

## RESEARCH

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# European ABS and RMBS – Another Year into the COVID-19 Pandemic

## Introduction

This research paper is the second in a series which analyzes the effect of the COVID-19 pandemic on European ABS and RMBS asset classes. Since March 2020, various countries across Europe have imposed restrictions on travel, multiple national lockdowns and several fiscal and monetary stimulus packages. All of these endeavors were undertaken to support economies, combat unemployment surges, and GDP shrinkage.

We used Moody's Analytics January 2021 macroeconomic scenarios and credit models to stress the collateral of several ABS and RMBS asset classes across European countries. Resulting collateral performance was then used to project cash flows and tranche losses across seniorities and other parameters. The losses highlighted varying results which are discussed in this paper.

Further, the results determine that the various stimulus packages have fulfilled their purpose of maintaining a stable performance for most asset classes. For example, Spanish MBS and UK MBS non-conforming show improved loss projections compared to last year.

In general, we project small deteriorations in Italian ABS autos. However, we project flat collateral performances with minor or negligible impact for ABS autos from other countries. In regard to consumer loans, Spanish, Portuguese and French deals are forecasted to experience the highest collateral losses. For MBS, Italian, Dutch and Portuguese tranches, as well as UK MBS tranches with collateral categorized as non-conforming, are expected to be the most impacted.

Table 1 Research results summary

| Projected Tranche Losses for European ABS and RMBS |                 |                      |                        |                 |                 |                       |                 |                   |                   |                      |
|--|-----------------|----------------------|------------------------|-----------------|-----------------|-----------------------|-----------------|-------------------|-------------------|----------------------|
|  | No losses       |                      | Low losses             |                 | Moderate losses |                       | High losses     |                   |                   |                      |
|  | UK buy-to-let   | Dutch Consumer loans | Spanish Consumer loans | Italian Auto    | German Auto     | UK MBS non-conforming | Dutch MBS Prime | Spanish MBS Prime | Italian MBS Prime | Portuguese MBS Prime |
| Senior   | No losses       | No losses            | No losses              | No losses       | No losses       | No losses             | No losses       | No losses         | No losses         | Low losses           |
| Mezzanine  | No losses       | No losses            | No losses              | No losses       | No losses       | Moderate losses       | Moderate losses | Moderate losses   | Moderate losses   | Moderate losses      |
| Junior   | Moderate losses | Moderate losses      | Moderate losses        | Moderate losses | Moderate losses | High losses           | High losses     | High losses       | High losses       | High losses          |

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## Pandemic impact on macroeconomic forecast

### Macroeconomic scenario narratives

Moody's Analytics updated its global macroeconomic forecasts in January 2021. The main scenarios' assumptions, as well as the probability distribution, are explained in greater detail in the report "[Global Macroeconomic Outlook Baseline and Alternative Scenarios.](#)"

- » **January 2021 baseline scenario:** Over the last year and mainly during the second quarter of 2020 the global economy experienced an unprecedented downturn because of the COVID-19 pandemic. Moody's Analytics projects that in 2021, the global GDP will increase to 5%, which will be achieved through the fiscal and monetary policies that have been formed and followed by governments and central banks. Potential risks are another COVID-19 wave, Brexit, and a deterioration on the trade relations between the US and China. These constitute risks which could cause a downturn on the European economy.
- » **January 2021 moderate recession scenario:** The number of COVID-19 cases and deaths are expected to increase in 2021, lockdowns will be extended and consequently, economies will require more time to recover compared to the baseline scenario forecasts. In addition, government stimulus packages will be limited due to large fiscal deficits, commodity prices will decrease, and populism will rise in Europe. As a result, unemployment is expected to rise, household consumption to drop, productivity to abate, and GDP to shrink.

To compare with last year's forecasts, we employ the below 2020 scenarios:

- » **March 2020 baseline scenario:** Moody's Analytics forecasts global real GDP growth to be just 1.9% year-over-year in 2020, decelerating from 2.5% in 2019. Global growth slowed down sharply as major global economies deal with the widespread effects of COVID-19. However, policymakers worldwide responded to the pandemic's economic toll. Central banks reduced interest rates, and countries throughout Europe introduced substantial fiscal stimulus packages.
- » **Pre-COVID-19 baseline scenario:** Before the COVID-19 outbreak, the European economy slowed down with year-over-year GDP growth contracting by 33% in 2019. Several macroeconomic risks—such as the US-China trade war and uncertainty around Brexit— amplified the global slowdown. As a result, Eurozone investments and exports slowed sharply, dragging the manufacturing industry into a full-blown recession. Toward the end of 2019, some of these risks diminished based on better clarity over Brexit, and the US and China agreeing on a Phase One deal.<sup>1</sup>

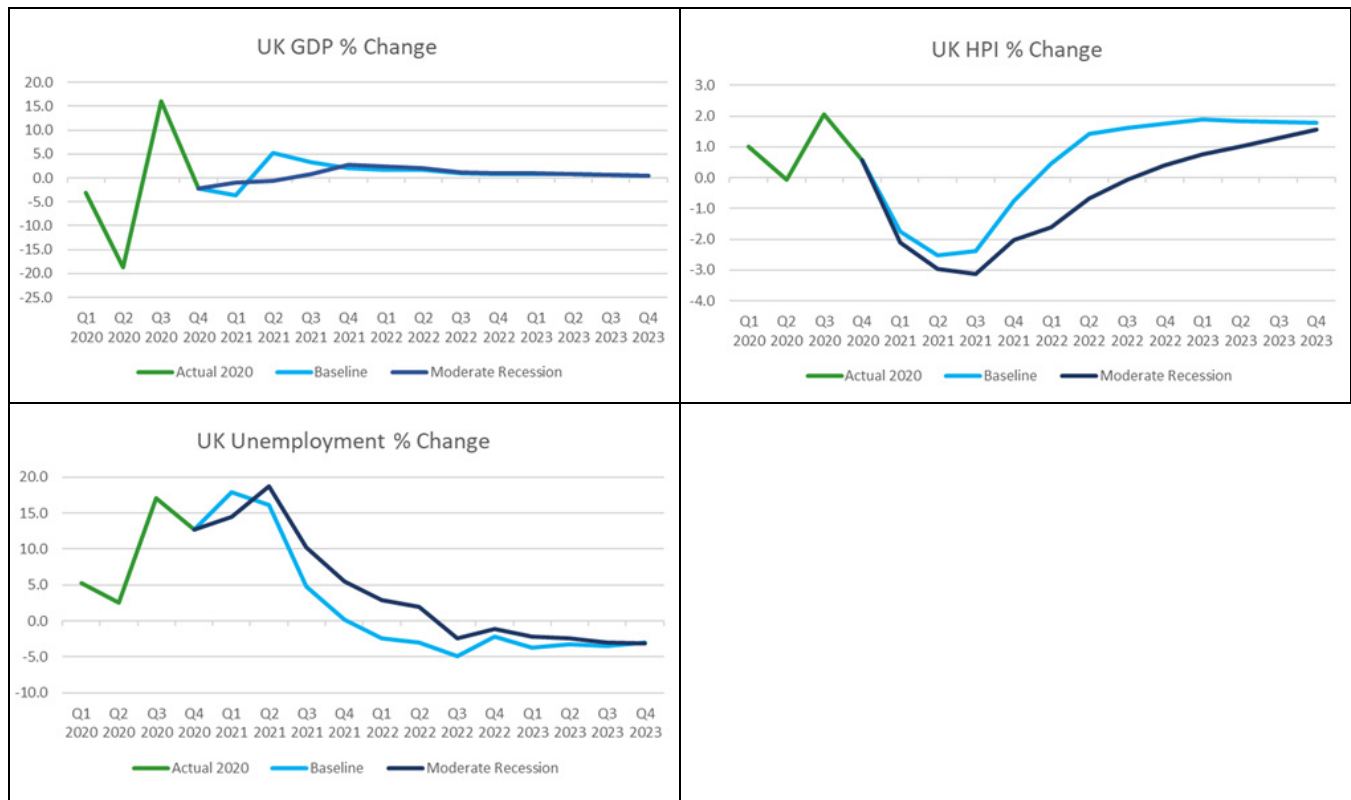
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<sup>1</sup> [Global Outlook 2020 https://www.economy.com/.](https://www.economy.com/)

## Pandemic impact on macroeconomic forecast by country 2021

### UK macroeconomic forecast

Figure 1 UK forecast of GDP, HPI and unemployment



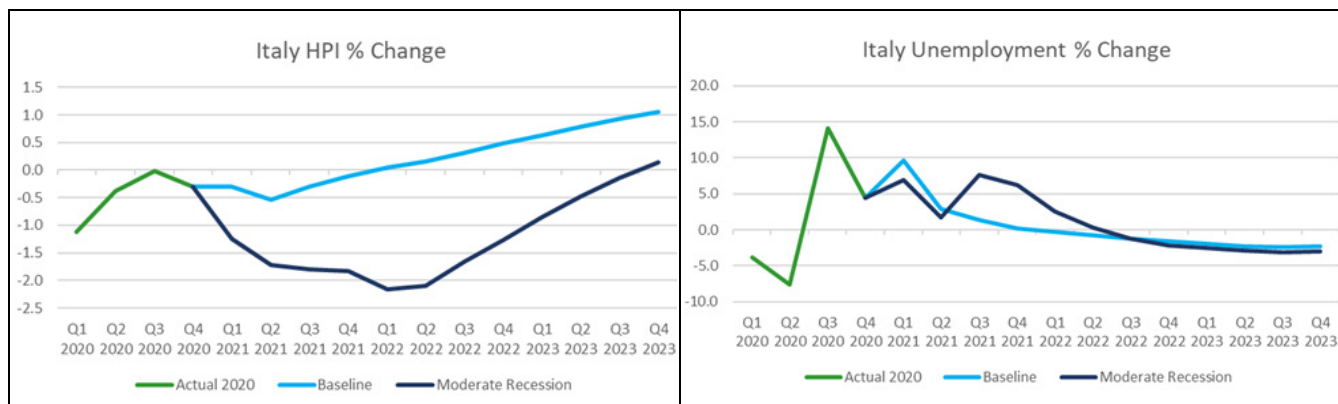
Based on both baseline and moderate recession scenarios projections, the pandemic is expected to continue to have a negative impact on the UK economy at the beginning of 2021. The baseline scenario predicts that compared to the end of 2020, UK GDP will increase until the end of the year by 2.5%. This is due to the continuous support from the UK government along with the loose monetary policy that is expected to follow by the Bank of England. After 2021, the two scenarios converge, presenting a slight GDP change above zero as the vaccine's wide availability helps stabilize the economy over the next few years.

Based on the macroeconomic forecasts, both the baseline and the moderate recession scenarios project the UK House Price Index (HPI) to deteriorate compared to 2020, at least until the first quarter of 2022. More specifically, we expect a correction in house prices, as they have been artificially maintained at high levels due to the fiscal stimulus of stamp duty tax and mortgage payment holidays.

The pandemic also had a significant impact on the unemployment rate in the UK in 2020. Under the baseline and the moderate recession scenarios in Q1 2021, unemployment is forecasted to increase by 18% and 15% respectively compared to the previous quarter where it increased by 13%. This is due to the termination of job retention schemes at the end of March. Both scenarios predict that after Q2 2021, unemployment percentage change in the UK will decrease over the next year. According to the baseline scenario, after Q4 2021, the unemployment rate will start decreasing.

## Italy macroeconomic forecast

Figure 2 Italy forecast of GDP, HPI and unemployment



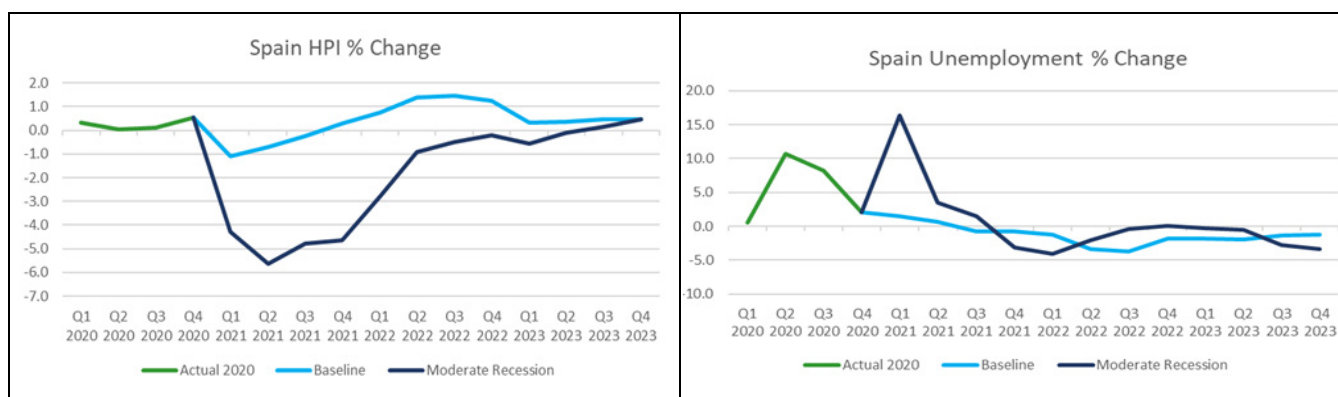
Last year Italy introduced the “Decree” and the “Relaunch” stimulus packages and extensions of them which amounted to 6% of the country’s GDP. Both scenarios project Italy’s GDP percent change to remain constant which is slightly above zero over the next five years.

The baseline scenario forecasts that during Q2 2021, the House Price Index (HPI) percentage change will start an upward and steady course until the end of 2023. Under the moderate recession scenario, the falling asset prices and the high public debt are expected to push the HPI down by 1-2% until the end of the first half of 2022. From that point in time, HPI is forecasted to start rebounding to a steady pace, surpassing its 2020 threshold.

The employment situation in Italy deteriorated in Q4 2020 as the unemployment rate increased by 5%. In the long term, the predictions of the baseline scenario regarding the performance of the unemployment change coincide with those of the downside moderate recession scenario. In the baseline scenario, the unemployment rate in the first quarter of 2021 is forecasted to rise again by 10%. However, the wide distribution of the vaccine is expected to contribute significantly to Italy’s economic recovery, leading to a reduction of the unemployment percentage change and the unemployment rate over time. By Q3 2022 Italy’s unemployment rate is expected to start decreasing by a rate of 2%.

## Spain macroeconomic forecast

Figure 3 Spain forecast of GDP, HPI and unemployment



Under the baseline and moderate recession scenarios, the Spanish HPI index performance differs significantly over the next few years. More specifically, the moderate recession scenario indicates that the HPI percent change declines by 5.5% from Q4 2020

until Q2 2021. However, it moderately rebounds to its previous 2020 levels by Q4 2023. Under the baseline scenario, the HPI index fluctuates only slightly given the less severe baseline assumptions.

Even during periods of growth, Spain has experienced structurally high unemployment rate. The baseline scenario predicts unemployment rate to drop with a rate between -1% and -4% during 2022 and 2023. The moderate recession scenario projects unemployment percentage change to peak in Q1 2021 at 17% as the recurrence of lockdowns is expected to negatively impact the employment rate. Starting in Q4 2021, unemployment rate is forecasted to reduce by 3% and keep decreasing until Q3 2022.

### Impact of post-pandemic forecast on ABS

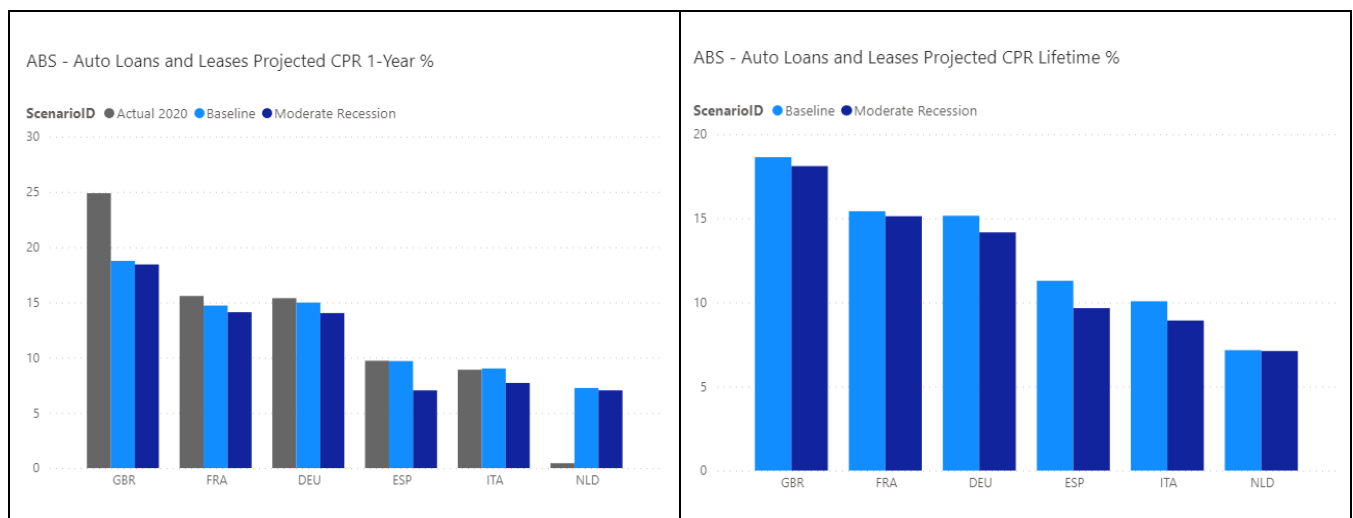
In this section, we analyze the impact on ABS securitizations across countries and asset classes to identify types of assets that are significantly affected. The macroeconomic forecasts outlined above are utilized as inputs to credit models<sup>2</sup> for several asset classes. We review the impact of these models on the collateral pool's forecasted defaults and prepayment as well as the impact of the collateral losses on the deals' capital structure.

### Impact of post-pandemic forecast on ABS auto loans and leases

#### ABS – Auto loans and leases - Assets

Based on the latest macroeconomic assumptions, Constant Prepayment Rate (CPR) is projected to increase both in the short and long term for auto deals. In 2020, we observed a higher CPR than initially projected for UK auto loans and leases, at 24.9%, which may be the result of the extensive stimulus packages employed by the UK government and the Bank of England. The latest 2021 baseline scenario projects that the forecasted CPR will decrease in the short terms to 18.8%. Similar patterns can be seen for other European countries such as France, Germany and Spain.

Figure 4 ABS – Auto loans and leases CPR actual 2020 and projections



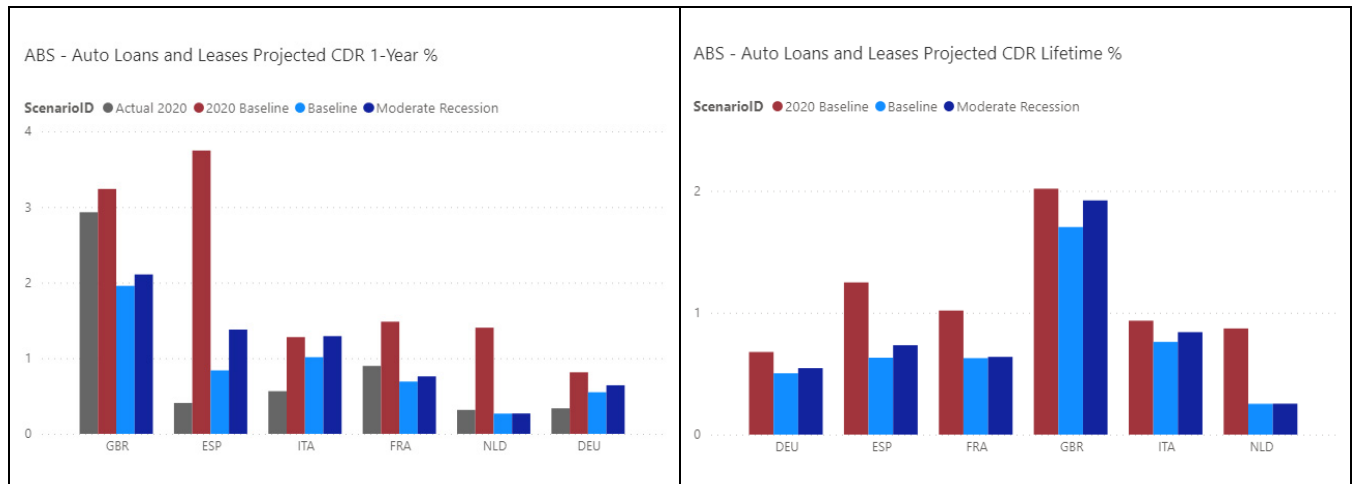
In regard to Constant Default Rate (CDR), the new assumptions result in improved projections for the baseline scenario. Previously, auto deals from all European countries showed higher CDR 1-Year under the 2020 projections. As presented in Figure 5, CDR for UK auto loans and leases averaged 3% in 2020, in line with last year's projections. For 2021 we expect an improved forecasted performance for UK auto loans and leases by one percentage point to 2%. We also anticipate an improvement for the long-term UK auto loans and leases CDR which is projected to reduce from 2% to 1.7%. The high CDR for UK auto deals correlates with the prediction that UK unemployment will increase to 7.4% by the end of 2021. For Spanish auto loans and leases in 2020, we observed that the actual CDR performance was below 0.5% compared to 2020 projections of 3.7% at baseline scenario. This is a

<sup>2</sup> The credit model methodology is explained in the Appendix section.

result of better unemployment performance in 2020 compared to last year's baseline assumptions. For 2021, the projection for Spanish auto deals is 0.8%

For all other European countries in 2020, we observed that the actual CDR performance was better than the 2020 baseline projections. This is the result of various stimulus packages employed by those countries, slower increase in unemployment and longer moratorium extensions compared to the UK, which was closest to the projection. The best CDR performers in 2020 were Dutch deals, however all other countries remained under the 1% level. The projections for 2021 CDR 1-Year and long-term CDR is improved across all other European countries when we compare them to last year's and this year's projections.

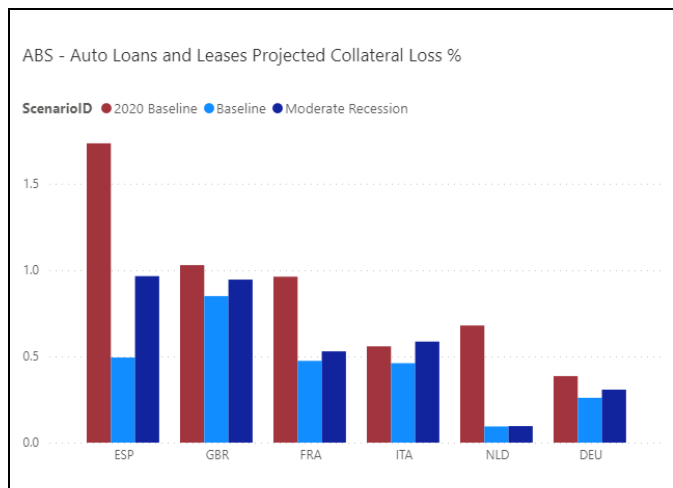
Figure 5 ABS – Auto loans and leases CDR actual 2020 and projections



The projected collateral losses show a similar trend for European countries. Projected collateral losses for UK deals are set to decrease from last year's projections, but to be the highest among European countries close to 0.8%. In the recession scenario, there is a 0.1 percentage point increase, driving the total projected losses above the 0.9% level.

A similar trend is observed for deals from most European countries except for Spain. The latter are expected to show a more improved asset performance when it comes to defaults and is reflected in the projected collateral losses also, which are set to improve by 1.2 percentage point to the level of 0.8%.

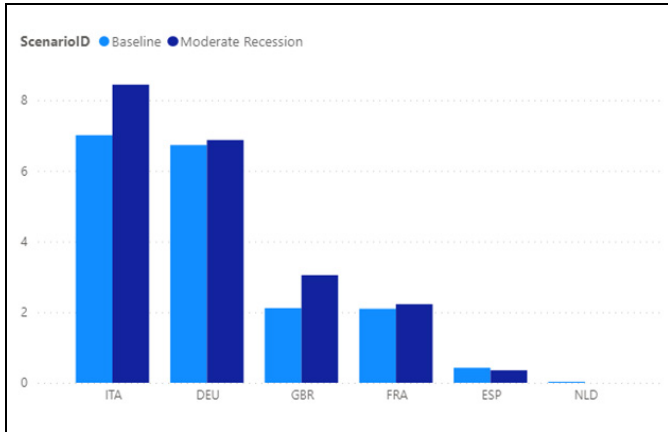
Figure 6 ABS – Loans and leases collateral loss projections



## ABS – Auto loans and leases - Tranches

Overall, junior tranches for ABS auto deals seem to have a flat performance across European countries. The junior tranches are projected to experience losses of 0%-2% across countries, with the exception of Germany and Italy. The latter shows 7% average losses in the baseline scenario with an increase to 8.4% for Italian deals under the moderate recession scenario.

Figure 7 ABS – Auto loans and leases tranche loss projections



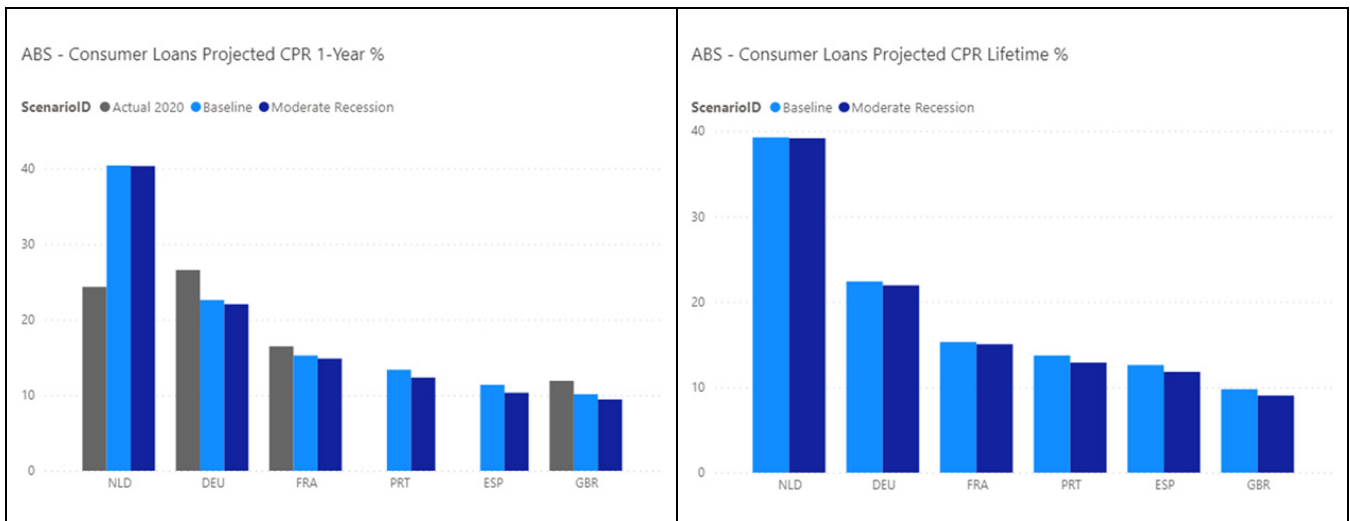
Finally, for senior and mezzanine tranches, there are no projected changes to their performance compared to the one projected before the pandemic. Mezzanine tranches also do not incur any severe or moderate losses.

## Impact of post-pandemic forecast on ABS – Consumer loans

### ABS consumer loans – Assets

For consumer loans across all countries except the Netherlands, CPRs are forecasted to be slightly lower than their actual 2020 average level. Dutch deals exhibit the highest CPR for both 1-Year and lifetime projections and more specifically, CPR 1-Year is forecasted to increase from 25% to 40%.

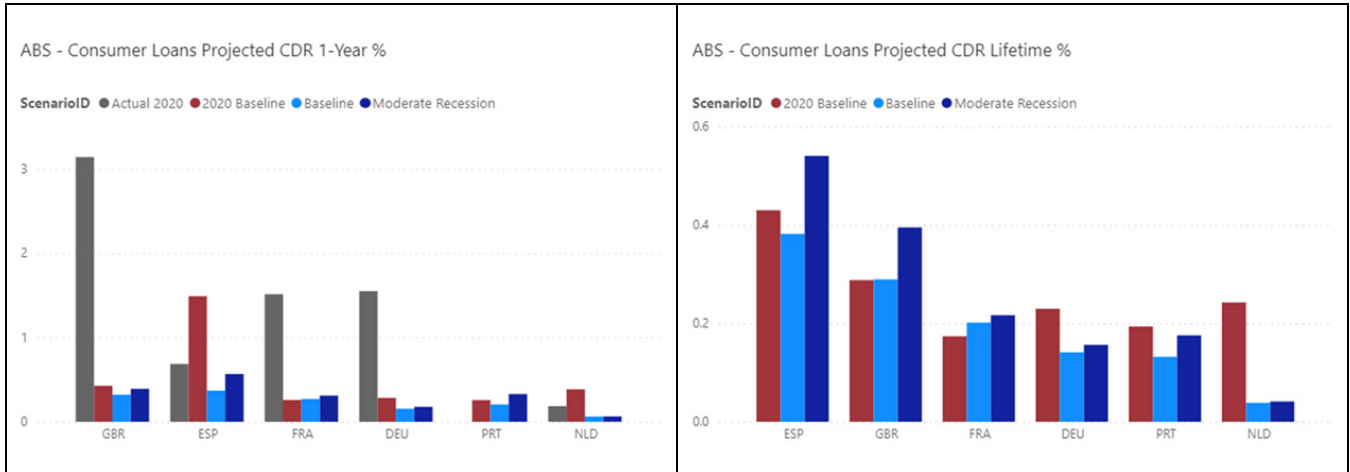
Figure 8 ABS - Consumer loans CPR actual 2020 and projections





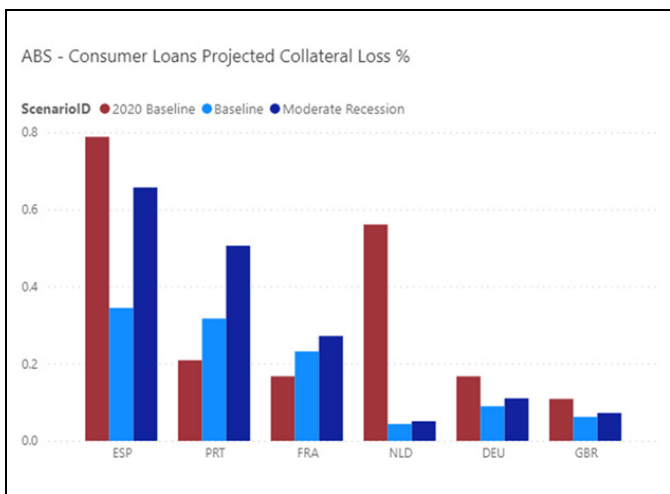
In terms of projected defaults, the average CDR in 2020 for UK, French and German deals were significantly higher in the short-term than projected. This is justified by the sharp increase in the unemployment rate of these countries during the past year. There is a clear improvement in the short-term forecasted CDR rates for Spanish deals compared to last year's projections regardless of scenario severity. On the other hand, Spanish and UK deals' long-term CDRs show deterioration of 0.1 percentage point under the moderate recession scenario.

Figure 9 ABS – Consumer loans CDR actual 2020 and projections



Finally, we look at the projection of the collateral losses for consumer loans across different countries. In most countries, we observe a small decrease compared to last year's forecasts and a clear improvement in the collateral losses for Spanish and Dutch deals. This is a direct consequence of the improved forecasted CDR for Spanish consumer loans, despite levels remaining high overall compared to other European countries. Yet for Portuguese deals backed by consumer loans, we expect a deterioration from 0.2% to 0.3% in the projected losses under the baseline scenario and 0.5% under the moderate recession scenario. This deterioration is due to the effects of the pandemic's second wave stressing households' balance sheets and the forecasted Portuguese GDP which is not expected to rebound to its pre-pandemic levels until 2024.

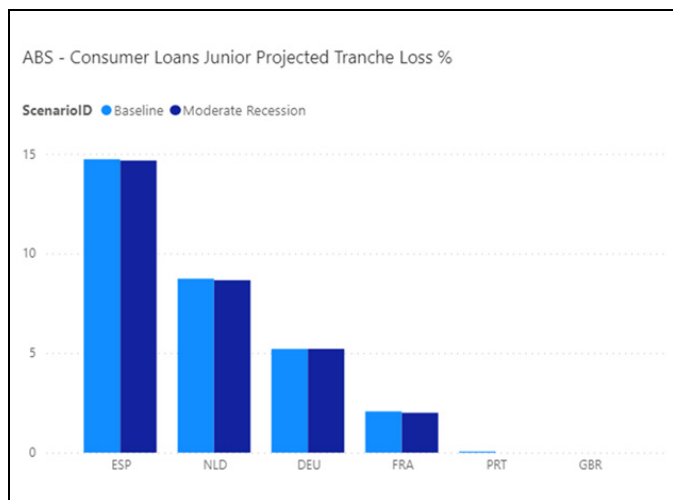
Figure 10 ABS – Consumer loans collateral loss projections



## ABS – Consumer loans - Tranches

For junior tranches backed by consumer loans, Spanish tranches are the most affected. These tranches are projected to experience an average loss of 15%. A number of Spanish deals are undercollateralized and the junior tranches are mostly affected by this undercollateralization. Junior tranches in Dutch deals are projected to experience the second highest losses across European countries at 8.7%.

Figure 11 ABS – Consumer loans junior tranche loss projections



## Impact of post-pandemic forecast on MBS securitized assets

### Impact of post-pandemic forecast on MBS prime

#### MBS prime assets

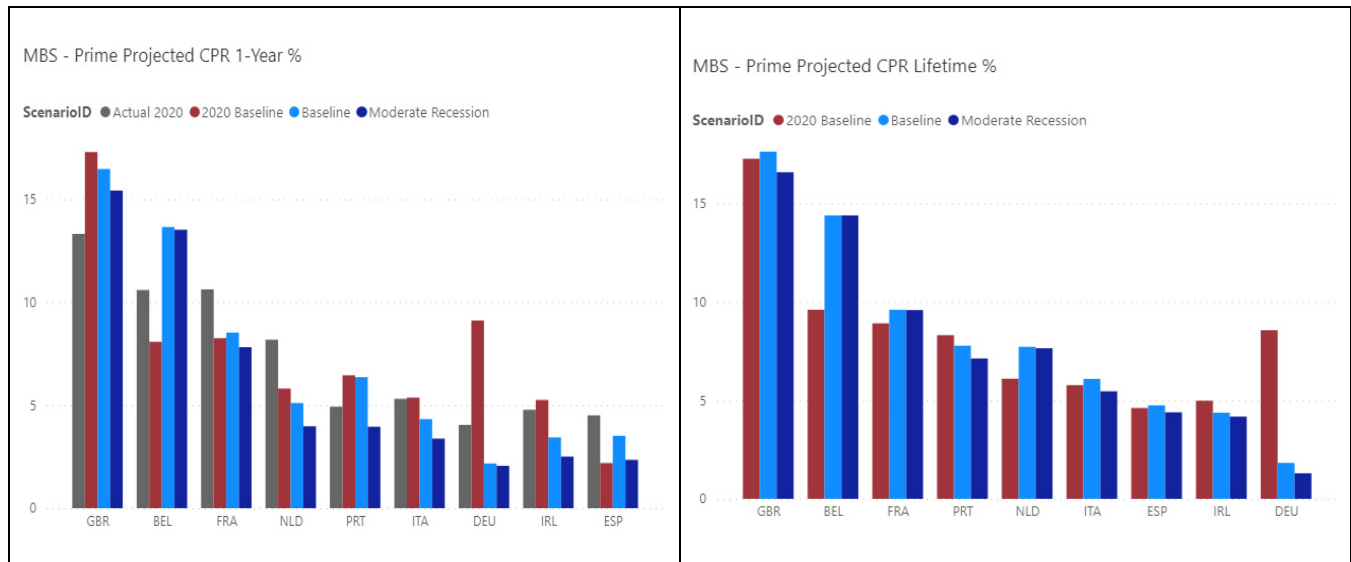
The overall high average CPRs observed in 2020 are a result of the better macroeconomics performances compared to last year's forecasts for most countries. More specifically, French, Belgian, Dutch and Spanish deals all outperformed last year's projection in 2020. On the other hand, UK and German deals showed lower CPR levels in 2020 compared to last year's projection. While GDP in general followed a more recessionary scenario, unemployment was consistent to baseline scenario for all countries. Additionally, the HPI change was, in some cases such as Belgium and the Netherlands, higher to positive territory than baseline.

CPR for Spanish prime mortgages show a big increase compared to last year's forecasts in the short-term from 2.2% to 3.5%. This is followed by Belgian deals with an increase of 5 percentage points compared to last year's forecast. Belgian deals also show the biggest increase in long term projected CPR compared to last year's forecast with an increase from 9.6% to 14.4%.

As a result of the performance of the macroeconomic metrics mentioned above, forecasted CPRs for UK MBS prime are projected at a lower 16.5% level in the short-term compared to last year's forecast of 17.3%. For German deals, the actual CPR was 4.0%, almost 5.1 percentage points lower than last year's projection of 9.1%. For 2021, the projection is that it will deteriorate further compared to last year's performance, to almost 2.2%. The long-term CPR for German deals reduces to 1.8% compared to last year's 8.5% projections.

On the other hand, for Dutch deals, the actual CPR for 2020 was higher compared to the projected by 2.4%, with projection remaining low, almost 0.7% lower than last year's projection at 5.1%. For Dutch deals, the long-term CPR increases to 7.7% compared to last year's projection of 6.1%. CPR for Portuguese deals will be affected the most in a short-term moderate recession scenario with a projected 3.9% compared to 6.4% for the baseline scenario.

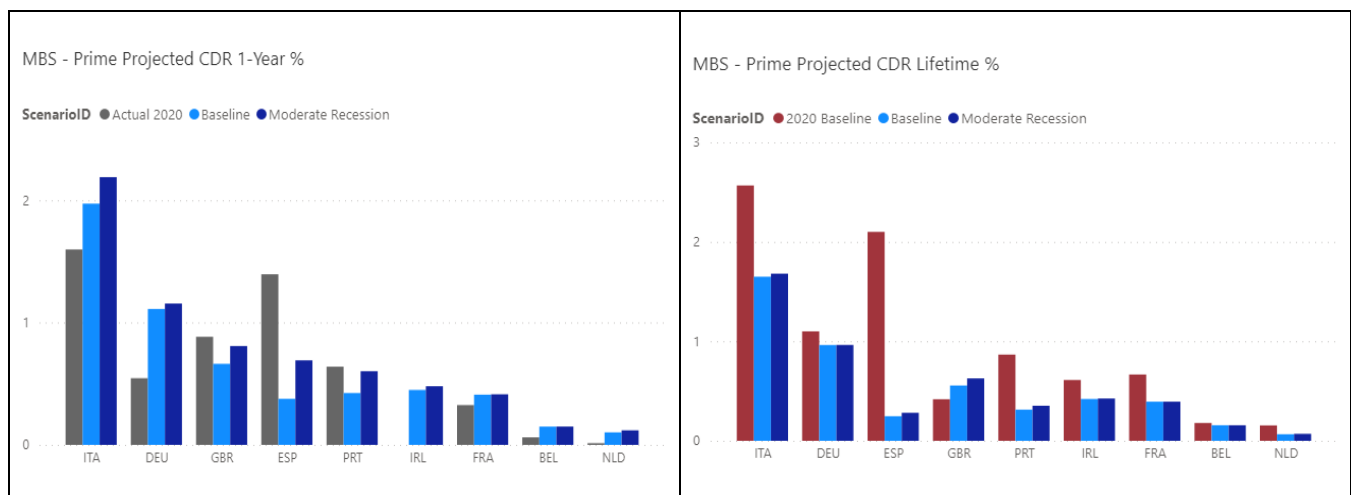
Figure 12 MBS – Prime CPR actual 2020 and projections



CDRs are forecasted to increase compared to their overall 2020 performances across Europe, as shown in Figure 13. The average 2020 CDR levels have remained low thanks to the various support packages and payment holidays provided by the governments across Europe. In 2020, Italian and Spanish MBS Prime CDR averaged at 1.4% and 1.6% respectively. However, Italian deals are projected to increase to 2% from 1.6% actual CDR in 2020, while Spanish deals are set to improve by 1% from 1.4% actual 2020 CDR to 0.4%.

When it comes to long term projections, Italian MBS prime deals show improved CDR lifetime projections compared to last year's projections. However, they remain as the highest across all European deals at 1.7%. Spanish MBS prime, which was the second highest lifetime CDR projection last year at 2.12%, showed an improved projected CDR of 1.8% under the baseline scenario. The rest of the European countries show small improvements in their CDR lifetime projections between 0.2%-0.5%.

Figure 13 MBS – Prime CDR actual 2020 and projections

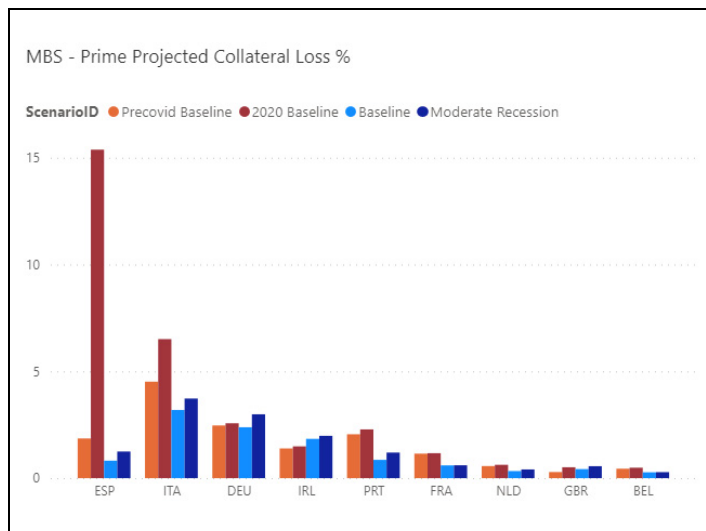


The projected collateral losses show little impact when comparing the pre-pandemic and 2020 scenarios. In line with their high projected CDRs, Italian MBS Prime collateral losses are also projected to be the highest under both scenarios. However, compared to last year's projection, this year's projected losses for Italy show a slight improvement from 6.5% in last year's projections to

3.2% under this year's scenarios. In the moderate recession scenario, the projected loss is at 3.7%, almost 0.8 percentage point lower than the pre-pandemic scenario and 0.5 percentage point higher than the baseline.

At the beginning of the pandemic in 2020, Spanish collateral losses were projected to be the highest in Europe at 15% under a baseline scenario. This year's projected collateral losses are expected to be much lower under both baseline and moderate recession scenarios. The credit models used for projecting CDR for Spanish MBS incorporated high sensitivity to very steep increases in macroeconomic changes and the correlation impact between these macro changes. Last year, unemployment was projected to increase by more than almost 48% while the realized increase was only 15%. With unemployment at lower levels, the realized CDRs for Spanish MBS remained close to 1.5% lower than 2%, which was last year's projection for long-term CDR.

**Figure 14 MBS – Prime collateral loss projections**



### MBS prime tranches

In Figure 15, we observe that Spanish junior tranches show a massive improvement across scenarios, a direct consequence of the similar improvement in projected losses for Spanish MBS prime collateral. The 2021 baseline scenario projects a 14.4% loss on junior tranches compared to over 60% at the start of the pandemic. Italian junior tranches show the highest projected losses, in line with the high projected collateral loss increase in this year's forecast as seen in Figure 14.

Significant increases in junior tranche loss are forecasted for Dutch and Portuguese deals which are projected to experience losses between 21.1% and 15.4% respectively. This is a small increase of last year's projections by 2.2% for Dutch junior tranches and 2% for Portuguese junior tranches. Lastly, tranches from French deals are also showing improvement from 6.1% to 3.7% in the latest baseline scenario.

Dutch and Spanish mezzanine tranches are the most impacted by the pandemic. More specifically, Dutch mezzanine tranches are projected to experience losses of 13.8% even though the same metric in January 2020 was projected to be just 4.7%. For Spanish mezzanine tranches, the same increase is milder, from 4.3% to 5.1% compared to 0.8% under the pre-COVID baseline scenario. Senior tranches for Portuguese deals are also impacted with minor losses, as shown in Figure 16.

Figure 15 MBS – Prime junior and mezzanine tranche loss projections

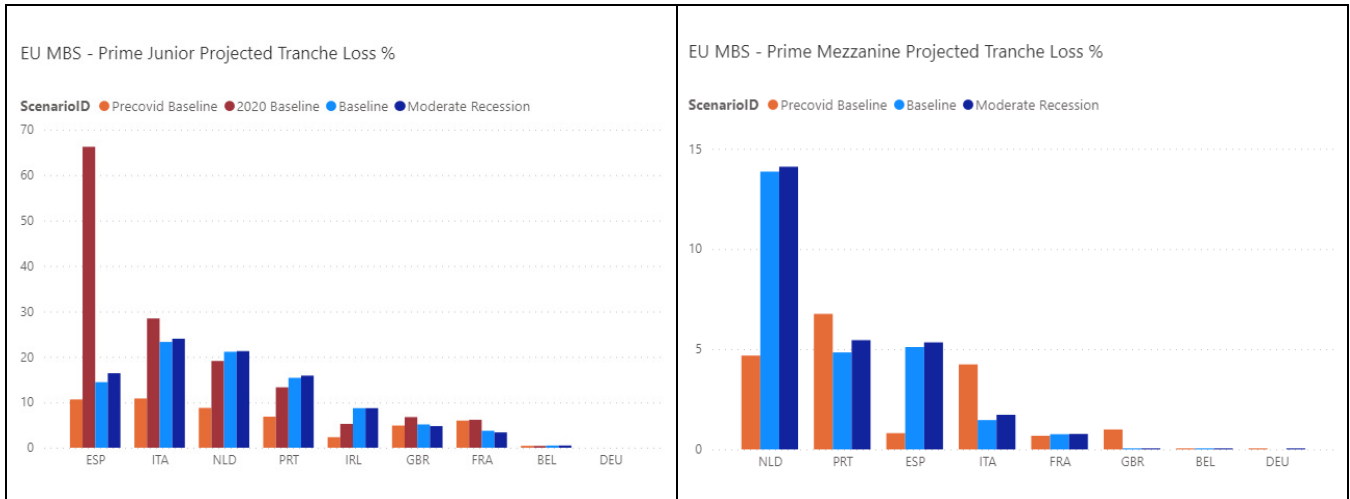
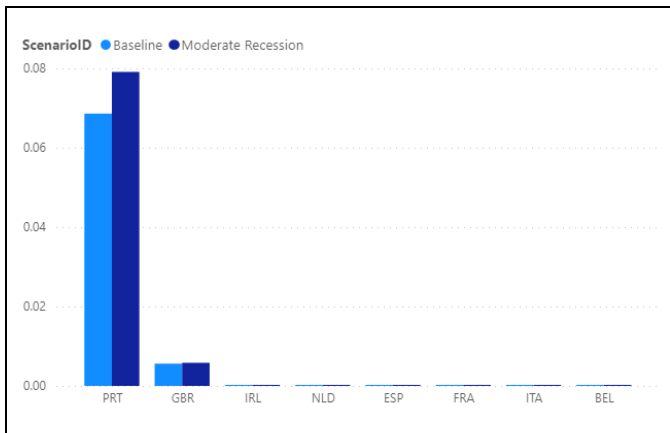


Figure 16 MBS – Prime senior tranche loss projections



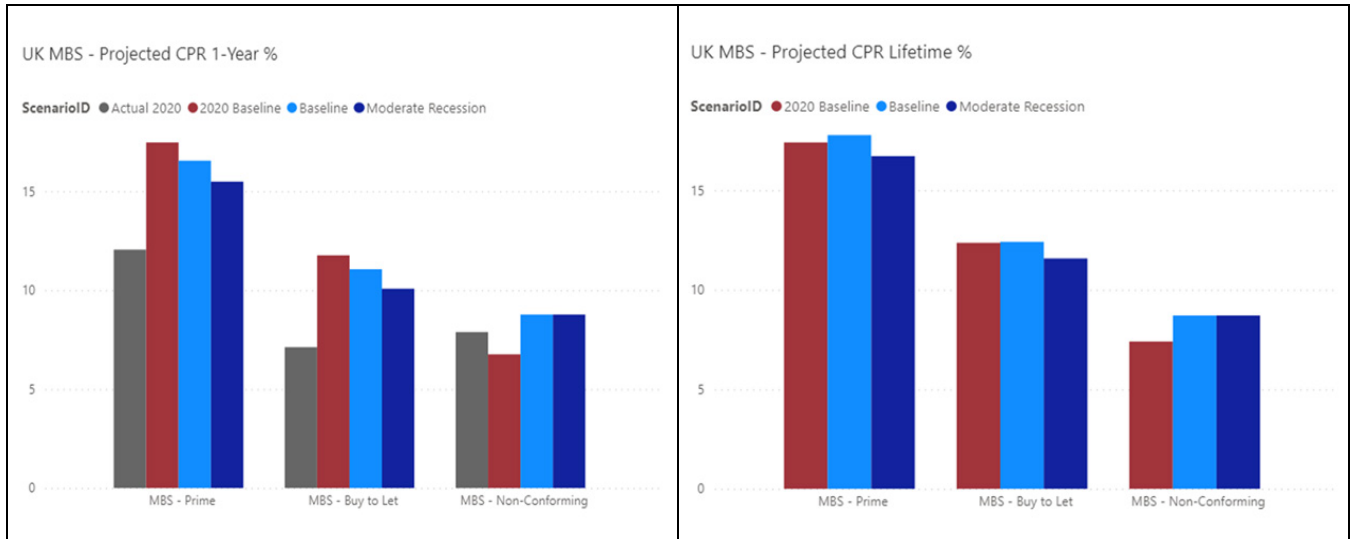
### Impact of post-pandemic forecast on UK MBS buy-to-let and non-conforming

#### UK MBS buy-to-let and non-conforming assets

The realized CPR for UK MBS buy-to-let deals in 2020 was 7.1%, significantly lower compared to the 2020 baseline projection. In the short-term, CPR is projected to increase at 11.06% under a baseline scenario, a decrease from 11.76% in last year's forecast. In the long-term, CPR is forecasted to be 12.3% for the baseline scenario, which is aligned with last year's baseline projections. UK MBS prime deals show the same trends, however with higher projected CPR 1-Year at 16.5%.

UK non-conforming assets showed a realized CPR of 7.9%, higher than last year's projected CPR of 6.8%. Under the 2021 baseline scenario, CPR is projected to improve slightly in both the short- and long-term.

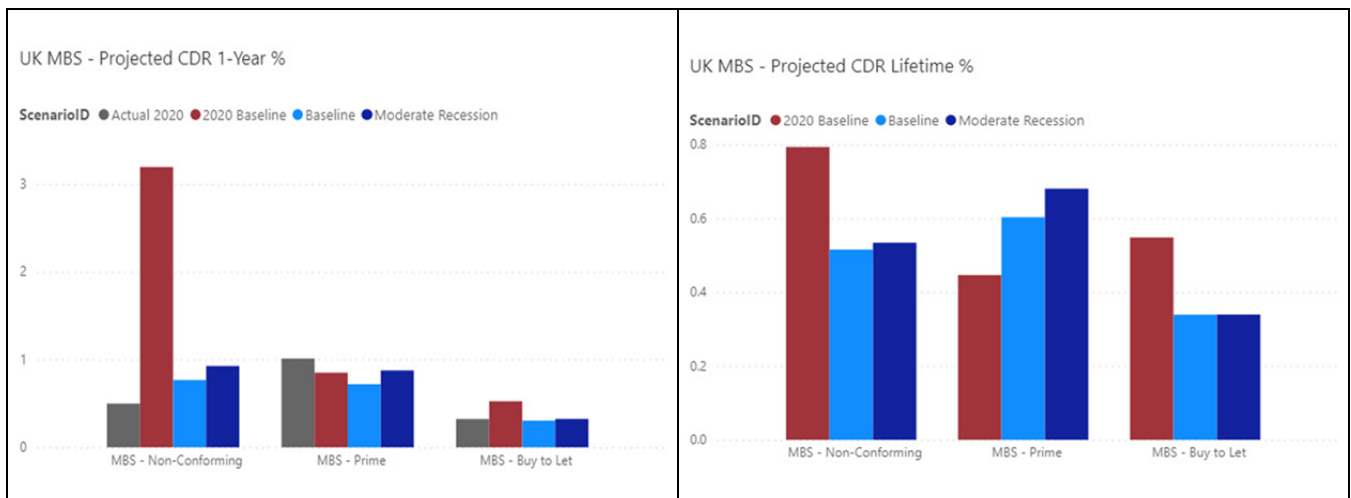
Figure 17 UK MBS CPR actual 2020 and projections



CDR for UK buy-to-let deals are projected to remain flat on the CDR levels observed in 2020, as shown in Figure 18. However, projections for both the 1-Year and Lifetime CDRs, are slightly lower than last year at 0.3%.

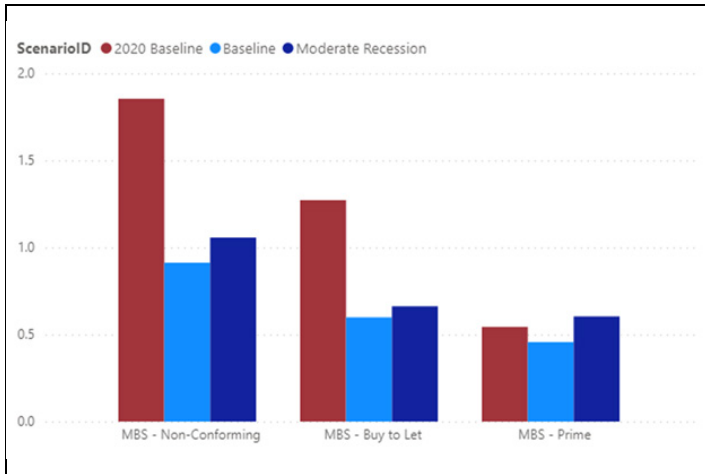
For non-conforming transactions, the projected CDRs are higher than the average levels observed in 2020 which were 0.5%, thanks to the support packages and payment holidays provided by the UK government. In the short-term, projected CDRs are expected to be 0.77%, 2.4% lower compared to last year's projections of 3.2%.

Figure 18 UK MBS CDR actual 2020 and projections



Lastly, the projected collateral losses for UK non-conforming assets are projected to decrease to 0.91% compared to last year's projections of 1.9%. However, this is still the highest MBS collateral loss projected among UK MBS asset classes. These assets also improve to 1.06% under the moderate recession scenario. UK buy-to-let assets are also projected to decrease in terms of collateral losses to 0.6%.

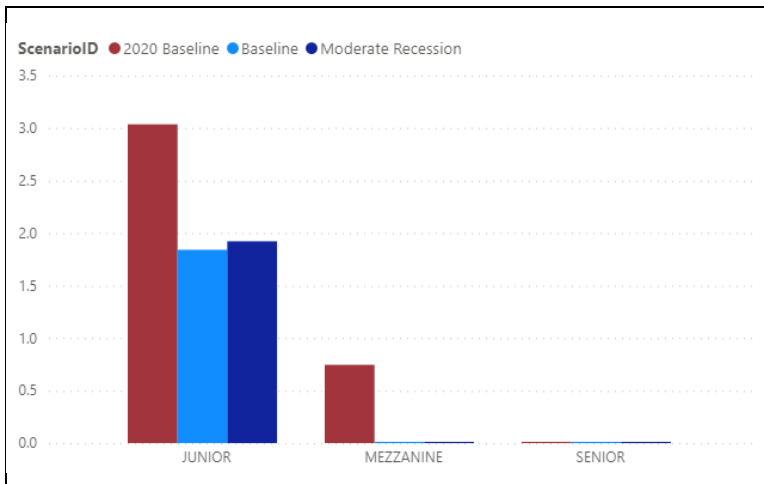
Figure 19 UK MBS collateral loss projections



### MBS buy-to-let tranches

MBS buy-to-let junior tranches are projected to experience lower levels of losses of 1.8% compared to last year’s projections of 3%. Mezzanine tranches show a strong performance with no losses under both the new baseline and moderate recession scenarios. While CPR is projected to remain flat for the buy-to-let deals compared to last year’s projections, the lower forecasted CDR and the impact of the deal structures contribute to the forecast of negligible losses for mezzanine tranches.

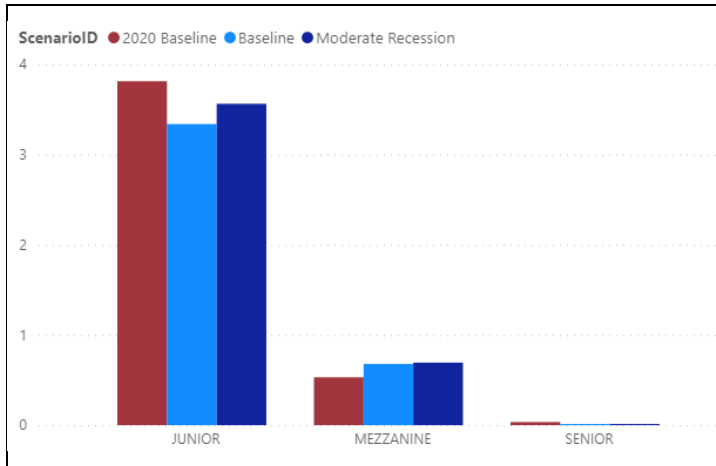
Figure 20 UK MBS buy-to-let tranche loss projections



### UK MBS non-conforming tranches

Overall, we observe a flat performance in projected losses for non-conforming UK MBS tranches compared to last year’s baseline and moderate recession scenarios. We see a decrease in projected loss from 3.8% to 3.3% for junior tranches under the baseline scenario. The case is different for mezzanine tranches for which losses are projected to increase. Yet, the impact is only a 0.15 percentage point increase.

Figure 21 UK MBS non-conforming tranche Loss projections

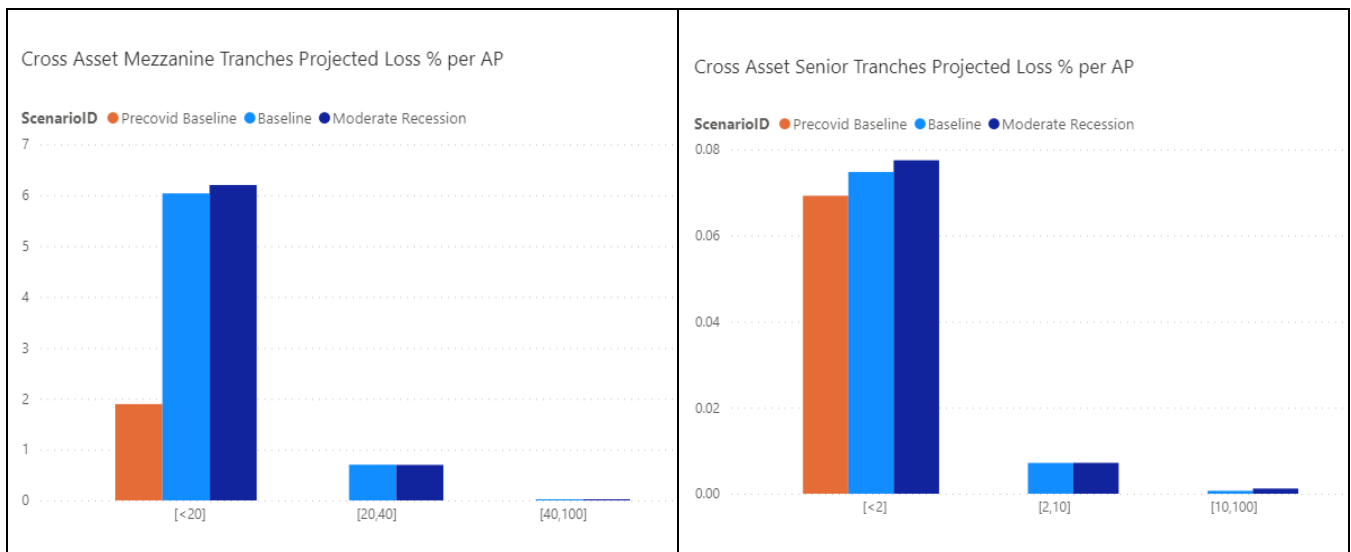


### Analysis of attachment point impact on tranche projected loss

As shown in Figure 22, we observe the impact of the pandemic on the capital structure of the deals. For mezzanine tranches with attachment points of 20% or lower, we observe an increase in projected losses from 2% for the pre-pandemic scenarios to 6% for the latest baseline scenario. The impact is higher under the recession scenario driving the loss to 6.2%. For tranches with attachment points above 20%, losses are projected to be around 0.4% under the latest scenarios, compared to levels averaging 0% under pre-pandemic baseline forecasts.

For senior tranches, the impact follows the same trend, however the attachment point thresholds as well as the magnitude of the impact are lower. Forecasted losses for tranches with attachment points lower than 2% are projected at 0.08% higher on average compared to the pre-pandemic baseline forecast of 0.07%. As expected, tranches with attachment points higher than 2% have negligible forecasted losses on average under both scenarios.

Figure 22 Mezzanine and senior tranche loss projections by attachment point

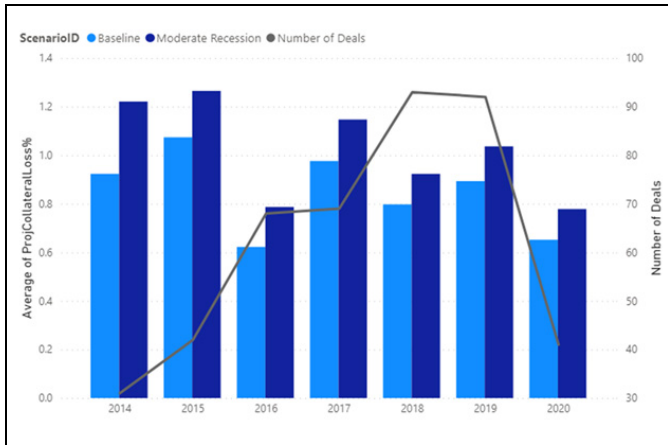




## Analysis of deal and junior tranche performance by vintage

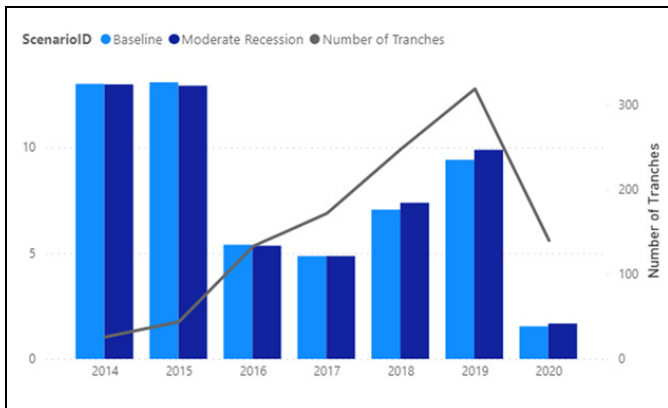
In Figure 23, we look at projected collateral losses by vintage of issuance as well as the count of issuances per year from deals used in the sample data. We observe a fluctuation on the average collateral losses across vintages. The highest losses are projected to be suffered by deals issued in 2014, 2015 and 2017, while transactions issued after 2018 are projected to experience lower collateral losses.

Figure 23 Collateral loss projections by vintage



As shown in Figure 24, junior tranches issued in 2014 and 2015 show much higher projected losses than in any other issuance years which are 13% and 13.1% respectively. They are primarily driven by MBS tranches and further skewed by the MBS non-conforming junior tranche projected losses. These are 28% for 2014 and 43% for 2015 on average. We also observe higher forecasted losses for junior tranches issued in 2018 primarily driven by MBS prime junior tranches, which average at 16%. Finally, higher losses are observed in 2019, driven by MBS non-conforming, MBS buy-to-let and ABS consumer loans tranches which average between 10%-14%.

Figure 24 Junior tranche loss projections by vintage

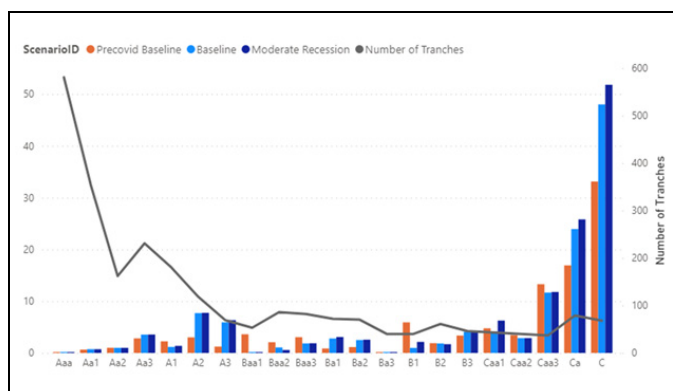


## Analysis of tranche performance by rating

Figure 25 shows the increase in projected losses due to the pandemic across asset classes and countries, under the baseline and moderate recession scenarios, as well as a pre-pandemic baseline scenario. The dataset includes the universe of all tranches from all three rating agencies Moody's Investors Service, S&P and Fitch<sup>3</sup>, split by rating. The number of tranches by rating can be seen on the grey line. The tranches have also been mapped to the equivalent Moody's Investors Service rating where this was not available.<sup>4</sup>

In general, we notice that tranches with ratings lower than single A were more likely to be affected by the pandemic. This is in line with expectations given that the majority of the tranches that have been assigned with a single A rating or below are junior tranches, while the majority of tranches with a rating higher than single A are senior tranches. We also observe that in this year's scenarios the impact of recession scenario is more apparent for below single B rated tranches.

Figure 25 Cross- asset tranche loss projections by rating



## Conclusion

Across all auto loans and leases, UK assets are expected to suffer the highest collateral losses. In 2020, Spanish auto deals performed better than last year's projections. However, Spanish, Italian and German auto deals' CDRs are forecasted to deteriorate in the short-term, under both baseline and moderate recession scenarios. This can be expected due to high unemployment forecast and low HPI in the short-term for Italy and Spain. UK auto loans and leases are expected to suffer higher defaults in the short-term and Italian junior tranches are forecasted to experience the highest losses across European autos loans and leases tranches.

Across all consumer loans, Spanish, Portuguese and French deals are forecasted to have the highest collateral losses under both baseline and moderate recession scenarios. Spanish junior tranches are expected to experience the highest loss.

Across all countries, Italian MBS prime deals are expected to have the highest defaults in both short- and long-term, as well as the highest forecasted losses for junior tranches. Dutch and Portuguese junior tranches are projected to be significantly impacted as well. Collateral losses for Spanish MBS prime mortgages are forecasted to be much lower than the levels forecasted at the beginning of the pandemic due to a change in unemployment projection. UK non-conforming deals show high projected losses for junior and mezzanine tranches under both the baseline and moderate recession scenarios compared to other UK prime transactions.

Under the baseline assumption, we observed a small increase in average projected loss for mezzanine tranches with attachment points below 20%. Senior tranches with attachment points below 2% also incurred minor losses under these assumptions.

When splitting the deals and tranches by vintage, transactions issued in 2014, 2015 and 2017 are projected to suffer higher collateral losses than those issued after 2018. Higher losses are forecasted for junior tranches issued in 2014, 2015, 2018 and 2019, mainly across MBS prime and MBS non-conforming.

<sup>3</sup> Current ratings were converted to a rating scale number and averaged across credit rating agencies (CRAs). For analysis purposes, we remapped the average to a Moody's Investors Service rating.

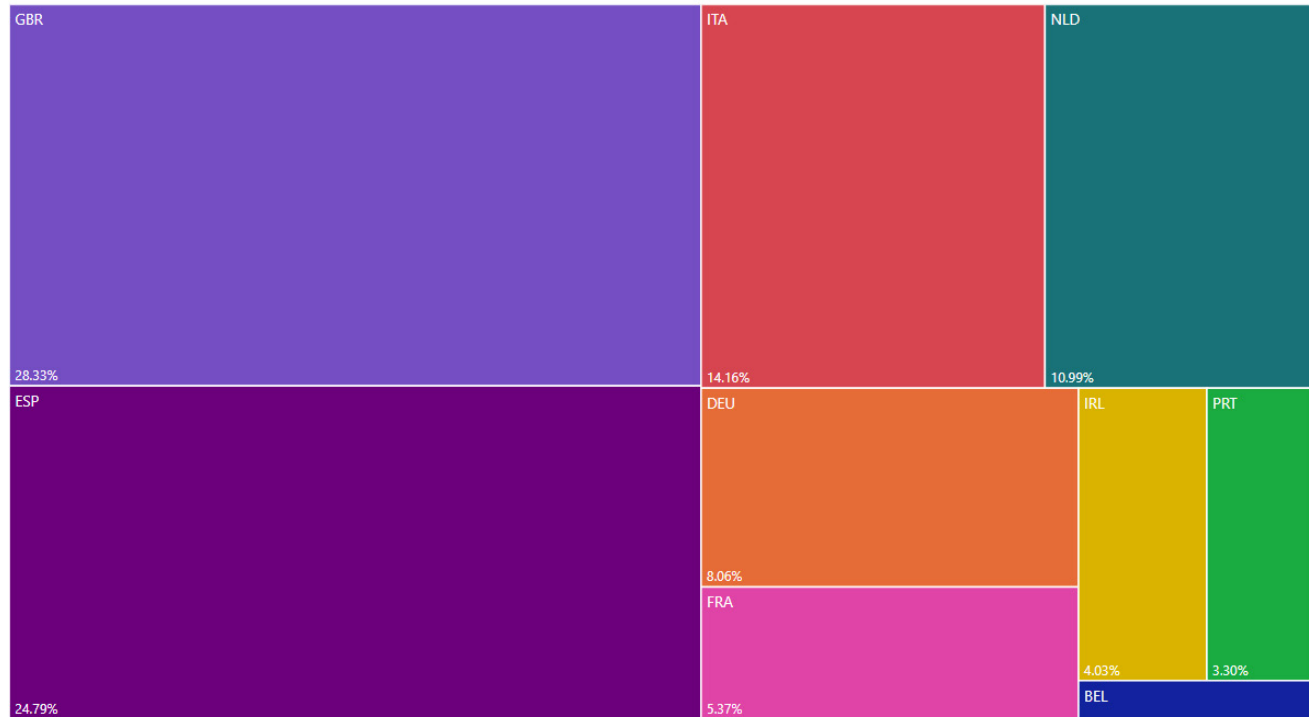
<sup>4</sup> The findings of this research do not reflect the opinion of Moody's Investors Service

## Appendix

### Research dataset description

Percentage of deal issuance per country

Country ● GBR ● ESP ● ITA ● NLD ● DEU ● FRA ● IRL ● PRT ● BEL

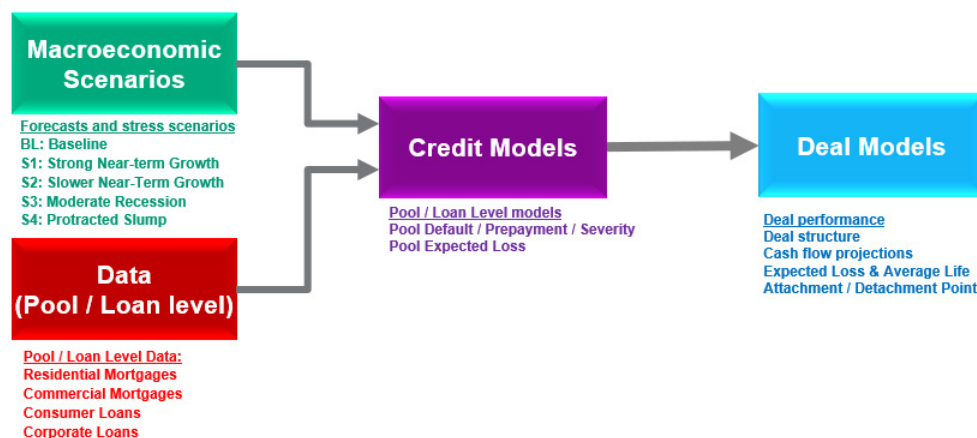


### Research assumptions and methodology for securitization

As part of this research, ABS and MBS bond cash flows are forecasted under various macroeconomic assumptions to determine the impact of the COVID-19 pandemic on assets and liability payments.

Future pool performance (default, prepayment, and severity) for securitization under a macroeconomic scenario is forecasted using a credit model. The forecasted prepayment and default vectors will be used to project collateral cash flows, which are then passed through the waterfall model of the securitization to derive tranche cash flows (Figure 26).

Figure 26 Stress testing methodology for securitizations



## Applying default and prepayment assumptions

### Credit models

A credit model is an analytic tool to assess credit risk and measure performance over different macroeconomic scenarios for portfolios of various asset classes. Moody's Analytics credit model solution consists of loan-level and pool-level econometric models for performance variables such as delinquencies, constant prepayment rate (CPR), constant default rate (CDR), and severities.<sup>5</sup>

### Waterfall models

Each security receives cash flows according to the priority of payments described in its deal waterfall. Moody's Analytics owns extensive deal libraries with accurate and validated waterfalls modeled using the prospectus and offering memorandum, as well as pool- and loan-level data updated every payment period. This facilitates cash flow analytics on structured transactions.<sup>6</sup>

## Running macroeconomic assumptions

### Macroeconomic forecasts methodology

The economic forecasts are generated using a macroeconomic model that captures both interconnectedness among economic regions and country-specific idiosyncrasies. Moody's Analytics Global Macroeconomic Model produces forecasts for more than 15,000 time series across 100+ countries that collectively constitute more than 95% of global GDP.<sup>7</sup> While the model structure is similar across countries, the framework enables country-specific variations of key equations and inclusion of tailpipe equations for variables important to some countries.

Moody's Analytics uses its global forecasting framework to quantify its economic outlook in the form of a baseline forecast. The forecast is produced based on globally consistent assumptions that reflect the view regarding the economic outlook. These global assumptions are augmented by region and country-specific assumptions if required. The baseline is used as an anchor for Moody's Analytics' suite of scenarios that captures the key risks to the global outlook.

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<sup>5</sup> <https://www.moodyanalytics.com/solutions-overview/credit-risk/credit-risk-modeling>.

<sup>6</sup> <https://www.moodyanalytics.com/solutions-overview/structured-finance/structured-finance-sell-side-solutions>.

<sup>7</sup> For more details, refer to M. Hopkins, "Moody's Analytics Global Macroeconomic Model Methodology," March 2018. <https://www.moodyanalytics.com/-/media/whitepaper/2018/global-macroeconomic-model-description-short-version>.

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