COVID-19

ECONOMIC IMPACT & SECTOR UPDATE

CBRE

SPEAKERS | MARCH 27, 2020

Jamie Lane
Senior Managing Economist, CBRE Econometric Advisors,
CBRE Hotels Research

Opening Remarks

Dr. Richard Barkham
Global Chief Economist & Head of Americas Research

Global Economic Outlook

Matt Mowell
Economist, CBRE Econometric Advisors

Metro and 'Big-Picture' Real Estate Overview

Bram Gallagher
Economist, CBRE Econometric Advisors,
CBRE Hotels Research

COVID-19 Implications for Lodging

Dr. Jing Ren
Economist, CBRE Econometric Advisors

COVID-19 Implications for Retail

Alex Krasikov
Economist, CBRE Econometric Advisors

COVID-19 Implications for Office

Nathan Adkins
Economist, CBRE Econometric Advisors

COVID-19 Implications for Multifamily

Ibrahiim Bayaan
Economist, CBRE Econometric Advisors

COVID-19 Implications for Industrial

Jamie Lane
Senior Managing Economist, CBRE Econometric Advisors,
CBRE Hotels Research

Q&A and Closing Comments

CBRE

WHY HAVE WE CHANGED OUR FORECASTS

- Deteriorating data – weekly unemployment claims

- Anecdotal information on the scale of job losses

- The restrictions and lockdowns have proceeded more quickly than expected – both in the USA and elsewhere

- New data from China have revealed the impact of the lockdown and restrictions there on economic activity

- We aim not to be too far from the "consensus". We were in line with the emerging consensus a week ago. The consensus view has deteriorated

KEY UNCERTAINTIES (CBRE ASSUMPTIONS IN RED)

1. What will the peak (assumed to be Q2) impact be? – how will if vary by industry?

   It will reduce GDP by almost 7% relative to base in Q2. Retail wholesale, transport, leisure worst affected

2. How long will the economic impact last? - will lockdowns get more severe or ease off?

   Peak by end of Q2. Some restrictions may ease back before then

3. How quick will the recovery kick in? – how long will it take to get back to base? – what could turn a Nike-shaped tick into a U or an L?

   The recovery will kick in from Q3 accelerating in Q4

   If the peak is well into Q3 the recovery will be delayed and the recovery slower (the U-shape)

4. What impact will policy have? – mitigate the downturn, facilitate the recovery or both?

   - Calms financial markets in Q1/2

   - Supports the supply side by stopping companies going bust allowing then the deliver the recovery in Q3

   - Support the demand side in the recovery by maintaining personal incomes now
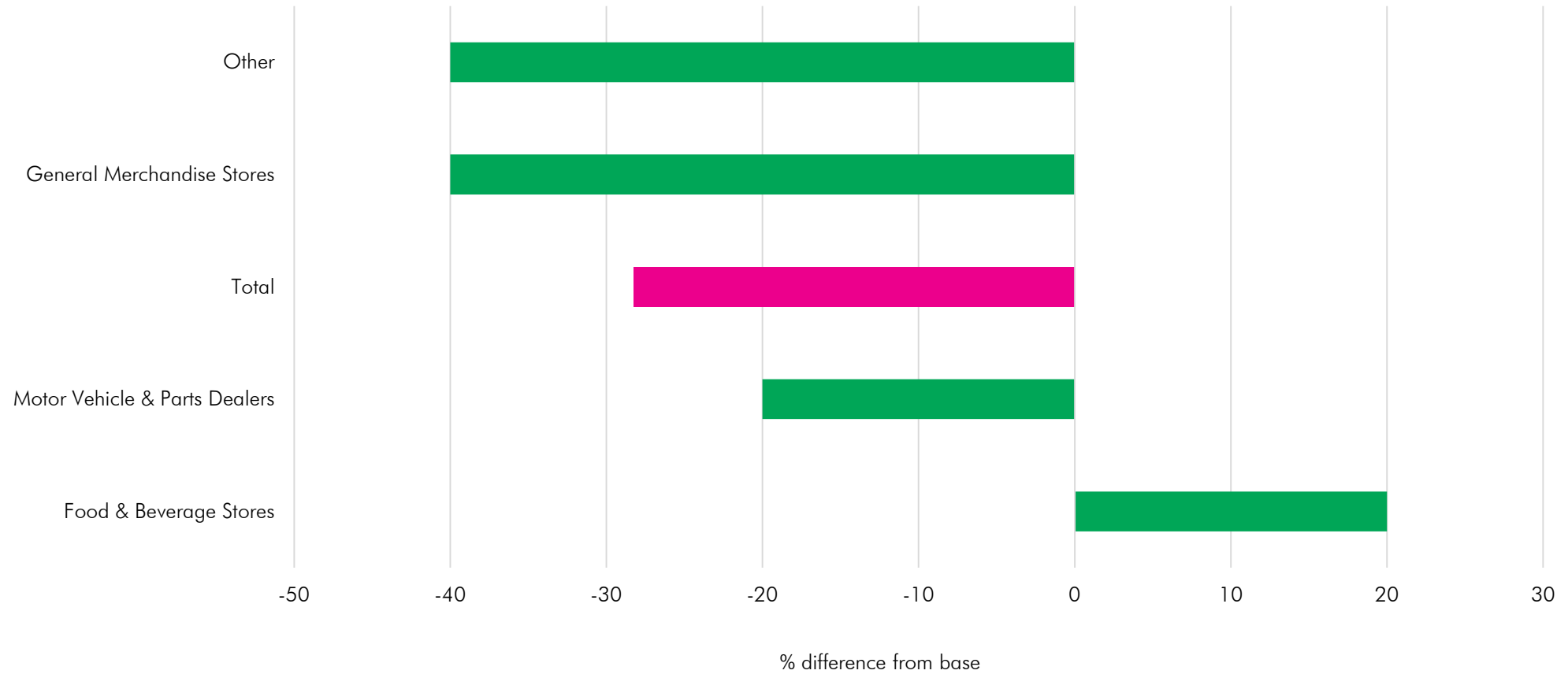
5. What is the impact on price inflation?

   Short-term negative; may push inflation up during the recovery

ASSUMED IMPACT BY INDUSTRY

% difference from base* in 2020Q2
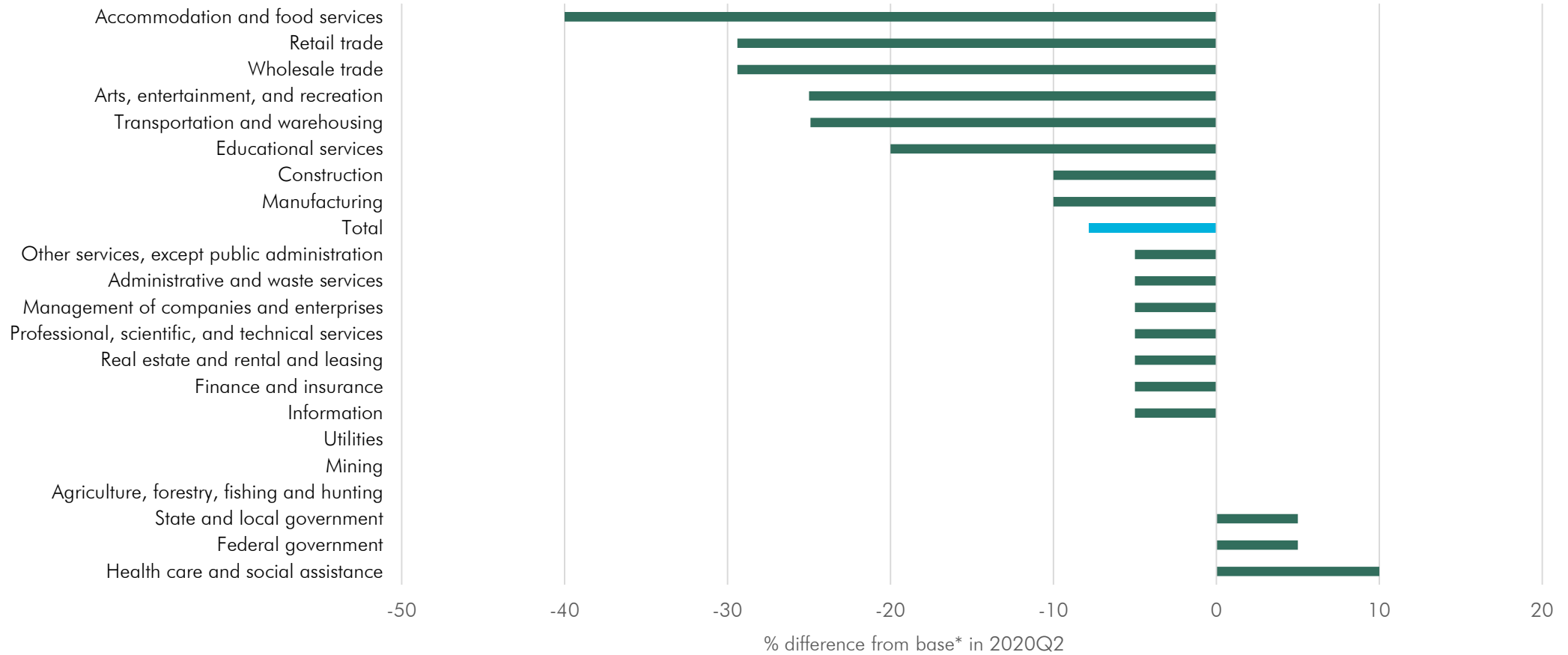
Source: CBRE Research, March 2020. *Base = February forecast.

ASSUMED IMPACT BY INDUSTRY: RETAIL DETAIL

% difference from base

Source: CBRE Research, March 2020.

ASSUMED IMPACT BY INDUSTRY: TRANSPORT & WAREHOUSING

% difference from base
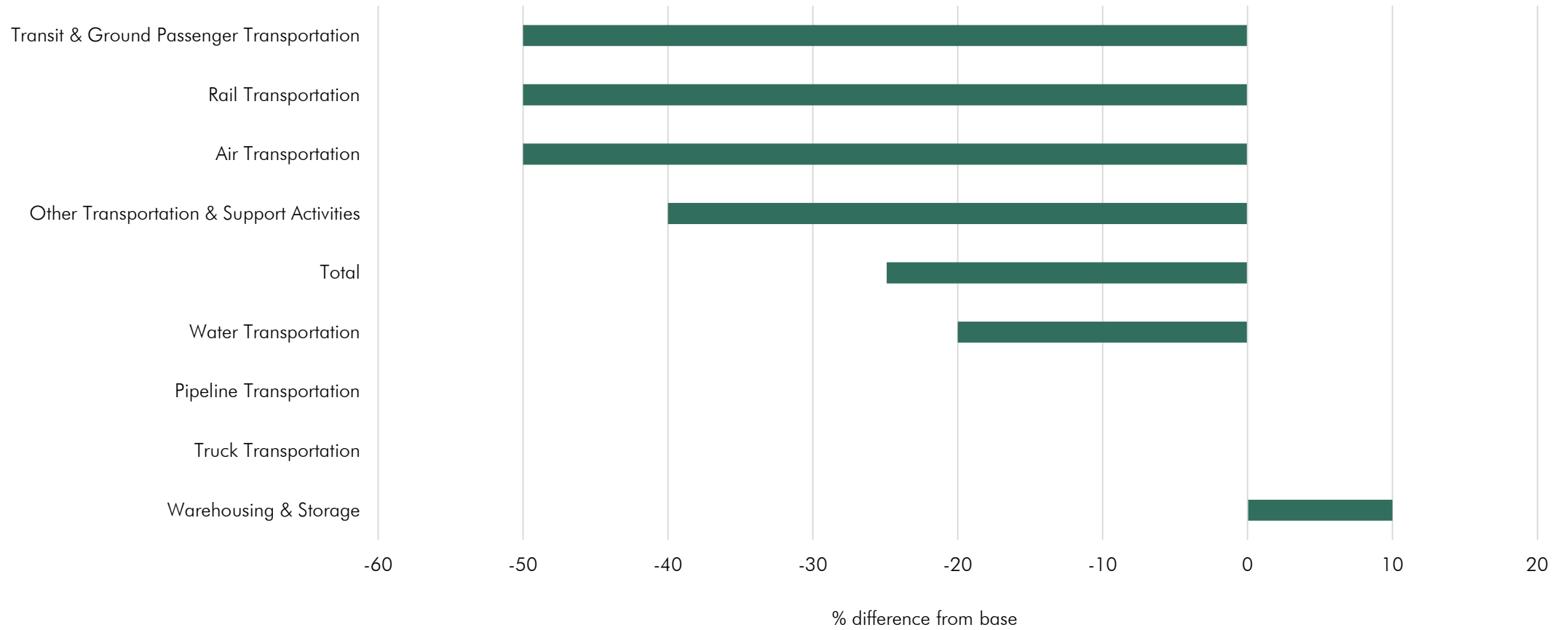
IMPACT ON GDP: RELATIVE TO BASE
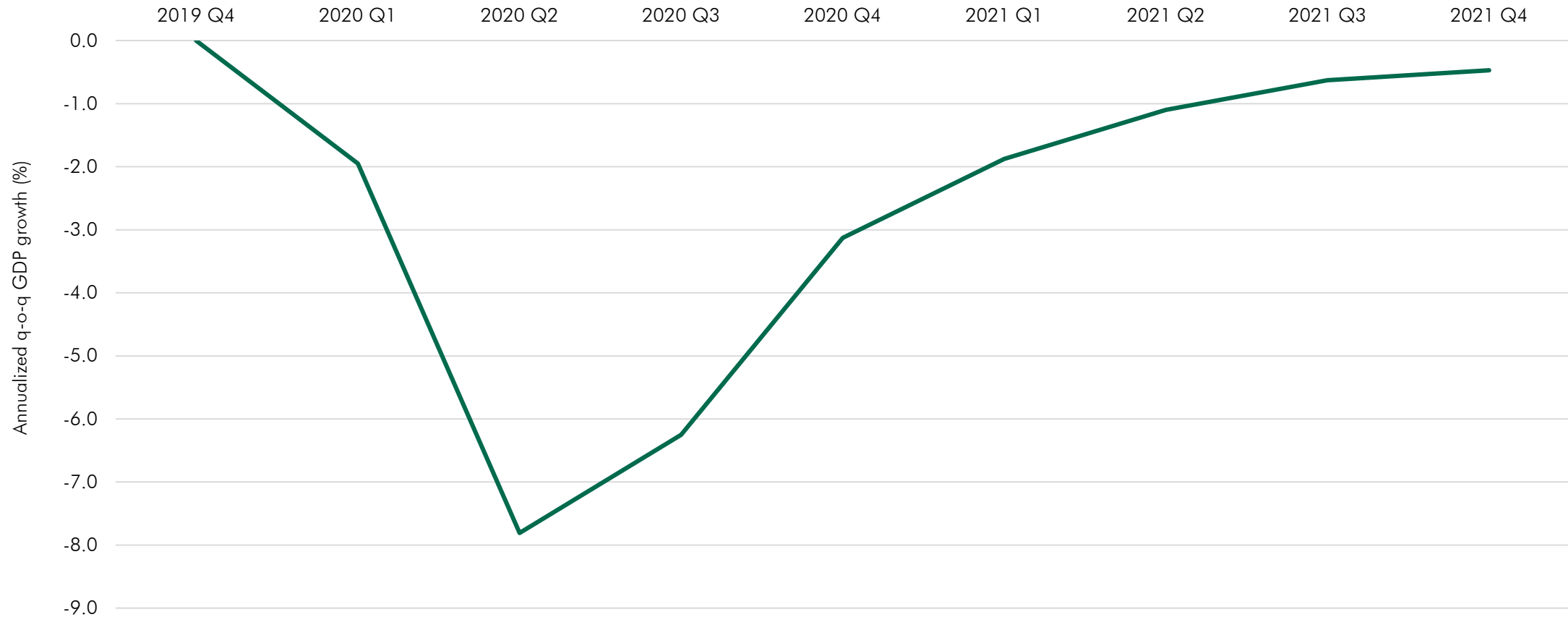
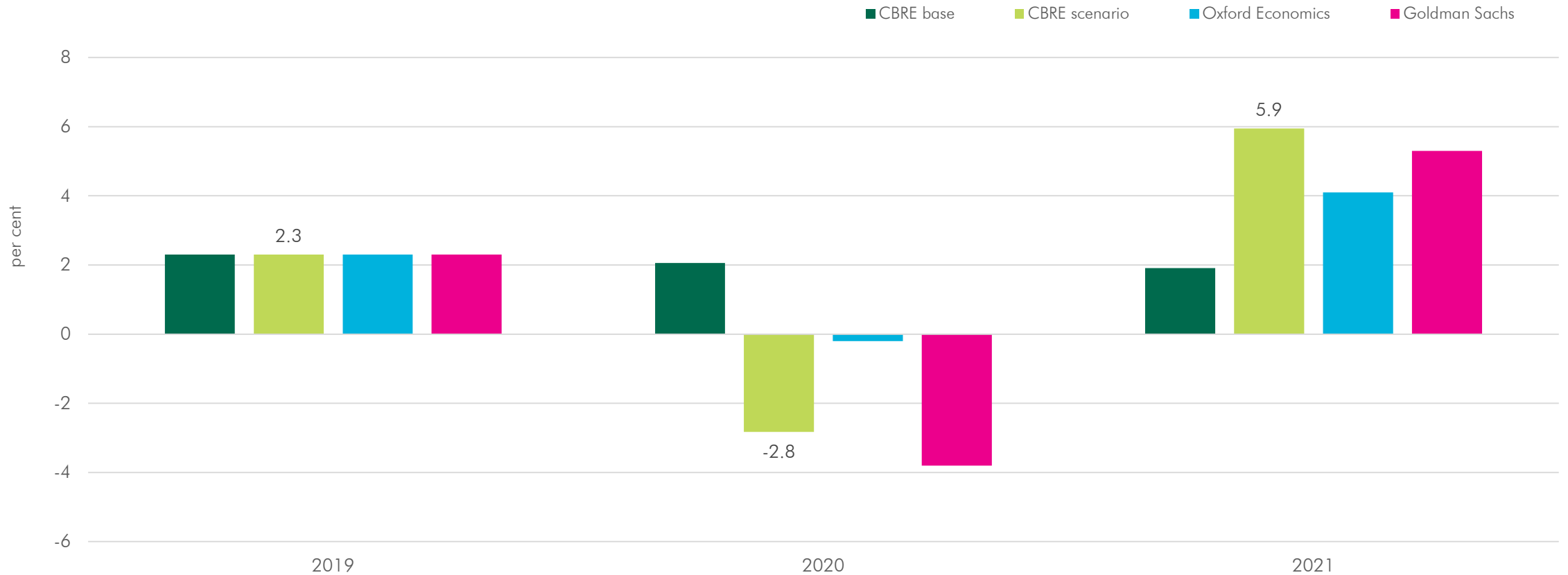# QUARTERLY GROWTH PROFILE: SAAR

Source: CBRE Research, March 2020.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS
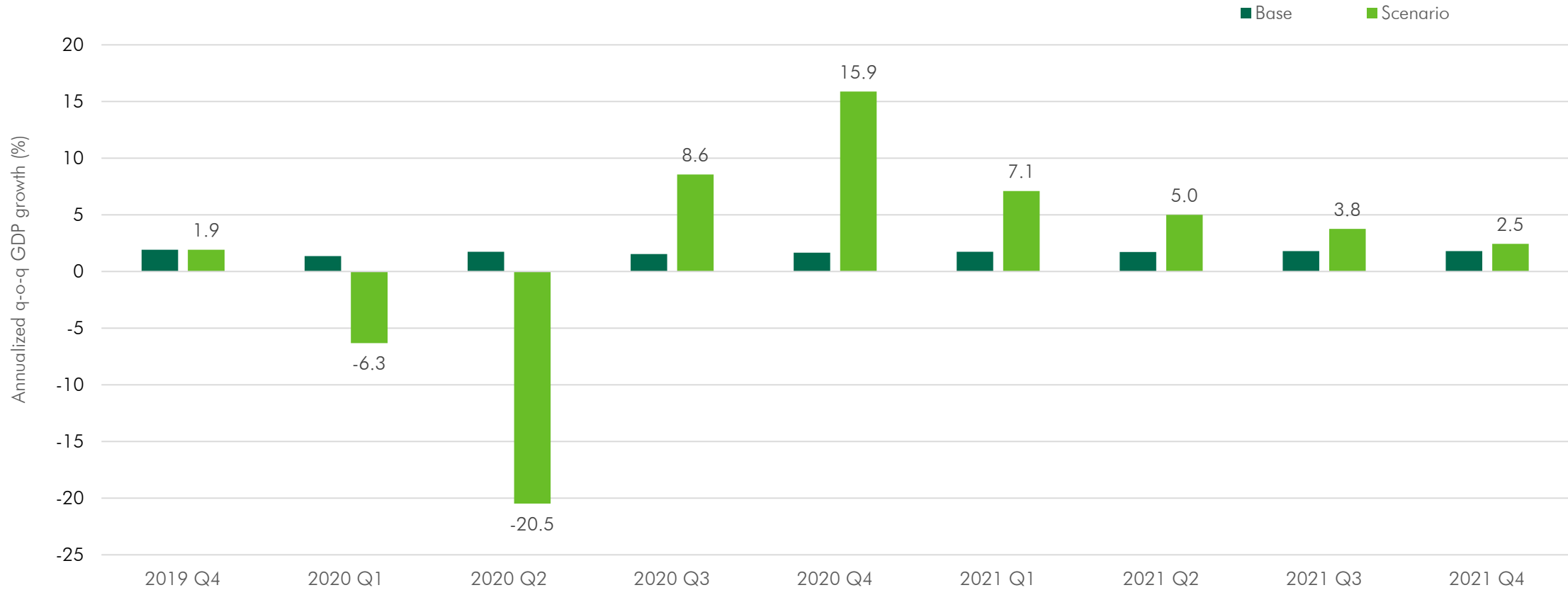
IMPACT ON ANNUAL US GDP GROWTH

Legend: CBRE base, CBRE scenario, Oxford Economics, Goldman Sachs

y-axis: per cent (8, 6, 4, 2, 0, -2, -4, -6)

2019: 2.3
2020: -2.8
2021: 5.9

x-axis: 2019, 2020, 2021
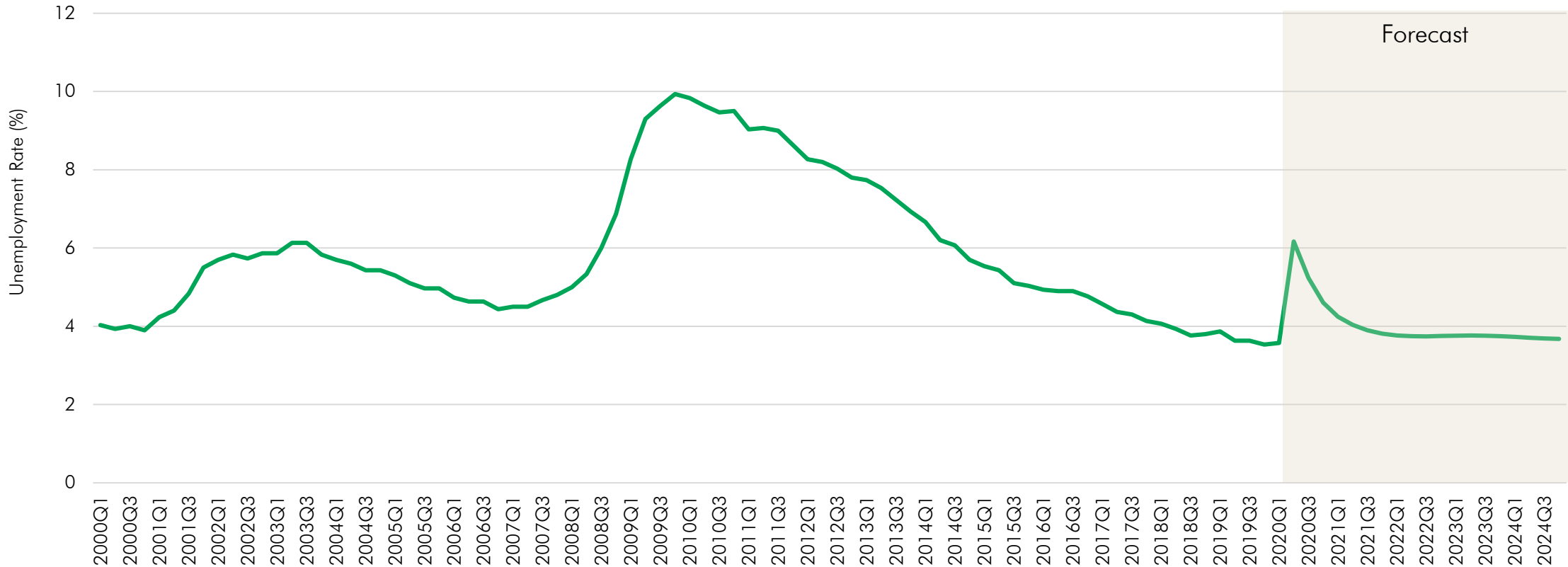
Source: Oxford Economics, Goldman Sachs, CBRE Research, March 2020.

EMPLOYMENT TO FALL BY 8 MILLION
Unemployment rate to hit 6.1% but then to fall back rapidly from Q3

Source: BLS, CBRE Research, March 2020.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

SUMMARY

- Big hit in Q2: -17.9% GDP growth

- Big bounce back, particularly in Q4

- -2.8% GDP growth in 2020; +5.9% in 2021

- Unemployment up to 6.1%; employment falls by 5.3% or 8m in Q2

- Policy responses:
  - Calms financial markets in Q1&2
  - Supports the supply side by stopping companies going bust allowing the recovery in Q3
  - Support the demand side for recovery by maintaining personal incomes now

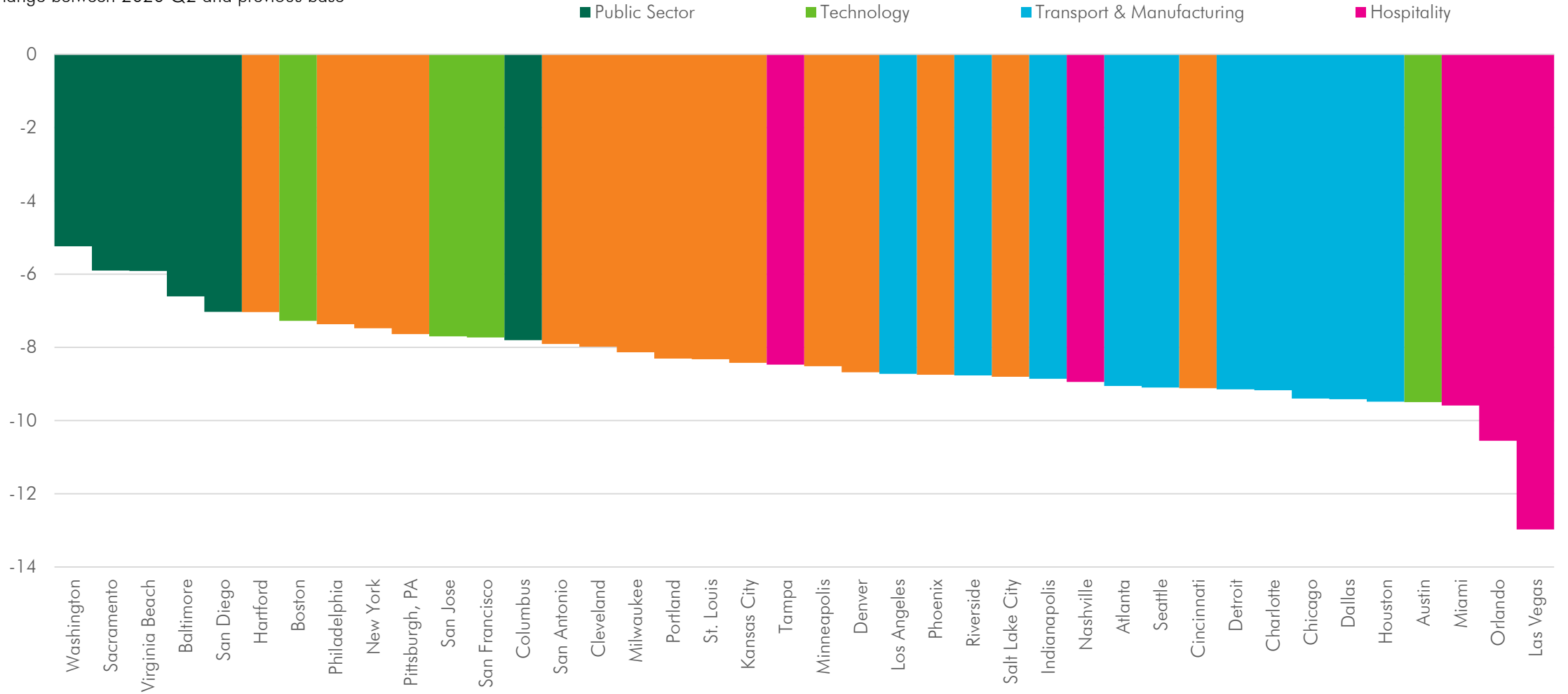MARCH 27, 2020

COVID-19 IMPLICATIONS FOR INDUSTRIES AND CITIES

MATT MOWELL, ECONOMIST, CBRE ECONOMETRIC ADVISORS
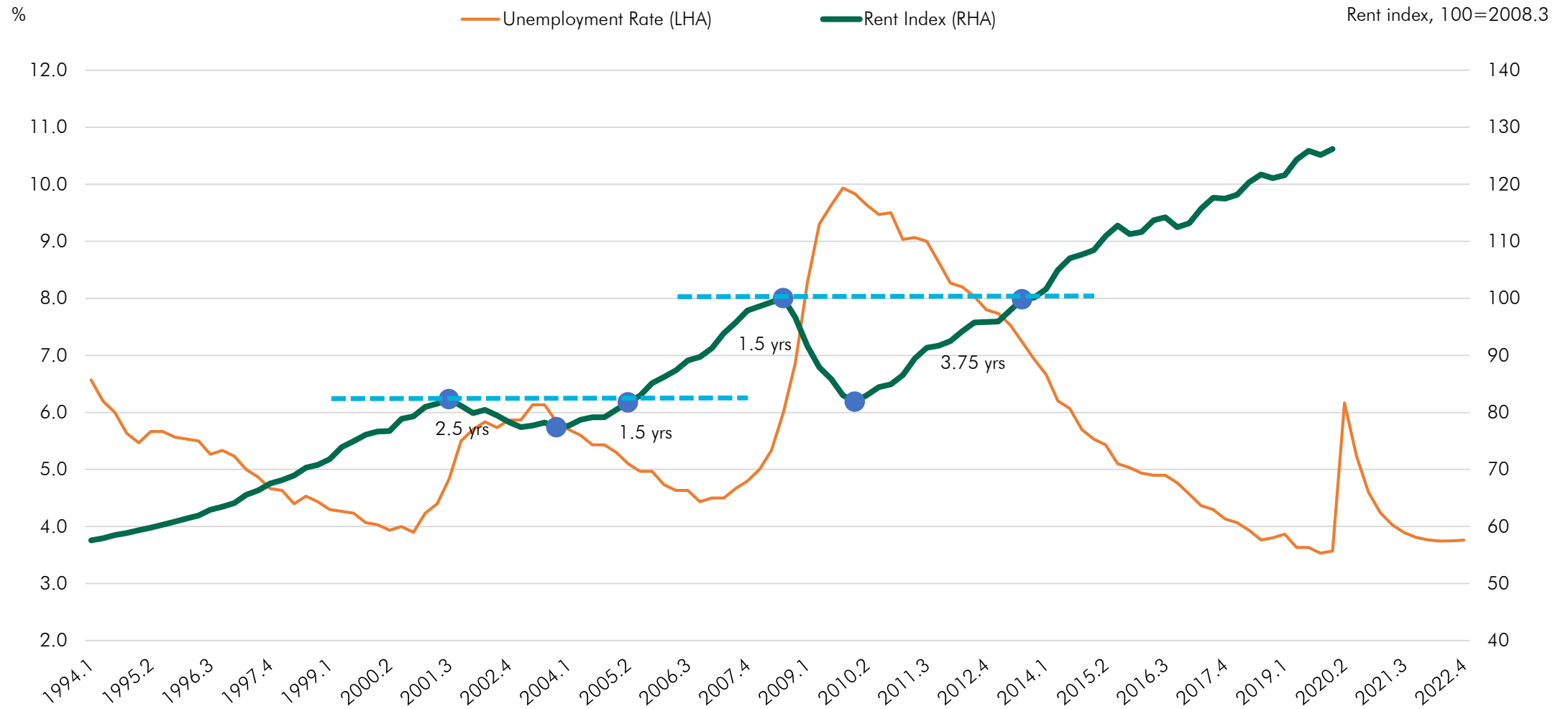
CBRE

WHICH US CITIES COULD BE HARDEST HIT FROM COVID-19

% change between 2020 Q2 and previous base

■ Public Sector   ■ Technology   ■ Transport & Manufacturing   ■ Hospitality

Source: CBRE.

IMPACT ON THE PROPERTY MARKET WILL BE SHARP BUT ARGUABLY SHORT

%
Rent index, 100=2008.3

— Unemployment Rate (LHA)   — Rent Index (RHA)

2.5 yrs   1.5 yrs   1.5 yrs   3.75 yrs

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

DISRUPTION CURVE – HOTEL OCCUPANCY

Occupancy Level (%)

— China   — United States   — U.S. Estimates   — Forecast

US 3/7
Italy 2/22
China 1/16

US 3/14
Italy 2/29
China 1/21

US 3/21
Italy 3/7
China 1/30

China 3/14

China 2/8

Potential Recovery Scenario

Months of Impact

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
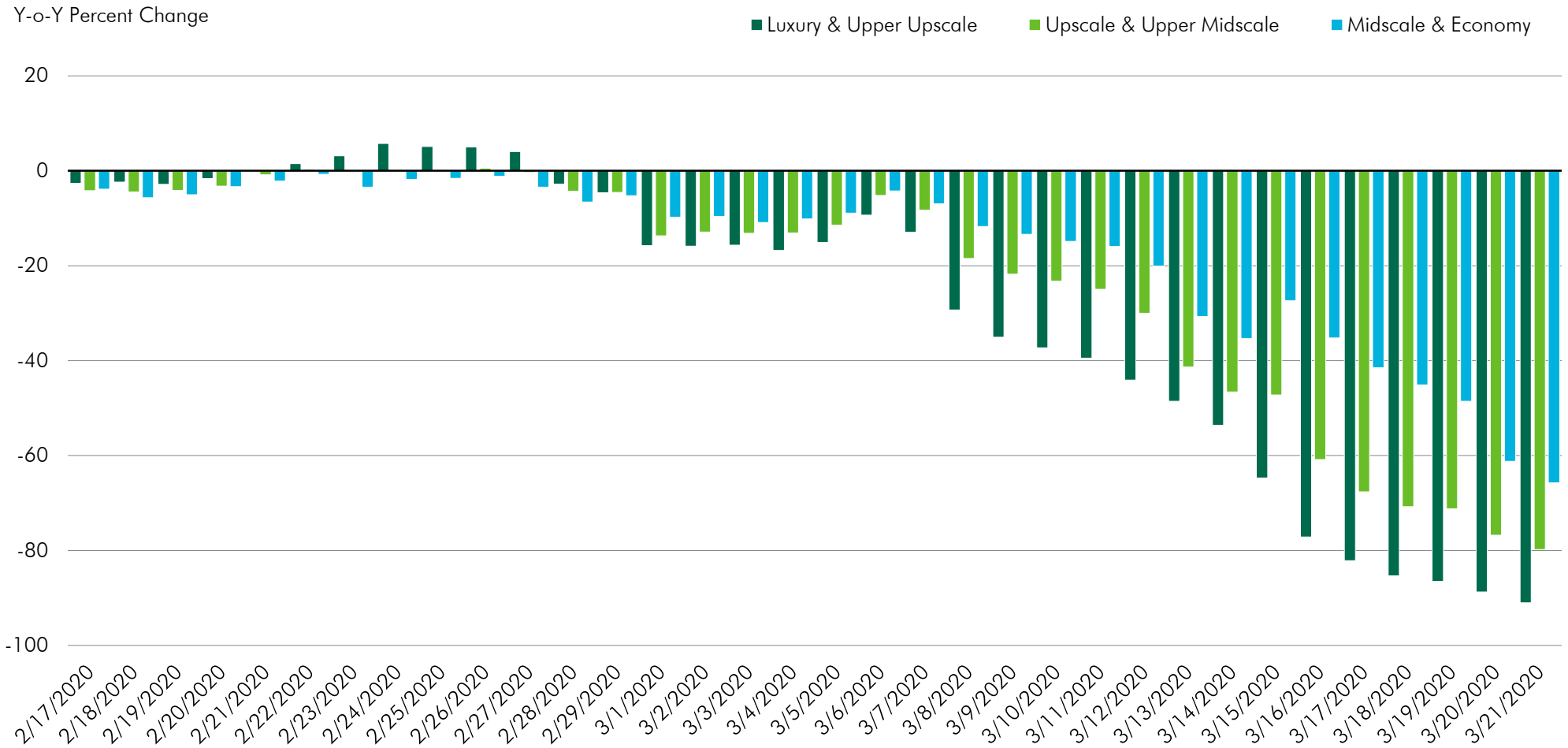CBRE ECONOMETRIC ADVISORS

UPDATED DOWNSIDE FORECAST
Occupancy recovers faster than ADR

Year	Occ	ΔOcc	ADR	ΔADR	RevPAR	ΔRevPAR	Supply	ΔSupply	Demand	ΔDemand
2016	65.4%	0.1%	$124.06	3.0%	$81.14	3.1%	5,021,012	1.4%	3,283,828	1.5%
2017	65.9%	0.7%	$126.81	2.2%	$83.52	2.9%	5,106,199	1.7%	3,363,052	2.4%
2018	66.1%	0.4%	$129.96	2.5%	$85.94	2.9%	5,206,614	2.0%	3,442,727	2.4%
2019	66.1%	0.0%	$131.20	1.0%	$86.73	0.9%	5,311,653	2.0%	3,511,367	2.0%
2020	46.8%	-29.3%	$117.09	-10.8%	$54.76	-36.9%	5,411,741	1.9%	2,530,899	-27.9%
2021	60.2%	28.7%	$125.78	7.4%	$75.72	38.3%	5,495,484	1.5%	3,308,350	30.7%
2022	64.0%	6.4%	$134.15	6.7%	$85.89	13.4%	5,515,177	0.4%	3,531,190	6.7%
2023	65.1%	1.6%	$138.46	3.2%	$90.08	4.9%	5,569,023	1.0%	3,623,162	2.6%

Source: CBRE Hotels Research, STR, March 20, 2020.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

HIGHER THE ADR, LARGER THE Y-O-Y PERCENT DECLINE

Y-o-Y Percent Change

■ Luxury & Upper Upscale   ■ Upscale & Upper Midscale   ■ Midscale & Economy

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

IMPACT ON CONSUMERS AND RETAILERS

Consumer

- Immediate impact – avoidance of physical stores
  - Top three venues people are avoiding: movie theaters, restaurants/bars/coffee shops, shopping malls
- Deferred impact – rising unemployment erodes consumer confidence
  - Consumers cut back non-essential spending which leads to a decline in demand

Retailer

- Liquidity
  - Some retailers started to draw down their line of credit
  - Retailers with strong balance sheets and omni channel strategies will outperform
- Will consumers come back to stores as before?

LENGTH OF THE IMPACT

Consumer		Short-term	Medium-term	Long-term
Immediate impact		Yes	0	0
Deferred impact		Yes	Partial	0

| Retailer	Scenario	Short-term	Medium-term	Long-term
Liquidity		Credit lines	Scale back	Fully recovered
Foot traffic	Back to Normal	Zero or weak	Recovery	Fully recovered
Foot traffic	New Normal	Zero or weak	Slow recovery	Not fully recovered

WHAT CAN WE LEARN FROM THE PAST RECESSIONS

Legend:
- 1990 Recession
- 2001 Recession
- Great Recession

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

© 2016 HERE

WHICH RETAIL SECTORS WILL BE AFFECTED MOST?

Y-O-Y retail sales growth in China: January and February
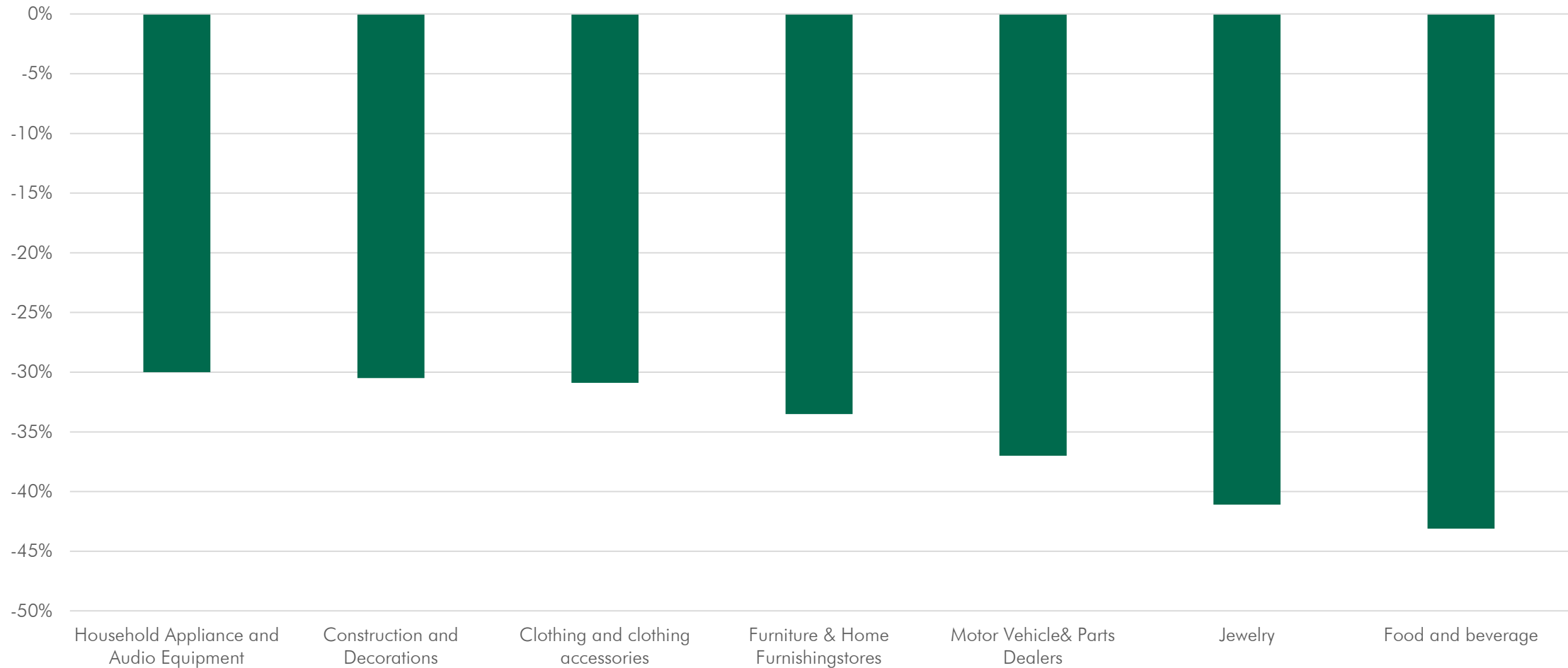
Source: China National Bureau of Statistics.

OPEN TABLE SURVEY SHOWS HOW F&B ARE DOING NOW

	5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar
Atlanta	-9	-2	1	13	1	-14	-14	-26	-35	-34	-44	-78	-93	-96	-97	-99	-100	-100	-100	-100	-100
Austin	-6	0	-13	-23	-41	-31	-30	-27	-35	-36	-54	-71	-99	-100	-100	-100	-100	-100	-100	-100	-99
Baltimore	8	8	14	-4	-17	-34	-22	-30	-30	-39	-48	-75	-100	-100	-100	-100	-100	-100	-100	-100	-100
Boston	11	7	-1	10	-14	-29	-30	-47	-56	-64	-70	-81	-100	-100	-100	-100	-100	-100	-100	-100	-100
Calgary	-2	2	-10	-4	-11	-8	-7	-27	-48	-51	-54	-73	-96	-99	-99	-99	-100	-100	-100	-100	-100
Charlotte	-7	4	-5	-10	-8	-12	-18	-30	-35	-34	-36	-68	-97	-100	-100	-100	-100	-100	-100	-100	-100
Chicago	-11	-8	4	13	-25	-23	-27	-31	-37	-49	-53	-75	-100	-100	-100	-100	-100	-100	-100	-100	-100
Cincinnati	-6	-21	-14	-23	-18	-13	-20	-19	-37	-52	-53	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
Columbus	-10	-9	-5	3	-26	-19	-19	-37	-38	-53	-49	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
Dallas	0	3	-1	-2	-15	-10	-12	-25	-35	-35	-42	-61	-100	-100	-100	-100	-100	-100	-100	-100	-100
Denver	-10	-9	-6	2	-20	-19	-4	-17	-46	-46	-50	-56	-100	-100	-100	-100	-100	-100	-100	-100	-100
Fort Lauderdale	-11	-13	-3	-14	-15	-19	-15	-25	-28	-30	-44	-46	-88	-100	-100	-100	-100	-100	-100	-100	-100
Honolulu	-13	-12	-9	-18	-15	-16	-17	-20	-18	-22	-32	-40	-55	-75	-83	-99	-100	-100	-100	-100	-100
Houston	7	6	10	7	-14	-17	-8	-24	-33	-34	-40	-61	-100	-100	-100	-100	-100	-100	-100	-100	-100
Indianapolis	2	0	1	-1	-29	-20	-25	-35	-47	-58	-49	-71	-100	-100	-100	-100	-100	-100	-100	-100	-100
Las Vegas	-9	-8	-7	-8	-11	-19	-13	-20	-32	-36	-48	-58	-88	-100	-100	-100	-100	-100	-100	-100	-100
Los Angeles	-5	1	-2	-15	-27	-23	-26	-38	-48	-47	-57	-82	-100	-100	-100	-100	-100	-100	-100	-100	-100
Louisville	-7	-7	-5	3	-22	-21	-24	-30	-33	-52	-57	-75	-100	-100	-100	-100	-100	-100	-100	-100	-100
Miami	-2	-11	-2	10	-9	-15	-18	-22	-27	-30	-36	-46	-78	-100	-100	-100	-100	-100	-100	-100	-100
Miami Beach	-16	-8	-3	-10	-11	-17	-20	-22	-21	-24	-23	-43	-71	-100	-100	-100	-100	-100	-100	-100	-100
Minneapolis	-13	-6	61	23	-19	-14	-17	-28	-22	-35	-33	-76	-100	-100	-100	-100	-100	-100	-100	-100	-100
Nashville	-3	0	5	-4	-13	-7	-21	-30	-37	-40	-54	-70	-92	-97	-99	-100	-100	-100	-100	-100	-100
New Orleans	5	6	3	-3	-13	-13	-21	-28	-32	-39	-54	-63	-100	-100	-100	-100	-100	-100	-100	-100	-100
New York	-9	-15	-10	-4	-18	-30	-36	-52	-61	-64	-69	-77	-100	-100	-100	-100	-100	-100	-100	-100	-100
Orlando	-2	-1	1	-8	-34	-37	-30	-30	-33	-32	-47	-53	-85	-90	-93	-97	-100	-100	-100	-100	-100
Philadelphia	8	-7	1	3	-7	-14	-16	-39	-40	-48	-54	-85	-100	-100	-100	-100	-100	-100	-100	-100	-100
Phoenix	-8	-7	-6	-8	-18	-13	-28	-21	-28	-27	-45	-66	-86	-99	-100	-100	-100	-100	-100	-100	-100
Pittsburgh	-10	-17	9	1	-13	-31	-24	-42	-42	-48	-48	-63	-100	-100	-100	-100	-100	-100	-100	-100	-100
Portland	3	0	-3	5	-16	-7	-20	-32	-41	-39	-54	-61	-100	-100	-100	-100	-100	-100	-100	-100	-100
Raleigh	-13	-9	-9	-11	-18	-18	-15	-21	-29	-39	-55	-68	-97	-100	-100	-100	-100	-100	-100	-100	-100
San Antonio	-6	-8	-15	-23	-32	-22	-27	-28	-41	-39	-45	-59	-83	-91	-100	-100	-100	-100	-100	-100	-100
San Diego	-1	-1	-1	-7	-13	-34	-31	-43	-43	-42	-49	-62	-100	-100	-100	-100	-100	-100	-100	-100	-100
San Francisco	-22	-18	-18	-26	-41	-43	-43	-51	-53	-58	-72	-80	-100	-100	-100	-100	-100	-100	-100	-100	-100
Seattle	-36	-34	-35	-25	-47	-49	-54	-58	-63	-63	-62	-83	-100	-100	-100	-100	-100	-100	-100	-100	-100
Tampa	-1	-1	0	-2	0	-15	-14	-16	-22	-23	-20	-48	-75	-84	-86	-95	-100	-100	-100	-100	-100
Washington	-4	-5	1	0	-9	-18	-22	-38	-44	-44	-55	-76	-100	-100	-100	-100	-100	-100	-100	-100	-100

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

Source: Open Table Survey

IF WE ARE MOVING TOWARD A VIRTUAL SOCIETY

- Technology
  - Contactless payment
  - Visiting stores at home: video chat with sales associates

- More e-commerce penetration in groceries shopping
  - Grocery-anchored shopping centers experience less foot traffic

- Retail space redeveloped, converted or blended with other uses
  - Conversion to industrial (cold storage and distribution centers)
  - Replacement with multifamily
  - Mixed-use redevelopment

PRELIMINARY FORECAST FOR OFFICE

U.S. Office Sum of Markets Scenarios*

Vacancy Rate, %

Legend: Baseline — Downside — Severe Downside — Upside
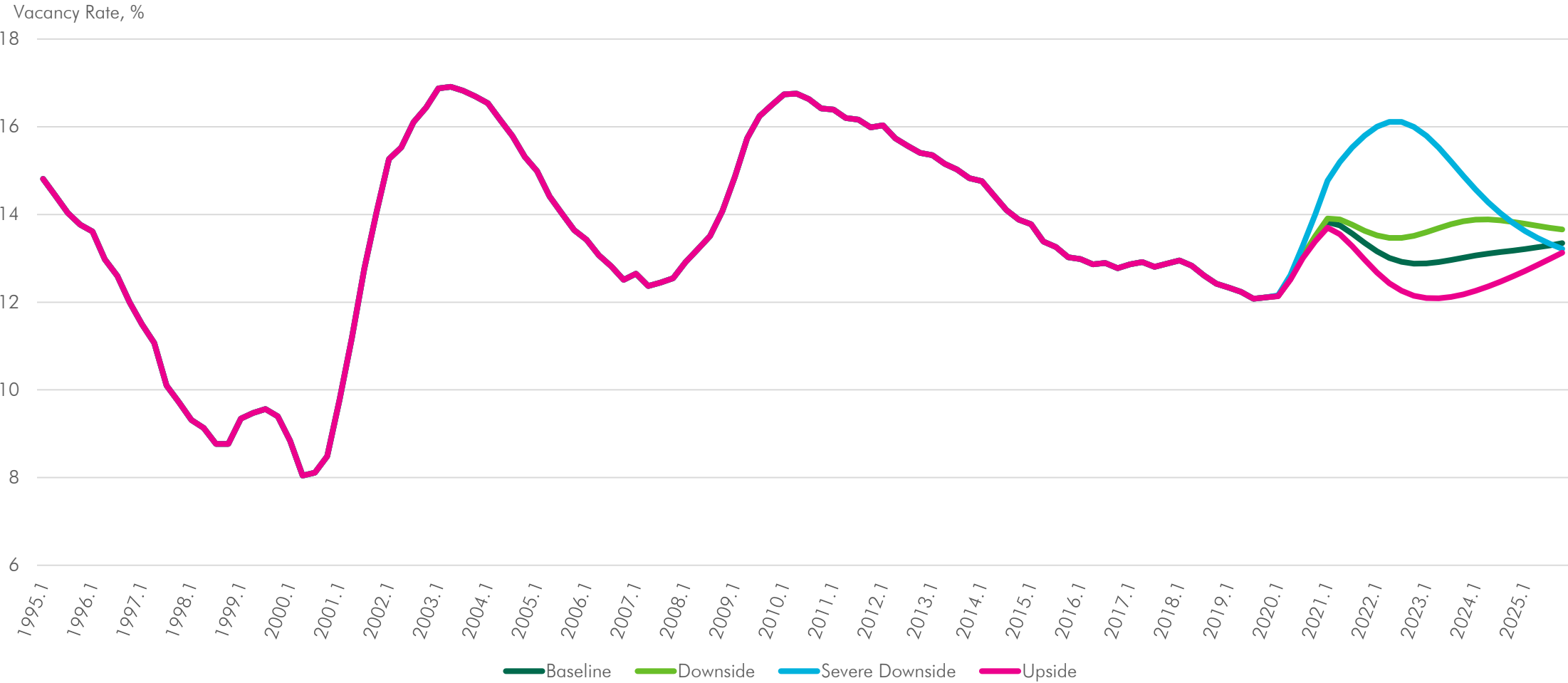
*Based on March 2020 macroeconomic expectations and Q4 2019 real estate fundamentals

Source: CBRE EA.

CBRE

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

IMPACT OF PREVIOUS RECESSIONS ON OFFICE MARKETS

1990 Recession
2001 Recession
Great Recession

Source: CBRE EA.

UNKNOWNS: TECH SECTOR

U.S. Office Leasing Share By Industry, %

Industry	
High-Tech	
Financial Services	
Business Services	
Healthcare/Life Sciences	
Creative Industries	
Legal	
Government	
Insurance	
Energy	
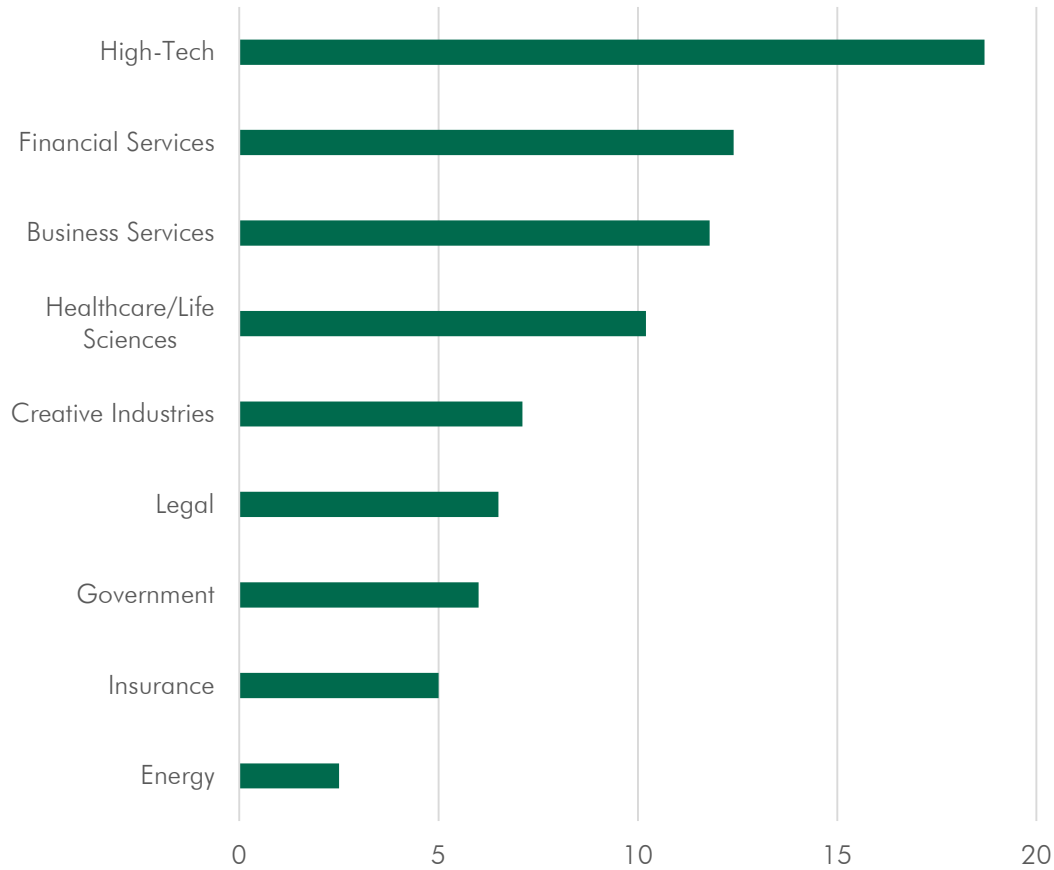
S&P Index and Office Sum of Markets Vacancy
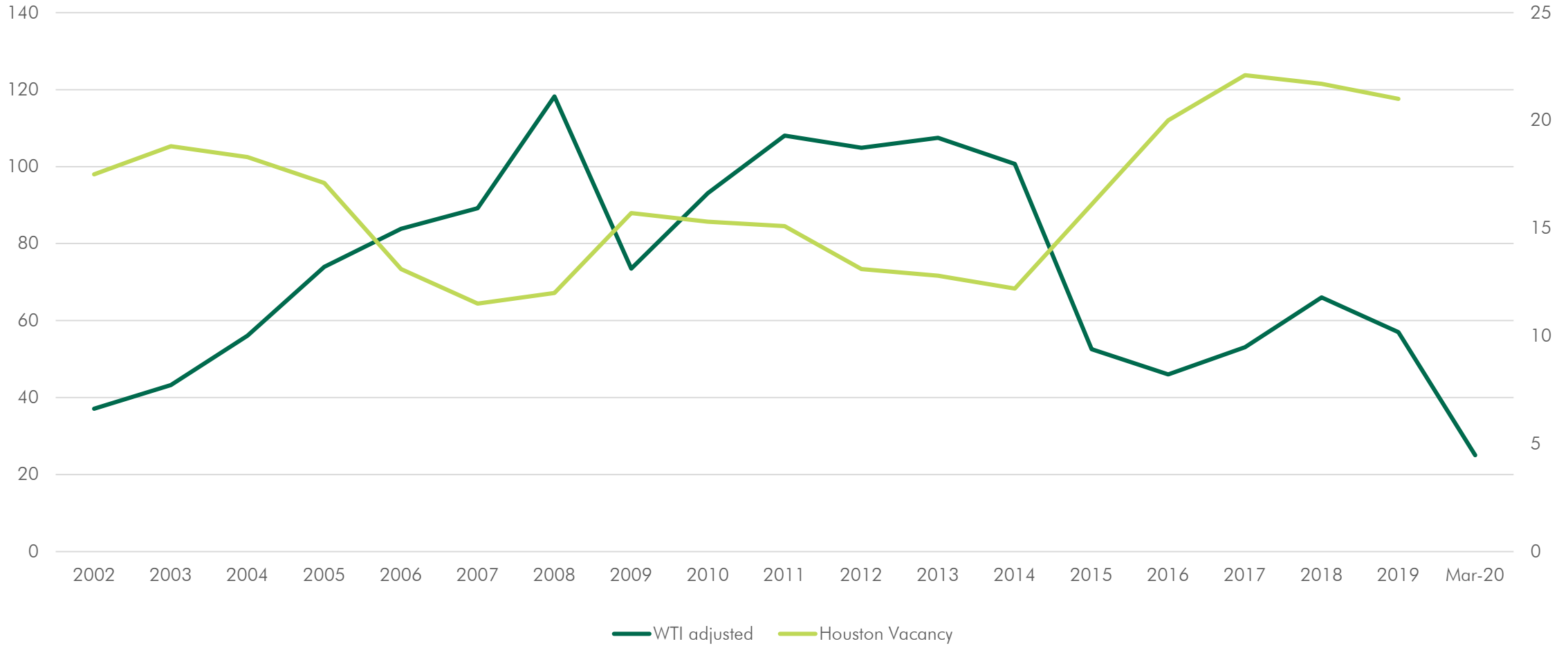

Legend: Adjusted S&P Index, Vacancy
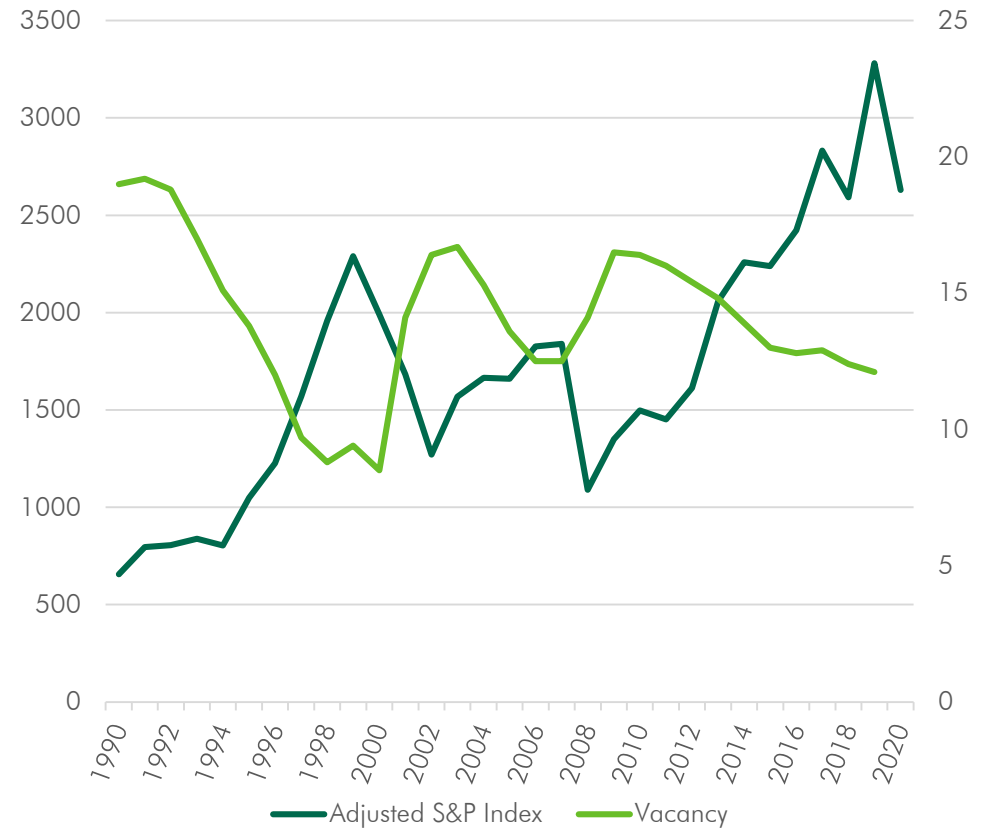
Source: CBRE Research, CBRE EA, Dow Jones & Company, Bureau of Labor Statistics.
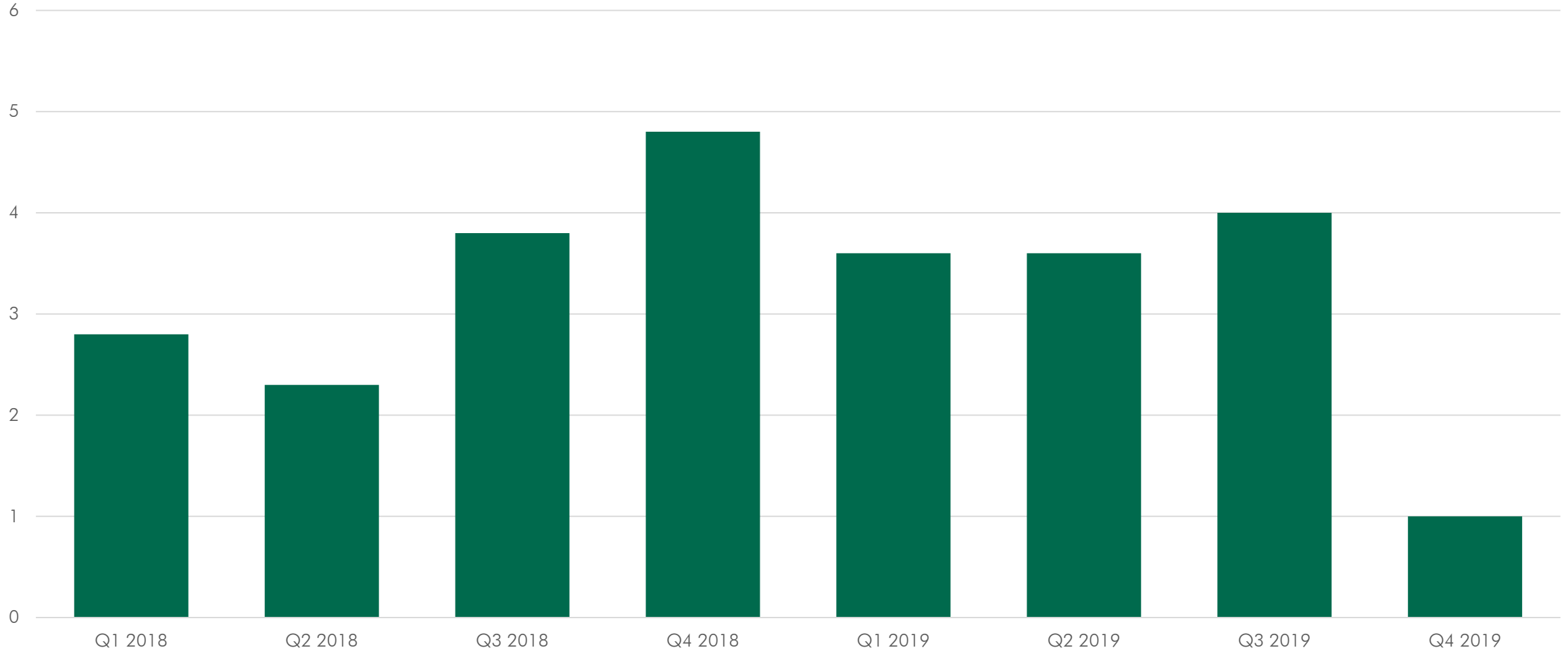
UNKNOWNS: ENERGY SECTOR
Houston Office Vacancy Rate And West Texas Intermediate Oil Price

Legend: WTI adjusted — Houston Vacancy

Source: CBRE EA, Dow Jones & Company, Bureau of Labor Statistics.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

UNKNOWNS: FLEXIBLE SPACE

Flexible Office Leasing, MSF

SUMMARY AND CONCLUDING REMARKS

Summary

- Currently we forecast a mild to medium impact on the office sector during the short-term shock, with consequent recovery
- The impact of past recessions varied by market and property type and depended on market industry mix and the cause of the recession
- Energy, Tech and Leisure and Hospitality and Flexible Space are sectors to watch

Potential Beacons in Office Investment:

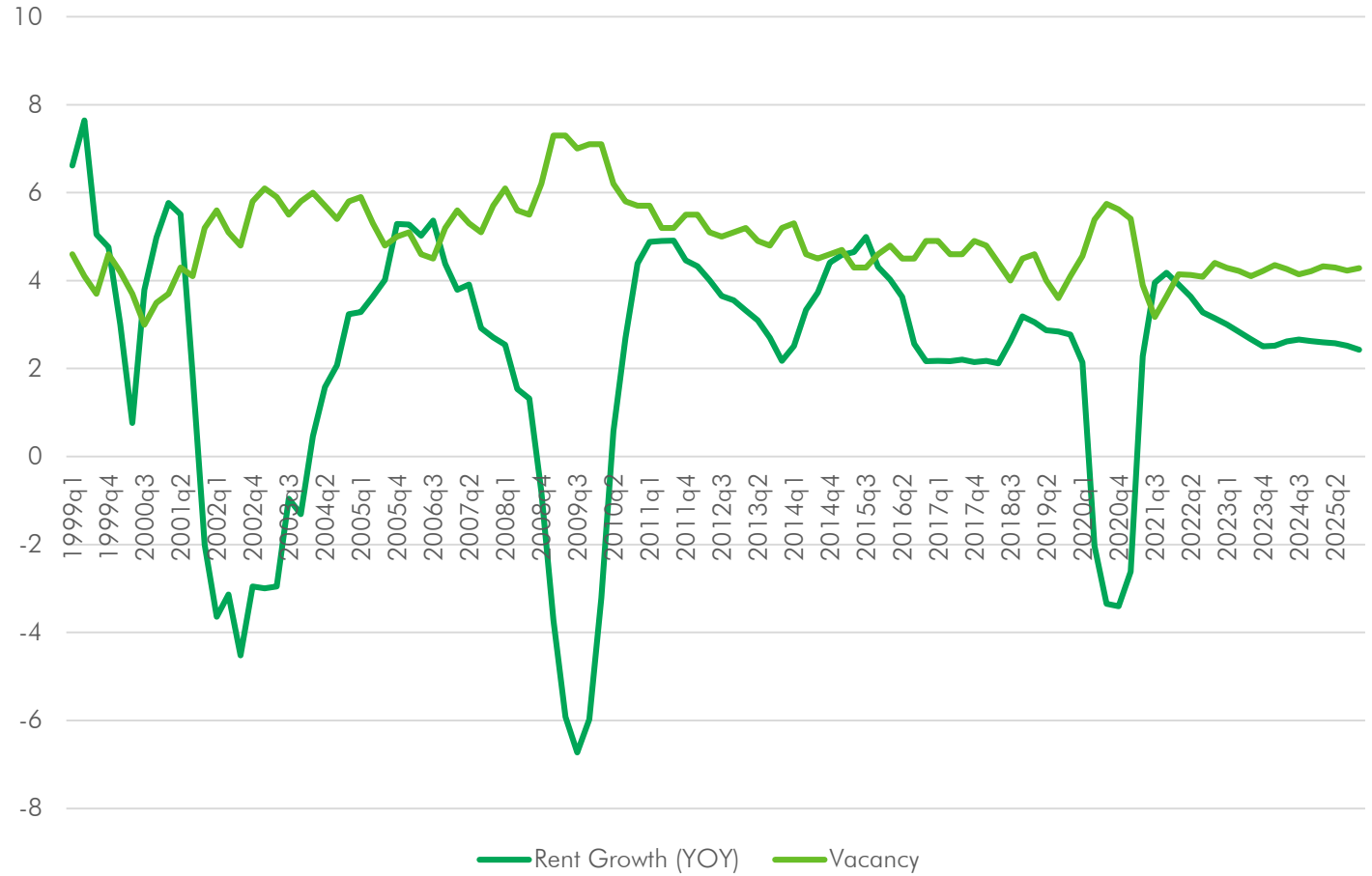- Life Science and Lab Space
- Corporate Flexible Space

MULTIFAMILY: SHORT TERM

- Turn around in Q3-Q4 2020
- Rent growth -3.4%
- Vacancy 5.7%
- 2% stock growth in the next year
- Speed bump/dip while employment uncertainty subsides
- Housing policy/stimulus could ease uncertainty
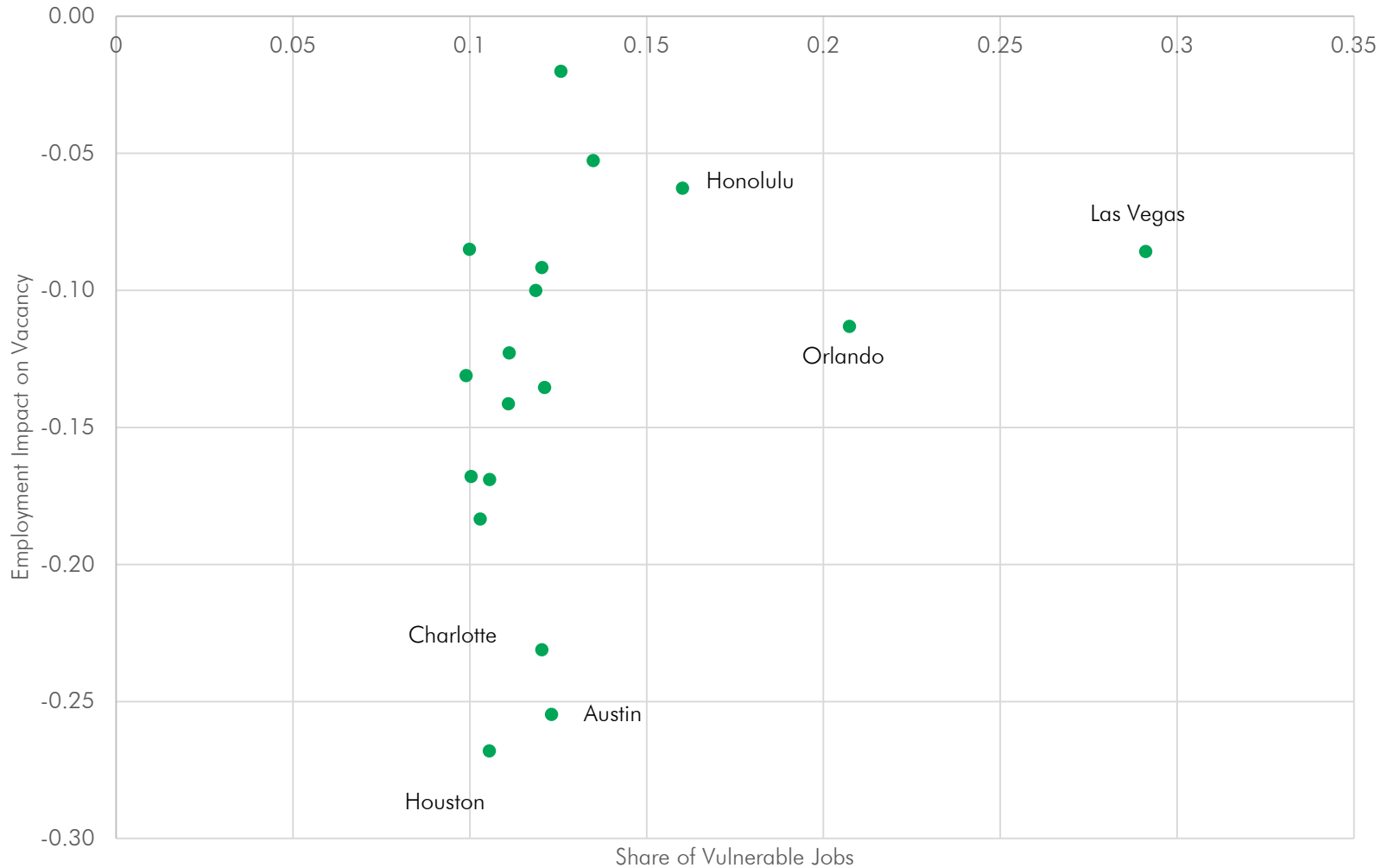
Source: CBRE EA, RealPage Inc.

MULTIFAMILY: LONG TERM

Source: CBRE EA, RealPage Inc.

- Preferences for city-living remain

- Return to long-run equilibrium in 2023

- Long-run vacancy: 4.25%

- Long-run rent growth: 2.75%

VULNERABLE MARKETS (SHORT TERM)

Employment Impact on Vacancy (y-axis, ranging from 0.00 to -0.30)
Share of Vulnerable Jobs (x-axis, ranging from 0 to 0.35)

Labeled points: Honolulu, Las Vegas, Orlando, Charlotte, Austin, Houston

- No market is exposed on both fronts

- Employment impact reflects growth in recent markets

- Vulnerable industries: food service, hospitality, entertainment

Sources: CBRE EA, RealPage Inc., Bureau of Labor Statistics.

CORONAVIRUS INDUSTRIAL REAL ESTATE IMPLICATIONS

Short-Term Impacts

- Slumping manufacturing activity
- E-commerce gaining significant share, in a declining retail environment
- Near-term delays of lease activity, perhaps construction

Long-Term Impacts

- Push to carry higher inventory levels
- E-commerce representing a higher share of retail than previously thought
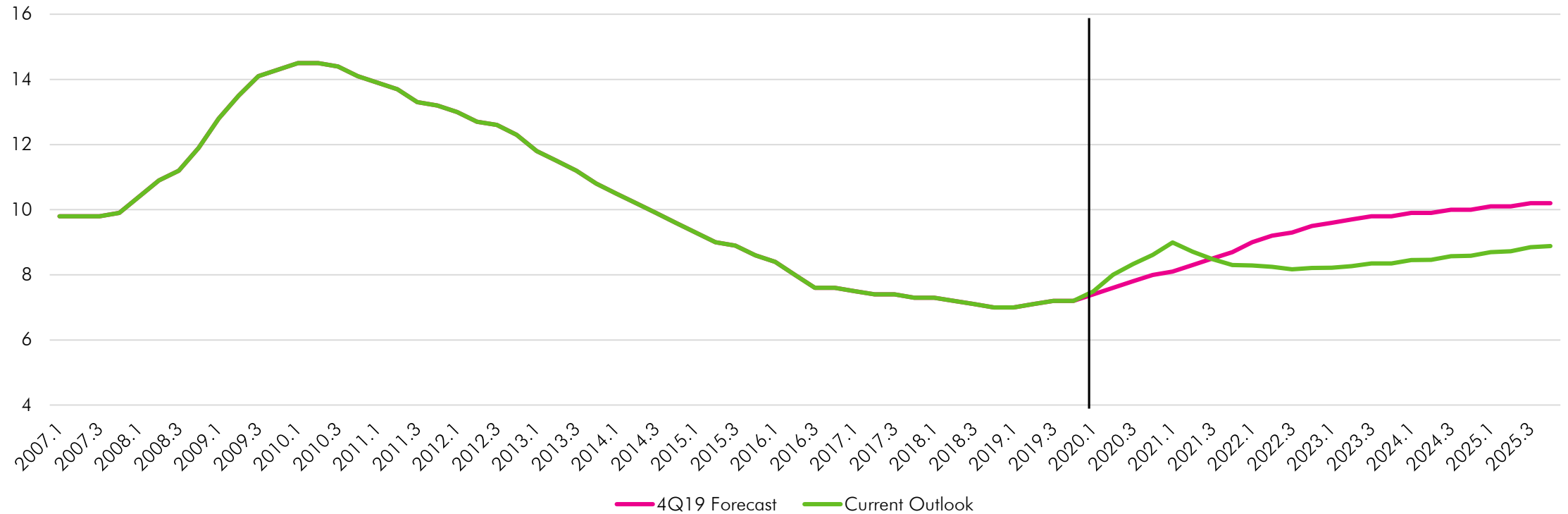
INTERIM INDUSTRIAL FORECAST CHANGES – NET ABSORPTION

Net Absorption (MSF)

— 4Q19 Forecast   — Current Outlook
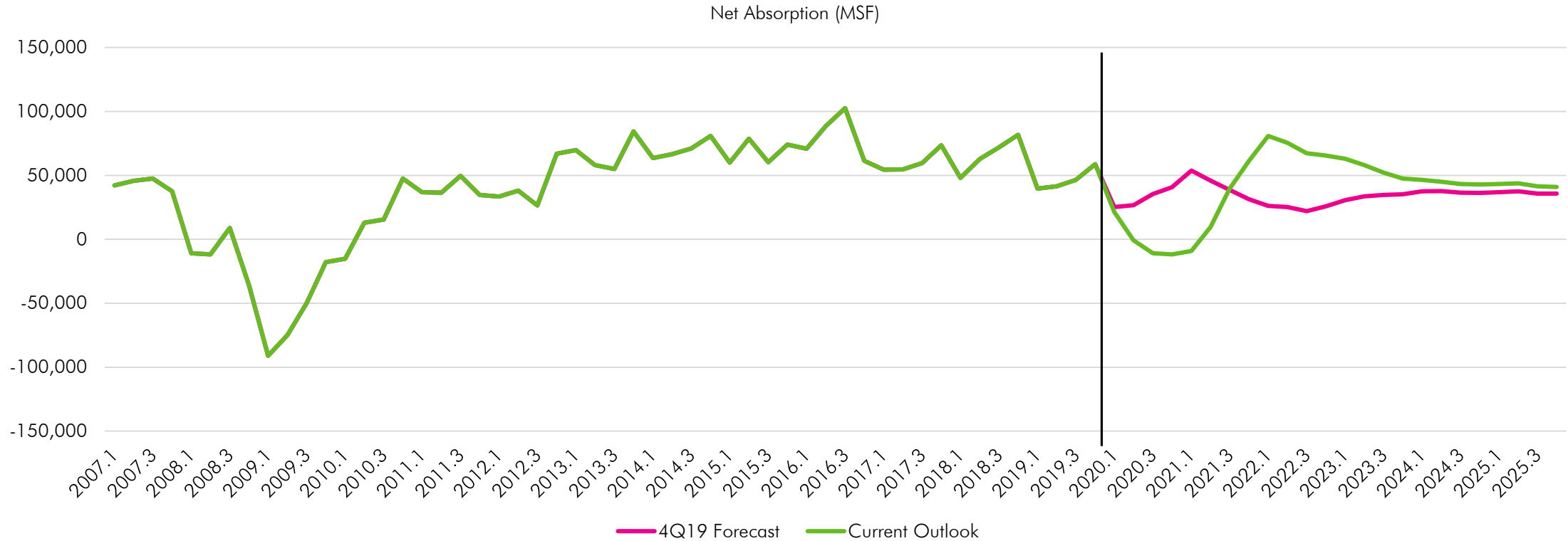
Net Absorption (MSF per year)	2020	2021	2022-2025
Previous	128,233	169,384	131,750
Current	-1,849	101,390	214,250
Change	-130,082.00	-67,994.00	82,500.00

Source: CBRE EA.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

INTERIM INDUSTRIAL FORECAST CHANGES – AVAILABILITY

Availability Rate (%)

— 4Q19 Forecast — Current Outlook

Availability (%)	2020	2021	2022-2025
Previous	7.7	8.4	9.8
Current	8.1	8.7	8.6
Change	0.4	0.3	-1.2

Source: CBRE EA.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

INTERIM INDUSTRIAL FORECAST CHANGES – RENT

Rent ($/SF)

Legend: — 4Q19 Forecast — Current Outlook
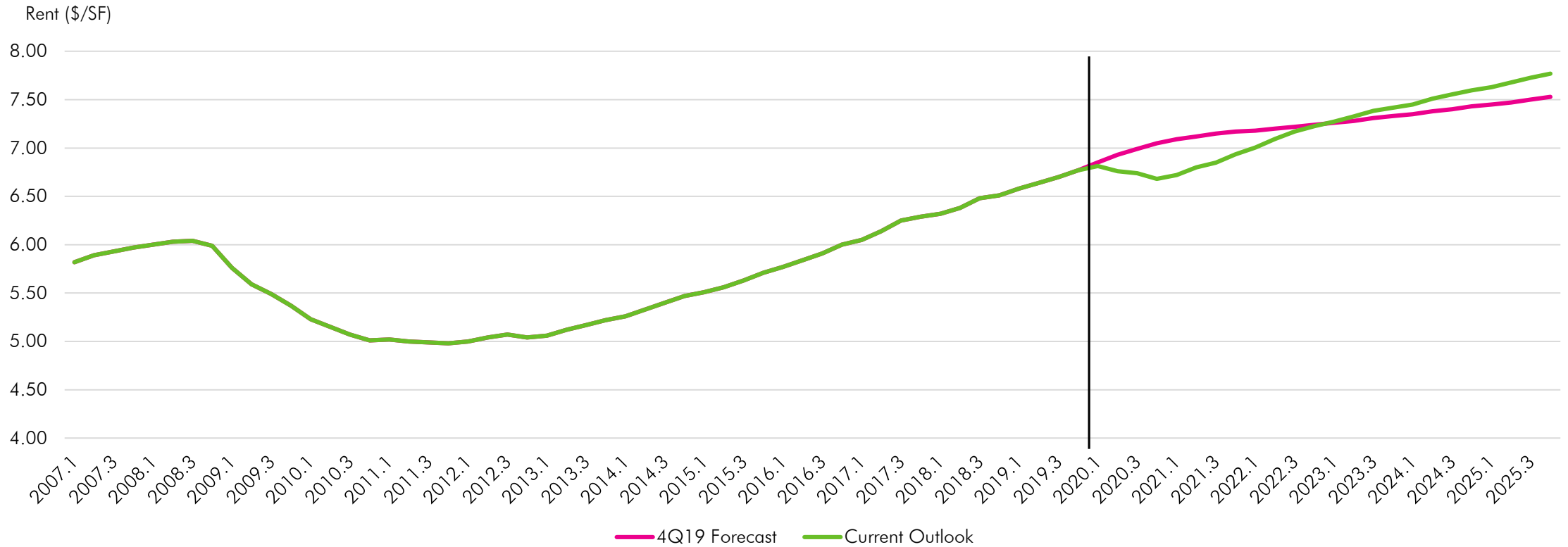
Rent (% 4Q/4Q)	2020	2021	2022-2025
Previous	4.1	2.6	1.2
Current	-1.3	3.8	2.9
Change	-5.4	1.2	1.7

Source: CBRE EA.

COVID-19 ECONOMIC IMPACT AND SECTOR UPDATE
CBRE ECONOMETRIC ADVISORS

CONCLUDING THOUGHTS

Summary

- Slumping economic environment and uncertainty over COVID-19 will curb near term industrial demand, leading to higher vacancy
- Longer term, the rebounding economy, shift toward e-commerce, and increased inventories will improve industrial real estate markets

Risk Areas

- Sharp bounce back is projected for industrial after initial shock from COVID-19
- Largely hinges on a rapid economic recovery once the virus is contained
- A more prolonged economic downturn will have negative implications for the industrial outlook