



Valuation and Sale Price Comparison Analysis

2024 Annual Review of Valuation Accuracy

July 2025

AUTHORS

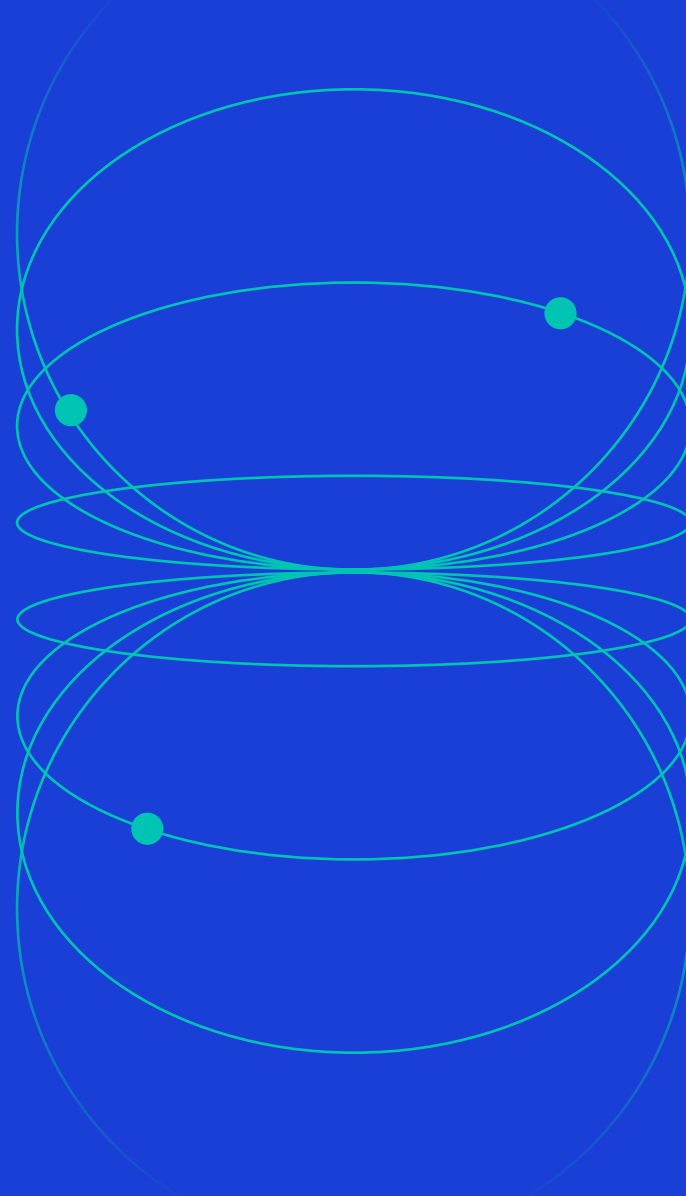
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Yash Padia and Manas Jalan

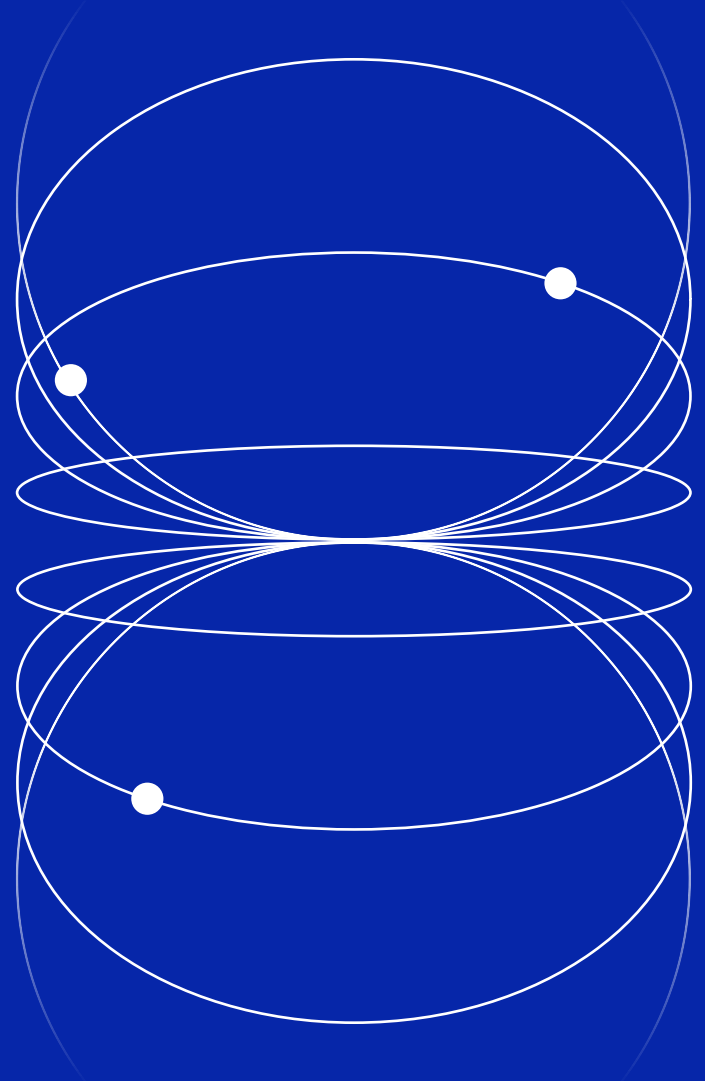


Why Compare Valuation and Sale Price?

- For mainstream financial asset classes, investment-performance measurement is based on transaction prices. In contrast, direct real estate is well known to be an illiquid and heterogeneous asset class
- Real estate's heterogeneity results in volatility driven by sample composition between time periods
- MSCI calculates price indexes based on repeat sales and hedonic methods that are designed to control the sample composition's volatility
- To track the performance of identical real-estate properties over longer periods and to allow the use of metrics in addition to property valuations, MSCI constructs indexes for private real estate based on professionally sourced open-market valuations (i.e., price estimates based on a set of market-process assumptions combined with available and relevant transaction evidence)
- Valuation-based indexes aim to track as closely as possible actual agreed transaction prices. Therefore, users of these indexes must be able to gauge how closely this goal has been achieved. For this reason, MSCI computes and discloses fair market indicators that compare valuations and prices for assets that transacted in the open market
- To measure each index's synchronization of price and value, MSCI compares professionally generated valuations against subsequent transaction prices on a sample restricted to properties traded out of fully measured portfolios
- Although valuations and transaction prices may differ significantly at the level of individual assets, MSCI's tests are designed to quantify aggregate spreads and thus identify any tendency for valuations to consistently understate or overstate market movements, across countries and time periods
- MSCI's research on valuation and sales price is published for year 2000 to 2024 covering 24 years of history

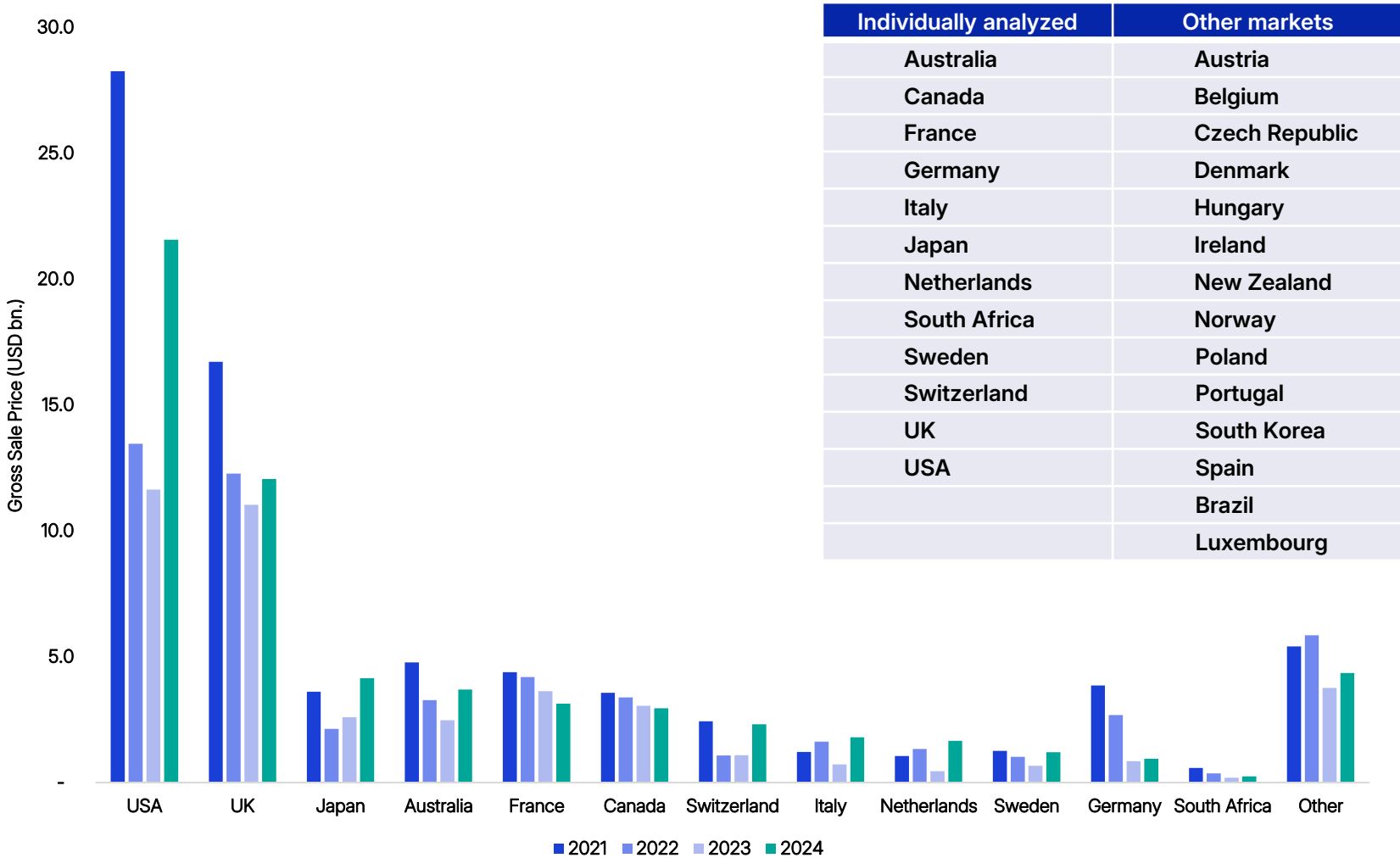
2024 Global Trends

Based on updated Methodology



Markets Covered

- Results cover sale transactions from 26 countries¹ within MSCI Global Annual Property Index
- Results were individually² analyzed for 12 of 26 countries
- In 2024, a total of 1,992 sale transactions (+30% Y-o-Y) were recorded with a value of \$60.1bn USD (+43% Y-o-Y)
- US and UK account for over 50% of the total transactions

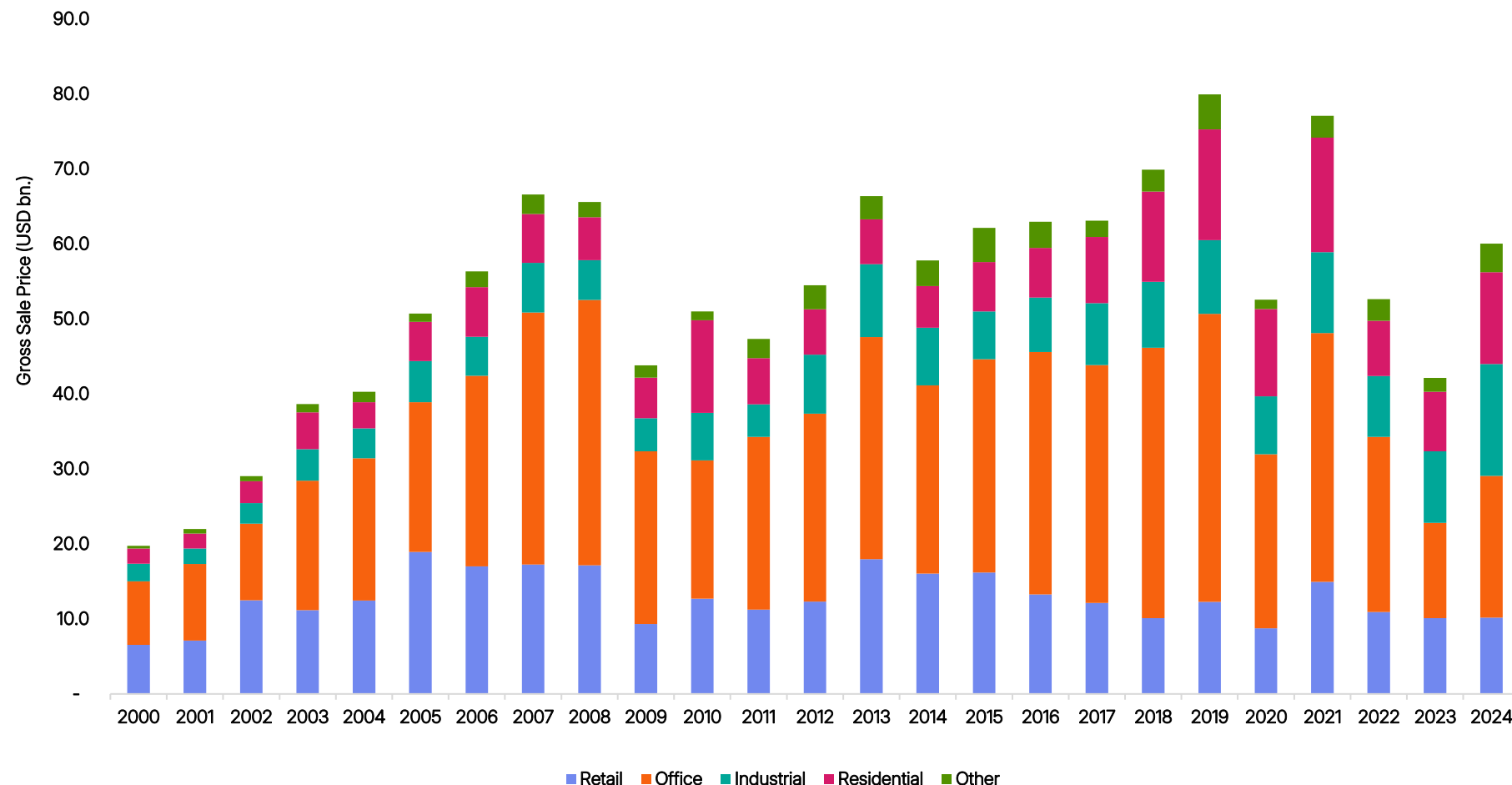


Individually analyzed	Other markets
Australia	Austria
Canada	Belgium
France	Czech Republic
Germany	Denmark
Italy	Hungary
Japan	Ireland
Netherlands	New Zealand
South Africa	Norway
Sweden	Poland
Switzerland	Portugal
UK	South Korea
USA	Spain
	Brazil
	Luxembourg

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Global Sale Transactions – 2024 (Gross Sale Price by Sector)

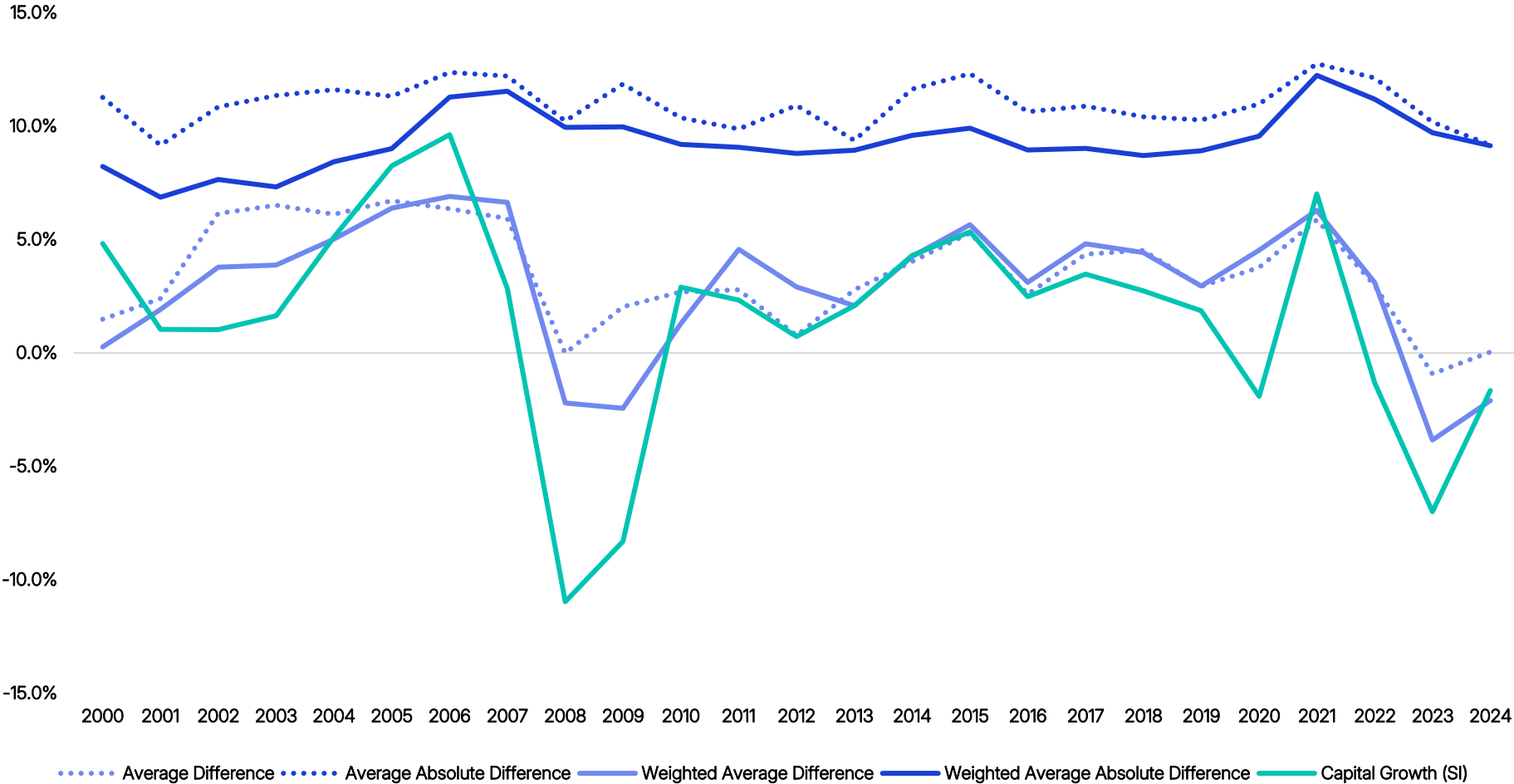
- Value of sales for 2024 was USD 60.1bn, which is 3.3% of the capital value of global annual property index (vs. 2.0% in 2023)
- All sectors, except for Retail, recorded a notable increase in value of sale transactions for 2024 compared to 2023
- Office sector recorded USD 18.9 bn worth of sale transactions during 2024, which was the highest among all sectors and 6.6% above the Industrial sector that stood second in terms of value of transactions
- Other sector recorded the highest y-o-y growth in 2024 compared to Retail sector that witnessed the lowest growth during the same period



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Global Snapshot

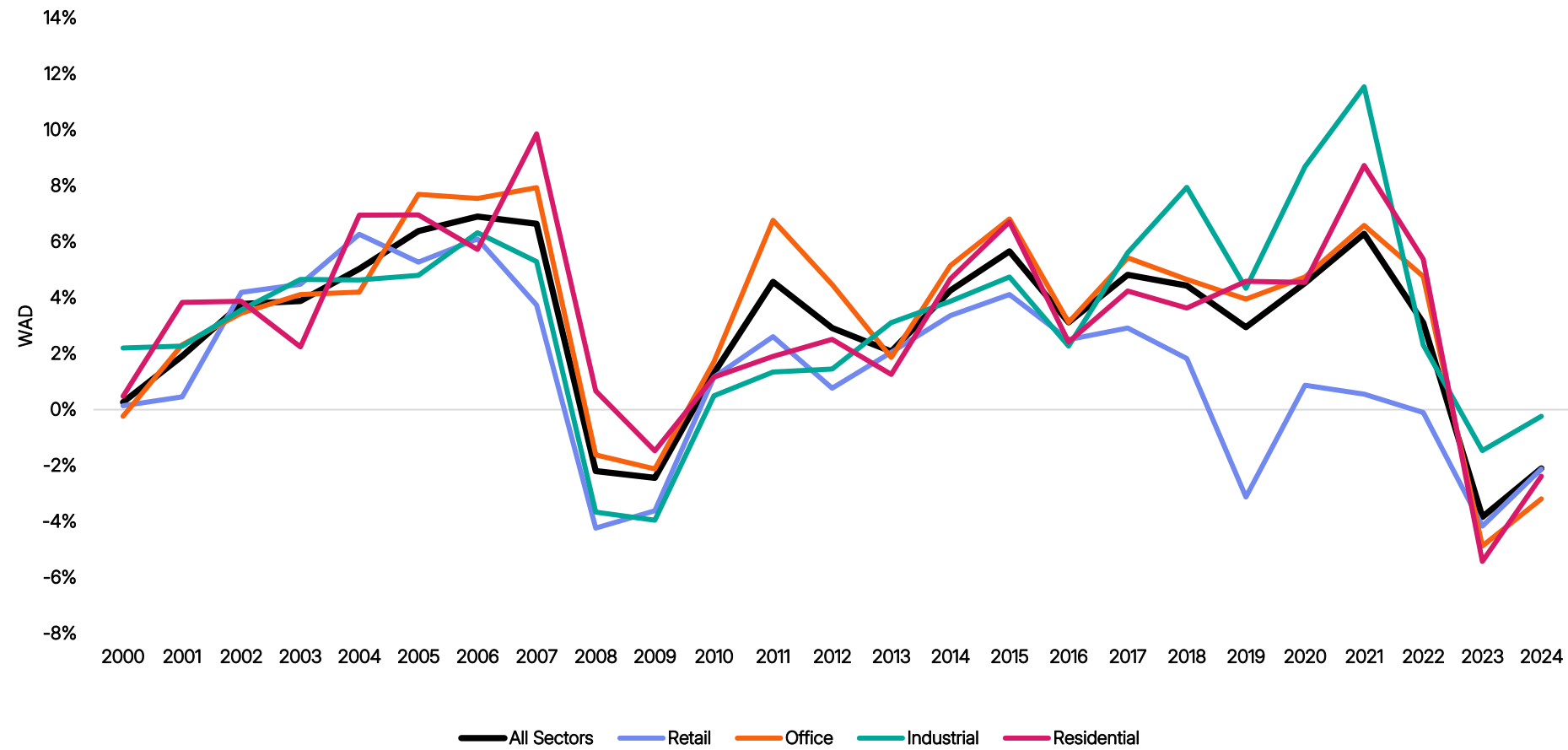
- Capital growth (Standing Investment³) recorded for 2024 MSCI Global Annual Property Index is 530bps above 2023 indicating a sharp recovery
- Valuation bias (WAD) at -2.1% in 2024, was 170bps above 2023 but was still significantly lower than the 10yr avg. of 2.9%
- Valuation accuracy (WAAD) at 9.1% is below 10yr. avg. of 9.7%



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Weighted Average Difference (WAD) – Global Trends by Sector

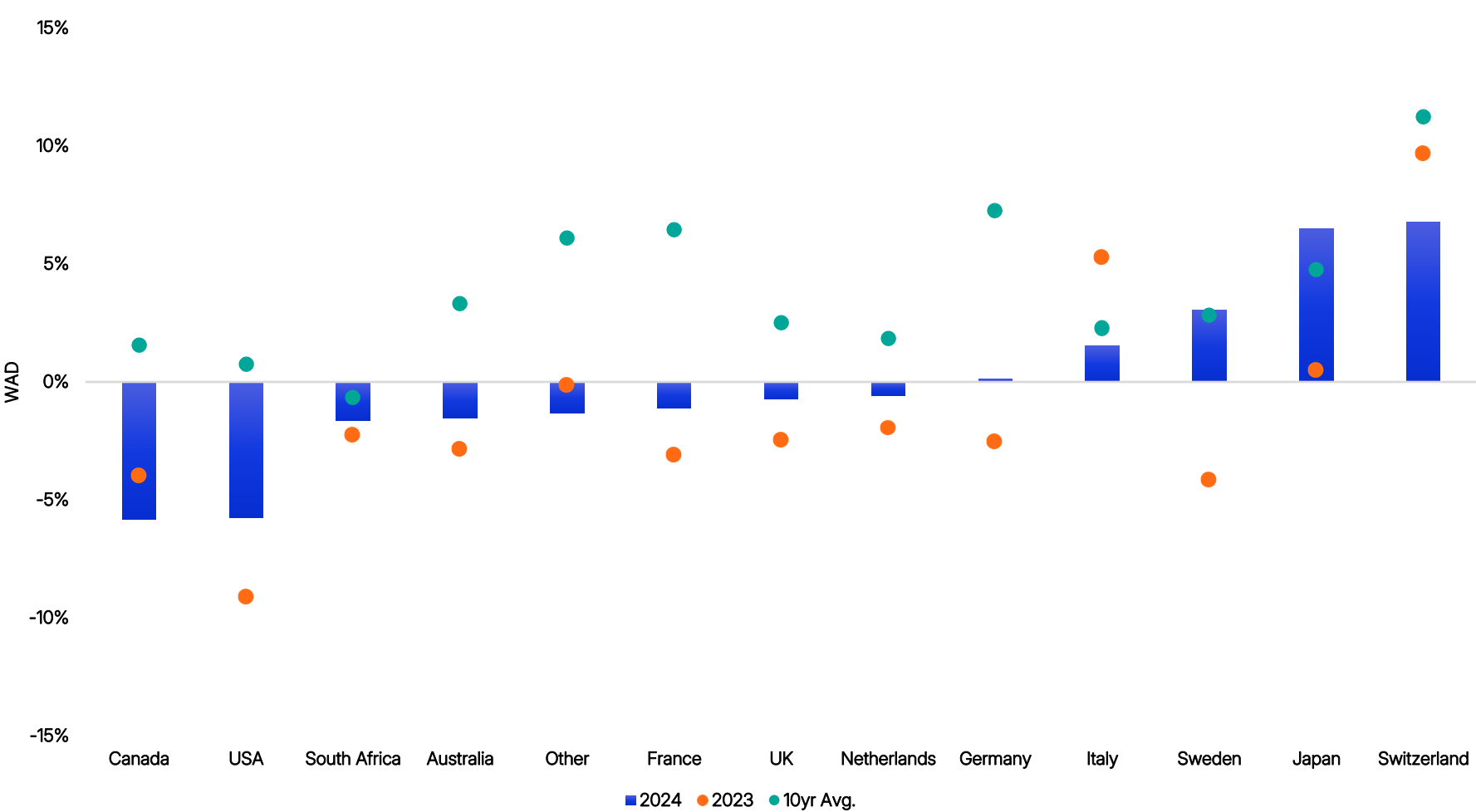
→ By Wtd. average, sales across all sectors were recorded below valuation estimates with global average improving to -2.1% compared to -3.8% in 2023



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Weighted Average Difference (WAD) – by Country

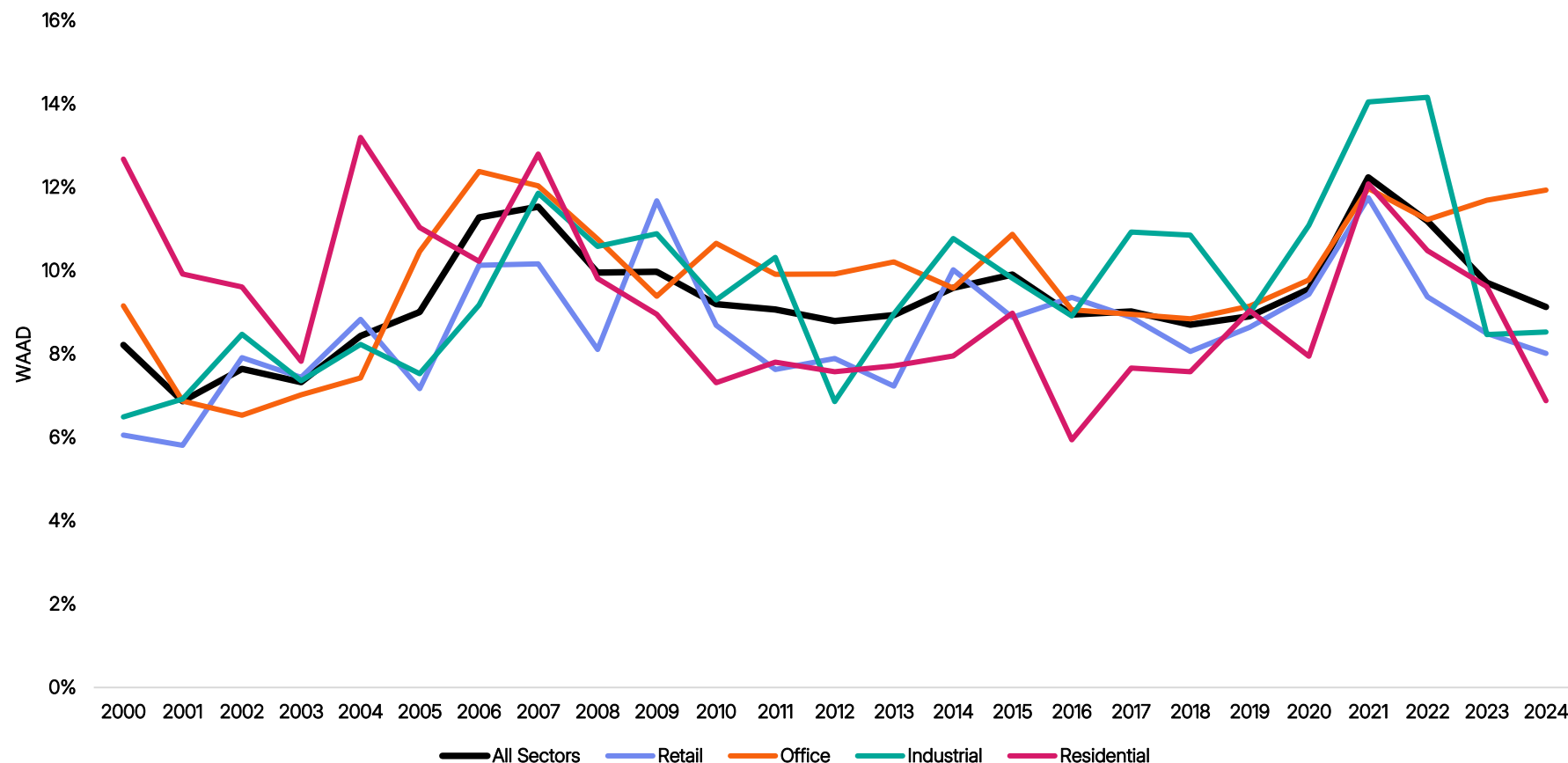
- Negative WAD recorded for 8 of 13 markets segments (compared to 10 in 2023)
- Canada WAD of -5.8% was the lowest, driven by the -8.4% WAD for Retail and -12.4% WAD for Office (37% and 20% of total sale sample respectively)
- USA WAD of -5.7% improved by 340bps due to Residential (38% of total sale sample) WAD improving to -4.6% compared to -9.2% in 2023



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

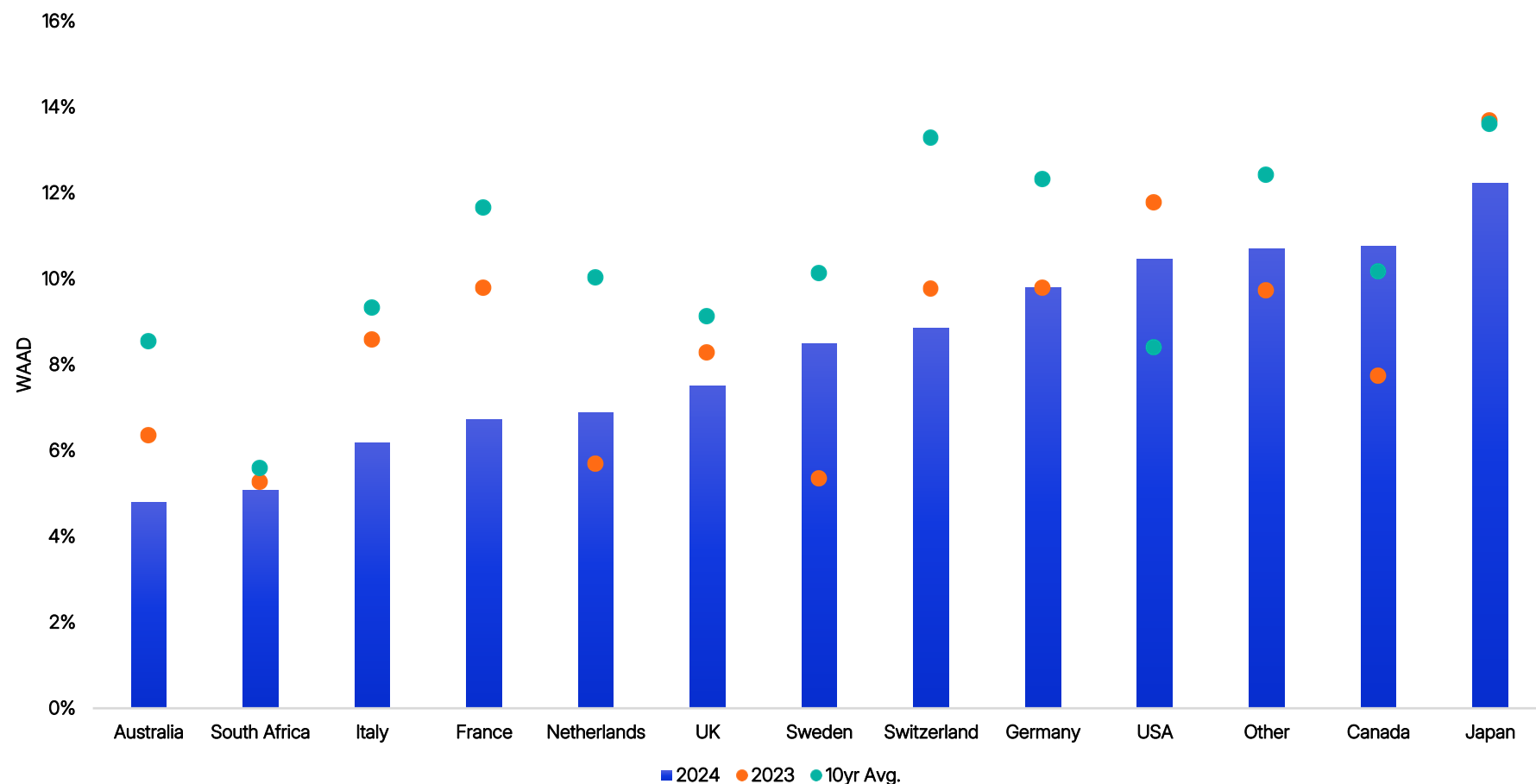
Weighted Average Absolute Difference (WAAD) – Global Trends by Sector

- For 2024, weighted average absolute difference between sale price and valuation was 9.1% (vs. 9.7% in 2023)
- The difference in price and valuations remained high at 11.9% for Office sales in 2024
- Significant improvement in accuracy in Residential compared to its peak in 2021
- For other sectors, the difference was lower by up to 200bps below the global average



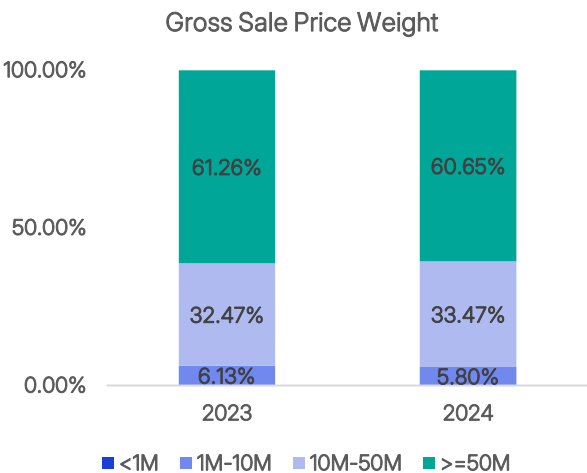
Weighted Average Absolute Difference (WAAD) – by Country

- 8 of the 13 markets segments recorded improvement in valuation accuracy with WAAD reducing compared to last year
- USA and Canada recorded WAAD higher than its corresponding 10yr avg.
- Australia, Italy, France, Netherlands and Switzerland witnessed 300 bps+ improved valuation accuracy compared to their 10-year average
- France witnessed the highest improvement in valuation accuracy by 490 bps, due to increase in Industrial sales from 5% to 30% along with improved accuracy from 9.6% to 6.5%

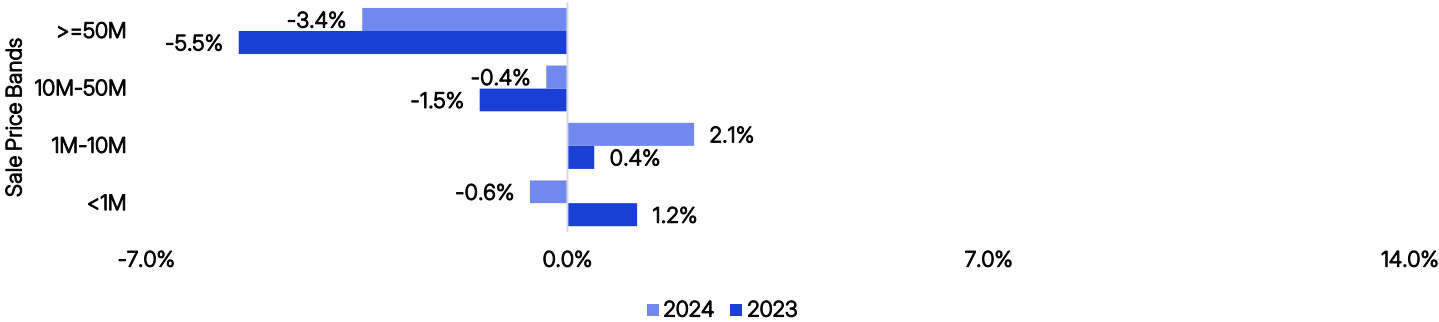


Analysis by Asset size - Global

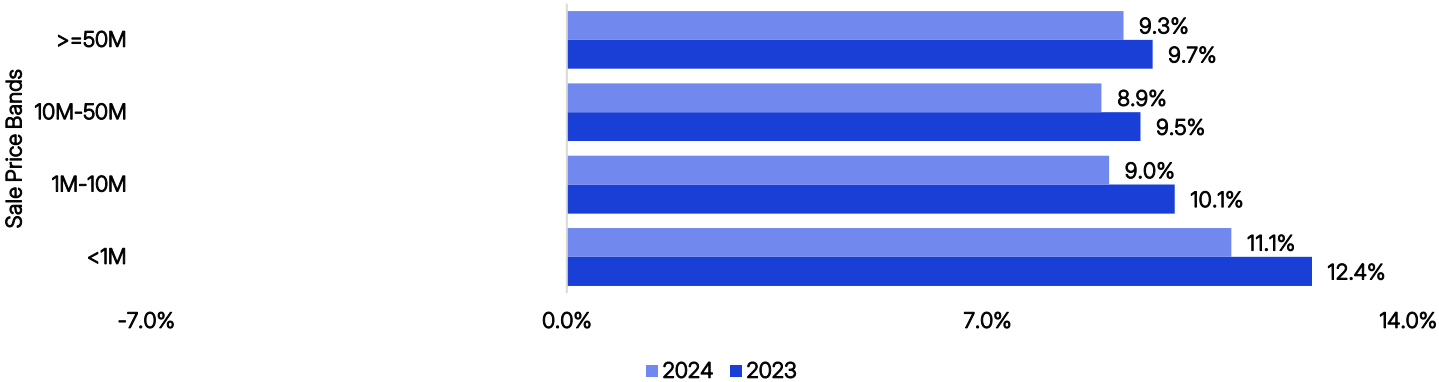
→ On an average, large properties (>50m) were sold below their valuation estimates as per WAD



WAD



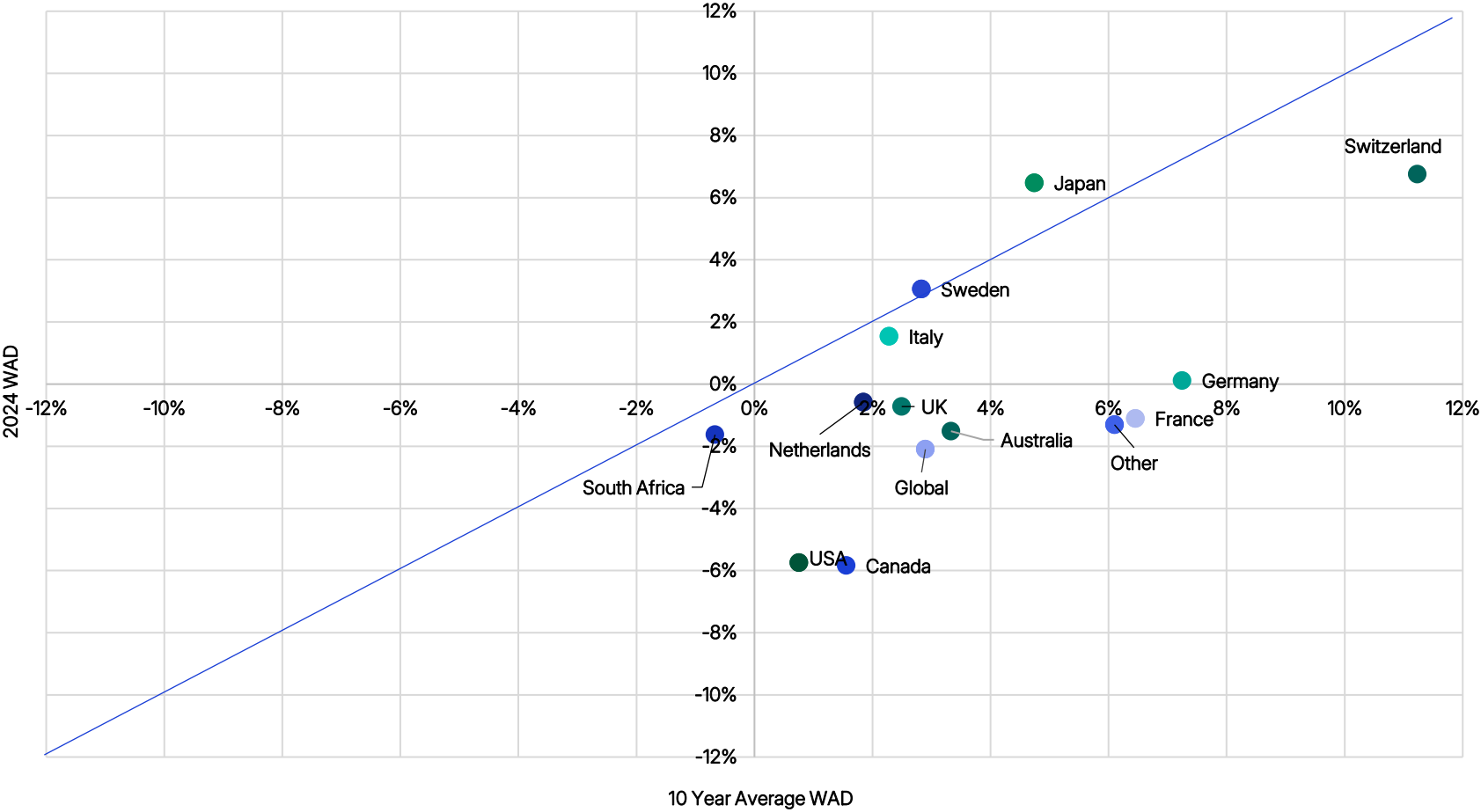
WAAD



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

WAD 2024 vs. 10-year Avg.

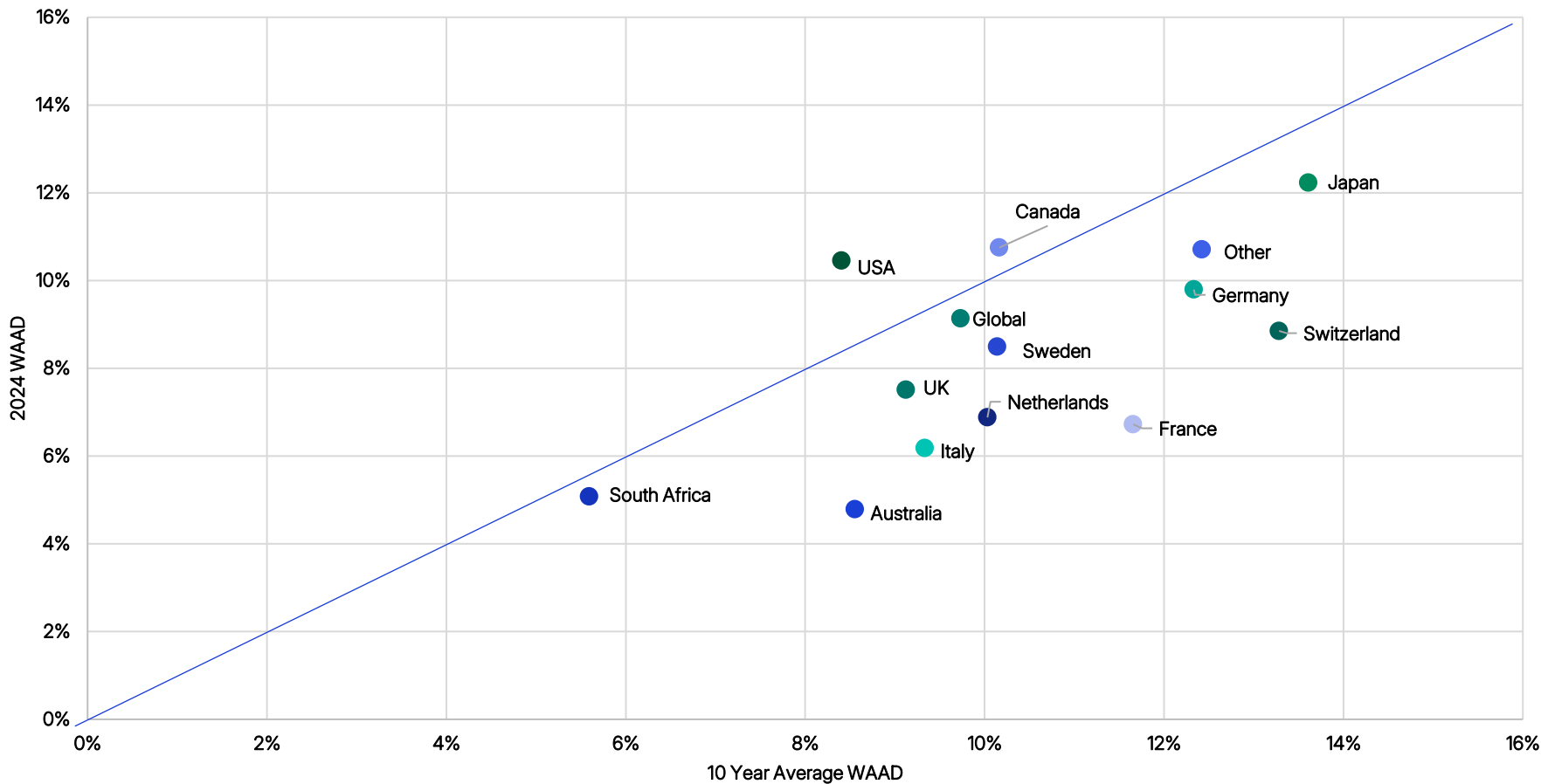
- 10 of 12 markets witnessed WAD lower than its 10-year avg.
- 6.5% WAD for Japan was 170 bps higher than its 10-year avg. due to increase in Industrial sales from 13% 10-year avg. to 23% along with WAD indicating assets sold at 12.3% premium



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

WAAD 2024 vs. 10-year Avg.

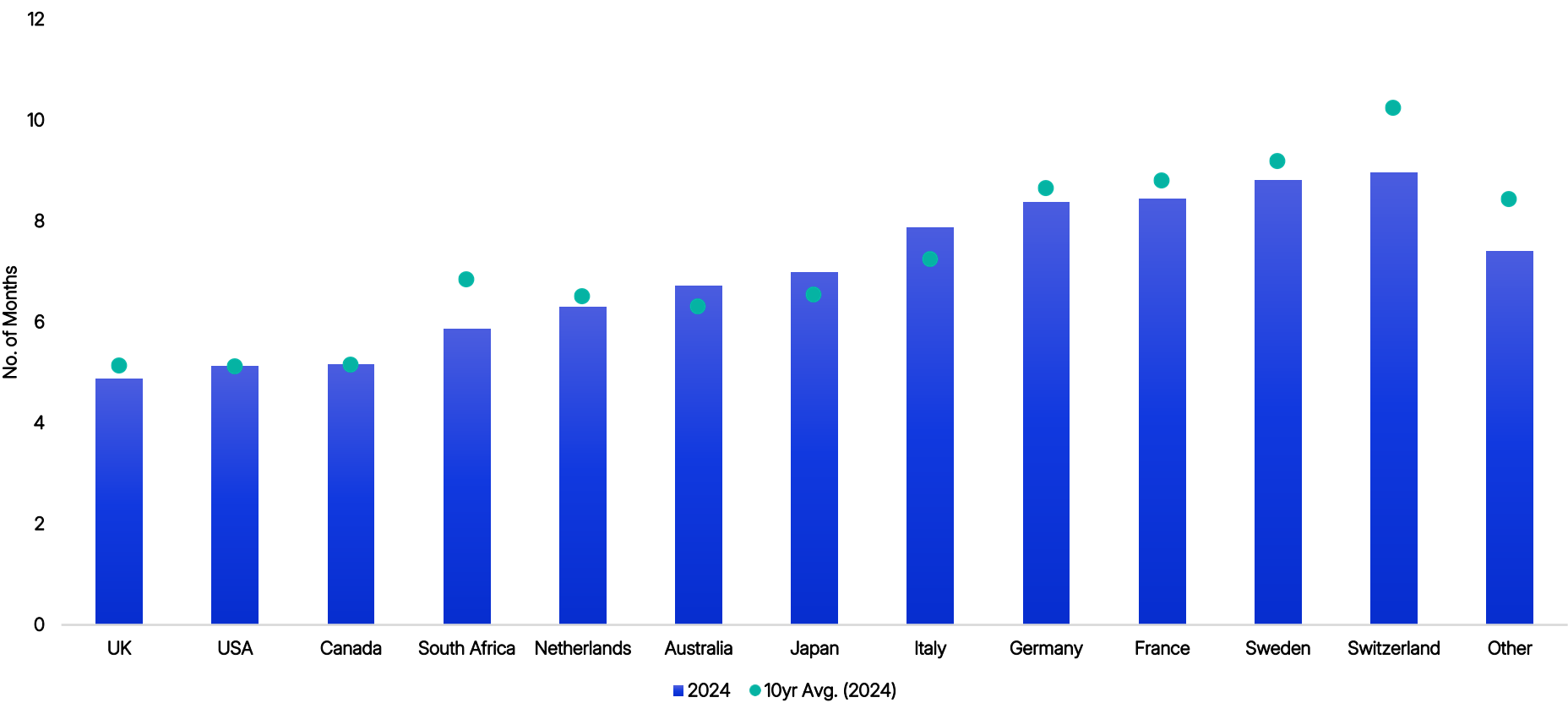
- 10 of 12 markets reported WAAD lower than its 10-year avg.
- 10.5% WAAD for USA was 200 bps higher than its 10-year avg., due to lower Office sample of 25% compared to 40% 10-year avg. reducing the overall accuracy of valuations due to lower sample



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Average number of months between valuation and sale (2015-2024)

- More the time between valuation⁴ and sale, higher the estimation error due to estimated market & sector capital growth used for individual assets to derive adjusted valuations until 3 months prior to the month of sale
- More frequently valued markets have lower time duration between valuation and sale price and thus a lower propensity to estimation error



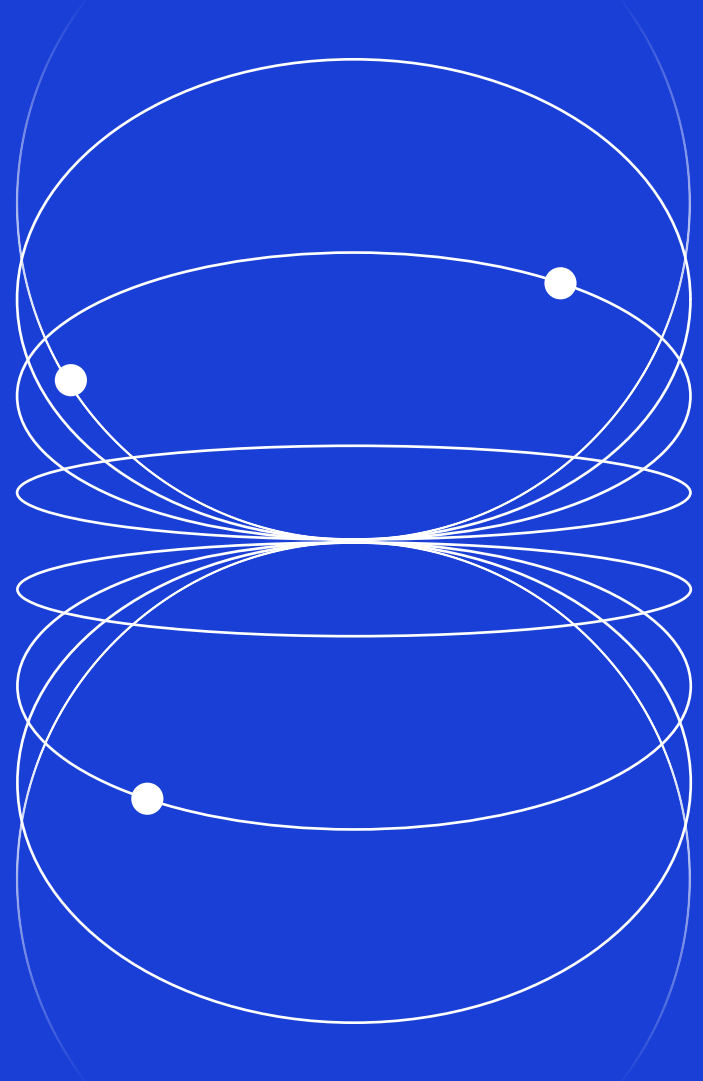
Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Conclusion

- Weighted Average Absolute difference between property valuation and sale price reduced and is below its 10yr average indicating the valuation-based indexes closely tracking transacted prices in the open market
- Weighted Average difference was negative on account of large properties being sold below estimated valuations which is in line with the negative capital growth (SI) observed for the MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)
- 2024 sales value and count witnessed a significant increase and moved in line with their 10yr average indicating improved transaction activity in the market compared to previous period when transaction value and count had reduced below 10yr average
- Office sales weighted average absolute difference in price and valuation remained high at 11.4% , due to lower sample compared to historic average (31% compared to 40%+ historically)
- Weighted Average difference for sales from Australia, Canada, France, Netherlands, South Africa, UK & USA remained negative as in previous year

Appendix 1

National and Global Results, 2000 to 2024



Weighted Average Absolute Difference (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	3.3%	3.2%	4.1%	4.9%	4.4%	6.5%	10.4%	15.5%	10.7%	8.3%	5.5%	6.1%	3.5%	8.1%	8.7%	12.5%	9.0%	12.1%	9.1%	6.2%	8.1%	12.6%	4.9%	6.4%	4.8%
Canada	10.8%	7.3%	7.5%	7.5%	10.7%	10.4%	23.2%	16.1%	9.9%	10.3%	8.4%	10.4%	20.2%	7.9%	7.6%	7.3%	11.1%	9.2%	12.5%	10.6%	11.3%	12.8%	8.3%	7.7%	10.8%
France	6.2%	8.4%	6.4%	5.4%	9.2%	10.4%	14.8%	14.3%	10.0%	6.9%	10.8%	10.0%	9.6%	8.6%	9.3%	14.5%	13.7%	9.5%	11.2%	12.7%	12.9%	14.7%	10.9%	9.8%	6.7%
Germany	9.4%	8.8%	7.1%	10.7%	5.3%	6.1%	13.3%	13.2%	12.5%	5.4%	11.0%	9.1%	10.1%	8.5%	8.6%	8.3%	12.6%	17.3%	7.6%	19.3%	15.7%	14.0%	9.0%	9.8%	9.8%
Italy					18.0%	3.3%	9.7%	16.7%	16.3%	8.9%	11.8%	7.5%	9.7%	6.0%	9.1%	7.9%	11.5%	11.9%	14.7%	8.6%	9.4%	8.9%	5.7%	8.6%	6.2%
Japan				5.6%	13.3%	20.6%	6.2%	14.5%	7.4%	9.6%	9.1%	7.7%	6.4%	11.6%	11.5%	13.0%	16.1%	10.0%	12.4%	16.0%	9.9%	16.8%	15.9%	13.7%	12.2%
Netherlands	9.4%	8.0%	9.4%	8.2%	8.6%	8.3%	11.9%	11.0%	5.4%	8.6%	5.1%	4.9%	6.7%	9.7%	6.0%	7.1%	11.6%	10.7%	10.6%	11.6%	11.2%	12.6%	12.4%	5.7%	6.9%
South Africa	10.2%	9.5%	10.3%	7.4%	7.5%	9.7%	8.7%	18.1%	10.9%	6.6%	5.8%	11.5%	9.8%	7.5%	11.5%	4.7%	5.4%	4.9%	4.8%	8.5%	6.7%	5.9%	4.7%	5.3%	5.1%
Sweden	17.3%	9.0%	10.2%	8.0%	9.7%	10.1%	25.9%	14.0%	11.2%	15.3%	7.4%	11.1%	7.4%	9.8%	10.4%	13.3%	12.3%	8.2%	8.7%	8.1%	9.0%	13.0%	15.0%	5.3%	8.5%
Switzerland				10.3%	9.7%	8.0%	10.3%	8.9%	8.3%	8.3%	11.7%	7.6%	11.6%	7.9%	7.2%	16.6%	24.7%	15.4%	10.7%	12.6%	11.3%	12.2%	10.7%	9.8%	8.9%
UK	7.4%	6.7%	7.8%	7.5%	8.3%	8.4%	9.2%	9.4%	9.1%	11.0%	9.5%	9.1%	8.2%	8.5%	11.4%	9.9%	7.5%	8.1%	8.5%	7.3%	9.8%	11.9%	12.3%	8.3%	7.5%
USA	5.0%	8.4%	7.9%	6.5%	11.0%	12.0%	11.5%	10.2%	12.6%	13.3%	10.1%	10.4%	9.1%	10.2%	9.1%	8.3%	6.2%	7.1%	6.7%	6.6%	6.8%	10.8%	9.4%	11.8%	10.5%
Other	6.1%	7.1%	8.4%	9.5%	15.1%	10.3%	13.8%	12.7%	10.9%	11.9%	8.4%	8.2%	8.4%	8.7%	10.1%	10.4%	12.1%	11.8%	11.8%	10.1%	12.3%	15.4%	20.0%	9.7%	10.7%
Global	8.2%	6.9%	7.6%	7.3%	8.4%	9.0%	11.3%	11.5%	10.0%	10.0%	9.2%	9.1%	8.8%	8.9%	9.6%	9.9%	9.0%	9.0%	8.7%	8.9%	9.6%	12.2%	11.2%	9.7%	9.1%

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Section 2 → Appendix 1: National and Global Results

Weighted Average Difference (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	1.0%	-0.2%	1.0%	2.8%	1.9%	1.2%	7.5%	14.1%	4.6%	-5.8%	1.3%	3.0%	-0.2%	0.9%	6.9%	11.5%	5.5%	8.1%	4.4%	3.1%	6.6%	2.5%	-4.0%	-2.9%	-1.5%
Canada	-0.8%	3.2%	3.8%	2.7%	7.3%	7.5%	21.4%	14.5%	4.6%	-4.4%	0.6%	5.1%	18.7%	5.6%	-0.1%	2.3%	7.1%	6.5%	5.0%	4.7%	1.8%	-2.0%	-0.1%	-4.0%	-5.8%
France	1.8%	-0.3%	0.8%	2.3%	5.9%	8.4%	12.4%	10.1%	2.4%	-0.6%	3.9%	7.8%	5.6%	2.8%	3.6%	7.3%	4.5%	6.5%	9.0%	11.1%	9.6%	11.2%	9.6%	-3.1%	-1.1%
Germany	-1.1%	0.7%	-2.9%	-5.0%	-1.6%	0.3%	-3.9%	9.3%	5.0%	-2.6%	2.2%	5.5%	1.7%	1.5%	3.7%	3.8%	5.7%	11.3%	6.2%	18.2%	10.4%	11.9%	7.4%	-2.5%	0.1%
Italy					18.0%	-1.1%	8.7%	15.5%	13.6%	-2.2%	0.1%	3.2%	3.2%	-3.0%	0.3%	2.0%	0.9%	7.5%	-3.0%	1.6%	2.6%	2.6%	1.8%	5.3%	1.5%
Japan				5.6%	10.2%	18.7%	5.5%	12.9%	5.1%	-8.7%	-4.8%	-2.6%	-4.0%	-1.9%	7.4%	8.1%	4.3%	8.4%	9.2%	2.9%	1.1%	2.1%	4.4%	0.5%	6.5%
Netherlands	6.7%	2.4%	6.6%	2.6%	4.5%	4.3%	4.3%	8.4%	2.3%	-5.0%	1.9%	1.2%	-1.8%	-6.6%	-2.5%	-1.7%	3.5%	3.7%	4.2%	4.4%	4.1%	3.5%	-0.8%	-1.9%	-0.6%
South Africa	0.2%	-3.2%	0.3%	-0.4%	-2.8%	2.6%	-2.7%	6.6%	-4.2%	2.1%	-0.9%	2.1%	1.7%	5.4%	-3.7%	1.0%	0.8%	1.7%	-0.3%	0.2%	-2.7%	-1.4%	-2.2%	-2.3%	-1.6%
Sweden	-10.3%	3.0%	4.9%	3.8%	6.1%	6.8%	25.4%	7.3%	-6.3%	10.7%	2.2%	9.7%	3.2%	4.3%	0.5%	8.0%	2.9%	1.5%	0.5%	2.6%	-1.3%	4.5%	10.6%	-4.2%	3.1%
Switzerland				4.2%	4.3%	2.0%	8.5%	7.4%	5.9%	6.8%	9.1%	5.8%	8.8%	6.5%	5.7%	12.6%	20.8%	14.3%	8.6%	10.4%	9.7%	9.4%	10.1%	9.7%	6.8%
UK	3.2%	2.7%	5.0%	5.4%	6.2%	6.9%	7.3%	2.4%	-5.6%	0.0%	4.8%	5.0%	1.7%	4.9%	8.7%	5.8%	1.9%	5.2%	4.5%	0.7%	4.9%	5.2%	0.0%	-2.4%	-0.7%
USA	-1.2%	1.5%	1.9%	4.4%	6.4%	7.1%	8.8%	5.4%	-9.5%	-10.1%	5.0%	4.8%	3.9%	1.6%	5.1%	5.7%	1.0%	3.0%	2.6%	-0.5%	2.0%	7.4%	1.3%	-9.1%	-5.7%
Other	2.7%	3.1%	6.5%	5.2%	11.3%	5.9%	8.2%	8.3%	5.9%	-3.6%	2.4%	5.2%	0.3%	-1.0%	-1.2%	5.0%	8.5%	3.0%	9.9%	2.7%	9.4%	10.4%	13.6%	-0.1%	-1.3%
Global	0.3%	1.9%	3.8%	3.9%	5.0%	6.4%	6.9%	6.6%	-2.2%	-2.4%	1.3%	4.6%	2.9%	2.1%	4.3%	5.7%	3.1%	4.8%	4.4%	2.9%	4.5%	6.3%	3.1%	-3.8%	-2.1%

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Section 2 → Appendix 1: National and Global Results

Average Absolute Difference (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	6.0%	4.2%	6.0%	5.8%	7.1%	6.2%	10.3%	11.9%	8.4%	7.0%	5.9%	7.4%	4.7%	7.3%	6.8%	13.7%	11.5%	11.1%	8.3%	8.6%	12.4%	13.8%	5.3%	4.8%	6.7%
Canada	12.9%	11.6%	9.3%	10.4%	14.6%	12.2%	20.5%	16.4%	13.0%	12.9%	12.4%	12.3%	13.7%	11.5%	7.9%	9.3%	11.3%	11.5%	12.9%	11.5%	11.6%	13.0%	9.9%	9.2%	11.0%
France	8.5%	9.7%	8.5%	8.2%	11.5%	13.5%	13.5%	15.8%	12.1%	9.0%	12.8%	12.1%	11.9%	10.6%	11.6%	15.4%	13.5%	12.9%	12.2%	12.2%	14.4%	13.6%	13.8%	10.8%	8.9%
Germany	12.8%	11.8%	11.0%	10.1%	10.1%	10.8%	14.1%	14.1%	10.7%	7.3%	11.5%	12.6%	11.4%	9.9%	12.2%	10.0%	12.3%	17.0%	13.4%	17.3%	15.9%	17.0%	13.2%	16.3%	10.1%
Italy					25.8%	3.4%	9.2%	14.4%	12.0%	10.9%	9.2%	8.7%	8.3%	7.2%	13.5%	6.6%	15.4%	11.6%	15.0%	15.4%	9.9%	14.8%	14.1%	10.2%	7.4%
Japan				6.9%	17.1%	18.9%	8.7%	13.0%	7.5%	14.5%	7.2%	7.9%	11.7%	13.0%	13.4%	13.2%	16.2%	8.7%	15.7%	13.6%	7.9%	12.3%	16.1%	14.5%	11.2%
Netherlands	11.3%	8.7%	9.6%	9.8%	9.6%	11.4%	14.4%	10.6%	6.5%	7.2%	7.0%	6.7%	7.7%	9.3%	7.4%	8.9%	9.5%	11.2%	10.2%	9.0%	10.5%	12.5%	9.4%	8.8%	6.1%
South Africa	11.1%	11.0%	12.9%	11.6%	10.7%	15.0%	12.1%	14.7%	10.4%	7.4%	10.4%	13.3%	12.2%	8.4%	12.6%	7.6%	7.8%	7.9%	7.2%	11.9%	13.3%	10.5%	4.2%	7.2%	8.1%
Sweden	17.5%	11.1%	11.3%	9.2%	11.7%	11.4%	23.4%	11.4%	12.9%	17.5%	9.8%	11.2%	12.4%	10.1%	10.0%	12.8%	14.3%	10.7%	9.9%	9.8%	7.9%	12.5%	9.6%	6.6%	8.8%
Switzerland				13.9%	11.9%	9.9%	12.5%	10.0%	11.6%	8.0%	11.5%	10.3%	15.7%	7.5%	10.7%	12.5%	22.3%	17.3%	11.3%	13.0%	13.8%	9.9%	11.1%	7.4%	12.5%
UK	9.4%	8.5%	11.4%	12.6%	11.7%	10.3%	10.7%	10.8%	9.9%	13.9%	11.2%	8.7%	10.9%	8.6%	13.8%	13.6%	9.3%	10.8%	9.6%	8.1%	10.5%	13.0%	13.3%	9.8%	8.1%
USA	6.7%	6.8%	11.5%	7.1%	12.2%	12.4%	11.1%	9.4%	9.0%	13.6%	11.3%	9.5%	10.1%	11.0%	9.9%	10.1%	7.8%	9.0%	9.5%	8.1%	10.0%	11.4%	10.3%	11.4%	10.9%
Other	11.4%	11.7%	10.7%	14.0%	14.1%	13.1%	14.1%	13.6%	10.2%	10.2%	11.6%	9.6%	10.2%	11.2%	12.6%	13.5%	14.5%	10.2%	9.2%	10.5%	11.1%	14.0%	13.3%	11.7%	10.2%
Global	11.3%	9.2%	10.8%	11.4%	11.6%	11.3%	12.4%	12.2%	10.2%	11.9%	10.4%	9.9%	10.9%	9.4%	11.6%	12.3%	10.6%	10.9%	10.4%	10.3%	11.0%	12.8%	12.1%	10.2%	9.2%

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Section 2 → Appendix 1: National and Global Results

Average Difference (%)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	3.0%	0.8%	2.2%	4.3%	4.7%	2.9%	8.5%	9.9%	1.4%	-4.0%	2.1%	2.8%	-1.1%	2.0%	3.1%	12.2%	7.8%	9.5%	3.5%	6.2%	8.8%	10.4%	-1.9%	-2.1%	-0.8%
Canada	5.9%	-0.9%	5.7%	5.6%	7.4%	10.0%	17.3%	14.2%	3.8%	-7.0%	1.9%	7.2%	10.6%	9.6%	3.1%	3.5%	5.4%	7.6%	6.8%	3.3%	3.2%	4.0%	4.5%	-0.8%	-4.2%
France	1.4%	-2.1%	1.5%	1.2%	5.5%	8.6%	6.4%	8.0%	5.6%	0.9%	5.3%	7.4%	3.9%	3.6%	3.7%	5.0%	-0.1%	6.1%	6.1%	8.9%	9.0%	7.4%	10.9%	0.5%	1.5%
Germany	-3.3%	-0.5%	-1.8%	-5.2%	-3.8%	-0.6%	0.8%	7.5%	2.3%	0.8%	4.9%	5.1%	0.3%	-0.1%	2.7%	2.5%	5.7%	9.0%	10.2%	13.9%	11.2%	13.8%	10.7%	-3.2%	1.7%
Italy					25.8%	-0.7%	6.6%	9.8%	9.5%	1.6%	4.6%	4.4%	2.2%	2.2%	1.2%	1.7%	-9.3%	-0.1%	-7.0%	-9.1%	-0.7%	-3.9%	-6.4%	-3.2%	-1.4%
Japan				6.9%	8.6%	15.2%	6.2%	10.2%	4.8%	-13.6%	-5.0%	-3.9%	-2.8%	3.4%	7.9%	9.3%	8.9%	6.0%	12.1%	6.2%	1.2%	4.0%	2.8%	3.9%	4.0%
Netherlands	7.7%	3.6%	6.8%	3.6%	6.0%	6.8%	9.4%	6.7%	2.3%	-1.7%	1.6%	1.8%	-1.2%	-4.7%	-2.0%	-2.1%	0.1%	0.5%	3.9%	-0.1%	2.0%	4.8%	0.6%	-1.4%	-1.2%
South Africa	-1.6%	-3.7%	-3.1%	-1.3%	-0.4%	4.6%	0.4%	3.0%	1.0%	2.2%	4.6%	2.7%	0.7%	4.4%	1.4%	0.3%	2.7%	1.1%	1.7%	-3.8%	-8.3%	-4.8%	0.1%	-1.2%	-0.2%
Sweden	-5.9%	1.6%	3.2%	4.6%	7.4%	7.5%	22.0%	1.8%	-4.0%	7.8%	1.8%	3.6%	-1.1%	3.3%	-0.7%	10.2%	2.5%	0.2%	-1.1%	1.2%	0.2%	2.9%	4.2%	-3.8%	1.8%
Switzerland				6.8%	5.0%	3.2%	9.0%	7.6%	7.1%	5.9%	7.8%	8.5%	14.5%	5.7%	8.0%	7.9%	20.4%	16.5%	8.5%	10.5%	11.1%	7.2%	10.4%	6.8%	9.5%
UK	4.0%	4.2%	8.4%	10.0%	9.0%	7.6%	7.1%	4.3%	-4.1%	5.2%	5.1%	0.7%	-1.4%	3.0%	7.2%	6.6%	4.4%	6.9%	4.5%	0.9%	3.4%	7.3%	1.8%	-0.4%	0.3%
USA	0.4%	-2.2%	4.1%	3.4%	4.6%	6.5%	6.3%	3.4%	-5.9%	-7.9%	3.0%	1.7%	2.9%	3.6%	5.1%	4.6%	0.0%	1.8%	4.6%	0.1%	4.9%	7.3%	1.6%	-7.4%	-3.9%
Other	7.0%	6.9%	4.4%	5.0%	6.7%	5.7%	8.6%	7.3%	4.1%	0.6%	3.5%	1.1%	2.4%	0.3%	1.0%	3.6%	1.1%	3.1%	6.1%	4.3%	7.1%	7.8%	5.5%	3.5%	2.1%
Global	1.5%	2.4%	6.2%	6.5%	6.1%	6.7%	6.4%	5.9%	0.0%	2.0%	2.7%	2.8%	0.8%	2.8%	4.0%	5.3%	2.6%	4.4%	4.5%	2.9%	3.8%	5.9%	3.0%	-0.9%	0.0%

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Average Number of Months Between Valuation* and Sale

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	8.9	9.9	9.4	9.0	9.5	9.4	6.8	8.6	6.6	6.5	6.8	7.8	7.3	7.4	7.0	6.6	7.2	6.7	5.9	5.7	6.1	6.7	5.5	5.9	6.7
Canada	5.2	5.1	5.2	5.0	4.8	4.9	5.0	5.0	4.9	5.4	5.2	5.1	5.1	5.5	5.3	5.0	5.5	5.2	5.1	5.1	5.3	5.2	4.9	5.2	5.2
France	9.1	9.8	9.7	8.6	9.0	9.1	10.5	10.6	9.2	9.3	8.7	8.6	8.5	8.6	8.9	8.6	8.9	8.6	8.5	8.7	9.6	9.7	8.5	8.7	8.4
Germany	8.1	8.5	10.3	10.7	9.6	10.5	10.0	9.9	12.2	9.3	8.6	8.9	8.4	9.4	8.4	8.1	8.2	8.8	10.5	7.9	9.5	6.7	8.9	9.6	8.4
Italy					9.4	9.3	9.6	8.3	6.8	6.1	6.9	6.5	7.2	7.3	6.8	6.3	6.6	6.6	7.8	8.0	7.3	7.0	7.7	7.4	7.9
Japan				10.8	7.1	8.2	8.3	7.4	6.1	7.1	7.8	6.0	5.6	7.2	7.7	6.7	6.2	5.7	6.6	7.0	6.9	6.4	6.6	6.3	7.0
Netherlands	10.5	9.6	8.7	9.0	10.2	9.5	9.8	9.8	8.9	10.0	8.4	7.1	6.1	5.9	6.5	7.4	7.1	7.8	6.6	6.0	5.9	5.9	6.5	5.5	6.3
South Africa	8.0	8.3	8.2	8.2	8.5	8.2	8.8	10.9	10.0	7.2	7.2	9.1	7.6	7.8	8.1	7.6	6.8	6.8	7.3	6.7	7.3	6.8	6.7	6.8	5.9
Sweden	8.6	8.2	10.2	9.2	9.2	7.3	10.5	8.5	9.1	9.0	8.5	7.8	9.1	8.0	10.2	7.6	11.5	8.3	10.7	9.7	8.7	9.5	9.2	8.0	8.8
Switzerland				7.2	9.6	8.8	10.0	11.1	10.5	9.7	7.9	10.3	10.7	10.9	10.0	9.7	9.1	10.7	10.5	10.4	11.1	11.1	10.7	10.1	9.0
UK	6.8	6.8	7.3	6.8	7.0	6.9	7.1	6.7	5.0	5.5	6.0	5.6	5.7	5.3	5.5	5.7	5.0	4.9	5.2	5.2	5.1	5.6	5.0	4.9	4.9
USA	5.3	5.6	5.4	5.3	5.1	5.2	5.3	5.4	5.1	5.2	5.3	5.3	5.2	5.4	4.8	5.2	5.2	5.1	5.1	5.2	4.9	5.1	5.0	5.3	5.1
Other	6.1	7.1	8.8	9.0	8.9	9.0	8.4	9.5	9.3	9.3	8.2	8.8	9.1	8.3	8.9	9.3	9.6	8.3	8.2	8.8	9.3	8.2	8.0	7.3	7.4
Global	7.6	7.7	8.0	7.6	7.9	7.8	8.3	8.3	7.4	6.9	7.1	6.9	6.6	6.3	7.0	6.8	6.7	6.5	6.9	6.7	6.8	6.5	6.3	6.1	6.2

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Number of Sales Recorded

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	62	156	84	82	48	22	15	43	80	104	88	67	79	82	67	54	72	56	52	63	36	57	33	39	73
Canada	31	101	158	138	108	52	53	65	67	130	202	145	118	145	130	65	102	124	177	114	71	116	74	98	92
France	105	254	357	445	327	381	399	492	492	460	469	348	302	281	266	185	294	212	283	371	142	139	144	107	135
Germany	72	134	298	236	287	241	526	460	267	111	105	197	131	141	119	136	139	98	77	197	65	79	60	37	38
Italy					10	11	41	24	44	107	95	127	62	95	73	53	41	74	58	60	67	97	89	56	93
Japan				5	11	33	100	76	82	41	515	153	89	104	80	82	52	114	47	78	98	98	67	79	95
Netherlands	172	336	408	315	175	400	251	345	288	160	210	148	151	202	151	264	287	299	279	357	284	95	102	46	121
South Africa	141	131	94	216	369	226	187	67	50	56	60	183	123	60	54	108	87	96	79	142	101	151	84	70	57
Sweden	540	545	319	348	116	110	46	115	208	67	89	74	142	136	265	331	196	209	223	168	139	74	56	47	59
Switzerland				47	62	139	74	92	112	155	116	160	87	115	75	45	24	37	86	119	105	88	50	43	108
UK	1351	1656	2820	2641	1730	2001	1451	1483	1341	1645	803	1064	1482	2055	891	1204	1094	698	705	876	564	852	743	584	628
USA	66	64	90	85	100	148	226	203	136	215	250	247	319	396	403	284	542	391	389	404	239	376	169	197	359
Other	20	64	155	206	230	216	298	217	259	221	134	130	182	201	305	323	232	180	237	207	174	167	168	130	134
Global	2,560	3,441	4,783	4,764	3,573	3,980	3,667	3,682	3,426	3,472	3,136	3,043	3,267	4,013	2,879	3,134	3,162	2,588	2,692	3,156	2,085	2,389	1,839	1,533	1,992

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Section 2 → Appendix 1: National and Global Results

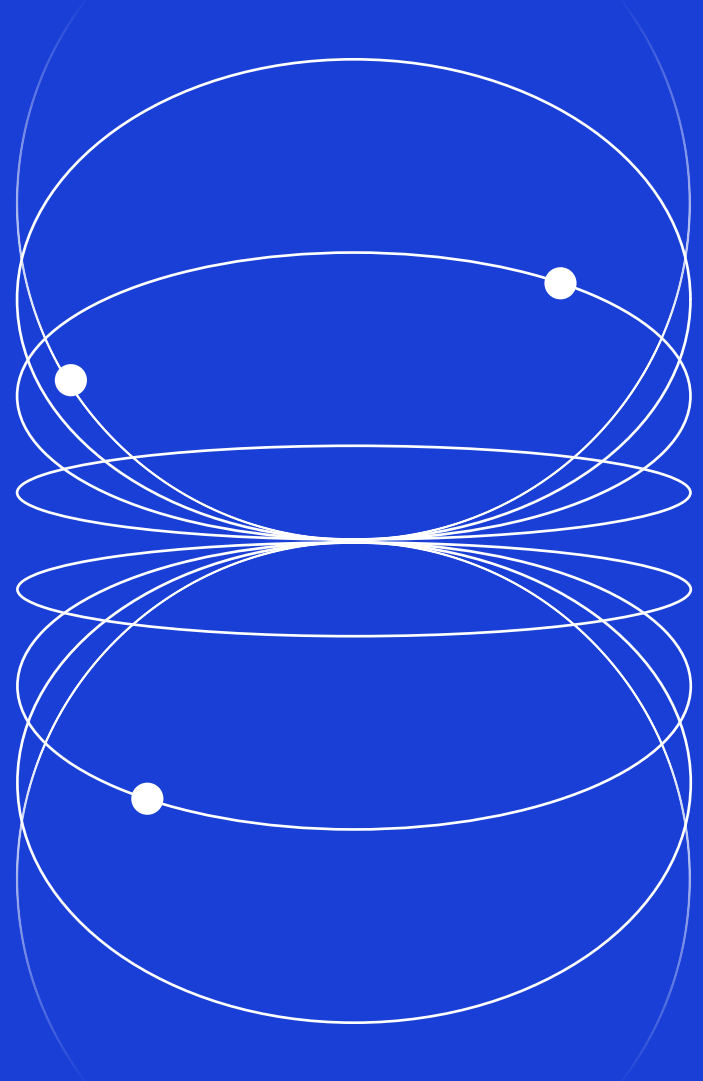
Total Sale Price (USD Billion)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Australia	1.3	3.0	1.4	2.9	1.9	0.7	0.4	1.3	2.5	2.6	2.7	2.6	4.5	5.5	4.9	3.0	4.7	3.9	3.1	6.0	2.5	4.8	3.3	2.5	3.7
Canada	0.1	0.7	1.2	2.1	0.9	0.8	0.9	1.3	1.8	1.6	5.2	3.6	3.3	6.0	3.5	1.2	2.2	3.9	2.8	3.6	1.9	3.6	3.4	3.1	3.0
France	0.6	1.5	2.4	3.9	3.8	4.0	4.7	7.3	6.8	7.8	5.2	6.0	6.5	5.0	3.9	3.9	4.8	4.2	6.1	8.3	4.4	4.4	4.2	3.6	3.1
Germany	0.4	0.9	2.0	1.6	4.8	2.4	6.3	10.6	4.6	2.0	1.6	3.5	2.9	3.7	3.8	4.9	3.0	2.2	3.3	3.4	2.3	3.9	2.7	0.8	0.9
Italy					0.3	0.2	0.9	1.2	0.9	1.2	1.2	1.1	0.3	2.5	1.7	2.0	0.8	1.2	1.1	0.8	1.8	1.2	1.6	0.7	1.8
Japan				0.2	0.2	0.4	2.4	2.6	2.2	1.3	12.2	3.9	4.6	4.3	1.7	2.3	1.8	3.0	1.9	2.9	2.1	3.6	2.1	2.6	4.2
Netherlands	0.8	0.9	1.6	1.6	1.3	2.9	1.5	5.0	3.2	1.1	1.3	1.1	1.1	1.5	1.2	1.6	1.8	2.4	2.2	2.5	2.6	1.1	1.3	0.5	1.7
South Africa	0.2	0.2	0.1	0.4	0.8	0.6	0.6	0.1	0.2	0.5	0.4	0.5	0.5	0.4	0.4	1.0	0.5	0.6	0.5	0.4	0.2	0.6	0.4	0.2	0.2
Sweden	2.5	2.0	1.4	3.6	1.3	1.4	1.2	1.1	7.3	0.7	1.5	1.2	2.2	1.5	2.8	2.5	1.5	2.6	3.5	3.9	1.6	1.3	1.0	0.7	1.2
Switzerland				0.1	0.3	0.5	0.5	0.7	0.9	1.2	0.9	2.0	1.2	1.5	0.9	0.9	0.4	0.4	1.2	2.0	1.5	2.4	1.1	1.1	2.3
UK	10.2	10.8	16.5	18.2	20.1	29.9	23.9	22.1	26.5	14.8	8.8	9.8	10.8	15.6	12.6	16.9	15.8	13.0	12.2	14.3	9.9	16.7	12.3	11.0	12.1
USA	3.6	1.6	1.3	2.3	3.1	5.2	9.1	9.7	4.8	4.9	8.4	8.9	12.9	13.6	14.3	14.9	20.5	21.1	26.5	26.4	16.9	28.3	13.5	11.6	21.6
Other	0.1	0.3	1.1	1.7	1.6	1.6	3.9	3.7	3.8	4.1	1.7	3.1	3.6	5.3	5.9	7.2	5.2	4.7	5.5	5.4	5.0	5.4	5.8	3.8	4.4
Global	19.8	22.0	29.0	38.7	40.3	50.7	56.4	66.6	65.6	43.8	51.0	47.4	54.5	66.4	57.8	62.2	63.0	63.1	69.9	79.9	52.6	77.1	52.7	42.1	60.1

Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Appendix 2

Methodology Documentation



Methodology: Sample Selection

The analysis is based on sales-price and valuation records from MSCI's database of private real estate

Each sale is carefully considered for inclusion in the analysis. Sales observations are excluded if they fall into any of the following categories:

- Sales are excluded if the sale or valuation is determined to be unrepresentative
- Sales of assets under development
- Sales for which the sales price is below USD 15,000 or above USD 1.2 billion
- Properties that experience an exceptional (e.g., part transactions) event between the last valuation and the sales date
- Properties that record capital expenditures greater than 45% of the capital value between the last valuation and the sales date
- Properties that are bought and sold within the same year
- Properties that are sold as part of a portfolio sale
- Properties with Average Difference and Average Absolute Difference equal to, greater than or less than +/-50%

Methodology: Selecting Most Recent Valuation

The analysis is based on sales-price and valuation records from MSCI’s database of private real estate

The most recent valuation is selected from MSCI’s private-real-estate records if it does not occur within three months of the sale date

- Valuations made in the three months immediately prior to the sales date are excluded because the appraiser could have been aware of the impending sale and taken this information into account when assessing the property’s market value
- This three-month period has been called the “Influence Window”
- A comparison of the most recent valuation, if within the influence window, and the sales price could be misleading
- Although our analysis adopts a three-month influence window the length of the influence window can vary by market segment and by country

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008		Purch	Val 1						Val 2			
2009			Val 3						Val 4			
2010			Val 5						Val 6		Sale	
Last Uninfluenced Valuation						Influence Window						

Methodology: Calculating Market Adjusted Valuation (MAV)

The analysis is based on sales-price and valuation records from MSCI's database of private real estate

The most recent uninfluenced valuation is adjusted for market-value movements to account for any changes in market-capital values following the valuation

- The valuations are adjusted for market movements, measured by MSCI capital-growth rates at the segment level for each individual country
- The adjustment is based on the broad property type and region/location of each individual asset
- The segments vary from country to country and are based on the standard benchmarking segmentation used in each country
- The market-movement/capital-growth adjustment is applied up to the third month before sale, rather than right up to the sale month. This convention assumes that the sales price would have been agreed around three months before completion
- Any capital expenditures between the most recent uninfluenced valuation month and the sales month are added to the market-adjusted valuation
- Then compare the gross sales price to the market-adjusted valuation⁵ to calculate the price-valuation difference.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008		Purch	Val 1						Val 2			
2009			Val 3						Val 4			
2010			Val 5					MAV	Val 6		Sale	

Methodology: Key Measures

Average Absolute Difference (AAD):

- Absolute difference between the market adjusted valuation and the sale price
- Ignores if there was a positive or negative bias in the valuations
- An indicator of the overall proximity of market adjusted valuations to transaction prices

Average Difference (AD):

- Difference between the market adjusted valuation and the sale price
- indicates net effect allowing positive and negative bias to cancel out each other
- An indicator of premium or discount achieved in a sale transaction compared to valuation

Average number of months between valuation and sale:

- This measure records the average number of months between the valuation and the sale
- In countries where valuations occur less frequently, we expect this indicator to be higher along with the anticipated margin of error between the valuation and the sales price

$$Difference = \frac{Gross\ Sale\ Price - Market\ Adjusted\ Valuation}{Market\ Adjusted\ Valuation}$$

$$Weighted\ Difference = \frac{Gross\ Sale\ Price - Market\ Adjusted\ Valuation}{Market\ Adjusted\ Valuation} * \frac{Market\ Adjusted\ Valuation\ of\ Property}{Sum\ of\ Market\ Adjusted\ Valuation}$$

	Gross Sale Price (m)	Market Adjusted Valuation (m)	Difference	Market Adjusted Valuation Weight	Weighted Difference
Property 1	1,000,000	500,000	100%	25%	25%
Property 2	1,000,000	1,500,000	-33%	75%	-25%
			Average		Weighted Average
Absolute Difference			67%		25%
Difference			33%		0%

Methodology Notes

Methodology Enhancement in 2024

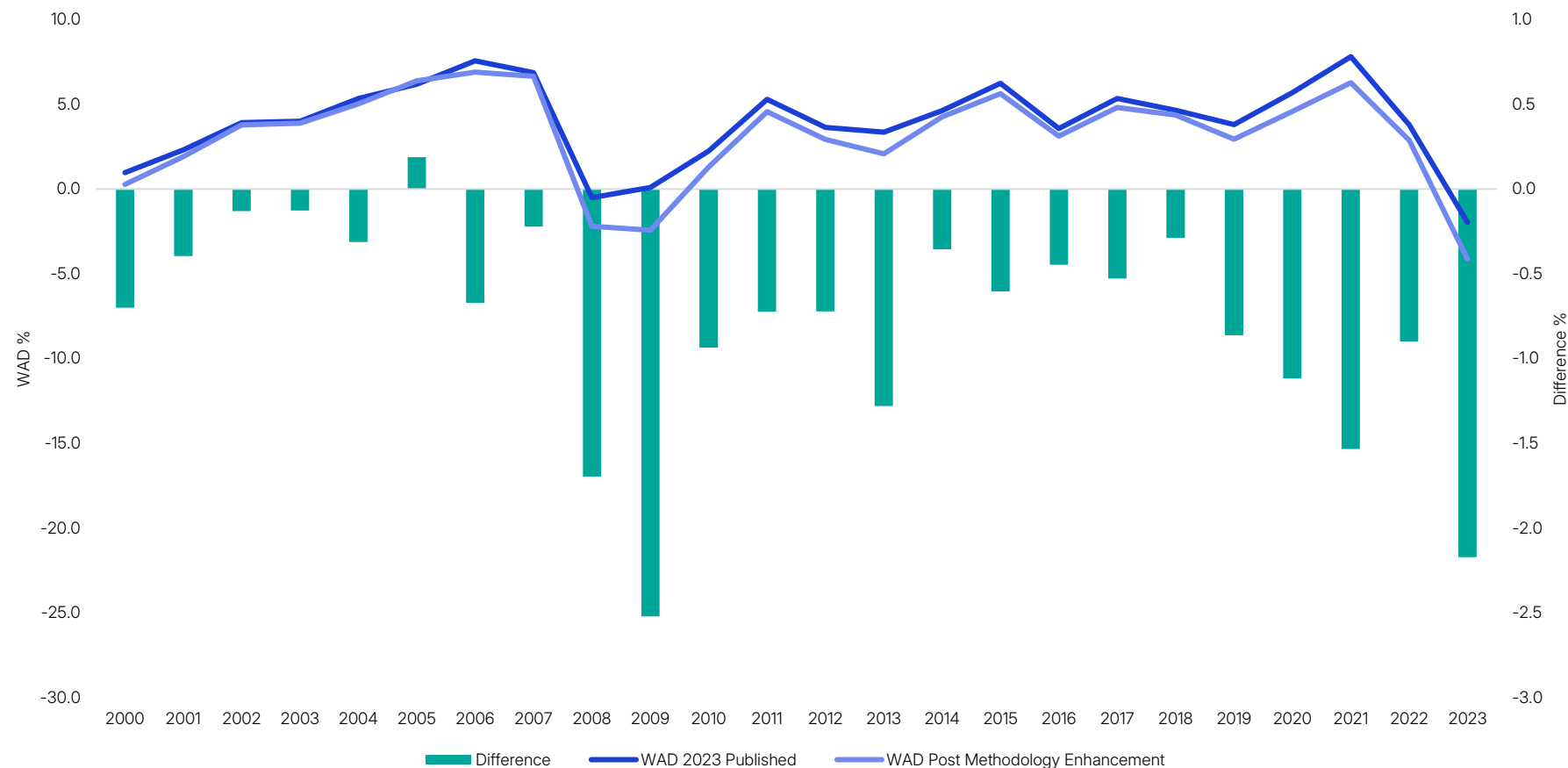
- Average Difference (AD) and Average Absolute Difference (AAD) calculation formula denominator change from Gross Sale Price to Market Adjusted Valuation
- Removing an extra month of capital growth for the starting month of the market value adjustment calculation
- Change from a city-based to property type-based segmentation for the USA
- Weighted Average Difference (WAD) and Weighted Average Absolute Difference (WAAD) calculation weighting factor change from Gross Sale Price to Market Adjusted Valuation

Methodology Transition in 2019

- In 2019, MSCI implemented changes and improvements to the “Private Real Estate: Valuation and Sales Price Comparison 2019 to align with the [MSCI Global Methodology Standards for Real Estate Investments](#) (GMS).
- Consequently, the availability of additional transactions across multiple periods and countries impacted the previously published historical results. With these changes, the historical results of the analysis were aligned with the methodology used to produce the MSCI Global Annual Property Index.
- Key changes to the methodology to align with the GMS⁶ included:
 - Discontinuation of performance flagging
 - Introduction of a new global-interpolation method
 - Implementation of an amended currency-conversion methodology⁷
- In addition, the availability of additional granular segmentations following the current methodology improved the calculation of market-adjusted valuations for transactions in segments in the U.S., Japan, Sweden, Italy, Spain and Ireland. The former methodology used the capital growth of the “Other” category for the calculation of market-adjusted valuations.

Methodology Enhancement 2024: WAD Impact Analysis

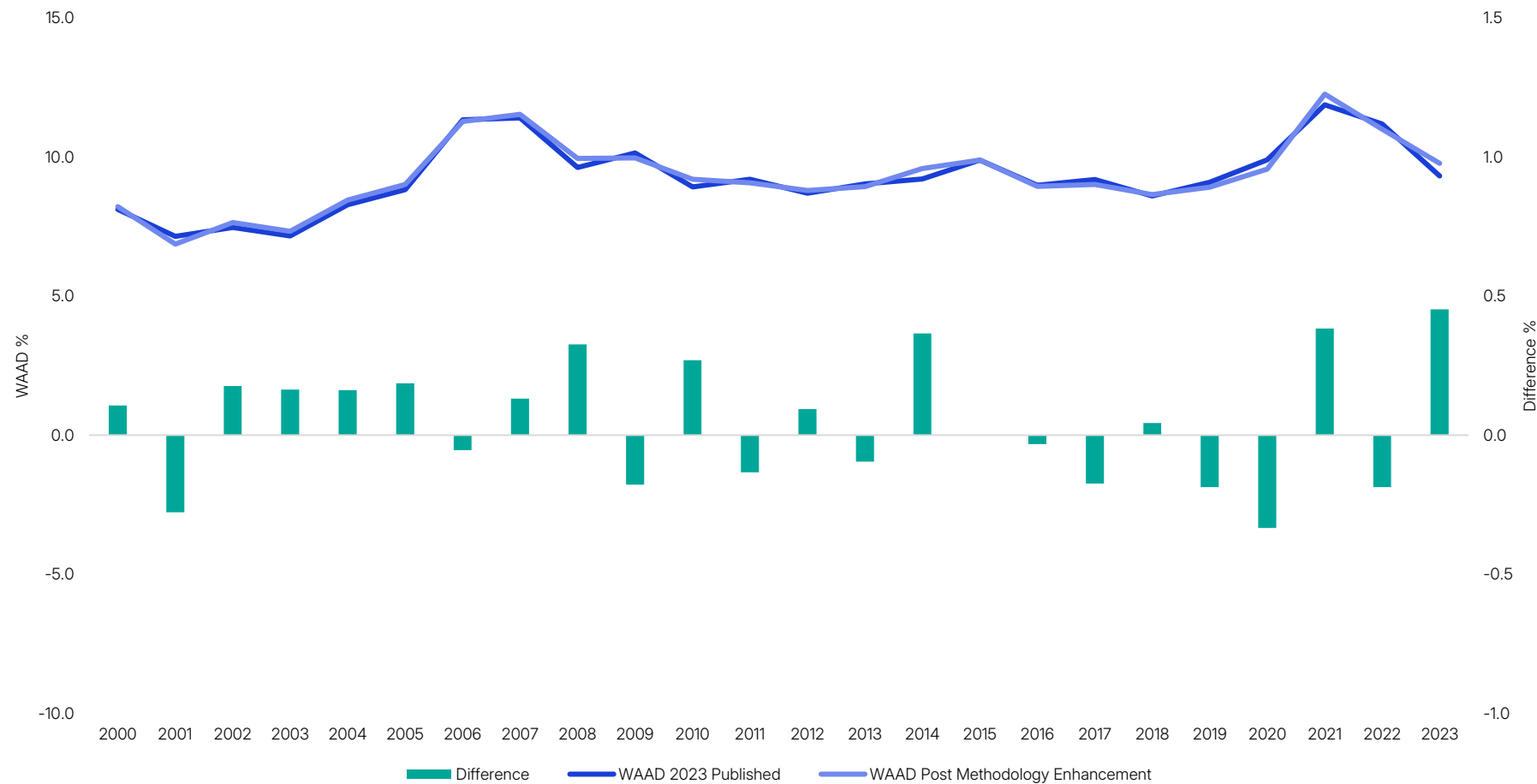
- Net impact of methodology changes predominantly negative due to the weighting factor change (Gross Sale Price > Market-Adjusted Valuation)
- For the years 2008, 2009 and 2023 an already negative difference was further amplified by the change
- A predominantly negative sample change impact introduced due to exclusion of assets which breached +/-50% threshold post the change



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

Methodology Enhancement 2024: WAAD Impact Analysis

→ While predominantly on par, the cumulative impact of methodology changes on WAAD was range-bound between +0.5% and -0.3% across historical periods



Source: MSCI Global Annual Property Index (Unfrozen: Weighting: Market Size)

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