Inflation Tracker – July 18, 2023

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Highlights

• After a notably soft CPI print in May under the surface, June delivered a soft print however you slice it.
• Out a few decimal points, that downside surprise printed 0.180% and core was even softer at 0.158%.
• No surprise that the YoY prints also surprised to the downside as a result with core falling to 4.829% while headline fell to 2.969%.
  • That’s right – a 2% handle on headline inflation.

• Looking at the details of the most recent CPI print:
  • Food prices remain benign (Slide 20).
  • Energy prices remain tame as utility costs continue to fall – more support for real incomes (Slide 21).
  • Household furnishings remain in deflation and apparel prices remain calm.
  • Used cars fell only modestly after a few months of strong advances while the deflation pipeline continues to grow based on wholesale auction prices (Slide 18).
  • New car prices fell as well as production continues to ramp.
  • Shelter continued its rapid decline (Slide 51).
  • And airfare and rental cars each saw large declines.

• That progress is set to continue over the next few months as shelter continues to decelerate, core goods cool as new and used car prices fall, and supercore services moderates further (Slide 15).
  o Expect a July hike but progress on the inflation front into the fall makes another hike in September suspect (Slide 94).
  o Another 25 may not be completely off the table, but it would be unlikely to arrive before November if at all.
Measures and Components
## Actual vs Target

### US Personal Consumption Expenditures vs Consumer Price Inflation (7/29/11–6/30/23)

**Federal Reserve Bank of Cleveland: Inflation Nowcasting**

<table>
<thead>
<tr>
<th>Month</th>
<th>CPI</th>
<th>Core CPI</th>
<th>PCE</th>
<th>Core PCE</th>
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<td>0.21</td>
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<td>Jul-23</td>
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<td>7/14/2023</td>
</tr>
</tbody>
</table>

Source: Portfolio Analysis & Consulting, FactSet. Federal Reserve Bank of Cleveland.
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Inflation Monitor

Trends in Inflation (7/29/11–6/30/23)

Source: Portfolio Analysis & Consulting. FactSet. Median CPI is the Federal Reserve Bank of Cleveland’s Median Consumer Price Index that looks at the median price change of the CPI prices. Trimmed Mean CPI is the Federal Reserve Bank of Cleveland’s 16% Trimmed Mean Consumer Price Index which excludes 8% of the CPI components with the highest and lowest one-month price changes. The Trimmed Mean PCE inflation rate produced by the Federal Reserve Bank of Dallas is an alternative measure of core inflation in the price index for personal consumption expenditures (PCE). The individual price changes are sorted in ascending order from “fell the most” to “rose the most,” and a certain fraction of the most extreme observations at both ends of the spectrum are thrown out or trimmed. The inflation rate is then calculated as a weighted average of the remaining components. Sticky Price CPI is the Federal Reserve Bank of Atlanta’s Sticky-Price Consumer Price Index which sorts the components of the CPI into either flexible sticky (slow to change) categories based on the frequency of their price adjustments. Core CPI is the Bureau of Labor Statistics Core Consumer Price Index which measures the CPI excluding energy and food prices. Core PCE is the Bureau of Economic Analysis Personal Consumption Expenditures Index which excludes energy and food prices.
Source: Portfolio Analysis & Consulting. FactSet. The Trimmed Mean PCE inflation rate produced by the Federal Reserve Bank of Dallas is an alternative measure of core inflation in the price index for personal consumption expenditures (PCE). The individual price changes are sorted in ascending order from “fell the most” to “rose the most,” and a certain fraction of the most extreme observations at both ends of the spectrum are thrown out or trimmed. The inflation rate is then calculated as a weighted average of the remaining components.
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Inflation Momentum: Cleveland Trimmed Mean

Cleveland Trimmed Mean CPI Inflation (12/31/12–5/31/23)

Source: Portfolio Analysis & Consulting. FactSet. Trimmed Mean CPI is the Federal Reserve Bank of Cleveland’s 16% Trimmed Mean Consumer Price Index which excludes 8% of the CPI components with the highest and lowest one month price changes.
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Inflation Surprises

Citi’s Inflation Surprise Index (7/31/08–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Sticky vs Flexible Inflation

Cleveland Fed’s Sticky vs Flexible Inflation (12/31/00–6/30/23)

Source: Portfolio Analysis & Consulting. FactSet. Sticky-price goods are defined as price changes for a particular CPI component that occur less often, on average, than every 4.3 months. Goods that change prices more frequently than this are labeled “flexible-price” goods. About 70 percent of the headline CPI is composed of sticky-price goods and 30 percent of flexible-price goods. About half of the flexible-price CPI comprises food and energy goods, the remainder being largely autos, apparel, and lodging away from home. The sticky-price CPI includes many service-based categories, including medical services, education, and personal care services, as well as most of the housing categories which, by construction, change only infrequently.
Source: Portfolio Analysis & Consulting, Bloomberg. Procyclical inflation exhibits a relationship with overall economic conditions where prices move in tandem with the economic cycle. Those categories where inflation has been Acyclical are those where prices are driven by category-specific developments that are independent of the state of the overall economy. Categories exhibiting a procyclical relationship make up 42% of the PCE and include housing, recreational services, food services, and some nondurable goods. The acyclical categories, which make up the remaining 58%, include health-care services, financial services, clothing, transportation, and some other smaller categories.
COVID Sensitive Inputs

COVID Sensitive and Insensitive Contributions to Inflation (1/31/16–5/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg. COVID-sensitive components include those categories where either prices or quantities moved in a statistically significant manner at the onset of the pandemic, between February and April 2020. COVID-insensitive components include all other core PCE categories.
COVID Sensitive Inputs

COVID Sensitive and Insensitive Contributions to Inflation (1/31/16–5/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Demand-sensitive categories are those categories where quantity and price changed in the same direction between February and April 2020, both at a statistically significant level. Supply-sensitive categories are those in which quantity and price changed in opposite directions, both at a statistically significant level. The ambiguous category includes those sensitive goods or services that experienced a statistically significant change in either quantity or price, but not a statistically significant change in both quantity and price.
Services Related Inflation: The Key Risk

Contributions to Core Services Consumer Price Inflation (12/31/18–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Supercore Services is Consumer Service Inflation less Energy Services less Rent of Primary Residence less Owners’ Equivalent Rent.
Supercore Service Consumer Price Back to Pre-COVID Levels

Supercore Services: Contribution To Consumer Price Inflation (12/31/17–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Supercore Services is Consumer Service Inflation less Energy Services less Rent of Primary Residence less Owners’ Equivalent Rent.
Powell’s Checklist: Moving in the Right Direction

Supercore Services Consumer Price Inflation vs Core Goods (12/31/17–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Supercore Services is Consumer Service Inflation less Energy Services less Rent of Primary Residence less Owners’ Equivalent Rent.
Services Inflation Moving in Right Direction

Core Goods vs Supercore Services: Consumer Price Inflation (12/31/17–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Supercore Services is Consumer Service Inflation less Energy Services less Rent of Primary Residence less Owners’ Equivalent Rent. Core Goods is Consumer Price Inflation less food and commodities.
CPI Inflation Tends To Run Higher Than PCE Inflation

Core Inflation: CPI vs PCE (7/31/15–5/31/23)

Weights:
- CPI is based on what people say they are buying (survey).
- PCE is based on what they actually buy (actual sales).
- Weights vary as a result and rental inflation is the outlier.

Scope:
- CPI covers out-of-pocket expenses but excludes payments made on behalf of consumers.
- PCE covers these payments. i.e., PCE includes medical care payments paid by employers and public insurance programs.

Formula:
- CPI uses a fixed basket of goods and services.
- PCE tries to account for substitution effect. If the price of something goes up, people buy less. PCE basket will update accordingly.

Used Car Prices: From Headwind to Tailwind

Manheim Used Vehicle Index vs Used Cars and Trucks CPI (12/31/15–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Inventory Build Starting to Weigh on Core Goods Prices

Inventory to Sales Ratio: General Merchandise Stores vs Core CPI ex Used Cars and Trucks (7/31/17–4/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Grocery Bills Dropping: Fueling Disposable Income

Select Food Price Inflation (7/31/11–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Energy Bills Dropping: Helping to Increase Disposable Income

Consumer Price Inflation: Energy (11/30/16–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Agriculture Prices Rolling Over

Agriculture Prices vs Consumer Price Inflation: Food at Home (7/31/16–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Projected Monthly CPI Using Inflation Swaps

Consumer Price Inflation: Actual and Implied (1/31/22–12/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg. As of 7/17/23.
Headline Inflation Expected to Approach 2% by Early-2024

Implied Consumer Price Inflation vs Expected Rate Hikes (2/28/22–6/30/24)

Source: Portfolio Analysis & Consulting, Bloomberg. As of 7/17/23.
Leading Indicators For Inflation
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Underlying Inflation Pressures

New York Fed’s Underlying Inflation Gauge vs Median Consumer Price Inflation (12/31/95–4/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Underlying Inflation Pressures

New York Fed’s Underlying Inflation Gauge vs Headline Consumer Price Inflation (12/31/19–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Treasuries Lead Prices Paid

ISM Manufacturing Prices Paid vs Change in Treasury Yield (6/30/10–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Prices Paid Leads Headline CPI

ISM Manufacturing and Services Prices Paid vs Consumer Price Inflation (7/31/03–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Prices Paid Leads Headline CPI

Regional ISM Manufacturing Surveys: Prices Paid Component (7/31/19–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Freight Shipment Volumes Lead Inflation

Cass Freight Shipments Index vs Headline Inflation (7/31/03–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Small Businesses Have A Great Track Record Predicting Inflation

Small Business Price Plans Next 3 Months vs Consumer Price Inflation (7/31/03–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
US Inflationary Pressures

Empire Survey Subcomponents vs Core PCE Inflation (7/31/03–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.

Levels Increasing

Levels Decreasing

Ave of Prices Paid, Prices Received & Delivery Times

Core PCE YoY %

Empire Survey: Price Pressure Components (LHS)
Momentum and Base Effects
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Inflation Momentum

Core Consumer Prices Momentum vs Core Personal Consumption Expenditures (5/31/13–6/30/23)

Core PCE Momentum

Core CPI Momentum

Source: Portfolio Analysis & Consulting, FactSet.
When Will Inflation Surges Roll Off?

Contributions to Annual Core CPI by Month (6/30/18–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg. Buckets represent contribution to current YoY CPI from corresponding months showing how much and how long those monthly price gains will continue to factor into annual CPI prints.
Monthly Changes in Headline Inflation Are at Pre-COVID Levels

Headline CPI: Month on Month Change (12/31/17–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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Doesn’t Take Much to Get Us Back to Below 3% Inflation

Potential Headline CPI Trajectories (12/31/18–12/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Supply Chain Related Impacts
The Issue Is Composition of Consumption

Personal Consumption Expenditures: Goods vs Services (1/31/17–5/31/23)

Vehicle Related Inflation and Housing Drove: Drivers of Core Inflation

Contribution to Monthly Core CPI (7/31/18–6/30/23)

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Bottlenecking/Pent Up Demand Pressures

Contribution to Monthly Core CPI (7/31/18–6/30/23)

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**Bottlenecking/Pent Up Demand Pressures**

Contributions to Monthly Headline CPI (7/31/18–6/30/23)

How Pervasive Is Inflation?

Core CPI Less Transitory Issues: Month on Month Change (8/31/18–6/30/23)

What’s Driving Headline PCE Inflation

Supply and Demand Driven Contributions To Annualized Monthly Headline PCE Inflation (6/30/17–5/31/23)

Source: Portfolio Analysis & Consulting. Federal Reserve Bank of San Francisco. Demand-driven categories are identified as those where an unexpected change in price moves in the same direction as the change in quantity in a given month. Supply-driven categories are identified as those where unexpected changes in price and quantity move in opposite directions. This methodology accounts for the evolving impact of supply- versus demand-driven factors on inflation from month to month.
What’s Driving Core PCE Inflation

Supply and Demand Driven Contributions To Annualized Monthly Core PCE Inflation (6/30/17–5/31/23)

Source: Portfolio Analysis & Consulting. Federal Reserve Bank of San Francisco. Demand-driven categories are identified as those where an unexpected change in price moves in the same direction as the change in quantity in a given month. Supply-driven categories are identified as those where unexpected changes in price and quantity move in opposite directions. This methodology accounts for the evolving impact of supply- versus demand-driven factors on inflation from month to month.
What’s Driving Headline PCE Inflation Over the Past 12 Months

Supply and Demand Driven Contributions To Year Over Year Headline PCE Inflation (6/30/17–5/31/23)

Source: Portfolio Analysis & Consulting. Federal Reserve Bank of San Francisco. Demand-driven categories are identified as those where an unexpected change in price moves in the same direction as the change in quantity in a given month. Supply-driven categories are identified as those where unexpected changes in price and quantity move in opposite directions. This methodology accounts for the evolving impact of supply- versus demand-driven factors on inflation from month to month.
What’s Driving Core PCE Inflation Over the Past 12 Months

Supply and Demand Driven Contributions To Year Over Year Core PCE Inflation (6/30/17–5/31/23)

Source: Portfolio Analysis & Consulting. Federal Reserve Bank of San Francisco. Demand-driven categories are identified as those where an unexpected change in price moves in the same direction as the change in quantity in a given month. Supply-driven categories are identified as those where unexpected changes in price and quantity move in opposite directions. This methodology accounts for the evolving impact of supply- versus demand-driven factors on inflation from month to month.
Housing Impacts
Housing Market Pressures

Rent of Primary Residence and Owner’s Equivalent Rent (3/31/12–5/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Housing Market Pressures

Contribution of Housing to Monthly Core Consumer Price Inflation (1/31/19–6/30/23)

- Rent of Primary Residence
- Owners’ Equivalent Rent
- 2019 Average

Source: Portfolio Analysis & Consulting, Bloomberg.
The Household Formation Surge Is Over

Household Formation Rate (3/31/90–3/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Supply Is Coming in Apartments

New Privately Owned Housing Units: 5 Units or More (1/31/75–5/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Housing Costs Tend to Be A Function Of Workers’ Income

Worker Income vs Shelter Costs (12/31/00–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Housing Market Pressures

Home Price Increases vs Shelter Inflation (12/31/91–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Listed Housing Prices Are Dropping

Percentage Of Active Listings With A Price Drop

Apartment Rents Are Cooling

Annual Change in Median Rent (As of 6/30/23)

Source: Natixis IM Solutions. Apartment List.
Rental Prices: Slowing From a Blistering Pace

Monthly Change in Rents (1/31/18-6/30/23)

Wage Pressure
Wage Growth: Broad Softening

Wage Growth By Industry: Average Weekly Earnings Growth (1/31/22–6/30/23)

- Total Private
- Construction
- Education & Health Services
- Financial Activities
- Information
- Leisure & Hospitality
- Manufacturing
- Mining & Logging
- Other Services
- Professional & Business Services
- Retail Trade
- Transportation & Warehousing
- Utilities
- Wholesale Trade

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Pressures

Atlanta Fed’s Median Wage Growth (1/31/97–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Service Sector Wage Pressures Falling

Average Hourly Earnings: Service Sector (12/31/19–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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Small Businesses Not Hiking Pay

Small Business Compensation Index: Pay Hikes (6/30/18–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Pressures

Indeed.com Posted Wage Growth (3/31/19–5/31/23)

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Wage Pressures Are Easing And Job Market Is Cooling

Indeed.com Posted Wage Growth vs Job Switcher Wage Growth and Quit Rates (3/31/19–5/31/23)

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Labor Market Churn

Atlanta Fed’s Median Wage Growth: Job Switcher vs Stayer (6/30/13–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Job Switchers Are No Longer Commanding a Wage Premium vs Job Stayers

Job Switcher vs Stayer Premium (1/31/97–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Labor Market Churn

ADP Report: Median Year on Year Change in Annual Pay for Job Switcher vs Stayer (12/31/00–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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Quits Rate Points to Easing Labor Market Tightness

Nonfarm Quit Rate (12/31/17–5/31/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Pressures

Atlanta Fed’s Wage Growth By Skill Level (4/30/01–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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Wage Pressures

Atlanta Fed’s Wage Growth By Percentile (12/31/97–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Pressures

Atlanta Fed’s Wage Growth: Hourly vs Non Hourly Worker (12/31/97–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Pressures

Atlanta Fed’s Wage Growth By Age Cohort (12/31/97–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
The January Jobs Print Changed the Narrative

Nonfarm Payrolls (1/31/21–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Wage Growth Continues to Close in on Pre-COVID Trend

Average Hourly Earnings (1/31/21–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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Wage Momentum Still Elevated

Contribution to Aggregate Earnings Growth (3/31/07–6/30/23)

Source: Natixis IM Solutions. FactSet.
Continuing Claims Remain Benign: Laid Off Workers Are Finding Jobs

Initial Claims vs Continuing Claims (6/30/21–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Labor Supply Now Exceeds Labor Demand

Labor Demand vs Labor Supply (6/30/18–6/30/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Compensation Plans Have Peaked

National Federation of Individual Business Compensation Plans (6/30/18–6/30/23)

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Real Wages Not Keeping Up

Real Private Sector Wages (12/31/15–3/31/23)

Real Wages Not Keeping Up

Real Private Sector Wages (12/31/15–3/31/23)

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Real Wages Not Keeping Up

Real Private Sector Wages (12/31/15–3/31/23)

Who Spends What On Essentials

Essential Expenditures By Income Percentile

Market Based Perception
Consumers Expect Prices To Fall

University of Michigan Survey of Consumers: Good Time to Buy: Prices Won't Come Down (2/28/78–6/30/23)

Source: Natixis IM Solutions. Bloomberg
And Energy Prices To Moderate

University of Michigan Survey of Consumers: Expected Change in Gasoline Prices Next 5 Years (12/31/92–6/30/23)

Source: Natixis IM Solutions. Bloomberg
Small Business And Inflation

National Federation Of Independent Business Survey (7/31/13–6/30/23)

- Net % of Respondents
  - Planned Prices in Next 3 Months
  - Actual Prices
  - Inflation the Single Most Important Problem

Source: Natixis IM Solutions. Bloomberg
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Market Based Inflation Expectations

US Inflation Breakeven Curve (As of 7/14/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Evolution of Market Based Inflation Expectations

US Inflation Breakevens (7/15/21–7/14/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
Inflation Expectations

Food and Energy Prices vs University of Michigan Survey Inflation Expectations (2/29/12–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
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Inflation Expectations

University of Michigan Survey Median 5-Year Inflation Expectations (7/31/08–6/30/23)

Source: Portfolio Analysis & Consulting, FactSet.
Not All Surveys Are Made Equal

NY Fed Survey of Consumer Expectations (6/30/13–6/30/23)

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Inflation Expectations Are Rolling Over

University of Michigan: Inflation Expectations (6/30/13–6/30/23)

Implied Fed Rate Hikes

Implied Probability of Fed Rate Hikes (as of 7/14/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
The Fed’s Implied Terminal Rate

The Market’s Implied Federal Reserve Terminal Rate: SOFR Curve (12/31/14–7/14/23)

Source: Portfolio Analysis & Consulting, Bloomberg.
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