



NO.1 PROPTECH RSQUARE

Office • Industrial Office Complex
Sales Price Index

2023 Q4

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How We Calculate Sales Price Index

Transaction Index

- The Office Sales Price Index is based on the Case/Shiller repeat sales model.
- The repeat sales model method utilizes information on properties which have been sold more than once, to appropriately divide the growth rate over time.
- To compensate for the lack of other data, the index is calculated using the MIT Real Estate Research's (MIT/CRE) two-step estimation method.

Cap. Rate

- Even if a quarterly average is used, there are limitations to stabilize cap. rate. Since there are not many trading cases, and there are transaction cases without rent information, it is tough to get a stable result.
- Therefore, Cap. Rates are calculated using the Bayesian model which recently used to develop indicators. The prior distribution considered in the model assumes that the difference between the previous quarter and the current quarter is a random walk.

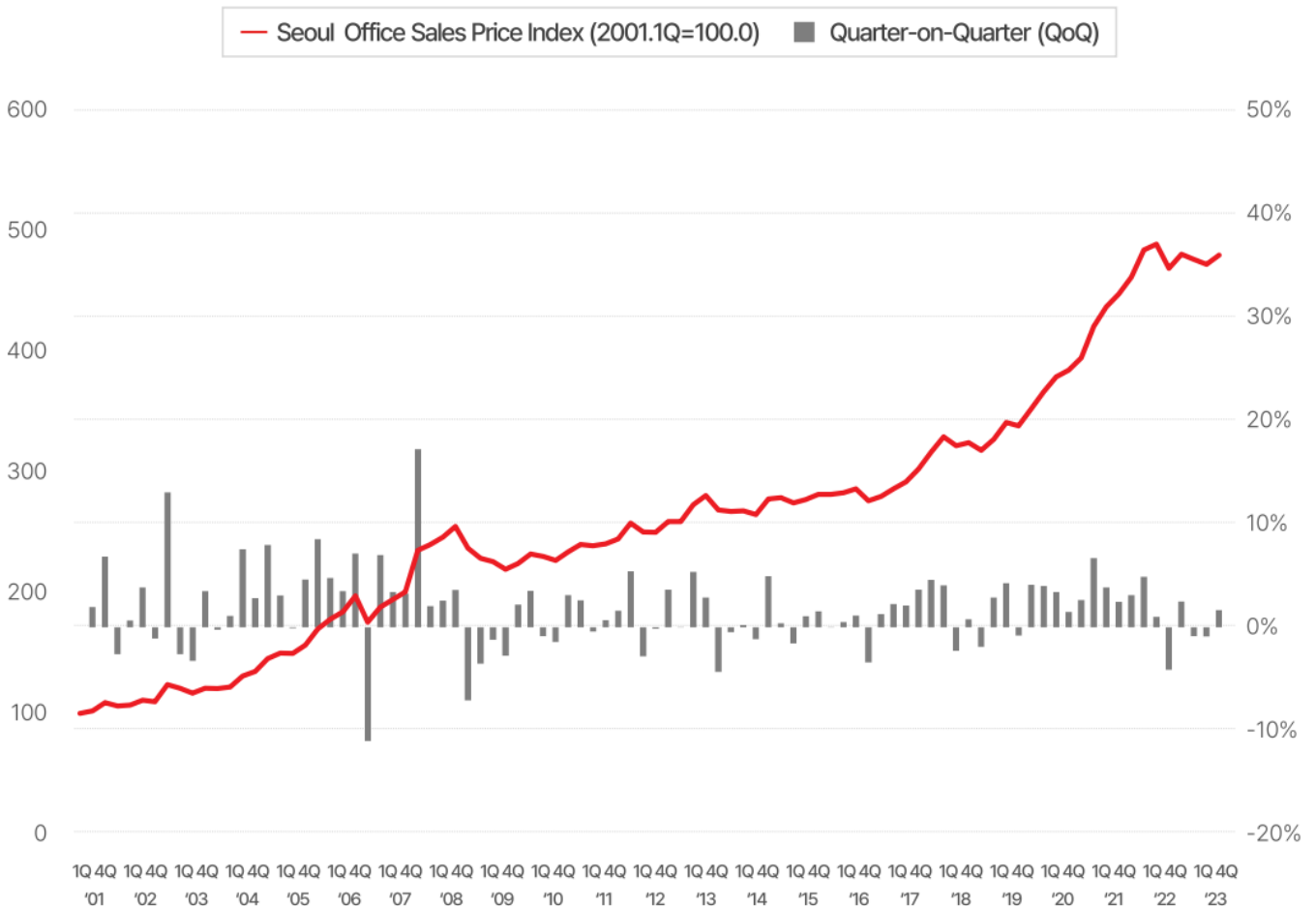
Office Sales Price Index

In 4th quarter of 2023, The Seoul's office Sales price index was 479.9, which is 4.80 times higher compared to the 1st quarter of 2001. Index rose 1.6% from the previous quarter (23.3Q) and up 2.4% compared to the same quarter of the previous year (22.4Q).

The Seoul Office Sales Index rose more than 13% annually from 2001 to the third quarter of 2008. But in the third quarter of 2009, right after the global financial crisis, index fell 12% from the peak in the third quarter of 2008. After the financial crisis, 2010 to 2017, it showed an annual increase of around 3% but from 2018 to the third quarter of 2022, it has recently fallen after showing a high annual rise of more than 10%.

In 2020 and 2021, despite COVID-19, low interest rate spurred investment, pushing price higher. In 2022, although a series of interest rate hikes, index continued its upward trend based on favorable rental demand and rising rents and peaked in the third quarter of 2022.

However, index has fallen in the fourth quarter of 2022, showing a stagnation. The volume of transactions decreased significantly compared to the past. But despite high interest rates, the price drop was not significant. (The index value in the fourth quarter of 2023 is 2% lower than the peak.)



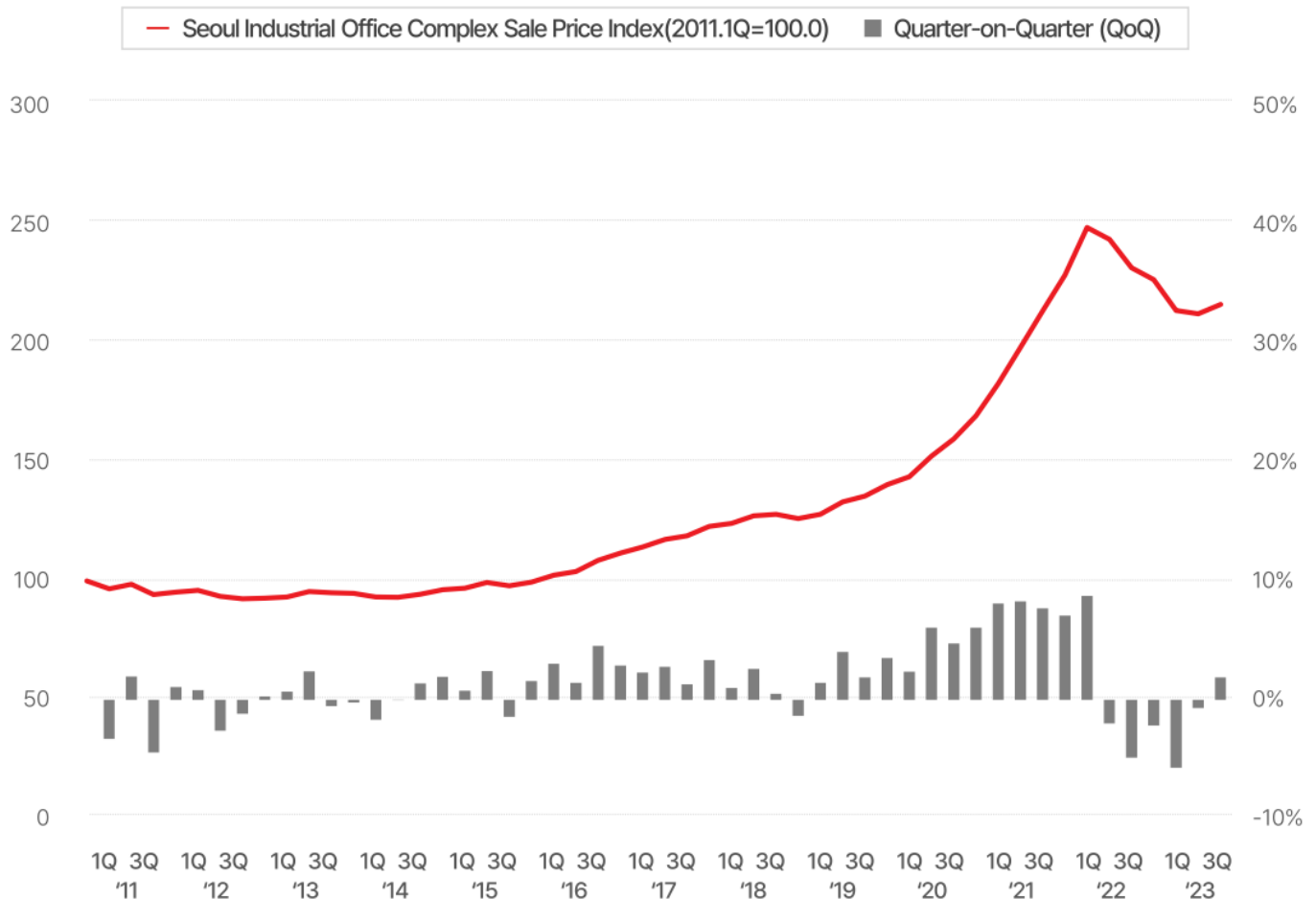
Industrial Office Complex Sales Price Index

In the fourth quarter of 2023, the industrial office complex's sales price Index was 216.4, which is 2.16 times higher than in the first quarter of 2011. In 234Q, index was up 1.9% compared to the previous quarter (23.3Q) and down 6.7% by year-on-year (22.4Q). Unlike the office, the price index fallen sharply due to interest rate hikes.

Index was steady between 2011 to 2019 at growth of 3.0% per year approximately and grew at a rate of more than 20% per year from 2020 to Q2 2022, which was higher that the office index.

Industrial Office Complex requires less amount of capital compared to the office and has better conditions for loan term than in the housings, which led to higher price increase.

The industrial office complex sales price index fell from the third quarter and fell to 15% from its peak in the third quarter of 2023, although the price increase was high until the second quarter of 2022. However, in the fourth quarter of 2023, index increased slightly. With no significant change in the investment environment, such as leasing and supply, rebound in index seems to be due to expectations for interest rate cut in the future 2024, rather than the current macroeconomic environment.



Office & Industrial Office Complex Transaction Volume

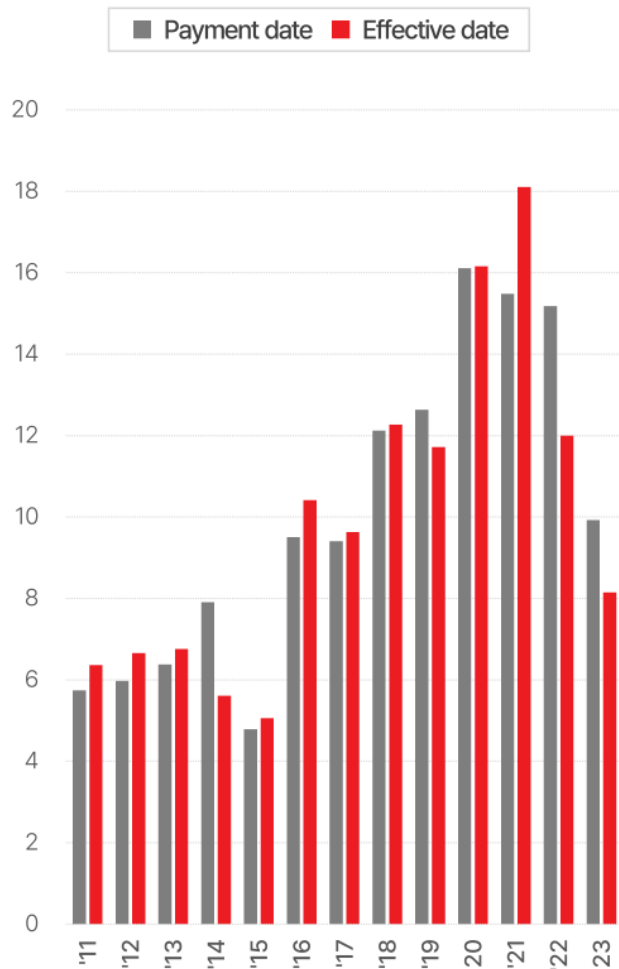
Seoul office transaction volume(including Bundang), has been steadily increasing since the global financial crisis, reaching more than KRW 10 trillion in contract year terms since 2016, with 2021 seeing the highest transaction volume of more than KRW 17 trillion.

However, office yield declined due to the interest hike, which led fall in the investment volume. The volume of transactions in 2022 recorded 12 trillion won, down 34% from the previous year, and 8.2 trillion won in 2023, 68% from the previous year

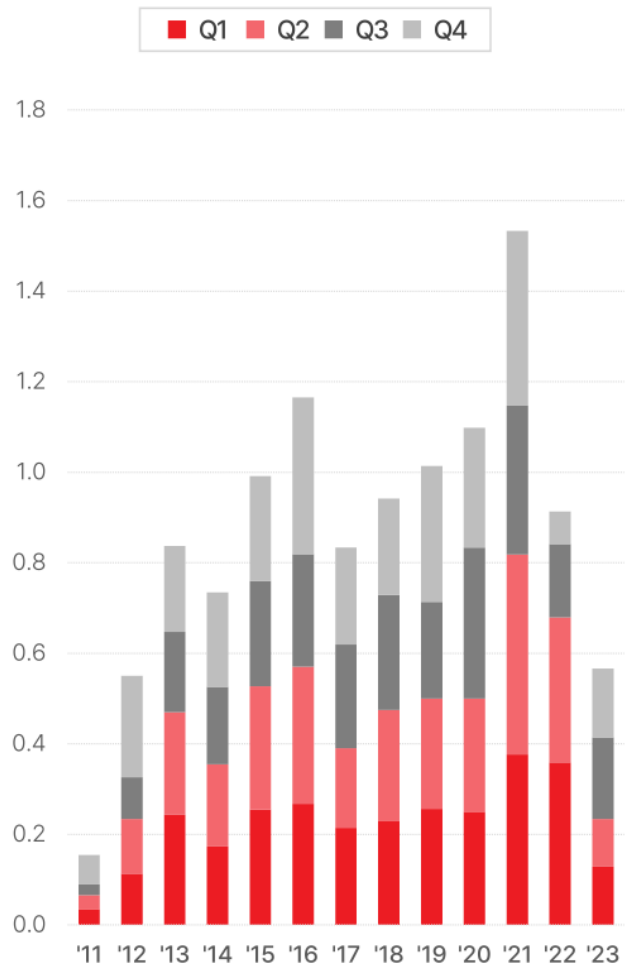
Industrial office complex transaction volume remained at 1 trillion won since 2019 and reached 1.5 trillion won in 2021. But similar to office, in the aftermath of the interest rate hike, transaction volume fell to 0.9 trillion won in 2022, 60% year-on-year and further decreased in 2023, trading around 0.6 trillion won, 62% compared to 2022.

* Unlike the payment date, the effective date has the advantage of identifying trends for new investments.

Seoul/Bundang Office Transaction volume
Trillion KRW



Seoul Industrial Office Complex Transaction Volume
Trillion KRW



Office vs. Industrial Office Complex Indices

Industrial Office Complex has 1) low rents, 2) can be used as offices, and 3) located in peripheral areas such as Gasan, Guro, Magok, Songpa, Yeongdeungpo, and Seongsu rather than the three core areas where offices are concentrated. Thus, Industrial Office Complex forms a complementary market to offices.

While both office and industrial office complex prices shows a similar trend, industrial office complex prices grew at a slower rate in 2019 and more rapidly from 2020 to 22.2Q compared to the office.

Industrial Office Complex price growth remained stubbornly high due to the restriction on housing regulation and lower interest rate. While offices are often single-owner buildings that require large investments, Industrial Office Complex can be invested in by individual investor. It is common to split the ownership of a building and has the advantage of not being subject to housing regulations.

As a result, prices rose more than 20% annually from 2020 to the second quarter of 2022, but the price drop since then has been larger than that of offices, which seems to be greatly affected by interest rates. However, expectations for a rate cut are believed to have affected the fourth quarter of 2023, as both the office and the knowledge industry center slightly increased compared to the previous quarter.



Macroeconomics vs. Office Sales Price Index

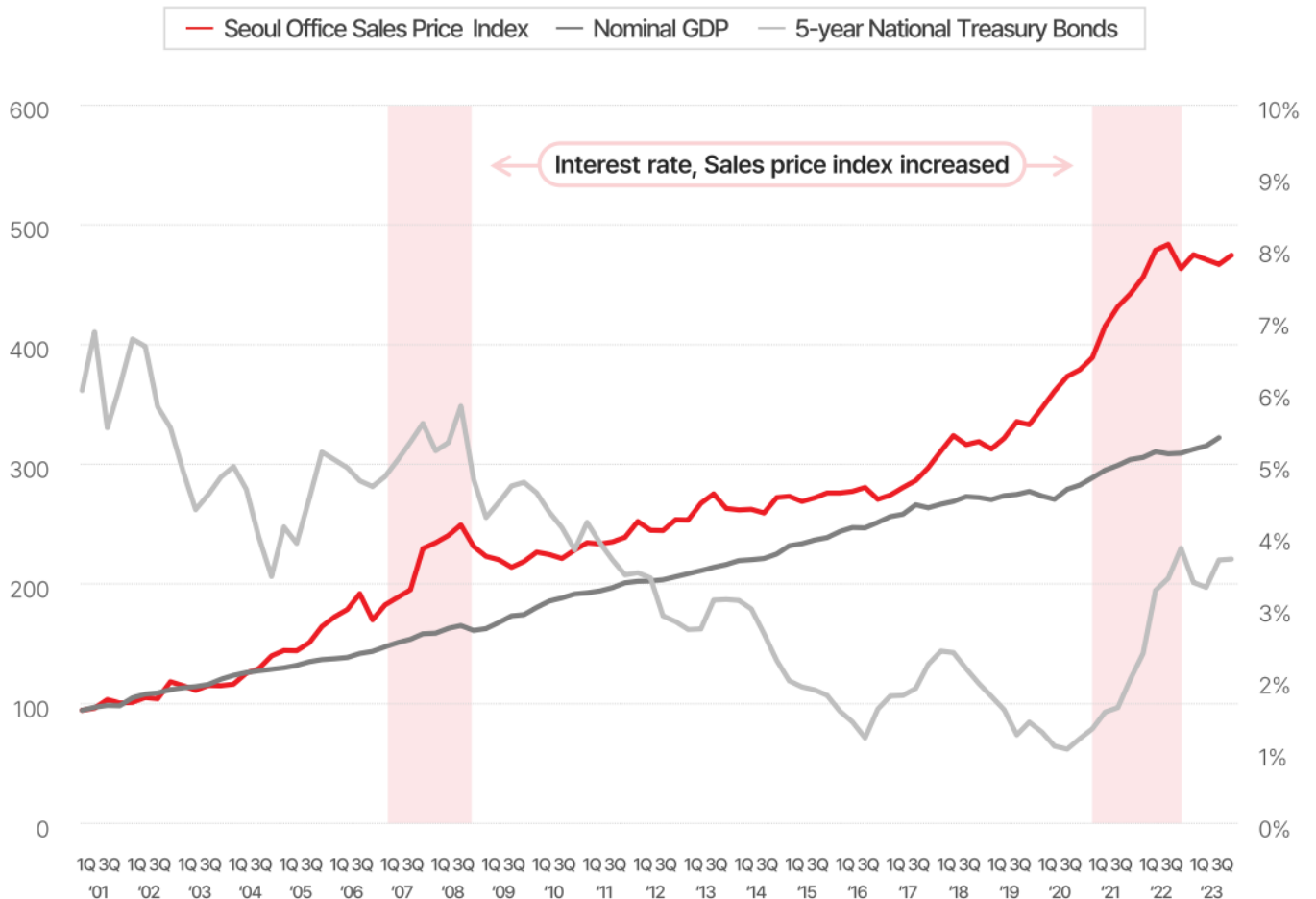
Office Sales Price Index vs. GDP, Interest Rates

GDP is a measure of a country's productivity and is closely linked to office investment and rental demand. Capital investment is based on the profits which created from production and production scale is determined in office space.

If we look at the correlation between the office sales price index and GDP, sales price index and GDP both showing the upward trend. However, there was a divergence during 2007, before the global financial crisis, and after 2019.

In particular, in 2020 and 2021, the growth rate of the sales price index has been reaching higher than the growth rate of GDP, which we believe is due to the positive impact of low-interest rates on investment despite the stagnation of GDP due to COVID-19.

From 2001 to 23.Q4, the correlation coefficient between interest rates and sales prices was -0.66, meaning a strong inverse relationship. But in 2022, price rose despite rising interest rates, weighing heavily on investment. Similar trend has been seen before the global financial crisis.



Macroeconomic vs. Office Sales Price Index

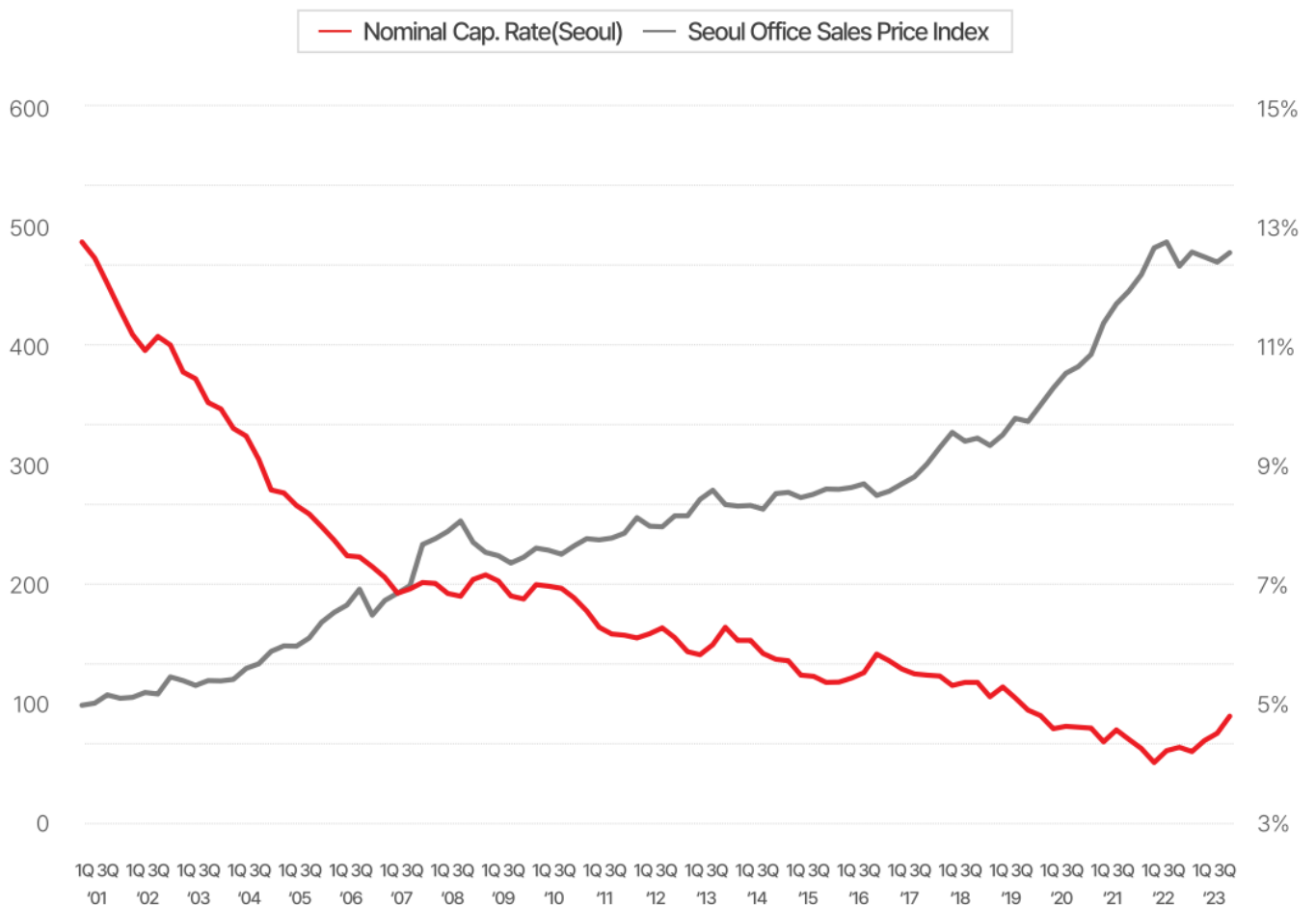
Office Index vs Nominal Cap. Rate

The cap. rate, which represents the relationship between the sale price and rent, shows an inverse correlation. Cap. Rate fell 8.0%p from 12.8% in the first quarter of 2001 to 4.8% in the fourth quarter of 2023, while the sale price rose 380% from 100.0 in the first quarter of 2001 to 479.9 in the second quarter of 2023, indicating that Cap. Rate fell 0.21%p when the sale price rose 10%.

Cap. rates have been declining steadily, but interest rate hike in 2022 led stagnation in price, as a result, cap rate increased. ('22.4Q: 4.0% → '23.4Q: 4.8%)

Higher interest rates have stalled transaction prices and uptrend in rent continue as the rental market remains in good shape, which is likely to push Cap. Rate higher for the time being.

In addition, while cap. rates have ranged from 250 to 300 bps over the long term from 2010 to recent years, the spread in 234Q was around 100 bps, suggesting that cap rates will rise further unless interest rates fall.



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