

# INFLATION, MONETARY POLICY, AND STAFF FORCAST



Monetary Division  
Research Department  
Bank of Israel

July 16, 2023

# Recent Developments

# Headline Inflation and Its Major Components

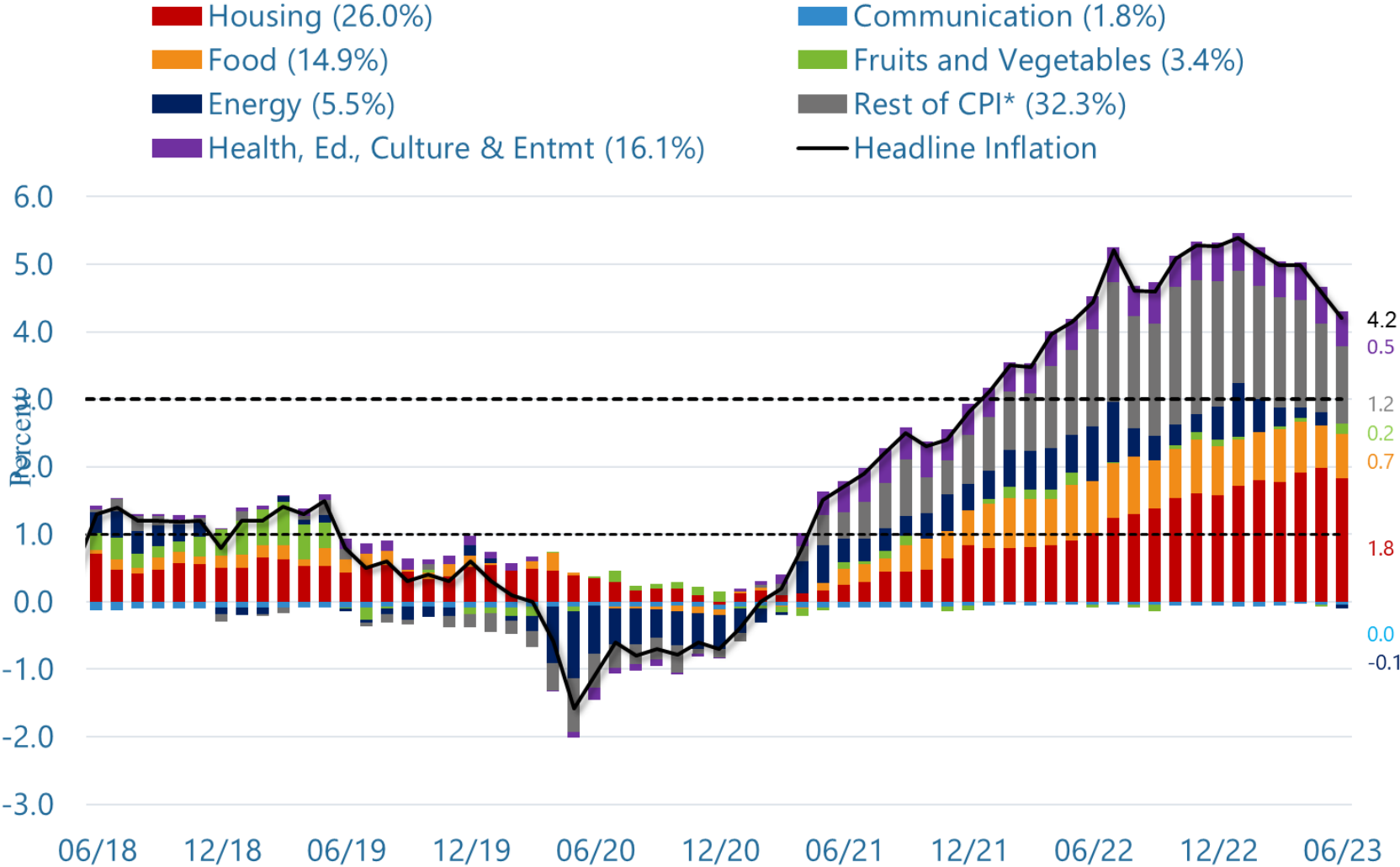
## Annual rates

	<b>CPI (1000)*</b>	<b>Energy (55)</b>	<b>Food (149)</b>	<b>Housing (260)</b>	<b>Excl. Housing (740)</b>
Mar-22	3.5	11.1	4.8	3.3	3.6
Jun-22	4.4	15.8	5.2	4.2	4.5
Sep-22	4.6	7.0	4.8	5.6	4.2
Dec-22	5.3	9.4	4.9	6.3	4.9
Mar-23	5.0	5.2	5.3	6.7	4.4
<b>Jun-23</b>	<b>4.2</b>	<b>-1.1</b>	<b>4.4</b>	<b>6.9</b>	<b>3.3</b>

\* In parenthesis: weight in headline CPI.

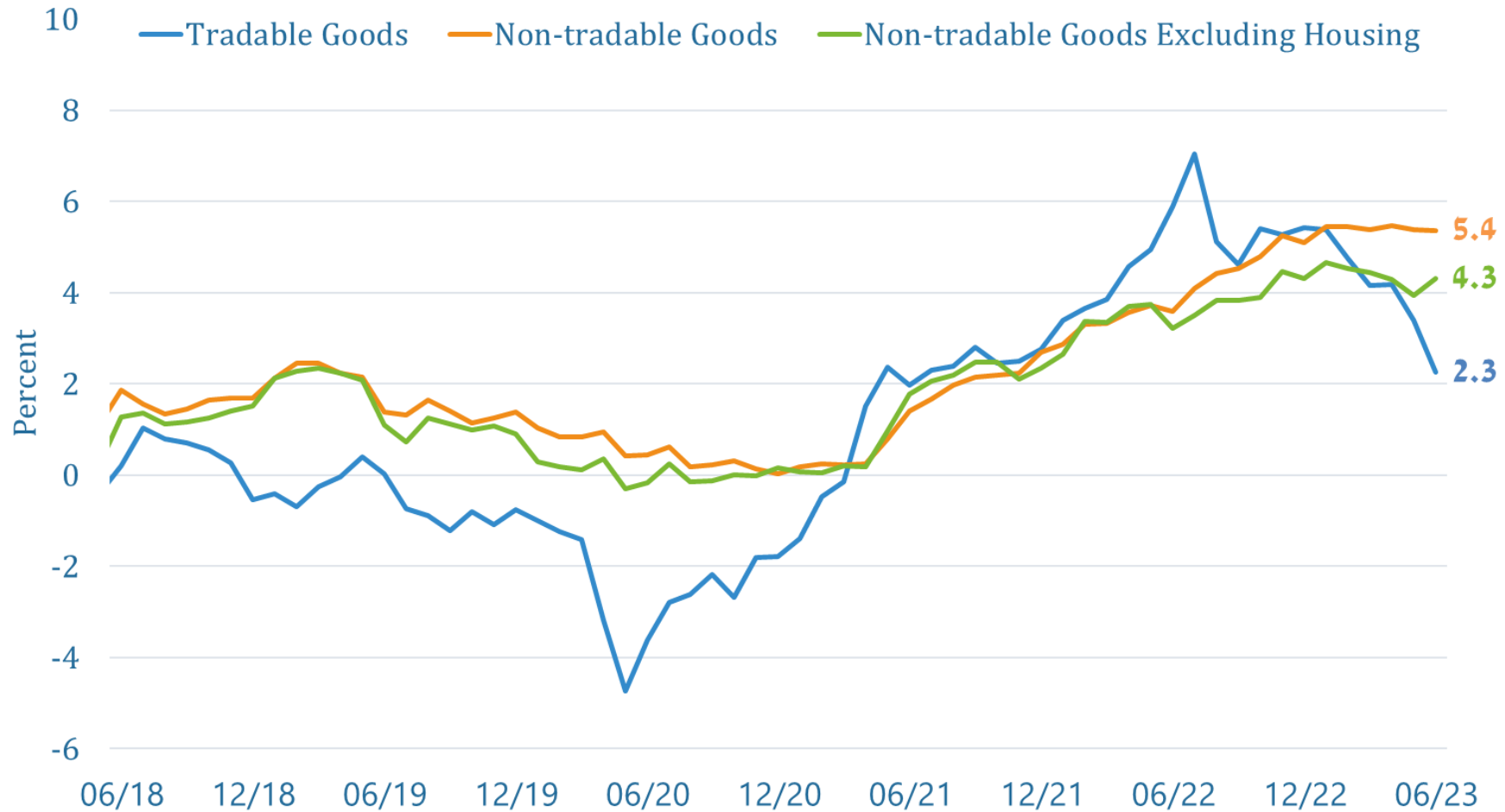
# Inflation Rate - Contributions

## Annual Rate, from June 2018 to June 2023



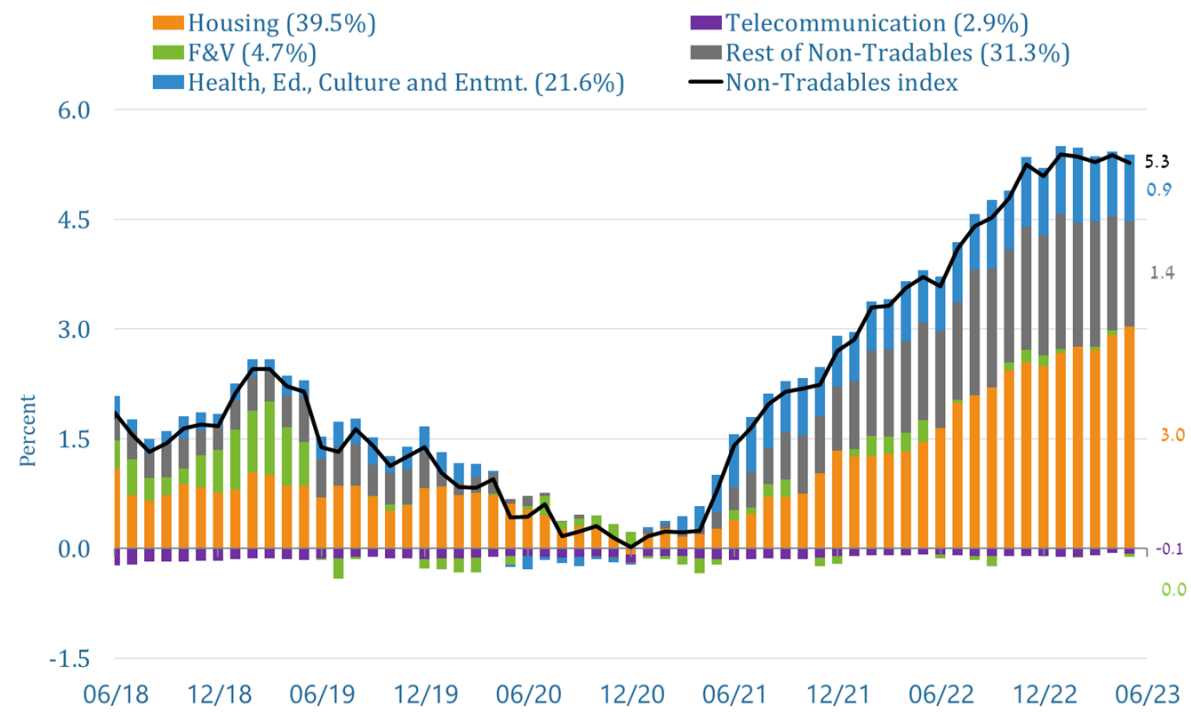
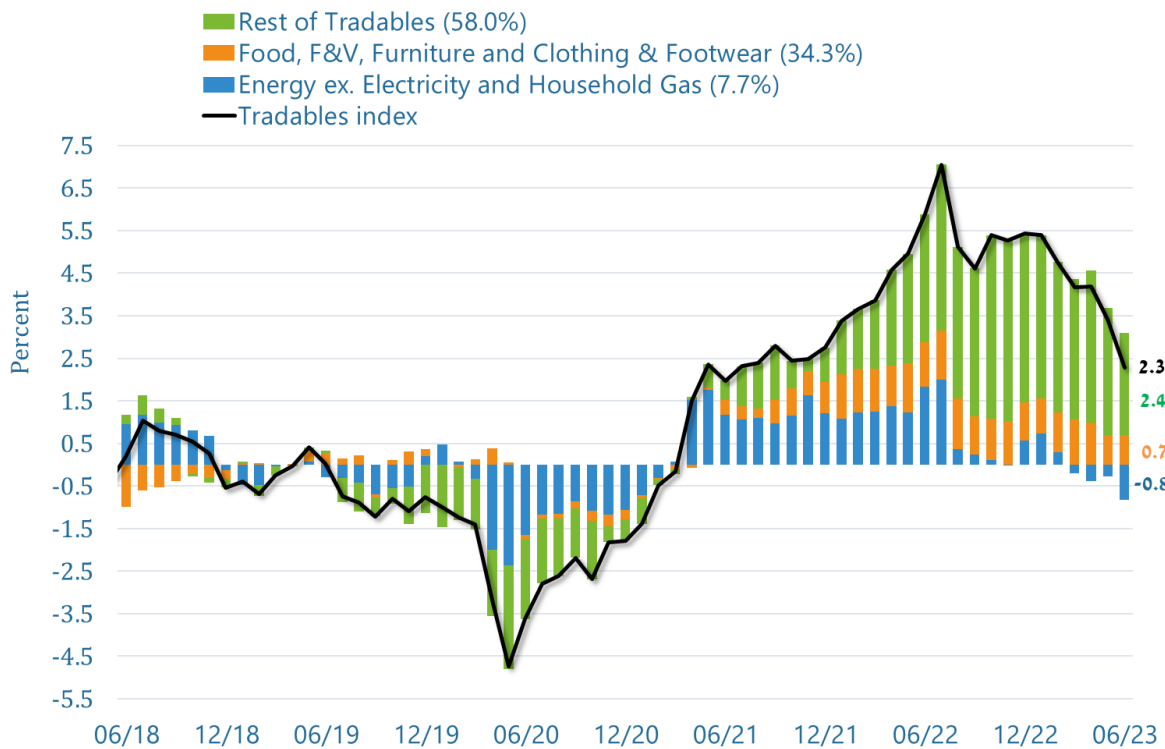
# Tradable, Non-Tradable, and Non-Tradable Goods Excl. Housing

Annual rate, from June 2018 to June 2023



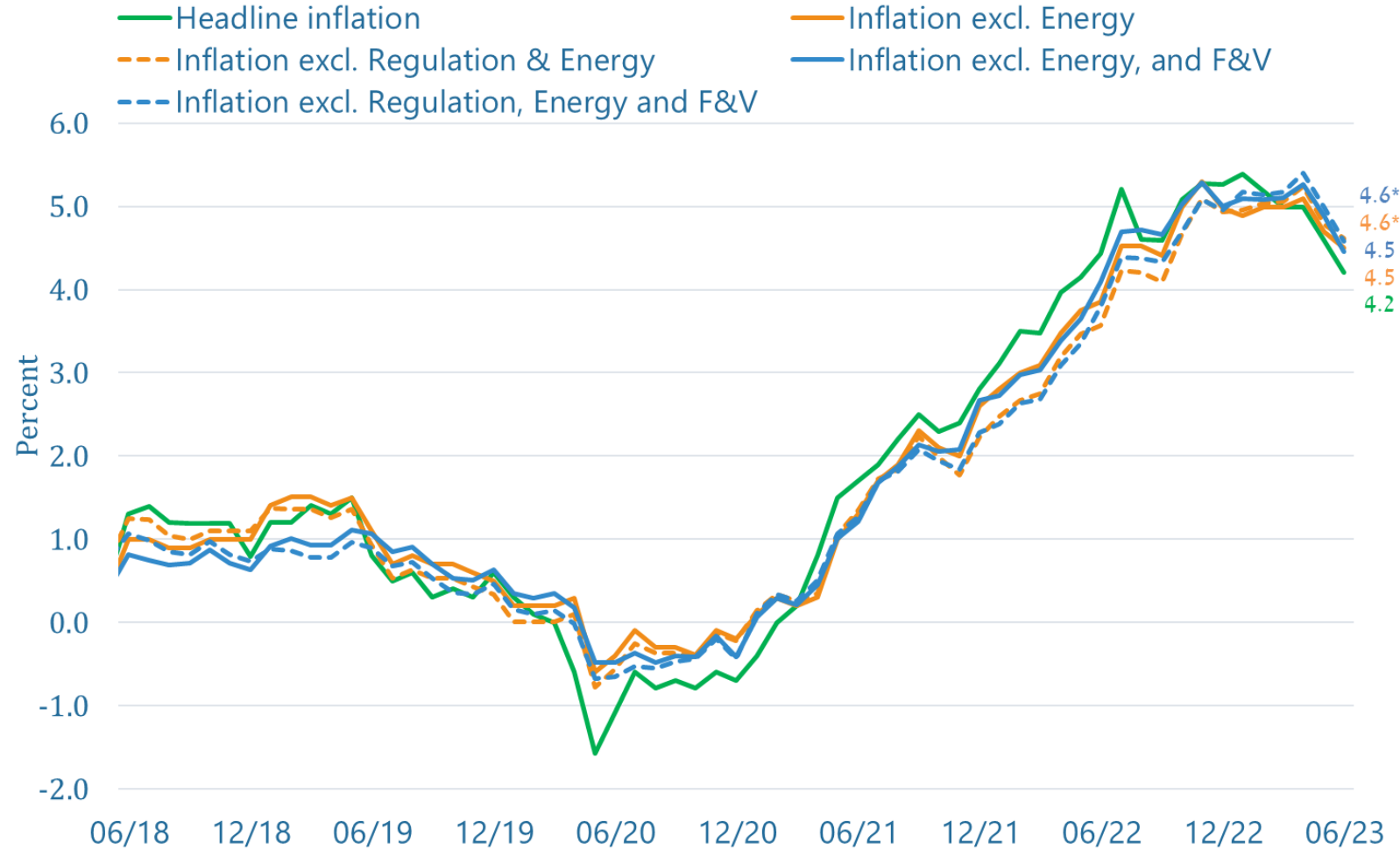
# Tradable Goods and Non-Tradable Goods Inflation: Contributions\*

## Annual Rate, June 2018 to June 2023



# Headline and Core Inflation

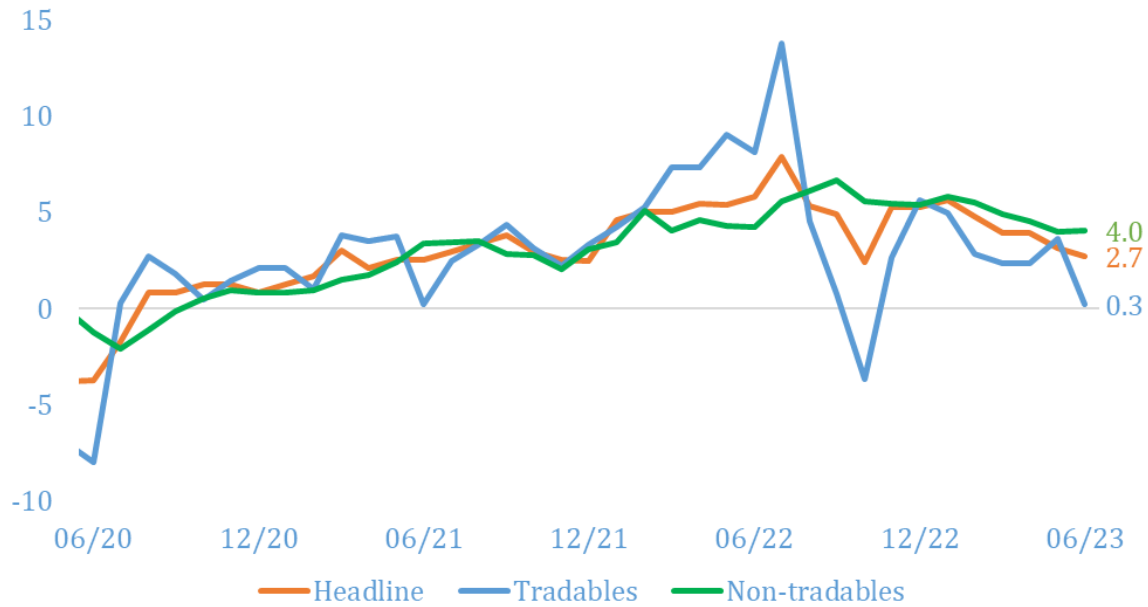
## June 2018 to June 2023



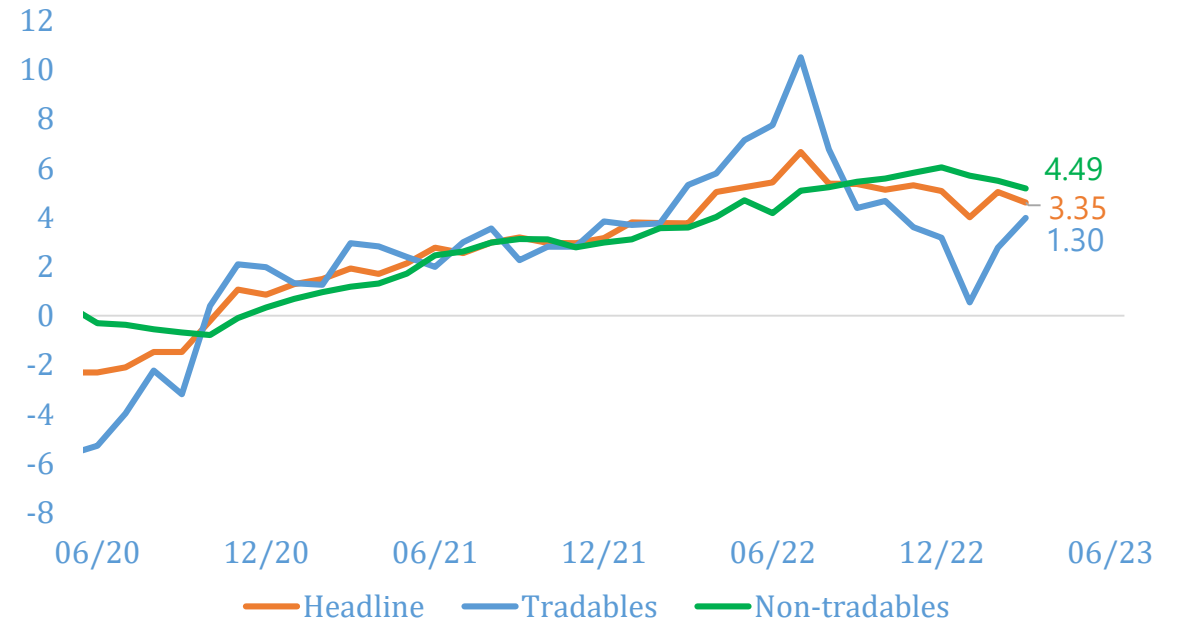
# Instantaneous Inflation

3 and 6 month Annualized Rate, from June 2020 to June 2023

### 3-month



### 6-month

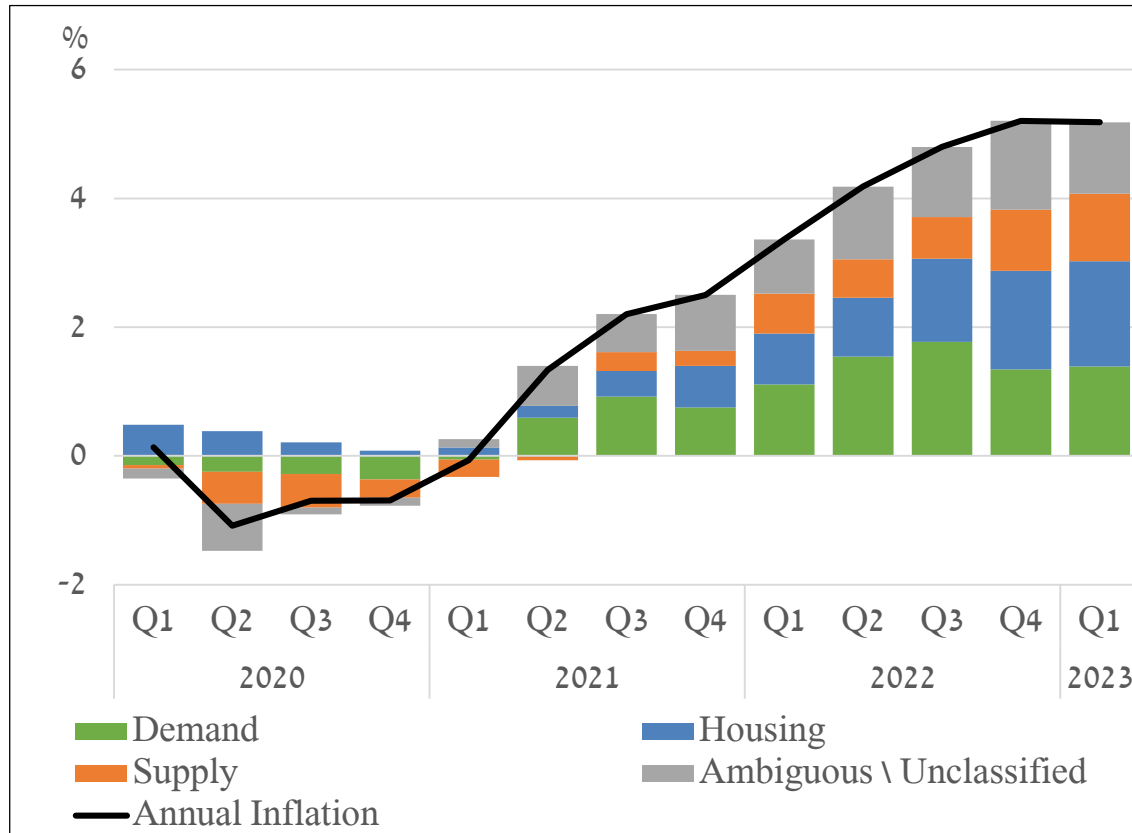




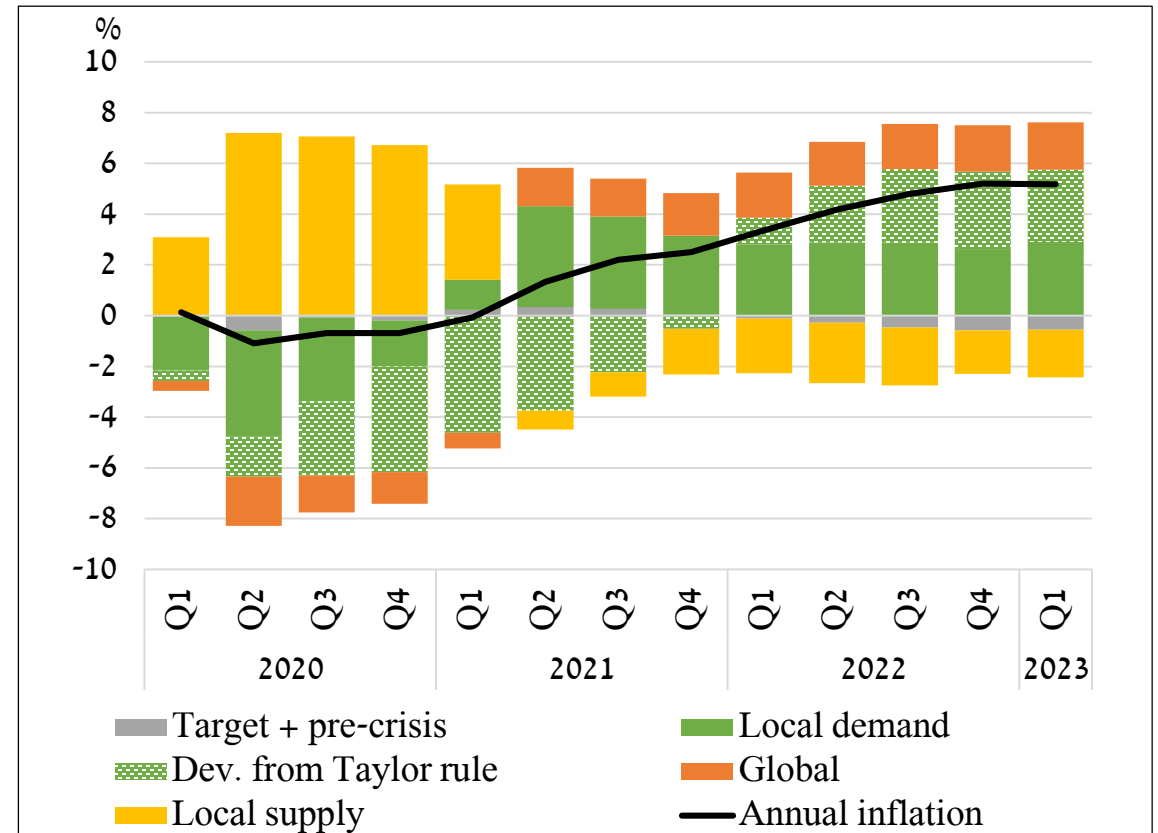
# Global Factors Initiated Inflation Rise, but in 2022 Local Demand Became More Dominant

Historical Decomposition of Year-over-Year Inflation (Q1 2019 - Q4 2022)

VAR on CPI Components\*



DSGE Model



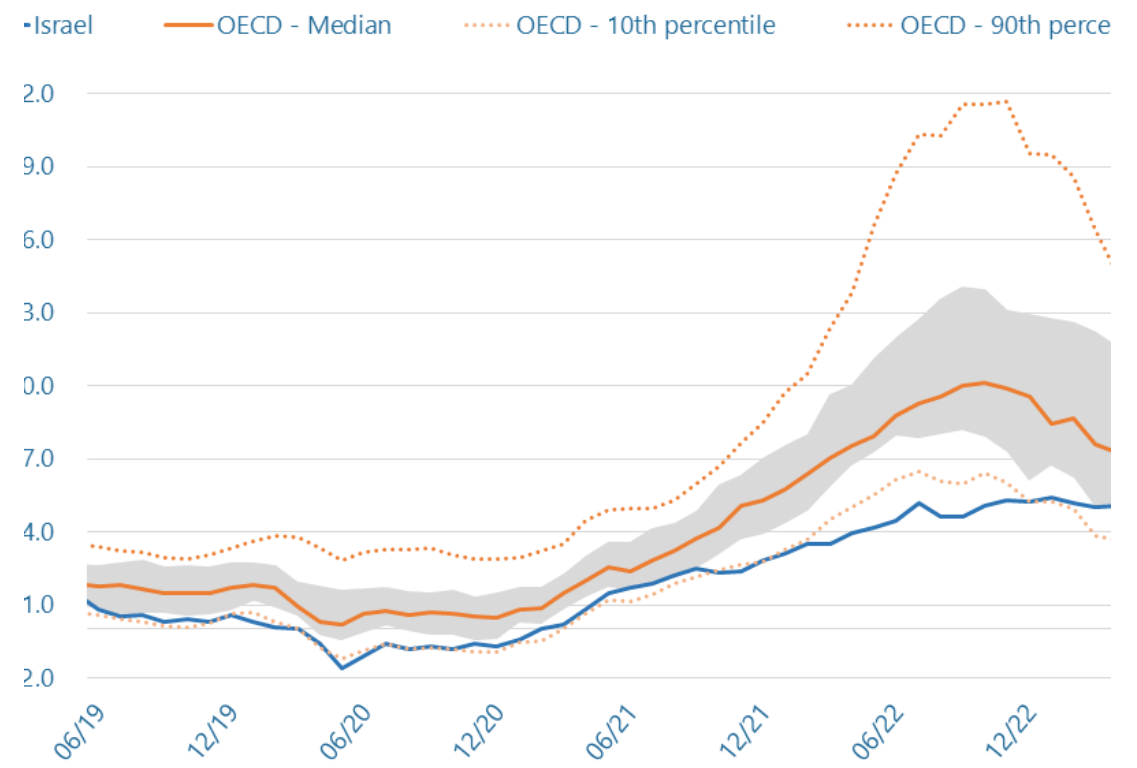
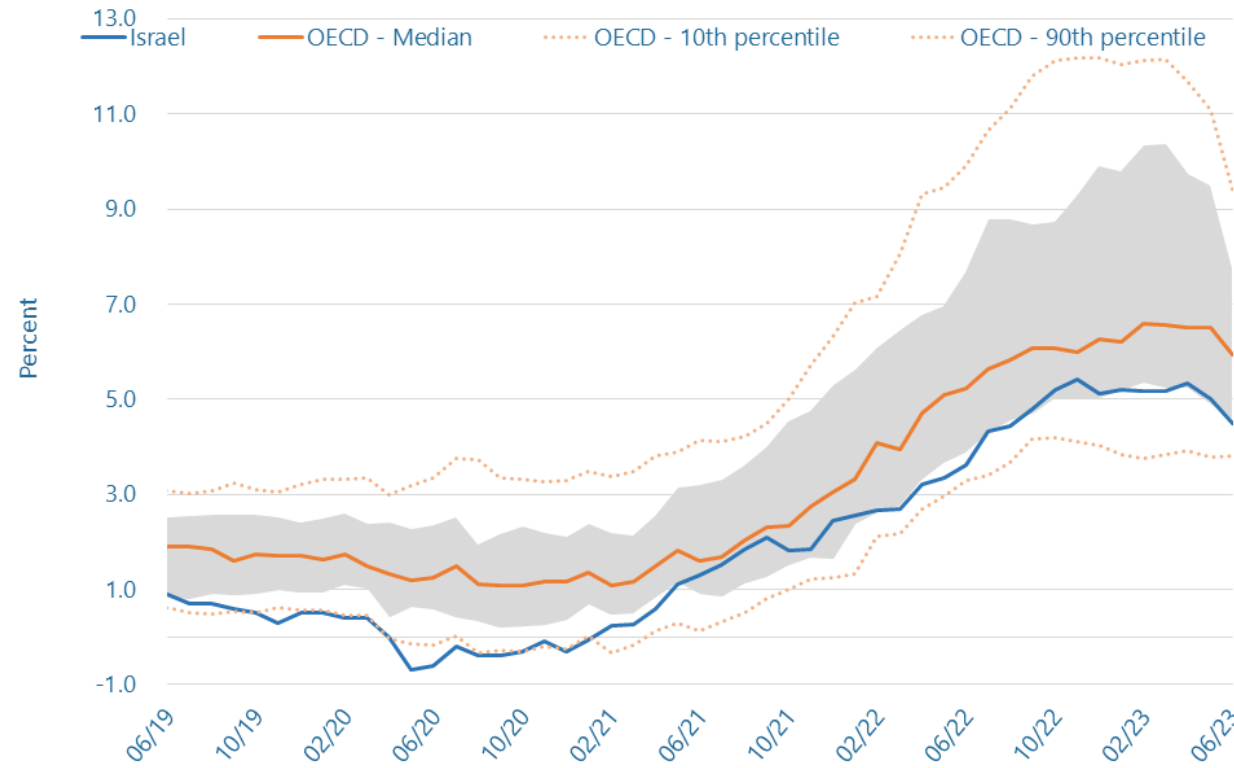
\*Based on Shapiro (2022)

# Inflation in Israel and OECD Countries

## Annual rate, June 2019 – June 2023

### Annual Inflation Non-Food Non-Energy

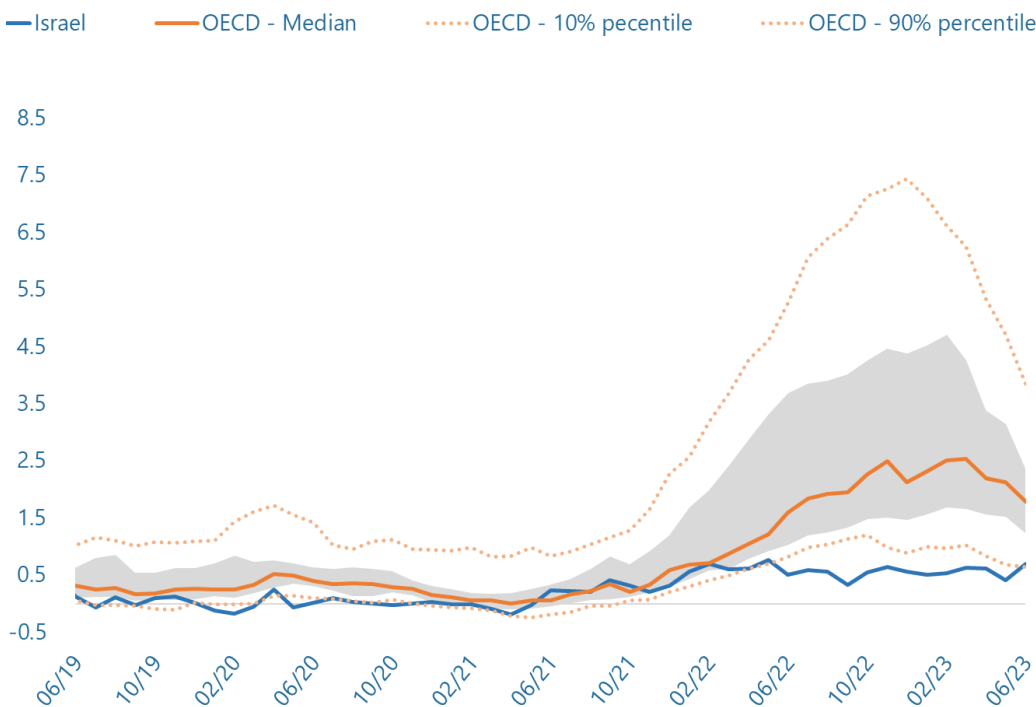
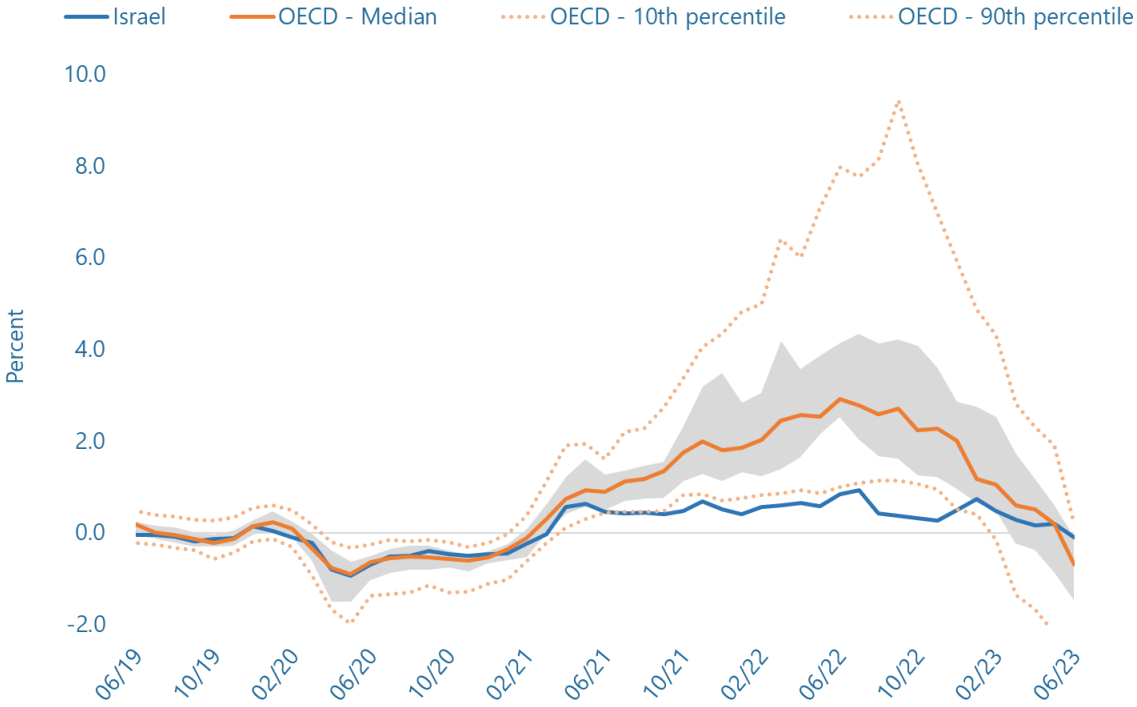
### Annual Inflation



# OECD Countries: Contribution of Food and Energy

## Contribution of Energy Component June 2019 – June 2023

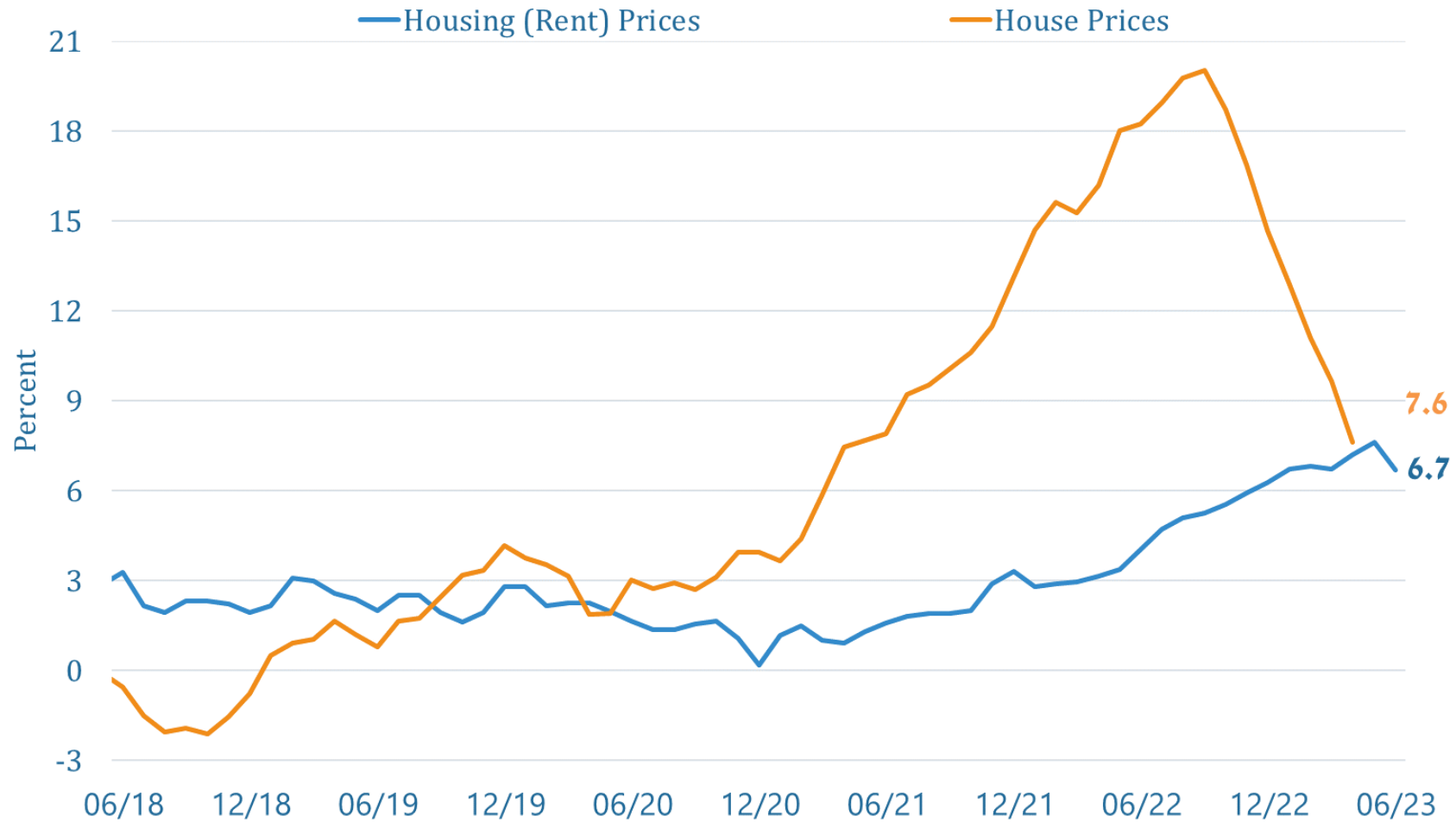
## Contribution of Food Component June 2019 – June 2023



**Notes:** The contributions are based on COICOP. The weight of the food component in Israel is 145.80 out of 1000. The weight of the Energy component in Israel is 51.23 out of 1000.

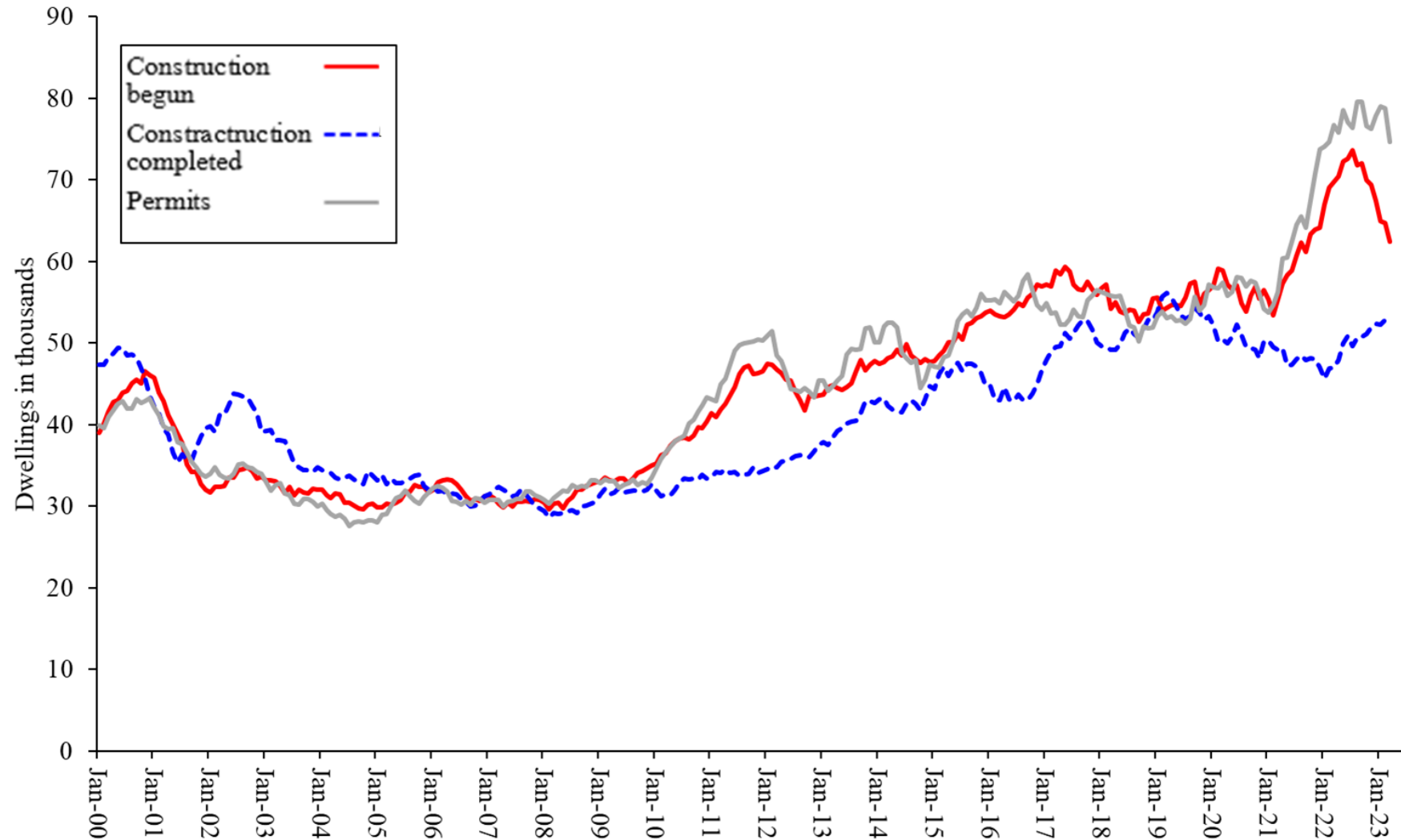
# House and Housing Prices

## Annual Rate, from June 2018 to June 2023



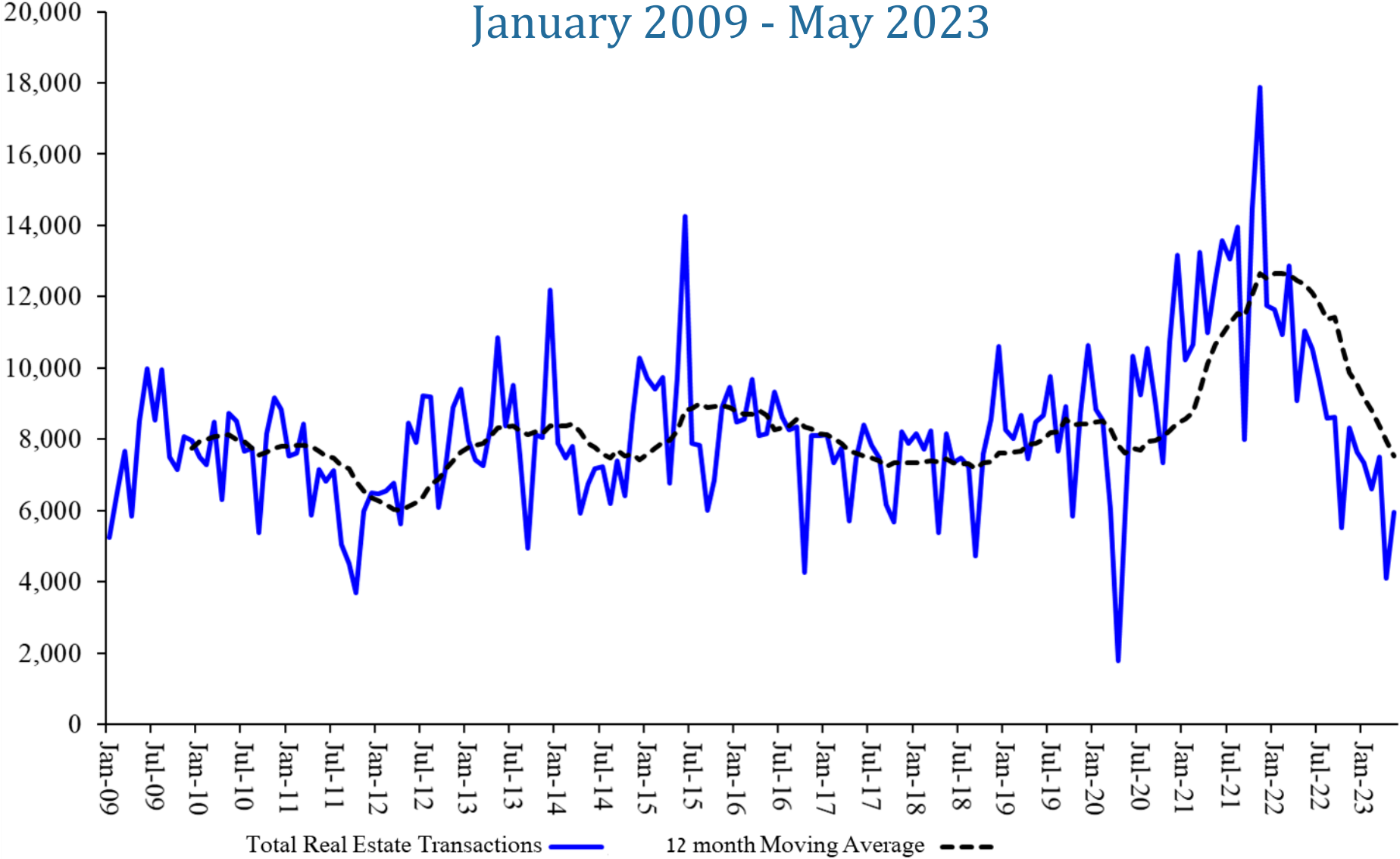
# Permits, Construction Begun and Construction Completed

Dwellings in thousands, January 2000 - March 2023



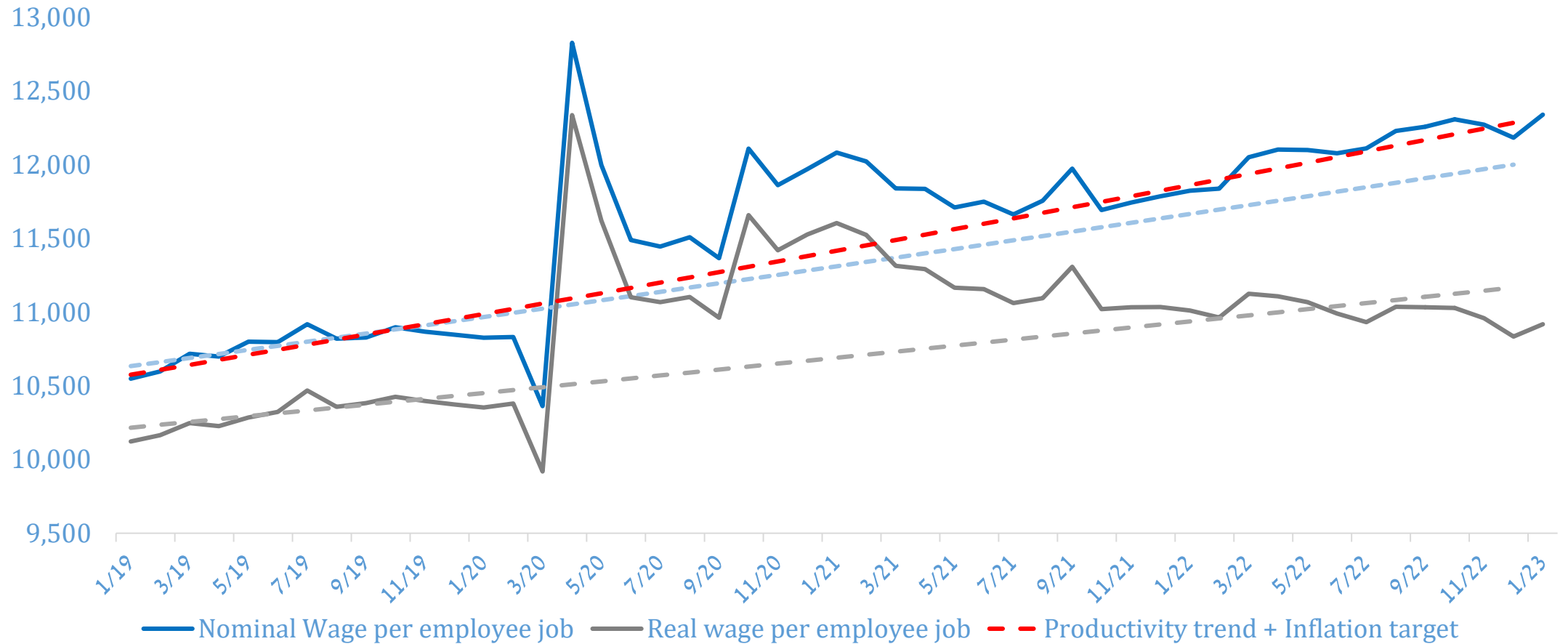
# Total Real Estate Transactions

## January 2009 - May 2023

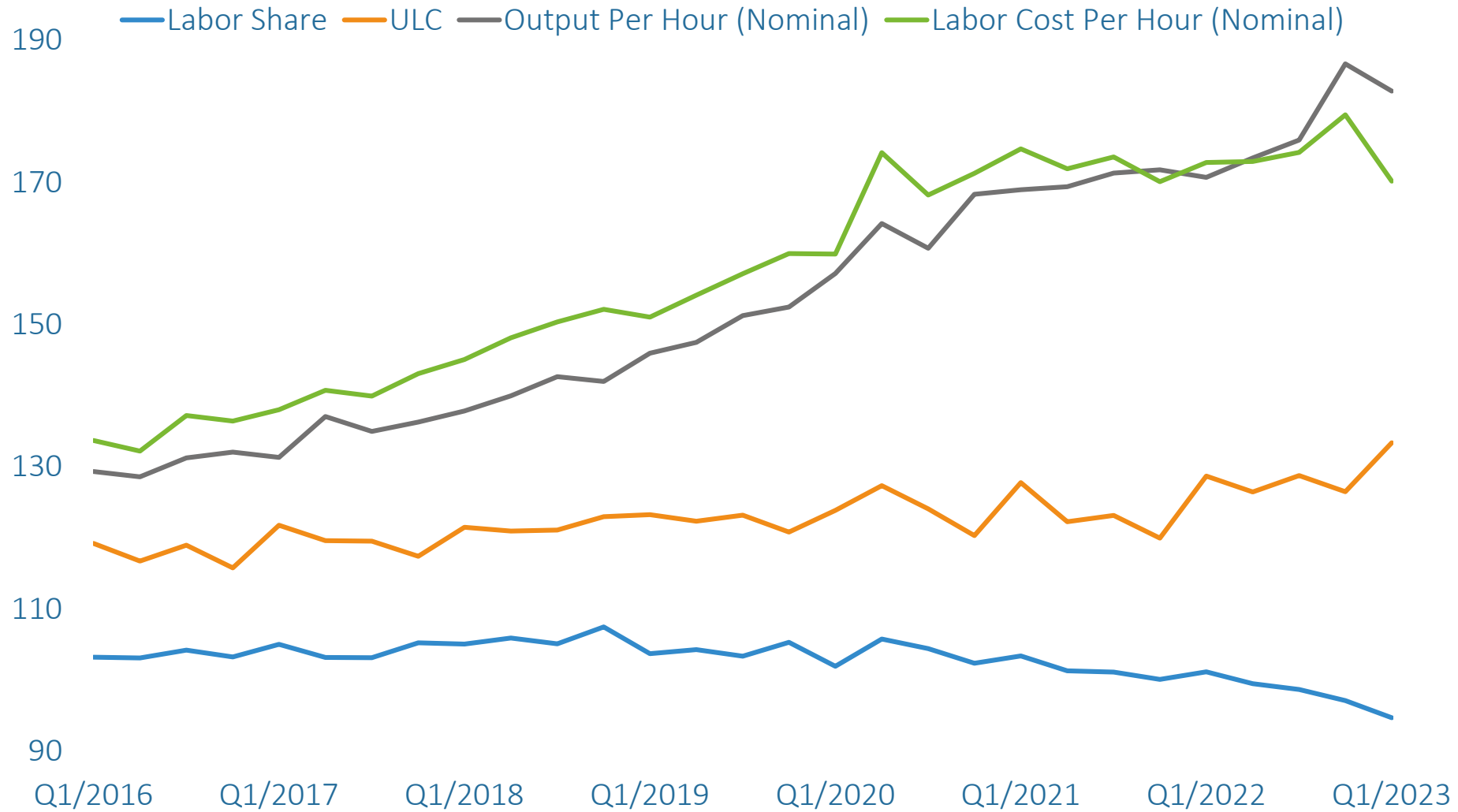


# Average Monthly Wages per Employee Job

## Seasonal Adjusted, Trends 2018-2019

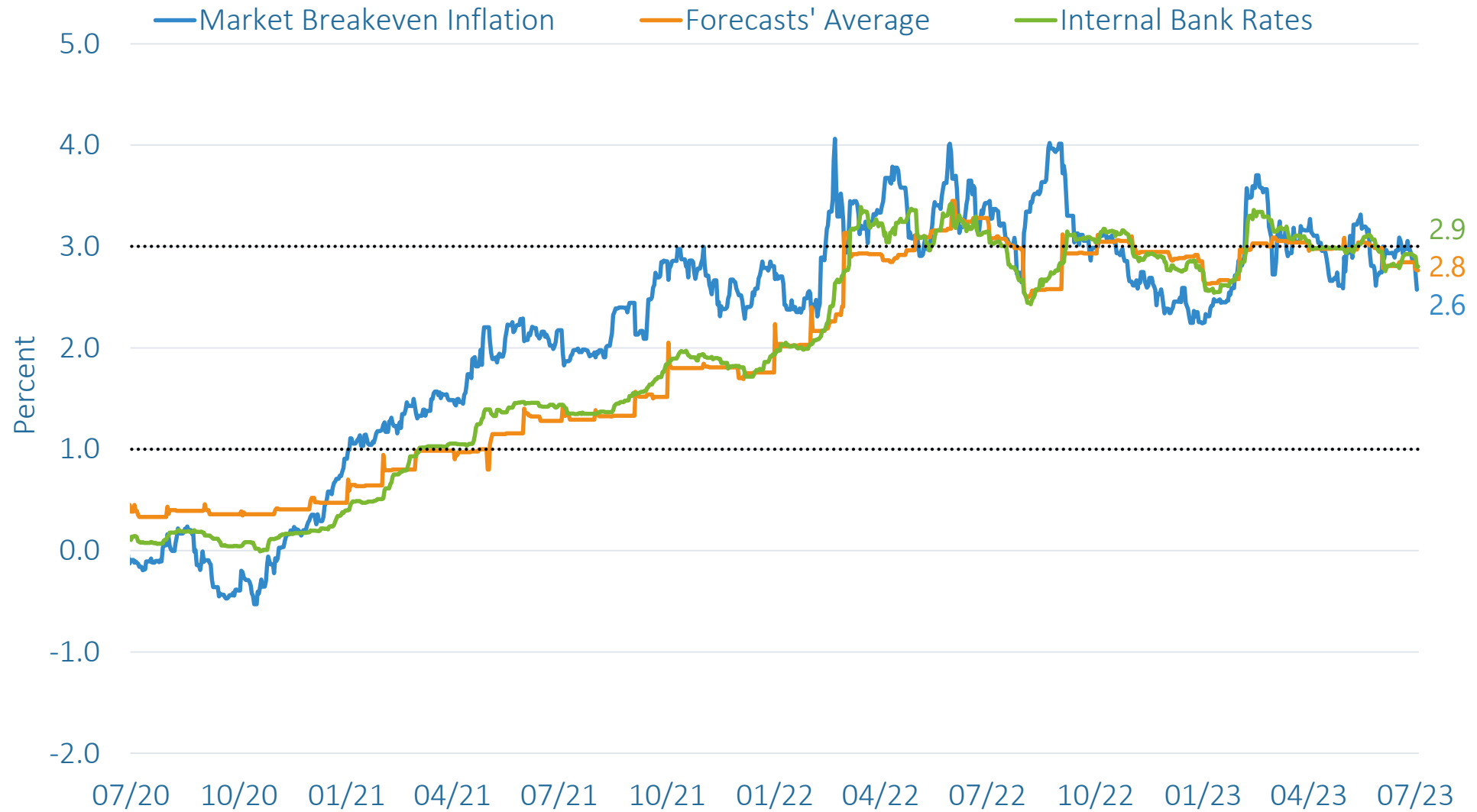


# Unit Labor Cost Index, 2016Q1 = 100



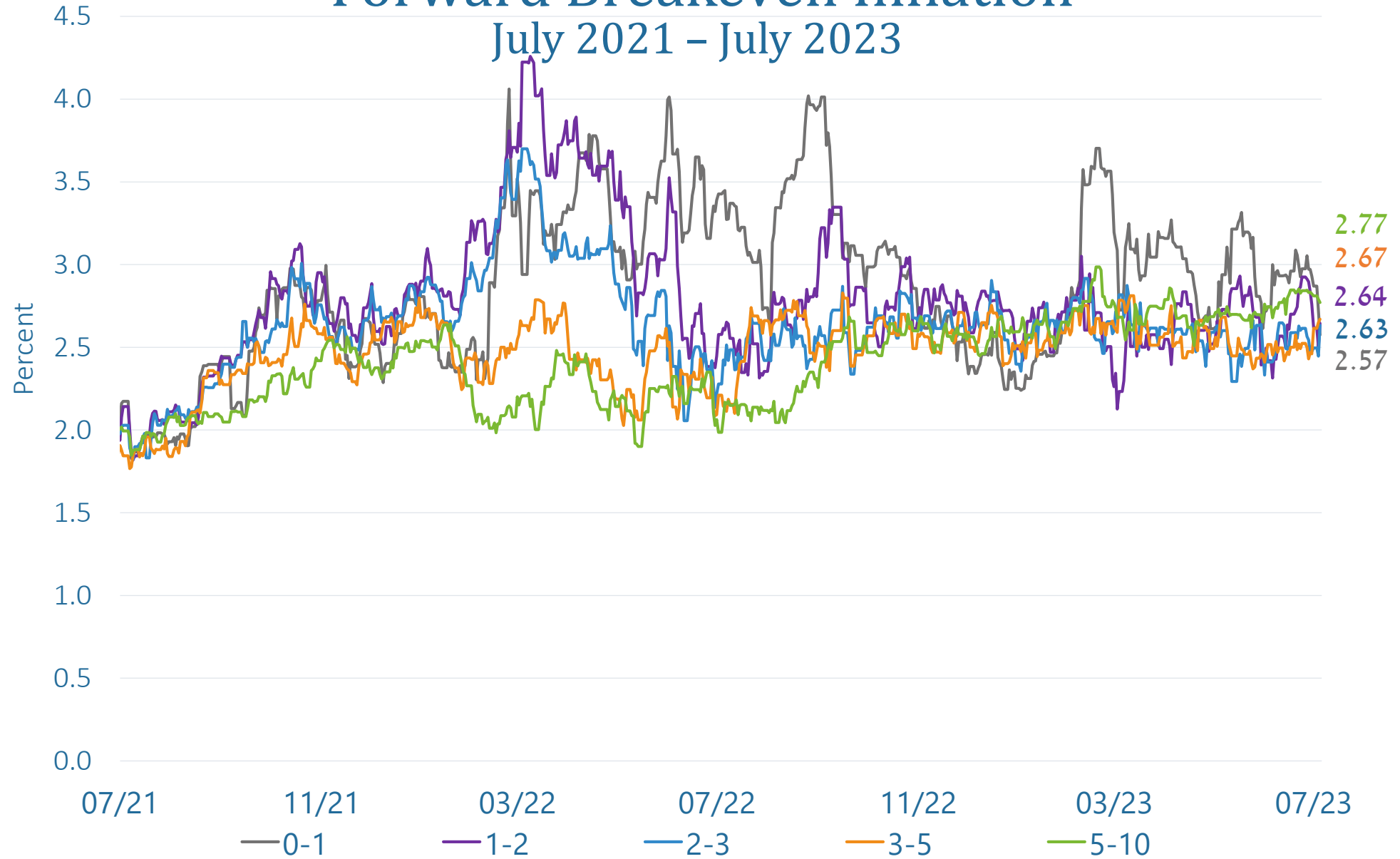


# One Year Inflation Expectations from July 2020 to July 2023



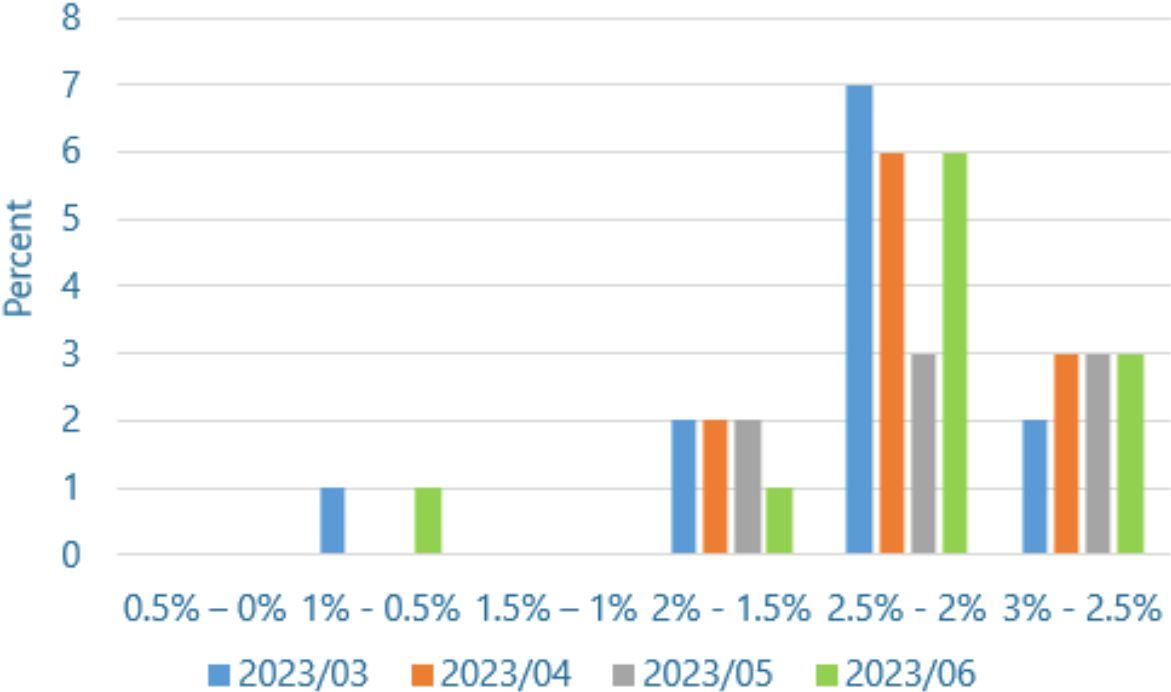
# Forward Breakeven Inflation

July 2021 – July 2023

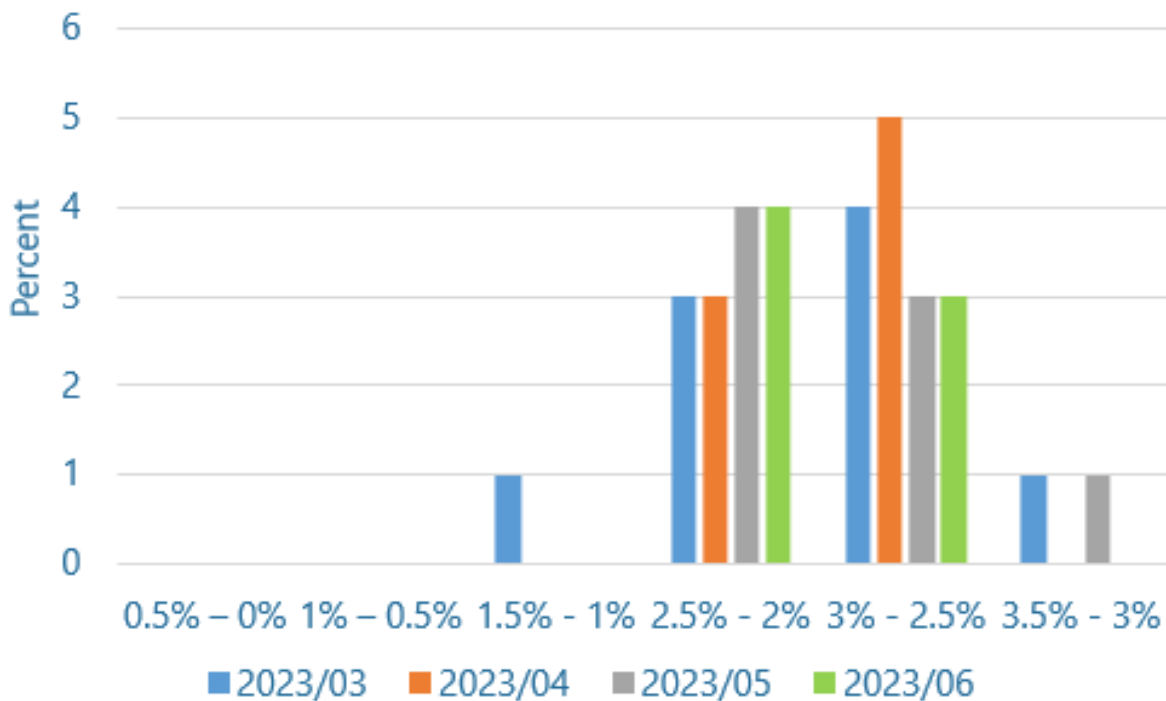


# Medium and Long Term Expectations - Professional Forecasters

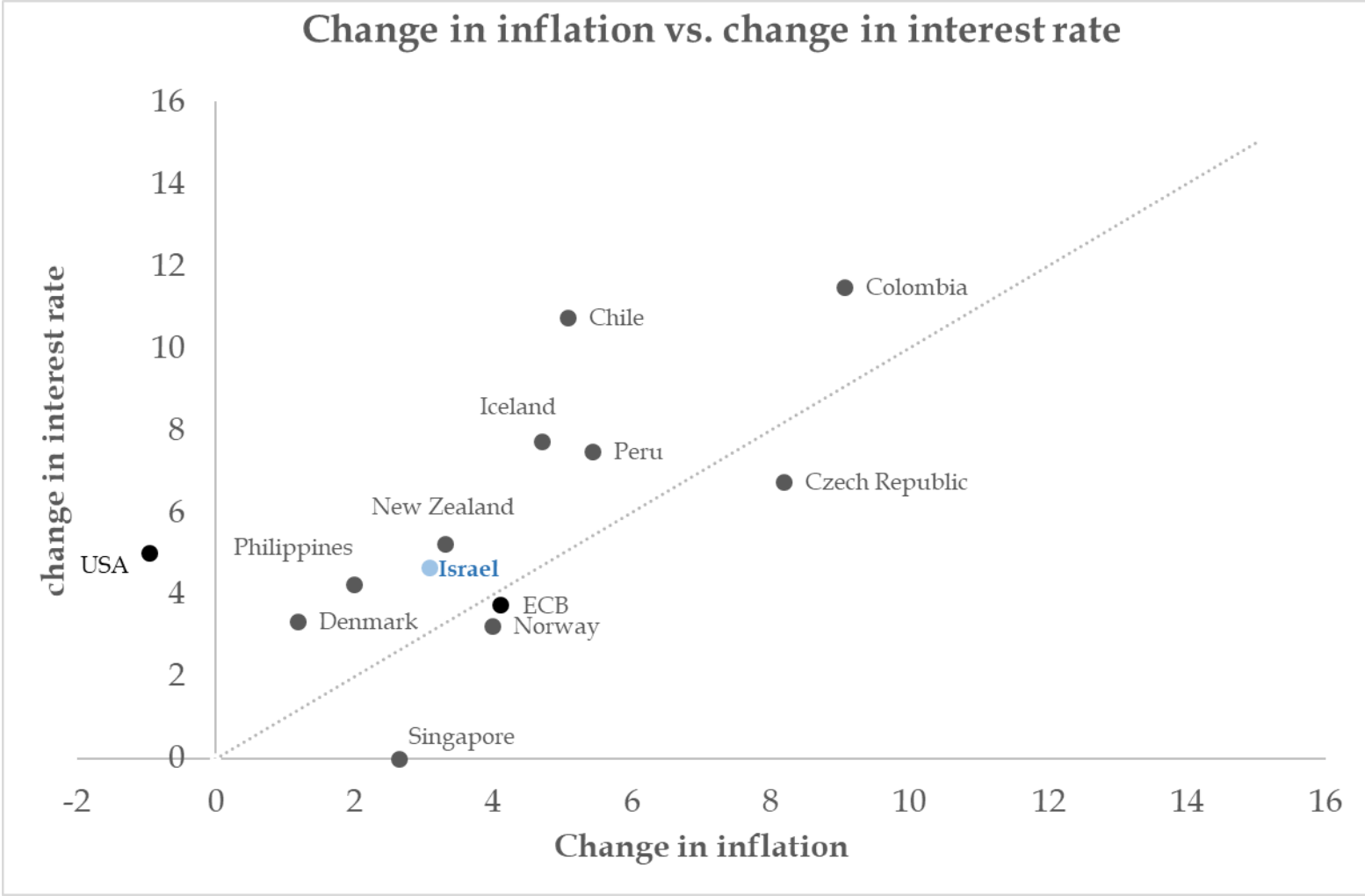
**5-Year Ahead Inflation**  
February 2023– April 2023



**2-Years Ahead Inflation**  
February 2023– April 2023

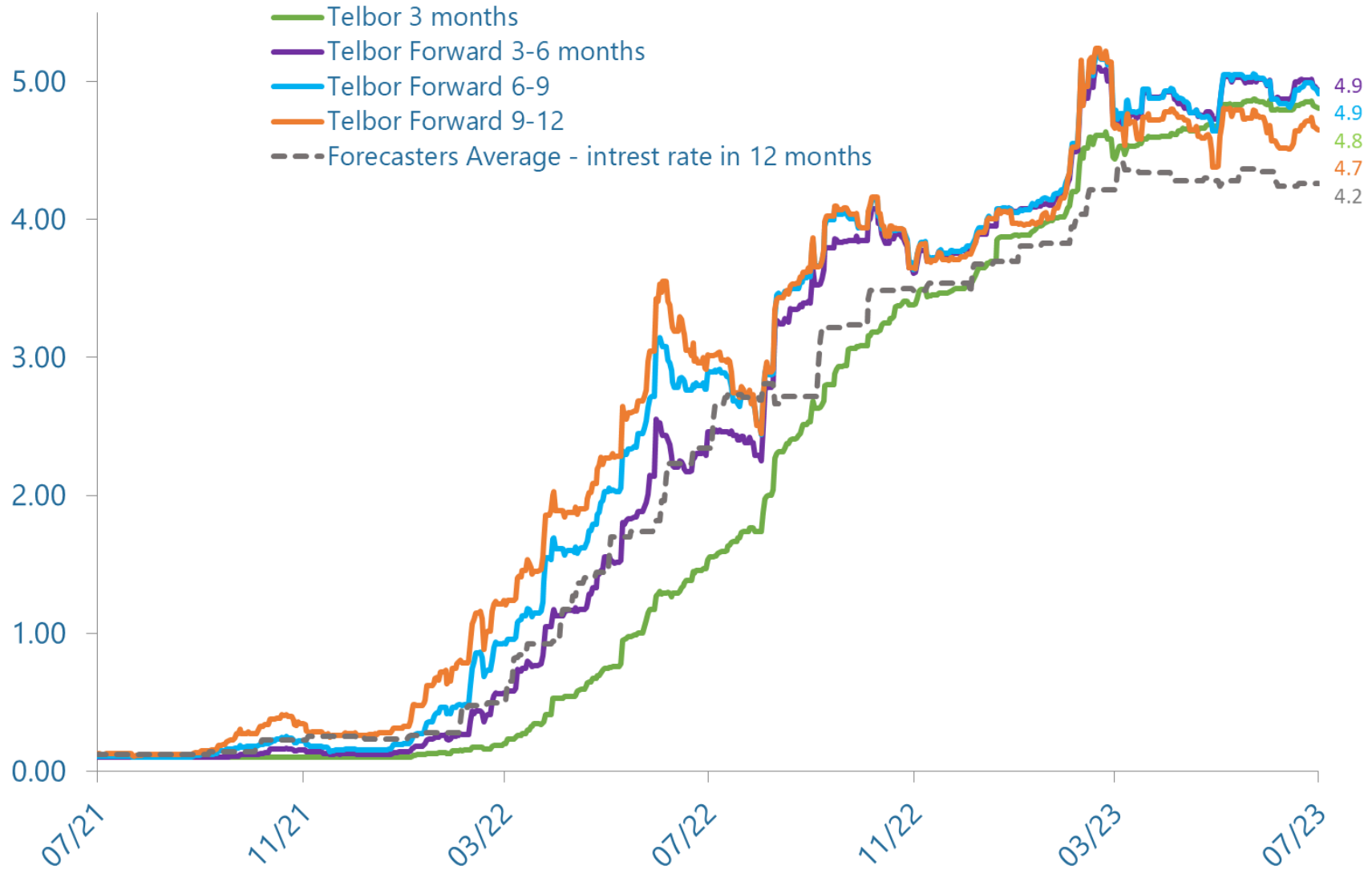


# Interest rate hikes exceeded the increase in the inflation rate (5/21-5/23)



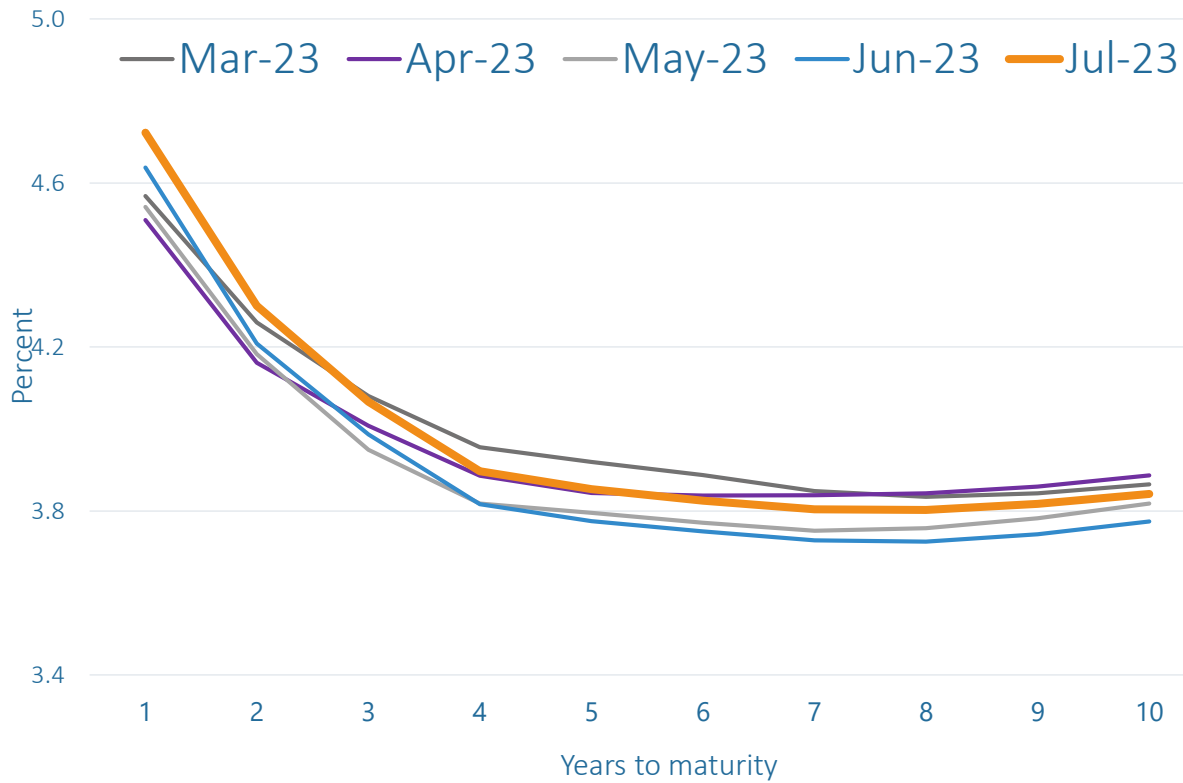
The Figure shows the change in inflation and interest rate between May 2021 and May 2023.

# Interest Rate Expectations July 2021 – July 2023

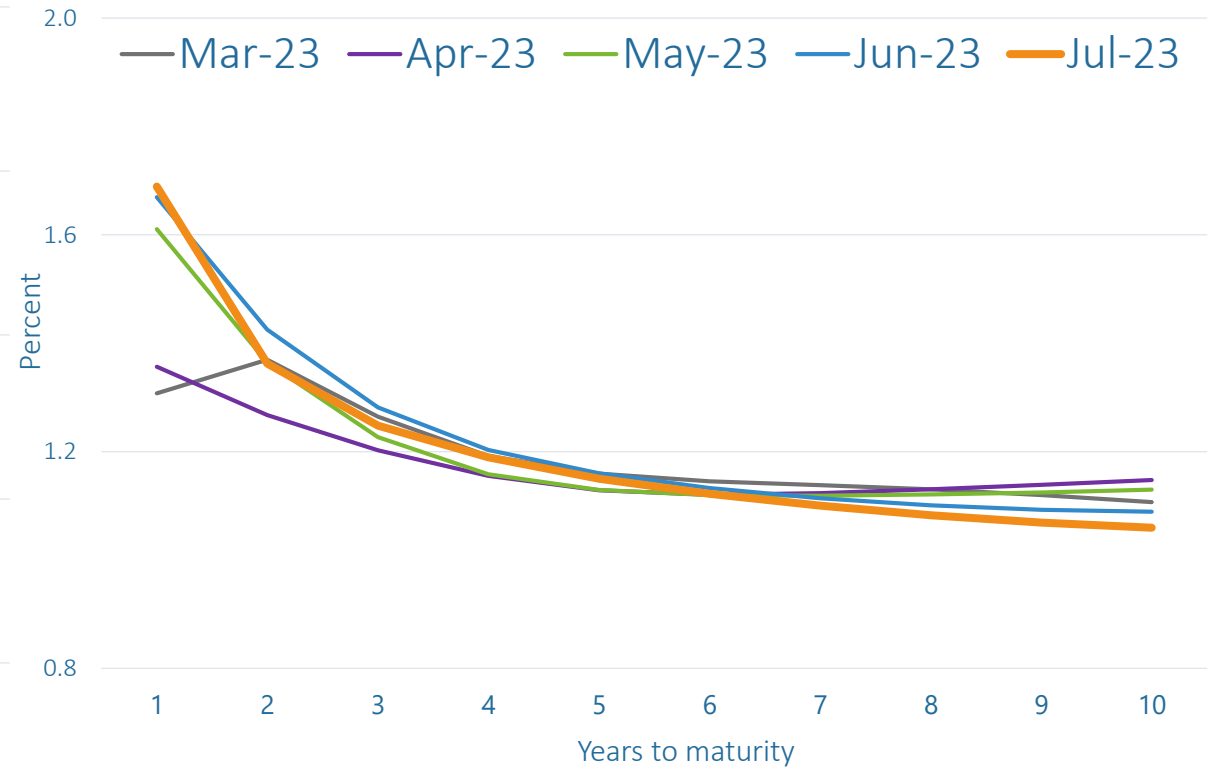


# The Yield Curve

## Nominal

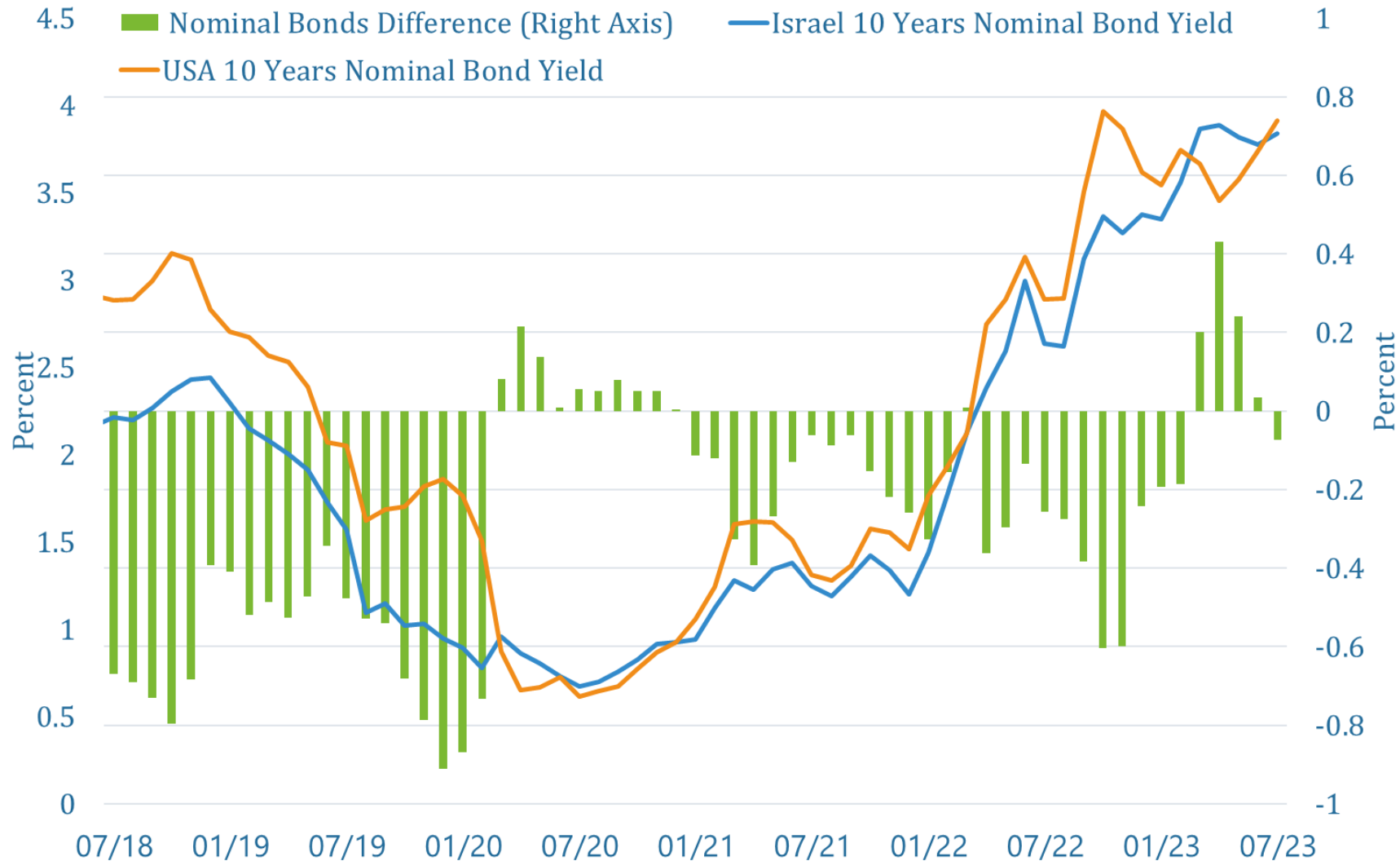


## Real



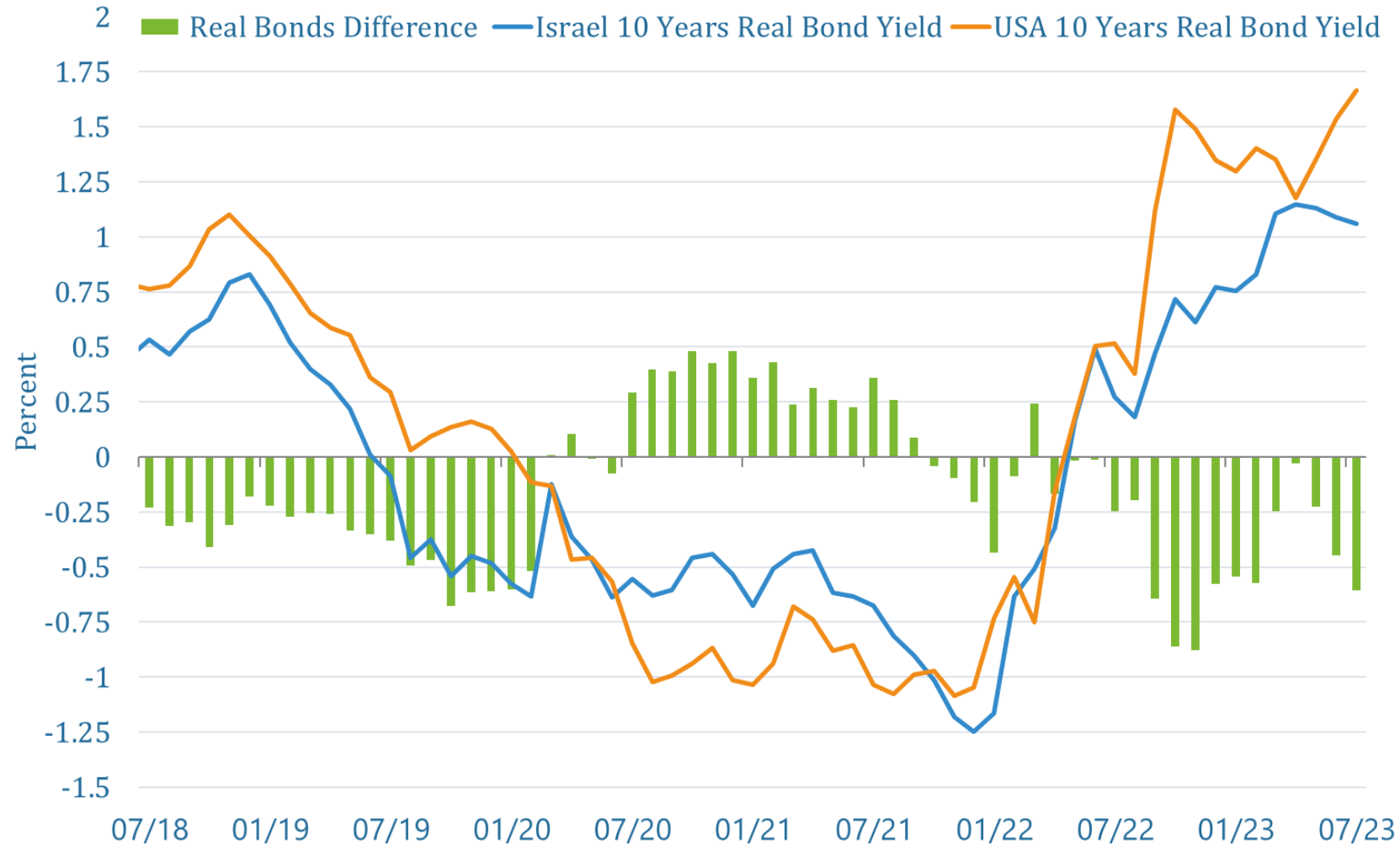
# US and Israel 10 Years Nominal Yields

## July 2018 to July 2023



# US and Israel 10 Years Real Yields

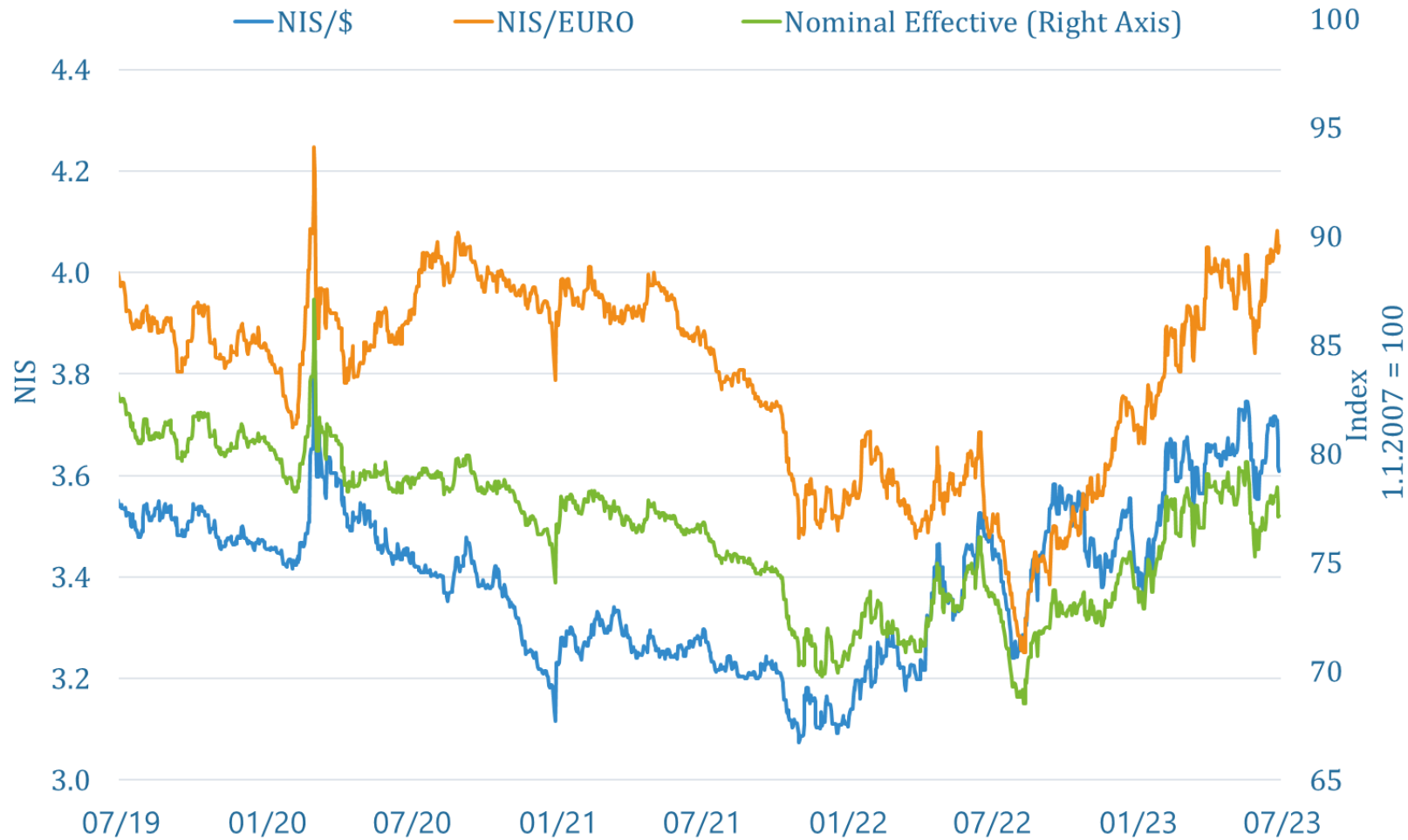
## July 2018 to July 2023





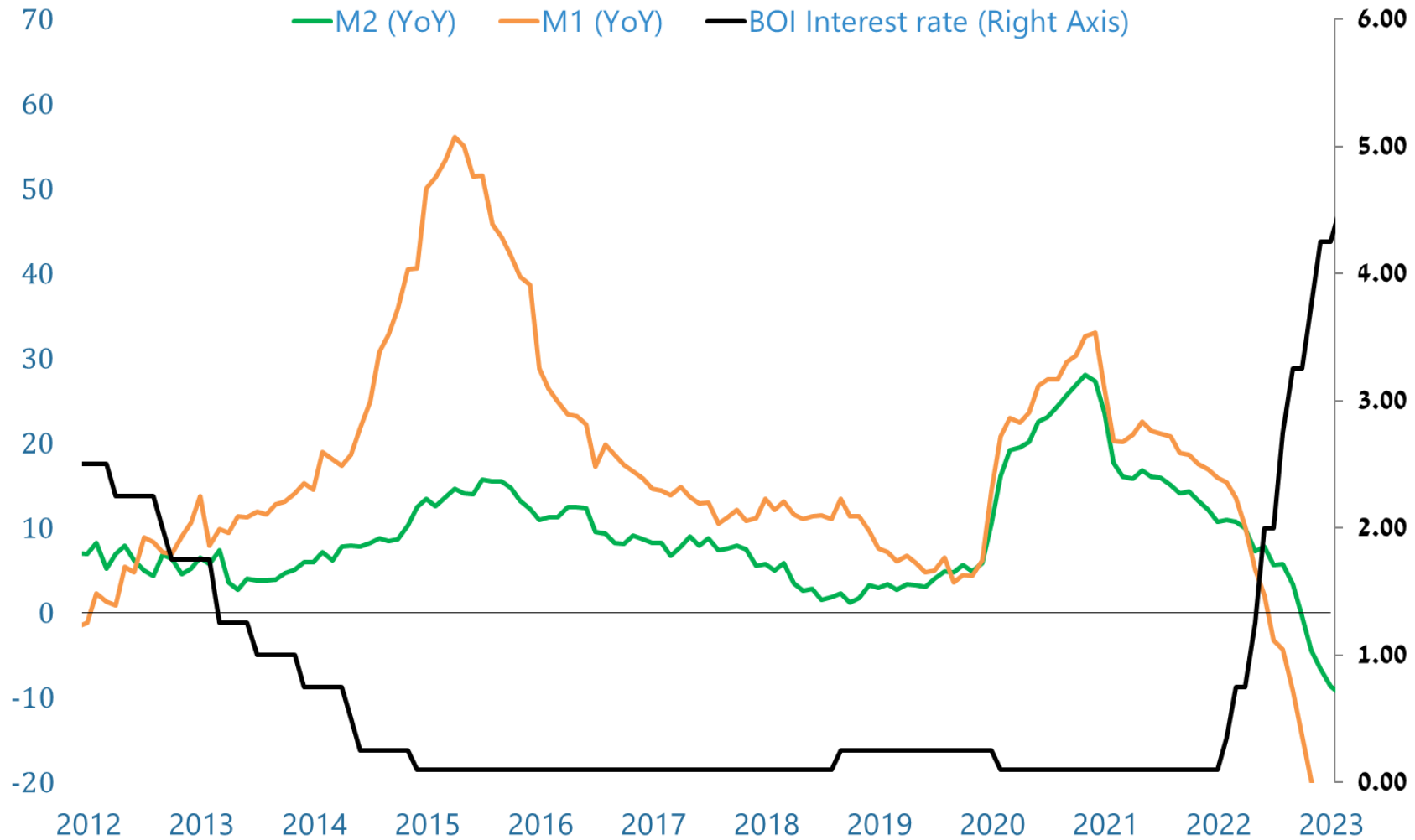
# The Nominal Exchange Rate

## July 2019 to July 2023



# Monetary Aggregates

## July 2012 to July 2023, Annual Growth Rates



# Staff Forecast

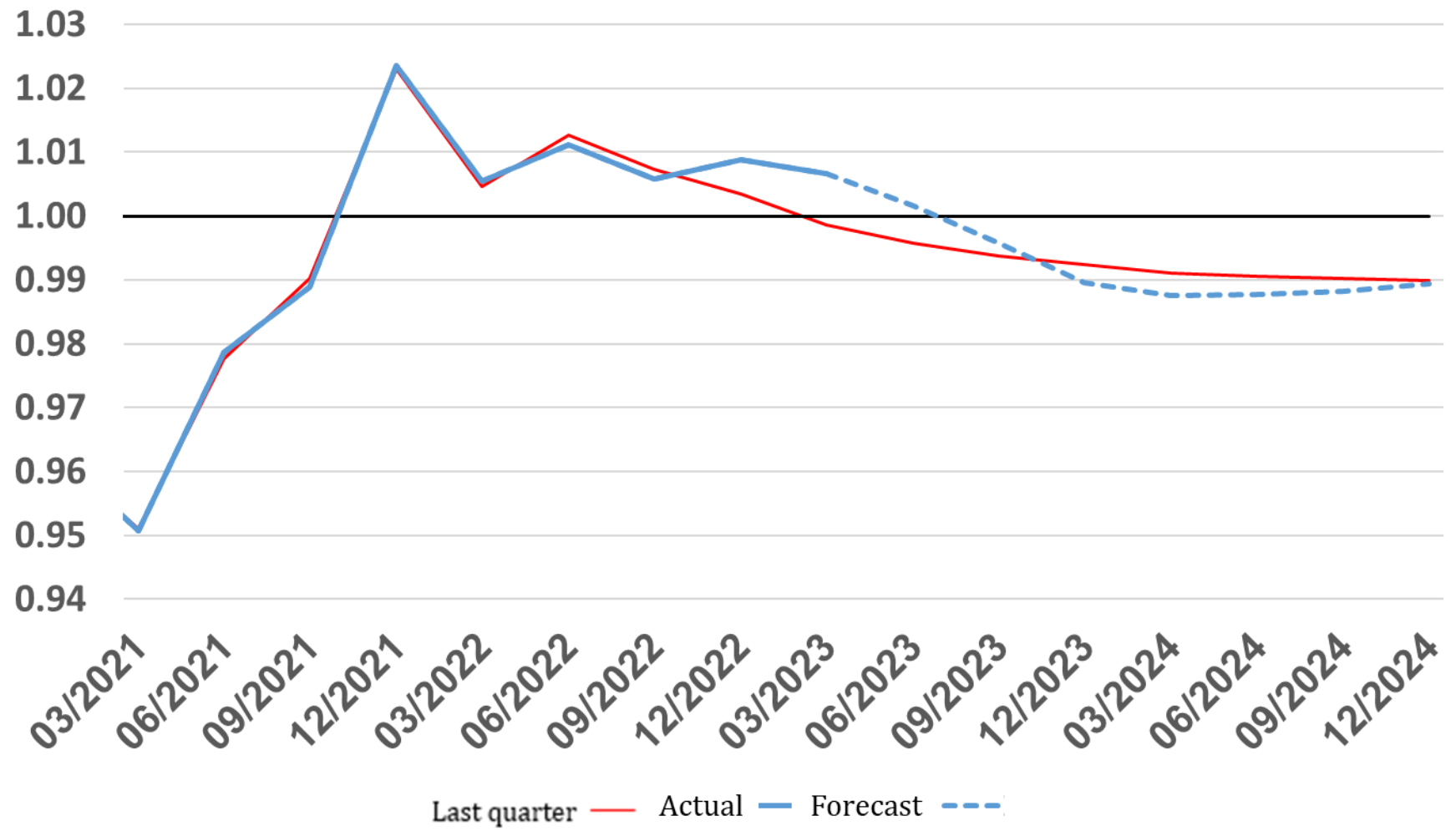
# Research Department Staff Forecast, July 2023

(Rates of change, percent, unless stated otherwise, in parentheses – change from April forecast)

	Forecast for 2023	Forecast for 2024
GDP	3 (0.5)	3 (-0.5)
Private consumption	3 (-0.5)	3.5 (-1.0)
Fixed capital formation (excl. ships and aircraft)	4.5 (3)	3 (-1.5)
Public consumption (excl. defense imports)	2.0 (-1.5)	3.0 (0.0)
Exports (excl. diamonds and startups)	1.5 (0.0)	2.5 (-0.5)
Civilian imports (excl. diamonds, ships, and aircraft)	1.5 (-1.5)	4.0 (-2.0)
unemployment rate (25-64) (Average for the year)	3.7 (-0.4)	4.1 (0.1)
Government deficit (percent of GDP)	1.3 (0.4)	1.5 (0.6)
Debt to GDP Ratio	60 (1.0)	59 (1)
Inflation rate	3.5 (-0.4)	2.4 (+0.1)

# The moderation of the GDP expected level was postponed due to the impact of growth in the first quarter of 2023

GDP Relative to the Pre-Crisis Trend - in actual and forecast,  
(1=Pre-Crisis Trend, Fixed Prices, Seasonal Adjusted)



# Staff Forecast - Forecasts Comparison

## Inflation and Interest Rate Forecasts for the Coming Year (Percent)

	<b>Bank of Israel Research Department</b>	<b>Capital Markets<sup>a</sup></b>	<b>Private Forecasters<sup>b</sup></b>
Inflation Rate <sup>c</sup> (Range of Forecasts)	3.0	3.0	2.8 (2.4-3.4)
Interest Rate <sup>d</sup> (Range of Forecasts)	4.75/5	4.6	4.25 (3.0-4.75)

a) Inflation expectations are seasonally adjusted (As of July 6, 2023).

b) Inflation rate in the coming year. Research Department: in the four quarters ending in the first quarter of 2024) Inflation rate in the coming year.  
Research Department: in the four quarters ending in the first quarter of 2024.

d) The interest rate one year from now. (Research Department: average interest rate in the first quarter of 2024.) Expectations derived from the capital market are based on the Telbor market (weekly average as of July 6, 2023).

# Risks for the forecast

## Global Risks

- Slower than expected moderation in global inflation

## Domestic Risks

- Political developments and escalation of security situation
- Exchange rate risks
- A decline in the volume of funds raised for investment in Israeli startup companies

# **Additional Scenario (April 2023)**



# Introduction

- The scenario presents an analysis of the potential economic implications if the legal and institutional changes are accompanied by:
  - An increase in the country's risk premium,
  - A decline in demand for domestic investments and for private consumption
  - A negative impact to exports
- Indications of the potential direction of the impact of advancement in these processes are derived from the markets' responses to the developments of the recent period.
- Since there is tremendous uncertainty regarding the pace, intensity, and implications of the legislative process regarding the judicial system, we present a wide range of possibilities.
- Our assessment is that the economic impact will be reflected through these three main channels, and we analyze each of them separately.

## The Three Main Channels:

- An increase in the country's risk premium
  - We have witnessed in recent months increase in the spread, weakness of the Shekel and underperformance of the equity market
  - An increase in the risk premium raises the economy's financing costs, and may be reflected in a reduced volume of capital in the economy, a decline in the pace of venture capital raising for the high-tech industry that is so significant for Israel, and a depreciation of the shekel with a resulting acceleration of inflation.
  - The result would be a decline in the volume of real investments in the economy (in facilities, machinery, equipment, and R&D), which over time would lead to a negative impact on the stock of capital in the economy, and therefore to the level of GDP.

# The Three Main Channels:

- A decline in demand for domestic investments and for private consumption
  - A negative impact to the way in which the Israeli economy is perceived may lead to a decline in demand for investments (in facilities, machinery, equipment, and R&D), both by Israelis and by foreign companies operating here.
  - Uncertainty regarding the economic implications of various processes and concern over harm to economic activity and employment may work to reduce private consumption and increase savings as a security buffer against a future impact to household income.
  - The result is a negative impact to the stock of capital and to labor productivity in Israel and, as a direct result, to GDP.
  - Monetary policy will react by decreasing moderately the interest rate, which will be followed by some depreciation, and moderation of the inflation rate.
- A negative impact to exports
  - In view of a potential change in attitudes toward Israel on the part of other countries, as well as in view of a potential change in the assessment of the economy's risk, there may be an impact to the willingness to do business with Israeli companies, or to consume Israeli goods and services.
  - This will result in a very moderate depreciation and no significant change in inflation and interest rate

# Assumptions Regarding the Size and Persistence of the Impact

- We base our analysis on the structural model that assists us in constructing our quarterly forecasts, identifying the typical size of the shocks to the economy in recent decades.
- As an indicator for the volume of the impact in each of the channels, we based our examination on the 2001–2002 crisis in Israel.
- We used shocks of a similar size of these that characterized the 2001-2002 crisis.
  - Risk premium: +0.6% in interest differentials, 2.7% depreciation
  - Decline of 2% in investment and 0.2% in consumption in first quarter
  - Decline of 1.4% in exports in first quarter
- The developments in recent weeks, indicate that this is a reasonable calibration.
- The reason for the development of the shocks in 2001-2002 into a crisis was due to their prolonged persistence over a number of quarters.
- As a result of the 2001–2002 crisis:
  - The increase in the risk premium was reflected in a cumulative increase of about 4.5 percentage points in the interest rate spreads and a depreciation of about 18 percent (in terms of the nominal effective exchange rate) over those two years.
  - The aggregate impact to GDP growth in each of the first two years of the crisis was about 3 percent.

# Assumptions Regarding the Size and Persistence of the Impact

- In order to design the risk scenarios, in addition to choosing the size of the shocks, we must determine the extent of their persistence, meaning the typical duration until they subside.
- Changes in the judicial system are expected to be structural and prolonged. Therefore, alongside a scenario in which the persistence of the shocks is the same as during recent decades (as estimated based on historical data in the model we are using, we also present a scenario in which the shocks are more persistent.
- The impact of each shock, even at a fixed size, depends significantly on its persistence.

# Results – Estimated Persistence

Shock	Persistence	Half-life in years	Shekel depreciation in terms of nominal effective exchange rate	Deviation of inflation	Deviation of the interest rate	Annual average change in GDP (over three years)*
			Change in the first year	Average during the first year	Average during the first year	Percent of GDP
<b>Increase in risk premium (increase of 0.6% in the interest rate spread vis-à-vis abroad, and depreciation of 2.7% - both in the first year)</b>	<b>0.6</b>	0.3	1.6	0.6	0.5	-0.04
<b>Decline in domestic demand (decline of 2% in investment and of 0.2% in private consumption in the first quarter)</b>	<b>0.925</b>	2.2	1.8	-0.2	-0.25	-0.7
<b>Decline in demand for exports (decline of 1.4% in the first quarter)</b>	<b>0.05</b>	0.1	0.1	0	0.0	-0.03
<b>Total impact under the estimated persistence</b>						<b>-0.8</b>

\* One percent of GDP in 2022 was about NIS 17.6 billion.

# Results – Higher Persistence

Shock	Persistence	Half-life in years	Shekel depreciation in terms of nominal effective exchange rate	Deviation of inflation	Deviation of the interest rate	Annual average change in GDP (over three years)*
			Change in the first year	Average during the first year	Average during the first year	Percent of GDP
<b>Increase in risk premium (increase of 0.6% in the interest rate spread vis-à-vis abroad, and depreciation of 2.7% - both in the first year)</b>	<b>0.925</b>	2.2	13	3.3	1.9	-1.9
<b>Decline in domestic demand (decline of 2% in investment and of 0.2% in private consumption in the first quarter)</b>	<b>0.925</b>	2.2	1.8	-0.2	-0.25	-0.7
<b>Decline in demand for exports (decline of 1.4% in the first quarter)</b>	<b>0.925</b>	2.2	0.7	0	-0.1	
<b>Total impact under the estimated persistence</b>						<b>-2.8</b>

\* One percent of GDP in 2022 was about NIS 17.6 billion.

Thank You