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Dutch RMBS: a primer

ABS In-Depth

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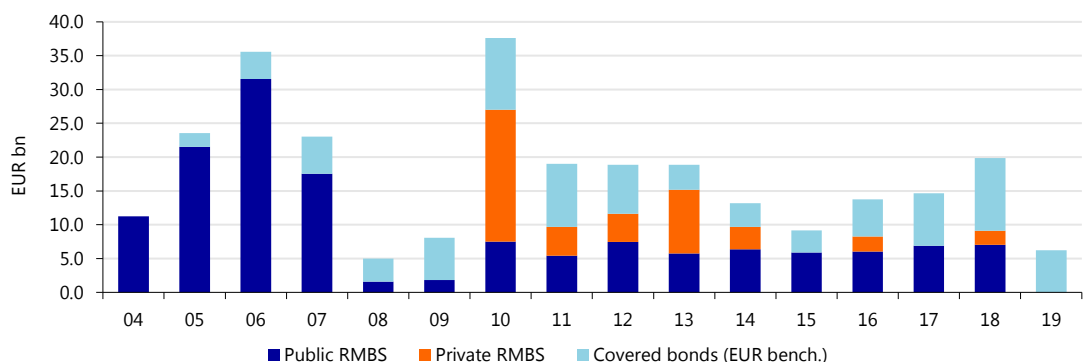
Summary

- The Dutch mortgage and RMBS landscape has seen several changes over the last few years
- New parties have entered the mortgage market at the expense of the market share held by banks and insurers
- Underwriting legislation has been updated and tightened further over the past few years
- Changes in the Dutch tax code have resulted in a shift towards linear and annuity mortgages in the collateral assets of Dutch RMBS transactions
- Above-par pricing and interest rate caps are among some of the innovations the Dutch RMBS space has seen in the recent past
- Recent years have seen the (re)emergence of arbitrage-driven Prime RMBS deals, while a Buy-to-Let issuer has also entered the Dutch RMBS market
- Credit risks have never been high, but have decreased further as the economy has been growing above trend, house prices have seen rapid appreciation and underwriting standards have been tightened

1. Introduction

RMBS remains an important funding tool for the €700bn+ stock of Dutch mortgage loans. Nonetheless, the issuance of securitisations has not grown much over the last few years as alternative funding sources have become relatively more attractive, regulatory scrutiny of the product has increased, and the mortgage market faced a prolonged period of reduced origination volumes.

Figure 1: Dutch RMBS and covered bond issuance



Note: EUR benchmarks

Source: ConceptABS, Rabobank

Even though both RMBS and covered bonds are backed by mortgage loans, there are important differences between the two as a funding instrument and their relative pros and cons. Covered

bond funding is currently relatively cheaper than the equivalent RMBS funding, and it also allows for the issuance of longer term funding.

Additionally, the regulatory framework differs significantly between the two funding sources. RMBS falls under a strict (and much more complex) regulatory framework, i.e. the Securitisation Regulation that has come into force on 1 January 2019. Part of this regulation includes so-called 'Simple, Transparent and Standardised' (STS) securitisations, a label for high-quality securitisations.

Finally, with the invention of Conditional Pass-Through (CPT) covered bonds, the relative attractiveness of RMBS as funding instruments has fallen further as several (mainly smaller) issuers were now also able to enter the covered bond market. However, covered bonds are not the only competition that RMBS faces. Whole loan portfolio transactions have also been on the rise in recent years as the search for yield has driven investors into more alternative and significantly more illiquid investments.

Nonetheless, 2018 saw the return of two issuers to the RMBS market after several years of absence (Aegon and NIBC Bank). The aforementioned issuers have been active in the covered bond market in previous years. As such, these deals illustrate that as a potential diversifier, RMBS still does seem to have a place in the funding structure. Additionally, with the return of arbitrage driven and balance-sheet relief deals, the Dutch RMBS market is clearly alive.

The Dutch mortgage market has also changed gradually these past few years, but over time the changes do add up to a different landscape. For instance, changes in the Dutch tax code and mortgage underwriting standards have led to changes in the composition of the collateral pools in Dutch RMBS deals and the risks associated with them. Furthermore, we have seen the rise of so-called '*regiepartijen*' or parties that originate mortgage loans that are in some cases funded by institutional investors. This 'Originate-to-Manage' model has proven to be quite popular with Dutch pension funds, amongst others.

Overall, with all these changes, it is important to have a clear overview of where Dutch RMBS currently stands and what the most important changes have been the last few years and the implications for issuers and investors alike.

In the next section, we start with an overview of the Dutch RMBS issuers and their recent deals. Then we will discuss the collateral of Dutch RMBS deals, starting with a general overview of the Dutch housing market, then moving on to the mortgage market including different types of originators, interest rate characteristics and tax deductibility. Underwriting standards governing the collateral assets are then dissected, followed by an overview of all the different mortgage loan products that could form the collateral. After that, we will provide a description of a typical deal structure and its features step by step. Finally, we turn to the risks associated with investing in Dutch RMBS. Four types of risks are discussed, namely embedded (legal) risks in the structure, maturity risks, interest rate risk and last but not least credit risk (subdivided in three parts).

2. Issuer landscape

A diverse set of different issuers are active in the Dutch RMBS market including, amongst others, banks, insurers and 'regiepartijen'. There has been an important development in recent years as we have seen the return of arbitrage driven deals (sometimes also referred to as full capital stack deals). Even though Dutch RMBS deals are still dominated by funding transactions, two more arbitrage-driven Dutch RMBS shelves, namely Elan Woninghypotheek (funded by Goldman Sachs) and Cartesian (Venn Partners LLP) are active in the market.

Additionally, 2017 saw the first Dutch Buy-to-Let RMBS, sold by RNHB, who also came to the market in 2018. Finally, in 2018 we saw the return of Aegon to the Dutch RMBS market with a new transaction from their SAECURE shelf after being absent for 4 years. Additionally, NIBC also returned to the RMBS market in 2018 following a five-year hiatus. Overall, the issuer landscape has evolved to be somewhat more diverse with regards to both issuers and type of deals.

Besides the funding or arbitrage nature of deals, there are also differences regarding deal size and seasoning of the collateral pool. Obvion typically issues larger transactions whereas an originator such as Elan sees more modest issue sizes. Additionally, the latter clearly consists of freshly originated mortgages whereas most of the other deals feature seasoned portfolios.

Table 1: Non-retained Dutch RMBS issuance in 2018

<i>Deal name</i>	<i>Date</i>	<i>Originator</i>	<i>Purpose</i>	<i>Deal type</i>	<i>Issue size</i>	<i>WA seasoning</i>
Strong 2018	Dec-19	Obvion	Funding	Prime	€800m	4.7 years
EDML 2018-2	Nov-18	Elan Woninghypotheek	Arbitrage	Prime	€335m	0.4 years
Dutch MBS 19	Nov-18	NIBC	Funding	Prime	€447.3m	5.5 years
Saecure 16	Oct-18	Aegon	Funding	Prime	€875m	3.2 years
Dutch Property Finance 2018-1	Sep-18	RNHB	Funding	Buy-To-Let	€388m	6.7 years
Storm 2018-II	Sep-18	Obvion	Funding	Prime	€850m	6.2 years
Cartesian Residential Mortgages 3	Jul-18	Venn Partners LLP	Arbitrage	Prime	€194m	0.4 years
Green Apple 2018-1 NHG	May-18	Argenta Spaarbank	Funding	Prime	€1000m	2.8 years
Green Storm 2018	May-18	Obvion	Funding	Prime	€550m	4.9 years
EDML 2018-1	Mar-18	Elan Woninghypotheek	Arbitrage	Prime	€500m	0.2 years
FORDless Storm 2018	Feb-18	Obvion	Funding	Prime	€1250m	6 years
Storm 2018-I	Jan-18	Obvion	Funding	Prime	€2100m	7.1 years

Source: ConceptABS, Rabobank

ECB's Asset-Backed Securities Purchase Programme (ABSPP)

On 4 September 2014, the ECB announced the launch of purchase programs for covered bonds (CBPP3) and ABS (ABSPP) and thus started Quantitative Easing (QE). Under the ABSPP, the ECB can purchase Eurozone ABS tranches that are eligible as collateral for the Eurosystem, which are generally the senior tranches of ABS deals.

As part of ABSPP, the ECB has been active in both the primary and secondary market where they are able to purchase up to 70% of eligible new deals. In addition to the resulting spread compression in both the primary and secondary markets, this large new buyer in new deals has boosted the Eurozone ABS market since the start of the programme.

Overall, despite the relatively limited absolute size of the purchase programme, the ECB has been an important part of the ABS market the last few years and the Dutch RMBS market has certainly also benefited. Going forward, the ECB is expected to remain present in the ABS market as they indicated to reinvest the (substantial) redemptions of the ABSPP portfolio back into the ABS market for the foreseeable future.

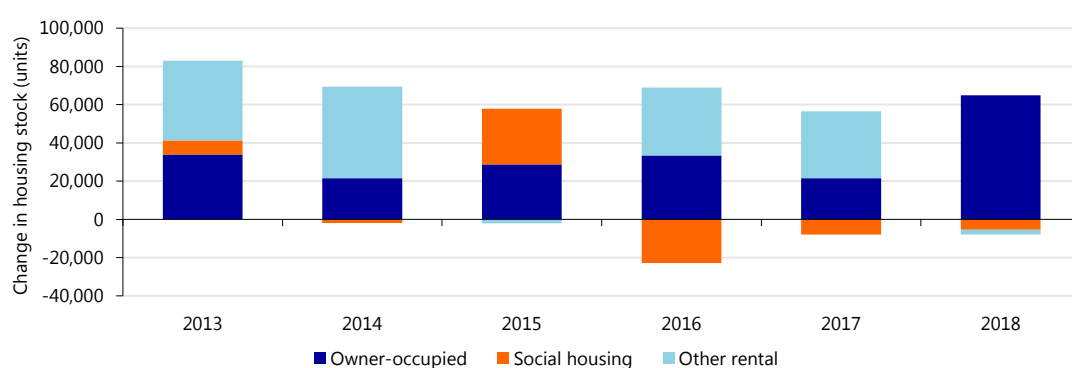
3. Collateral

The collateral description starts with a general overview of the Dutch housing market, which is the ultimate exposure for RMBS noteholders. We then zoom into the mortgage market and into the specific mortgage loan products.

Dutch housing market

The Dutch housing market broadly comprises three different pillars, the owner-occupied segment, the social housing segment and the other rental segment (including private rentals). From the large amount of mortgage debt in the Netherlands, one would not expect the owner-occupied sector to be relatively limited. In international comparisons, the owner-occupancy rate of 57.2% (as of 2018) is not particularly high. The remainder of the housing stock are rental properties, with the vast majority owned by social housing associations (close to 30% of total housing stock and around 69% of total rental stock).

Figure 2: Changes in Dutch housing stock, per type of housing



Source: CBS, Rabobank

The public sector's share of total housing stock has decreased by around 1.5ppts between 2012 and 2018. Moreover, the share of social housing (of total rental stock) decreased by about 3.5ppts between 2012 and 2018. Overall, when looking at the changes in Dutch housing stock, we see that owner-occupied has grown steadily at more or less the same pace, with the exception of 2018. Other rentals (including private rentals) are also growing, but not every year. Finally, social housing has seen negative growth from 2016 onwards. Nevertheless, the public sector still accounts for a substantial part of the rental sector despite some market liberalisation in the last few years.

Rise of private Buy-to-Let buyers

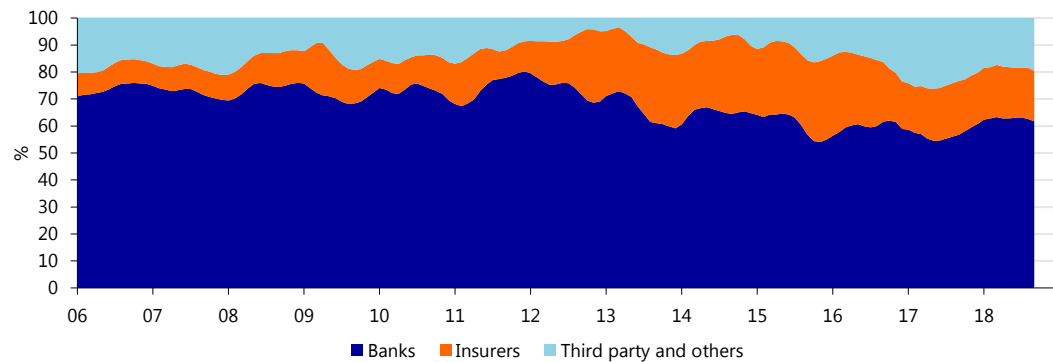
Over the last few years, the Dutch rental market has changed significantly. Demand for private sector rental accommodations has increased substantially due to a host of factors, including socio-demographic factors, changes in the housing and mortgage markets and certain developments in the labour market. With a growing population, increasing demand for single-person households and tighter mortgage lending standards, the Dutch housing market requires more (non-regulated) rental housing for middle and higher incomes in the future.

In recent years, there has been an increase in the number of private Buy-to-Let investors aiming to fill some of this demand, especially in the four major cities in the Netherlands. There, close to 20% of homes were bought by private investors in 2017. In the rest of the Netherlands, they accounted for around 9% of home purchases in 2017. Hence, BTL investors are starting to play a more visible role in the housing market, with the most noticeable impact in the large cities where they are an extra buyer in an already stretched market.

Mortgage market

The prevalence of independent mortgage advisors and intermediaries makes it relatively easy for new parties to enter the Dutch mortgage market. This is one of the reasons why the Dutch mortgage market is highly competitive with dozens of originators active. Besides the traditional large bank lenders, there are several large insurers active in the market while new third-party and other lenders have also entered the market in recent years. Among them are so-called *'regiepartijen'*, who in some cases source funding directly from institutional investors, such as pension funds that are investing directly into Dutch residential mortgages.

Figure 3: Market share mortgage originators



Source: Rabobank

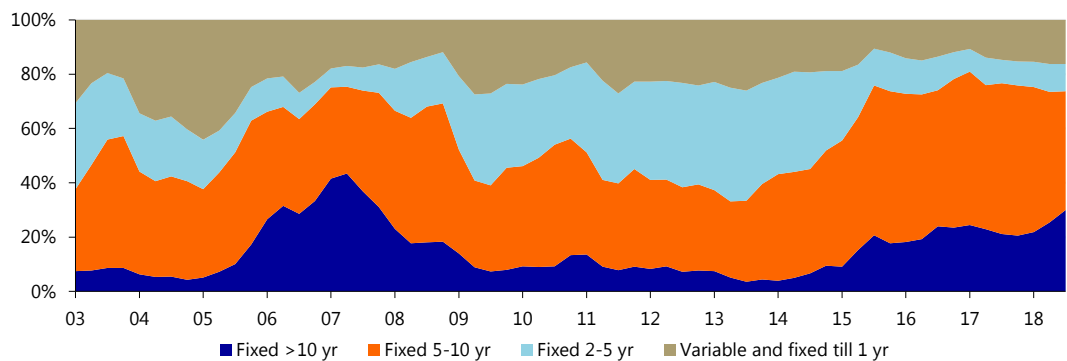
Hence, the Dutch mortgage market has changed quite a bit the last few years in terms of the types of originators that are active. Banks have lost almost 12% market share since the start of 2013, whereas insurers have lost close to 6% market share. At their expense, third party providers and others have gained. Nonetheless, compared to 2006, insurers have gained market share at the expense of banks while third-party lenders/*'regiepartijen'* have kept the same market share.

Third-party *'regiepartijen'* have several funding sources available. They can source funding directly from (institutional) investors, which has been the preferred route for several parties so far. However, others have used RMBS to fund their origination. We don't rule out the possibility that those that are currently funded directly by (institutional) investors may still look to the securitisation market in the future for their funding.

Mortgage interest rates

Overall, the majority of Dutch mortgage loans carry fixed interest rates. The interest rates are usually fixed for a specific period, often ranging from 5 to 15 years, however, 20 and 30 years is also possible. The distribution between floating and fixed rate mortgage loans depends on vintage. This is due to borrowers basing their decision between floating/fixed and the length of the fixed period on the current level of interest rates. The low interest rates of the last few years have thus caused borrowers to go for long, fixed-rate periods so they are able to lock in low rates for a long time.

Figure 4: Distribution fixed-rate periods of mortgages per origination year



Source: DNB, Rabobank

Mortgage loans with long, fixed-rate periods are often attractive for 'regiepartijen' who are funded by pension funds and insurers as they aim to match their long-term liabilities. At the end of a specified (fixed) period, the interest rate is reset. The reset date is pre-announced by the originator and they have to provide an offer to the borrower for a new interest rate (and term). This offer must, by law, match the rates being offered by the originator to new clients. If the borrower does not make a choice, the default is to reset the interest rate to a fixed rate for a 5-year period. At the interest rate reset date, a borrower could also decide to refinance the mortgage penalty-free. Either way, there is never an automatic switch to a floating rate after the fixed period ends.

Mortgage interest tax deductibility

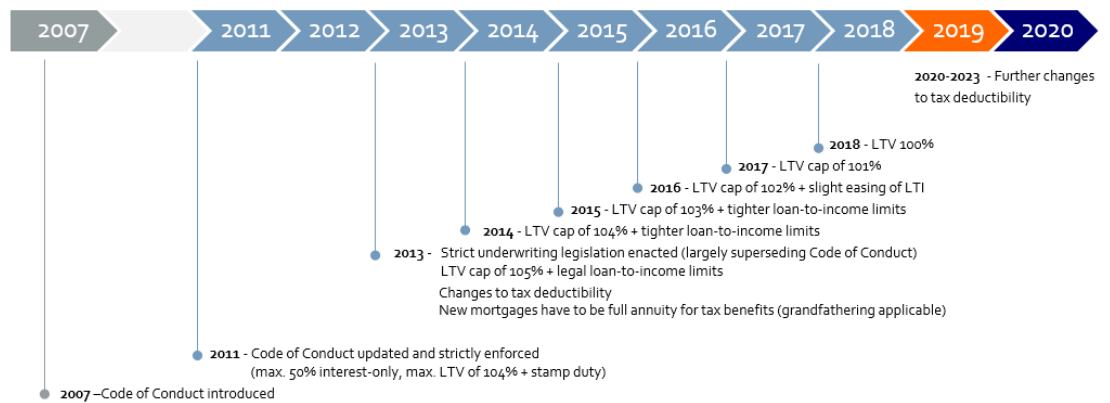
The Dutch tax code is an integral part of the Dutch mortgage market, since it allows for full deduction of mortgage interest payments. New legislation that came into force on 1 January 2013, however, restricted the interest tax deductibility for newly originated mortgage loans to full annuity amortising mortgages (both annuity and linear) on owner-occupied residences, and limited to 30 years in duration. Other types of loans, such as those with a partial annuity, no longer qualify for any favourable tax treatment. However, all mortgage loans originated prior to 1 January 2013 are still subject to the old tax regime where there were no conditions on amortisation. Benefits on the 'old' mortgage loans can be grandfathered in case of refinancing and/or relocation. Effectively, the government has created a marked difference between 'old' and 'new' mortgage loans.

Recently, there has been a change in the tax deductibility rate that will apply from 2020 onwards. The tax deductibility rate currently equals 49% but will decrease by 300 bps per year, starting in 2020. It will continue to decrease until the rate equals the second-highest tax bracket of 37.05% in 2023. Even after this year, the government is effectively subsidising mortgage-servicing costs to a large extent. The size of the mortgage loan is not a constraint for the size of the tax benefits. Finally, even though other housing-related taxes partially unwind these benefits, the tax deductibility feature still incentivises mortgage lending. In our view, it is also the primary reason why mortgage debt is so high in the Netherlands, and why it will likely remain relatively high despite several changes to the tax code in recent years.

Underwriting standards

Underwriting criteria of the different originators are highly homogenous and follow from the Mortgage Code of Conduct and related underwriting legislation. The degree of leeway to these standards used to be considerable up until 2007, moderated somewhat between 2007 and 2011 and has been virtually non-existent since then.

Figure 5: Underwriting standards over time

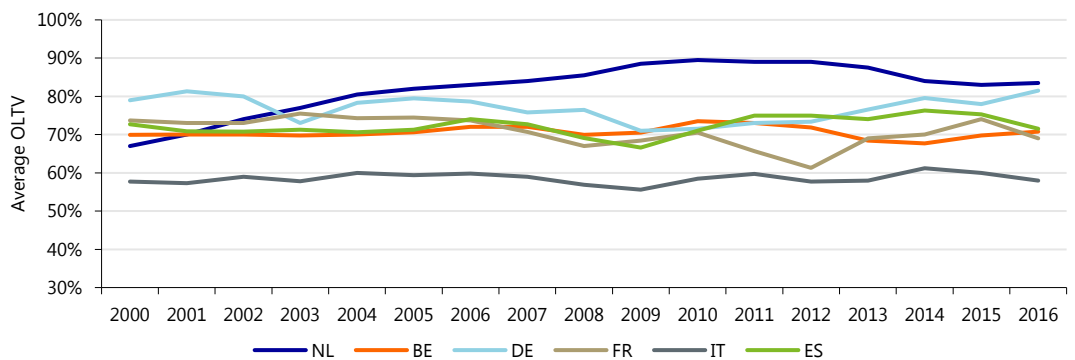


Source: Rabobank

Loan-to-value (LTV) ratio

Dutch mortgage loans are characterised by relatively higher LTV ratios (see figure below). In our view, this fact is in large due to the tax incentives granted to borrowers. Before 2011, originators could deviate from the Mortgage Code of Conduct. However, between 2011 and 2013, the regulator (AFM) strictly enforced the new industry standard. Since 2013, new underwriting legislation is in force and strict statutory LTV restrictions have been in place since then.

Figure 6: Average LTV at time of loan origination for select European countries



Source: Moody's Investor Services

The maximum statutory LTV has been gradually reduced over the years from 106% in 2012 to 100% currently. Importantly, there are currently no political plans to further reduce the maximum LTV ratio. However, mortgage loans that include financing for energy saving measures, that are for energy neutral houses or houses with no energy costs are the exception with a maximum statutory LTV of 106%.

Figure 6 shows the average LTV at time of origination for mortgage loans included in Dutch RMBS transactions. Since the new legislation passed in 2013, LTVs in the Netherlands have declined steadily over the years, as expected. Nonetheless, as of 2016, the average LTV is still the highest in Europe.

Debt-to-income ratio

Strict debt-to-income limits are also included in the special underwriting legislation on underwriting and they largely follow from the Mortgage Code of Conduct. In 2007, this code introduced a standardised method to calculate the maximum mortgage amount on the basis of a fixed ratio of housing expenditures to total income ('woonquote'). This uniform ratio follows from an annually updated income set calculated by NIBUD, a Dutch consumer advisory body. The ratio increases with income and with the interest rate on the mortgage. From 2007 onwards non-

compliance with this ratio had to be 'explained'. Especially for young borrowers with good job prospects, these "explain" deviations were a common occurrence. However, from 2011 onwards, a stricter regulator has significantly reduced the leeway for non-compliance. Finally, there are exceptions in place with regards to energy efficient homes, where the maximum mortgage based on debt-to-income ratios can be increased by a maximum of €25,000 (up to a maximum LTV of 106%).

Nationale Hypotheekgarantie

'*Nationale Hypotheekgarantie*' (NHG) is the public-run mortgage loan guarantee system in the Netherlands. It is managed by the 'Waarborgfonds Eigen Woningen' (WEW) and was established by the government in order to stimulate home-ownership among lower-income households and first-time buyers.

The loan guarantee protects the borrower from any residual debt (including interest arrears and costs of selling the property) after a forced sale of the house, conditional on the reason being unforeseen life events such as death, unemployment, long-term illness, and most importantly, divorce. It is, however, the creditor who needs to claim the credit loss at WEW in order to receive compensation. However, for mortgage guarantees originated from 2014 onwards, 10% of the total loss (vertical slice) has to be absorbed by the mortgage originator in order to ensure originators will still carefully assess (credit) risks and continue to monitor the loans properly after they have been originated. If the mortgages are securitised, the 10% loss is taken by the SPV.

The guarantee system is publicly backed, but fully pre-funded. Borrowers pay an upfront lump-sum fee, currently 90 bps of the loan value. Nowadays, these costs can no longer be included in the mortgage loan (due to LTV restrictions), i.e. the borrower has to use own funds to obtain the guarantee. Overall, there is still an incentive for the borrower to get NHG though, because the reduction in credit risk results in a lower interest rate and thus directly benefits the borrower.

The NHG fund is currently €1.22bn in size (end of Q3 2018), guaranteeing a total notional mortgage principal of €203bn. The capital ratio of the fund stands at 0.60%, and has increased the last few years. Nonetheless, it remains quite low in our view. Still, WEW has an explicit back-stop agreement with municipalities (50% of mortgages originated until 2011) and the government (50% until 2011, 100% of mortgages originated thereafter). If the fund appears to be running empty, the government is obligated to provide interest-free loans to the fund. In this way, the government is effectively guaranteeing mortgage loans with a NHG guarantee.

Strict underwriting criteria do apply to NHG, of which the maximum value of the house is the most important variable. Currently, the maximum guaranteed amount is €290,000, but this will be adjusted annually and follows changes in housing prices. Additionally, several strict checks, such as on credit history and income, have to be applied prior to origination. Since 1 January 2013, the mortgage loan also has to amortise completely within 30 years. From 2018 onwards, it is no longer mandatory for the borrower to have in place term life insurance to get an NHG mortgage. Finally, it is now also possible to refinance a non-NHG mortgage with an NHG mortgage if financial benefits can be gained, for instance a lower interest rate.

The originator, and if securitised, the RMBS noteholders, are better protected against credit risks when there is a NHG guarantee in place. However, there are some caveats. If a claim is made to NHG, WEW will check whether the underwriting criteria of the relevant loan were in line with policies. In other words, there is an ex-post check, which could potentially result in a rejection of the claim (which has occasionally happened). In most RMBS structures, rejection of a NHG claim implies a breach of the representations & warranties, thus often obligating the seller to repurchase the (delinquent) loan from the structure. Another important consideration is that NHG covers losses on the basis of full amortisation over 30 years, irrespective of the actual amortisation profile of the loan product itself. Hence, pay-out ratios can be below 100% for

loans involving interest-only (and other non-amortising) parts, which still command a large share in Dutch RMBS deals. Last, but not least, WEW enjoys the same rating as the Dutch government (Aaa/AAA) and is thus potentially exposed to sovereign rating risk.

Mortgage loan products

Dutch RMBS transactions are almost exclusively backed by residential mortgage loans, which are generally originated in the Netherlands and granted to borrowers with a good credit history (i.e. the Prime segment). Additionally, all mortgage loans in the structures rank as first-lien (or first and sequentially ranked) and are almost exclusively backed by owner-occupied houses.

General features

Dutch mortgage loans typically feature a maturity of 30 years. The legal maturity, however, can be longer or even indefinite, but redemption is usually scheduled to take place after 30 years. Still, the actual life of a typical mortgage loan is often shorter. Early redemption (prepayment) of the full principal amount typically occurs at the interest rate reset date as penalty-free refinancing is possible then. Additionally, penalty-free full prepayment is often also possible in the case of relocation. Outside of these specific circumstances, penalty fees are typically applied to partial prepayments, generally if they exceed 10-20% of the principal amount. The calculation largely follows a NPV calculation of the missed interest earnings.

Dutch mortgage loans are secured by vested mortgage rights on the underlying residential property. Hence, if the borrower is no longer able to fulfil their obligations, the originator has the right to foreclose on the property. These foreclosure rights are legally embedded in legislation covering Dutch mortgages. However, the recourse to the borrower is in most cases not limited to only the underlying property. The vested mortgage rights grant the originator full recourse to the borrower and they are able to make claims on the borrower's wealth and even on their future income. Still, the recourse gets restricted if a court assigns personal bankruptcy of the borrower. However, due to the rather strict nature of the Dutch personal insolvency regime, many borrowers will try to avoid such a bankruptcy scenario by all means possible.

Collateral insurance

For Dutch mortgages it is mandatory for borrowers to have in place property insurance ("*opstalverzekering*") for their home, which is checked at origination of the mortgage loan. Furthermore, embedded in the mortgage contracts is the obligation for the borrower to have the insurance in place at all times. Additionally, NHG guaranteed mortgages require that originators write an obligation to the borrower to have a sufficiently insured (pledged) property for fire and storm damage, and that the insurance premiums are paid in time. Overall, there is a strong legal obligation for borrowers to have their property insured.

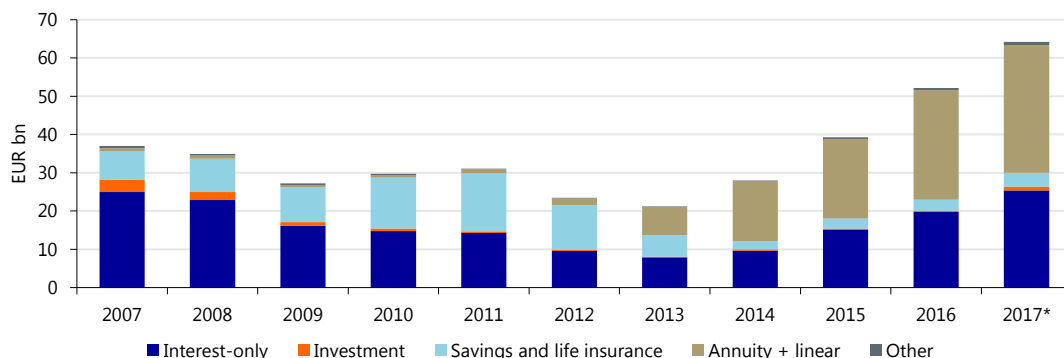
Product structure

As a result of the Dutch tax system (as it existed prior to 1 January 2013), there is a relatively complicated mix of mortgage loan products in the Dutch mortgage market. In order to benefit from maximum tax deductibility, nearly all of the 'older' (pre-2013) mortgage products share the common feature of a deferred principal payment at maturity. As such, interest payments are maximised over the life of the loan (and so is the tax advantage). With the exception of interest-only loans, capital accumulation for delayed principal repayment takes place in linked savings or insurance products. This reserved capital is generally exempt from wealth taxation, making such mortgage product structures very tax-efficient.

Mortgage loans originated after 1 January 2013 have largely consisted of plain-vanilla (full) annuity, linear and interest-only mortgage loans. Due to the grandfathering of tax benefits for

borrowers, 'old' mortgage products continue to be originated, even though this mostly occurs due to refinancing and/or relocation. The share of 'old' (principal deferred) products as a part of total Dutch outstanding mortgage debt, was close to 80% as of Q2 2017. Still, it has decreased quite rapidly from the levels seen in Q1 2013, and this will only continue as new mortgage origination dominated by linear and annuity loans keeps flowing in.

Figure 7: Product structure distribution of originated mortgage loans (per year)



Source: DNB, *= data from end of Q2 2017 have been annualised by multiplying by 2

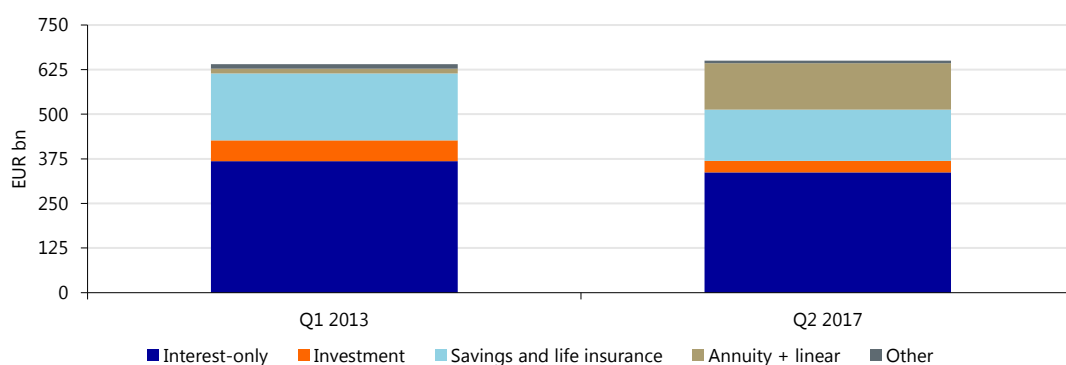
Before describing the most common loan products in more detail, it is worth stressing that typical 'old' (pre-2013) Dutch mortgage loans often consisted of a combination of different loan products, split amongst different loan parts i.e. an interest-only part and a bank savings part. Generally, these 'old' Dutch mortgage loans consist of 2 or 3 loan parts, but more parts is also not uncommon. On the other hand, most of the 'new' mortgages originated after 2013 typically consist of only a single loan part. In stratification tables in RMBS reporting, the distribution in product mix is calculated on the basis of loan-parts. For risk calculations (LTV, delinquencies, etc.), however, the information is usually provided on an overall loan level.

Interest-only ("aflossingsvrij")

Interest-only (I/O) mortgage loans were the most popular mortgage product prior to 2013 and still represent a significant share of the outstanding Dutch mortgage debt. I/O loans feature principal that is neither being redeemed nor accumulated in linked products. They are typically used to reduce the monthly mortgage expenses as they consist solely of interest payments, which benefit from the generous tax deductibility thus leading to low (net) monthly expenses.

Up until 2010, there were no hard limits on the origination of I/O. In fact, typical loans would consist of a significant share of interest-only, subject to the originator's underwriting criteria. The updated Mortgage Code of Conduct that came into force in 2011 restricted the interest-only part of mortgage loans to 50% of the LTV. Furthermore, with the changes to the tax code in 2013, 'new' mortgage loans have to amortise in order to receive tax benefits. As a result, interest-only mortgages now comprise less than half of new mortgage lending (see Figure 8 on the next page). Nonetheless, due to the grandfathering provisions, the share of I/O loans overall (i.e. 'old' and 'new') is still significant.

Figure 8: Distribution product structure outstanding mortgage debt



Source: DNB

Bank savings ("*banksparen*")

Up until 2013, bank savings mortgages used to be the second-most popular mortgage product. The structure is largely identical to an annuity mortgage loan in that monthly mortgage expenses consist of an interest part and a principal part, only instead of principal being paid down over the life of the loan, it is instead accumulated in a linked bank savings account. However, unlike an annuity, interest payments, and the tax benefits, are thus maximized over the life of the loan. The interest rate on the linked savings account is typically equal to the interest rate on the mortgage loan itself. Since the interest rate on the savings account is known, the payout is guaranteed.

Savings insurance ("*sparhypotheek*")

Prior to the introduction of bank savings loans, savings insurance used to be the second-most popular mortgage product. The structure is almost identical to that of bank savings, but instead of a savings account, a life insurance product is linked to the mortgage loan. The borrower pays a monthly insurance premium, which contributes towards capital accumulation for the bullet repayment of the principal amount at maturity. The interest rate on the accumulated premiums is typically equal to the interest rate on the mortgage loan itself. The payout of the life insurance product is guaranteed. The insured principal can often also be claimed in case the borrower dies. In case of two borrowers (as is typical in multi-person households), the life insurance is often cross-linked between them.

Life insurance ("*levenhypotheek*")

Like savings insurance, this structure also uses a life insurance product for the separate accumulation of funds for principal repayment. Unlike savings insurance, however, payouts are not always guaranteed and are subject to the investment returns of the life insurance company. Life insurance was actually the first mortgage product that achieved maximum tax savings by deferring principal payment until maturity.

Investment insurance ("*beleggingshypotheek*")

This product structure is another version of the insurance mortgage product. Capital is accumulated for the deferred principal payment through investments in linked retail investment accounts, rather than through earning interest on a savings account. Investments usually take place at the discretion of the borrower in a range of pre-defined investment funds. Additions to the product can come in the form of a one-time payment or through periodic additions. Extra additions (but also withdrawals) depend on the assumed rate of return of the investments. As investment returns are uncertain, the payout is not guaranteed for this product. Finally, hybrid loans (or switch mortgage loans) are combinations of bank savings and investment insurance.

'Traditional' mortgage loan products are the new normal

The tax incentives granted to borrowers meant that traditional mortgage loans, such as annuity and linear, were not at all popular in the Netherlands prior to 2013. However, following the changes to the Dutch tax code, now only these loans qualify for income tax deductibility for 'new' mortgage borrowers and have thus become dominant in new mortgage origination. Nonetheless, while making up a substantial part of the collateral assets in Dutch RMBS transactions, annuity and linear loans are not necessarily the largest share of the pool as I/O remains quite dominant. But this, of course, also depends on the issuer/originator and/or year of origination (vintage) and thus varies per transaction

Mandatory term life insurance separate from mortgage product

Term life insurance used to be part of the insurance mortgage products, but since the changes to the Dutch tax code and the increase in linear and annuity mortgages, these insurance products are now also offered separately from the mortgage product. Originators can require the borrower to have a term life insurance for the part of the loan that is above a specific LTV threshold, usually set at 80%. However, there are quite some differences between originators, as some do not have it as mandatory at all while the LTV threshold can also differ. When the insurance is required by the originator, it is also mandatory to pledge ("*verpanden*") the insurance to the originator. In this case, when the borrower passes away, the pay-out goes directly to the originator to ensure the proceeds are used to pay down the mortgage balance.

4. RMBS structures

Dutch RMBS are pass-through securitisation structures in which a dedicated special purpose vehicle (SPV) buys the collateral assets from the seller's balance sheet via a true-sale transaction. In most structures, borrowers are not being notified of this transaction and continue to make their mortgage payments to the originator. The SPV funds itself by issuing different classes of notes to investors, constituting various senior, mezzanine and junior (equity) claims. These notes are also referred to as tranches and typically carry coupons that consist of a floating rate (i.e. 3-month Euribor) plus a margin. The margin is set on the pricing date (when pricing at par), whereas the sale and transfer of the mortgages takes place at a later date, called the closing date.

Details of the structures differ across transactions despite some degree of harmonisation over the years. On a European level, most Dutch RMBS transactions are compliant with the Prime Collateral Securities (PCS) standard. Harmonisation of Dutch structures has also been achieved through the Dutch Securitisation Association (DSA), a Dutch industry group. Among other things, members use a similar template for prospectuses and investor reporting.

The Securitisation Regulation that has come into force on 1 January 2019 will likely lead to further harmonisation, not only in the Netherlands, but across Europe. However, there can still be significant differences in the structures even if they are labelled as high-quality 'Simple, Transparent and Standardised' (STS) securitisations. In our view, the result of the new regulation will be that Dutch RMBS will most likely be dominated by STS (compliant) deals.

Securitisation Regulation and CRR amendment

On 1 January 2019 the new Securitisation Regulation governing European securitisations has come into force. Amongst other things, it introduces so-called 'Simple, Transparent and Standardised' (STS) securitisations, which are high-quality securitisations that have to meet stringent criteria surrounding for example the collateral assets and transparency & reporting in order to become STS compliant.

Along with the Securitisation Regulation comes an amendment to the Capital Requirements Regulation (CRR) to change the risk-weighting treatment of securitisations for banks. The amendment provides favourable treatment for STS securitisations compared to non-STS securitisations. Additionally, an amendment to Solvency II has significantly lowered the capital charges for STS securitisations (for both senior and mezzanine tranches) for insurers. Overall, the aim of the new regulatory framework is to clearly distinguish between high-quality (STS) securitisations and low(er)-quality (non-STS) securitisations in an effort to revive and strengthen the European securitisation market.

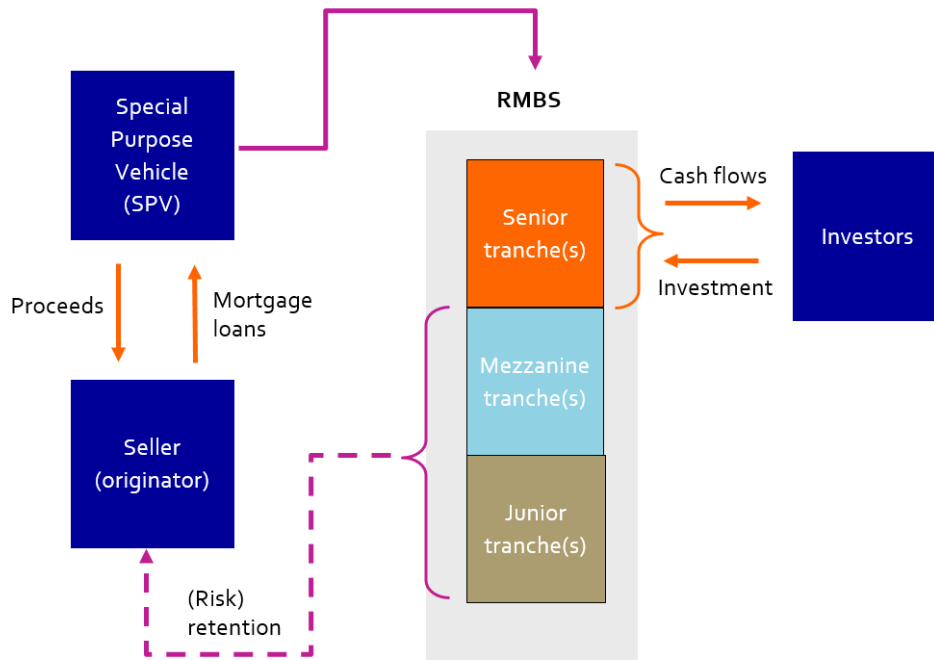
Dutch RMBS structures will be dissected step by step by discussing first a general overview of the structures before moving through the various structural features present in the transactions in the next few sections.

General structure

Even though identical structures are rare, it is still possible to provide a general outline of a typical (funding) Dutch RMBS structure, as shown in Figure 9 on the next page. An important change in the structure in recent years has been the emergence of several 'arbitrage-driven' deals in the Dutch RMBS space. This marks a change from the dominance of funding transactions observed previously. As a result, investors now have more options to invest in the non-senior tranches of Dutch RMBS deals.

It has to be stressed, however, that the simplified structure shown is not definitive nor fully complete, making thorough analysis of each individual structure important.

Figure 9: Simplified typical (funding) Dutch RMBS structure



Source: Rabobank

Recourse

In a Dutch RMBS transaction all noteholders have recourse to the SPV according to a specific subordination. Nearly all Dutch transactions are on a stand-alone basis, implying that each securitisation transaction has its own dedicated pool of mortgage loans. There is currently only one seller (ABN AMRO Bank) which uses a Master Issuer Trust framework in its RMBS programme, but there have been no new public transactions from this programme in several years. In Master Issuer structures, multiple securitisation transactions have recourse to a single, large collateral pool of mortgage loans.

Call option and First Optional Redemption Date (FORD)

Nearly all Dutch RMBS transactions have a call option allowing the SPV to redeem the notes in full (typically 5 years after closing). However, if the SPV cannot generate sufficient funds for redemption and it cannot find a buyer for the underlying mortgage portfolio, the call will not be exercised. The effective maturity of the notes is then determined by the amortisation profile of the underlying mortgage loans. While the call can still be exercised at each subsequent payment date, extension risks are present (more on call/extension risk later on).

Coupon rates and step-up margin

The coupon rates on the notes almost always consist of 3-month Euribor plus a margin. An important factor in floating rate structures are the step-up margins present in the structure. If the deal is not called by the SPV on the FORD, the margins on the notes will increase to the "step-up" margin. For the senior note, this is typically equal to 2x the (pre-FORD) margin. For the subordinated notes, the step-up margin is usually between 1x and 1.5x the margin, but this depends on the transaction. Overall, the step-up margins provide an important incentive for the SPV to call the structure on the first optional redemption date, though the incentive is relatively weaker if the deal was issued in a low margin environment.

Pass-through cash flows

A sequential pay structure is typically used for the payments in the securitisation. Hence, after incurring the necessary costs such as third-party costs to maintain the structure, the notes are paid down in order of seniority. In general, interest (revenue) and principal payments on the mortgage loans in the structure are separated into two distinct cash flow streams or 'waterfalls'. If the SPV cannot meet its obligation to the most senior noteholders (enforcement), these two waterfalls are replaced by one cash flow sequence for both the interest and principal payments.

Interest waterfall

Interest payments on the mortgage loans and other non-principal related cash flows in the structure are channelled to take care of coupon payments on the tranches. The structures can employ the use of swaps for effectively converting the fixed payments into floating payments for the tranches. In most Dutch RMBS transactions, the coupon payments are made on a quarterly and accrual basis and consist of a pre-determined margin on top of the 3-month Euribor fixing at the beginning of the accrual period.

Principal waterfall

Principal payments on the tranches follow the amortisation behaviour of the underlying mortgage loans and can thus vary depending on the distribution of products in the collateral pool. In general, the most senior tranche is fully amortised first, before the next senior tranche starts to amortise. Hence, the most senior tranche is the most exposed to prepayment risk. In some cases there is a fast and slow paying senior tranche. Finally, principal losses are recorded in reverse order, going from the least to most senior tranche, providing an additional layer of protection.

Revolving pools

Some recent stand-alone Dutch RMBS structures feature revolving pools in order to mitigate prepayment risks for investors. Revolving pools involve the replacement of (partially) prepaid mortgage loans with new loans in the collateral pool, thus eliminating prepayment risk. In order to avoid a deterioration in asset quality of the pool, the replacement loans are typically subject to stringent replacement criteria. Hence, the seller cannot cherry pick the mortgage loans it will use to replace those that have been prepaid.

Loss recording

Not only are cash-flows of the mortgage loans passed-through to the different tranches, but losses to the underlying mortgage loans are also captured in the structure. In general, realised principal losses are debited on a special ledger, called the Principal Deficiency Ledger (PDL). Each tranche has its own PDL. Losses accumulate in reverse sequential order, with the PDL of the most junior tranches being debited first. The PDL accumulates with realised losses over time, but is usually also reduced by the revenue waterfall using the excess spread (see also in the description of the swap structure below). As such, the excess spread is an important source of (indirect) credit enhancement and usually ensures that PDLs remain at zero balance. At maturity, the principal amount of the tranche will be used to settle the PDL. Hence, principal losses are only incurred/realised by note holders at the redemption of the tranche.

Credit enhancement

Dutch RMBS transactions feature a considerable degree of credit protection for the senior tranches. Direct credit enhancement is achieved by subordination of the mezzanine and junior tranches and the instalment of a reserve account fund. While the presence of excess spread in the swap structure is not officially credit enhancement, it is (in essence) a form of indirect credit

enhancement. Additionally, liquidity protection is typically generated by the presence of a cash advance facility.

Subordination

Subordination offers a large degree of credit enhancement for senior tranches. It does not only result in loss allocation to the most junior tranche first, but also that senior noteholders have first-ranking claims on both interest and principal payments. Moreover, subordination often also ensures that replenishment of principal losses in senior tranches rank senior to interest payments on junior tranches.

In some older transactions, the senior class notes are split into a fast and slow paying tranche (typically labelled as A1 and A2). The A1 notes amortise quickly and typically have an expected life shorter than the first optional redemption date of the other tranches in the transaction. The expected life of the A2 tranche is typically much longer than the A1 tranche (e.g. 5 vs. 2 years, respectively). In a few transactions, the senior note is even split in three. In this case, the A3 notes are labelled as 'very slow paying', since amortisation only kicks in if the A1 and A2 notes are fully redeemed. Extension risks are higher in such tranches due to possible non-exercise of the issuer's call.

Risk retention

In order to comply with regulations in Europe, sellers need to retain a material net economic interest in a securitisation of at least 5%. The seller typically retains the mezzanine and junior tranches such that first-loss risk remains with the seller and ensuring that the sellers' interests are aligned with investors' interests. However, for arbitrage deals for instance, it is also possible for the seller to retain a part of every tranche in order to satisfy the risk retention requirement (i.e. vertical retention). Alternatively, the seller can even hold a part of the senior tranche or use a random selection of the pool. The specific method of complying is less relevant as long as a material net economic interest in the transaction is retained in order to have 'skin in the game'.

Reserve account

The reserve account is an extra amount of liquidity and credit enhancement in the structure and can potentially be used to fulfil interest (and in some cases also principal) obligations to the tranches, again following subordination and sequential pay. At origination, the reserve account is usually credited with the proceeds of the junior tranche. Typically, this reserve account equals between 1% and 2% of the principal balance of the mortgage loans at the closing date. In some structures, the reserve account is lower (or even zero) at closing of the transaction. A specific target level is set for the reserve account, which is replenished by the excess spread. The reserve account typically does not amortise over time.

Swap structure and excess spread

Most Dutch RMBS transactions make use of a swap structure in which most non-principal based cash flows from the underlying mortgage loans are swapped into the coupon payments of the tranches. Senior fees and expenses are also taken into account in the swap in the form of a deduction on the fixed leg payment. The counterparty of the swap is typically the seller, but if their rating is inadequate, another bank with a sufficient rating will step in as swap counterparty. The latter then often has a back-to-back swap in place with the seller though.

The interest rate on the mortgage loans often exceeds the interest rate paid on the notes. As the swap counterparty is usually the seller, the swap structure results in a retained interest in the revenues of the mortgage portfolio for the seller. However, the SPV's stake in these revenues is not zero. An excess spread in the swap structure, typically consisting of a guaranteed 35-50 bps of the notional balance per year, results in extra (indirect) credit enhancement. In most cases, this

excess spread is deducted from the fixed leg of the swap (i.e. the SPV's payments to the counterparty).

The extra amount of liquidity that remains in the structure is used to cover shortfalls in coupon and principal payments (through reductions of PDLs), and, if needed, to replenish the reserve account. Excess spread is a strong form of credit protection because it is continuously present as long as the interest swap is in place, which is usually until the final maturity of the mortgage loans.

There are also some Dutch RMBS deals (e.g. Cartesian and EDML) where the swap is different from the typical swap arrangement discussed above. The fixed leg of the swap consists of a weighted average swap rate instead of the scheduled interest on the mortgages. The floating leg pays Euribor flat and does not cover the margin on the notes. Effectively, the difference between the interest received on the mortgage loans after deduction of the weighted average swap rate is available to pay senior fees and the margin on the notes. Investors benefit from the remainder as excess spread in the interest waterfall. Still, each transaction is different and details can vary for the swap agreements especially.

Interest rate caps in swapless structures

In recent years, there have also been several Dutch RMBS structures without a swap agreement, instead opting for interest rate caps to mitigate the interest rate risk. With an interest rate cap, the SPV will receive an amount equal to the difference between the floating rate and a predetermined strike rate times the notional amount. The predetermined strike rate is amongst other things related to the weighted-average interest rate of the underlying pool. However, the disadvantage of interest rate caps compared to swaps is that interest rate caps do not fully eliminate the interest rate risk in the structure. On the other hand, there is less counterparty risk in these structures present.

Additionally, the term of the interest rate cap agreement often does not run until the final maturity of the mortgage loans, thus placing more emphasis on the call risk present in the structures. However, this is often mitigated to some extent by the inclusion of additional incentives for calling the transaction on the first optional redemption date. Overall though, structures with caps often see additional credit enhancement compared to those with swaps (all else equal) to mitigate some of the remaining interest rate risk present in the structure. However, each transaction is different and this might not always be the case.

Liquidity enhancement

The cash advance facility is an extra liquidity line that is present in most Dutch RMBS transactions. This facility is simply a stand-by agreement with a provider to enable the SPV to make coupon payments on the tranches on a temporary basis. Although this risk is remote, it could be the case that in a certain period the cash flows are insufficient to cover interest payments on the tranches. It could also be the case that the SPV is not able to make the payments due to a servicer interruption. The SPV can then draw on the liquidity facility in order to make the required payments. However, the facility has to be repaid and eventually such cash flows rank senior to the tranches in the revenue waterfall.

Above-par pricing

The low and negative interest rate environment of the last few years has spurred innovation in Dutch RMBS structures with respect to pricing of the securities at issuance. Since the structures typically carry coupons consisting of a floating rate and a spread, it is possible that the total coupons will actually be negative. The floating rate is usually 3-month Euribor, which has been in negative territory the last few years. Hence, if the spread is relatively low, as has certainly been the case with senior tranches of Dutch Prime RMBS deals, coupon payments may actually be negative,

implying that investors need to pay the issuer. The latter is technically impossible, coupons are floored at zero, resulting in the issuer essentially losing this income.

By issuing notes above-par, the (future) negative coupons are in essence paid up-front by the investor to the issuer. Depending on the amount of above-par pricing, it might be desirable for an issuer to feature a revolving pool in the structure. This is because, as an investor, you are paying future (negative) coupons upfront, thus you want to make sure you are not paying for coupons that will never occur, i.e. you want to limit prepayment risk.

5. Risks

Embedded risks in the structure

The transfer of the mortgage loans from the seller's balance sheet, as well as the complex product nature of Dutch mortgage loans, results in some embedded risks in the Dutch RMBS structure. Commingling and set-off are the most relevant risks and follow from insolvency/bankruptcy events.

Commingling risk

Commingling refers to the risk that cash flows of different assets and liabilities cannot be properly separated in an insolvency situation, i.e. they are commingled. Although the legal and economic ownership of the underlying mortgage loans has been transferred to the SPV, the cash flows of the underlying mortgage loans often flow through the seller in its capacity as servicer of the mortgage loans. If the seller is declared bankrupt, there is a risk that the cash flows belonging to the SPV will be interrupted. While commingling is ultimately a temporary risk, it can have quite negative consequences for liquidity in the Dutch RMBS structure.

Commingling risk can be mitigated by installing a commingling guarantor in the structure, who guarantees proper liquidity flows following an insolvency of the issuer. Alternatives include using stand-by agreements on servicing and/or collection foundations for revenue collection of the mortgage loans.

Set-off risk

Similar to commingling risk, set-off risk also follows from a bankruptcy situation. In case of insolvency, an affected person or entity is entitled to net credit and debit claims (subject to certain conditions). Since the RMBS structure has only the borrower's liabilities, i.e. the mortgage loans as collateral, netting by the borrower could thus lead to losses on the principal. Set-off in Dutch structures is especially relevant given the complicated product structure and the presence of linked bank and insurance products. Though, over the last few years the product structure has simplified to some extent due to the increase in the origination of linear and annuity mortgages (in newly originated loans).

Set-off risk consists of two different types.

1. Product set-off could occur in the linked accounts that are used for capital accumulation. If the bank or insurer becomes insolvent, the borrower could attempt to offset losses in accumulated capital (e.g. in an insurance product) by netting the losses against the mortgage loan. Linear and annuity mortgages have no product set-off risk since there is no capital being accumulated.

Product set-off in savings-based mortgage products can be mitigated by the use of sub-participation agreements. In these structures, the mortgage loan (liability of the borrower) and the accumulated capital in the dedicated savings account or insurance product (asset of the borrower) will be wrapped into an artificial annuity mortgage loan, so that one net-liability of the borrower will occur in the SPV. Set-off by the borrower is still possible, but these risks are then completely transferred to the relevant insurer or bank.

2. Deposit set-off goes beyond just the mortgage loans and encompasses the potential netting of all assets and liabilities of an individual at a bank in an insolvency situation. As such, this risk is only relevant for deposit-taking institutions. Though, the risk is significantly reduced due to the bank deposit guarantee system in the Netherlands, which guarantees up to €100,000 in deposits. When making use of this facility, the rights of set-off are foregone.

Maturity risks

Similar to any other investment, investors in Dutch RMBS transactions are left with certain risks. The main investment risks of senior Dutch RMBS tranches are related to maturity risk, both prepayment and call (or extension) risk.

Prepayment risk

The maturity of RMBS tranches is usually expressed as a weighted average life (WAL) of the underlying mortgage loans. The WAL concept assumes that mortgage loans are being redeemed prior to their legal maturity date. It also incorporates specific assumptions on for example automatic principal payments and non-scheduled prepayments. The latter is often expressed as the constant prepayment rate (CPR) and measures the share of principal that is prepaid over a given period (typically a year). Most transactions assume a specific (expected) fixed CPR (e.g. 5%) to calculate the WAL of RMBS tranches. The historical performance of the mortgage portfolio is often the base for the expected CPR.

The WAL of most tranches is usually constrained by the first optional redemption date. In other words, the WAL assumes that the tranches are called at the first optional redemption date. If this redemption call is not exercised, an extension of the redemption date occurs and the actual CPR (along with scheduled principal payments) will determine the true life of these other tranches.

Call risk (extension risk)

Ignoring prepayments, the maturity of the tranches often depends on the use of the call option allowing the SPV to redeem the notes in full at the first optional redemption date. If the call is not exercised, then the effective maturity of the securities will depend on the amortisation profile of the underlying mortgage loans. Even though the call can still be exercised at each subsequent payment date, extension risks clearly do exist.

As this maturity risk is structured in regular-for-funding Dutch RMBS transactions, it is in reality mainly related to the (credit) strength of the seller. Hence, the strength of the seller still fulfils an important role in Dutch RMBS, despite the fact that the underlying collateral assets are fully separated from the seller's balance sheet. It is therefore necessary to perform credit analysis of the seller on an ongoing basis.

More recently, however, call risk has become more economic in nature, especially with the rise of 'arbitrage-driven' RMBS deals, some of which include remarketing options (i.e. purely economic calls). If spreads go up materially in the market, the risk of the call not being exercised will increase. Still, since most of the Dutch issuers use RMBS for funding purposes, they have a significant stake in ensuring they are able to issue in the future, so transactions are still likely to be called (i.e. in our view *reputation* takes precedence over *economics*).

Interest rate risk

Interest rate risk is an important risk factor for Dutch RMBS transactions given the floating payments on the tranches versus the often lengthy fixed-rate periods on the assets. However, in the Dutch RMBS space, there are two ways in which interest rate risk in the deal is mitigated.

The best way to hedge the interest rate risk is through the use of an interest rate swap (discussed more extensively in the Structure section), in which most non-principal based cash flows from the underlying mortgage loans are swapped into coupon payments on the tranches. This ensures that interest payments on the tranches can be made regardless of the (level of) interest rate on the mortgage loans.

The alternative is to use an interest rate cap to mitigate the interest rate risk (see Structure section also). With an interest rate cap, payment is received when the floating rate on the tranches

exceeds a predetermined strike rate. However, interest rate risk is not fully eliminated when using an interest rate cap instead of a swap. In recent years, more transactions with caps and different type of swaps have emerged, hence, interest rate risk has (to some extent) become more important as well, though increased credit enhancement can also be used to mitigate remaining interest rate risks. Furthermore, the risks are limited in our view, given that we're in a low rates environment.

Interest rate reset risk for the borrower

Besides the interest rate risk for RMBS noteholders, there is also interest rate risk for the borrower, which is linked to the reset date of the mortgage loan. If mortgage rates have risen and the fixed period ends, the borrower could be faced with substantially higher mortgage servicing costs after the reset date. This could potentially result in an increase in credit risk if the probability of default rises. However, this risk is much lower than in the floating mortgage rate regimes that exist in other countries.

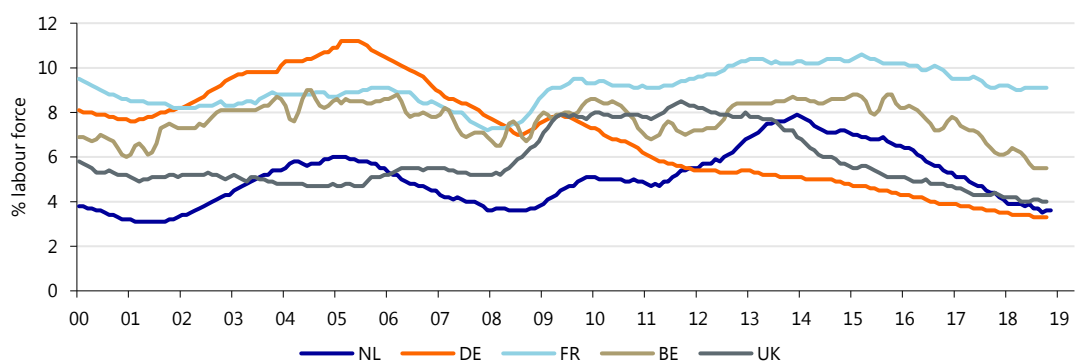
Credit risks in Dutch RMBS

Credit risks of senior Dutch RMBS tranches are to a large extent mitigated by the excess spread, subordination and other forms of credit enhancement present in the structures. Nevertheless, collateral risk cannot be completely ignored by investors. For investors in the mezzanine and junior tranches of Dutch RMBS transactions, collateral risk is of course of much greater importance. Ultimately, the collateral risk of the transaction relates to whether borrowers can make the payments on their mortgages. Late payments (arrear) and defaults are the core risks and they depend on three main factors that determine the credit risk on an aggregate level. These are the macro-economic environment, the housing market and underwriting standards.

Credit risk: macro-economic context

Unforeseen life events are the primary reason why defaults on mortgage loans occur, with divorce being the chief contributor. Divorce rates are relatively steady over time, although they have increased by around 1% from 2013 to 2016. Nevertheless, divorce rates are hard to forecast accurately. However, it is important to note that divorce is also covered by NHG, thus limiting the credit risk for NHG guaranteed mortgages resulting from divorce.

Figure 10: Unemployment rates of various European countries



Source: Eurostat

Whereas divorce is mostly unrelated to macro-economic developments, the next important driver of defaults, unemployment, certainly is not. Cyclical developments and the economic outlook are thus vital considerations in assessing the credit risks on mortgage loans, but more structural elements of the economy are also important. In the Dutch context, the following structural elements are strong mitigating factors to debt servicing risks.

Dutch economic outlook

The state of the Dutch economy is often intertwined with those of its neighbours, in particular Germany. Hence, it is no surprise that the macro-economic environment has seen similar developments as the broader Euro area, namely GDP growth and leading indicators seem to have peaked and are moving down from elevated levels. For instance, Dutch consumer confidence has peaked in April of this year and has seen a relatively rapid decline.

Overall though, the Dutch economy is still growing above trend with a strong labour market as unemployment hit a 15-year low and vacancies are at record highs. However, despite the strength in the labour market, wage growth has remained somewhat elusive (similar to what are seeing in many developed countries).

Going forward, we expect that GDP growth will decline to around 1.8% in 2019, down from the elevated 2018 level of 2.5% (expected). In terms of unemployment, however, we see a further drop down to 3.6% (on average) next year. Finally, inflation is expected to accelerate to 2.5% next year, up from 1.7% in 2018.

Generous social security system

All else equal, higher unemployment leads to an increase in loan servicing risks and eventually also to a higher probability of default. However, the generous social security system that is in place in the Netherlands means that for the majority of borrowers, unemployment does not lead to sudden missed mortgage payments.

In the Netherlands you are entitled to receive unemployment benefits when you are fired (not when voluntary resigning). Compared to other countries, Dutch unemployment insurance is relatively generous, both in the amount, 75% of last earnings in the first two months and 70% thereafter, and in duration, 3 months minimum and scaled per years worked, but limited to a maximum of 2 years. In some sectors, collective labour agreements provide for an additional 14 months of unemployment benefits, but this is from the private sector, not the government.

Additionally, after unemployment benefits end, there is another form of social security called income assistance. Unlike unemployment benefits, this aid is means-tested and only ensures minimal living standards. Under certain conditions (e.g. level of home equity), even homeowners are entitled to receive this form of support.

Part-time employment and flexible household income

Part-time employment is very common in the Netherlands, meaning that households that have multiple incomes have more flexibility when it comes to servicing their mortgage. Income losses following unemployment can in some cases be partly offset by the spouse increasing their hours worked. As such, dual incomes provide an extra buffer. However, mortgage loans that are originated on the basis of two incomes clearly do not always benefit from this risk mitigation.

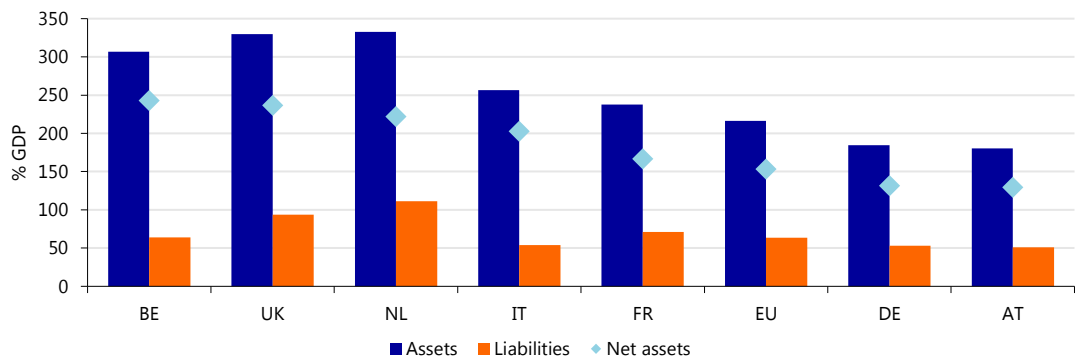
Wealth

Besides (current) income, depletion of assets, such as savings or investments, is another way to service mortgage obligations. In international comparisons, mortgage debt (proxied by financial liabilities, expressed as percentage of GDP) in the Netherlands ranks the highest in Europe at over 100% of GDP. However, on the other side of household's balance sheet are also substantial assets to counterbalance the large debt pile. Dutch households have the largest asset base in Europe, standing at more than 330% of GDP.

The majority of this household wealth, however, is relatively illiquid. Pension and insurance funds are the largest share of assets, along with (residential) real estate. In contrast, money on current and savings accounts is relatively modest, also compared to other European countries. However,

due to the generous social security system, the need and incentive for households to save (more) is also lower.

Figure 11: Aggregate financial balance sheets households (2017)

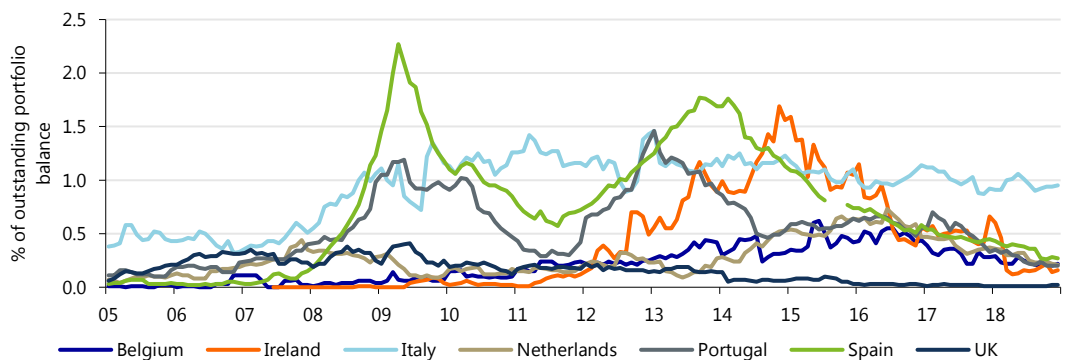


Source: Eurostat, Rabobank

Historical credit performance

The factors described above are significant contributors to the strong performance of Dutch RMBS during crisis periods. Dutch RMBS, and European ABS in general, came out of the financial crisis relatively unscathed, especially when compared to the US.

Figure 12: Constant default rates various Prime RMBS indices

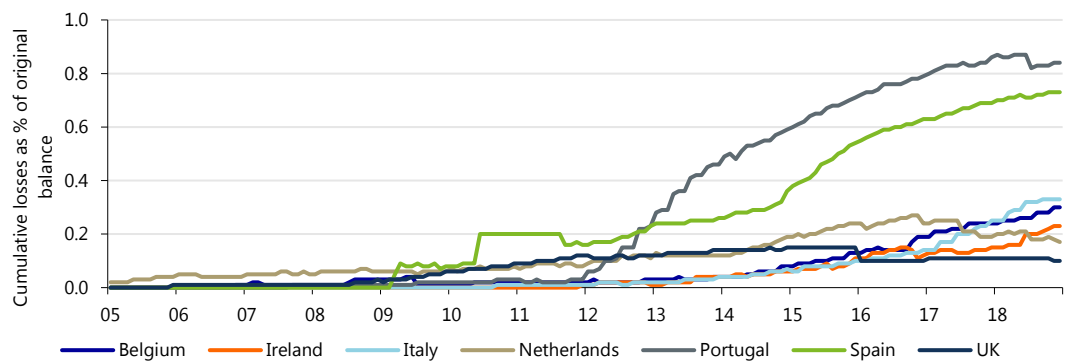


Note: constant default rate is defined by Fitch as $1 - (1 - ([\text{Gross defaults (Period)}] / [\text{Collateral Balance (Excl. Defaults)}])^{\text{Annualisation rate (Period)}})$
 Source: Fitch

Unlike RMBS from the periphery, which saw default rates rise quite a bit in 2008, Dutch RMBS actually saw default rates decline throughout 2008 and afterwards. Default rates on Prime Dutch RMBS deals only started to rise after 2013, which is when the housing market bottomed out in terms of prices. The substantial safety nets provided by the Dutch social security system result in a lag between when for instance someone loses their job and when this will impact payments on the mortgage loan. As a result, the default rate peaked around halfway in 2016 at 0.73% of the outstanding portfolio balance, after which it moved down again to reach 0.21% in December 2018.

It is a similar story for cumulative losses (see Figure 13 on the next page) as those peaked around 2016/17 as well, after having steadily risen over the years. Nonetheless, cumulative losses are relatively limited for Dutch Prime RMBS and stood at 0.17% in December 2018.

Figure 13: Cumulative losses various Prime RMBS indices



Note: Realised cumulative losses are calculated by Fitch as [Realised losses (cum)] / [Collateral Balance (Incl. Defaults)] at closing + New Loans Purchased (Period)] since closing

Source: Fitch

Credit risk: housing market

Recent developments in Dutch housing market

Following the 2008 crisis, housing prices started their descent, bottoming out halfway in 2013. Since then, the Dutch housing market has seen very good times with strong price growth across the Netherlands, especially in the last couple of years. Large cities, such as Amsterdam, have seen even more rapid price appreciation. The result is that nominal house prices in the country have now surpassed the previous peak that was reached in the summer of 2008.

Nonetheless, this is not to say that the Dutch housing market has not been showing some signs of fatigue: sales have been trending down, though they are still well above levels observed in the 2008-2013 crisis period (and even above pre-crisis levels as well), and confidence among consumers in both the housing market and the economy have been declining recently as well. Additionally, while homes continue to be relatively affordable to finance due to sustained low mortgage interest rates, the rapid price increases over the past few years have significantly affected the accessibility of homeownership. Finally, the tightening of underwriting standards over the years has gradually resulted in more own funds being required, further reducing accessibility. This has hit first-time buyers especially.

Overall, we expect sales to decline further going forward, whereas we anticipate prices to appreciate less abundantly than the pace observed in previous years.

Probability of default versus loss-given default

The state of the housing market has only a limited effect on the probability of default for Dutch mortgage loans as 'walk aways' by borrowers are very rare due to full borrower recourse. Additionally, whereas in most countries the LTV level is an important indicator for assessing the probability of default of a borrower, in the Netherlands, this relationship is less straightforward due to distortions from the generous tax incentives. As a result, the debt-to-income ratio is a much more relevant indicator for assessing default probabilities.

The loss-given default, on the other hand, is highly dependent on the development of house prices, making the health of the housing market an important consideration. The recovery rates of delinquent loans are directly linked to house prices. The strong house price appreciation over the last few years has thus resulted in a low loss-given default. In a similar vein, reduced levels of negative equity have also contributed to a decrease in loss-given default.

Negative equity no longer a concern

Negative equity has declined rapidly following years of (strong) house price appreciation. Whereas in 2013 around 35% of households had negative equity, this has dropped to around 6% in Q2 2018. Besides the large increase in house prices, prepayments have also contributed to the reduced levels of negative equity (€75bn since 2013 according to *DNB*). Overall, the reduction in negative equity is a clear positive in terms of credit risk as recovery rates are likely to be higher.

Credit risk: underwriting standards

Credit risks for Dutch RMBS transactions on an aggregate level are to a large extent determined by the macro-economic environment and the housing market. In contrast, performance differences between individual Dutch RMBS transactions (i.e. micro level) are mostly caused by differences in underwriting criteria. However, with the addition of arbitrage deals and Buy-to-Let, there is more diversity in the underlying collateral as well.

Still, underwriting criteria are highly homogenous and follow from the strict underwriting legislation, and to a lesser extent from the Mortgage Code of Conduct. Nonetheless, differences between originators do occur. Underwriting criteria are also dependent on time of origination (i.e. vintage year). As underwriting criteria have only been tightened in 2011 following the peak of the housing market in 2007–2008, loans originated around this peak also have the highest credit risk in terms of underwriting standards. In times of competitive origination environments (as we are currently in), it is possible that underwriting standards might loosen as originators are potentially looking to expand their market share. Indeed, this seems to be the case as data from the *DNB* shows that from 2017 onwards, credit standards and terms and conditions have been easing. Still, credit risk resulting from underwriting standards is likely to be limited.

Summing up credit risk

Overall, credit risks of Dutch mortgage loans are (very) low as the unemployment rate is close to pre-crisis lows (low probability of default) and rising house prices/low levels of negative equity (low loss-given default) are clear positives as well. However, the cyclical highs that have been reached – high economic growth and record low unemployment – will obviously not last forever. Nonetheless, even if we are moving somewhat down from this high above-trend economic growth, credit risks still remain subdued.

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