

Enhancing Insight
from Game Changing Data

Data Landscape

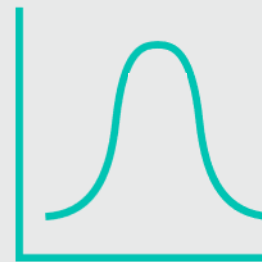
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New Aggregated Data:

- Price Expectations Gap

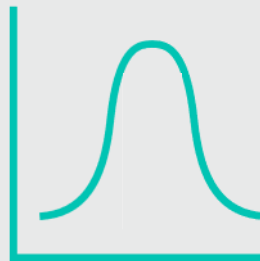
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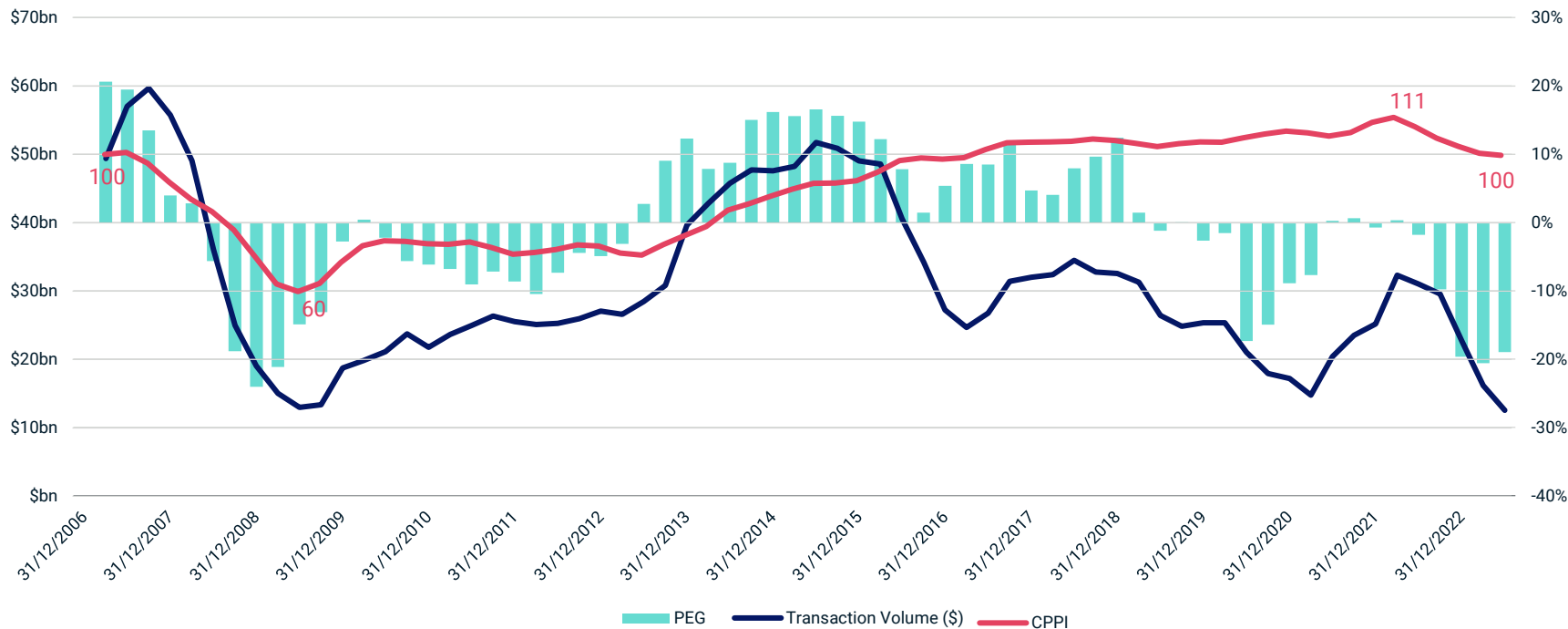
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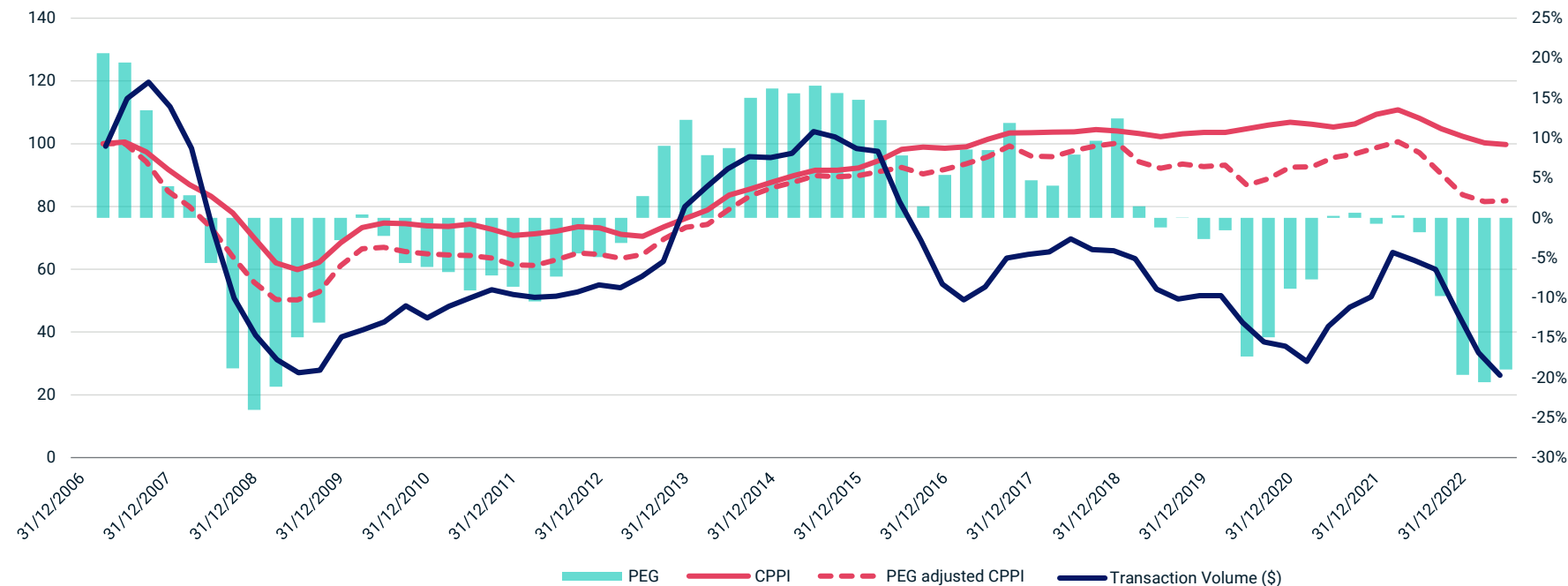
Low Transaction Volume Driven By a Price Expectations Gap

UK Office Transaction Volumes (USD) vs Price Expectations Gap (%)



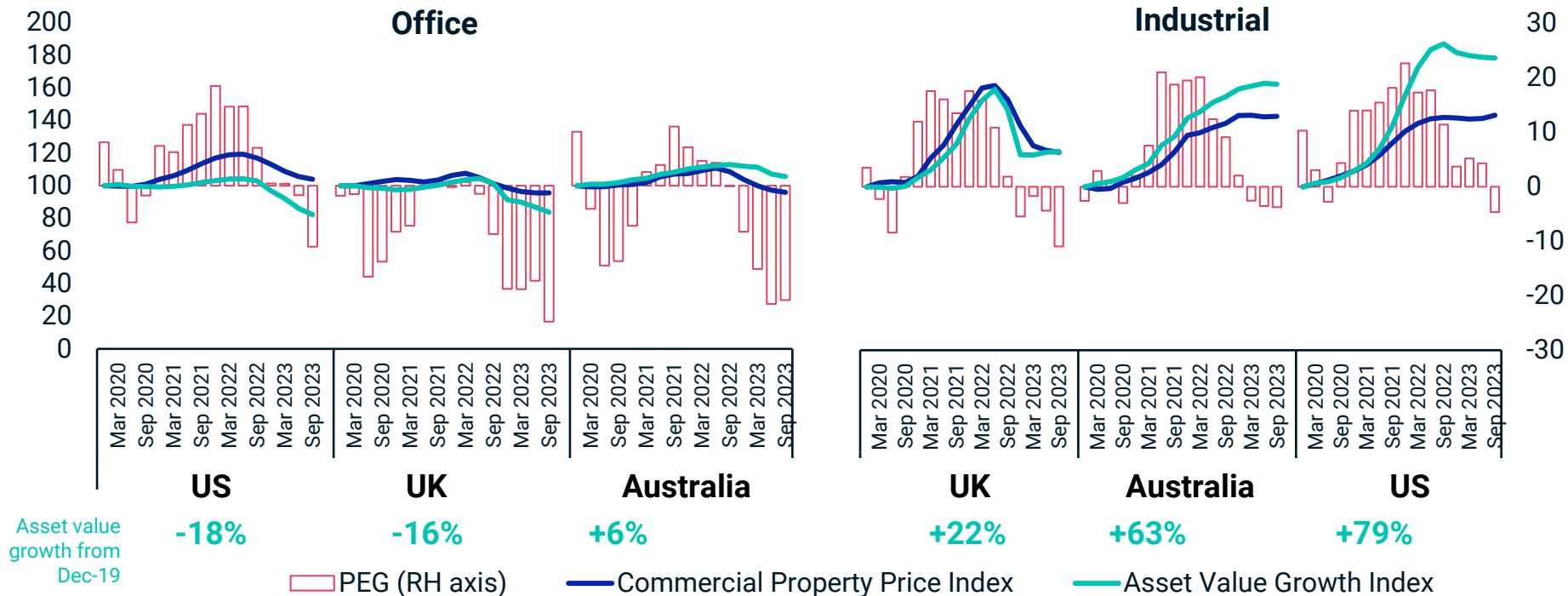
Allows for a 'Liquidity Adjusted' Price Index

UK Office Price Expectations Gap vs Selected Pricing and Valuation Indexes



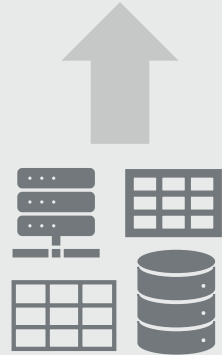
Pricing and Valuation Dynamics Vary Across Markets

Country/sector property pricing indicators (2019Q4-2023Q3)



Distribution Slicing

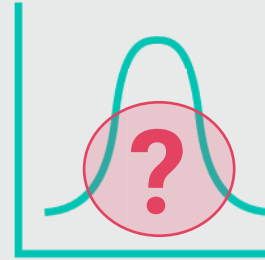
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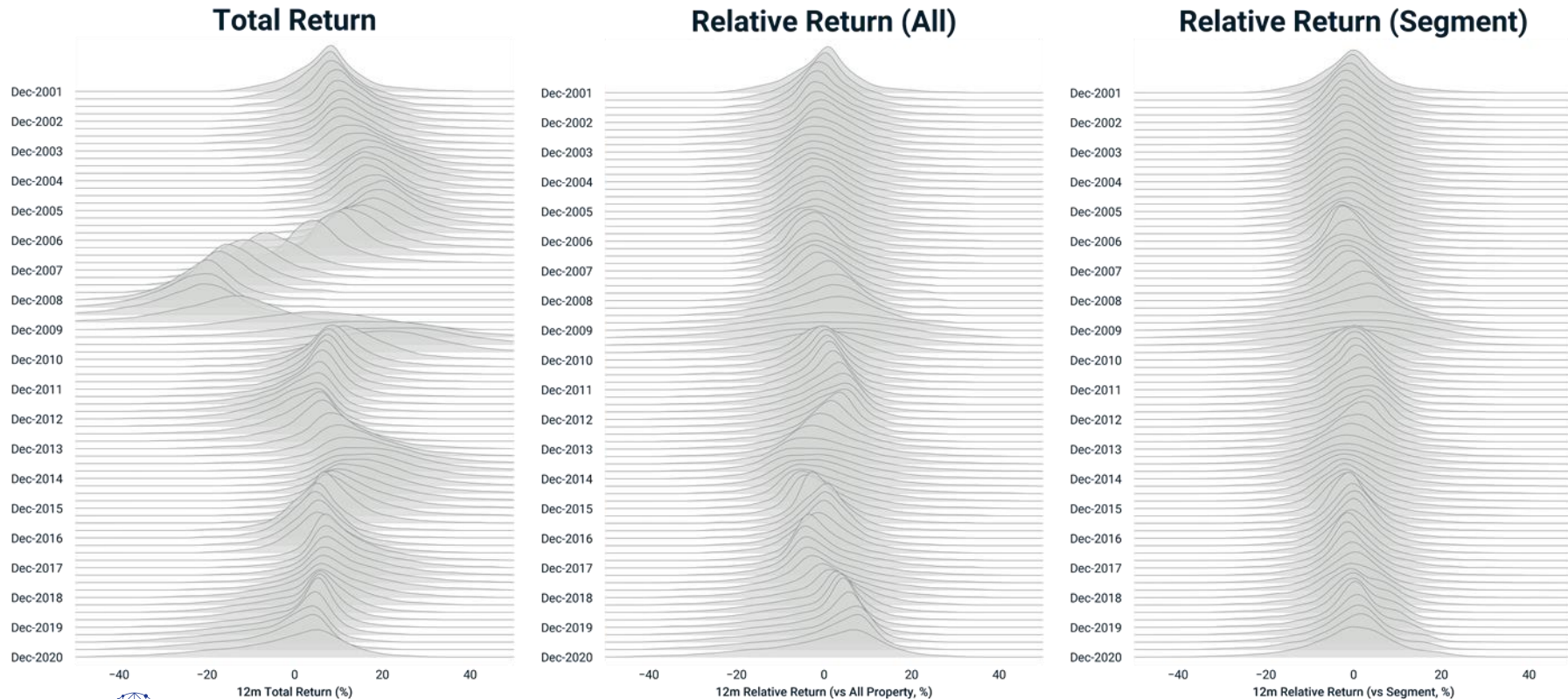
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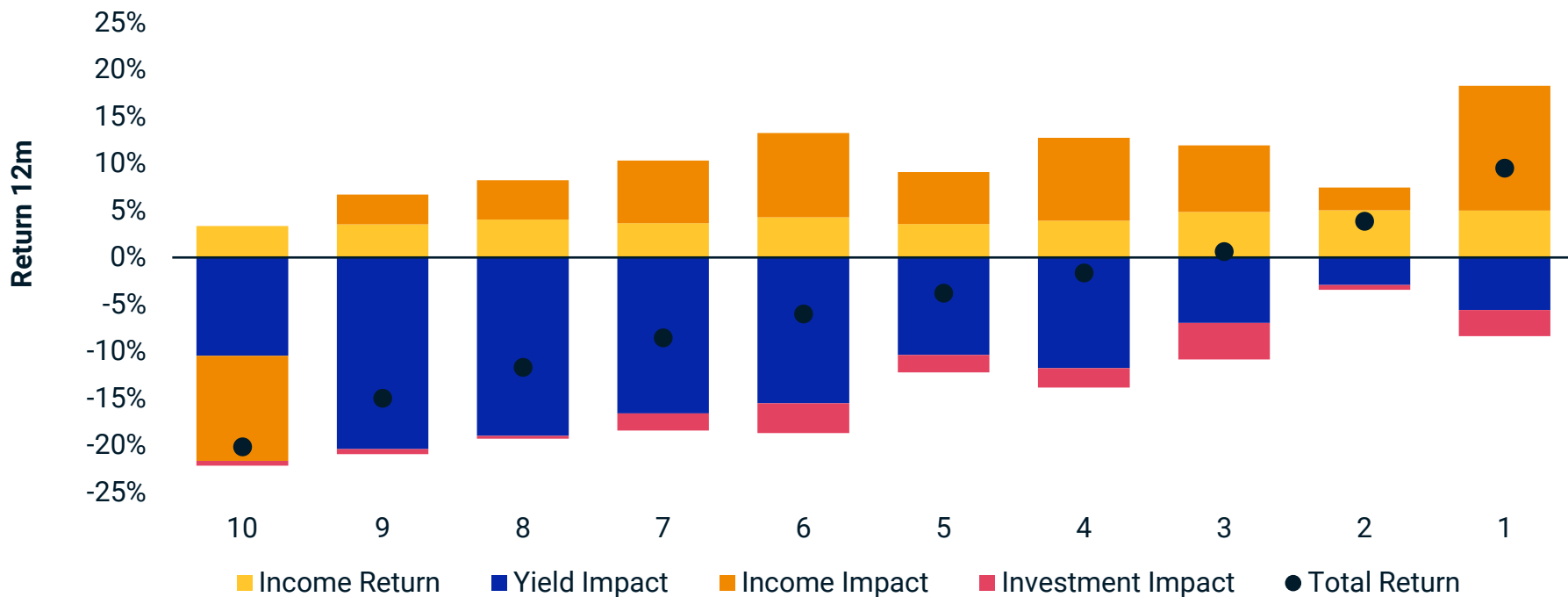
Broad Variation in Real Estate Asset Performance

MSCI UK Quarterly Property Index to Dec 2020



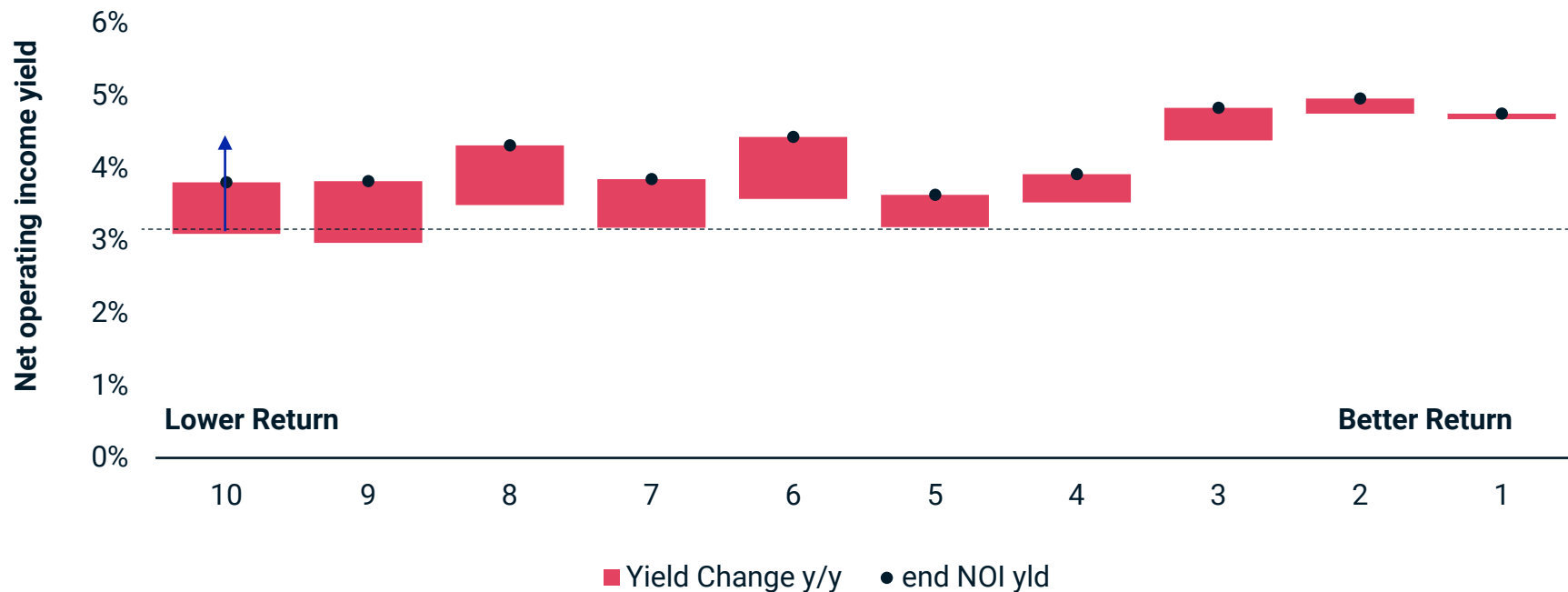
Describing Return Drivers Across a Distribution

MSCI Pan-European Balanced PFI Funds Quarterly Property Index - Total Return by Decile; All Assets



Worst Performing Assets Had Lowest Starting Yields

MSCI Pan-European Balanced PFI Funds Quarterly Property Index - Total Return by Decile; All Assets



Factors:

- Scores
- Exposure analysis
- Attribution
- Factor-tilted indexes

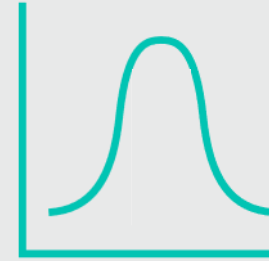
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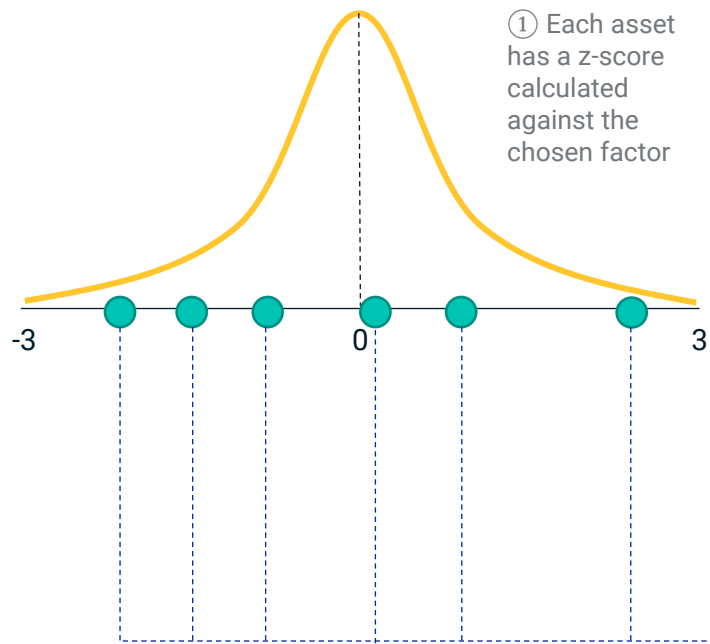
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A 'Factor' Approach to Private Real Estate



② These scores feed into a linear regression as values for the factor variable

③ Dummies are used to control traditional for property type and geography segments

Segment
Control
Dummy
variables

Factor
Return

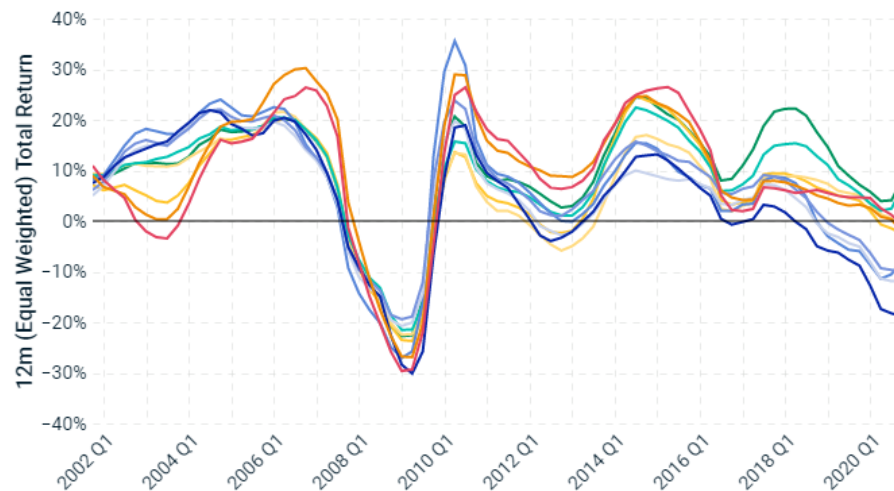
$$R = \sum C + XF + \varepsilon$$

④ Regression is run to derive factor return

Exhibit 2 – Tested Style Factors	
Style Factor	Descriptor Variables
Size	Capital Value
Yield	Equivalent Yield
Leasing	Occupancy and Remaining Lease Term ³
Growth	Market Rental Value Growth
Momentum	Total Return
Volatility	Momentum Squared

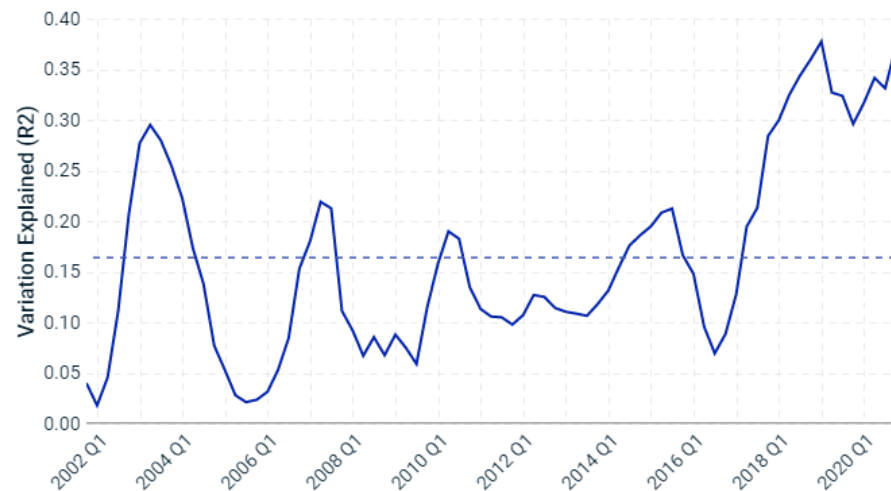
'What?' and 'Where?' Only Explain So Much

MSCI UK Quarterly Property Index factor returns to December 2020



Segment

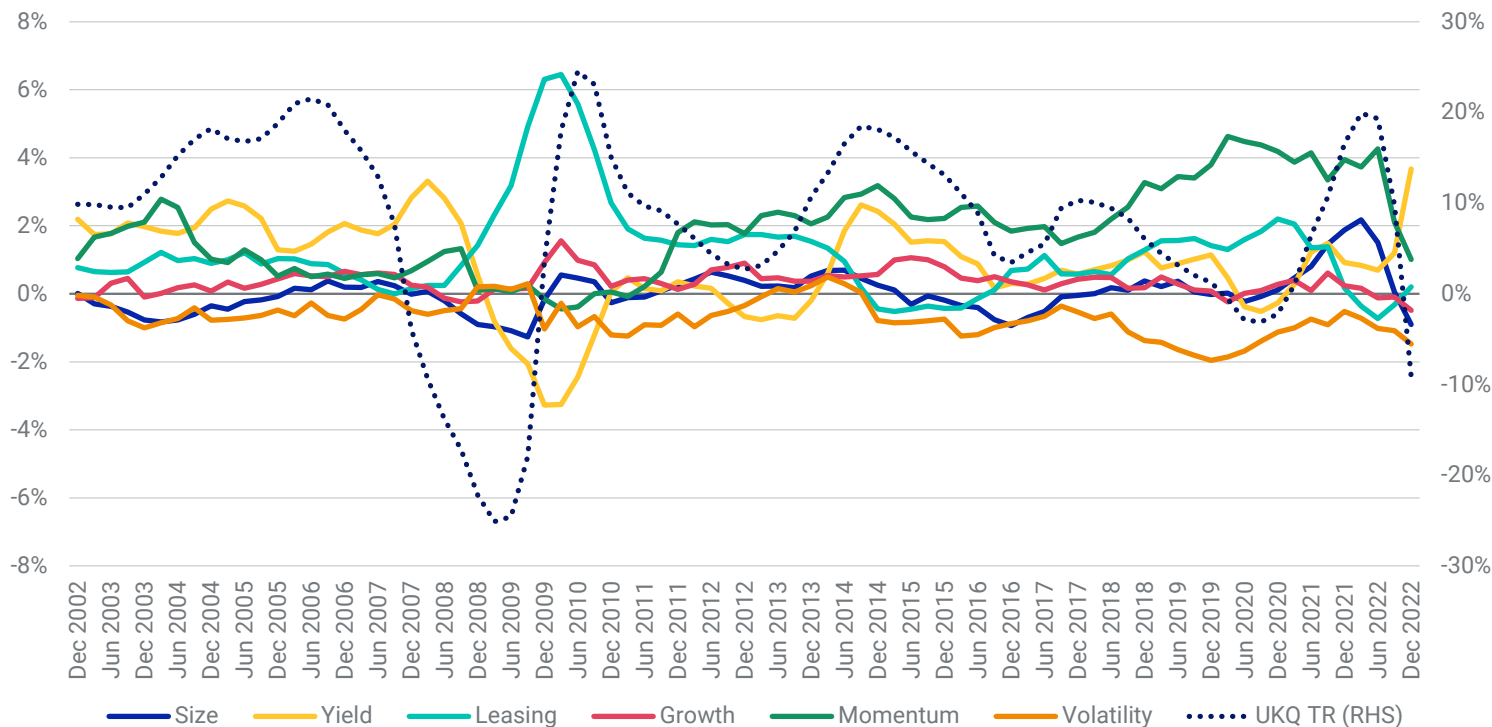
- Shopping Centre
- Retail Warehouse
- Standard Retail - South East
- Standard Retail - Rest of UK
- Office - City
- Office - West End & Mid Town
- Office - Rest of South East
- Office - Rest of UK
- Industrial - South East
- Industrial - Rest of UK



[Read the blog >>](#)

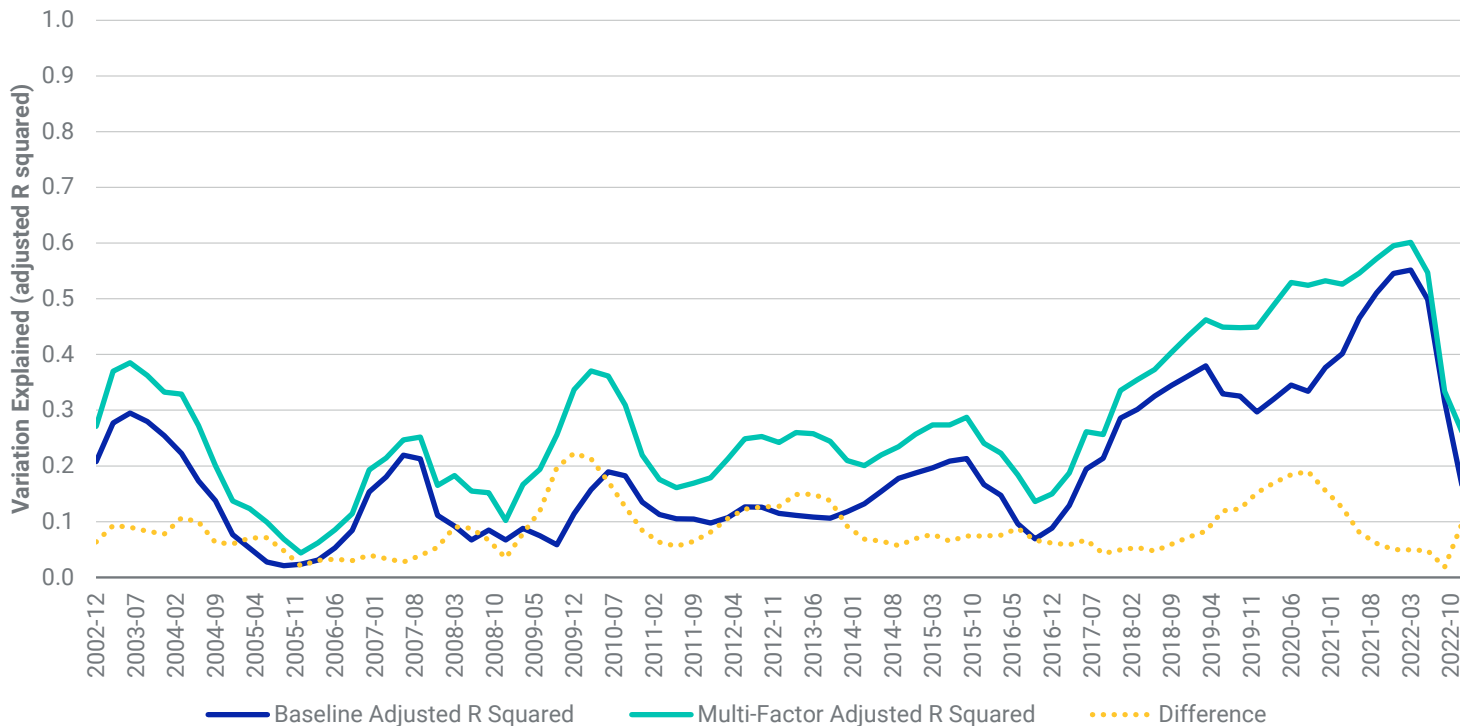
Some UK Style Factors Show Interesting Return Profiles

MSCI UK Quarterly Property Index factor returns to December 2020



... And Collectively Add Explanatory Power

MSCI UK Quarterly Property Index factor model r^2 statistics to December 2020



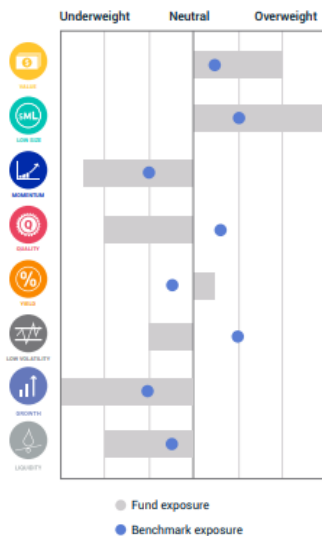
Taking the Factor Framework to the Next Level

Focus on Climate and Quality (Locational and Physical)?

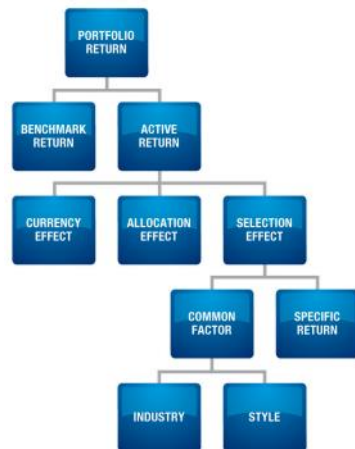
Building Ratings/Scores	GIS Data	Client Data
WELL Building Standard	Footfall	Lease data
WalkScore	Retail Catchment	Emissions Data
Wired Score	Drive Time Areas	Physical Attributes
Green Building Certifications	Commuting Connectivity	Building Sensor feeds
EPCs	Amenity Assessment	
FitWell Standard		

Potential Applications

Factor Exposures



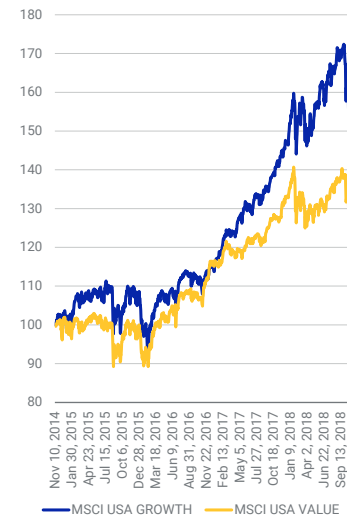
Factor Attribution



Factor Risk Models

Risk Source	Portfolio Exposure	Portfolio Risk	Portfolio Risk Contribution
Total Risk		69.53	69.53
Local Market Risk		69.53	
Common Factor Risk		60.78	53.13
Industry		16.54	2.99
US Biotechnology Life Sciences	121.49	16.54	2.99
Style		6.33	0.08
Market		26.91	8.31
US Country	1.21	26.91	8.31
Private Equity		53.88	41.75
US PE Early Stage Ventures	1.00	53.88	41.75
Selection Risk		33.77	16.40
Currency Risk		0.00	0.00
US Dollar	100.00	0.00	0.00

Factor Indexes



Index-to-Asset Mapping:

- Loan book indexation
- Early stage AVM

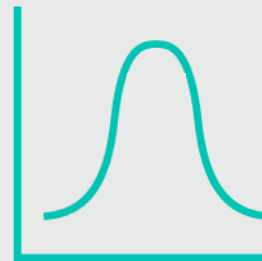
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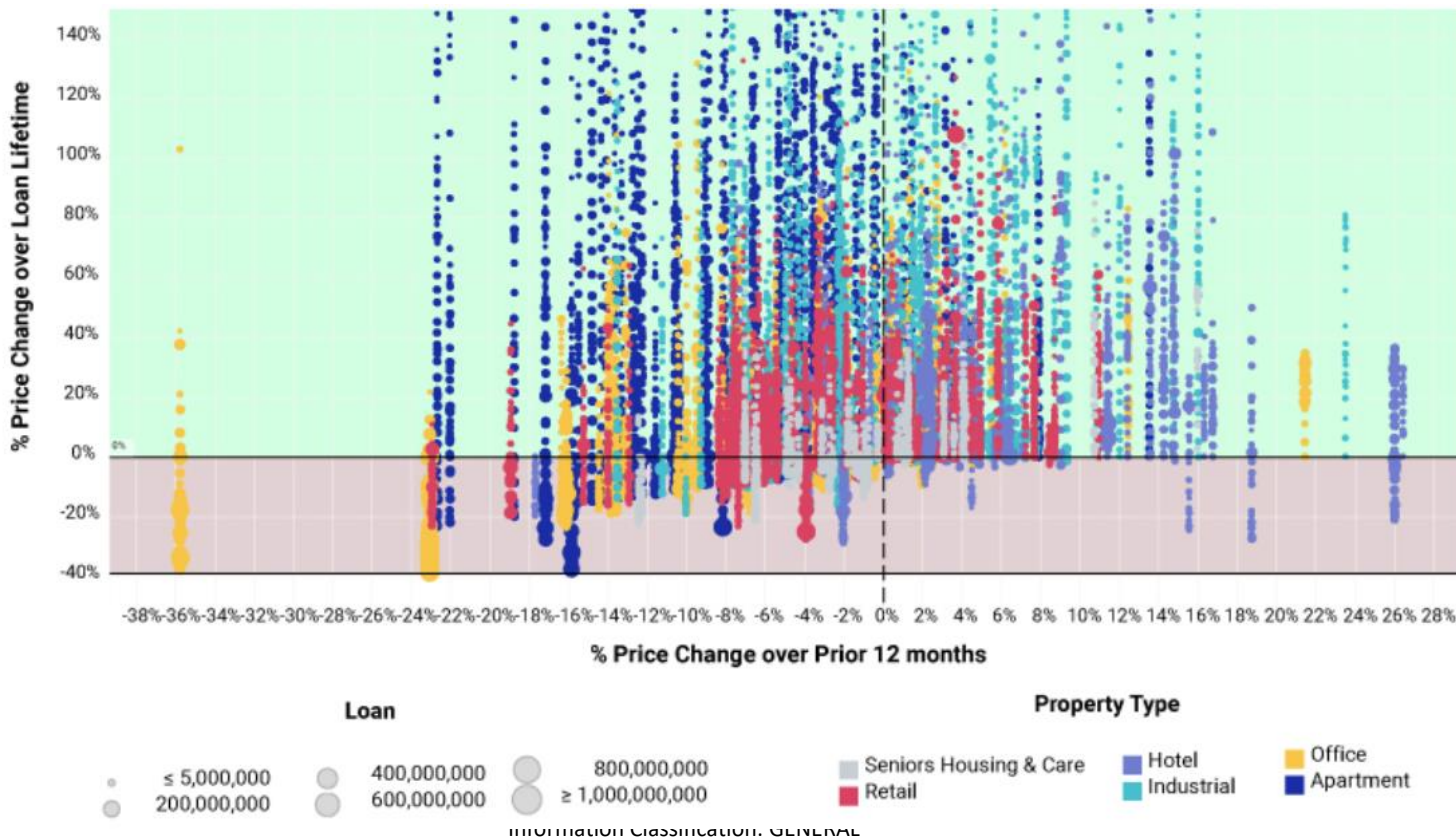
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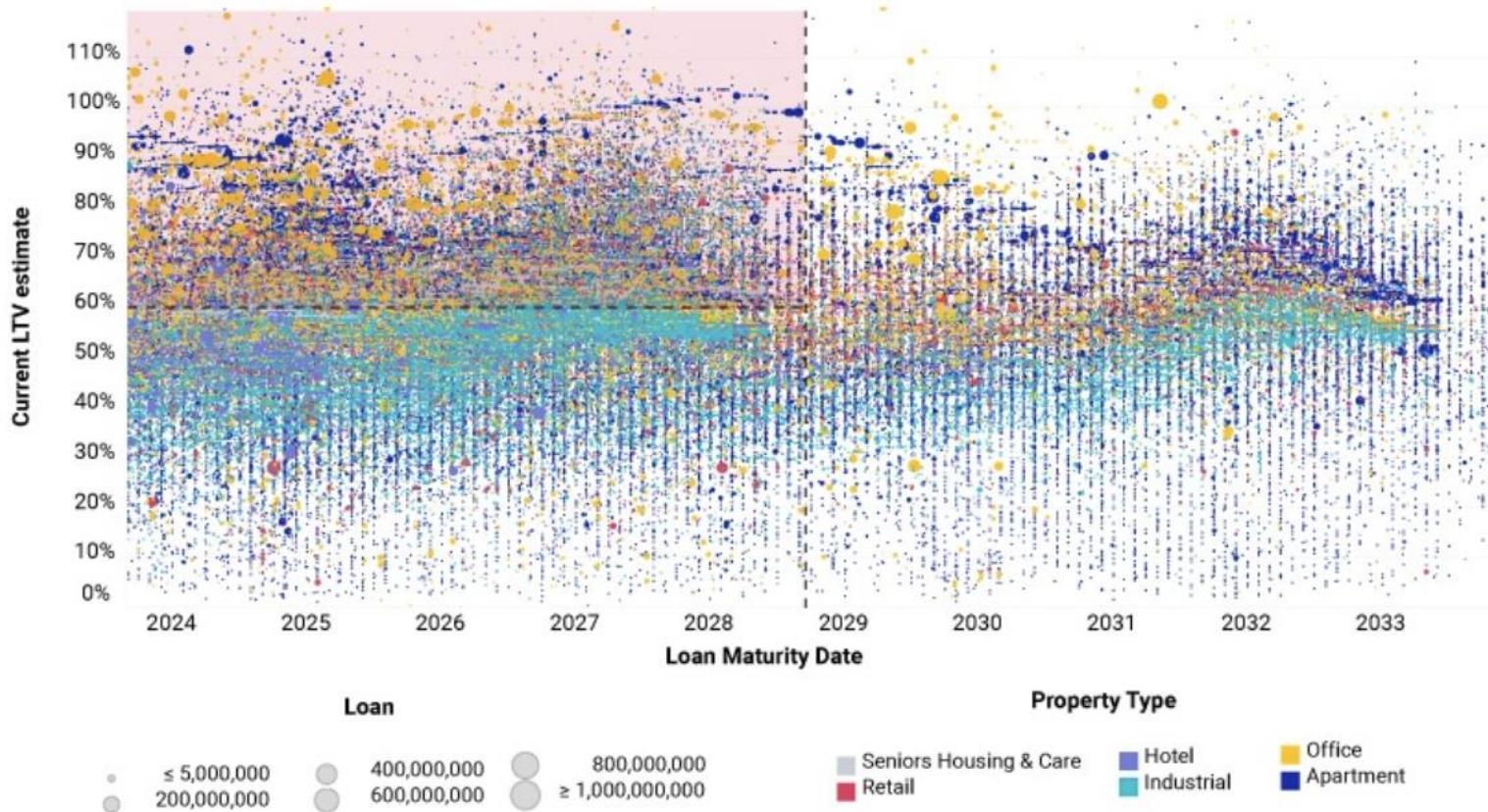
Loan Life-time Market Price Growth

Despite recent price drops, most US collateral was still valued above origination levels



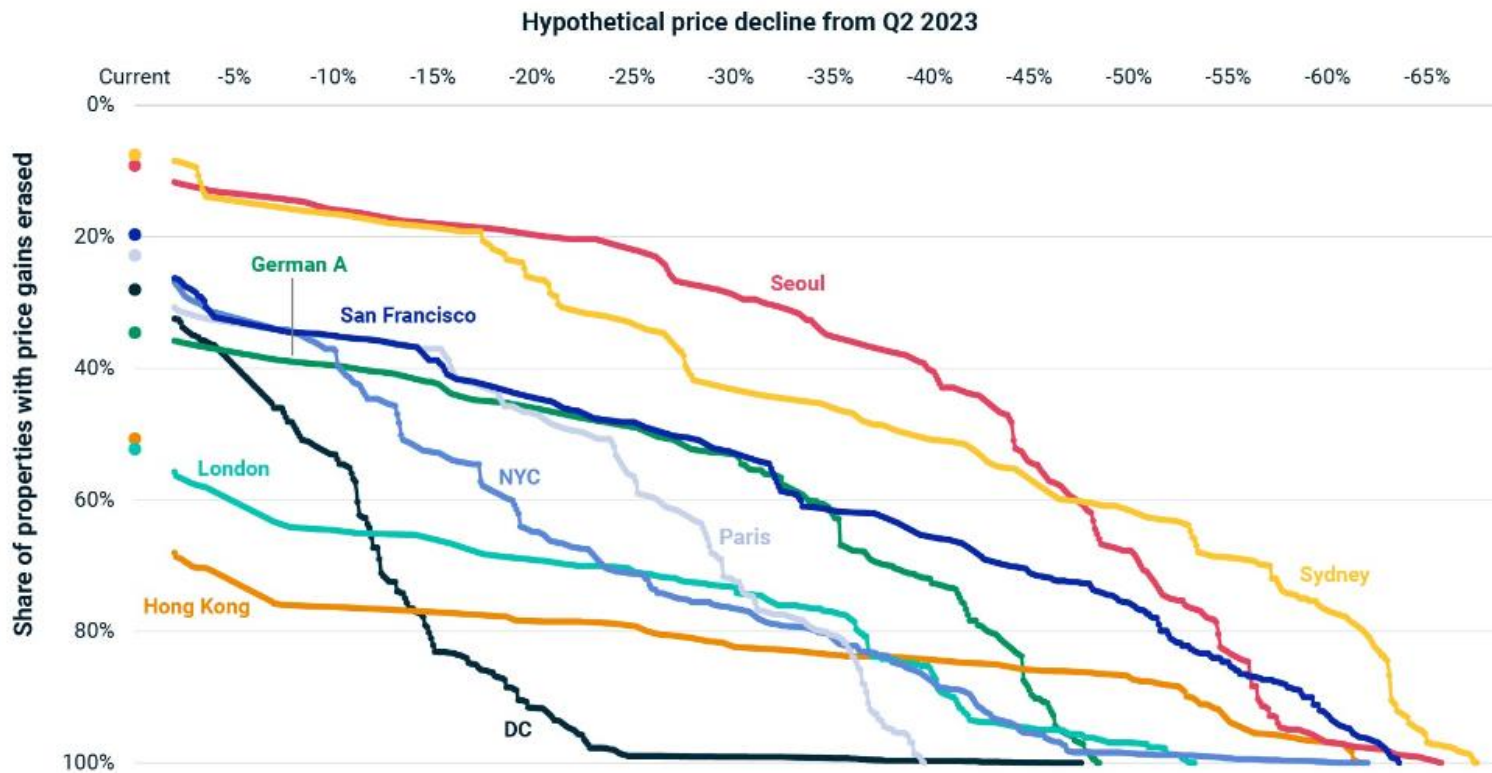
Assessing the Health of US Real Estate Loan Collateral

Estimated current LTV vs Loan Maturity



Loss Aversion and Property Market Liquidity

Scenarios on price declines spell bigger impact on some markets



Panel Discussion

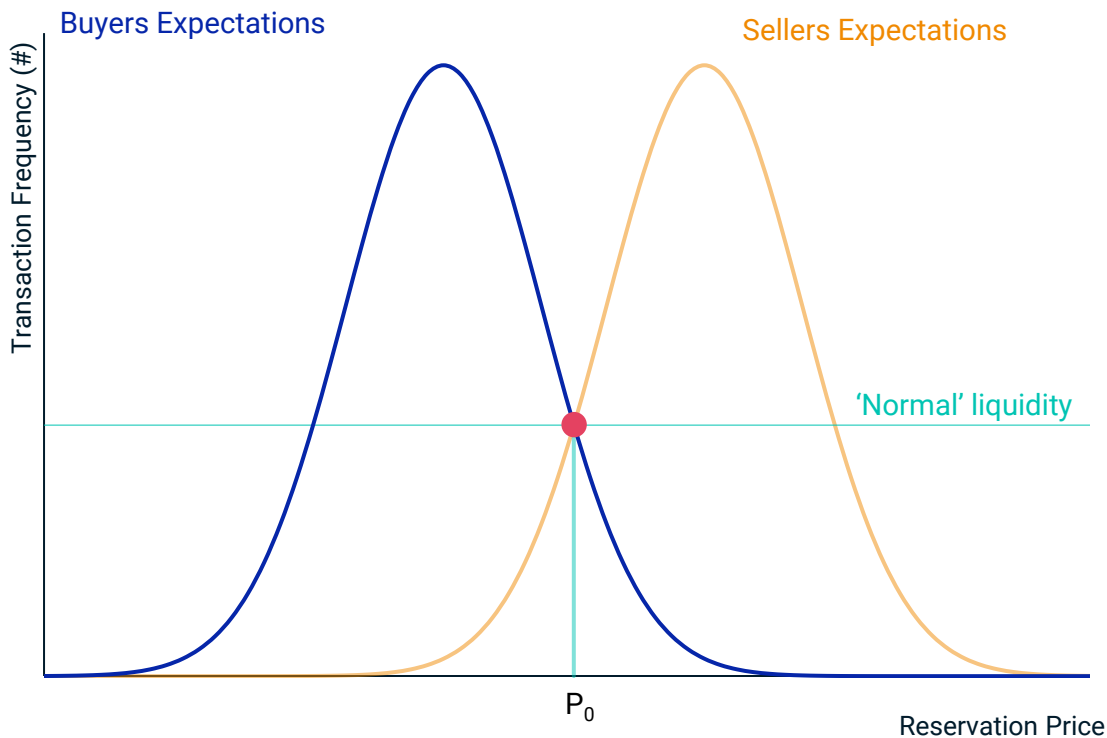


Appendix



Normal Market Conditions

A market is made where buyers' and sellers' expectations overlap. Activity is at normal levels.

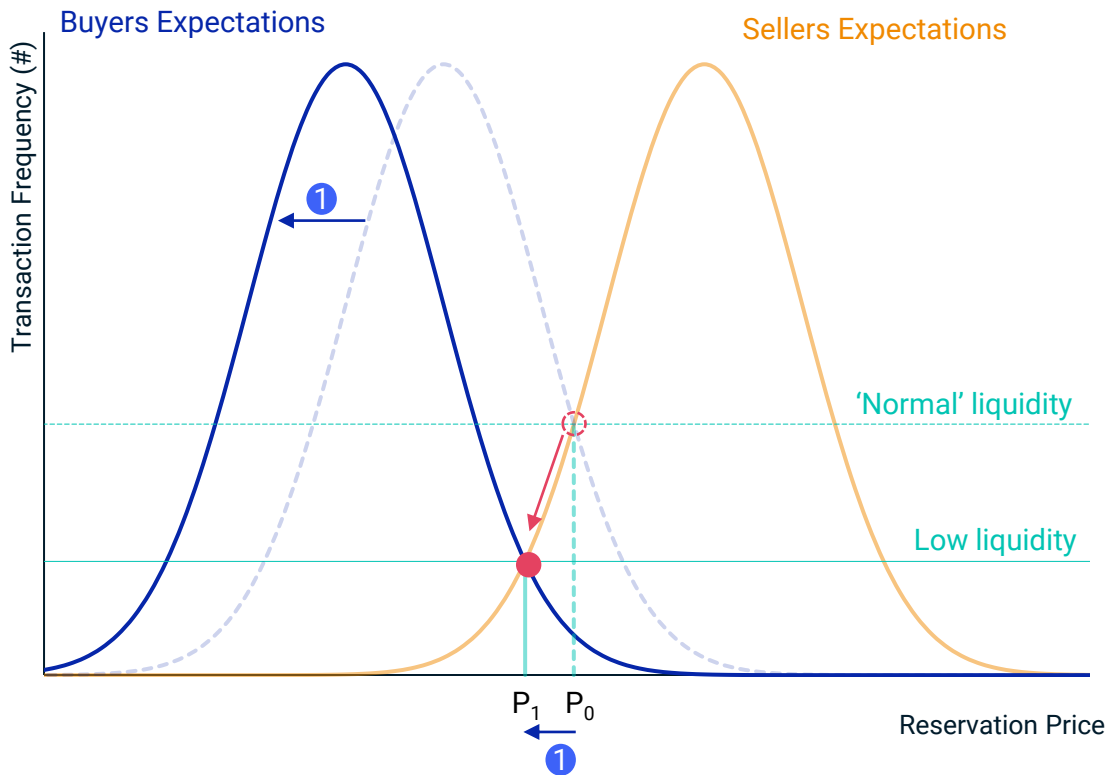


Assumptions:

- Buyers' and sellers' expectation curves have the same shape which are fixed over time
- Sellers' expectations are higher than buyers' due to familiarity and a lower risk premium attached

Weak Market

Buyers reduce price expectations. Observed prices fall, but at lower volume since sellers aren't as willing to sell at new, lower prices. Their expectations haven't shifted yet.

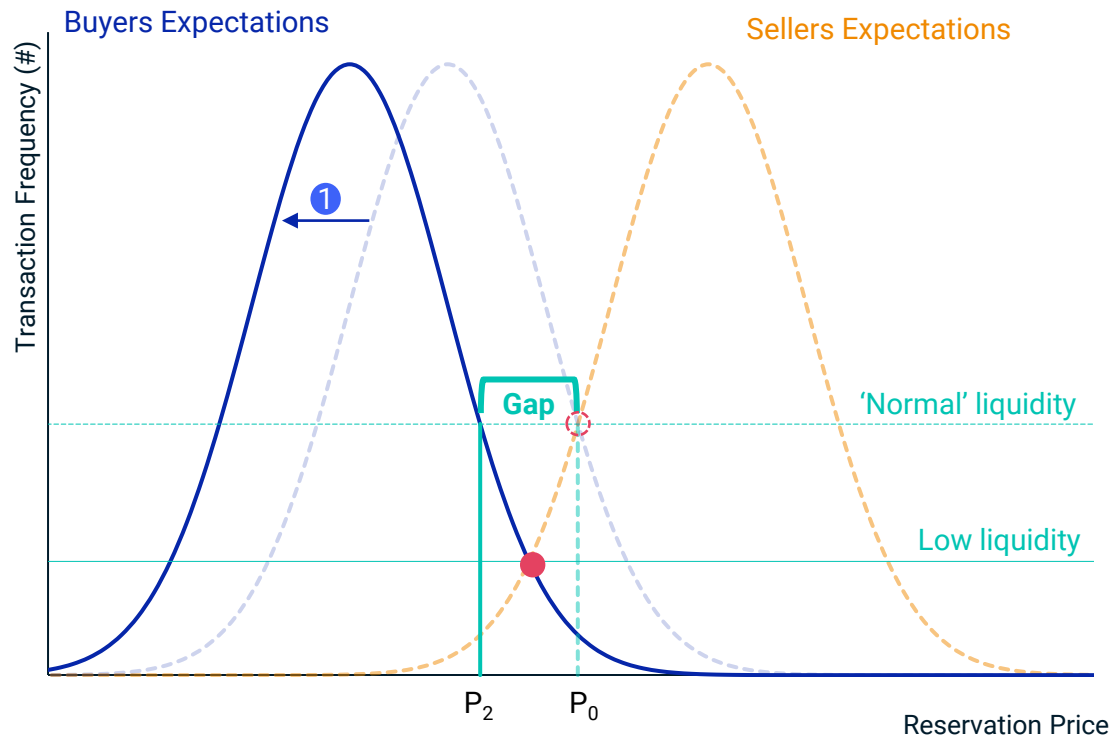


Assumptions:

- Price adjustment process is simplified into two stages:
1. Buyers' expectations move first and sellers do not
 2. Buyers' expectations are assumed to be correct so only Sellers' expectation need to move to return market to LR liquidity levels

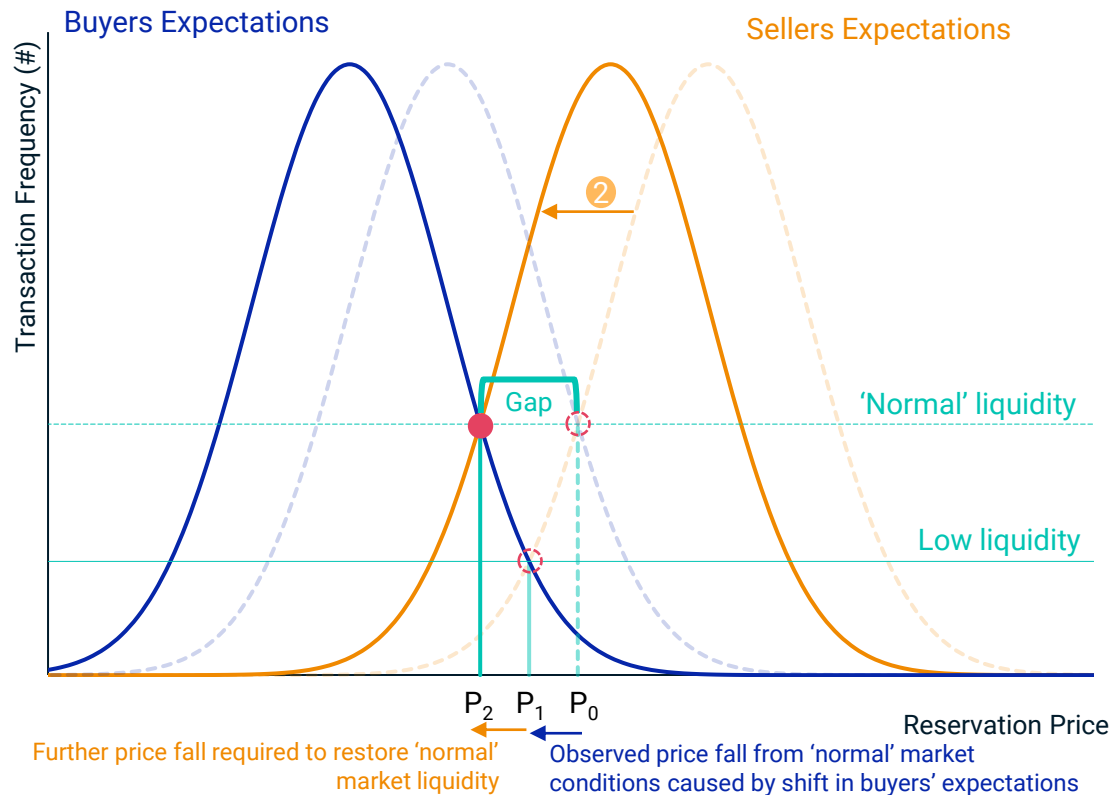
Sellers Must Meet Buyers' Expectations to Restore Liquidity

Price Expectations Gap is an expression of the fact that lower liquidity is a result of there being less of an overlap in buyer and seller expectations given the shift in buyers' expectations



Sellers' Reduce Expectations; Prices Fall Further; Liquidity Restored

The implied additional price movement needed to restore liquidity is 50% of the Price Expectations Gap (P_1 to P_2 rather than P_0 to P_2)



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