DYNAMIC CREDIT

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# Dutch Housing Market Update 2023-Q4

## Contents




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Dynamic Credit originates and manages tailored portfolios of Dutch residential and consumer BTL mortgage loans for institutional investors in an easy, cost-efficient and transparent way. As always, we welcome the opportunity to discuss the housing market and investing in Dutch mortgages.

*"As market expectations shift towards an end to rate hikes, swap rates have declined, leading to a reduction in mortgage rates with an average quarterly drop of 31 bps in 2023-Q4. This, paired with robust nominal wage growth, has prompted several financial institutions to revise their housing price projections for 2024 and 2025 upwards, forecasting an annual increase of just over 4.10%. Following the November elections, the informateur continues to navigate the formation of a new Dutch cabinet. To ensure the Netherlands is advancing towards climate neutrality by 2050, crucial decisions in climate and energy policy need to be made by the incoming cabinet. An independent report highlights key challenges to sustainability, such as grid congestion, labor shortages and the need for steadfast policy implementation, particularly in the build environment. Our report explores these issues in greater detail."*

**Jasper Koops,**
Head of Portfolio Management

# 1. Executive Summary

**Mortgage rates:** Mortgage rates decreased after a prolonged period of increases. Mortgage interest rates decreased by 31 bps QoQ and 21 bps YoY on average. After quarter end, mortgage rates dropped an additional 12 bps on average as monetary conditions are expected to loosen.

**Mortgage spreads:** Mortgage spreads widened substantially in 2023-Q4 as swaps dropped harder than mortgage interest rates. On average, spreads increased by 60 bps QoQ across all fixed rate periods and risk classes.

**Sustainability update:** An independent working group advised the new cabinet in the Netherlands on achieving climate neutrality by 2050, emphasizing proactive measures in the face of obstacles. Recommendations included increasing the target for homes with a hybrid heat pump and ensuring policy continuity. The National Mortgage Guarantee (“NHG“) considers allocating surplus funds for home sustainability improvements.

**Housing prices:** During 2023-Q4, Dutch housing prices continued to rebound from the temporary decline observed at the end of 2022. There was a 1.70% QoQ increase, but a 0.60% year-on-year decrease. In December alone, housing prices rose by 0.20% MoM, marking the seventh consecutive monthly increase.

**Expectations housing market:** In 2023-Q4 market expectations for the Dutch housing market improved, with average predictions of financial institutions anticipating a 4.13% and 4.17% increase in housing prices for 2024 and 2025 respectively, substantially higher than the 2.97% expected increase for 2024 just one quarter prior.

**Property transactions:** Property transactions in the Netherlands reached around 51,000, a 7.60% increase QoQ but a 1.60% decrease YoY. The total transactions for 2023 amounted to approximately 182,000, indicating a 5.50% decline compared to the 193,000 transactions recorded in 2022.

**Consumer consumption:** As of November 2023, Dutch household consumption increased by 0.30% YoY, driven by higher spending on services, while purchases of durable goods declined, and overall spending on goods like food decreased.

**Bankruptcies:** In December, bankruptcies increased by 30% MoM, totaling around 3,200 corporate bankruptcies in 2023, an approximate 50% rise compared to 2022. For comparison, yearly bankruptcies during 2009 to 2014 totaled roughly 7,900.

# 2. Dutch Housing Market Update

## Global House Prices

In the last two years, many major economies experienced a dip in house prices, a trend underscored by data from the OECD, revealing declines in two-thirds of the tracked economies in 2023-Q1. Increasing interest rates played a pivotal role in shaping this downward trajectory. However, the latter part of 2023 brings a positive turn, with signs of recovery now emerging in most of these nations.

One of the primary drivers behind the decline in housing prices across the globe has been a reduction in affordability. Global mortgage rates reached their highest levels in over a decade, leading to a substantial increase in mortgage payments. Estimates even suggest that this surge in rates translated to a 35% rise in mortgage payments, as highlighted in the World Economic Forum's Global Risks Report 2023[1], This development has had an impact on house prices worldwide.

As we look at the worldwide picture, the effects of the downward trend varied significantly depending on regional or national factors. As highlighted in our 2022-Q4 publication[2], a critical factor that influenced the extent of house price declines was the duration of fixed-rate periods. On average, housing markets characterized by variable or short fixed-rate terms faced the biggest impact. Sweden experiencing a substantial 12.40% drop from its peak to the lowest point and New Zealand facing an even more significant decline of 16.40%. Although the United Kingdom was not immune, the drop in house prices was relatively limited given the high share of short-term fixed-rate periods.

### Observed recovery

After the rise in capital market interest rates came to an end, house prices stopped falling in most markets. In fact, recovery took place in most countries. Supply shortages played a crucial role in the bounce-back of house prices together with an improvement in affordability. There are however major differences across countries, which can be observed in Figure 1 displayed on the next page.

House prices in Australia fully recovered from a house price decline of more than 8%. Two other countries, New Zealand and Sweden, countries with a large share of variable or short fixed-rate terms, face persistent challenges. They experienced drops in house prices of more than 10%, and current prices are still very close to the peak to trough percentage. The striking thing about the German housing market is that it is still in a negative trend, with the most recent data point being the lowest since the peak in the summer of 2022. Both the United Kingdom and the Netherlands are on a path to recovery, witnessing a resurgence in house prices. However, full recovery to the pre-rate increase level is still in progress. Over the past years, the United States showcases resilience, hardly experiencing a decline and maintaining a steady rise in house prices. This cannot be separated from the fact that a very large proportion, almost three-quarters, of homeowners with a mortgage have a fixed-rate term of 30 years[3]. However, this situation leaves these individuals trapped in their current homes as there is typically no option to port an existing mortgage to a new property as in the Netherlands, leading to fewer homes available and causing a shortage with other negative social effects.

1 WEF – Global Risks Report 2023

2 Dynamic Credit - Quarterly Update 2022-Q4

3 NY Times - A 30-Year Trap: The Problem With America's Weird Mortgages

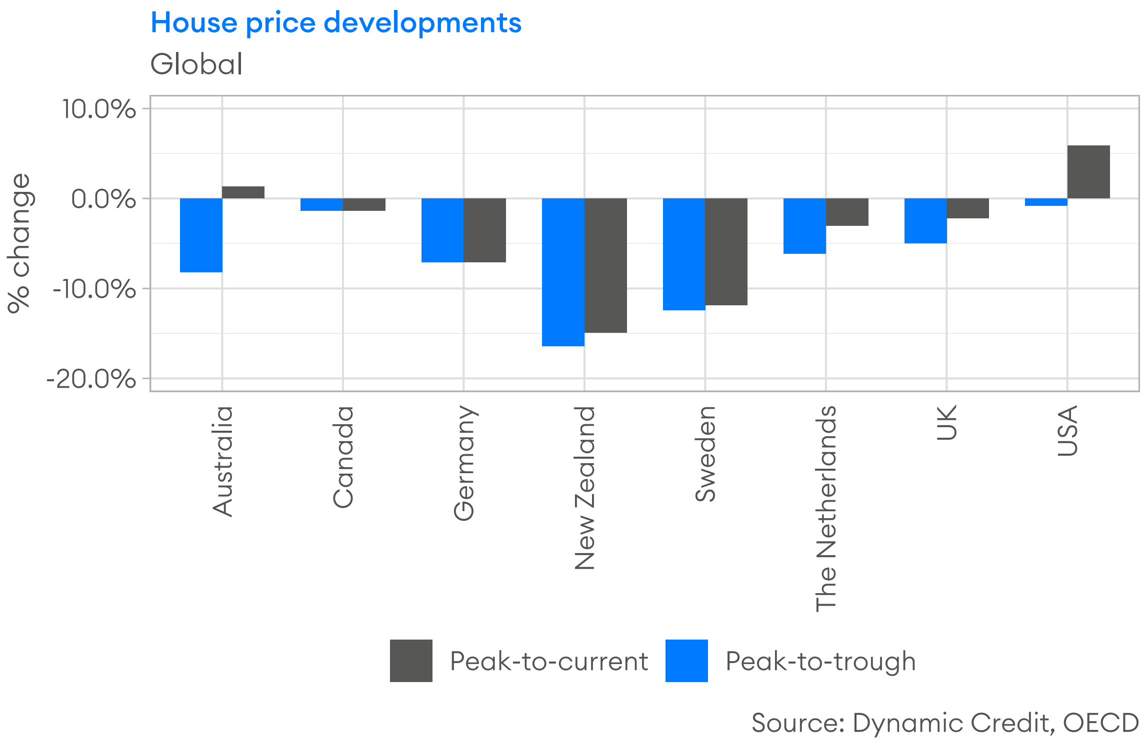



Figure 1: House price movements in developed economies in the period 2021 until end of 2023. Sources: Dynamic Credit, CoreLogic Australia, Statistics Canada, Halifax and Bank of Scotland, Statistics Netherlands, Quotable Value (New Zealand), Statistics Sweden and Federal Housing Finance Agency.

## Mortgage originations

The Dutch land registry, known as ("Kadaster"), provides insights into the total inscription amount for mortgage loans in the Netherlands, serving as a proxy for the overall Dutch mortgage origination balance. Mortgage originations have exhibited a consistent upward trend from 2013 to 2021. Following this, a minor dip occurred in 2022. In 2023, mortgage originations declined sharply by approximately 30% to EUR 107 billion, down from EUR 153 billion in 2022 which brings us back to the 2019 level. A total of around 322,000 inscriptions were recorded compared to 422,000 in 2022. According to Kadaster[1], the steep decline in the sum of mortgage inscriptions is mainly caused by the higher mortgage interest rate environment which caused the refinancing segment to dry up. Please consider Figure 2 below for a longer timeframe of the yearly mortgage origination in the Netherlands as recorded by Kadaster.

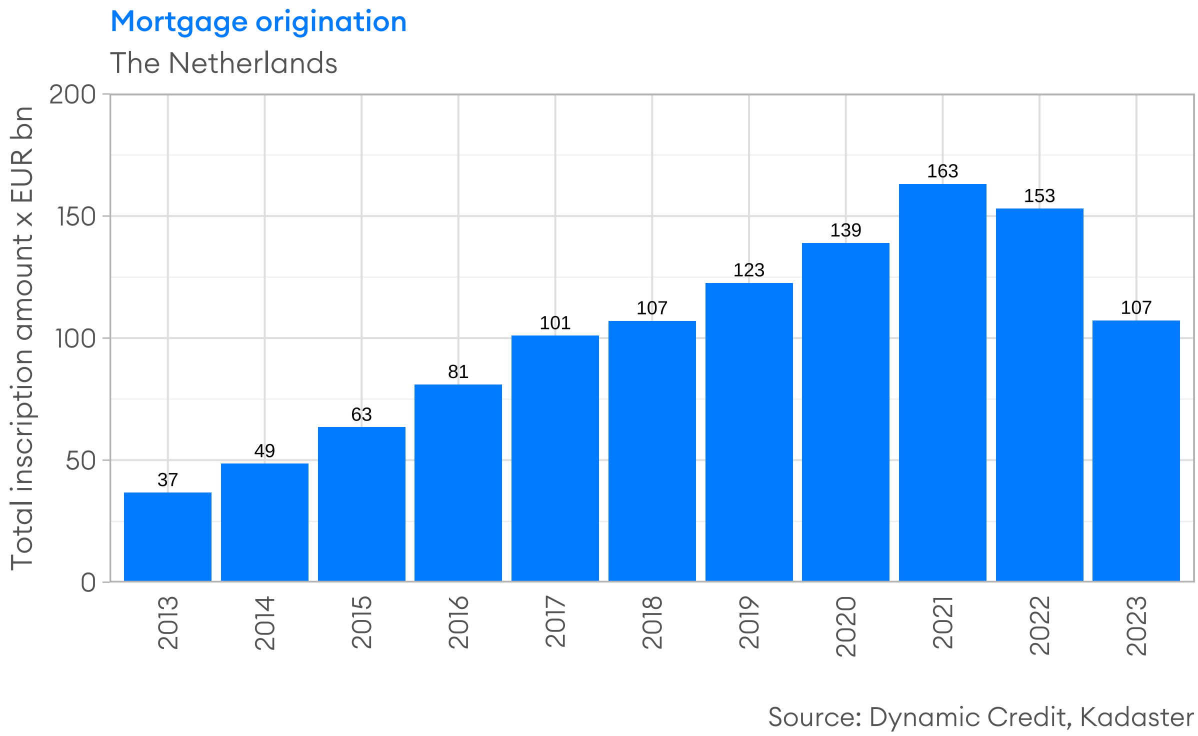



Figure 2: Figure 2 displayed above shows the total mortgage inscription in the Netherlands per year sourced from the Dutch land registry ("Kadaster") up to and including 2023-12.

1 Hypotheekmarkt 1e halfjaar 2023

## Offer volumes

With the year having ended, Hypotheken Data Netwerk ("HDN", a provider of infrastructure for mortgage loan requests) published their yearly overview for 2023[1]. In total, HDN registered approximately 368,000 mortgage offer requests in 2023. Compared to 521,000 in 2022, this is a decrease of 29.30% YoY. A total of 237,000 mortgage offers were made for home purchases (decrease of 7.90% YoY), whereas the refinance segment totaled roughly 23,500 (decrease of 74.40% YoY). The decrease in the refinancing segment can be attributed to the change in mortgage interest rates, as they are relatively high compared to previous years. Moreover, approximately 93,000 mortgage offers were made in the last quarter of 2023 (an increase of 8.90% compared to 2022-Q4). The average mortgage loan amount for offers meant for purchase was roughly 333,000, 3% lower than 2022. When looking at the refinancing segment, the average mortgage offer amount was 188,000 compared to 238,000 in 2022, a decrease of about 21%. Lastly, HDN reported that the share of mortgage offers that included financing for sustainability improvements increased from 11.20% to 14.10%. Currently it is estimated that sustainability measures are discussed in 30% of the mortgage advice talks between client and advisors.

## House prices and property sales

CBS reports on house price developments in the Netherlands using the Dutch House Price Index ("HPI"). In the final quarter of 2023, housing prices further recovered from the temporary slump seen at the end of 2022. As of 2023-Q4, housing prices increased by 1.70% QoQ, but are down 0.60% YoY. In December, housing prices increased by 0.20% MoM, marking the seventh consecutive monthly increase. Moreover, property transactions totaled approximately 51,000 in 2023-Q4, a 7.60% increase QoQ but a 1.60% decrease YoY. In total, roughly 182.000 property transactions were recorded in 2023, 5.50% less than the 193,000 transactions in 2022.

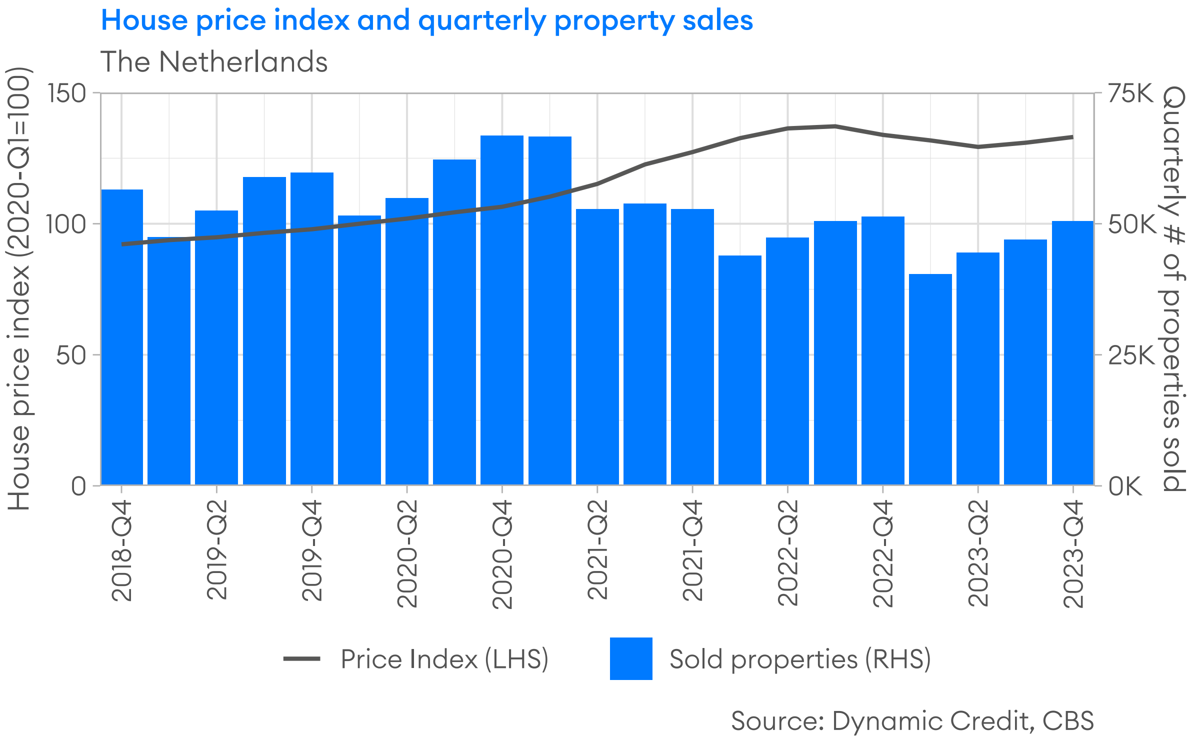



Figure 3: House Price Index of the Netherlands ("HPI") (2020-Q1 = 100) and monthly property sales. HPI until 2023-Q4. Source: CBS, Dynamic Credit.

1 HDN - Jaaroverzicht 2023

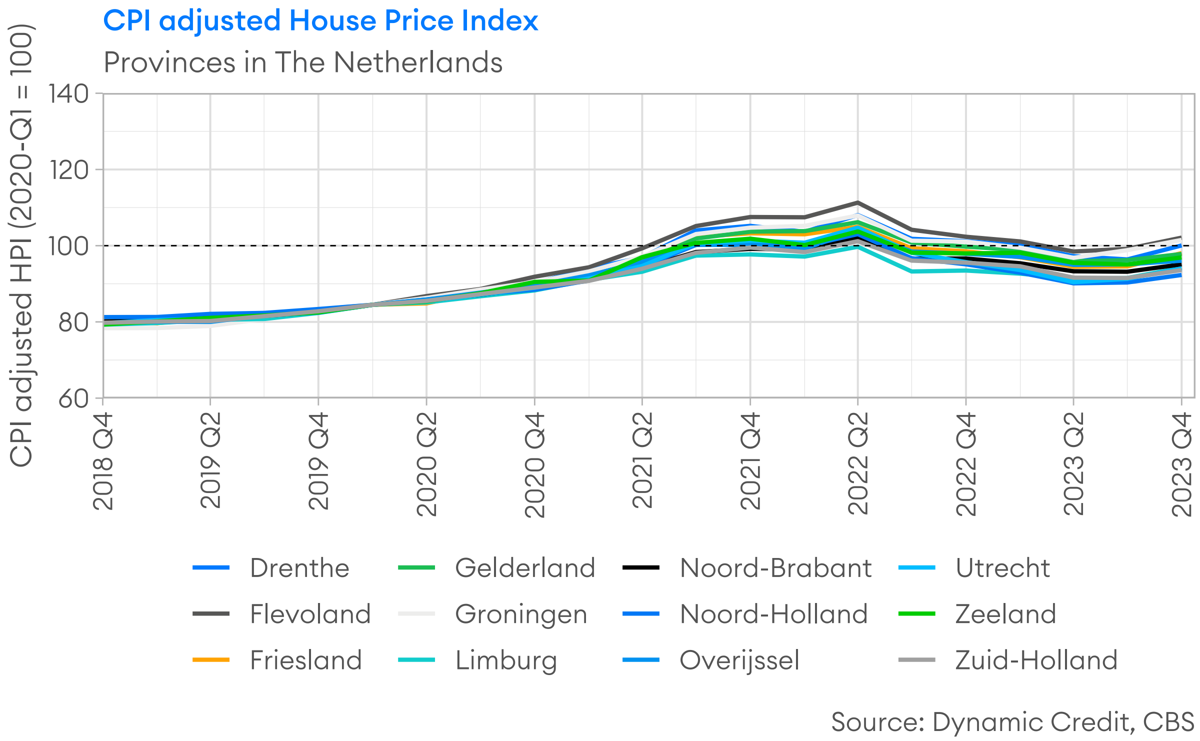


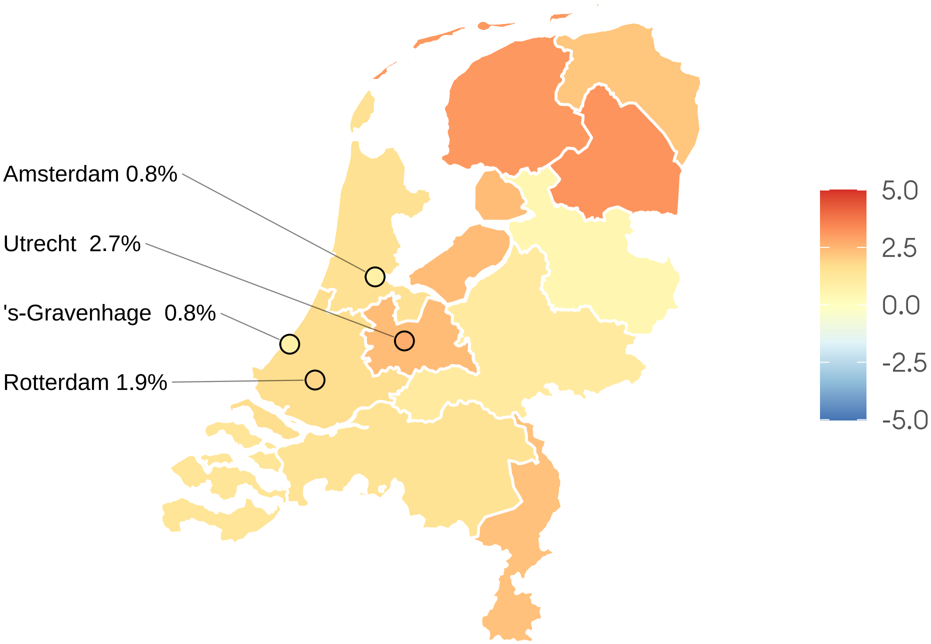

Figure 4: CPI Adjusted House price index per province in the Netherlands up to and including 2023-Q4 (2020-Q1 = 100).

In addition to the previous paragraph, consider Table 1 below as we zoom in on Dutch housing price developments on a more granular level. During 2023-Q4, housing prices increased in all Dutch provinces and included municipalities. When considering the YoY changes, housing prices for several provinces and municipalities are now turning positive again. The most pronounced recovery in housing prices occurred in the province of Drenthe, which saw housing prices increase by 3.20% QoQ. Property transactions in Zeeland increased by approximately 26% QoQ, in total about 1400 properties changed ownership during 2023-Q4. In general, property transactions increased in all provinces QoQ, the municipality of Amsterdam saw a decrease of 2% QoQ.

| Area | Type | HPI (2020-Q1=100) | YoY Price % | QoQ Price % | Properties Sold in Quarter | QoQ Properties Sold % | YoY Properties Sold % |
|---|---|---|---|---|---|---|---|
| Nederland | Country | 133.1 | -0.6 | 1.7 | 50518 | 7.6 | -1.6 |
| | | | | | | | |
| Amsterdam | Municipality | 122.3 | 0.8 | 0.8 | 2758 | -2.0 | 2.3 |
| 's-Gravenhage | Municipality | 127.4 | -0.9 | 0.8 | 1673 | 6.2 | 4.8 |
| Rotterdam | Municipality | 130.1 | -1.2 | 1.9 | 1639 | 16.7 | 5.7 |
| Utrecht | Municipality | 127.9 | 0.6 | 2.7 | 1172 | 4.7 | 1.3 |
| | | | | | | | |
| Groningen | Province | 142.2 | 1.7 | 2.2 | 1567 | 7.7 | -14.1 |
| Friesland | Province | 137.3 | 0.7 | 3.1 | 1844 | 8.9 | 0.2 |
| Drenthe | Province | 140.2 | 0.1 | 3.2 | 1515 | 3.0 | -0.3 |
| Overijssel | Province | 134.5 | -0.7 | 0.5 | 3174 | 11.3 | -1.5 |
| Flevoland | Province | 143.0 | 1.0 | 2.4 | 1382 | 7.3 | -3.8 |
| Gelderland | Province | 137.0 | -0.8 | 1.1 | 5769 | 9.1 | -4.8 |
| Utrecht | Province | 131.7 | -0.6 | 2.4 | 4197 | 10.0 | 3.0 |
| Noord-Holland | Province | 129.3 | -1.8 | 1.6 | 8738 | 2.3 | 1.7 |
| Zuid-Holland | Province | 131.1 | -0.9 | 1.7 | 10513 | 6.8 | -0.9 |
| Zeeland | Province | 135.7 | 0.1 | 1.4 | 1439 | 25.7 | 4.7 |
| Noord-Brabant | Province | 133.2 | -0.4 | 1.5 | 7448 | 10.5 | -1.1 |
| Limburg | Province | 131.9 | 2.0 | 2.3 | 2932 | 4.3 | -10.2 |

Table 1: House Price Index of the Netherlands (“HPI”) (2020-Q1 = 100) and number of property sales changes in Dutch provinces and major municipalities 2023-Q4 Source: CBS, Dynamic Credit.

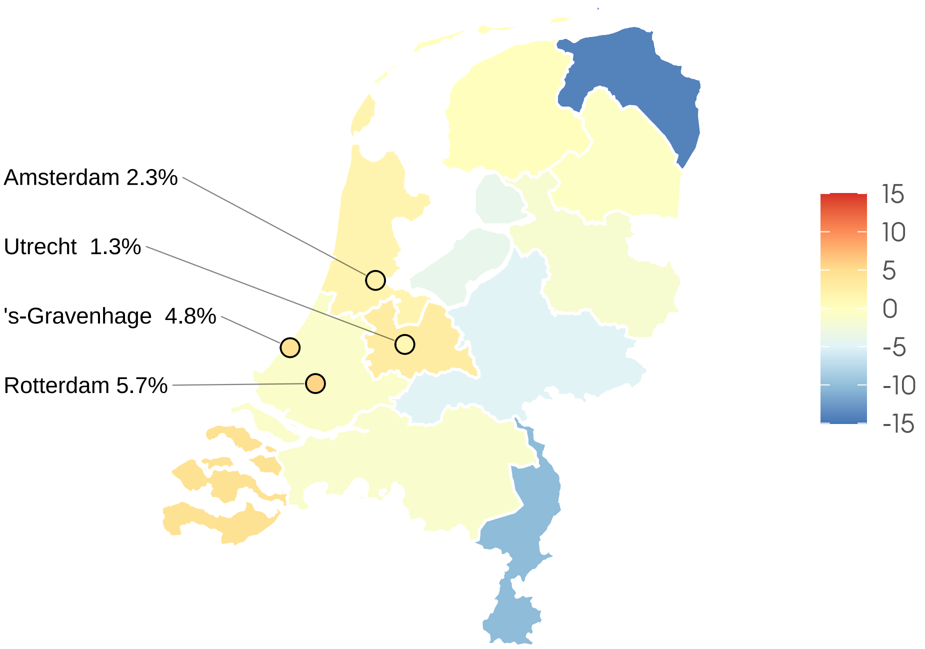
## House Price Index QoQ change




Source: Dynamic Credit, CBS (2023 Q4)

Figure 5: Dutch House Price Index QoQ change in percentages, 2023-Q4.

## Number of sold properties YoY change




Source: Dynamic Credit, CBS (2023 Q4)

Figure 6: Sold properties YoY change in percentages, 2023-Q4.

## Expected house price and property sales developments

With the final quarter of 2023 closed, financial institutions have published their outlook for 2024 and 2025. The coming two paragraphs will focus on forming a consensus from the major banks for the outlook on the housing market and the underlying factors. In the first half of 2023, the general expectations for the housing market were depressed. In the previous edition of our quarterly report[1], we discussed an observed reversal in expectations for the housing market, graphically displayed as the shift between 2023-Q2 and 2023-Q3 in Figure 7 below. In 2023-Q4, the expectations for the Dutch housing market further improved. On average, housing prices are predicted to increase by 4.13% and 4.17% for 2024 and 2025 respectively, a substantial improvement from the 2.97% expected increase for 2024 one quarter ago. For a complete picture of how expectations evolved over the past quarters, please consider Figure 7 below. The next paragraph will elaborate on the specific factors that are expected to influence housing prices in the near future.

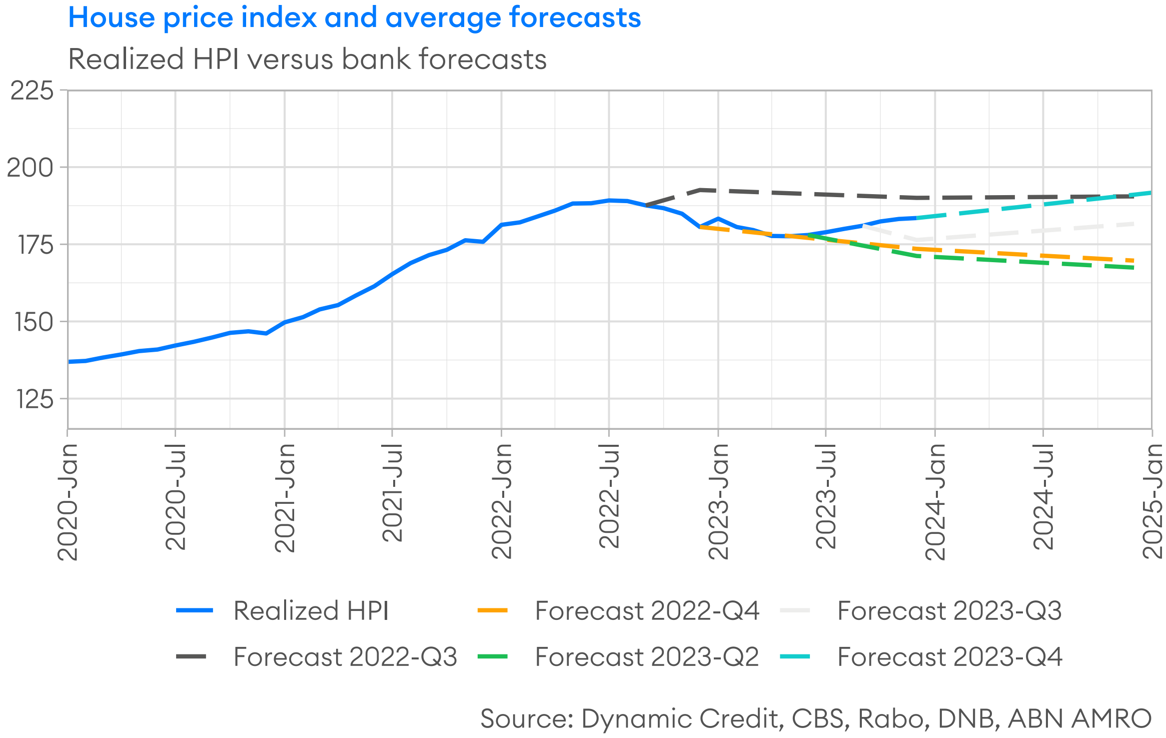



Figure 7: Realized house price index and average house price forecasts made at different points in time as of 2023-Q4. Source: Dynamic Credit, CBS, Rabobank, DNB, ABN AMRO, ING.

Beginning with ABN AMRO[2], which adjusted their housing price outlook for 2024 upwards from an increase of 2.50% to 4%, to be followed by an increase of 3.50% over 2025. In their most recent forecast, ABN AMRO states that the upwards adjustment may be attributed to the expectation that mortgage interest rates will start to decrease in combination with rising wages during 2024. Together with decreasing inflationary pressure, this is expected to increase housing prices in a tight housing market. Moreover, Rabobank[3] expects housing prices to increase by 4.50% in 2024 and an additional 4.50% in 2025 (compared to 2.40% over 2024 expected last quarter). This expectation is based on increasing housing affordability and tight housing supply for the coming years, resulting in a continuation of price pressure on the housing market. In addition to a marginal economic outlook, Rabobank expects an increase in the unemployment rate for 2024 and 2025, but does not expect that both of these factors will result in a noticeable decrease in housing demand. In like manner, Fitch[4] expects increases in housing prices of 3 to 5% and 4 to 6% for 2024 and 2025 consecutively. Several challenges are expected to persist on the Dutch housing market; housing transaction volumes and newly issued building permits are both substantially below their long-term average. However, real wage deterioration might moderate the upward trend in housing prices. Lastly, arrears are expected to remain low (0.10%-0.15%).

1 Dynamic Credit - Quarterly Update 2023-Q3
2 ABN AMRO - Huizenmarkt ontwikkelingen en verwachtingen
3 Rabobank - Huizenprijzen volgend jaar al terug op niveau zomer 2022
4 Fitch - Global Housing and Mortgage Outlook 2024

## Newly built homes

In 2023, approximately 73,000 new housing units were completed according to CBS[1]. This figure is slightly lower than the nearly 75,000 new homes delivered in 2022, yet it remains above the ten-year average of just over 61,000. When also taking demolitions, transformations and other factors into account, the housing stock increased with nearly 79,000 units in 2023, well below the target of 100,000 set by the government. The increase in housing stock due to new construction was 0.9 percent in 2023. Amsterdam saw the highest number of new housing units, with 4,500 completed.

On the other hand, the average monthly number of issued building permits for residential properties in the Netherlands for the year 2023 up to and including November was around 4,600, around 14.81% lower than the year before[2]. In comparison, over the entirety of 2022 the monthly issued permits averaged to about 5,400. The number of building permits is closely watched as the number of issued permits can be viewed as a leading indicator for the number of newly built homes going forward.

Figure 8 below shows the historic quantity of issued building permits and the YoY percentual change.

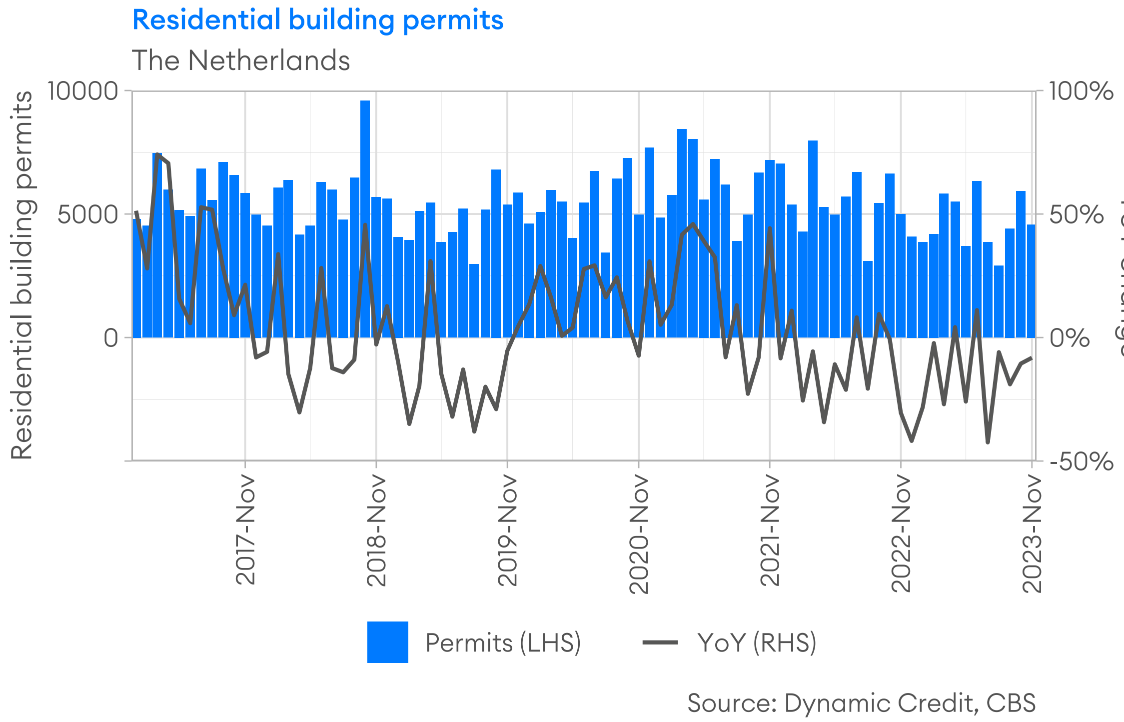



Figure 8: Number of issued building permits as of November 2023 and the percentual YoY change in the number of issued building permits excluding transformations i.e., repurposing office spaces to residential homes. Source: CBS, Dynamic Credit.

1 CBS - Ruim 73 duizend nieuwbouwwoningen in 2023

2 CBS - Bouwvergunningen woonruimten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## VEH Consumer confidence

Vereniging Eigen Huis ("VEH") measures consumer confidence in the Dutch housing market every quarter based on a questionnaire about interest rates, prices, and the general housing market[1]. The indicator can take values ranging from 0 to 200, with 100 indicating a neutral value. Higher values indicate positive consumer sentiment and lower values indicate negative sentiments.

Figure 9 displayed below shows the history of the VEH indicator. The indicator experienced a gradual decline from its peak of 121 in 2016-Q3 to the value of 77 by the end of 2023-Q3 and subsequently increased to 81 during 2023-Q4. That marks the second consecutive quarter of increase of the index after the decrease from mid-2021 until mid-2023. The underlying factors for the decrease were decreasing house prices and the expected increase in mortgage rates. Both factors have stabilized during the second half of 2023, making consumers more positive again.

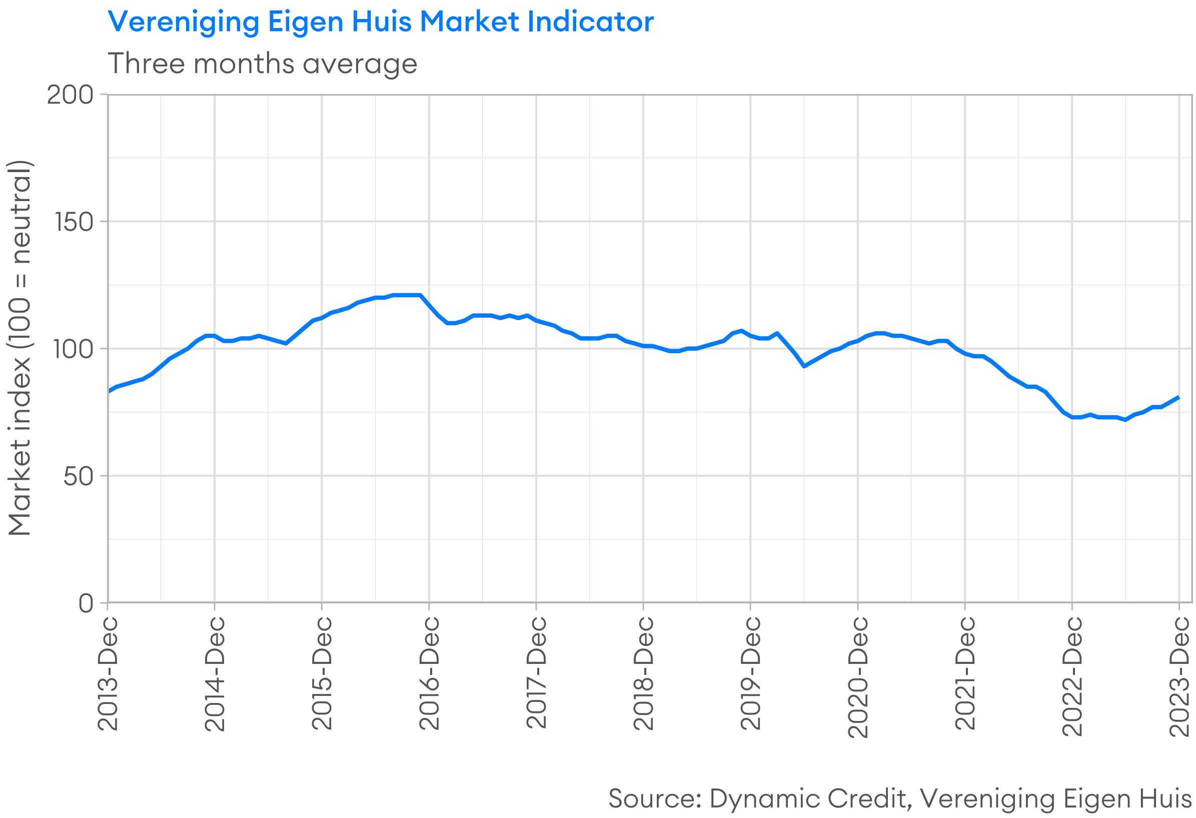



Figure 9: Vereniging Eigen Huis Market Indicator as of December 2023.

1 VEH – Eigen Huis Markt Indicator

## CBS Consumer confidence

Statistics Netherlands ("CBS")[1] tracks consumer confidence based on the views and expectations of consumers on topics such as the general economic environment, personal financial situation and willingness to buy in the Netherlands. The indicator is measured as percentage points of negative or positive answering options and can reach values between –100 and 100, where a value of 0 indicates an equal amount of positive and negative responses.

In December 2023, consumer confidence in the Netherlands reached a value of -29, which is a substantial improvement from the -39 recorded in October 2023. This marks the highest level of consumer confidence in nearly two years and is a positive sign for the Dutch economy. The improvement in consumer confidence is evident across all sub-indicators, with the economic climate (+20) and outlook for the next 12 months (+16) being the main contributors to the positive trend. Notably, consumers were positive about their financial situation in the next twelve months for the first time since October 2021.

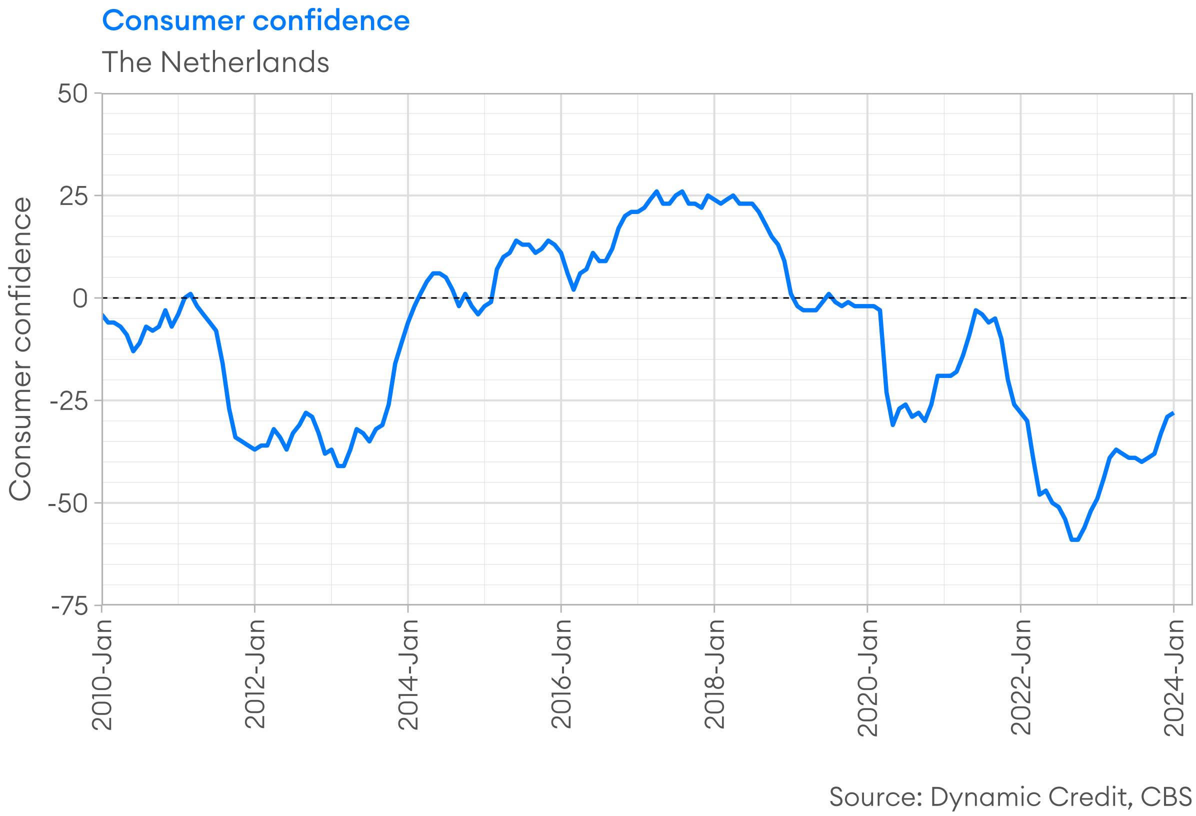



Figure 10: CBS total consumer confidence in the Netherlands as of January 2024.

1 CBS – Consumer confidence

## CBS household consumption

Statistics Netherlands ("CBS") reveals[1] a 0.30% rise in household consumption for November 2023 compared to the same month in 2022, after accounting for price changes and shopping days' composition. Consumption of services was higher and the consumption of goods remained almost unchanged. Data from the CBS shows that Dutch households spent 0.50% more on services such as public transport, communication, recreation, culture, and hairdressers. Spending on food, alcohol and tobacco decreased by 2.30%. Purchases of durable goods, especially home goods, shoes, and clothing, decreased. However, car purchases increased but all in all the change was negligible. Spending on other goods, such as energy and personal care items, increased by 3.10%. Services accounted for over half of total domestic consumer spending.

These figures are in contrast with retail sales volumes, which decreased by 0.80%. Furthermore, they are preliminary and might see future revisions.

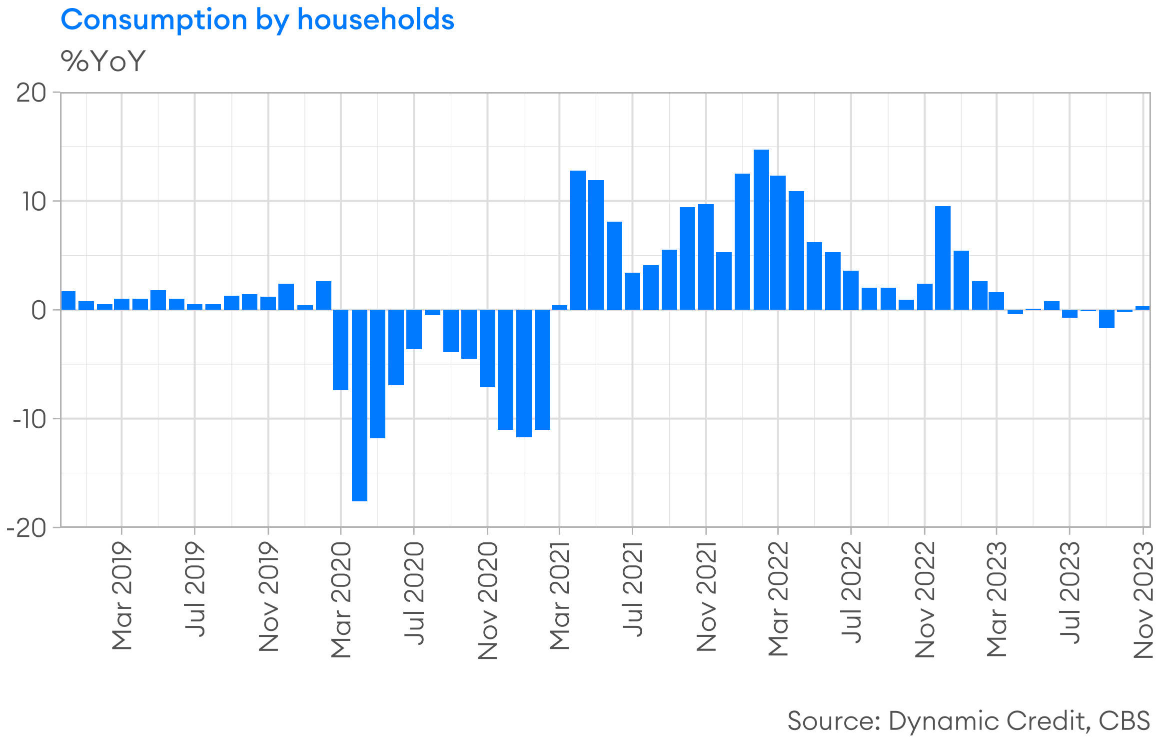



Figure 11: Percentual YoY domestic household consumption in the Netherlands adjusted for price changes up until November 2023.

1 CBS - Household consumption over 1 percent up in August

## NHG

Stichting Waarborgfonds Eigen Woningen (“WEW”), a central, privatized entity, is responsible for the administration and granting of the Nationale Hypotheek Garantie (”NHG Guarantee”). The NHG Guarantee covers the outstanding principal, accrued unpaid interest and disposal costs of mortgage loans. Irrespective of scheduled repayments and prepayments made on a mortgage loan, the NHG Guarantee is reduced on a monthly basis by an amount which is equal to the principal repayment part of the monthly instalment as if the mortgage loan were to be repaid on a thirty-year annuity basis. Financial support from the Dutch government is formalized in a backstop agreement, under which the State is responsible for providing interest-free loans in case of need.

### New NHG guarantees

According to HDN, 34,269 loans with an NHG guarantee were offered for a total of EUR 8.1 billion in 2023-Q4 (compared to EUR 5.8 billion in 2022-Q4). This corresponds to an average NHG market share of 33.80% in terms of mortgage loan balance (compared to 29.29% in 2022-Q4).

Please refer to Figure 12 for a graphic description.

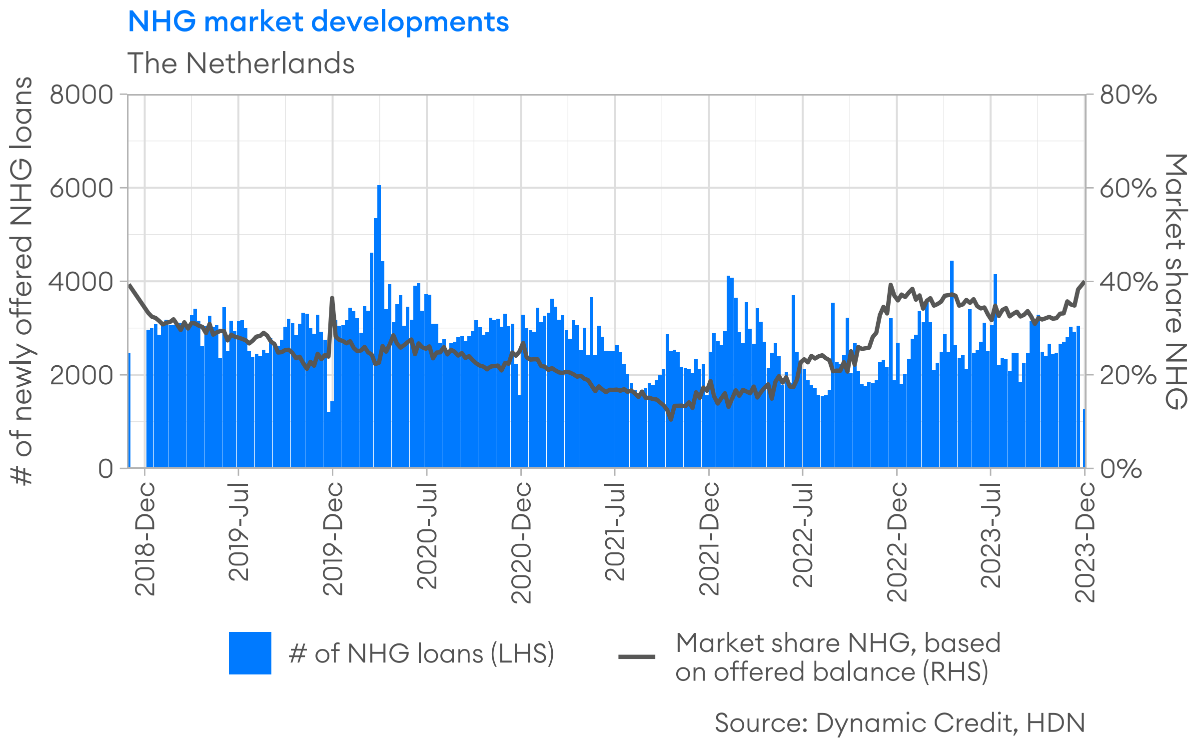



Figure 12: Number of new NHG guarantees and market share of NHG loans as a percentage of total originated balance through time. The x-axis refers to year and month.

### Loss declarations[1]

In the third quarter of 2023 the number of loss declarations submitted under the NHG Guarantee increased to eleven, versus just two in same quarter in 2022. The payout ratio was 95.60% and the total payout EUR 78,000. WEW observes there is generally sufficient home equity to avoid residual debt after a (forced) sale.  Furthermore, WEW still focusses on borrower central solutions and home preservation, rather than selling the property.

### Financial developments

The amount guaranteed by WEW (the total outstanding balance of mortgages with an NHG guarantee) is approximately EUR 197 billion. This is set against an (estimated) total collateral value of over EUR 380 billion. The capital ratio, the available capital as a percentage of the amount guaranteed by WEW, equals 0.85%.

1 NHG - Kwartaalcijfers 3e kwartaal 2023

# 3. Owner-Occupied Mortgages

## Mortgage rate developments

During the fourth quarter of 2023 mortgage rates started to decrease substantially for the first time in a prolonged period of increases in interest rates. On average, mortgage rates dropped by 31 bps QoQ and 21 bps YoY across the various fixed rate periods and risk classes displayed in Table 2. This strong decline was visible in all fixed rate periods, but was somewhat stronger for the shorter terms. The differences between the risk classes were much smaller. The downward trend continued in the first weeks of 2024. On average, interest rates fell a further 12 bps.

The table below contains an overview of the interest rate development for the respective risk classes and fixed rate periods.

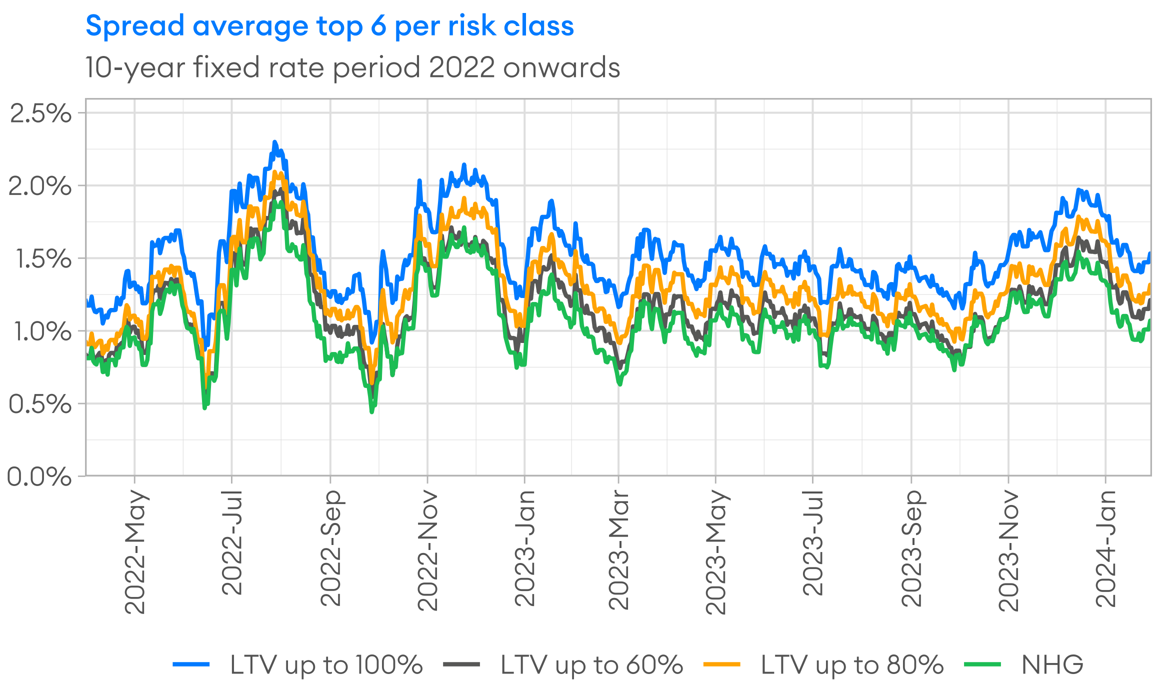
| Mortgage rate development for average of top 6 mortgage rates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fixed rate period | Risk class | 2022-12-31 | 2023-09-30 | 2023-12-31 | 2024-01-25 | QoQ | YoY | QtD |
| 5-year | NHG | 3.90% | 4.07% | 3.56% | 3.41% | -0.51% | -0.34% | -0.15% |
| | 60% LTMV (non-NHG) | 4.03% | 4.12% | 3.72% | 3.56% | -0.40% | -0.31% | -0.16% |
| | 80% LTMV (non-NHG) | 4.14% | 4.28% | 3.81% | 3.63% | -0.47% | -0.33% | -0.18% |
| | 100% LTMV (non-NHG) | 4.36% | 4.54% | 4.02% | 3.84% | -0.51% | -0.34% | -0.18% |
| 10-year | NHG | 3.93% | 4.18% | 3.75% | 3.62% | -0.43% | -0.18% | -0.14% |
| | 60% LTMV (non-NHG) | 4.09% | 4.21% | 3.88% | 3.76% | -0.33% | -0.22% | -0.12% |
| | 80% LTMV (non-NHG) | 4.20% | 4.36% | 4.02% | 3.86% | -0.34% | -0.17% | -0.16% |
| | 100% LTMV (non-NHG) | 4.40% | 4.59% | 4.20% | 4.08% | -0.39% | -0.21% | -0.12% |
| 20-year | NHG | 4.10% | 4.33% | 4.01% | 3.87% | -0.32% | -0.10% | -0.14% |
| | 60% LTMV (non-NHG) | 4.33% | 4.42% | 4.17% | 4.06% | -0.26% | -0.16% | -0.11% |
| | 80% LTMV (non-NHG) | 4.46% | 4.55% | 4.25% | 4.13% | -0.29% | -0.21% | -0.13% |
| | 100% LTMV (non-NHG) | 4.69% | 4.76% | 4.42% | 4.33% | -0.35% | -0.27% | -0.09% |
| 30-year | NHG | 4.32% | 4.38% | 4.15% | 4.03% | -0.23% | -0.17% | -0.12% |
| | 60% LTMV (non-NHG) | 4.42% | 4.45% | 4.20% | 4.07% | -0.24% | -0.22% | -0.13% |
| | 80% LTMV (non-NHG) | 4.55% | 4.57% | 4.27% | 4.16% | -0.30% | -0.28% | -0.10% |
| | 100% LTMV (non-NHG) | 4.79% | 4.75% | 4.45% | 4.36% | -0.30% | -0.34% | -0.09% |

Table 2: Average top-6 mortgage rates (excluding action rates) for mortgage loans with different fixed rate periods for four risk classes. Source: Dynamic Credit, Hypotheekbond. Reference date is 2024-01-25.

## Spread developments[1]

In the fourth quarter, swap rates fell sharply, as a result of lower inflation expectations and more and earlier interest rate cuts expected by the ECB. As a result of falling swap rates, spreads rose sharply. It took some time before mortgage rates reacted, resulting in spreads being much wider for a longer period of time. At the end of the fourth quarter, spreads were about 60 bps higher across all fixed rate periods and risk classes. After the end of the quarter, swap rates did not fall further and even rose slightly again. The delayed response of mortgage rates wiped out part of the spread increase in Q4 in the first weeks of 2024. However, spreads were still significantly higher compared to end of Q3.

1 The EUSWxV3 swap is used, which uses quarterly resets and the floating leg is 3-month EURIBOR.




Source: Dynamic Credit, Hypotheekbond (2024-01-30)

Figure 13 : Spread of the average top-6 price leader mortgage rates (excluding action rates) for mortgage loans with a 10-year fixed rate period for four risk classes. Starting April 2022 up to and including January 2024.

For a broader overview of the spread developments, see Table 3 displayed below. In addition, the information should be interpreted as representative gross spread for newly originated Dutch residential mortgage loans over time.

| Spread development for average of top 6 mortgage rates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fixed rate period | Risk class | 2022-12-31 | 2023-09-30 | 2023-12-31 | 2024-01-25 | QoQ | YoY | Qtd |
| 5-year | NHG | 0.72% | 0.72% | 1.20% | 0.85% | 0.48% | 0.48% | -0.36% |
| | 60% LTV (non-NHG) | 0.85% | 0.76% | 1.36% | 1.00% | 0.60% | 0.51% | -0.36% |
| | 80% LTV (non-NHG) | 0.96% | 0.92% | 1.45% | 1.07% | 0.53% | 0.49% | -0.38% |
| | 100% LTV (non-NHG) | 1.18% | 1.18% | 1.66% | 1.28% | 0.49% | 0.48% | -0.38% |
| 10-year | NHG | 0.77% | 0.83% | 1.35% | 1.01% | 0.51% | 0.58% | -0.34% |
| | 60% LTV (non-NHG) | 0.93% | 0.86% | 1.47% | 1.15% | 0.61% | 0.54% | -0.33% |
| | 80% LTV (non-NHG) | 1.03% | 1.01% | 1.62% | 1.26% | 0.61% | 0.59% | -0.36% |
| | 100% LTV (non-NHG) | 1.24% | 1.24% | 1.79% | 1.47% | 0.55% | 0.55% | -0.32% |
| 20-year | NHG | 0.91% | 0.87% | 1.46% | 1.12% | 0.59% | 0.54% | -0.34% |
| | 60% LTV (non-NHG) | 1.14% | 0.97% | 1.62% | 1.32% | 0.65% | 0.48% | -0.30% |
| | 80% LTV (non-NHG) | 1.26% | 1.09% | 1.70% | 1.38% | 0.61% | 0.44% | -0.32% |
| | 100% LTV (non-NHG) | 1.50% | 1.31% | 1.87% | 1.59% | 0.56% | 0.38% | -0.29% |
| 30-year | NHG | 1.15% | 0.91% | 1.58% | 1.26% | 0.66% | 0.43% | -0.31% |
| | 60% LTV (non-NHG) | 1.25% | 0.98% | 1.63% | 1.30% | 0.65% | 0.39% | -0.33% |
| | 80% LTV (non-NHG) | 1.37% | 1.10% | 1.70% | 1.40% | 0.59% | 0.33% | -0.30% |
| | 100% LTV (non-NHG) | 1.61% | 1.28% | 1.88% | 1.60% | 0.60% | 0.27% | -0.28% |

Table 3: Spread of the average top-6 mortgage rates (excluding action rates) over duration matched swap rates for four risk classes. Source: Dynamic Credit, Hypotheekbond. Reference date is 2024-01-25

# 4. Funding Update

### RMBS

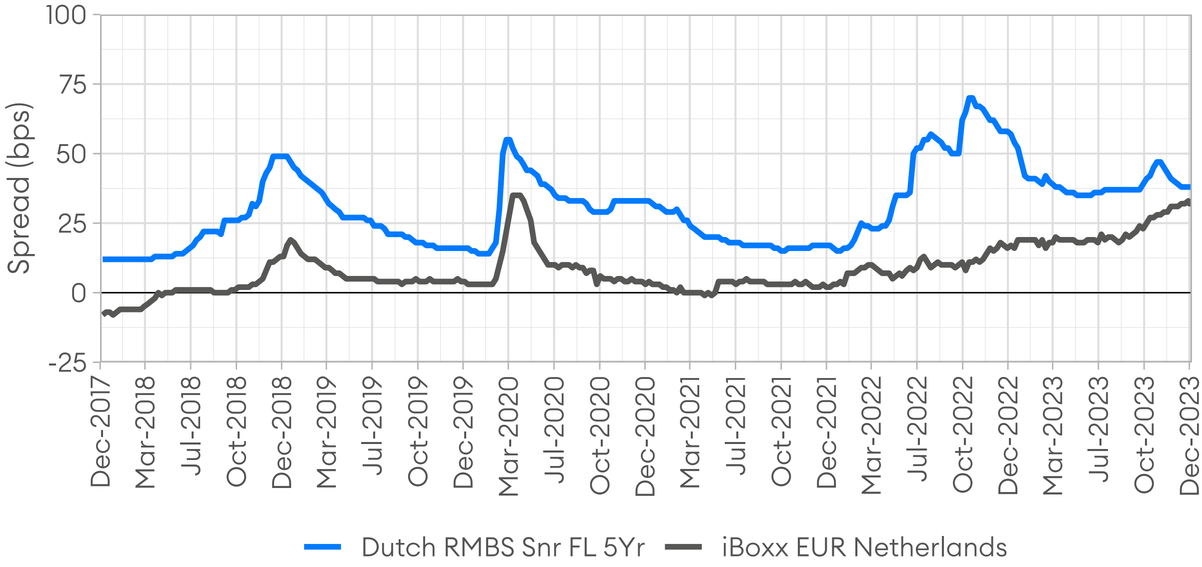
In the fourth quarter of 2023 there has been no new Dutch RMBS issuance and the yearly total remains EUR 13.5 billion.

Spreads on senior RMBS notes were around 40 bps at the beginning of the quarter and have increased to a peak of 47 bps before coming down again to 38 bps by the beginning of 2024. The December period is historically quiet and spreads around 40 bps is the level we also saw throughout the third quarter.

### Covered bonds

Total covered bond issuance for the fourth quarter was EUR 2.6 billion, resulting in a yearly total of EUR 11.9 billion. The deals were from the usual suspects, in their usual size. For 2024 the total is already on EUR 2.5 billion with two issues from ING. Over the quarter covered bond spreads have steadily increased to 31-32 bps (from the 19-22 bps level). The delta between senior RMBS and covered bonds is now still only 6 bps, a level that we haven't observed since we have been following the indices.

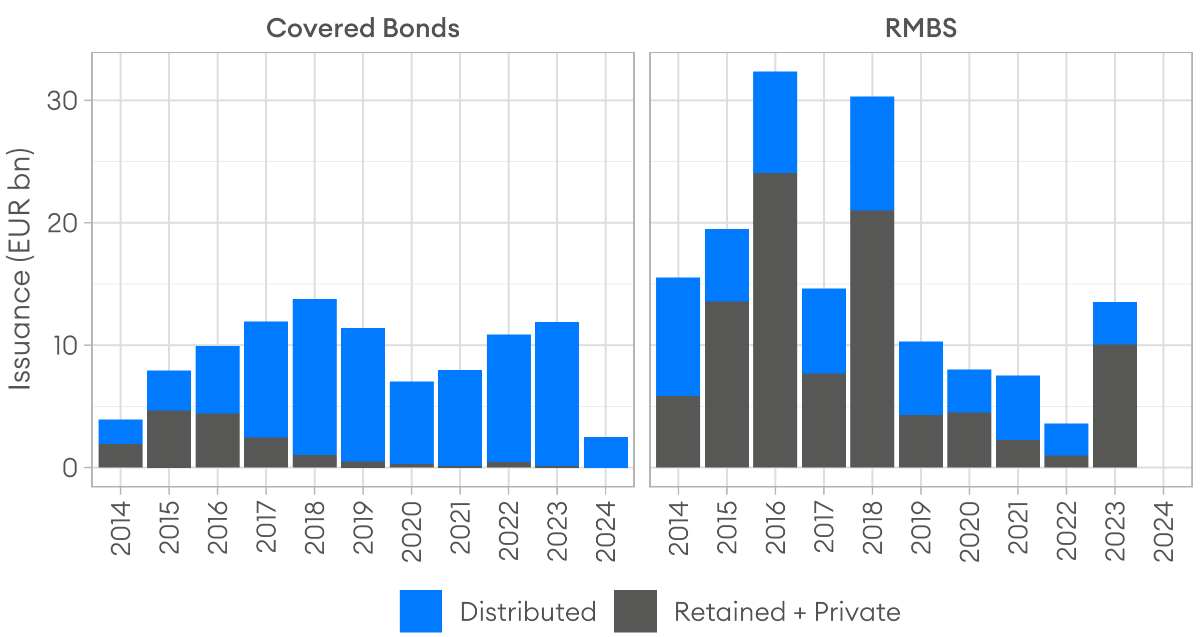
Mortgage funding spreads




Source: Dynamic Credit, JP Morgan

Figure 14: RMBS spread refers to indicative mid spread (DM) for representative generic RMBS bonds. iBoxx EUR Netherlands spread refers to spread versus mid swap rates. The data is as of 2023-Q4.

Mortgage funding issuance




Source: Dynamic Credit, JP Morgan

Figure 15: Issuance of Dutch RMBS and covered bonds. The data is as of 2023-Q4.

# 5. Buy-to-let Mortgages

## Rental market developments[1]

Pararius reports that, as of the fourth quarter of 2023, the national average rental price stood at EUR 18.01 per square meter per month, marking an 8.50% increase YoY, and reaching a record high, as prices had never before exceeded EUR 18. The number of available properties in the unregulated sector decreased by 15.60%.

The five largest cities in The Netherlands generally have the highest rental prices and their own dynamics. In Amsterdam, the average square meter price for a vacant rental property in the unregulated sector increased by 5.90% YoY, resulting in new tenants paying EUR 27.28 per square meter. In The Hague, the average square meter price increased by 8.40% to EUR 19.35. In Rotterdam, new tenants paid 9.60% more YoY, with an average square meter price that is now EUR 19.18. In Utrecht, rental prices increased with 4.50% YoY, resulting in an average square meter price of EUR 20.17. In Eindhoven, the average square meter price decreased by 1.40% YoY, with an average square meter price of EUR 17.67. It is yet to be seen how this develops in the coming quarters.

Pararius reports that again an increase has been observed in the proportion of former rental properties being offered for sale, with 8% of homes for sale in 2023-Q4 originating from the rental market. That is up from 3 to 4.50% in the period 2020-2022, and 7% in the third quarter. Leading to a reduction in the supply of rental properties in the unregulated housing sector.

## Housing anywhere

Housing anywhere[2], a mid-term rental platform, specialized in rooms, studios and small apartments, reports that over the last quarter of 2023 the international rent prices on their platform increased by 5.80% YoY. Which is the lowest quarterly growth figure from 2023. Rooms in the Netherlands are some of the most expensive in an international context, and a room in Amsterdam, The Hague, Utrecht and Rotterdam cost EUR 950, EUR 845, EUR 800 and EUR 778 respectively. The most expensive international cities are Munich (EUR 850), Cologne (EUR 850) and Hamburg (EUR 789).

## Maximum rent increases 2024[3]

- **Regulated rent:** As of 1 July 2024, the maximum rent increase in the regulated sector will be 5.80%, which is equal to the average wage increase from December 2022 to December 2023. Housing corporations can increase rents with 5.30%. The permitted maximum rent increase will be linked to wage development in the period 2022-2025. The reasoning is that rent increases will become effective after most renters have seen an increase in their income. The rent increase will not be linked to inflation.

- **Unregulated rent:** The maximum rent increase in the unregulated sector is currently 5.50% (inflation December 2022 until December 2023 + 1%) until 1 May 2024. At that date the current legislation lapses, and the Minister of Housing is working on a proposal to continue regulating rent increases in the unregulated sector after that date.

## Temporary rental contracts

The Dutch Senate has approved a bill to limit the use of temporary rental contracts[4]. When passed into law, it will make indefinite rental contracts the norm. It will apply to new rental contracts, existing temporary contracts will remain valid. There will be exceptions for landlords (or their family) that want to move back into the property, and for students. The key argument for the prohibition of temporary rental contracts is that since the introduction in 2016, the intended goal of increasing the rental market supply has not been met. Opponents of the bill fear that the new law will further discourage private individuals from renting out their properties[5]. The bill has yet to be passed into law.

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1 Pararius - Unregulated housing sector supply reduces further, rental prices increase
2 HousingAnywhere - Rent Index Q4 confirms consecutive slowdown in price increases throughout 2023
3 Volkshuisvestingnederland - 5,8 procent maximale huurverhoging gereguleerde sector in 2024
4 Eerstekamer - Initiatiefvoorstel-Nijboer en Grinwis Wet vaste huurcontracten
5 NOS - Toch steun in Eerste Kamer voor wet tegen tijdelijke huurcontracten

## Affordable Rent Act ("Wet betaalbare huur")

In November, the Advisory Division of the Council of State (*Raad van State*) published their advice on the Affordable Rent Act[1]. They conclude that the effectiveness of the proposed legislation in providing affordable housing for renters remains uncertain. Additionally, they describe a scenario where it causes further supply reduction in the (currently) unregulated segment. The below is a brief summary of the current situation and the advice.

The goal of the proposed legislation is to provide more affordable rental properties for middle-income earners (*middenhuur*). To achieve this, the government proposed expanding the regulated sector's pricing system (the points system or WWS) to most of the unregulated rental market. Regulation will then apply to rental prices up to EUR 1,123 per month. The proposal will also make it mandatory to set the maximum rental price for all new rental contracts based on the pricing system.

The government, according to the Advisory Division, has not paid sufficient attention to the causes of the shortage, or the relationship between social housing, the owner-occupied market, and the unregulated rent market. The Advisory Division recommends that the government further investigates these issues and the potential impact of the proposed legislation.

There is a widespread consensus in research and markets that elevated unregulated rents result from a shortage of available properties coupled with high demand. The proposed expansion of the regulated rental market carries the risk of property owners and investors will no longer be willing to invest in the rental market, leading to a reduction in supply. This would negatively impact availability in this segment, consequently affecting the market dynamics for renters. Paradoxically, the government aims to stimulate the opposite outcome with the proposed legislation. The Advisory Division notes that the government has yet to provide a convincing explanation of how the proposed legislation manages the risk of a shrinking rental market, while also aiming to provide more affordable rental properties.

1 Raad van State - Onduidelijk of woningzoekende geholpen is met Wet betaalbare huur

## Rate and spread developments

During 2023-Q4, buy-to-let mortgage interest rates on average decreased by approximately 18 bps. Quarter to date, mortgage rates decreased by an additional 8 bps. Similar to the previous quarter, the decreases were relatively evenly distributed across the fixed-rate period and loan-to-value segments. However, despite the decreases seen in buy-to-let mortgage rates, spreads improved substantially during 2023-Q4. In previous editions, we discussed that buy-to-let mortgage rates are relatively sticky compared to owner-occupied mortgage rates. Given the pronounced swap developments seen in the final quarter, this resulted in spread widening. On average, buy-to-let mortgage spreads increased by 73 bps QoQ. After quarter-end, buy-to-let mortgage spreads tightened by an average of 26 bps. Both QoQ and QTD developments were relatively evenly distributed among segments. For a full overview, please consider the table below.

**Spreads widened substantially QoQ despite decreases in Buy-to-let mortgage rates.**

It should be noted that Dynamic Credit is the only active lender in the high LTV (>85%) segment.

| Market rate and spread development for consumer buy-to-let rates | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | BTL rates | | | | | Spreads | | | | |
| Fixed rate period | LTV | 2023-09-30 | 2023-12-31 | 2024-01-25 | QoQ | QtD | 2023-09-30 | 2023-12-31 | 2024-01-25 | QoQ | QtD |
| 1-year | 50% | 6.04% | 5.88% | 5.80% | -0.16% | -0.08% | 2.11% | 2.74% | 2.56% | 0.63% | -0.18% |
| | 60% | 6.12% | 5.97% | 5.89% | -0.15% | -0.08% | 2.20% | 2.83% | 2.64% | 0.63% | -0.19% |
| | 70% | 6.16% | 6.00% | 5.92% | -0.16% | -0.08% | 2.23% | 2.86% | 2.68% | 0.63% | -0.18% |
| | 80% | 6.27% | 6.04% | 5.97% | -0.23% | -0.07% | 2.34% | 2.90% | 2.73% | 0.56% | -0.17% |
| | 90% | 6.00% | 5.90% | 5.90% | -0.10% | 0.00% | 2.07% | 2.76% | 2.66% | 0.69% | -0.10% |
| 5-year | 50% | 5.49% | 5.34% | 5.26% | -0.15% | -0.08% | 2.13% | 2.98% | 2.70% | 0.85% | -0.28% |
| | 60% | 5.61% | 5.46% | 5.36% | -0.15% | -0.10% | 2.24% | 3.10% | 2.80% | 0.86% | -0.30% |
| | 70% | 5.65% | 5.50% | 5.40% | -0.15% | -0.10% | 2.29% | 3.14% | 2.83% | 0.85% | -0.31% |
| | 80% | 5.68% | 5.43% | 5.28% | -0.25% | -0.15% | 2.31% | 3.07% | 2.71% | 0.76% | -0.36% |
| | 90% | 5.70% | 5.60% | 5.60% | -0.10% | 0.00% | 2.34% | 3.24% | 3.04% | 0.90% | -0.20% |
| 10-year | 50% | 5.61% | 5.39% | 5.29% | -0.22% | -0.10% | 2.27% | 3.00% | 2.69% | 0.73% | -0.31% |
| | 60% | 5.74% | 5.53% | 5.43% | -0.21% | -0.10% | 2.40% | 3.13% | 2.83% | 0.73% | -0.30% |
| | 70% | 5.77% | 5.56% | 5.46% | -0.21% | -0.10% | 2.44% | 3.17% | 2.87% | 0.73% | -0.30% |
| | 80% | 5.88% | 5.53% | 5.37% | -0.35% | -0.16% | 2.54% | 3.14% | 2.77% | 0.60% | -0.37% |
| | 90% | 5.80% | 5.70% | 5.70% | -0.10% | 0.00% | 2.46% | 3.31% | 3.11% | 0.85% | -0.20% |
| 20-year | 50% | 5.95% | 5.77% | 5.67% | -0.18% | -0.10% | 2.52% | 3.26% | 2.96% | 0.74% | -0.30% |
| | 60% | 6.06% | 5.88% | 5.78% | -0.18% | -0.10% | 2.63% | 3.37% | 3.07% | 0.74% | -0.30% |
| | 70% | 6.11% | 5.93% | 5.83% | -0.18% | -0.10% | 2.68% | 3.42% | 3.12% | 0.74% | -0.30% |
| | 80% | 6.04% | 5.76% | 5.67% | -0.28% | -0.09% | 2.61% | 3.25% | 2.95% | 0.64% | -0.30% |
| | 90% | 5.95% | 5.85% | 5.85% | -0.10% | 0.00% | 2.52% | 3.34% | 3.14% | 0.82% | -0.20% |

Table 4: Interest rate and spread development for buy-to-let rates in the Netherlands. Source: Dynamic Credit, Hypotheekbond. Reference date is 2024-01-25. Note that the overview shows rates for consumer buy-to-let products, it excludes products that are targeted to professionals.

# 6. News

The following sections provide an update on the (macro)economic environment.

## Monetary policy

During the latest monetary policy meeting of the ECB in January[1], it was decided to maintain current key policy rates. This means that rates have remained unchanged since the last raise in September 2023. Currently, the deposit facility rate is at a record high of 4.00%, the refinancing operations rate is 4.50%, and the marginal lending facility rate is 4.75%. The ECB reiterated its stance that keeping borrowing costs elevated will substantially contribute to getting inflation under control and back to the 2% target. The market anticipates reductions in central policy rates as soon as April 2024, whereas ECB officials including Lagarde, have suggested that a move in mid-summer is more likely[2]. With this in mind, entities such as the International Monetary Fund have urged central bankers to move with caution when it comes to easing monetary policies until inflation is under control and the 2% target is achieved. This advice becomes even more relevant, especially given the emergence of new global supply chain issues, such as the recent attacks by Houthi rebels in the Red Sea.

## Inflation and Harmonized Index of Consumer Prices

As of December[3] 2023, there was a 1.20% YoY increase in prices of consumer goods and services in the Netherlands ("CPI"), up from 0.20% in September but lower compared to the 1.60% YoY in November. The most pronounced effect in change of inflation between November and December was caused by the category 'foods and beverages', which decreased from 6.30% in November to 4.10% in December. In total, CPI over 2023[4] amounted to 3.80%, compared to 10% in 2022. Over 2023, the 'restaurants and hotels' and 'food and beverages' categories had the strongest upward effect on inflation whereas energy had a negative effect. In addition, CBS adopted a new methodology for calculating energy price developments starting in June 2023, resulting in a lower YoY inflation rate. Core inflation, excluding gas, electricity, and heating decreased from 5.50% in September to 3.40% in December. The Harmonized Index of Consumer Prices ("HICP") rose from -0.30% in September to 1% in December. Eurozone inflation experienced a decline from 4.30% in September to 2.90% in December. For a longer time-window of CPI and HICP developments please consider Figure 16 below.

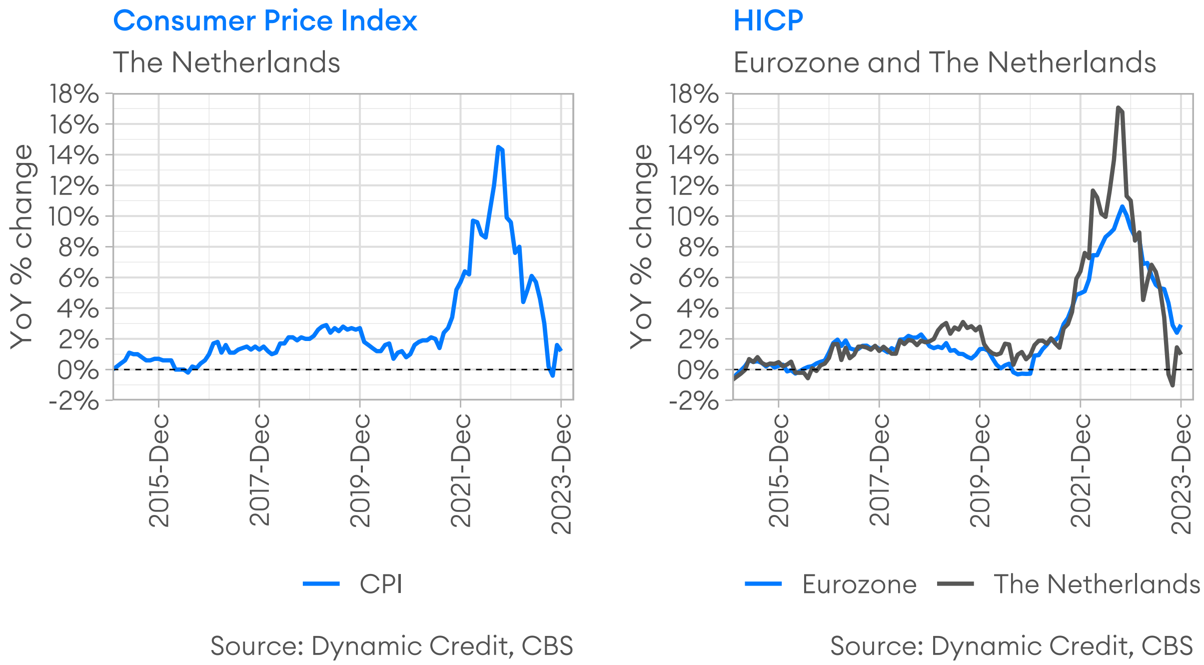


Figure 16: The consumer price Index in the Netherlands (left) and the Harmonized Index of Consumer Prices ("HICP") (right) both as of December 2023.

1 ECB - Monetary policy decisions
2 Bloomberg - ECB holds rates and signals cuts are still some way off
3 CBS - Inflatie daalt naar 1,2 procent in december
4 CBS - Inflatie 3,8 procent 2023

## Real GDP

CBS has released its report[1] on the economic growth in the Netherlands. In the third quarter of 2023, the Dutch economy experienced a contraction of 0.30%, marking the third consecutive quarter with negative growth. According to CBS, this decline in GPD was primarily attributed to decreases in investments in fixed assets, inventory changes and household consumption. When examining YoY change, the Dutch economy contracted by 0.80%. This contraction was predominantly caused by reduced exports of goods and services, a decrease in natural gas inventory, and lower household consumption.

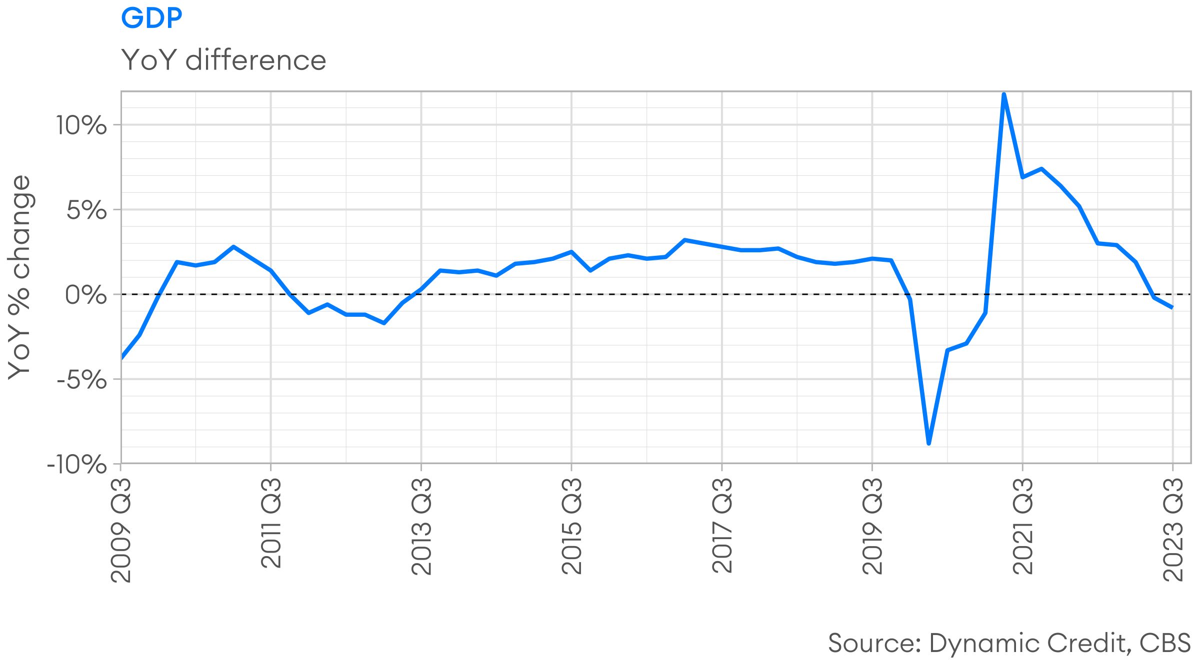


Figure 17: YoY GDP growth in The Netherlands as of 2023-Q3.

## Unemployment

As can be seen in Figure 18 on the next page, unemployment remained stable in 2023. As of December 2023, the unemployment rate sat at around 3.60%, equal to the average of that year. CBS reported[2] a minor decrease in the last three months of 2023 of about 3,000 per month, the total of unemployed people amounted to approximately 361,000 per December 2023. In addition, the Dutch employee insurance agency ("UWV") reported roughly 161,000 active unemployment benefits per December., which is higher than the 149,000 unemployment benefits end of 2022. For a longer history of the Dutch unemployment rate, please consider figure 18 displayed on the next page. This shows that the current unemployment rate is relatively low compared to the long-term average.



1 CBS - Economie krimpt met 0,3 procent in derde kwartaal 2023
2 CBS - Werkloosheid in 2023 vrijwel onveranderd

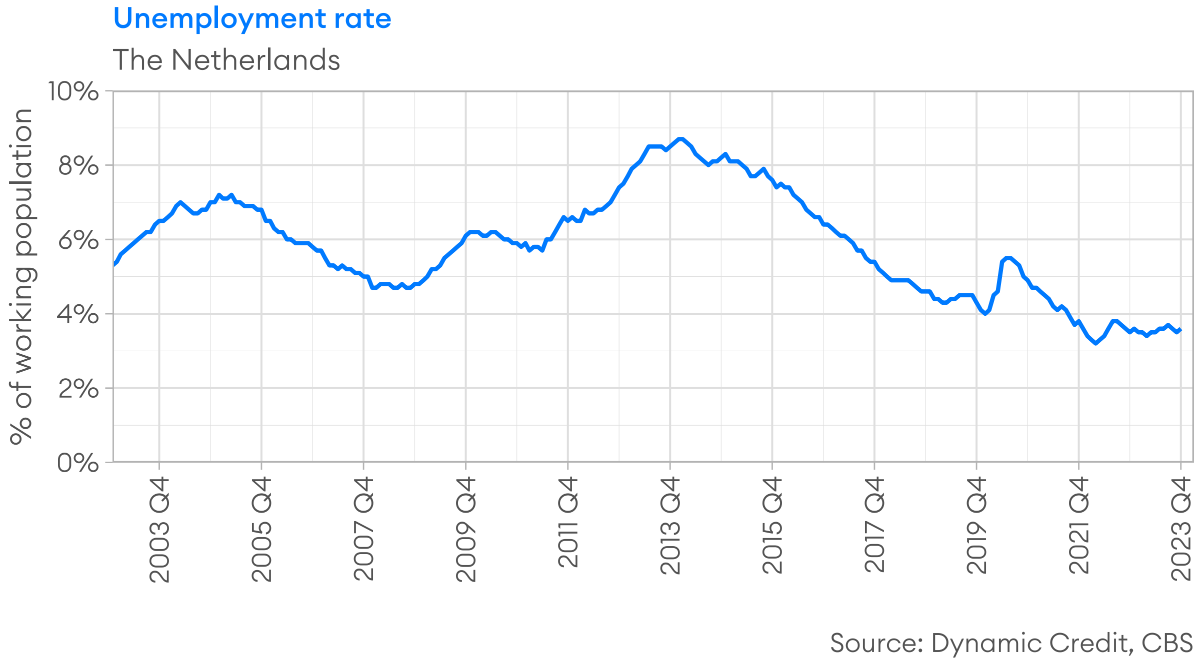


Figure 18: Unemployment rate in The Netherlands as of 2023-Q4.

### Bankruptcies

In December, CBS reported[1] a surge in the number of bankruptcies in the Netherlands, marking an increase of 91 bankruptcies compared to the preceding month, a MoM increase of 30%. With this increase, the total number of corporate bankruptcies in 2023 amounted to roughly 3,200, an increase of about 50% compared to 2022. It is noteworthy, however, that the number of bankruptcies remained relatively low throughout 2022 compared to the long-term average as can be seen in Figure 19. Comparing the total yearly bankruptcies in 2023 to previous years, the figure remains relatively low. For instance, between 2009 to 2014, there were an average of 7,900 yearly bankruptcies. The trade and building sectors experienced the highest impact, where 682 and 479 bankruptcies occurred respectively.

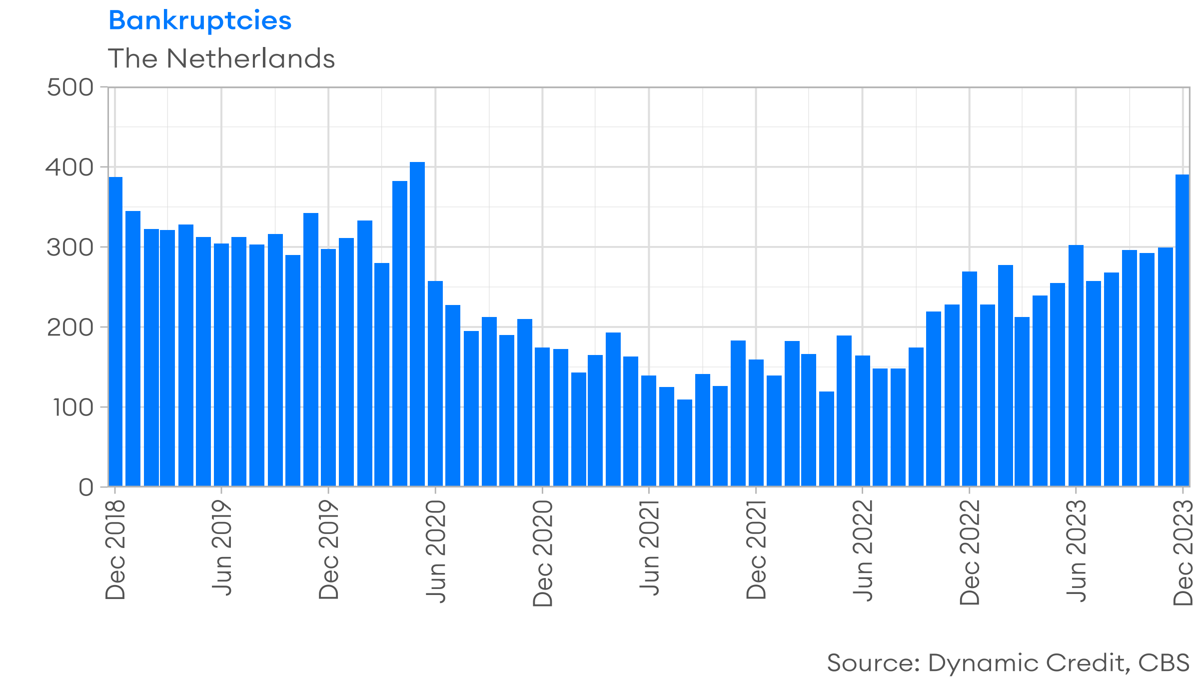


Figure 19: Monthly bankruptcies in The Netherlands as of December 2023.

1 CBS - Aantal faillissementen stijgt met ruim 50 procent in 2023

# 7. Sustainability Update

## Climate and Energy advise to new cabinet[1]

The Netherlands is on its way to climate neutrality by 2050. To achieve this goal, the new cabinet faces decisive choices in climate and energy policy. An independent working group, commissioned by the Ministry of Economic Affairs and Climate, drafted a report outlining the most important issues and choices that can be made.

Several significant obstacles currently hinder the transition to a more sustainable society. Among the most pressing challenges are grid congestion, limited nitrogen capacity, spatial constraints, lengthy permit procedures, and labor market shortages. A new cabinet can mitigate these obstacles through decisive actions and proactive measures, albeit some of which may be drastic. The report discusses a broad range of sectors, but this article will focus on the built environment.

The report emphasizes that continuity of policy intentions is essential. This particularly applies to the implementation of relevant laws and regulations, the announced standardization of heating installations, energy performance of rental homes and commercial buildings, and the subsidy security. To achieve the 2030 goals with more certainty and support more households in reducing gas usage, a new cabinet can increase the target for the number of homes with a (hybrid) heat pump to 1.5 million from the current target of 1 million. This is feasible if a new cabinet introduces the standardization of heating installations by 2026, ensures sufficient funds in the subsidy schemes, and agrees on performance guarantees with the sector. Additionally, for the transition in the built environment, it is necessary to 1) involve everyone 'behind the front door' and 2) provide early clarity on the end goal for building energy performance.

Regarding the former, additional support for local initiatives through the National Insulation Program is proposed to further assist vulnerable groups and address energy poverty. In addition, the report proposes that the government should offer financing options to increase speed. Dynamic Credit is not in favor of this approach, as the governments focus should not be on financing the energy savings, but on creating a market so that market parties can realize the acceleration with good and efficient products. In an advice from Dynamic Credit to the new cabinet, this is one of the main points[2].

As for providing clarity, the new Energy Trade System ("ETS") for the built environment will cease issuing new emission rights in 2044, leading to a significant rise in natural gas prices toward 2040 and beyond, resulting in high costs for households still using natural gas. In addition, a new cabinet can offer clarity to citizens, businesses, and institutions about the pace of sustainability required by presenting goals for 2040 and 2050 for the built environment during this parliamentary term. This could include minimum energy efficiency requirements or the obligation to make a home more sustainable after a transaction, which is already implemented in Belgium.

### NHG investigates broadening scope[3]

The National Mortgage Guarantee (NHG) is facing a significant surplus of funds due to developments in the housing market. NHG, a foundation that protects homebuyers and lenders against payment difficulties, has accumulated this surplus as claims have decreased with rising home values. The surplus, which the NHG cannot use without government permission, prompts discussions on its allocation. NHG awaits new calculations to determine the exact allocation of funds but emphasizes the importance of facilitating sustainable housing practices and ensuring fair financial practices for homebuyers.

1 Rijksoverheid – Keuzewijzer Klimaat & Energie

2 BijBouwe - Input voor de formatie: Duurzame woningfinanciering

3 FD - Nationale Hypotheek Garantie wil ongebruikte miljoenen inzetten voor verduurzaming

With €1.7 billion in reserve, NHG aims to utilize these funds to benefit homebuyers by allowing them to borrow an extra €25,000 for home sustainability improvements. Additionally, NHG intends to lower the premium for its existing guarantee scheme. However, at this stage it's not clear how NHG wants to use this surplus for sustainability improvements. Dynamic Credit thinks that using the surplus as a guarantee for sustainability loans is a good idea, as this makes the sustainability loan more attractive for both the borrower and the lender. What would be unwise is for NHG to enter the lender market, given the lack of expertise in this field.

## ESG and Climate risks in valuation reports[1]

Banks, in collaboration with major appraisal firms, appraisal software providers, and industry associations, have introduced a new sustainability section for appraisals of commercial and business real estate. This move reflects the increasing influence of ESG (Environmental, Social, Governance) and climate risks on property value development. The sustainability section explicitly considers ESG and climate risks, such as flooding, in determining market value. This initiative aims to enhance the appraisal process by making it easier for appraisers to describe a property's sustainability performance and factor its impact into market value. The updated section includes inquiries about actual energy usage, allowing estimation of CO2 emissions and energy costs. Risks like flooding, wildfires, and foundation issues are also to be considered in determining market value.

The new section, effective from February 17, further requires appraisers to assess the market value if the appraised property is made more sustainable, like achieving an A-label, along with the associated measures and costs. This initiative aligns with Dynamic Credits view that ESG and Climate risk should be taken into account when determining the value of a residential property and this could be a step towards implementing this for valuation reports for residential properties.

1 NVB - ESG en Klimaatrisico's gaan meewegen in bepaling marktwaarde zakelijk vastgoed

# Appendix

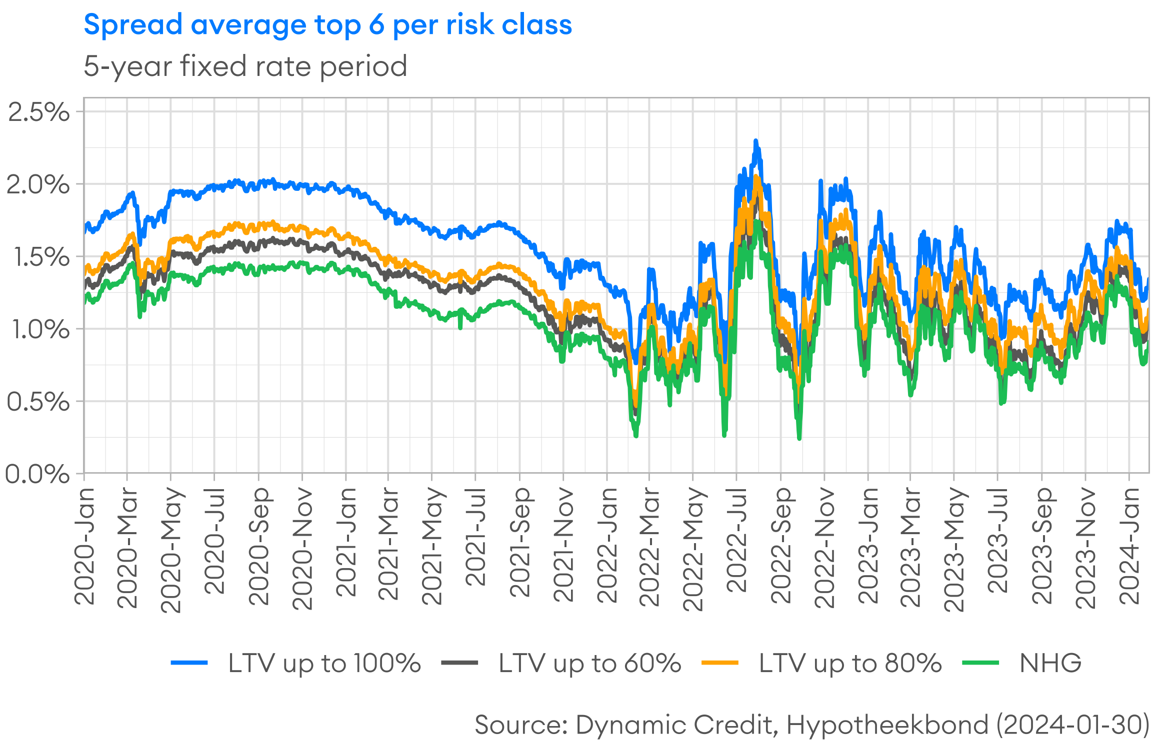


Figure A1: Spread of the average top-6 price leader mortgage rates (excluding action rates) for mortgage loans with a 5-year fixed rate period for four risk classes. Up to and including January 2024.

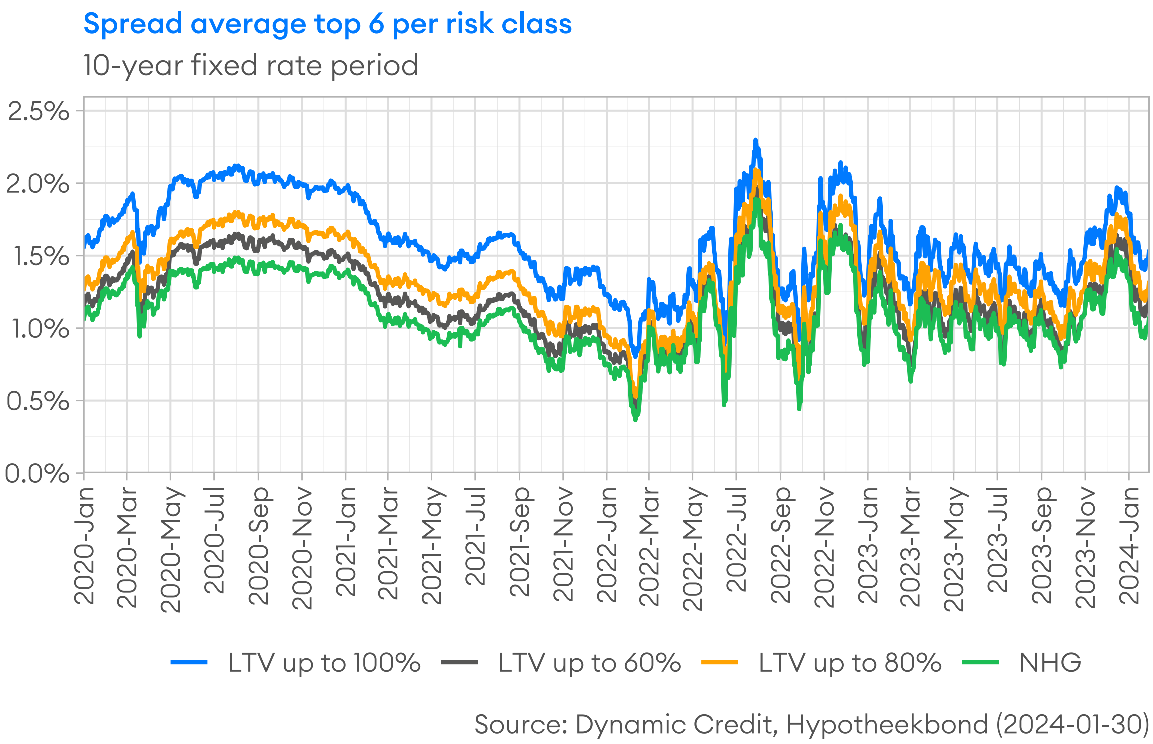


Figure A2: Spread of the average top-6 price leader mortgage rates (excluding action rates) for mortgage loans with a 10-year fixed rate period for four risk classes. Up to and including January 2024.

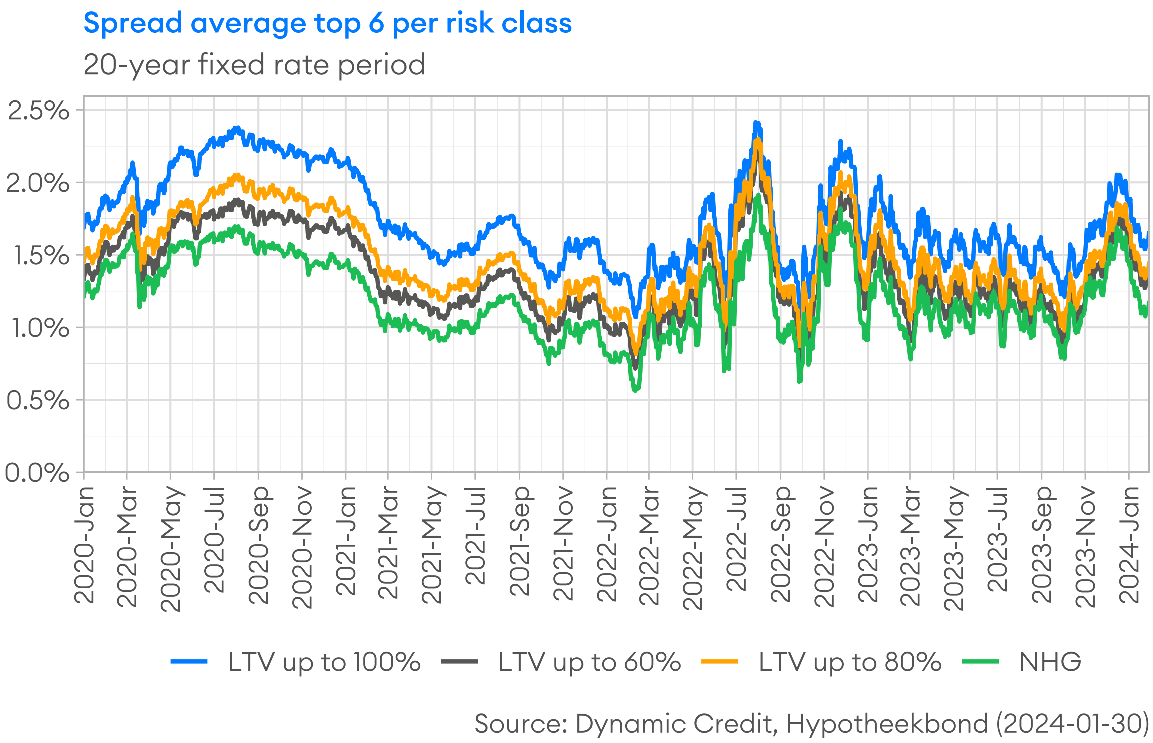


Figure A3: Spread of the average top-6 price leader mortgage rates (excluding action rates) for mortgage loans with a 20-year fixed rate period for four risk classes. Up to and including January 2024.

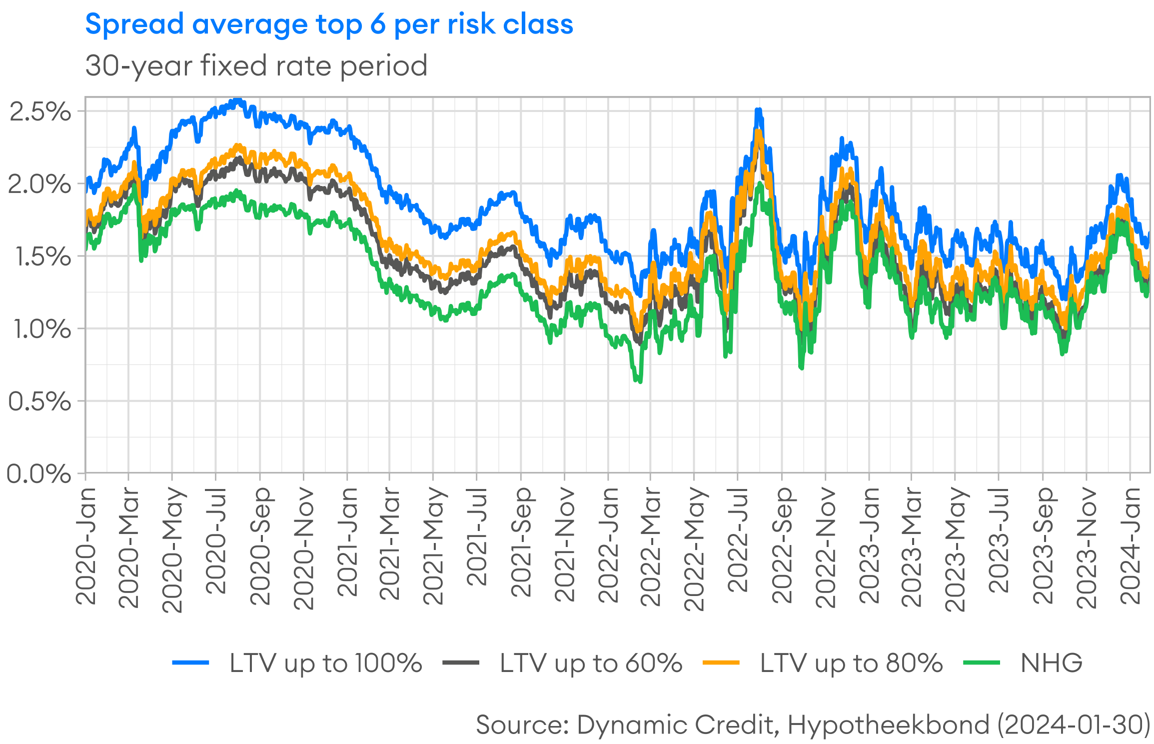


Figure A4: Spread of the average top-6 price leader mortgage rates (excluding action rates) for mortgage loans with a 30-year fixed rate period for four risk classes. Up to and including January 2024.

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DYNAM/C CREDIT

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