

# The Age of **RESPONSIVE REAL ESTATE**

Presented by Econometric Advisors

**2020  
SPRING  
CLIENT FORUM**

**CBRE**

# TECHNICAL SEMINAR NEW DEVELOPMENTS IN REAL ESTATE INDICES



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# ENHANCEMENTS RELATED TO MODELING

- CAP RATE FORECAST MODEL REVAMP
  - All sectors delivered in 2019
- **NEW REPEAT RENT INDEX (INDUSTRIAL, OFFICE, & RETAIL)**
  - **Set for delivery this year (samples available)**
  - **A new data series for use within current and future products.**
- SUBMARKET FORECAST MODEL REVAMP
  - All sectors delivered this year (samples soon)
- NEW NATIONAL FUNDAMENTALS FORECASTS
  - All sectors delivered this year

# WHY THE INTEREST IN REPEAT RENT INDICES

- Fannie and Freddie estimate repeat sales indices for evaluating the collateral behind 50 million residential mortgages.
- Core logic causes them to rate MBS as well.
- Sometimes called “Case-Shiller” or “HPI” indices.
- CBRE: first application of the technique to commercial properties and rents (as opposed to asset prices).
- Considered the “Gold Standard Approach” for how to estimate the value of an individual asset over time when there are few directly comparable assets.

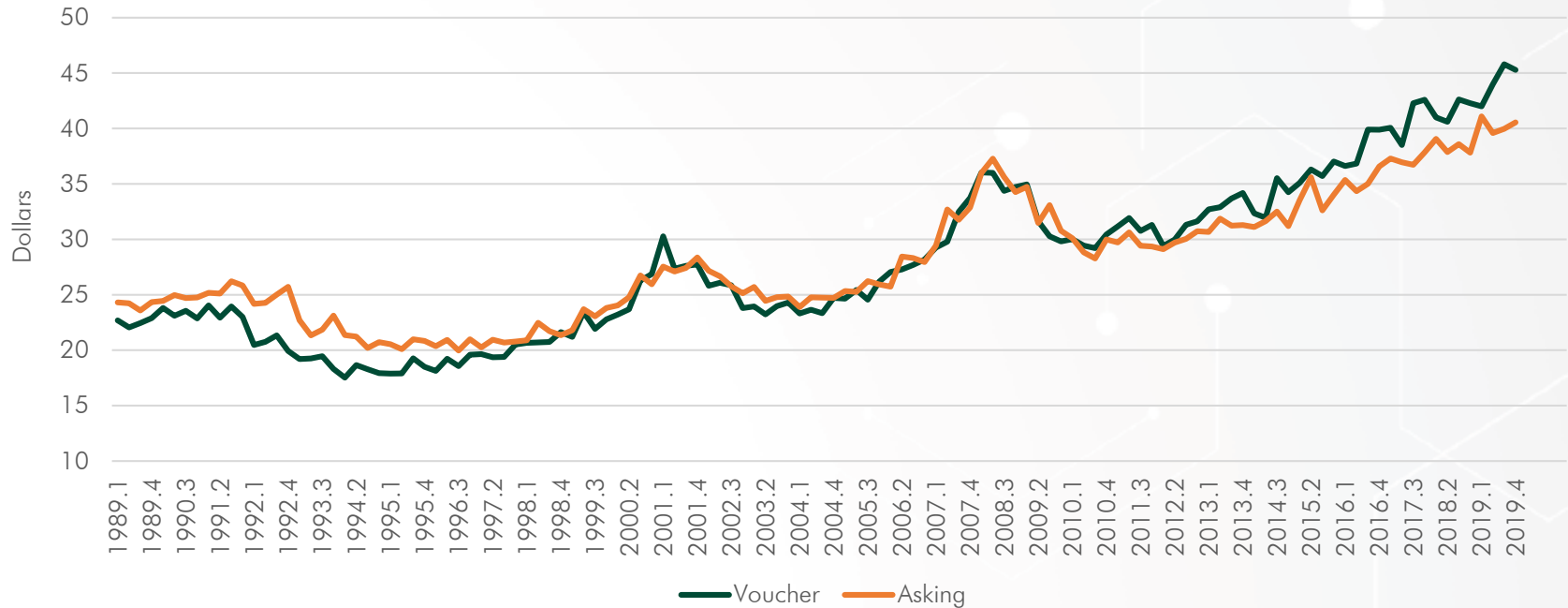
# THE REPEAT RENT APPROACH

- Avoids comparing rents levels across properties (which can differ for many reasons).
- Only compares the growth rates within properties.
- Repeat rent models use only properties *that have multiple rent observations over time*
  
- Regressions estimation:  $\log(r_{ij}) = \log(\alpha_i) + \log(p_i)$
- $J = 1, N$  properties (1654 buildings)
- $l = 1, T$  quarterly time periods (124) 1989:1 – 2019:4
- $A_i$  = property fixed effects (1654 dummy coefficients)
- $P_i$  = time period fixed effects (124 dummy coefficients)
- = the repeat rent “index”.

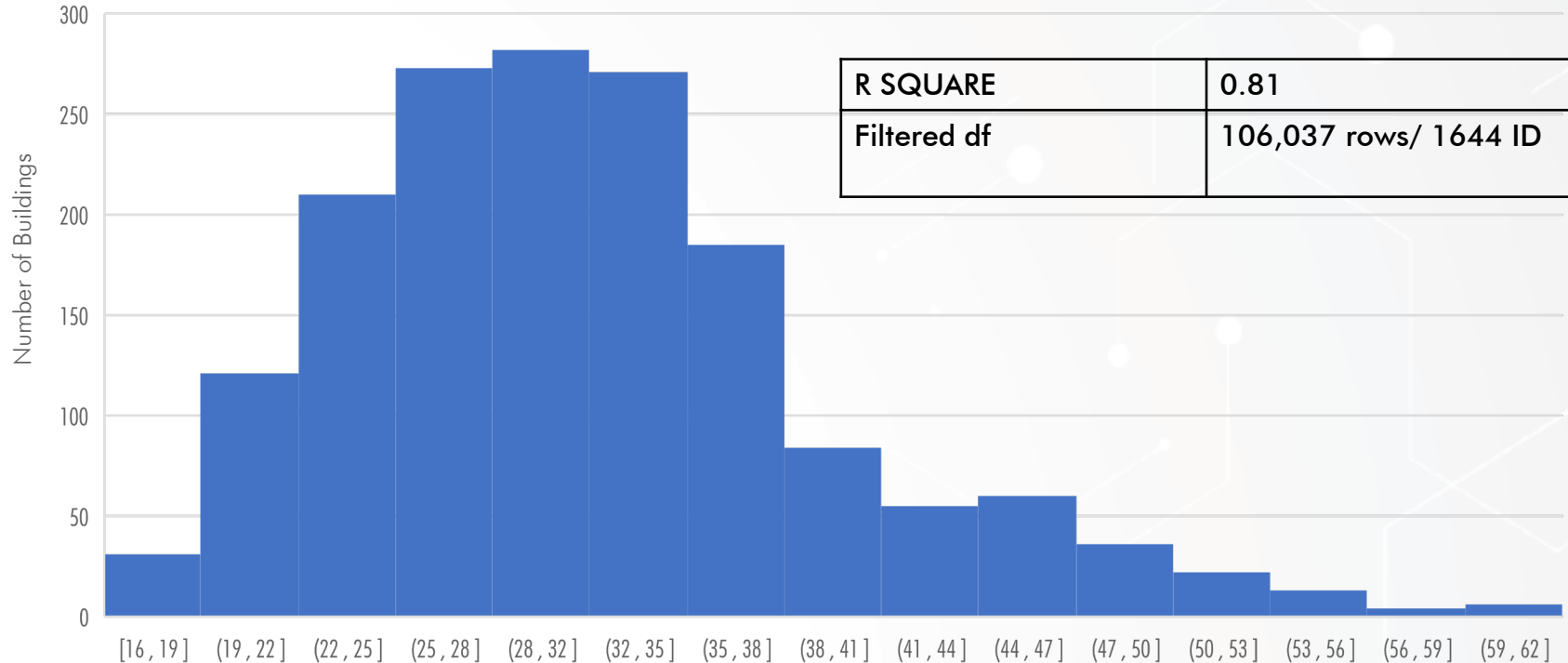
# ALTERNATIVE SOURCES OF RENTAL DATA FOR ESTIMATION

- **LA office asking rents:**
  - Raw data points before filtering: 2,399 properties over a range of 124 periods (1989.1 – 2019.4) 297,476 potential data points
  - Filtered to 1,644 properties (must have min # rents). These properties had rent data for an average of 65 periods out of a potential 124 . Total usable observations: 106,037. Similar in other markets.
  - But are asking rents “true” rents?
- **LA office contract “vouchers”:**
  - 12,529 observations (not enough for the repeat rent approach)
  - Total lease consideration and sq. ft. available for signed deals, but rarely the same for comparable buildings.

# LA OFFICE: AVERAGE VOUCHERS VS. ASKING RENT (IN THE SAME BUILDING)



# LA OFFICES: DISTRIBUTION OF ESTIMATED REPEAT RENT PROPERTY FIXED EFFECTS (the $A_i$ )



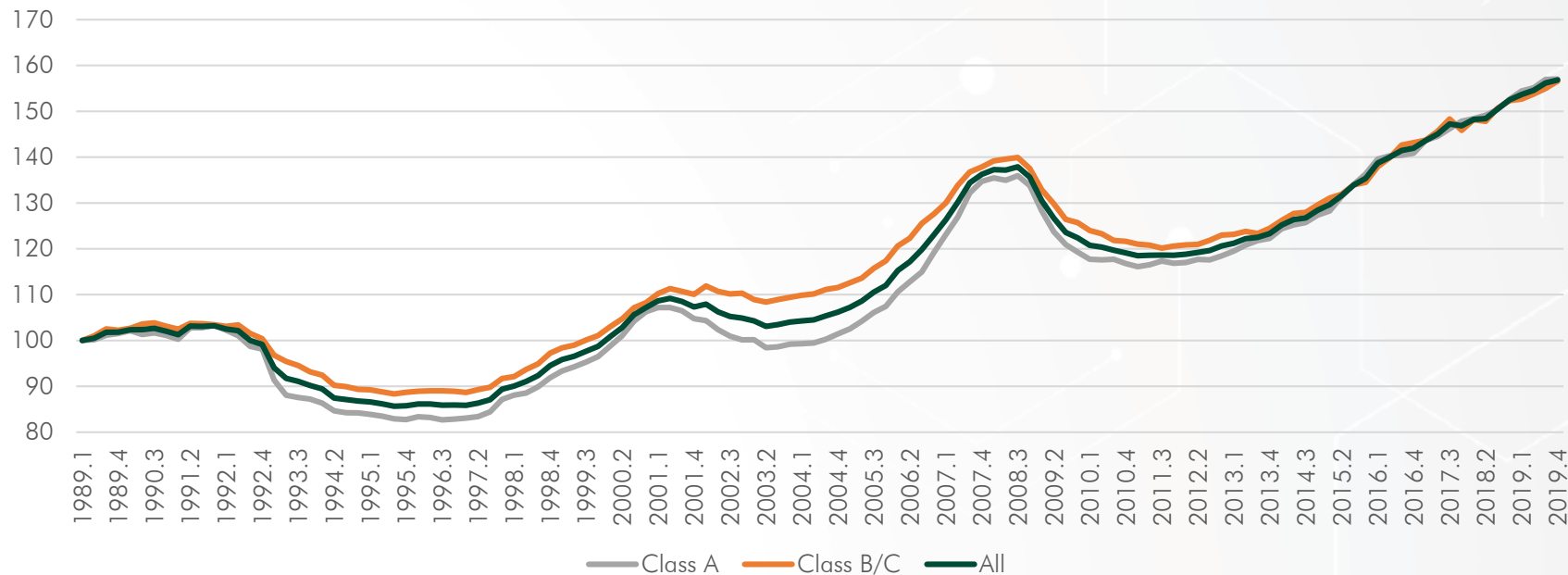


# LA OFFICE: TIME SERIES FIXED EFFECTS (the $P_i$ )

Estimated for all properties, and then by class

(Class A; 51,639 observations, Class B/C: 54,398 observations)

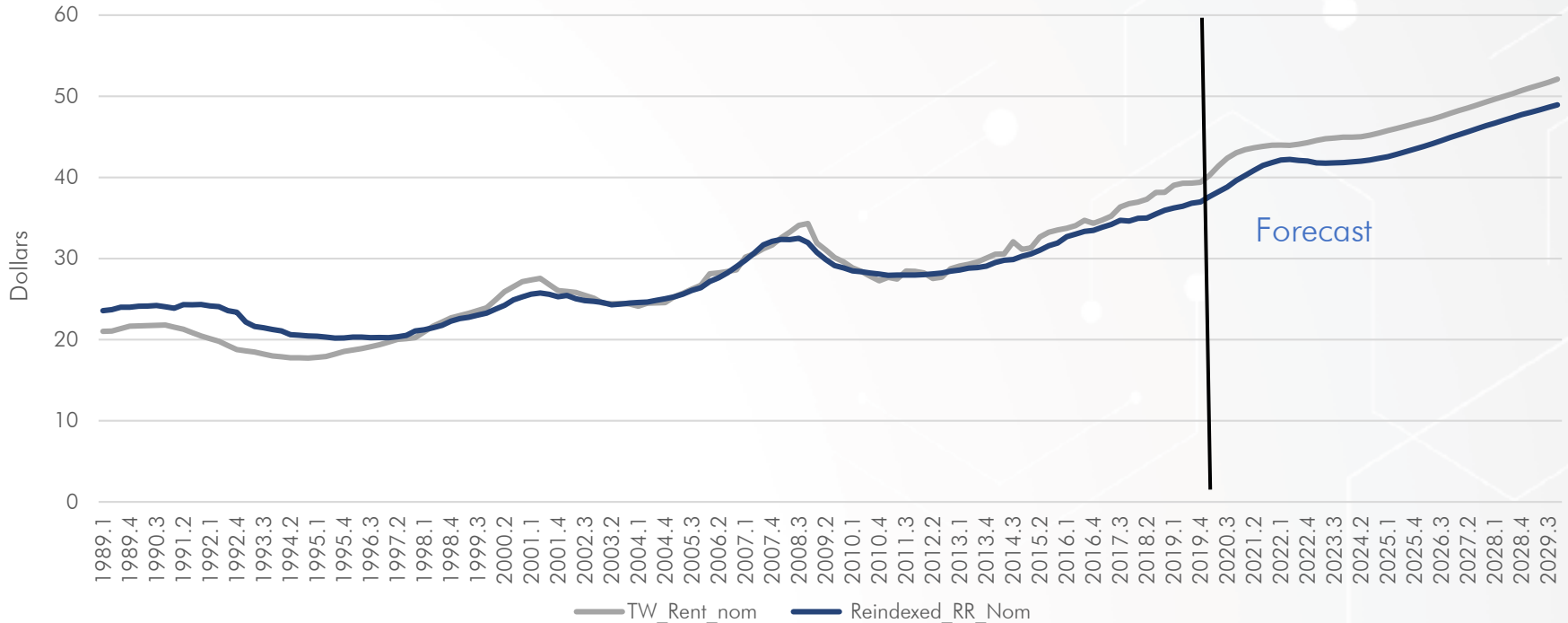
Rent Indexed 1989.1=100



# LA OFFICE: CBRE MSA FORECAST MODEL

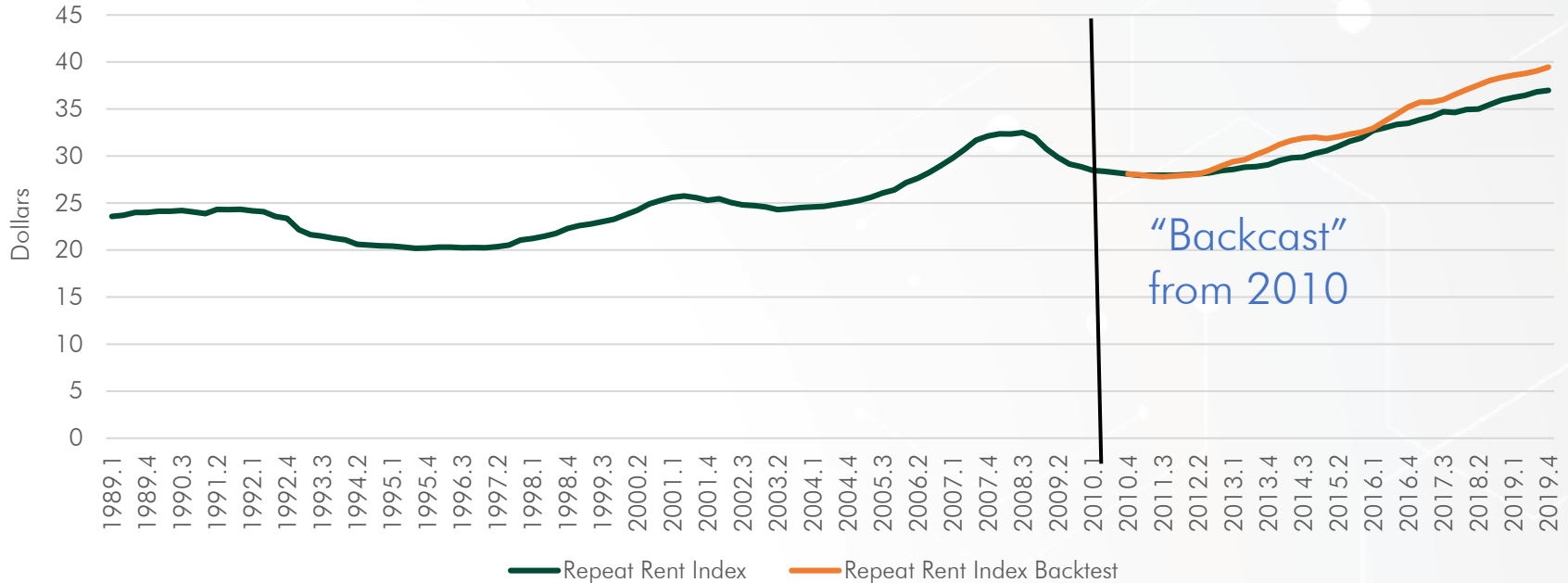
Using prior TWR index and new repeat rent index

Los Angeles History and Forecast (Indexed to Q1 2005 USD value Current Dollars)

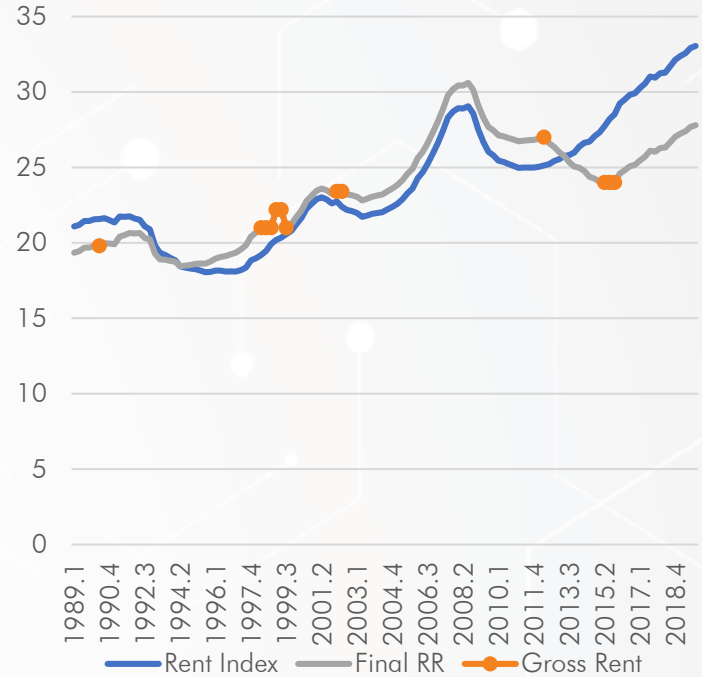
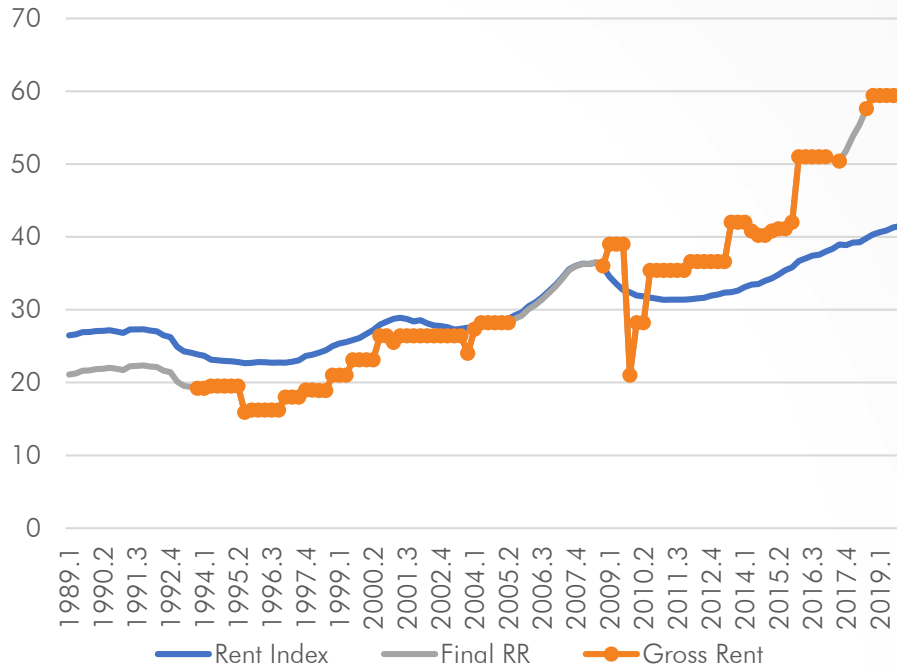


# LA MSA OFFICE MODEL: "BACK TESTING" THE NEW REPEAT RENT DATA

Los Angeles Office, Repeat Rent Index Back Test, 2010 - Present

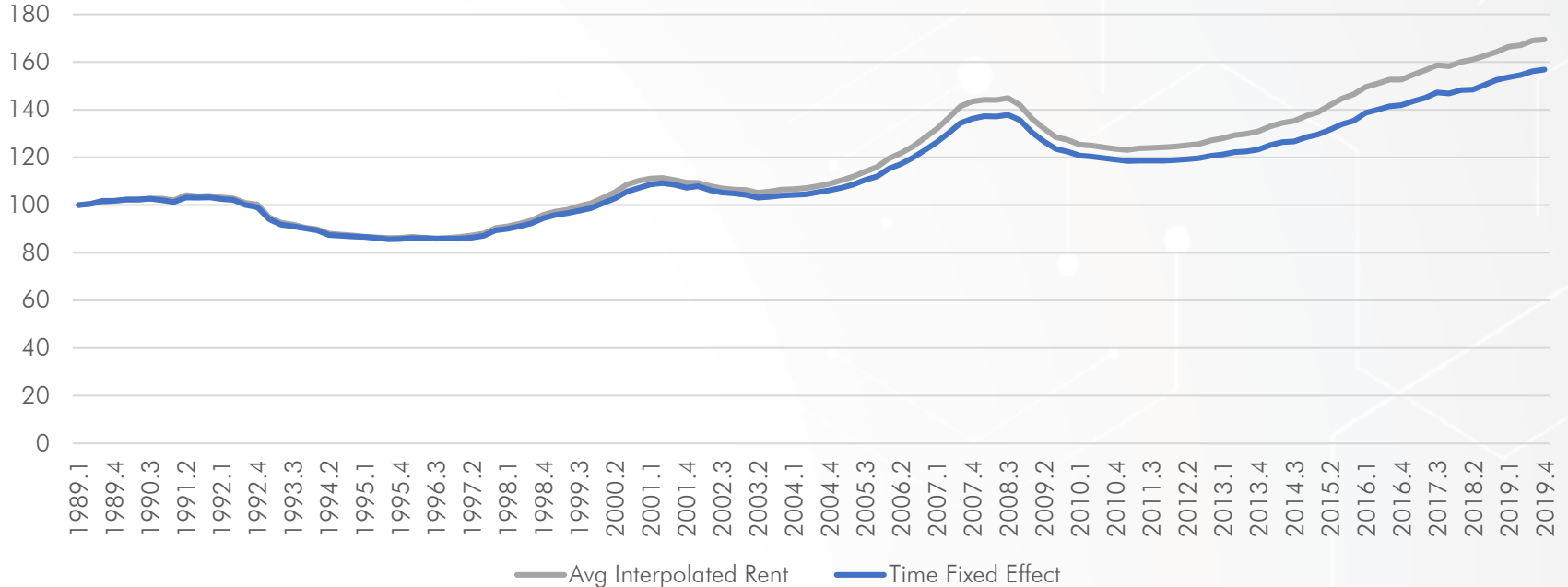


# USING THE LA REPEAT RENT INDEX TO FILL IN MISSING RENTS FOR INDIVIDUAL PROPERTIES (INTERPOLATION)



# LA OFFICE RENTS: COMPARING THE ESTIMATED REPEAT INDEX WITH AVERAGE (OF INTERPOLATED) RENTS. WHY CAN THEY DIFFER?

Rent indexed 1989.1=100



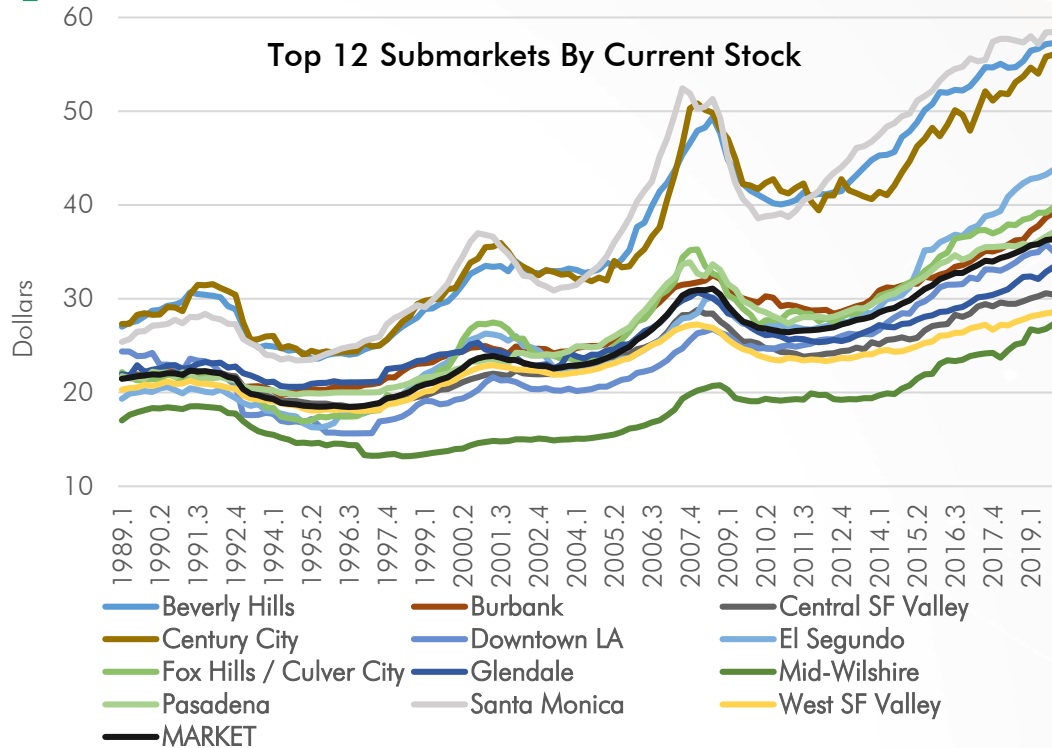
# SIMPLE AVERAGE RENTS VS. THE TRUE REPEAT RENT INDEX

- Average rents change over time because the sample of properties changes as new buildings are added and old demolished.
- Generally, average rents increase more than the index (by the rate of improvement in the stock). Across 63 office markets the cumulative difference between 30-year average rent growth and index growth ranges from a low of zero to a high of 20%. Rent growth is largest in markets with the fastest growth in new stock.
- Repeat rent index is a better measure of what rents have done and will do in individual assets. \*requires a lot of data
- With our interpolated property level rent data we can calculate average rent growth for small geographic areas, property sub-types, etc.
- Locator: allows clients to examine and forecast rents for small areas

LA submarket quiz: Where did average rents grow the most (1989-2019)?

- El Segundo or Mid Wilshire?
- Century City or Pasadena?

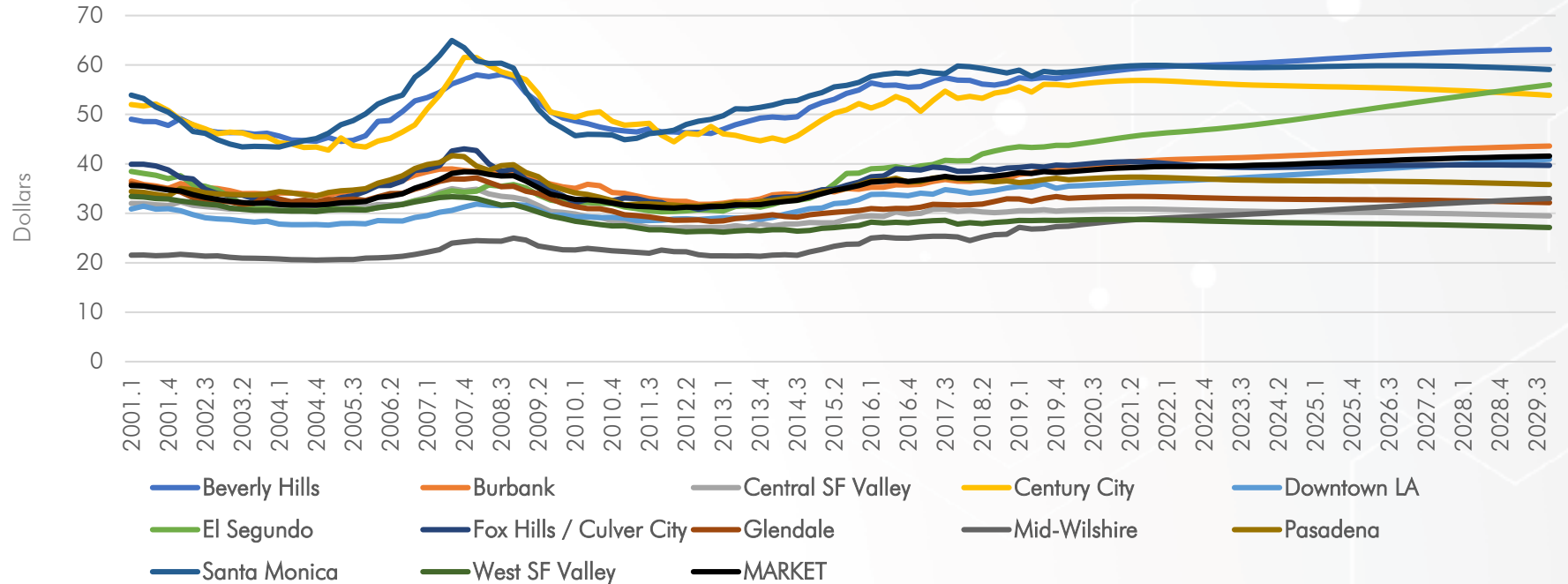
# LA SUBMARKETS: GROWTH IN AVERAGE INTERPOLATED RENTS



Name	Stock 2019.4	Cumulative Rent Growth Rate Since 1989.1
<b>MARKET</b>	<b>189138</b>	<b>67% (FE 57%)</b>
Downtown LA	34997	47%
West SF Valley	13800	37%
Century City	10680	97%
El Segundo	9848	117%
Mid-Wilshire	8442	51%
Central SF Valley	8339	39%
Santa Monica	7917	120%
Pasadena	7675	73%
Glendale	6250	50%
Burbank	5461	80%
Fox Hills / Culver City	5420	86%
Beverly Hills	4927	104%
Miracle Mile	4848	91%
Suburban Long Beach	4596	42%
Hollywood	4536	189%
Downtown Long Beach	4336	30%
Olympic Corridor	4149	60%
Westwood	3726	65%
Marina Del Rey	3658	148%
190th St. Corridor	3579	38%
Brentwood	3514	51%
LAX	3342	60%
Mid-Counties LA	3223	58%
Torrance	2799	60%
Santa Clarita Valley	2087	54%
210 Corridor	2078	70%
Pomona / Diamond Bar	1832	65%
East SF Valley	1727	69%
West Hollywood	1724	117%
Park Mile	1236	70%
City of Industry	1153	49%
Unclassified South Bay	1125	41%
Beverly Hills Triangle	1046	134%
Alhambra	954	113%
El Monte	838	44%
Monterey Park	772	43%
West Covina / Walnut Covina	735	58%
Covina	699	38%
West Los Angeles	539	76%
Beach Cities	326	101%
Palos Verdes	205	38%

# LA OFFICE: FORECASTING SUBMARKET AVERAGE RENTS WITH A NEW "PANEL" MODEL (2001- 2019)

Rents in constant (2019)





## NEXT STEPS

- Roll out new MSA history and forecasts for all major MSAs: office, industrial, retail – using the repeat rent indices (updated each quarter into the future).

**\*Apartments and hotels already have “repeat rent” data.**

- Roll out all new average rent forecasts at the submarket level. Forecasts are based upon a new panel model for each MSA.
- Provide client access to building level rent data spanning *30 years*, allowing the creation of average rent histories by any geographic boundary.

# TECHNICAL SEMINAR

## NEW DEVELOPMENTS IN RESEARCH DELIVERY



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MARY SUTER  
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# ENHANCEMENTS RELATED TO DELIVERY

## MODERNIZE AND ENHANCE...

### MULTI-YEAR PROJECT TO MODERNIZE OUR ANALYTICS PLATFORM

- Improve the discovery experience and reduce frictions
- Enable more user interactions, customized querying and sharing
- Connected to more datasets allowing more comprehensive analysis

### THE NEW ANALYTICS PLATFORM

- Data discovery and synthesis in Locator
- Scenario discovery and what-if interactions in Forecaster
- Popular reports, query tools, and API connections in Builder

# ENHANCEMENTS RELATED TO DELIVERY INTRODUCING...



**LOCATOR**



**FORECASTER**



**BUILDER**

# ENHANCEMENTS RELATED TO DELIVERY INTRODUCING...

## Address Finder

Pin locations to a map and see where they sit within submarket definitions by sector.



## Sectors & Markets

Refocus the map to drop a pin and load key stats relevant to your analysis.

## Import & Save Collections

Upload a list to interact with relevant pins as a collection for future use.

## Building Filter (premium)

Select a dataset and apply parameters to create customized time-series aggregates.

## Append Reports (premium)

Add relevant summary statistics to a list of pins.

## Baseline Forecasts

Explore EA's baseline forecasts in charts and grids for easy analysis.



## Scenario Adjustment

Adjust demand and supply variables to drive EA's forecast model, testing what-if scenarios and producing exportable custom forecasts.

## Scenario Save & Import (premium)

Save and manage your custom scenarios on the platform. Upload lists of scenarios from Excel.

## Publish Scenarios (premium)

Share your scenarios with colleagues within the platform.

## Popular Reports

Discover, sort and filter a catalog of 1,500+ reports by region, sector and market.



## Export Queue

Add and export a series of reports for sharing with colleagues and clients.

## API (premium)

Connect directly to our warehouse to sync your systems to published datasets.

## Extracts for Excel (premium)

Download and sync a series of queries in a workbook for easy updating of cross market aggregate datasets.

CBRE | LOCATOR

IMPORT EXPORT APPEND REPORT SAVED PORTFOLIO

Address Finder

Type a market, address, or place

Markets & Sectors

Office Industrial Apartment Retail Hotel

Type to filter by Market

- Jacksonville
- Kansas City
- Las Vegas
- Long Island
- Los Angeles
  - Monterey Park
  - El Monte
  - Covina
  - City of Industry
  - Alhambra
  - West SF Valley
  - Santa Clarita Valley
  - East SF Valley
  - Central SF Valley

Building Filter

Select Data Set(s) you would like to filter around

Competitive  Supply Track

PROPERTIES 58

Map Filter

Pins  Markets

Pin 400 S Hope St, Los An...

Pin Radius 2

Competitive

Property Types

Office  Industrial  Apartment

Class

Class A  Class B  Class C

Age

Year Built 1753 to 2019

Year Rennovated 1900 to 2021

Size

Rentable Area 0 to 1587456

Ft. ... 1 to 110

Save / Download

Los Angeles

DELETED COLUMN OPTIONS SAVE

	Office	Industrial	Apartment	Retail	Hotel
ation	Search by Office	Search by Industrial	Search by Apartment	Search by Retail	Search by Hotel
0001, 999999]	Los Angeles > Downtown LA	Los Angeles > Los Angeles/Downtown	Los Angeles > Downtown	Los Angeles > Intown	Los Angeles > Central Business District

25

Scenario Adjustment

- EA Office
- EA Industrial
- EA Apartment
- EA Retail

Type to filter by Market  FILTER OPTIONS

- Albuquerque
- Atlanta
- Austin
- Baltimore
- Boston**
- Charlotte

Boston Office

2020 tight jobs

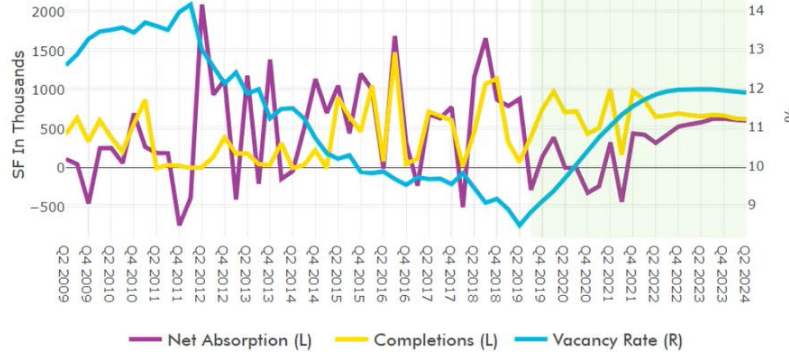
Demand  Supply

Market Fundamentals data as of Q3 2019  
Growth in Office-using services employment (%)

2019	<input type="text" value="3.30"/>	Q1	<input type="text" value="3.30"/>
2020	<input type="text" value="0.86"/>	Q2	<input type="text" value="3.30"/>
2021	<input type="text" value="3.30"/>	Q3	<input type="text" value="3.30"/>
2022	<input type="text" value="3.30"/>	Q4	<input type="text" value="3.30"/>
2023	<input type="text" value="3.30"/>		
2024	<input type="text" value="3.30"/>		

Boston Office: 2020 tight jobs

Net Absorption vs. Completions vs. Vacancy Rate



NET ABSORPTION VS. COMPLETIONS VS. VACANCY RATE

NET ABSORPTION VS. VACANCY RATE

RENT INDEX VS. COMPLETIONS

COMPLETIONS VS. RENT INDEX

EXPORT

QUARTERLY NUMBERS  ANNUAL NUMBERS

PERIOD	STOCK (SF X 1000)	COMPLETIONS (SF X 1000)	VACANCY RATE (%)	NET ABSORPTION (SF X 1000)	RENT INDEX (\$/SF)	RENT INFLATION (%)	REAL RENT INDEX (\$/SF)	REAL RENT INFLATION (%)
2009	179472	178	12.42	-1976	31.63	-3.3	0	0
2011	179780	435	12.58	120	29.14	-7.9	0	0
2010	179780	308	12.86	-276	28.16	-3.4	0	0
2017	180122	342	13.26	-450	27.73	-1.5	0	0

MY VALUATIONS

Valuation Name

Subject Property  
**Amara Hotel**  
33 Arch St  
Boston, MA 02115

MyShare Report  
**Amara Hotel - 20190619** ✎  
500 Rooms  
Opened 2009

Value (\$)  
**25,773,318**

\$ Per Room  
**133,897**

PROPERTY INFO

VALUATION CRITERIA

HISTORIC FINANCIALS

PROJECTED FINANCIALS

RESULTS

SUMMARY

You can edit the property information for your valuation. Please modify the appropriate fields below in order to do so.

Valuation Name\*

Location Type\*

Chain Scale\*

Subject Property\*  
(Select existing or Create New)

Room Count\*

Year Open\*

Meeting Space

Internal ID

CBRE ID

Base Year Data

Address\*

MyShare Report

Property Type\*

Restaurant  Golf  In Room Food Items

Amenities  Exterior Corridors  Pool

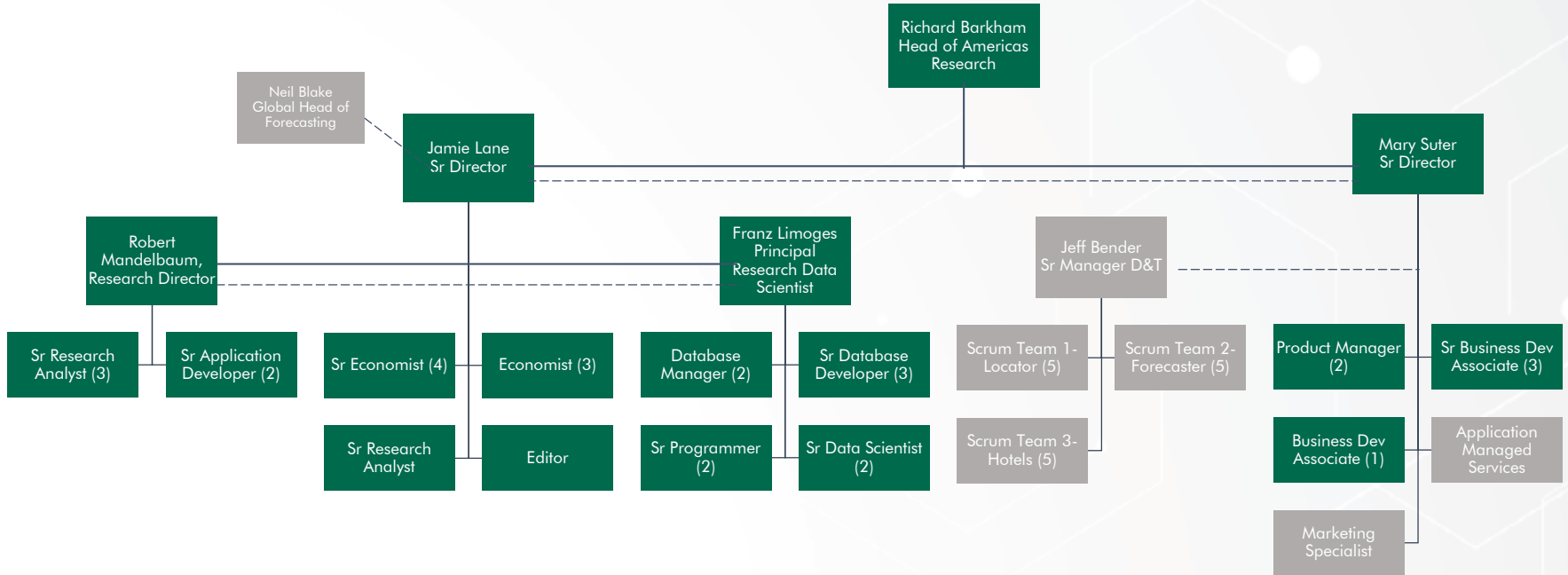
Is Beach Front  Spa

\* required fields

Valuation Criteria →



# OUR TEAM APPROACH



# A THANK YOU TO OUR LOYAL CLIENTS

Brookfield

nuveen  
A TIAA Company

MetLife

J.P.Morgan  
Asset Management

Principal

PGIM REAL ESTATE FINANCE

CLARION PARTNERS

Blackstone

GLP

CBRE  
GLOBAL  
INVESTORS

UBS

AEW

LaSalle  
INVESTMENT MANAGEMENT

GIC

NEW YORK  
LIFE  
NYL  
INVESTORS

BentallGreenOak

Invesco

PROLOGIS

BARINGS

CREDIT SUISSE

Morgan Stanley

TISHMAN SPEYER

CIM

BLACKROCK

Ivanhoé  
Cambridge  
Caisse de dépôt et placement  
du Québec

Deka

Goldman  
Sachs

OXFORD

TH Real Estate

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Abu Dhabi Investment Authority

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Thank you.

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