

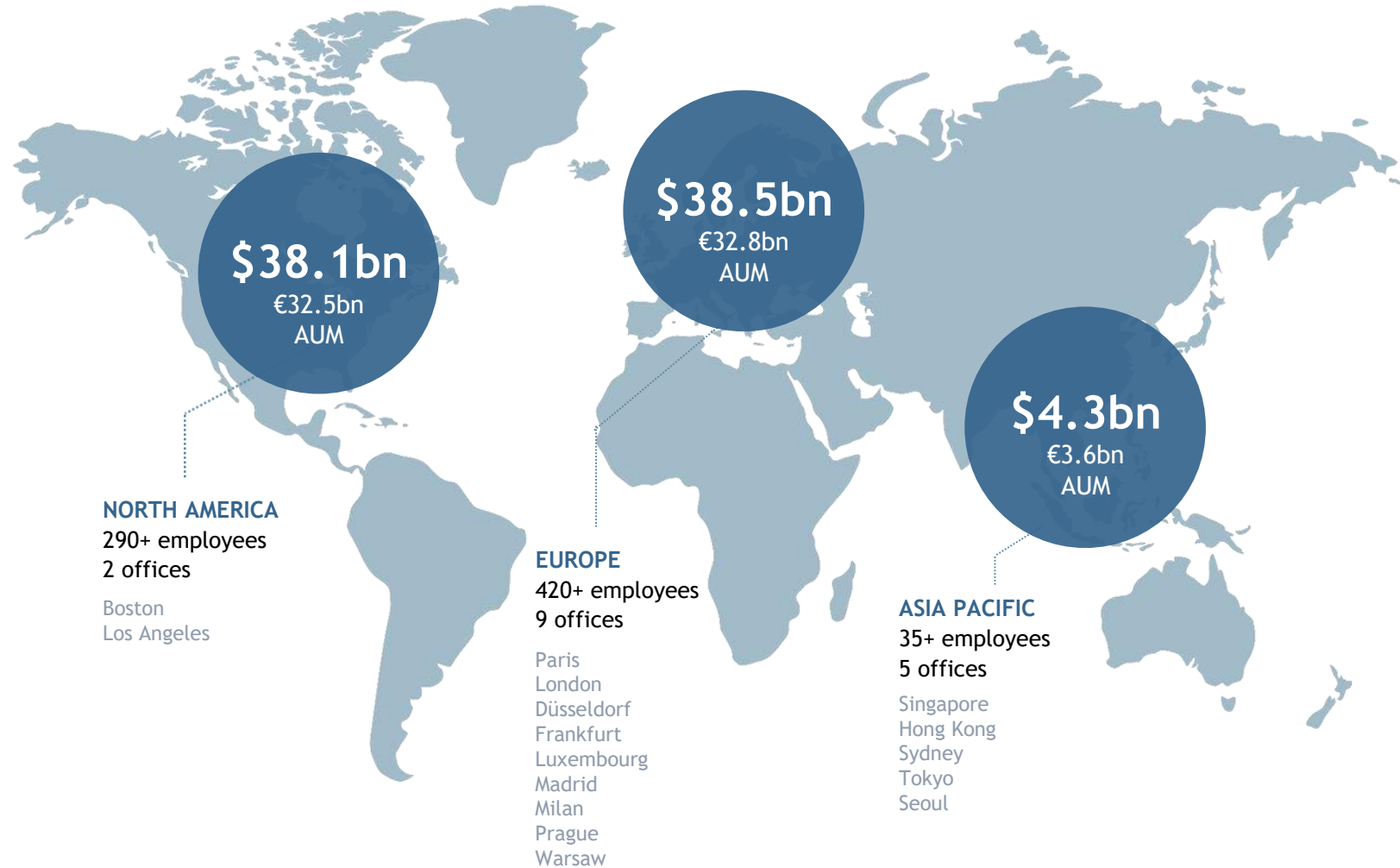
7th NEW DATA IN REAL ESTATE LAB

11th February 2021



AEW GLOBAL

- Over 30 years' real estate investment management experience
- One of the largest real estate investment managers in the world with €80.9bn in assets under management
- Over 700 staff located in 16 offices across North America, Europe and Asia Pacific
- Broad experience across all major real estate markets and investment strategies
- Research driven approach to investment strategy and underwriting



Figures as at 30 September 2020

AEW RESEARCH & STRATEGY

- Experienced global research team of 14 analysts focused on forward looking market views
- Interpret economic and capital market trends to formulate actionable advice for our clients and fund managers
- Integrated at every level of decision-making process
- In-house forecasting covering 155 European market segments forms basis for proprietary analytical tools



Hans Vrensen
Head of European Research & Strategy
AEW



Ken Baccam
Director



Irène Fossé
Director



Dennis Schoenmaker
Associate Director



Estelle Barbary
Analyst



Aubin Chevrier
Analyst



Ismail Mejri
Analyst



Hicham El Mimouni
Analyst



Jean Tudor
Analyst

NEW DATA IN REAL ESTATE LAB

- Experts sharing ideas on innovative new data sources, methods and systems hosted by AEW since 2018.
- Attended by investors, academics, leading brokers, data services, starts-ups and consultants.
- Interactive forum and welcoming questions from attendees after each presentation.
- Second virtual lab due to the ongoing COVID-19 pandemic



PRESENTERS

10:00 - 10:30 CET

French & German senior housing market trends



Julia Momotiuk
Senior Research Manager
BONARD

10:30 - 11:00 CET

Supply and demand in the European logistics space



Huib Vaessen
Head of Research & Analytics
APG



Kevin van der Wees
Quantitative Portfolio Manager
APG

11:00 - 11:30 CET

European valuation analytics dashboard



Phil Tily
Head of Performance Analytics
Altus Group

Q&A

- Please feel free to ask our presenters questions, they will answer these at the end of their sessions
- To ask a question, find the Q&A button the right hand side on your screen and type your question
- We will share these with the presenter after each session

The screenshot shows a Zoom meeting interface. At the top, a green banner reads "Your question has been answered | Read Answer | Dismiss". Below this is a presentation slide titled "Climate hazards" by Munich RE. The slide contains a table with climate hazard parameters and their projected impacts.

	Climate hazard parameters	Description of current and projected climate hazard indices	RCP Scenario	Projection Year
Acute	Tropical Cyclones	Tropical Cyclone index (100 year return period)	4.5, 6.5*	2050, 2100
	River Flood	River Flood zones (100-500 year return period)	4.5, 6.5	2050, 2100
	Sea-Level Rise	Sea-Level Rise zones (projection only)	2.0, 4.0, 6.5	2100
Chronic	Heat Stress	Heat score based on range of high temperature indicators	2.0, 4.5, 6.5	2050, 2100
	Precipitation Stress	Precipitation score based on heavy-precipitation indicators	2.0, 4.5, 6.5	2050, 2100
	Fire Weather Stress	Climatological index for wildfire risk	2.0, 4.5, 6.5	2050, 2100
	Drought Stress	Drought index based on Standardized Precipitation-Evapotranspiration Index (SPEI)	2.0, 4.5, 6.5	2050, 2100

On the right side of the Zoom interface, the "Event Chat" window is visible. A red circle highlights the "Q&A" button in the chat toolbar.

New Data in Real Estate Lab

FRENCH & GERMAN SENIOR HOUSING MARKET TRENDS

AEW European Research Webinar

Presented by:

Julia Momotiuk

Senior Research Manager, BONARD

FRENCH & GERMAN MARKET REPORTS



- Comprehensive study into the **French & German senior living market**
- Analyses and confirms **growing demand and a lack of supply.**
- **Up-to-date insight** into senior living in France & Germany, at the **national level** with a closer look at the **top 20 locations** across countries
- The initiative brings much needed **data and context** for the segment facing growing pressure due **limited stock.**
- Data gathered through a combination of **secondary** (over 250 sources screened) and **primary research** (direct outreach to private residences and statistics offices via phone and email)
- Team of **10 analysts** conducted this in-depth study following the **ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics**
- The projects were carried out in **Q2 & Q4 of 2020, respectively**

KEY FINDINGS | FRANCE



The share of seniors aged 60+ in Germany will increase from 28% in 2019 to 31% in 2025



Increased development of residences outside the largest cities due to the availability of cheaper land and a completely unmet demand

There are almost 65,000 assisted living apartments in the top 20 cities in Germany



There are more than 370 senior living residences in the pipeline across Germany, offering 16,300 apartments in total, with 20% of apartments located in top 20 cities

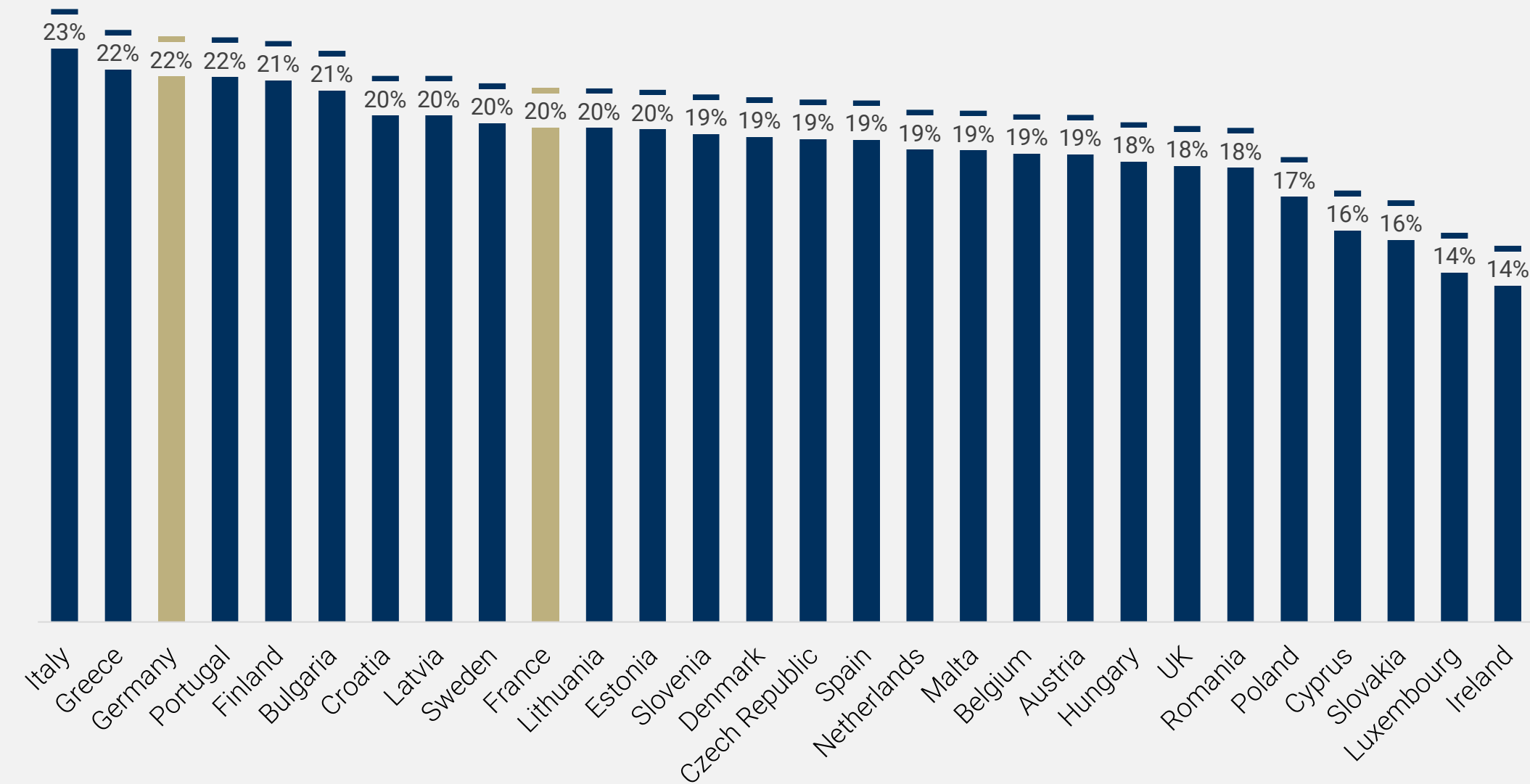
The supply for the private commercial assisted living adds up to 22,000 apartments in the top 20 German cities



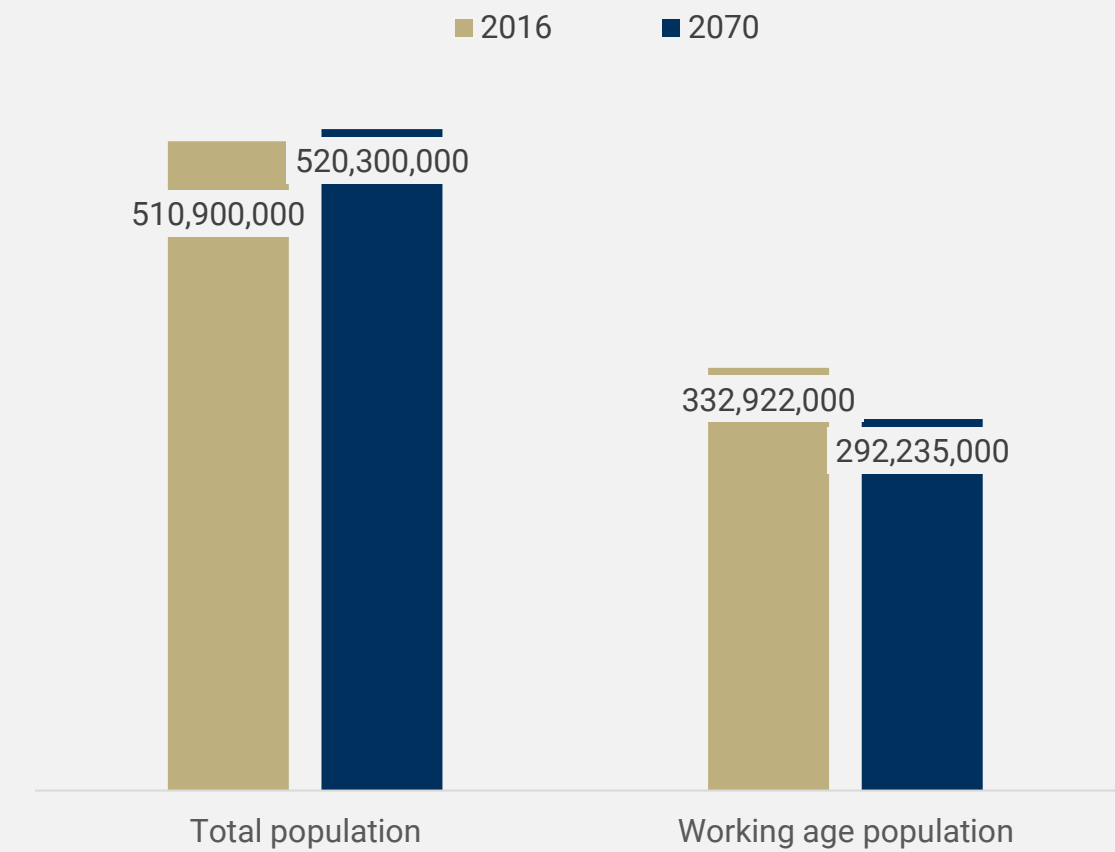
By 2025, the provision rate will decline in almost all the top 20 cities (except Duisburg).

DEMOGRAPHIC OVERVIEW

SHARE OF PEOPLE AGED 65+ WITHIN THE TOTAL POPULATION



EU POPULATION FORECAST



SOURCE: European Commission, 2018; Eurostat, 2020; Statistikportal 2020

1. Senior living establishments for dependent people:

- Retirement homes; EHPA (Etablissement d'Hébergement pour Personnes Âgées)
- Nursing homes for dependent people aged 60+; EHPAD
- Hospital structures for very dependent people aged 60+ whose condition requires constant medical supervision; USLD (Unités de soins de longue durée)

2. Assisted senior living establishments:

- Autonomy residences (mainly public and private nonprofit autonomy establishments);
- Service residences (mainly private non-profit service residences and private commercial service residences)

3. Independent senior living:

- Family homes
- 'Les béguinages' (formerly the homes of religious communities, now renovated to provide suitable living for the elderly);
- Intergenerational housing

1. Senior living establishments for dependent people:

- Ambulant betreute Wohngemeinschaften (assisted living communities);
- Pflegeheim (nursing homes).
- Regulated by authorities

2. Assisted senior living establishments:

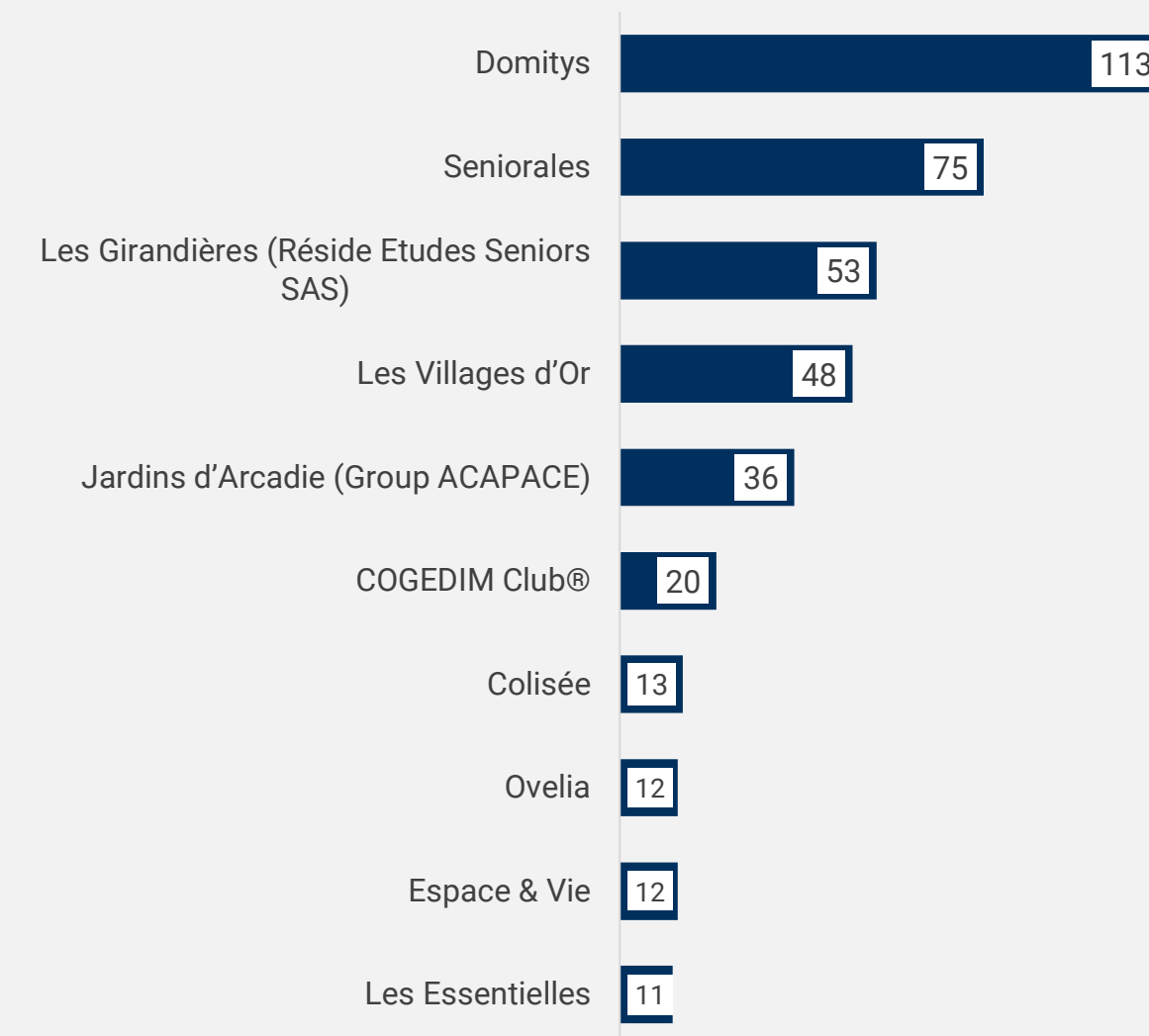
- Service-Wohnen oder Betreutes Wohnen (service residences)
- Mainly private non-profit service residences and private commercial service residences.
- Regulated by authorities

3. Independent senior living:

- Seniorenwohnhaus (senior citizens' housing);
- Gemeinschaftliches Wohnen (community living).
- Not regulated by authorities

NUMBER OF PRIVATE COMMERCIAL SERVICE RESIDENCES BY MAIN PROVIDER

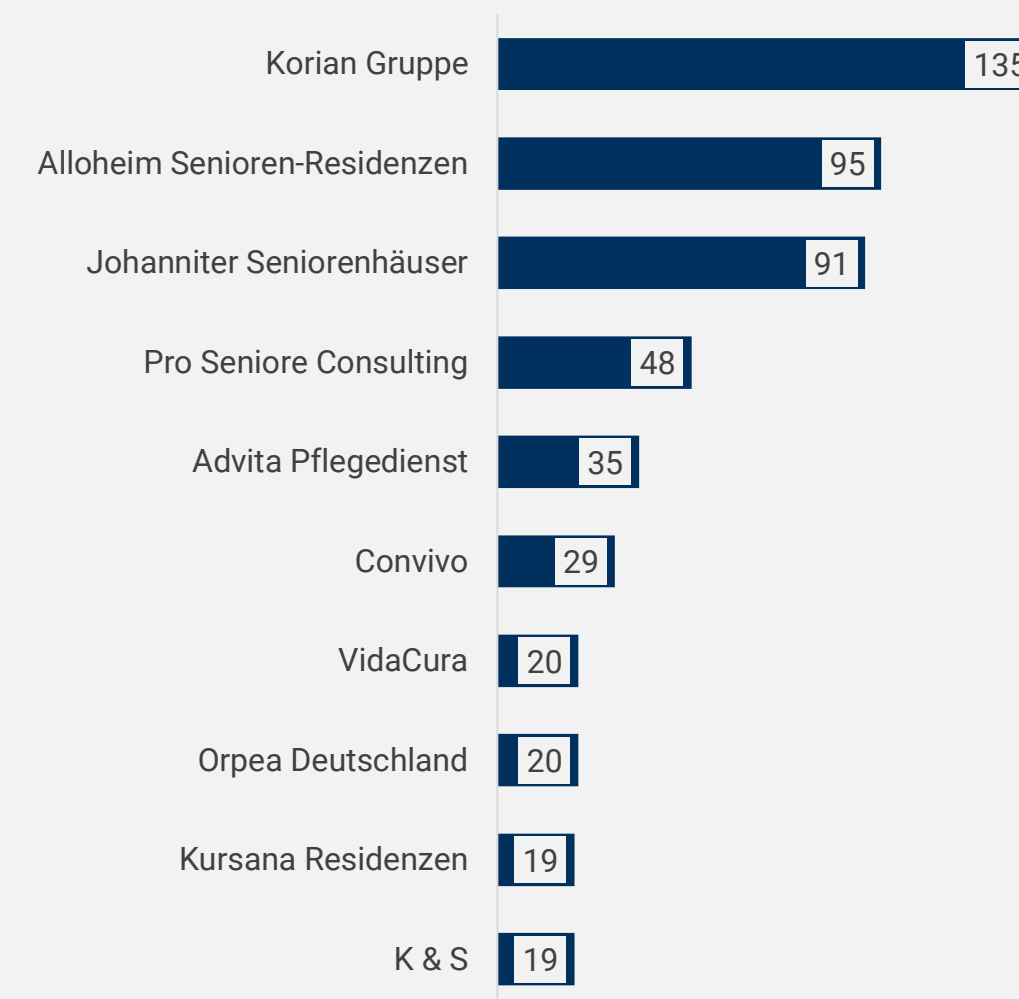
- In France, there are nearly **8,000 establishments** for dependent people with an overall capacity of **over 640,000 beds**.
- **Nearly 3,000 assisted living establishments**, among which are just over **600 service residences**.
- **10 main providers** of private commercial service residences cumulatively manage over **65% of such residences in France**.



SOURCE: Cap Residences Seniors, 2020; individual providers

NUMBER OF PRIVATE COMMERCIAL SERVICE RESIDENCES BY MAIN PROVIDER



- **Approx. 65%** of assisted living residences are operated by **non-profit companies**
- **30%** are under the management of **private companies**
- Remaining **5%** are operated by **public organisations**
- **Consolidated market** by the largest providers and invested heavily in the development of their portfolio
- The activity shifted to **smaller cities** (e.g. Hamburg, Stuttgart, Bonn and Hanover)
- The top 20 cities offer approx. **65,000 apartments**, which equals **22%** of the total assisted living supply in the country



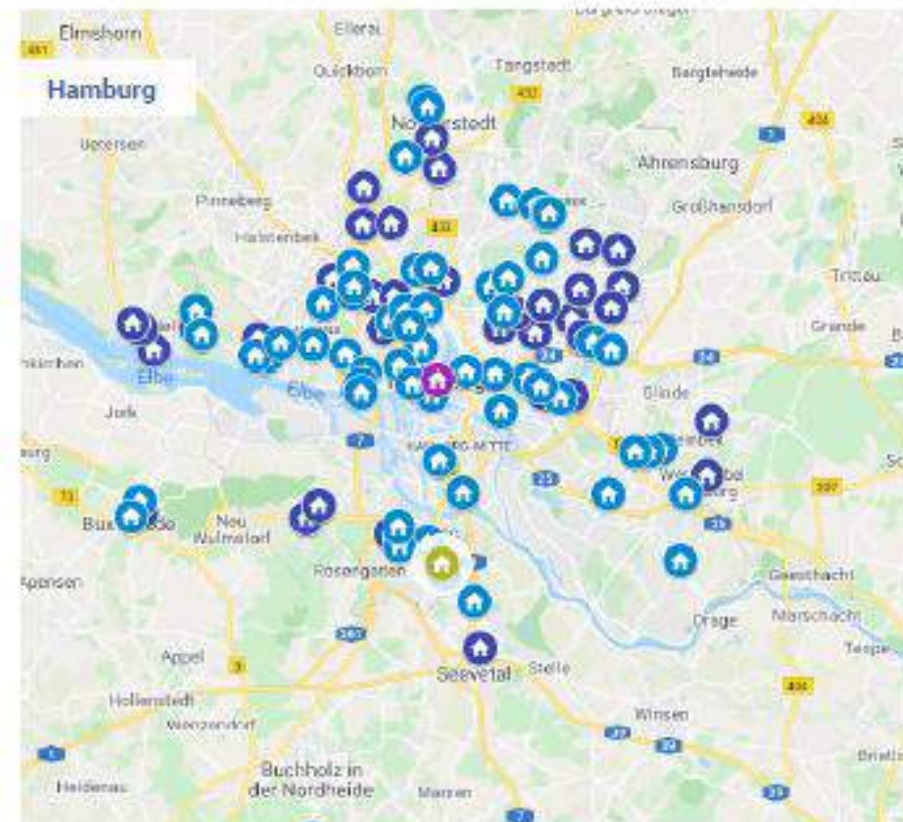
SOURCE: BONARD, 2020; Pflegemarkt, 2020



GEOGRAPHICAL DISTRIBUTION OF ASSISTED LIVING ESTABLISHMENTS



-  Private commercial assisted living residences
-  Private non-profit assisted living residences

[Click to view a demo of the Berlin interactive map](#)

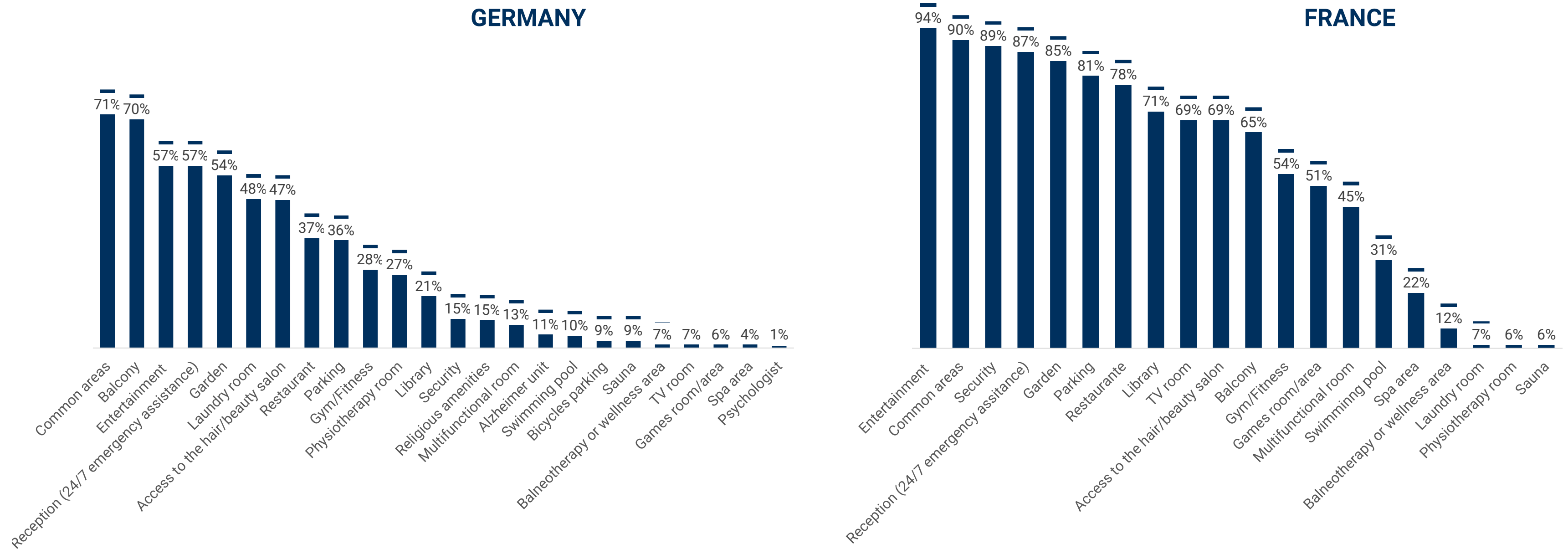


-  Private commercial assisted living communities
-  Private non-profit assisted living communities

SOURCE: BONARD, 2020

PRODUCT CONCEPT

SHARE OF PRIVATE COMMERCIAL SERVICE RESIDENCES OFFERING THE FOLLOWING FACILITIES



SOURCE: BONARD, 2020; based on data from 371 establishments in Germany & 125 establishments in France

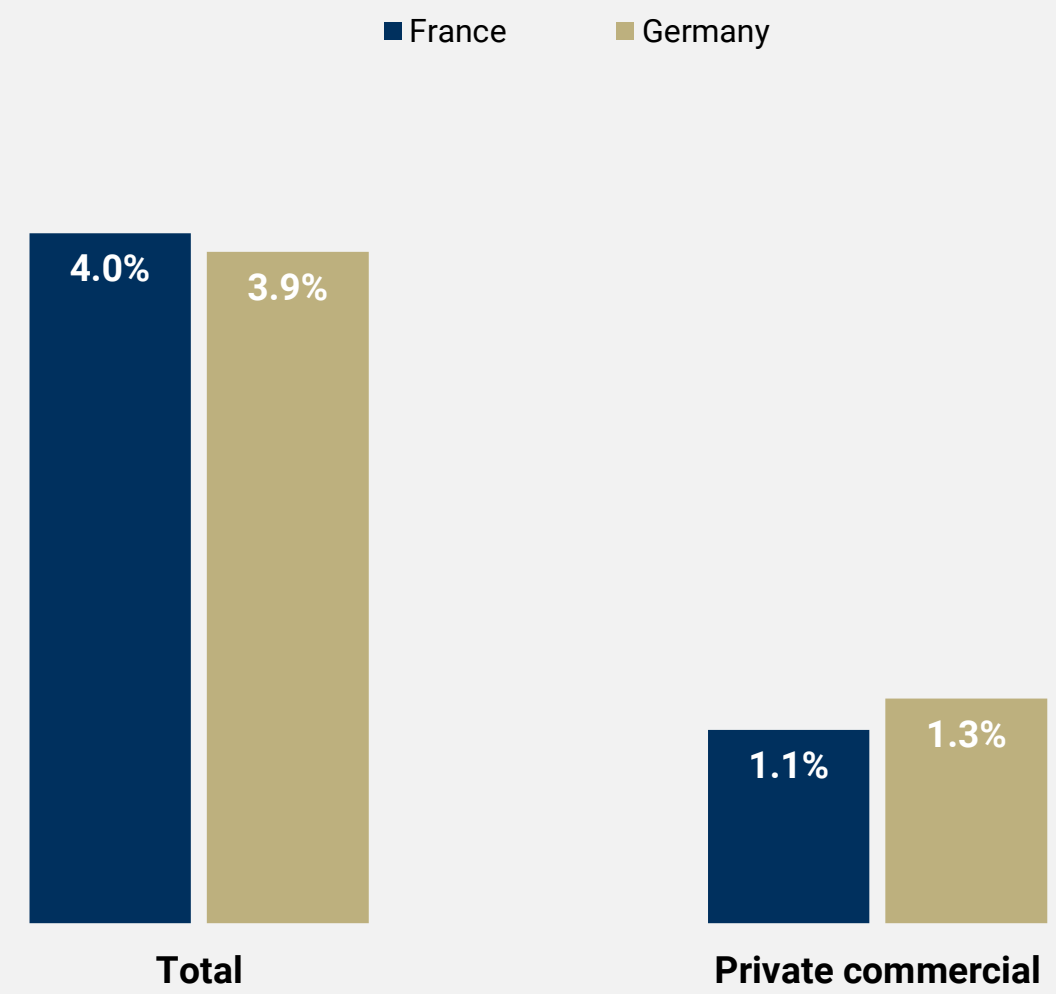
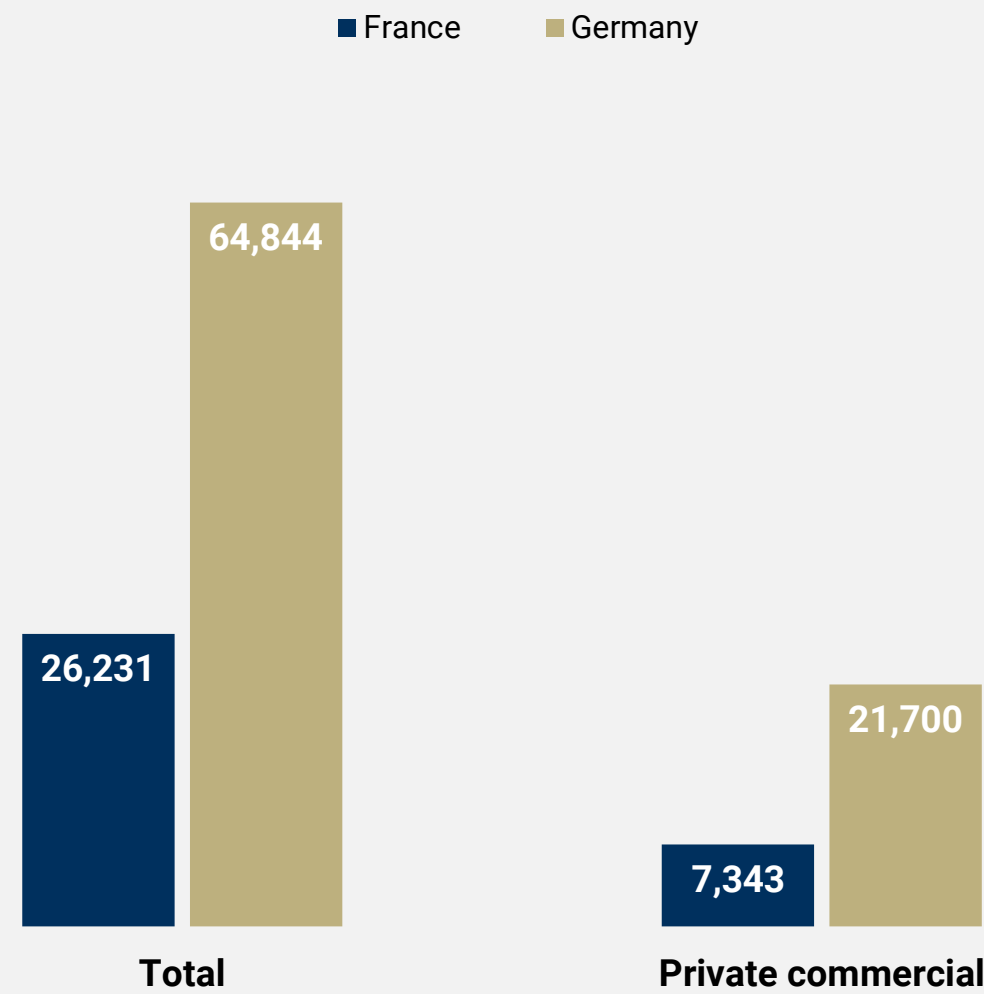
PRODUCT CONCEPT



IMAGES ARE THE COURTESY OF: Kursana, 2020; Korian, 2020; CBT, 2020; Alloheim, 2020, Domitys, 2020; Les Girandières 2020; Senioriales, 2020; Les Jardins d'Arcadie, 2020; Heurus, 2020

TOP 20 CITIES: NUMBER OF APARTMENTS (ASSISTED LIVING ESTABLISHMENTS)

TOP 20 CITIES: PROVISION RATE (ASSISTED LIVING ESTABLISHMENTS)

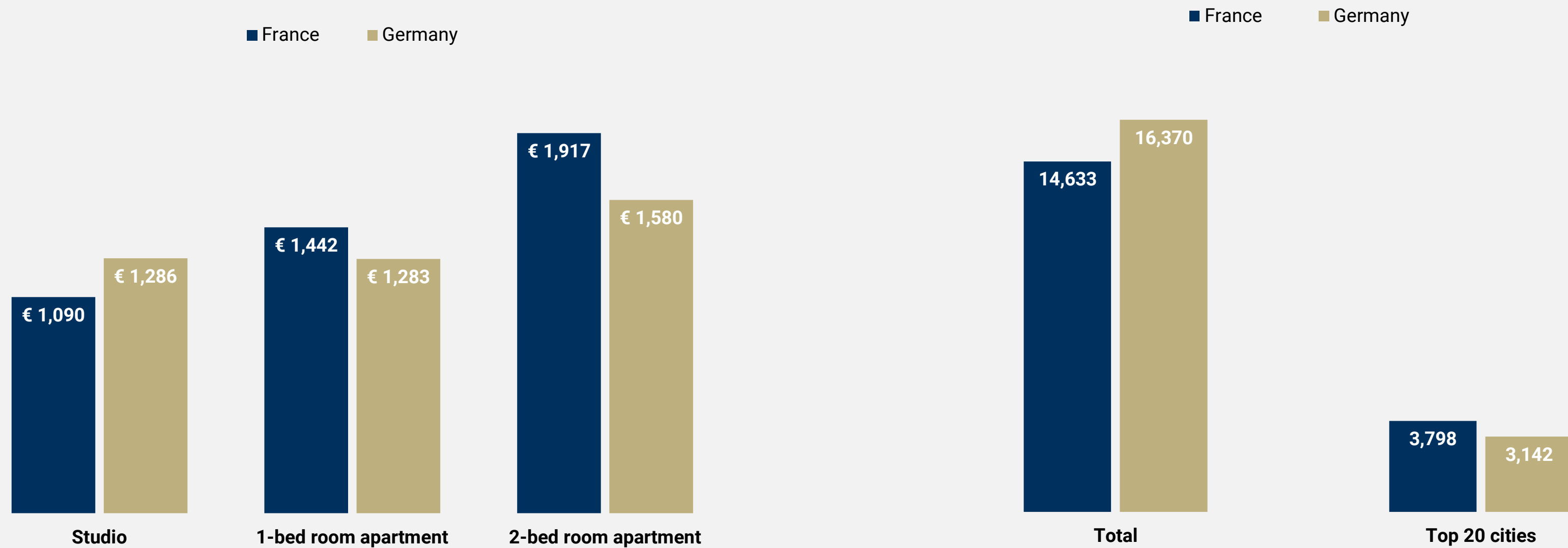


SOURCE: Statistikportal, 2020; Insee, 2020; BONARD, 2020

BENCHMARKING | AVG MONTHLY RENT AND PIPELINE

TOP 20 CITIES: AVERAGE MONTHLY RENT

NUMBER OF APARTMENTS IN THE PIPELINE



SOURCE: BONARD, 2020

CONCLUSIONS

- The senior living market in France & Germany has experienced **considerable growth** over the last years due to a rapidly and continuously **aging population** and a significant **shortage** of assisted living establishments across both country.
- The top 20 cities only supply **65,000 assisted living-type apartments** while there are **1,664,975 potential tenants** aged 75+ in Germany.
- The **provision rate** in Germany does not exceed **3.9%**.
- German developers and investors are building or planning to initiate more than **370 projects**, with a total capacity of **16,500 apartments**.
- In **2025** the total **provision rate** for the top 20 cities will have inched down to **3.4%**.

- The research has identified **433 assisted living establishments** in the top 20 cities, with a total capacity of **over 26,231 apartments** in France.
- With the population 75+ in the cities cumulatively accounting for **654,914 people in France**, there is a clear lack of supply to meet the growing demand for assisted living residences.
- With the **provision rate** ranging **from 1.7% to 9.7%** among the top 20 cities, Toulon and Nice provide the biggest opportunities for development of service residences in France.
- **French & German assisted living market** is set to remain **among the most attractive in the EU** in the years to come – luring foreign and domestic investors and developers.

COMING SOON



ABOUT BONARD

BONARD is a **market intelligence** and **strategic development firm** specialising in alternative asset classes. We leverage our global knowledge and local connections to help our clients grow in this vibrant market.

OUR TEAM



4
Offices



40
Specialists



367
Projects



OUR CLIENTS



CONTACT

For questions or comments, please contact:
data@bonard.com

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Data-driven Rental Growth Projections for Logistics

AEW New Data in Real Estate lab

Kevin van der Wees & Huib Vaessen

11 / 02 / 2021



Introduction APG

One of the largest Real Estate investors in the world

€45.4BN

APG Real Estate
AuM – 31/12/2020

APG Real Estate is
**one of the largest Real
Estate investors in the
world**, providing access
to a unique deal flow

Institution Name	Country	Capital Committed to Real Estate (\$bn)
Abu Dhabi Investment Authority (ADIA)	United Arab Emirates	\$45.5bn
Stichting Pensioenfonds APG (APG)	The Netherlands	\$43.2bn
Qatar Investment Authority (QIA)	Qatar	\$41.9bn
Canada Pension Plan Investment Board (CPPIB)	Canada	\$39.7bn
California Public Employees' Retirement System (CalPERS)	United States	\$37.6bn

Source: PERE November 2016



Investments are made into listed and private vehicles



Day-to-day management is performed by operating partners



45 investment professionals based in Amsterdam, New York and Hong Kong





Altus Group

Pan European Data Set

Independent Real Estate Advisory Services

AEW – Real Estate Data Lab

Phil Tily – Altus Group, Head Data Analytics



- Altus overview
- Objectives of the valuation database
- Unpack the change in values based on US data
- Comparative analysis
- Demonstration of European valuation data Interface

Altus Group – Global Footprint



Leading provider of independent advisory services, software, and data solutions to the global commercial real estate industry.

Services | Software | Data

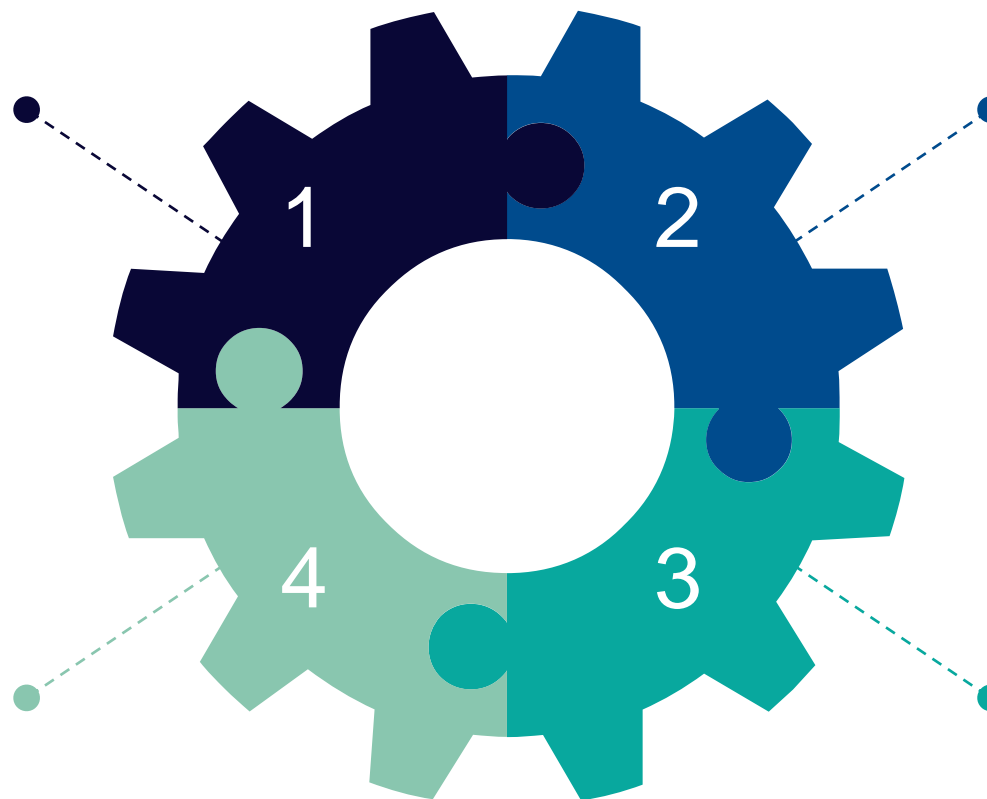
Objectives of a Pan European Valuation Dataset

WHAT

Creating a Pan-European
Valuation Data Set
Online Reporting Interface

WHEN

Provisional timing 2021



WHY

Transparency, Global
Consistency, Speed of
Reporting, Best Practices,
Valuation Quality & Accuracy

HOW

Participation of Leading Pan-
European Fund Managers.

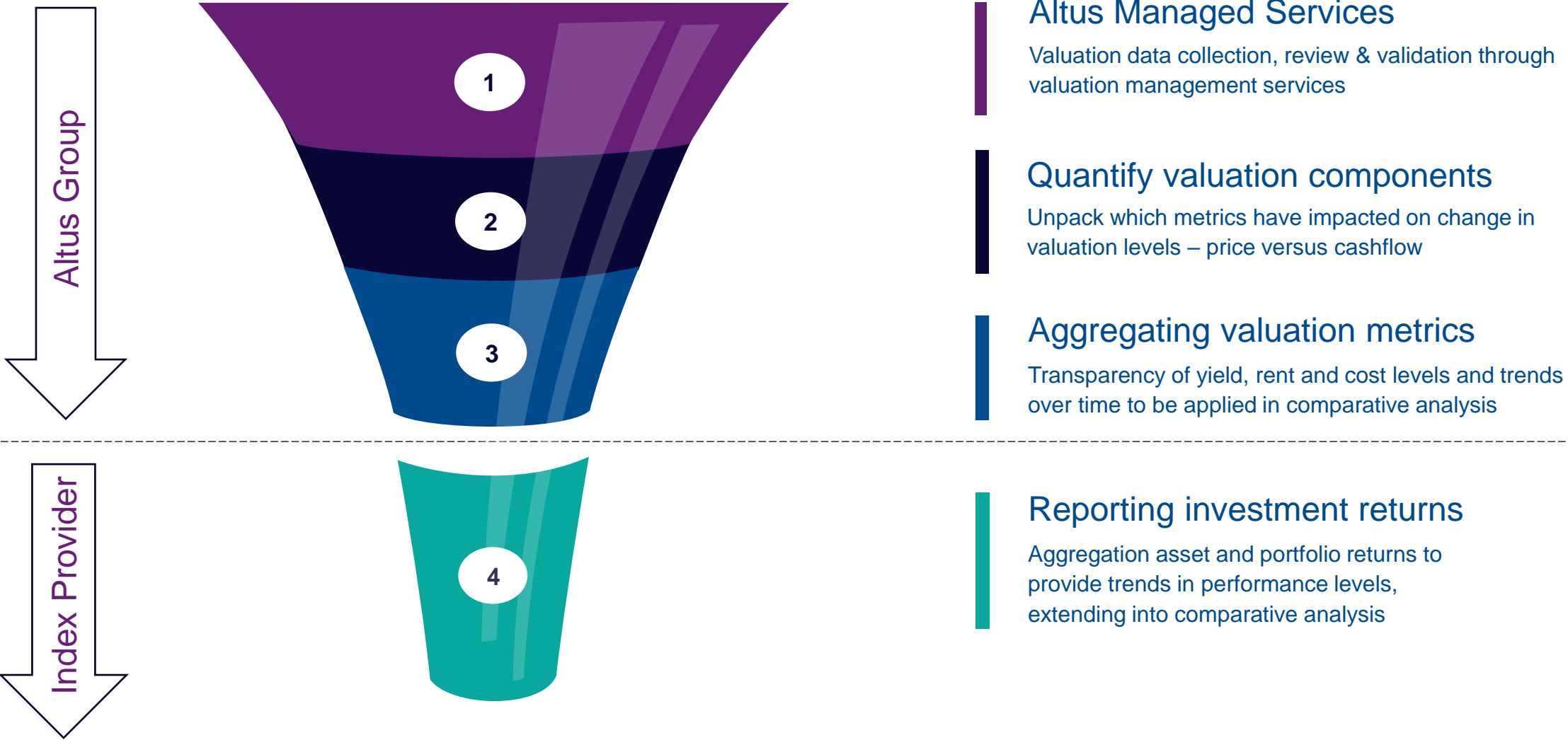
Minimal involvement from
clients in collection process
which sources valuation files
and not templates

Pan-European Valuation Data Set Potential Participants

AEW	Fidelity Investments
AXA	Hines
Barings	INVESCO
Blackrock	Lasalle Investment Management
Blackstone	M&G
Brookfield	Morgan Stanley
CBRE GI	Nuveen
Clarion Partners	Patrizia
DWS	Standard Aberdeen

Valuation Separated From Performance

No ambitions in producing a performance index...

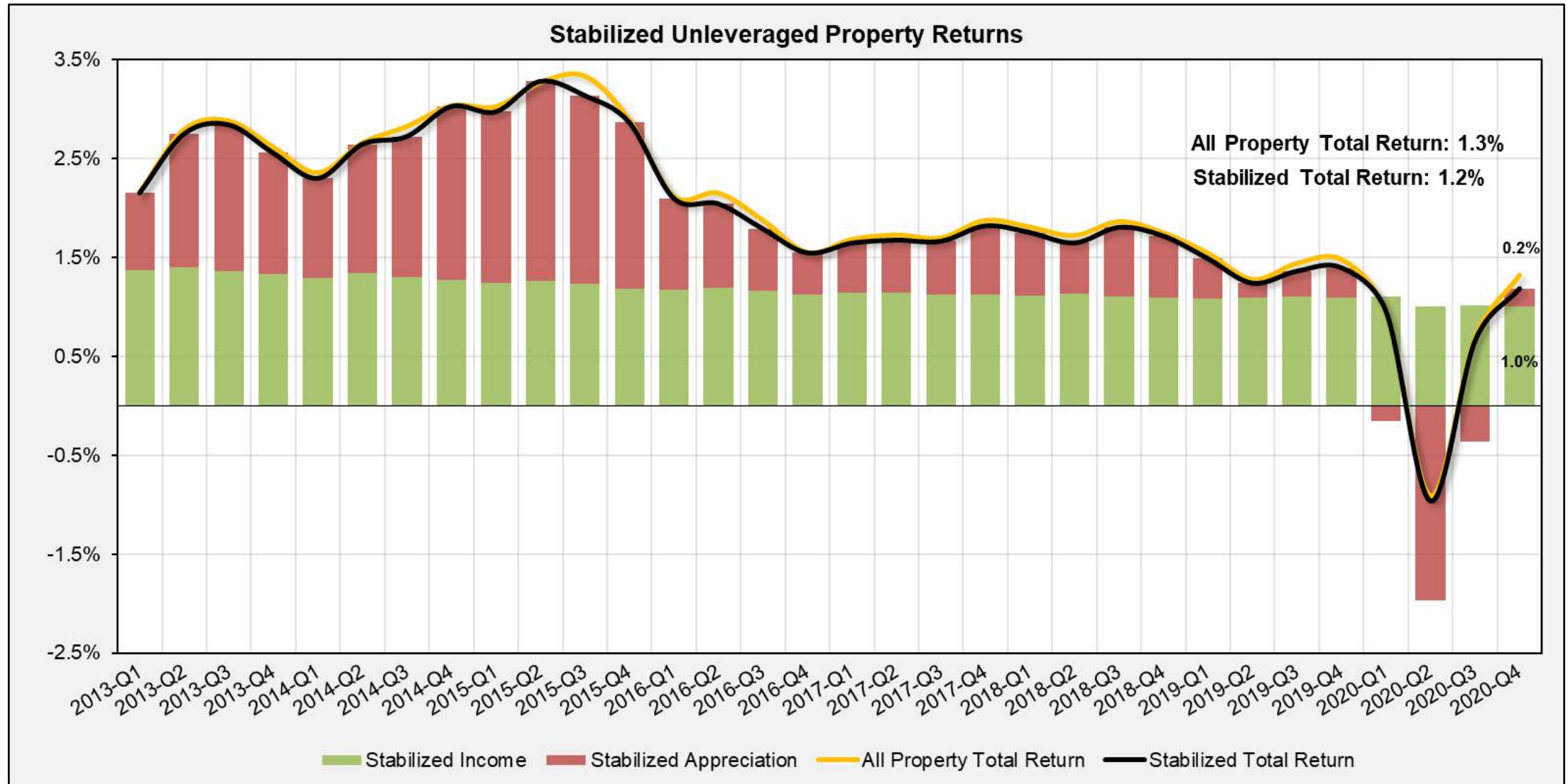




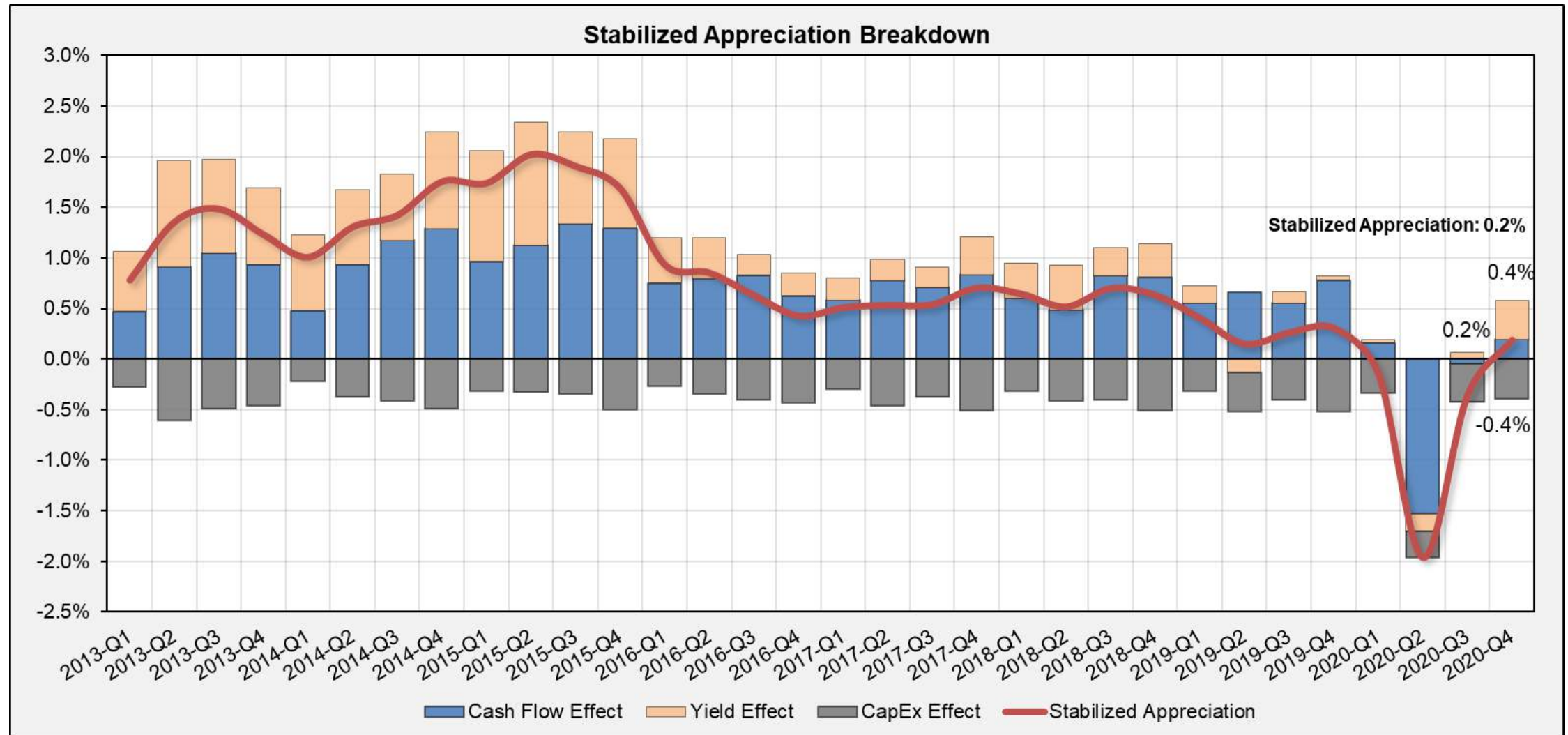
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Unpack the Change in Valuations

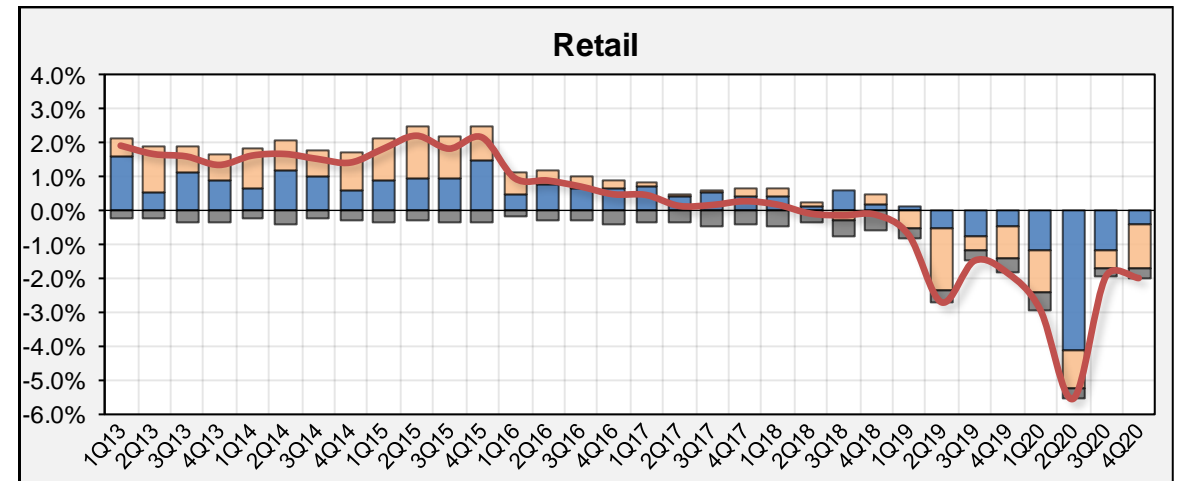
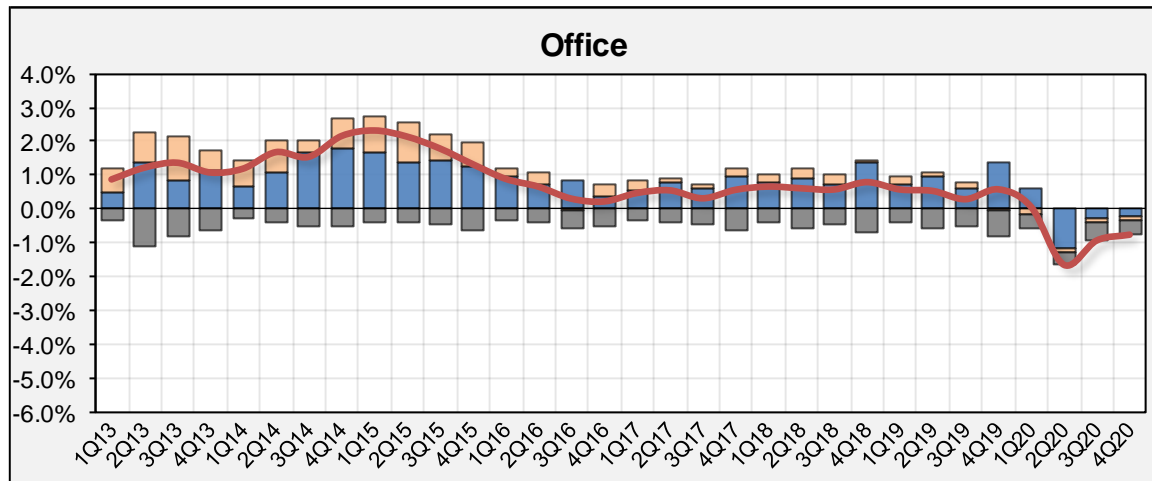
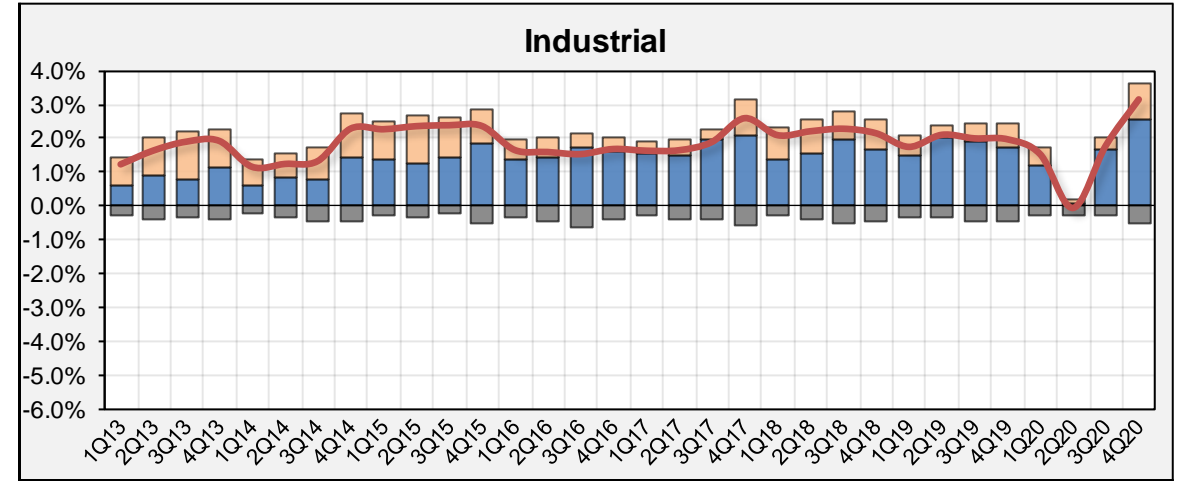
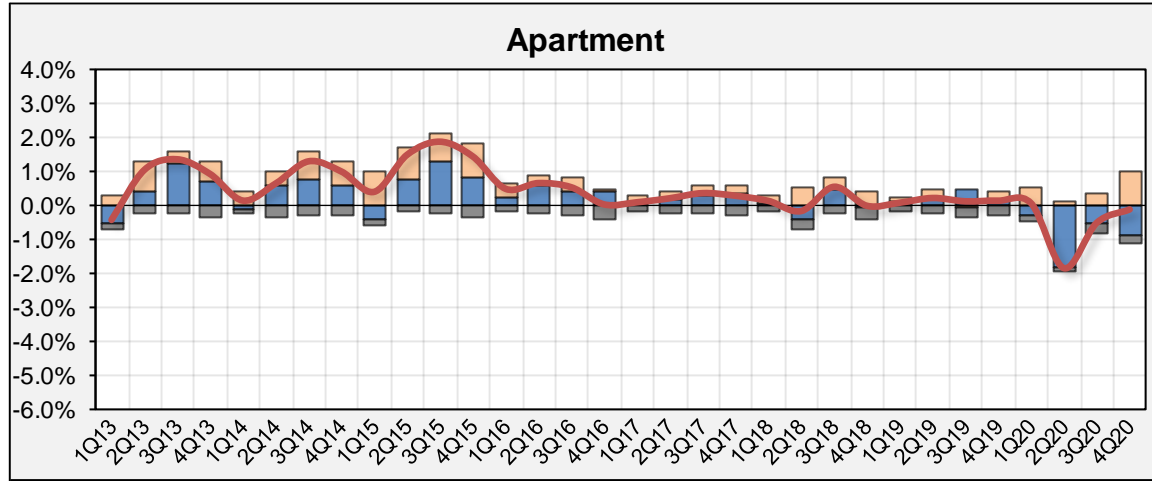
Income and appreciation – US ODCE



Income and appreciation – US ODCE

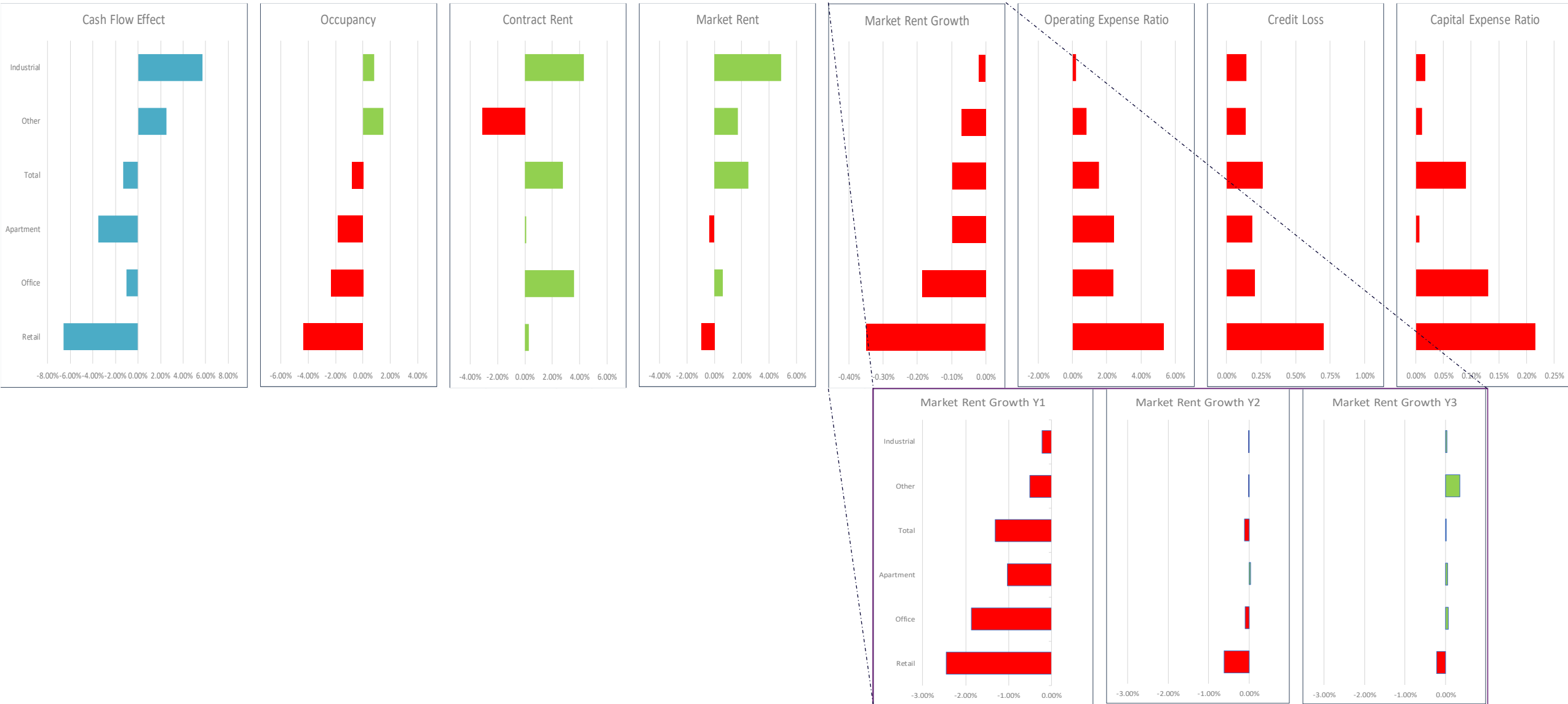


Income and appreciation – US ODCE



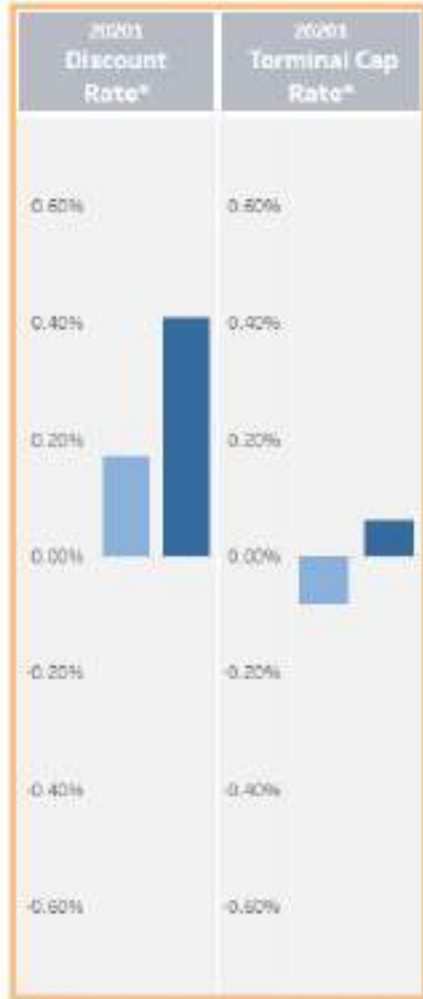
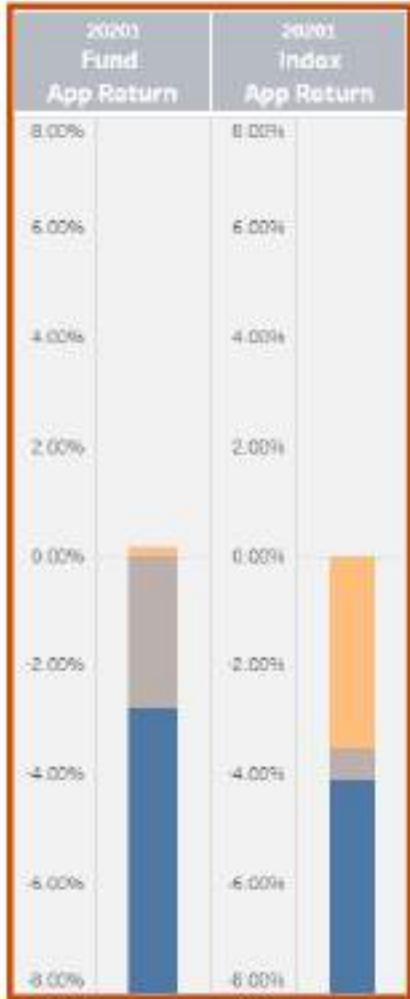
■ Cash Flow Effect
 ■ Yield Effect
 ■ CapEx Effect
 — Appreciation Return

Income and appreciation – US ODCE



Online Appraisal Scorecard – Boston Retails

YYYYQ: 20201 | Dimension: CBSA | Property Type: Retail | CBSA: Boston-Cambridge-Newton | Periodicity: 1-Year | Lifecycle: 5 | Fund Code: DEMOSP



■ App Return ■ Yield Effect
■ CF Effect ■ Cap Ex Effect

* Indicates change in measure to the selected quarter (YYYYQ), from a previous quarter determined by Periodicity.
 Discount Rate, Terminal Cap Rate, Occupancy, Rent Growth, Expense Ratio and Capital Cost Ratio are expressed as absolute changes. Contract and Market Rent changes are expressed as a percent of prior value.



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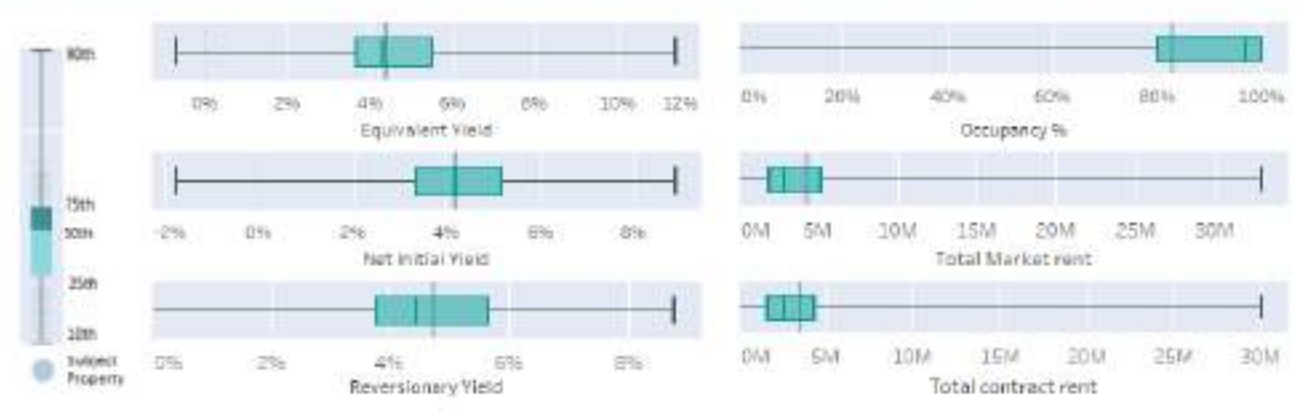
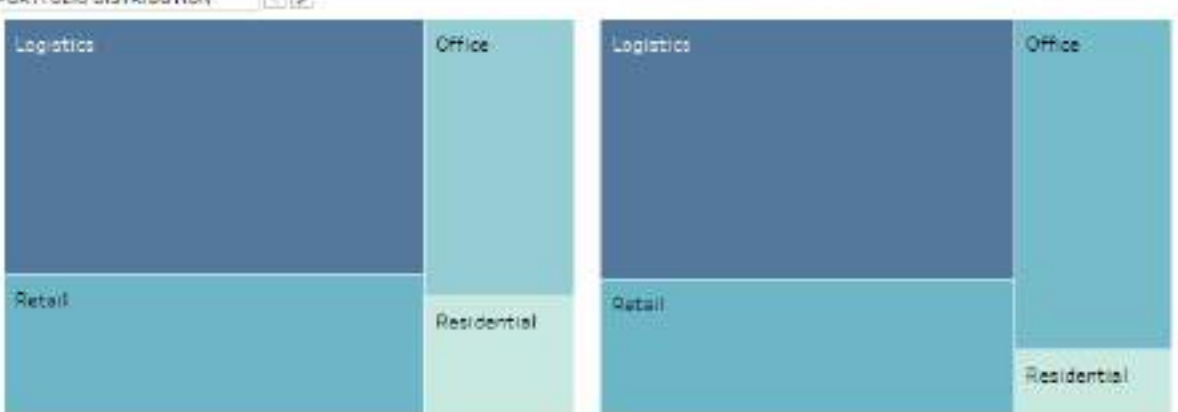
Pan European Valuation Dashboard

Interactive Online Portfolio Interface

Valuation Dashboard – Demo All Property

AltusGroup Portfolio PAN EU CORE Building [All] Period 4Q2020 Currency EURO-FIX CQ RESET FILTERS

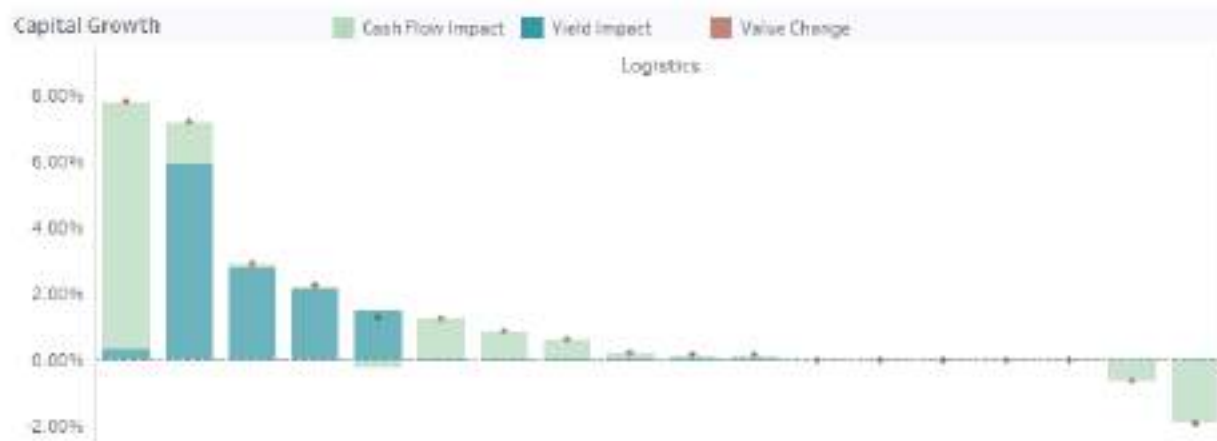
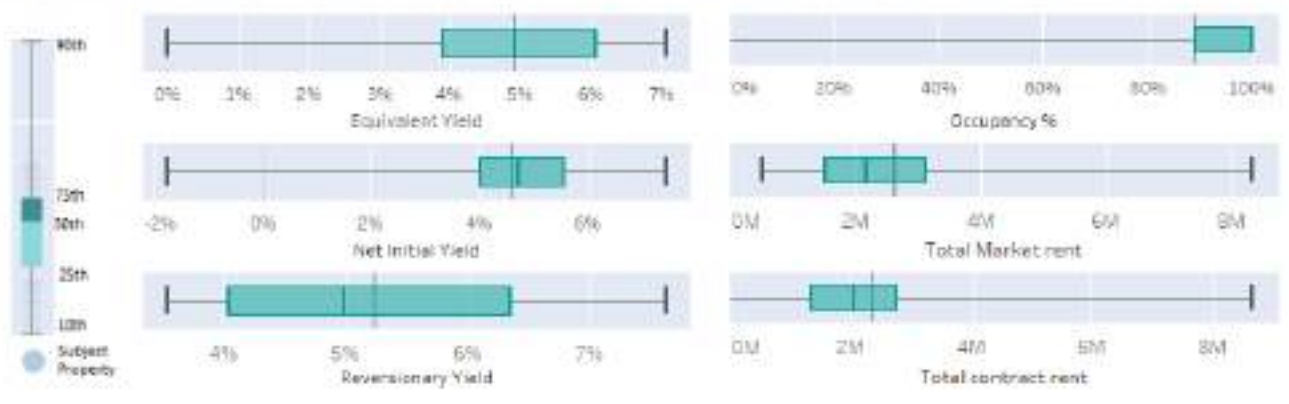
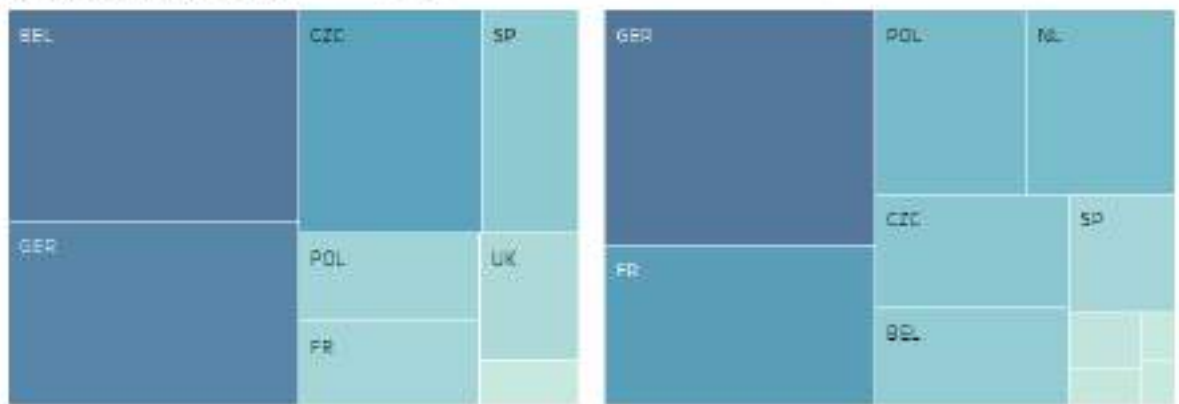
BEL		CZC		FR		GER		IIL		NOR		POL		SP		SW		UK		Logistics		Office		Residential		Retail	
Value	Yield Impact	Cash flow impact	Capex		#Properties		Net Initial Yield		Equivalent Yield		Reversionary Yield		Contract rent		Market rent		Occupancy		#WAULT								
€ 2.860B	-0.10% (PF)	0.09% (PF)	€88,556.147		38		3.74%		4.21%		4.35%		€121,309,980		€139,941,751		89.28%		6.26 Y								
(PF) -0.02%	(BM) 0.61%	(BM) -0.07%	(PF) 1.79%	(BM) -1.38%	▼ -1 from last quarter		(PF) 0.37%	(BM) 0.08%	(PF) 0.00%	(BM) 0.00%	(PF) 0.00%	(BM) -0.02%	(PF) 0.34%	(BM) 0.50%	(PF) 0.20%	(BM) -0.25%	(PF) -3.13%	(BM) -0.06%	(PF) 0.00%	(BM) 29.34%							



Valuation Dashboard – Demo Logistics

AltusGroup | Portfolio: PAN EU CORE | Building: (all) | Period: Q02020 | Currency: EURO-FIX CO | RESET FILTERS

BEL		CZC		FR		GER		NL		POL		SP		UK		Logistics		Office		Residential		Retail	
Value	Yield Impact	Cash flow impact	Copies		#Properties	Net Initial Yield		Equivalent Yield		Reversionary Yield		Contract rent		Market rent		Occupancy		#WAULT					
€ 780.6M	0.86% (PF)	0.53% (PF)	€15,421,359		18	5.01%		5.24%		5.40%		€42,563,849		€45,487,171		94.76%		4.03 Y					
(PF) ▲ 1.40%	(BM) ▲ 3.91%		(PF) ▲ 1.92%	(BM) ▼ -38.19%	0 from last quarter	(PF) ▼ -0.02%	(BM) ▼ -0.25%	(PF) ▼ -0.05%	(BM) ▼ -0.18%	(PF) ▼ -0.04%	(BM) ▼ -0.16%	(PF) ▲ 1.41%	(BM) ▼ -2.38%	(PF) ▲ 0.82%	(BM) ▼ -0.01%	(PF) ▼ -0.81%	(BM) ▲ 0.20%	(PF) 0.00%	(BM) ▲ 32.28%				

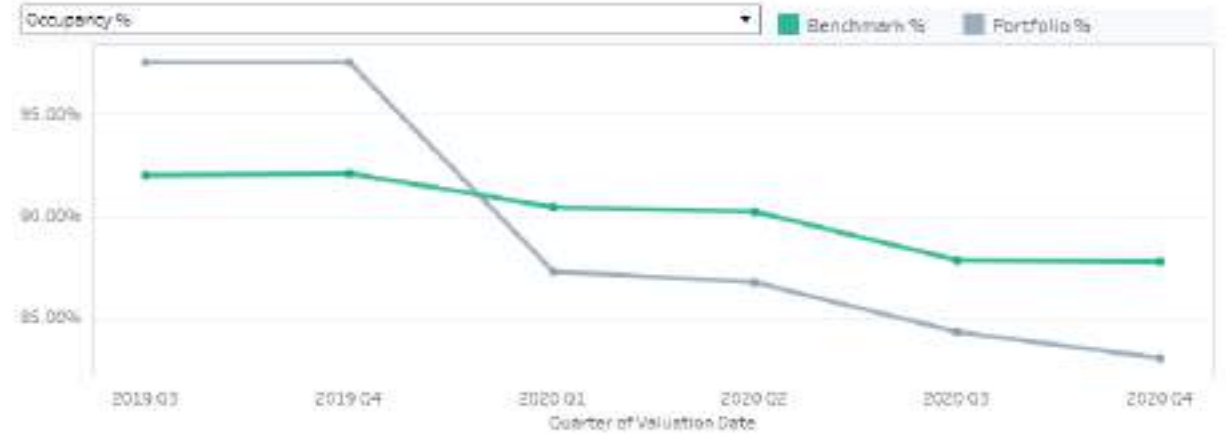
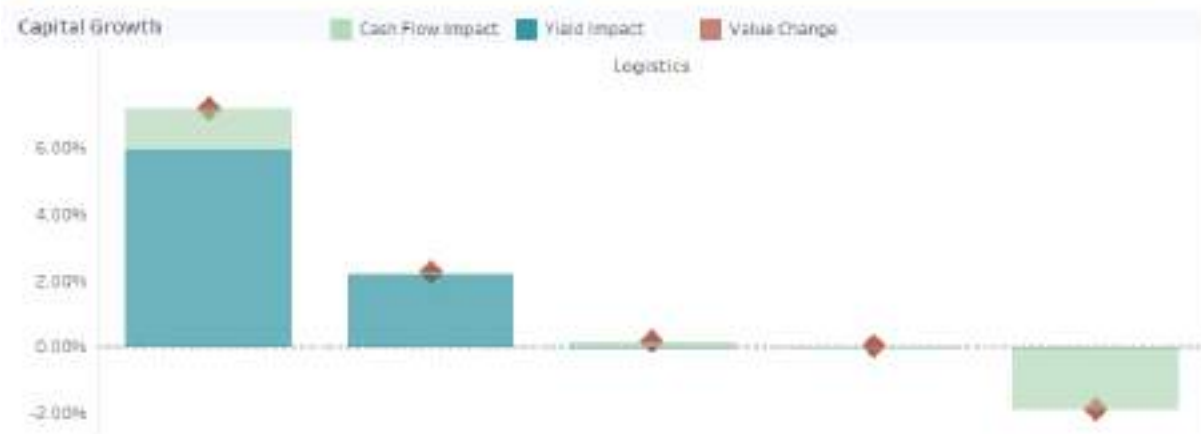
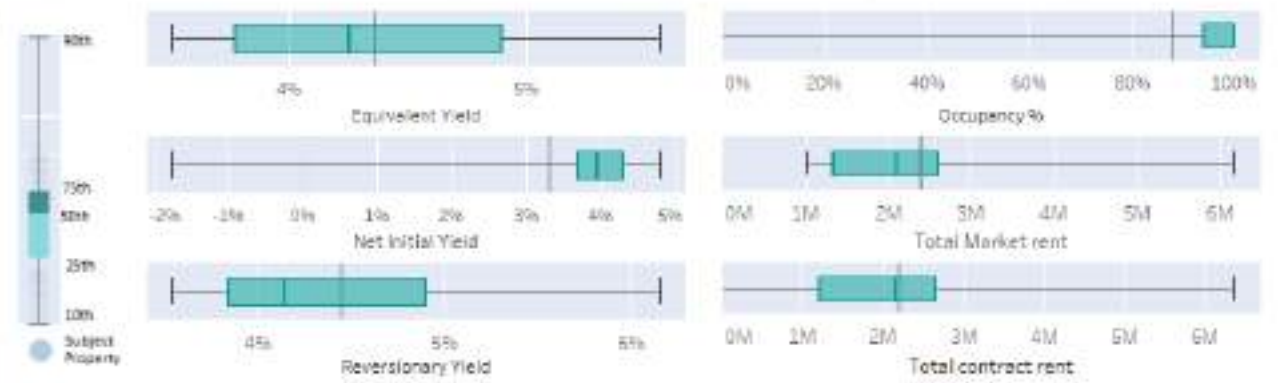


Valuation Dashboard – Demo German Logistics

AltusGroup | Portfolio: PAN EU CORE | Building: [All] | Period: 4Q2020 | Currency: EUR-RX CQ | [RESET FILTERS](#)

Value	Yield Impact	Cash Flow Impact	Capex	#Properties	Net Initial Yield	Equivalent Yield	Reversionary Yield	Contract rent	Market rent	Occupancy	#WAULT
€186.7M	2.95% (PF)	0.19% (PF)	€7,509,547	5	3.75%	4.36%	4.49%	€8,609,295	€9,981,756	83.04%	3.17 Y
(PF) 3.14% (BM) 4.35%	4.95% (BM)	-0.60% (BM)	(PF) 3.37% (BM) 15.12%	0 from last quarter	(PF) -0.10% (BM) -0.32%	(PF) -0.13% (BM) -0.21%	(PF) -0.14% (BM) -0.19%	(PF) 0.44% (BM) -4.61%	(PF) 0.07% (BM) -0.51%	(PF) -1.29% (BM) 0.98%	(PF) 0.00% (BM) 43.88%

Portfolio Vs Benchmark Distribution

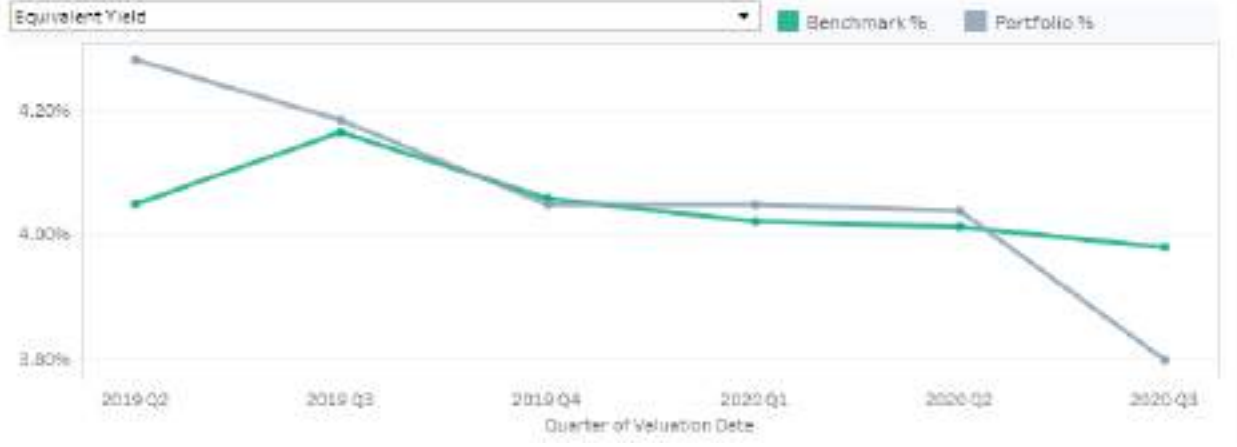
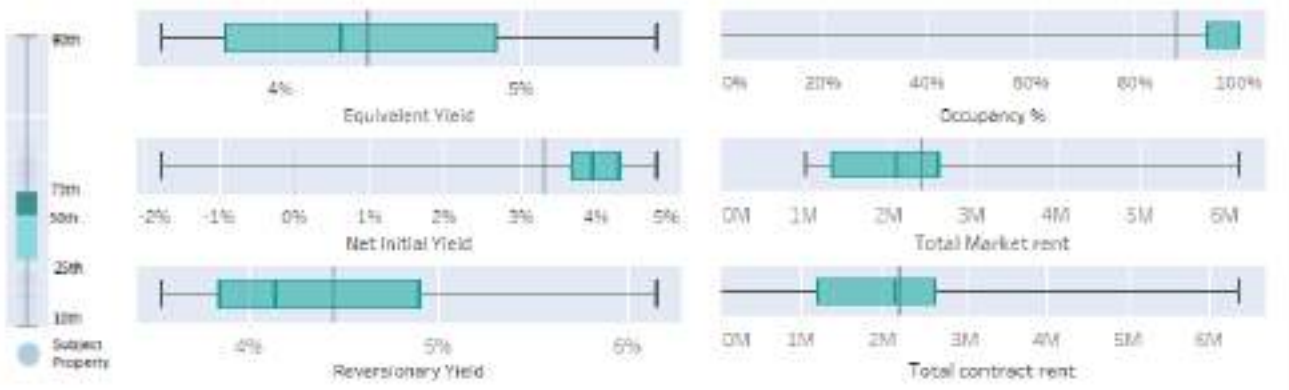
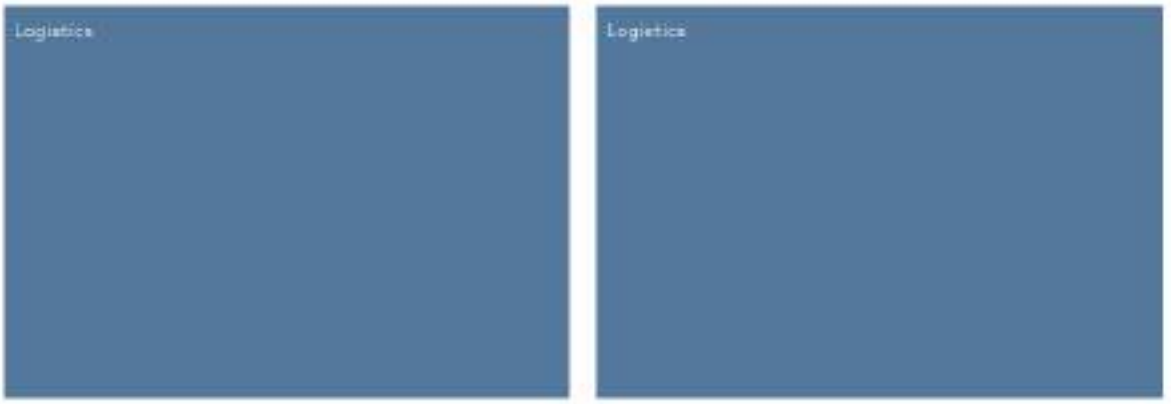


Valuation Dashboard – Demo Single Asset

AltusGroup
Portfolio: PAN EU CORE
Building: Demo 21
Period: 4Q2020
Currency: EURO-FIX.CO
ASSET FILTERS

GER				Logistics							
Value	Yield Impact	Cash flow impact	Capex	#Properties	Net initial Yield	Equivalent Yield	Reversionary Yield	Contract rent	Market rent	Occupancy	#WAULT
€ 74.69M	5.94% (PF)	-1.23% (PF)	€1,375,558	1	4.08%	3.80%	3.84%	€3,397,910	€3,269,859	100.00%	3.17 Y
(PF) 7.17% ▲ 4.35%	(BM) 4.95% (BM)	(PF) -0.60% (BM)	(PF) -0.01% (BM) 15.12%	0 from last quarter	(PF) -0.26% (BM) -0.32%	(PF) -0.24% (BM) -0.21%	(PF) -0.27% (BM) -0.19%	(PF) 0.52% (BM) -4.61%	(PF) 0.20% (BM) -0.51%	(PF) 0.00% (BM) 0.00%	(PF) 0.00% (BM) 43.88%

PORTFOLIO DISTRIBUTION





Altus Group

Next Steps

Provisional Timing & Next Steps – Proof of concept

