

MSCI BofA US Dualcast Index

Seek market advantage through
real-time data



Real-time insights applied to asset allocation

Financial markets ebb and flow through economic cycles, or regimes. Understanding the behavior of various asset classes during these regimes allows for targeted asset allocation through changing economic cycles.

An index for any changing economic cycles

The **MSCI BofA US Dualcast Index** (the “Index”) applies real-time economic data estimates with an aim to select assets ahead of the curve. With AI technology advancement in analyzing big data, MSCI’s data partner QuantCube provides daily US GDP growth and inflation estimates, up to 3 months ahead of official releases. **MSCI collaborated with Bank of America and QuantCube Technology to develop this innovative index.** It is designed to adapt to the current economic regime by allocating to index components that represent 5 asset classes: U.S. equities, U.S. Treasuries, Gold, Industrial Metals, and a currency basket that aims to represent the international value of the U.S. dollar.

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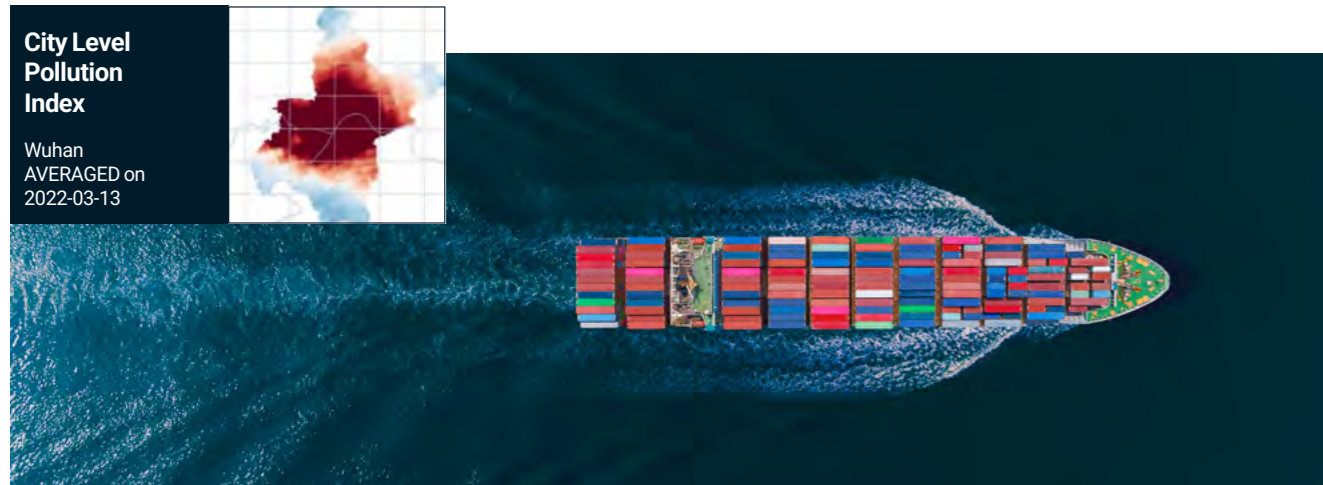


This is an **interactive page**

The Macro Nowcast provided by QuantCube Technology

Nowcasting, a combination of the terms “now” and “forecasting,” applies big data to enable an estimate of economic indicators in the present. Leveraging AI technology, MSCI’s data partner QuantCube Technology combines and analyzes a diverse range of data sources to provide daily economic growth and inflation estimates, up to three months before their official releases.

QuantCube Technology is a premier alternative data provider to institutional investors.¹ It analyzes billions of data points in real-time through partnerships in satellite imaging, shipping logistics, and flight data to provide leading macroeconomic insights to investors. The QuantCube model is defined by its unique transparency and fundamental approach. This approach enables macroeconomic changes to be traced to specific sources such as commodity exports, port congestion, or manufacturing activity.



Source: QuantCube technology

For US GDP growth, QuantCube aggregates data that could significantly impact economic growth. For example, NO2 pollution levels are used to estimate manufacturing activity within a region or city; shipping data provides proxies for international trade; and real-time job openings facilitate the monitoring of unemployment trends.

Regarding US inflation, the model compiles real-time prices tracking each subcomponent of the Consumer Price Index (CPI) that could drive inflation trends. For example, the food and energy subcomponents are estimated using gas station and grocery store prices, and the core services subcomponent is monitored using real-time prices for rents, medical services, and insurance.



¹ Relevant awards include Energy Risk Award by Risk.net for 2023 Data and Analytics Firm of the Year; Best Data Science Solution by A-Team Data Management Insight Award 2022; Best Alternative Data Provider to the Buy Side by Waters Technology Buy-Side Technology Awards 2022. See quant-cube.com for additional details. the Buy Side by Waters Technology Buy-Side Technology Awards 2022. See quant-cube.com for additional details.

Allocation based on four economic regimes

The MSCI BofA US Dualcast Index allocates based on four economic regimes which are identified using a GDP Growth Indicator and an Inflation Indicator.

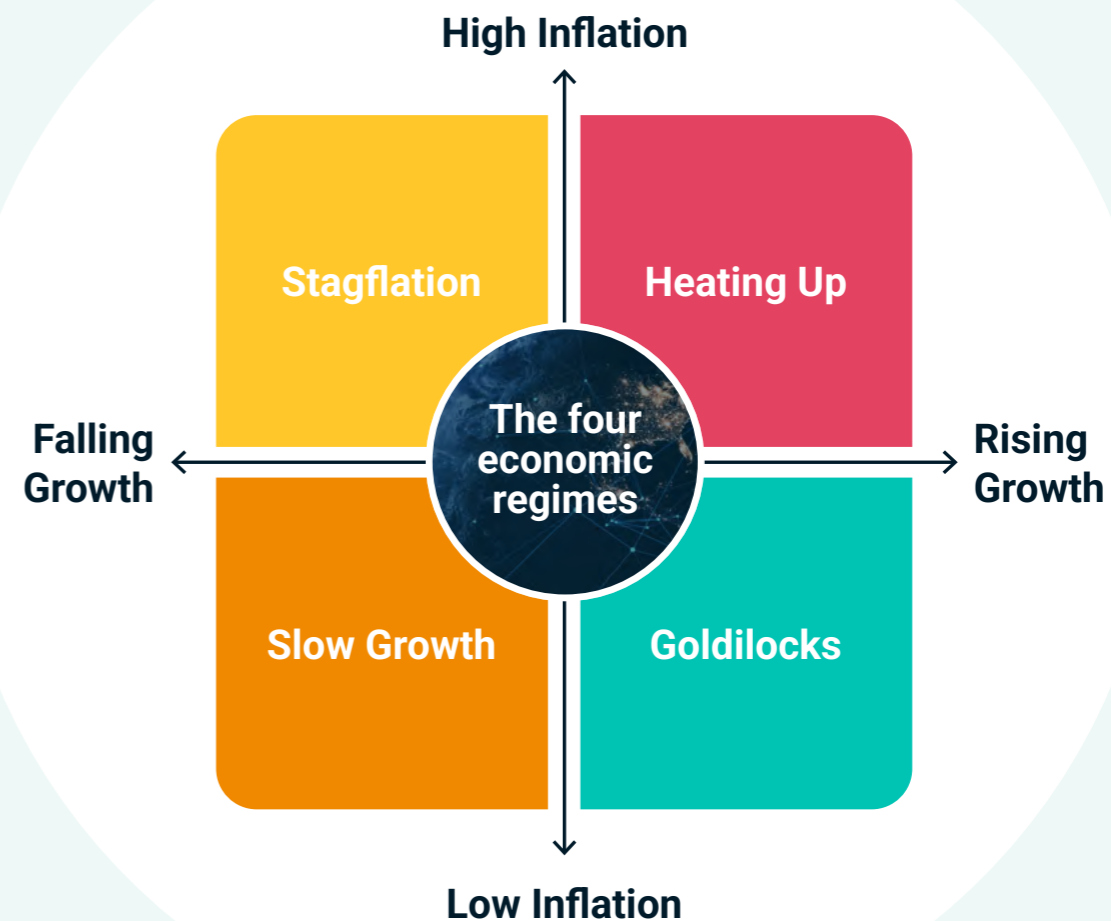
The GDP Growth Indicator leverages the daily US GDP growth nowcast provided by QuantCube Technology with the goal of identifying whether the economy is growing, slowing, or falling. The Inflation Indicator leverages the daily inflation nowcast with the goal of identifying whether inflation is relatively high or low.

The Index seeks to capitalize on its dynamic exposure across diversified asset classes, including U.S. equities, U.S. Treasuries, commodities and US dollar based currency pairs. For each regime, the Index is designed to overweight the assets that historically provided the best risk-adjusted returns.²

The four economic regimes

The Index defines four economic regimes labelled as Stagflation, Heating Up, Slow Growth and Goldilocks based on whether the GDP Growth Indicator is rising or falling, and whether the Inflation Indicator is high or low.³

- Goldilocks** – Rising GDP Growth Indicator and Low Inflation Indicator
- Slow Growth** – Falling GDP Growth Indicator and Low Inflation Indicator
- Stagflation** – Falling GDP Growth Indicator and High Inflation Indicator
- Heating Up** – Rising GDP Growth Indicator and High Inflation Indicator



² Because this Index applies a volatility control mechanism, the range of both positive and negative performance of the Index is limited.

³ Index Performance in changing economic environment, MSCI research April 2014

Index Construction⁴

Each day, the Index systematically assesses the current economic regime to determine asset weighting. If the regime stays constant, the Index rebalances monthly.

Allocate to up to 5 components

Asset Class	Components
Equity	– MSCI USA: large- and mid-cap U.S. equities
Treasuries	– Dynamic basket of 2yr, 5yr and 10yr rolling U.S. treasury rolling futures indexes
Currencies	– US Dollar based currency rolling futures index basket
Commodities	– Gold rolling futures index
	– Industrial metal rolling futures index



**Step 1:
Identify economic regime**

- QuantCube looks at alternative data sources with the goal of mapping in real-time how an economy evolves.
- Each day, the model outputs a current estimate of U.S. GDP and U.S. inflation.
- These nowcast numbers are used to identify which one of four regimes the economy is currently in.
- The index rebalances monthly. Each day, the index assesses the current economic regime. If the regime changes, the index rebalances asset weighting.



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**Step 2:
Allocate to “optimal”
asset mix**

- After identifying the current regime, the Index matches the current regime to the same regime from different time periods starting in 2000. This historical data is used to determine index weight allocation across asset classes with the goal of maximizing risk-adjusted returns.
- As the Index accumulates live history, more and more live observations are added to the algorithm. New time periods are more heavily weighted to account for market shifts.



2



**Step 3:
Target 8% Volatility**

- The Index targets 8% annualized volatility by rebalancing between the components and cash daily.
- When the index realized volatility is below the target, the Index can systematically apply leverage, up to 250%, with the goal of capturing gains.
- When the index realized volatility is above the target, the Index can systematically allocate to cash, up to 100%, with the goal of mitigating drawdowns.

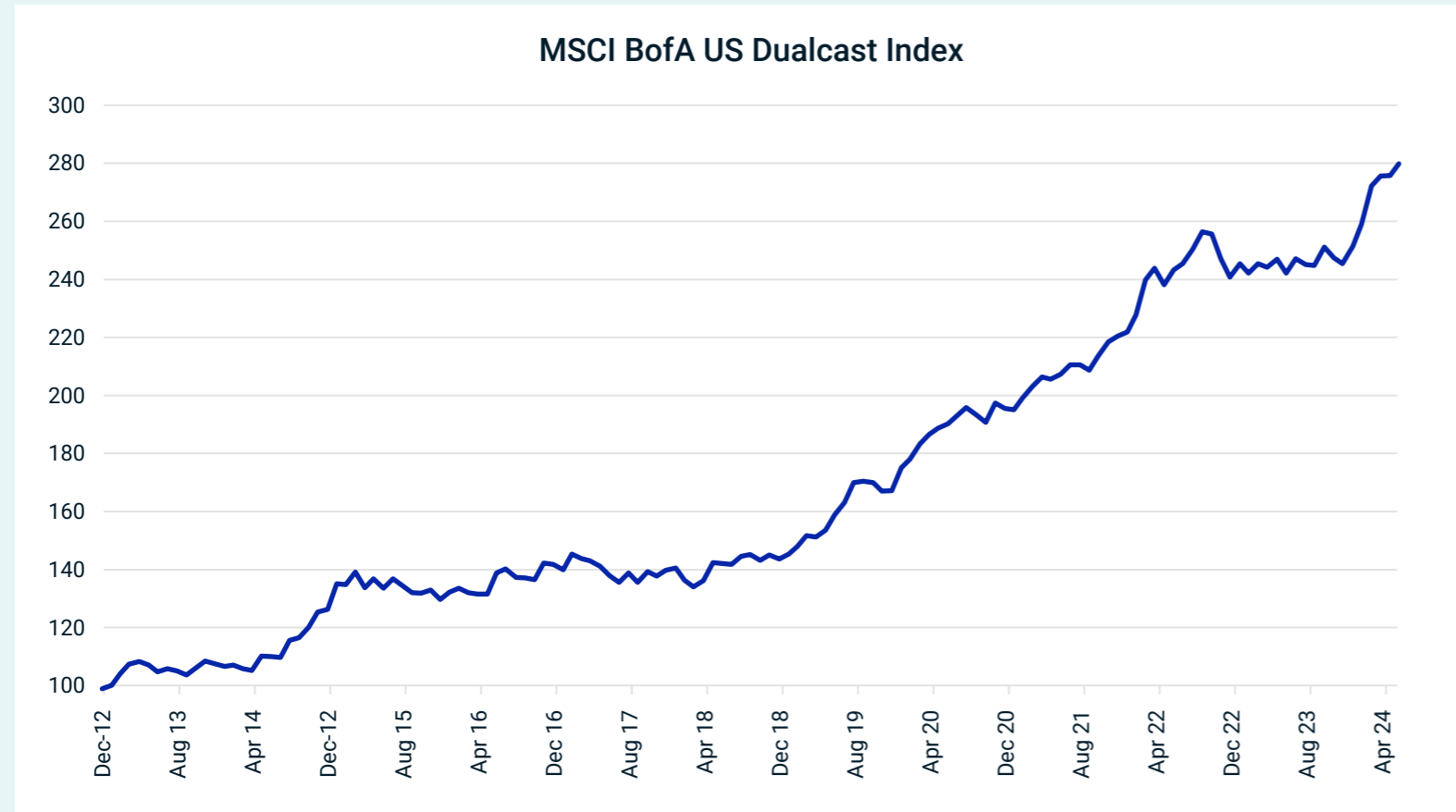


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⁴ The index is an excess return index, cash allocation is not interest bearing. The performance of the Index includes a 50bps p. a. embedded cost, as well as turnover and financing costs, and does not include fees or costs of any financial instrument referencing the Index. Because this Index applies a volatility control mechanism, the range of both positive and negative performance of the Index is limited.

Performance

Hypothetical back-tested performance chart



Hypothetical back-tested annual returns

Year	MSCI BofA US Dualcast Index
2024 YTD*	13.97%
2023	1.94%
2022	9.19%
2021	12.69%
2020	16.92%
2019	16.29%
2018	2.76%
2017	-1.38%
2016	9.19%
2015	2.68%
2014	17.27%
2013	8.71%

*Year to date return till June 28, 2024.

Source: MSCI. Data from 12/3/2012 to 06/28/24. The Index was created on June 28, 2024. Levels for the Index before June 28, 2024, represent hypothetical data determined by retroactive application of a back-tested model, itself designed with the benefit of hindsight. Past performance - whether actual, backtested or simulated - is not indicative of future performance. Actual performance will vary, perhaps materially, from the performance set forth herein. The Index performance represents excess return. The performance of the Index includes a 50bps embedded cost and does not include fees or costs of any financial instrument referencing the Index. Because this Index applies a volatility control mechanism, the range of both positive and negative performance of the Index is limited.



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