DUTCH
MORTGAGE
PORTFOLIO
MANAGEMENT

Q2 | 2024

QUARTERLY MARKET UPDATE

Index

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1. Dutch economy

Same old, same old in the Dutch economy, while the ECB is not in a hurry

In the second quarter of 2024, we do not see any significant changes in the Dutch economy. Trends we have discussed in our previous quarterly updates still continue and did not alter in any substantial way. The labor market is still tight, since there are more vacancies than unemployed workers in the Netherlands. This leads to higher wages and as a result inflation is also currently higher than the normal 2% the government aims for.

The housing market shows the same pattern, with more demand than supply. This leads to an increase in prices, more overbidding and (first-time) buyers having a hard time to buy a property.

FORMATION OF THE DUTCH CABINET

As we have seen in our previous reports, the Dutch elections took place on November 22, 2023. Recently, a new Dutch cabinet was sworn in with Dick Schoof as the new prime minister. It was formed by a coalition of four parties: PVV, VVD, NSC, and BBB. The total formation process took about seven months. The right-wing PVV party was on the sideline in previous cabinets, marking the current cabinet as a significant shift to the right.

The new Schoof cabinet in the Netherlands has formulated several policy goals aimed at addressing key issues, see 'Hoofdlijnenakkoord'. We have highlighted a few items that are relevant:

1. **Economy and Employment:** Restructuring the Ministry of Economic Affairs with a focus on growth and innovation, as well as stimulating employment and improving the labor market. Concretely this means less taxes on labor, creating more job security and lowering the cost of living, allowing purchasing power to increase again.
2. **Housing:** Creating sufficient affordable housing, with a new Ministry for Housing and Environmental Planning set up to coordinate this task. There is a plan to build 100,000 new homes per year. If these goals are achieved, the housing shortage in The Netherlands should be resolved in 2050. The new cabinet has stated, however, that at least 30% of all new-build properties should be for social housing. With this decision the cabinet aims to alleviate pressure in the rental market. To further destress the rental market, the maximum rent increase is going to be limited further.
3. **More focus on adaptation to mitigate climate risks:** The government will take more action to mitigate climate risks. Their plans include expansion of floodplain areas. River systems will be allocated additional land in flood-prone regions to accommodate increased water volumes. Another goal is centered around the enhancement of flood protection infrastructure. The Flood Protection Program (Hoogwaterbeschermingsprogramma) will undergo revisions to bolster the resilience of coastal and riverine flood defenses.

As described earlier, in our publication 'Dutch housing market gets a boost from new coalition plans', the plans have yet to be worked out in detail. The final plans and more specific information on the measures to be taken are not expected to be released by the new government until "Prinsjesdag" on September 17. Once this information is available, it will be discussed in the follow-up to DMPM's aforementioned publication in which we give our views on the measures and plans introduced by the cabinet.

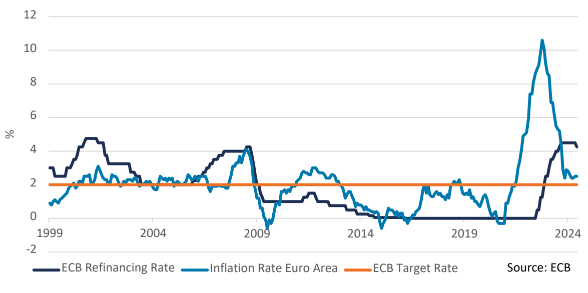
ECB CUTS INTEREST RATES FOR THE FIRST TIME IN 9 MONTHS

The European Central Bank (ECB) decided to cut their policy rate early June 2024, following a nine-month period of maintaining a stable refinancing rate. The Governing Council opted to reduce the key interest rate by 25 basis points, bringing it to 4.25%. This decision was primarily influenced by two key factors:

1. A substantial decline in core inflation, which had decreased by more than 250 basis points from its peak.
2. An improved inflation outlook for the coming years, as projected by the ECB's own forecasts.

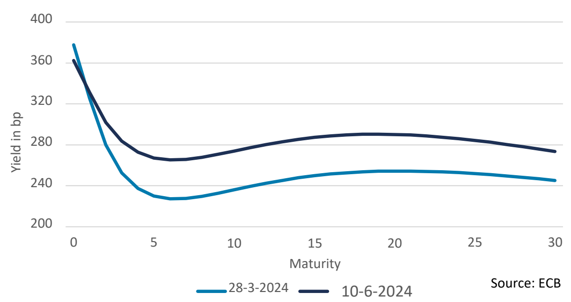
These developments led the ECB to conclude that a moderation in the degree of monetary policy restriction was warranted. However, it is crucial to note that this rate cut should not be interpreted as a signal of further rapid reductions. E.g. the ECB's projections indicate that core inflation is expected to reach the 2.0% target only by 2026. Therefore caution is needed.

Figure 1.1: Headline inflation Euro area vs ECB refinancing rate



That the ECB is not in a hurry can also be concluded from the ECB minutes (or in ECB language; The Monetary Policy Accounts) that was published on July 4. The following quote summarizes the main message: "....members also viewed risks to the **inflation outlook as being tilted to the upside**, partly because downside risks to inflation had diminished since the last meeting owing to the ongoing economic recovery but also owing to heightened geopolitical risks". In other words, inflation is still a risk and it's fully data dependent if the ECB will continue to take further steps to cut rates.

Figure 1.2: German government bond yield curve



So much can also be concluded from the German government bond curve, see figure 1.2 above. The light blue curve depicts the curve at the end of Q1 of 2024. The dark blue curve shows the curve a few days after the ECB rate cut at the beginning of June. We can infer the following from these two curves:

- The light blue curve is much steeper than the dark blue curve at the short end, meaning that the market expected a rapid succession of rate cuts at the beginning of the year. But that's no longer the case according to the dark blue curve, as the curve bear flattened (5-year sector moved up, while the 1-year sector remained unchanged) from the 5 year sector.
- With the exception of the very frond-end, the dark blue curve moved upward by 40bp since the end of March. Therefore, it's an overall increase of interest rate expectations as the market adjust its monetary policy expectations.

- The 5-10 year maturity bucket remains the most attractive sector for consumers. Important note, also the swap curve is the lowest in this same maturity bucket.

The upcoming meeting of the European Central Bank (ECB) is scheduled for September, during which market participants anticipate a reduction of 25 basis points in the policy rate. However, significant uncertainty remains. The core inflation rate must decline further, and other factors, such as wage growth, also require considerable moderation to justify further action from the ECB.

IMPLICATIONS OF THE ECB'S WAIT AND SEE MODE

While the front end of the yield curve experienced flattening during the second quarter, it is evident that a return to a normal upward-sloping curve will require additional time. The persistence of the inverted curve indicates that a shift back to a more typical configuration is not expected anywhere soon.

The analysis of the yield curve further reveals that the 5 to 10-year maturity segment remains the most attractive for consumers. Important to note, the swap curve also reflects the lowest rates within this same maturity range. And that's exactly what we see in the mortgage market, as the 6-10 year sector has a 70% market share, as detailed in Chapter 3.

For investors primarily focused on the 5 to 10-year segment of the yield curve, this presents an opportunity in terms of volume. Conversely, institutional investors operating in the 10+ year sector may need to exercise greater patience as they await a substantial increase in application volumes. A normalization of the yield curve's shape, alongside a further flattening of the long end, will be essential to incentivize consumers to move up the curve.

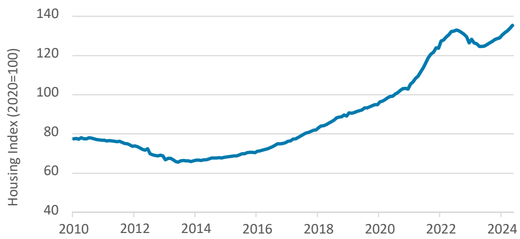
2. Housing market

Supply shortage and high demand lead to overbidding on the market, resulting in sharp price increases

HOUSE PRICES AT AN ALL TIME HIGH

Compared to the second quarter of 2023, prices rose 13.6%. This is the largest QoQ increase in two years. House prices have never been as high as last quarter, reports the Dutch Association of Realtors and Valuers (NVM). The average selling price of existing houses in the second quarter was €468,000.

Figure 2.1: House prices at record high



Source:Statistics Netherlands, DMPM Analytics

The Netherlands are not only emerging from a dip in which the number of transactions fell by 20%, there has also been a stabilization of mortgage rates. Added to the limited supply on the housing market, the wage growth and improved borrowing capacity, plus increased consumer confidence and available equity of moving homeowners, we have all the ingredients for house prices to rise sharply.

TWO OUT OF THREE HOMES SOLD ABOVE ASKING PRICE

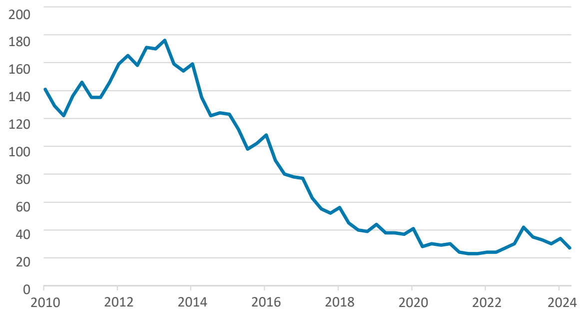
For home buyers, competition in the housing market is very tight. Buying without overbidding is almost impossible in many areas and potential buyers are increasingly faced with the necessity to bid without reservations.

Nationwide two out of three sold properties have been overbid. On average 4.3% more is paid than the asking price.

HOUSE SALES ARE ACCELERATING

The time it takes to sell a house shortens. It takes an average of 27 days from the moment the house is put up for sale to the signing of the deed of sale with the real estate agent. This is historically fast. Only in the period 2021-2022 the average selling time was slightly shorter at 23 days.

Figure 2.2: Average number of days needed to sell

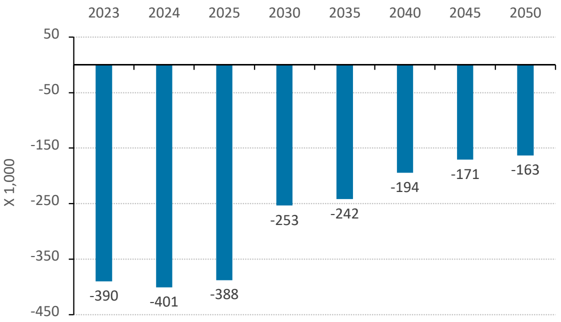


Source: NVM, DMPM Analytics

HOUSING SHORTAGE CONTINUES TO RISE

Opposite the positive developments as mentioned above, the housing shortage continues to grow. Currently there is a housing stock shortage of 400,500 units, 10,300 more than last year. Due to migration and an increasing number of single-person households, the total number of households is increasing. As a result the shortage has reached 4.9% of the total stock.

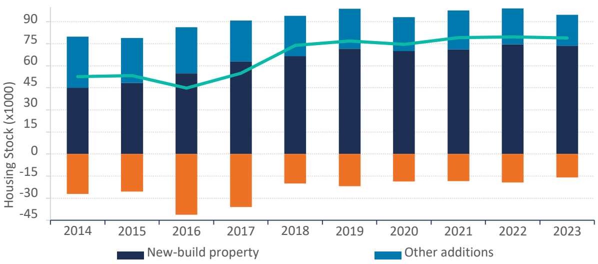
Figure 2.3: Housing shortage going up in 2024



Source: Primos, DMPM Analytics

The current target is to build an additional 100,000 housing units annually, which seems challenging. When zooming in on the housing stock balance over the past 10 years, the maximum stock increase was 79.649 units achieved in 2022. In that year also the highest number of new properties was build (74.560).

Figure 2.4: Housing stock development in the past 10 years



Source:Statistics Netherlands, DMPM Analytics

Due to higher interest rates, the lagging number of building permits, the nitrogen problem and limitations as a result of an overloaded electricity grid, the stated ambition to build 100,000 new homes seems difficult to achieve.

POSITIVE SIGNS FROM THE NEW-BUILD PROPERTY MARKET

New-build property is showing positive signs again. After a dip in the first half of 2023, consumers have been showing more confidence. With increasing scarcity and rising prices in existing construction, more consumers are opting for new-build property.

For the second quarter in a row, sales momentum is high.

Despite increasing momentum, prices have remained stable in the new-build property market. Over a year and a half, buyers paid an average of €475,000. Strongly contrasting the sharply rising prices in existing construction. The current stabilization is remarkable as new-build property prices did rise significantly during the previous upturn in the market between 2019 and mid-2021. The stability is due to several factors. The political focus on affordable new homes is yielding more supply in lower price brackets. Moreover, the recent dip in the new-build property market, with more expensive projects selling less, has probably led to some restraint in pricing.

Parties active in the new-build property market also clearly regained more confidence. More new-build homes are being put up for sale and the wave of building plans being withdrawn seems to be over. Consumers are benefitting from a wider and more affordable supply. However, concerns remain about the limited number of new projects in the pipeline and the mismatch with consumers preferences.

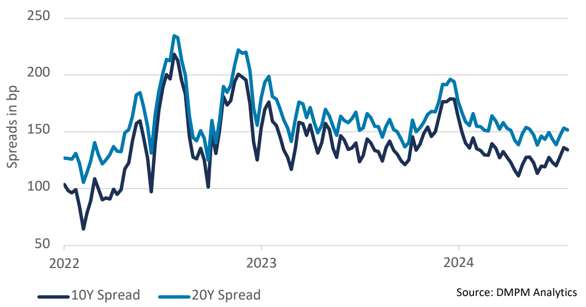
3. Mortgage market

Rapid increase in application volumes. Increase in loan porting and further advances results in longer durations

MORTGAGE SPREADS MOVE BACK TO THE MIDDLE OF THE RANGE

The 10-year mortgage spread has fluctuated within a range of 70bp, from 110 to 180bp, since the first quarter of 2023. The 20-year moved within a channel between 140 and 200bp in that same period. As illustrated in Figure 3.1, both the 10-year and the 20-years spreads have recently shifted close to the middle of the range, to approximately 135 and 155bp for 100% LTV loans.

Figure 3.1: Mortgage spreads for 10Y and 20Y

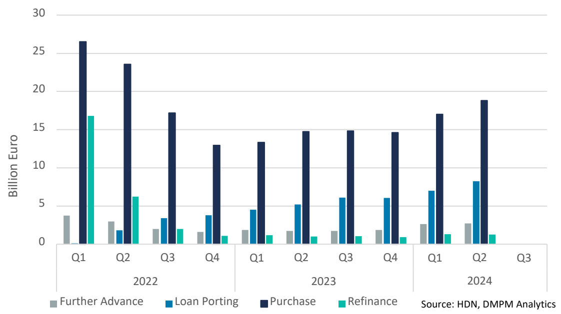


INCREASE IN MORTGAGE APPLICATIONS VOLUME CONTINUES

The previous chapter discussed the boom in the housing market, and unsurprisingly that had its repercussions in the mortgage application volume. Figure 3.2 illustrates a further 10% increase in purchase application volume from the first quarter of 2024, and a 27% increase compared to the same quarter in 2023. Although the purchase volume did not reach the record levels observed in 2022, it remains significant, with a volume of nearly €20 billion in the second quarter of 2024.

Given the current relatively high mortgage rate environment, there is limited incentive for borrowers to refinance earlier than strictly necessary.

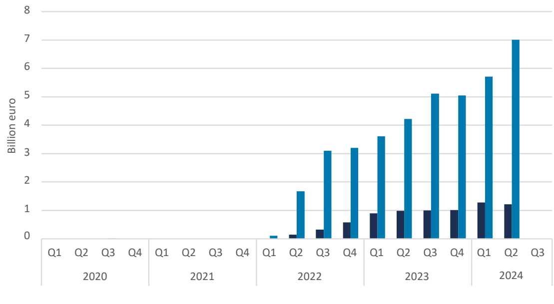
Figure 3.2: Mortgage application volume per type



LOAN PORTING JUMPS TO A NEW RECORD

In brief, loan porting is a valuable option for homeowners with a low-rate mortgage loan, allowing them to transfer their low-rate interest contract to a new mortgage loan to purchase a new property. Homeowners with such favorable mortgage rates who wish to relocate, are likely to utilize this option. Consequently, alongside the increase in purchase application volume, the volume of loan porting has also reached a record high. In the second quarter of 2024, the loan porting volume amounted to €8.2 billion representing 26% of the total market, compared to €5.2 billion in the second quarter of 2023. The quarter-on-quarter growth in 2024 was €1.2 billion, or 17%.

Figure 3.3: Application volume of loan porting



Source: HDN, DMPM Analytics

Figure 3.3 above illustrates the distinction between NHG (National Mortgage Guarantee) and non-NHG loan porting volumes. Two significant observations can be made from this data:

Firstly, a loan porting mortgage loan is typically combined with a new mortgage loan to facilitate the purchase of a property that is likely more expensive than the previous residence. This explains the minimal growth in NHG loan porting mortgages. NHG mortgages are primarily designed for first-time homebuyers, resulting in limited financial flexibility to secure an additional mortgage on top of the ported loan. Figure 3.3 above also shows, although minor compared to non-NHG, that loan porting within the group of NHG mortgage loans increased in Q1 2024. This is likely the result of the increase of the maximum loan limit of NHG at the start of 2024. A nuance is needed, as the risk class of the ported loan is not known. For that reason we should be careful with firm conclusions.

Secondly, loan porting becomes financially advantageous primarily when mortgage rates have increased. This trend is clearly evident in the rapid rise of loan porting activity since the second quarter of 2022. Prior to 2022, loan porting was a rare or non-existent practice.

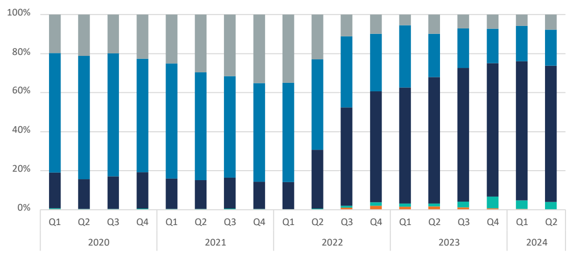
NEW EQUILIBRIUM OF THE 6-10Y MATURITY BUCKET WITH A MARKET SHARE OF 70%

The rapid escalation of interest rates since the beginning of 2022 has encouraged a significant shift in preferred fixed interest rate periods. As illustrated in Figure 3.4, during the low interest rate environment up to the fourth quarter of 2021, there was a clear preference for long-term fixed rate periods exceeding 10 years. For instance, the market share of the 21-30 year maturity bucket increased from 20% in the first quarter of 2020 to nearly 40% in the first quarter of 2022. The 11-20 year sector maintained the largest market share during this period, albeit decreasing from 60% to just above 40%. The market share of the 6-10 year sector remained relatively stable at a comparatively low level of below 20%.

This paradigm shifted from the second quarter of 2022 with the rapid increases in rates. Currently, the market share of the 6-10 year bucket is by far the largest, commanding 70% of the market. The 11 year plus sector has contracted to just 20% of the market share. With the availability of data from the first and second quarters of 2024, it appears that a new equilibrium has been established, characterized by the stable market share of the 6-10 year bucket.

For market participants active in this maturity bucket, this shift presents a significant opportunity that warrants careful consideration.

Figure 3.4: Market share per maturity bucket

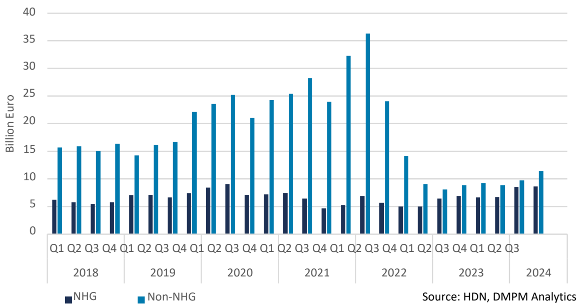


Source: HDN, DMPM Analytics

NHG MARKET ADVANCES FURTHER

Despite the year-on-year and quarter-on-quarter increases in purchase and refinance mortgage application volumes in 2024, the volumes observed prior to 2023 remain significantly higher, particularly when focusing solely on non-NHG volumes. Conversely, NHG volumes are approaching record highs. For the first and second quarters of 2024, the combined NHG volume reached €8.6 billion. In comparison, the volumes for the corresponding quarters in 2023 were €6.4 billion and €6.9 billion, respectively.

Figure 3.5: Purchase and refinance application volume



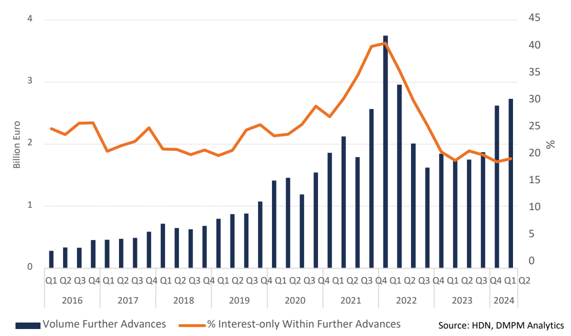
We anticipate a decrease in NHG purchase and refinance volumes in the third and fourth quarters of 2024, as the maximum loan limitation of NHG will increasingly become a limiting factor given the rapid rise in house prices. The increase in house prices is rather extreme, yet it has become more normalized, with prices increasing by 7.2% quarter-on-quarter and 13.6% year-on-year. According to the Dutch Association of Realtors and Valuers (NVM Makelaars), the median purchase price of an existing home in the second quarter of 2024 was €468,000. In comparison, the maximum loan amount for an NHG mortgage is €435,000. Although first-time homebuyers are not typically seeking homes near the median house price, it is conceivable that the availability of more affordable houses that meet the NHG restriction is becoming increasingly limited.

RAPID INCREASE OF FURTHER ADVANCES, WHILE THE SHARE OF EQUITY TAKE OUT MORTGAGES REMAIN UNCHANGED

In this paragraph, we will briefly examine three trends evident in the volume of further advances and the market share of Equity Take Out Mortgages (part of a mortgage which is used as consumer credit to buy boats, cars etc). Further advances refer to an additional mortgage loan taken out on top of an existing mortgage. This new loan can be utilized for home improvement purposes or for consumption-related expenditures.

Under the Dutch tax code, the interest on a mortgage loan is tax-deductible, with the exception for an Equity Take Out mortgage. As the interest on Equity Take Out Mortgages is not tax-deductible (to the extent that the funds are not used for home improvement), borrowers typically opt for an interest-only mortgage loan to minimize their monthly installments. This approach is particularly attractive in a low-interest rate environment, where an interest-only Equity Take Out loan can be relatively favorable. To support the above visually, we have included figure 3.6 below. It illustrates the volume of further advances and the relative contribution of interest-only mortgages in this segment.

Figure 3.6: Analysis of further advance volumes and IO percentages



We begin by examining the increase in further advances during the first half of 2024, as depicted in Figure 3.6 (blue bars). This represents a significant increase of nearly 50% compared to the first half of 2023. Notably, the proportion of interest-only mortgages as a percentage of further advances remained unchanged. The prevailing relatively high interest rate environment is likely a limiting factor, maintaining the proportion of Equity Take Out loans at a consistent level.

Secondly, since the beginning of 2020, the percentage of interest-only mortgages among further advances rose from approximately 25% to over 40% in the first quarter of 2022. These interest-only mortgages are typically utilized as consumer credit and are particularly attractive in a low interest rate environment. However, once it became evident that interest rates were on the rise, the percentage of these consumption mortgages quickly declined to around 20%. The increase in the proportion of interest-only mortgages that began at the end of 2019 is more challenging to explain. While the initial COVID-19 lockdowns commenced in March 2020, the relationship between these events and the proportion of consumption mortgages within further advances remains somewhat puzzling. Maybe fear of missing out (FOMO) is a factor for consumers in an environment with rising rates. In this line of thought, the expectation of rising future rates, caused a proportional increase in interest-only mortgages. In other words, consumers quickly increased their mortgage before rates really became too high.

When focusing on the application volume of further advances as illustrated in Figure 3.6, a distinct break in the trend is observed before and after the first quarter of 2021. Although there has been a gradual increase since 2016, the volumes were relatively small at the outset.

Following the first quarter of 2021, it appears that there is a lower bound of approximately €1.7 billion per quarter. In other words, it seems increasingly common for consumers to increase their mortgage loans when funds are needed for renovations or other purposes. Given the rapid rise in house prices, there is ample home equity available. Consequently, the loan-to-value ratio is rarely a limiting factor in increasing an existing mortgage.

Finally, the increase in loan porting and further advances leads to a longer duration of a mortgage portfolio. This dynamic or trend if you want, is something to take note of. And that is certainly the case for mortgage loans originated between 2019 and 2022, which will continue to prepay at a low CPR, given their low coupons.

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4. Portfolio insights

The demographic prepayment curve reveals itself

Prepayment modelling has been the exclusive topic for well respected econometricians and mathematicians for ages. Big data sets were presented by the analysts to mysterious applications, and the prepayment vectors were calculated and produced automatically and statistically significant.

In the period between 2017 and to date 2024, we are in an interest environment that deep dive calculations have become redundant. At least, as it relates to the demographic part of the prepayment function. In the below, we present a graphical determination of the demographic prepayment function. Not necessarily statistically significant, but we just looked at the graphs and produced our own estimation of this curve. The curve reveals itself.

PREPAYMENT MODELLING

To start with, a very brief overview of prepayment theory. Theory tells:

$$Tp = Fp + Pp + error$$

Where,
Tp = Total Prepayment
Fp = Full prepayment
Pp = Partial prepayment

$$Fp = F1 + F2$$

Where,
F1 = Demographically driven prepayments
F2 = Interest rate driven prepayments

In this article, we focus on F1 and F2. Partial prepayments do exist, but due to the relative size of partial prepayments compared to full prepayments, we ignore them.

We also ignore all the driving variables for both functions, like age of the borrower, LTV and whatever variable can be defined as statistically relevant.

In our portfolio, we have 2 reasons for full prepayment available. Selling the house and refinance. Please note that selling the house is always without prepayment penalty, and refinance is with a make whole prepayment penalty if the prevailing market rate of the remaining interest term is lower than the borrower rate.

F1 Demographic prepayments are primarily driven by moving houses, and to a lesser extent divorce (subcategory of moving houses) and death of the borrower.

F2 The refinance incentive part of the prepayment function adds to the total prepayments if the difference between the current mortgage rate of the borrower minus the prevailing mortgage rates in the market is positive. A large negative incentive reduces the contribution of the refinance function to the total prepayments to 0. In such case, the demographic function is dominant in the prepayment percentage in a portfolio.

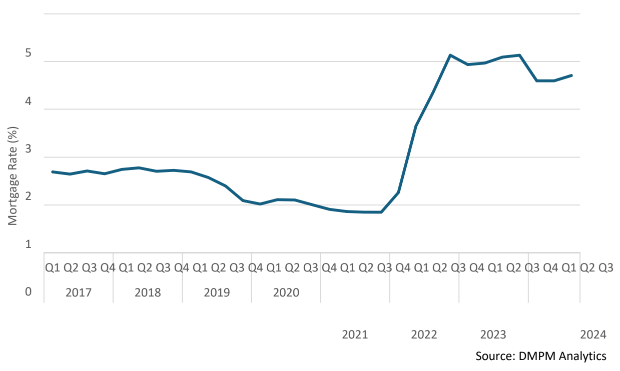
DMPM INSIGHTS ON PREPAYMENT CURVES

In our reporting dashboards, we have analyses available which show the prepayment on a dynamic cohort basis. Each cohort is defined by its age, but with the loans ageing, loans move each birthday after origination to the next cohort. This allows a cohort analysis on a calendar basis.

For example: a loan originated on January 1st 2021 is in the 0-12 month cohort during 2021. Per January 1st 2022, this loan moves to the 13-24 cohort, etcetera. For each given calendar month, we measure the prepayment per cohort. In this way, we have a view on prepayments that are 0-12 months old at any given date, prepayments on loans that are 13-24 months old etcetera, on a calendar basis.

Our originations started in late 2016, early 2017. Essentially, each loan in our portfolio until the end of 2021 had a positive refinance incentive. Originations since 2022 had the benefit to see mortgage rates to increase since origination. This is pictured in figure 4.1 below for the 10Y NHG rates. The shape of the curve is very comparable to other combinations of interest terms and risk classes. Only the level of the mortgage rates are different for those combinations. Therefore, we limit ourselves in the below graph to the 10Y NHG rates for illustration purposes.

Figure 4.1: Average top 10 of 10Y NHG mortgage rates

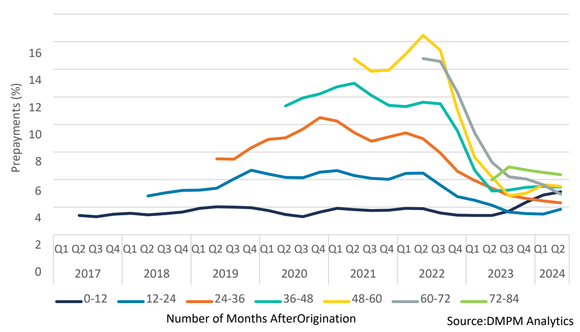


Roughly, from 2017 until February 2022, there was positive interest rate incentive for refinancing, due to the decreasing trend in mortgage rates. Later in this analysis, the end of the period in February 2022 translates into a peak of prepayments during the second quarter of 2022, due to the timing difference in applying for a refinance loan and the actual start date of such loan (and thus, the prepayment of our loan). After the second quarter of 2022, the refinancing prepayment window closed.

There is slight decrease in the interest rates since the peak in the 3rd quarter of 2023 until today. That may cause interest rate driven prepayments of the 0-12 months old cohort per June 2024.

The prepayment per age-cohort since 2017 is shown in figure 4.2. Please note that the below prepayments do not take any loan porting into account. We present cash prepayment percentages, and not the ALM percentages. In the ALM percentages, the continuation of interest contracts after loan porting is corrected.

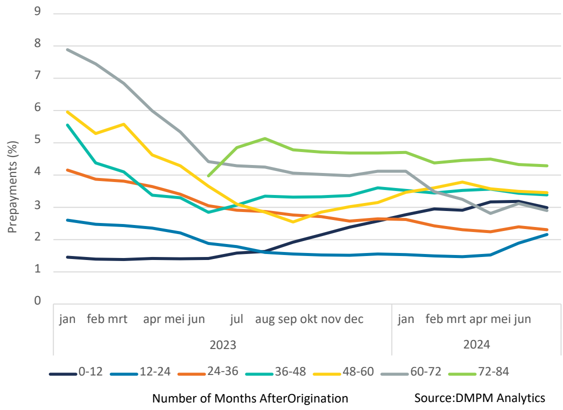
Figure 4.2: Prepayment DMPM portolios per dynamic cohort



This graph shows the peak in prepayments in the first half of 2022. That is an obvious observation. However, our attention was drawn to the right hand side of the graph. For each cohort, the prepayment curve is virtually flat since 12 months. Only prepayments from moving houses are causing this behavior, in the absence of refinance incentives. There is one exception, and that is the cohort 0-12 months. This matches perfectly with our intuition that prepayments have picked up for loans that were originated since the 3rd quarter of 2023.

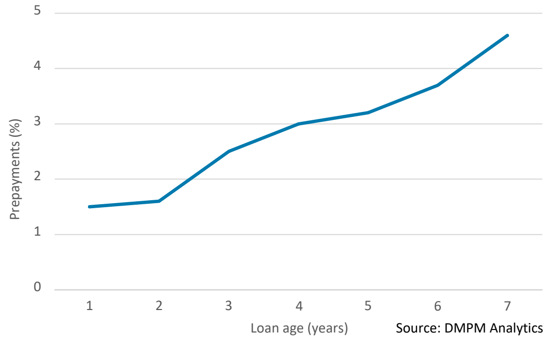
Zooming in into the detail for the last 12 months, the graph looks as follows:

Figure 4.3: Prepayment DMPM portolios per dynamic cohort last 12 months



Now, the x-axis is no longer on a calendar basis, but on a seasoning basis (loan age). With some manipulation in the 4 and 5 year old loans, we come up with the following graph.

Figure 4.4: Demographic Prepayment Percentage by Loan Age



FROM COHORT ANALYSIS TO DEMOGRAPHIC PREPAYMENT CURVE

Each color in the last graph above represents the prepayment by age of the underlying loans. Except for the cohort of 0-12 months, none of the prepayment curves is spoiled by a refinance incentive and is almost uniquely driven by demographic factors since mid 2023. Why only mid 2023? In the previous sections we stated that the refinancing window ended in the second quarter of 2022. That is because the graphs are calculated using a moving average of conditional prepayment rates (CPR). The lagging effect of this moving average has fully disappeared in mid 2023.

Assuming a long term prepayment average of 1.5% for the cohort 0-12 (seems reasonable as refinancing within a year after origination is highly unlikely and the long term graph indicates a long term stable prepayment rate of 1.5% for newly originated loans in the first year), we can create a demographic prepayment curve based on the behavior of our portfolio in the last 12 months. This is done by assuming horizontal lines per cohort taking the average for each cohort in the detail graph over the last 12 months.

With the knowledge that the housing turnover is about 4% to 5% per year, we expect this curve to flatten after a loan age of 7 years.

CONCLUSIONS

The past 12 months provide a surprising insight in the shape of the demographic prepayment curve. Without claiming to be statistically significant, the prepayments in our portfolio exhibit a reasonable and intuitively predictable pattern, just by looking at the graphs. Just the fact that the graphs showed the portfolio behavior as described above, was the reason to share this portfolio insight. Predicting a demographic prepayment curve is no longer rocket science, but interpretation of graphs without analyzing the underlying data. Theory, intuition and practice come together. We add the disclaimer that each ALM manager should base his hedging strategy on his own research.

We have the following further considerations to our own analysis:

- We present moving averages of the prepayment curves. This is arbitrary.
- We have mixed the loan purpose “purchase” and “refinance” in this analysis to create the cohorts.

- We have not taken into account the loan porting activity on the above prepayments. Therefore, the Asset Liability prepayment is different than the cash prepayment (the ALM prepayment is lower than the above presented curve because loan porting results in a continuation of the interest contract).
- We have not taken into account the purchase year of the loans that were originated as refinancing loans. We have just presented the demographic portion of the prepayments by loan age, irrespective of the purpose of the loan.

There is a reason for this list of imperfections. After all, we cannot reveal all the secrets of our portfolio.

Are you interested in further analyses? Please contact **schalko.deddens@dmpm.nl**.

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