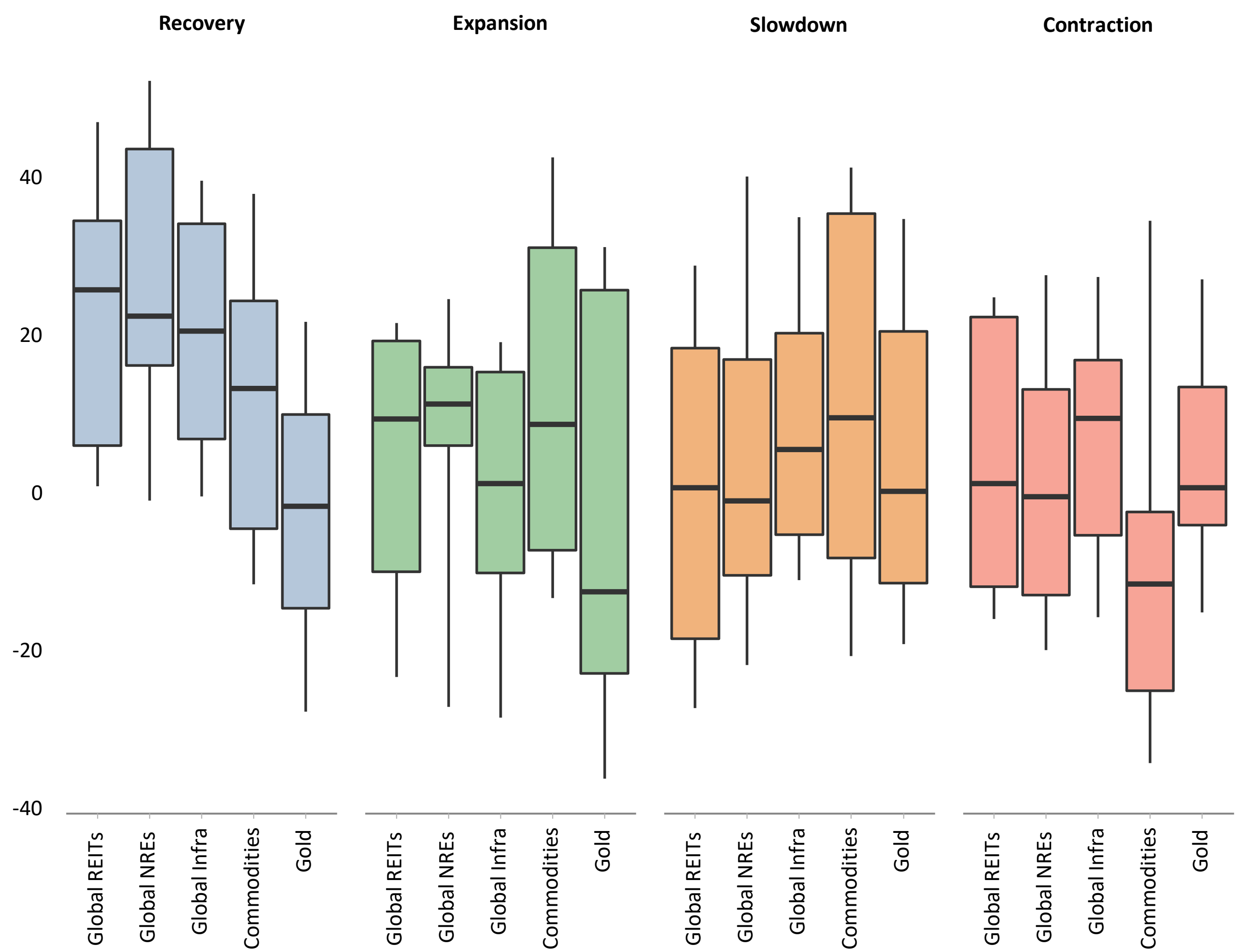


Fixed income securities with higher credit risk experience greater performance shifts across stages of the business cycle. In fact, high-yield bonds behave more like equities than government bonds, given they tend to perform the worst in slowdowns and the best in recoveries. This is because credit risk is a more material risk in this asset class. Most fixed income asset classes tend to have an inverse relationship with economic growth because as growth increases, interest rates tend to increase, and vice versa. This duration risk is easily seen in long-term Treasury performance, which varies considerably across global business cycle stages.

Sources: Bloomberg Index Services Limited, BofA Merrill Lynch, and Bridgewater Associates, LP.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index.

REITs have tended to perform better than other real assets in recoveries

DISTRIBUTION OF REAL ASSET PERFORMANCE
January 31, 1973 – December 31, 2022 • US Dollar • Annualized Real Total Returns (%)

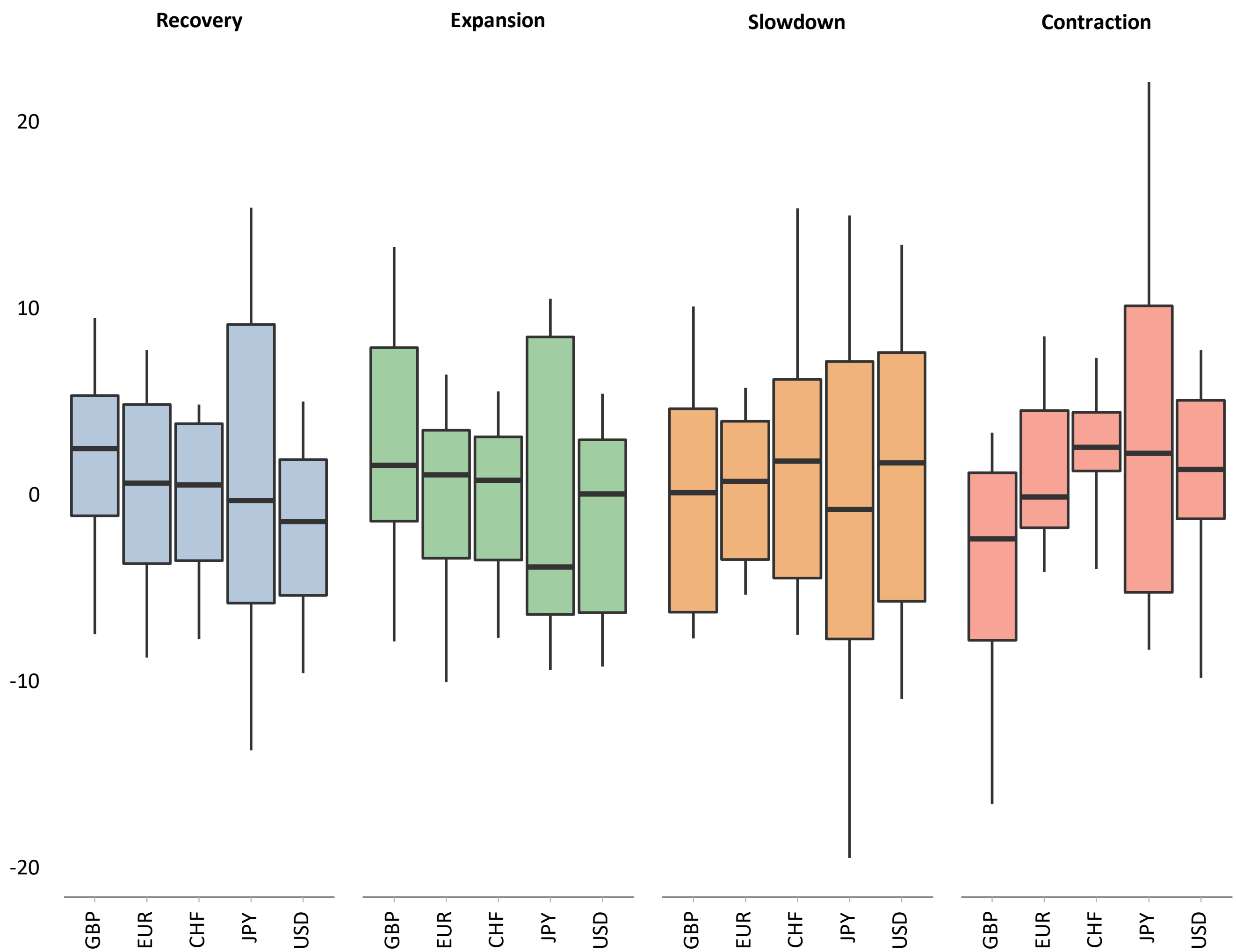


REITs and natural resources equities (NREs) tend to be the most sensitive to the business cycle among major real asset classes. In the case of NREs, this is logical, given the significance of energy commodities to this asset class, and the fact that global aggregate demand is a key factor in determining the prices of those commodities. Gold has typically weathered downturns more defensively than commodity futures, with a median real return of around zero, but it has stumbled in expansion periods. Notably, infrastructure performed the best in contractions, with a median performance near 10%. This is connected to the fact that this asset class's revenues tend to be resilient, given the use of long-term contracts.

Sources: FTSE International Limited, MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Notes: Performances are bucketed by the stage of the global business cycle and annualized. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median). Asset performance has been deflated by the OECD G7 inflation index.

Traditional safe-haven currencies have outperformed during contractions

DISTRIBUTION OF CURRENCY PERFORMANCE
February 28, 1970 – December 31, 2022 • Annualized Real Total Returns (%)



The USD, JPY, and CHF all tend to perform best during economic contractions, due in part to their backing from strong economies with relatively stable political environments. As a result, these currencies are thought to be countercyclical and beneficiaries in periods of weakness when investors are seeking quality. But among these three currencies, the JPY has had the largest distribution of returns across all stages of the business cycle, which is linked to its unique economic path. In contrast, the GBP and, to a lesser extent, EUR have tended to be more cyclical, which has led investors to consider them as "risk-on" currencies.

Sources: J.P. Morgan Securities, Inc. and Thomson Reuters Datastream.
Notes: Performances shown are annualized for each observed cycle. The top and bottom of the boxes represent 75th and 25th percentiles, respectively, while whiskers represent 90th and 10th percentiles. The middle line represents 50th percentile (median).

Methodology Notes

All returns are shown in USD and are deflated by the OECD G7 inflation index.

For equity index analysis at the sector and style level, we use the MSCI World Index, which represents developed markets. This index has a more robust history than the MSCI All Country World Index (ACWI), which also includes emerging markets. We believe using the MSCI World Index for historical patterns in style and sector performance is appropriate, given emerging markets' minimal weight in global indexes in prior decades.

Equities: Global Equities represent the MSCI World Index from 1970 to 1987 and the MSCI ACWI thereafter. Sector performance is based on the MSCI World sector subindexes, showing total returns (gross of dividends) since January 31, 1995. Style performance is based on the MSCI World sector subindexes, showing total returns (gross of dividends) since December 31, 1975. For the MSCI World Small Cap Index, history begins January 31, 2001. To extend that history with a proxy for small-cap performance, we have backfilled that performance history with total returns for the Datastream-calculated S&P 600 Index from December 1975 through December 2000. Regional equity performance is based on the MSCI ACWI, the MSCI World Index, the MSCI US Index, the MSCI Europe ex UK Index, the MSCI UK Index, the MSCI Japan Index, and the MSCI Emerging Markets Index, showing gross total returns since January 31, 1988.

Bonds: Global Government Bonds represent the ten-year US Treasury Index from 1970 to 1972, the Bloomberg US Treasury Bond Index from 1973 to 1986, and the Bloomberg Global Treasury Bond Index thereafter. All bond index data represent total returns and begins January 31, 1987. Global Agg represents a blend of the Bloomberg US Aggregate Bond Index from January 31, 1987, to December 31, 1989, and the Bloomberg Global Aggregate Bond Index thereafter. Global Treas represents the Bloomberg Global Treasury Bond Index. US Treas represents the Bloomberg US Treasury Bond Index. US T-Bill represents the BofA Merrill Lynch 91-Day T-Bill index. US LT Treas represents the Bloomberg Long-Term Treasury Bond Index. US IG Corp represents the Bloomberg Corporate Investment Grade Bond Index. US HY represents the Bloomberg US Corporate High Yield Index. TIPs represents a blend of the Bridgewater simulated TIPS index from January 31, 1987, through January 31, 1997, and the Bloomberg US TIPS Index thereafter.

Real Assets: All real asset data represent total returns and begin February 28, 1991. Commodity Futures represent the Bloomberg Commodity Index Total Return Index. Energy, Grains, and Industrial Metals all represent the respective Bloomberg Commodity Index subindex returns. Gold Bullion represents the London Bullion Market closing price. REITs represent the FTSE® EPRA/NAREIT Developed Real Estate Index. Infrastructure is blend of the Equal-weighted Datastream World Gas, Water & Multi-Utilities TR Index and the Datastream World Pipelines TR Index 1973–2009, and FTSE® Developed Core Infrastructure 50/50 TR Index thereafter. Natural Resources Equities is a blend of the market cap–weighted Datastream Developed Energy Index & Datastream Developed Basic Resources Index blend from 1973–98, and the MSCI World Natural Resources Index thereafter.

Currency: FX returns represent the JP Morgan Real Broad Effective Exchange Rate since 1970. The euro area exchange rate consists of a composite of original member states' currencies prior to the euro's formation in 1999.