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THE GERMAN PFANDBRIEF MARKET 2019 | 2020

A supporting pillar of the
German financial system
turns 250 years old

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PREFACE

The history of the German Pfandbrief system stretches right back to 29 August 1769. Germany's longest-serving financial product is thus celebrating its 250th anniversary. Pfandbriefe issued today differ profoundly from those placed back in 1769. What unites them is their security. This is because the legal basis for the security of Pfandbriefe has been continually adapted and developed. As we approach the end of the current decade, harmonisation of the European covered bond legislation is moving into focus. The bill submitted in 2018 will bring about new amendments to the German Pfandbrief Act, even though these will be limited in a European comparison.

In the past, Mortgage Pfandbriefe contributed to reducing the housing shortage in Germany after the two world wars, amongst other achievements. Nowadays, the market is very clearly focused on the challenges of climate change. Preferential terms for ‚green‘ mortgages may help to promote the energy modernisation of existing properties, or to implement higher standards for new construction. Following the current phase of fundamental groundwork, in the course of which a greater degree of standardisation and harmonised definitions are being established, this market is expected to grow significantly.

The European impact on the German Pfandbrief market is of great importance. With its monetary policy measures, the European Central Bank impacts the yields and risk premia for European covered bonds. In fact, many Pfandbriefe are already traded with a negative yield, due to the ECB's persistent easing. On the occasion of their 250th birthday, Pfandbriefe nonetheless offer a yield mark-up over German government bonds.

„The German Pfandbrief Market 2019/2020“ gives an overview of current market developments; it also takes an in-depth look at the harmonisation of covered bond legislation in the light of 250 years of Pfandbrief history. We also analyse current discussions concerning digitalisation, and outline the legal basis for Pfandbriefe in detail.

DZ HYP

September 2019

250 YEARS OF GERMAN PFANDBRIEFE: ONTO THE NEXT CHAPTER!

- » **Harmonisation of European covered bond frameworks will also call for adjustments to the Pfandbrief Act**
- » **Pfandbrief yields have plummeted as the European Central Bank considers further quantitative easing, and the outstanding volume is likely to rise slightly**
- » **The groundwork for green pfandbriefe will set the foundations for a more rapid growth for this segment in future**

Summary

The pfandbrief celebrates its 250th anniversary this year. In the past, Germany's very own covered bank bond has earned a reputation as being an especially safe investment. A cornerstone of this safety of the pfandbrief is its legal framework which has been adjusted and improved regularly in the last few decades. The harmonisation of covered bond frameworks in Europe means that the Pfandbrief Act is also set for fresh updates, albeit fewer than in many other countries of the European Union (EU). In order to secure the desired status as European Covered Bond (Premium) by law, certain features such as over-collateralisation at nominal value and interest coverage will need to be introduced in the German framework.

In July, comments by the European Central Bank (ECB) led to a sharp fall in yields. The yields of most pfandbriefe were already in negative territory. Since the beginning of August, even ten-year pfandbriefe are now only yielding on average less than -0.1 per cent, and yields are likely to remain low in view of the package of monetary measures announced by the European Central Bank. Outstanding pfandbriefe had reached around EUR 370bn at 30 June 2019. Once again, growth in the mortgage pfandbrief segment more than made up for a decline in public sector pfandbriefe. We expect lively activity in the primary market this year and therefore a continuation of the slight uptrend in the outstanding volume of pfandbriefe.

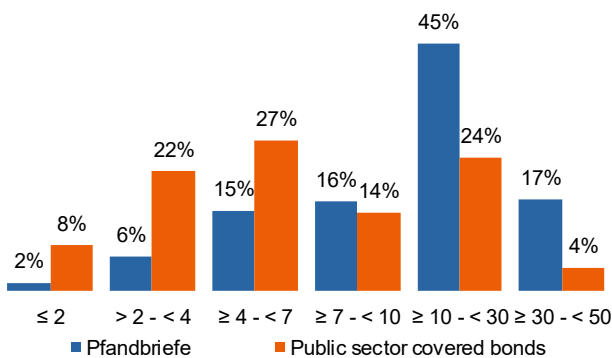
The issuance of social pfandbriefe (Sozialpfandbrief) after World War II helped alleviate the acute housing shortage in Germany. The aim for today's pfandbriefe is to develop a green product which will help achieve climate goals. Preferential terms for green mortgages could help promote energy-efficient upgrades in the existing housing stock or the implementation of more stringent standards in new builds. The process, however, is currently still at the data-collating stage; work is being carried out on formulating standardised definitions for green mortgages and other sustainable financing in order to establish a greater standardisation in the market for green and ESG pfandbriefe. As soon as this groundwork has been completed, we would expect to see stronger growth for this market than at present.

MARKET DEVELOPMENTS

The German pfandbrief celebrates its 250th anniversary this year – a suitable occasion to look back in the present study over its turbulent history (not least in relation to pfandbrief yields, for example). In the 1960s, public-sector lending institutions and private mortgage banks used the following slogan to attract investors: "It's just what you've been waiting for: a hen which lays a golden egg. Pfandbrief & public-sector bonds – guaranteed safety". At the time, interest rates in West Germany were rising fast against a background of high inflation. The pfandbrief banks looked for arguments to help them place their bonds with private investors. At the same time, the maturity of pfandbriefe was reduced in order to lighten the interest burden for issuers and borrowers. Back then, it was not uncommon for pfandbriefe to have a maturity of 20 years or more, and in addition, the pfandbriefe frequently had a non-bullet repayment. Issuers also began to consider pfandbriefe with tiered coupons. For example Rheinische Hypothekenbank's anniversary pfandbrief issued on the occasion of the 200th anniversary of the pfandbrief in 1969 came with step-up coupons from 6 to 8 and finally to 10 per cent during the pfandbrief's seven year term. From the fifth year, there was a price guarantee in line with the issue price.

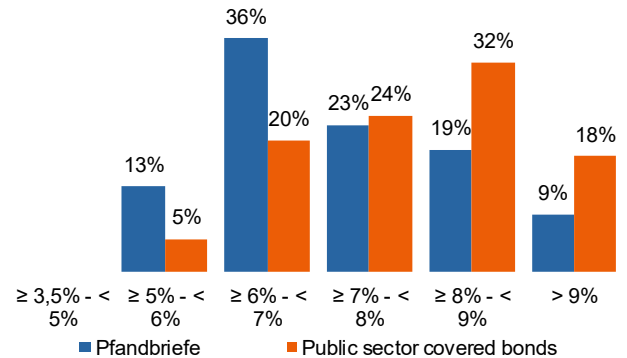
Bonds with step-up coupons as jubilee pfandbrief in 1969

PFANDBRIEF OUTSTANDING: SPLIT BY MATURITY IN YEARS
AS AT 31 DECEMBER 1975, VOLUME OUTSTANDING PFANDBRIEFE (DEM 75BN), MUNICIPAL BONDS (DEM 109BN)



Source: anniversary publication "Der Pfandbrief 1769-2019 Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

PFANDBRIEF OUTSTANDING: SPLIT BY COUPON
AS AT 31 DECEMBER 1975, VOLUME OUTSTANDING PFANDBRIEFE (DEM 75BN), MUNICIPAL BONDS (DEM 109BN)



Source: anniversary publication "Der Pfandbrief 1769-2019 Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

What might an anniversary pfandbrief look like in 2019? In the first half of the year, the maturities of the newly issued euro-denominated Pfandbriefe became longer and longer in order to enable a small coupon of 0.05 or 0.1 per cent (i.e. 5 or 10 basis points) if possible. Up until mid-2019, the maturities of newly issued, euro-denominated pfandbriefe became increasingly long in order to allow even a small coupon of 0.05 or 0.1 per cent (i.e. 5 or 10 basis points). Market participants are currently free from inflation worries. If anything, central bankers are more worried about inflation being too low and falling inflation expectations. Since mid-2019, the yield of German Bunds has reached one new record low after another. At the beginning of July, the ten-year Bund yield was at around -40 basis points, the same level as the European Central Bank's (ECB) deposit rate at that time. This means that investors would lose around 4 per cent of their investment over its total lifetime. One month later – on 7 August when the deposit rate was unchanged – the ten-year Bund yield was already at -0.6 per cent. Towards the end of August the ten-year bund yield traded even around -0.7 per cent. In other words, the markets for sovereign bonds hardly offer a golden egg in the form of a high yield at the moment or likewise pfandbriefe.

Negative yields mark the 250th birthday

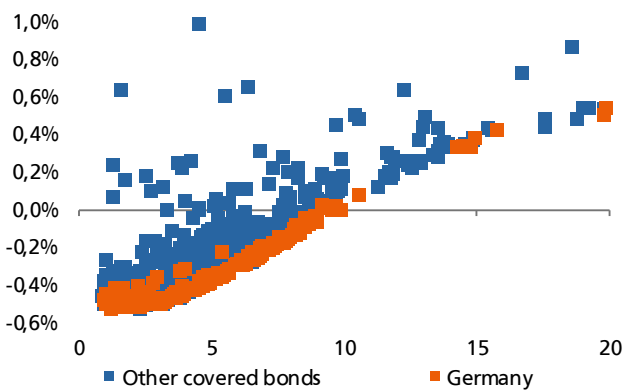
As we reach the pfandbrief's 250th anniversary, pfandbrief banks are therefore mainly trying to attract investors – and rightly so – by underlining the qualities of what are by law, very safe, "gilt-edged" securities. Pfandbriefe also offer a yield pick-up against Bunds, which means that pfandbrief investors stand to make a slightly smaller loss than investors in sovereign bonds, assuming they hold onto the bonds until final maturity.

Yields and swap spreads

The fall in yields in mid-2019 was triggered by comments made by ECB President Mario Draghi at this year's ECB Forum in Sintra from 17 to 19 June. After a brief interim high in mid-July, yields resumed their slide after the scheduled Meeting of the ECB Governing Council on 25 July 2019, even though the deposit rate has remained unchanged for the time being. The central bank seems to have given a clear expansive signal with the adjustment of its forward guidance. Many market participants now believe that a cut in the key interest rate is now only a matter of time and also expect further rate cuts accompanied by various measures such as the introduction of a tiered deposit rate for banks. The possibility of a revival of the asset purchase programme (APP) which could once again include covered bonds has sparked a wave of euphoria in the markets and put investors in buying mood. The pfandbrief market – in which yields also have also gone from one record low to the next this summer – has not remained immune to the ECB's comments. At the end of July 2019, only outstanding pfandbriefe from a maturity of ten years upwards were yielding in positive territory. The yields of pfandbriefe at the short end of the yield curve were already -0.5 per cent at that point, and therefore well below the ECB's deposit rate. Only a few days later, at the beginning of August, the yields of pfandbriefe with a maturity of two years were moving towards -0.6 per cent and ten-year pfandbriefe were yielding on average less than -0.1 per cent.

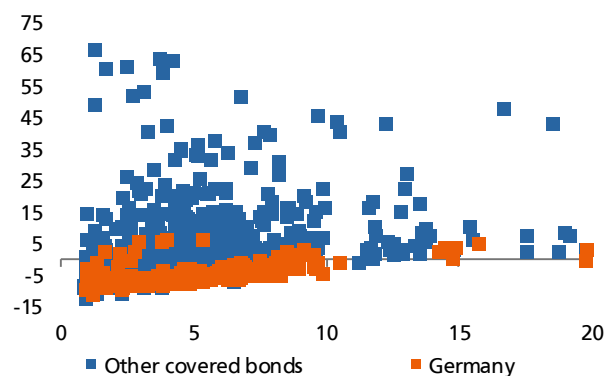
ECB gives expansive signals

PFANDBRIEFE: POSITIVE YIELD ONLY FROM TEN-YEAR UP MATURITY
YIELD (Y AXIS), BOND MATURITIES IN YEARS (X AXIS) AS AT 26 JULY 2019
(ONE DAY AFTER ECB MEETING)



Source: Bloomberg, DZ BANK Research presentation

FLAT CREDIT CURVE FOR GERMAN PFANDBRIEFE
SWAP SPREAD IN BASIS POINTS (Y AXIS), MATURITY OF BONDS IN YEARS (X AXIS) AS AT 26 JULY 2019



Source: Bloomberg, DZ BANK Research presentation

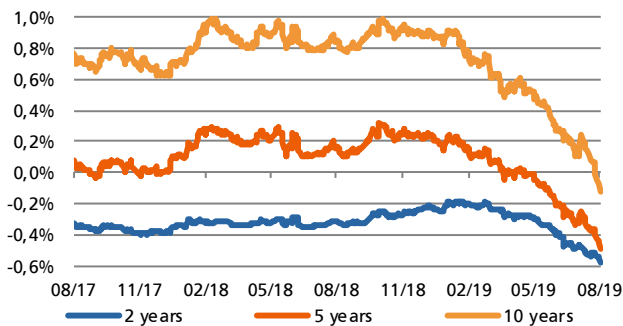
The level of yields and swap spreads of pfandbriefe is traditionally higher than that of other covered bonds. However, the compression of risk premiums has continued in the last few months. The latest comments by the ECB have given this trend fresh momentum. At the end of July, only longer-dated covered bonds offered positive yields and slightly higher swap spreads. This type of paper therefore seems to be right at the top of investors' shopping lists. This has led to a further flattening for the pfandbrief credit curve at throughout the weeks of August as well.

Yields and credit curves increasingly flat

Pfandbrief yields have been falling since January of this year after moving more or less sideways during the course of 2018 and even slightly increasing at the short end of the curve. The fall in yields against the background of the market situation we have described was most pronounced for longer-dated bonds. The yields of ten-year pfandbriefe fell by around 80 basis points from mid-January to the end of July whereas the yields of two and five-year pfandbriefe only fell by around 30 or 55 basis points respectively during the same period. This trend continued at the beginning of August. The yield curve became much flatter during the first half of 2019, similarly to the credit curve for pfandbriefe. Pfandbrief spreads also tightened against the swap curve, in tandem with the slide in yields. The swap spreads of five and ten-year pfandbriefe were reduced by 7 to 8 basis points, against a swap spread of 4 basis points for two-year pfandbriefe. In view of already very low yields, the potential for any further tightening of pfandbrief swap spreads seems limited. At the beginning of August, swap spreads widened again minimally against the background of falling yields.

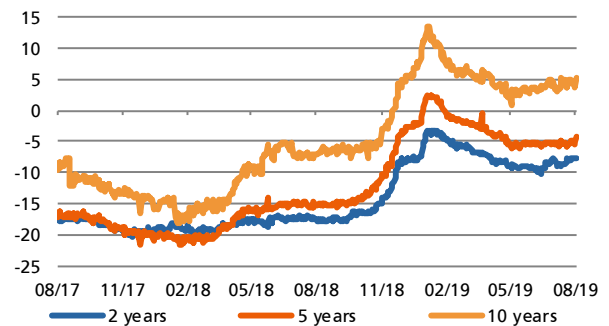
Lower pfandbrief yields and swap spreads along the entire curve

YIELD CURVE GERMAN OF PFANDBRIEFE BECOMING INCREASINGLY FLAT
GENERIC YIELDS (PER CENT)



Source: Bloomberg, DZ BANK Research presentation and calculations

LOW YIELDS HAMPERING FURTHER SPREAD TIGHTENING
GENERIC SWAP SPREADS (BASIS POINTS)



Source: Bloomberg, DZ BANK Research presentation and calculations

The familiar issues from 2018 which have continued to preoccupy market participants in 2019 are likely to have helped the risk premiums of German pfandbriefe in the last few months, since, in the event of international crises, pfandbriefe can benefit from their status as a safe haven. The well-known problems on the international political stage include international trade disputes for which there is still no sign of any rapid resolution. Indeed, in view of new US tariffs on Chinese imports and the depreciation of the yuan against the US dollar at the beginning of August, they have seen a fresh escalation, even though US and Chinese representatives continue to negotiate. In addition, there is still the unresolved matter of the UK's exit from the European Union (EU). A hard Brexit has become more likely with the new government in the UK which took office in July 2019. Not least, the Italian government continues to make headlines with internal disputes and regular confrontations with the European Commission over its budget plans. There have also been growing tensions in July and August in the Gulf. During this market phase, however, pfandbriefe are benefiting not only from their status as a safe haven; the swap spreads of all credit product are currently being buoyed by hopes among market participants that monetary policy will soon return to a more expansive course.

Fall in risk premiums on hopes of new ECB APP

The situation was still very different in the second half of 2018. Back then, the ECB had announced that it would end net purchases under the APP at the beginning of 2019 and only continue to reinvest the principal payments from maturing securities. At the time, a slight increase in key interest rates seemed likely, and the widening of spreads which we had anticipated duly took place in the autumn of 2018. The swap spreads

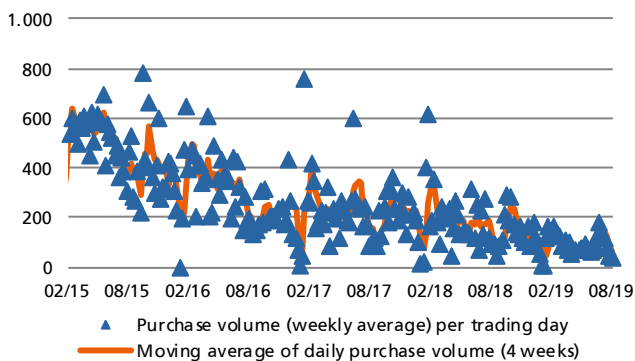
Regulatory incentives have stimulated demand from banks, ...

of pfandbriefe widened from October 2018 to mid-January 2019 similarly to the risk premiums of other covered bonds. For example, the swap spreads of ten-year pfandbriefe have increased to around 13 basis points on average during this period. Thereafter, however, as we described earlier, they went into reverse. The same pattern applied to swap spreads in other maturity segment, and indeed in the entire covered bond market. One reason for the widening of spreads at the beginning of 2019 is likely to have been a reduction in ECB purchases under its third covered bond purchase programme (CBPP3). The ECB reinvests principal redemptions from maturing covered bonds back into its CBPP3 portfolio. The ECB therefore invests around EUR 2bn per month in the covered bond market. For this reason, the central bank is looking at expected maturities this year and evening out its monthly purchases accordingly. This means that it is buying a fairly constant amount per month, irrespective of the actual reinvestment requirement in the CBPP3 portfolio in any given month. In the first half of the year, the ECB purchased covered bonds amounting to around EUR 11bn. This is more or less exactly half the expected maturities of EUR 21.9bn projected for this year. In fact, covered bonds in the CBPP3 portfolio amounting to EUR 12bn matured in the first half of 2019. This means that, had it not evened out its purchases, the ECB would have had to reinvest EUR 1bn more in its CBPP3 portfolio in the first half.

All in all, it is fair to say that, compared with CBPP3 purchases in 2018, the central bank's monthly covered bond investment fell sharply from January to August 2019. After all, the ECB still purchased a monthly volume of covered bonds of around EUR 3.5bn in 2018. However, the gap in demand was quickly bridged, not least in view of the fact that swap spreads already picked up again at the beginning of 2019. Since the beginning of the year, banks above all, have increased their purchases of covered bonds once again. Demand for covered bonds remained stable in the first half of 2019, especially in the case of new issues, even after the tightening of spreads, because this type of bond enjoys preferential treatment in the supervisory framework applying to banks. Among other things, banks can use covered bonds as liquidity reserves in the context of the minimum liquidity requirement if they meet specific criteria.

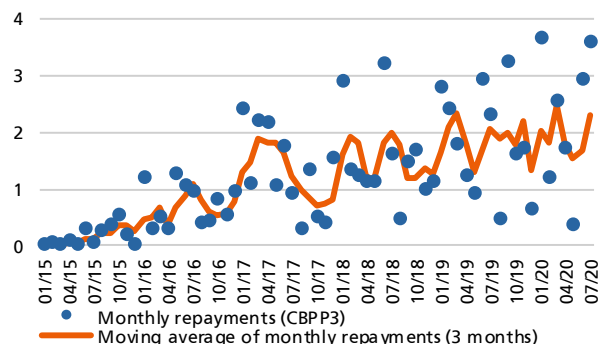
... bridging the demand shortfall

DECLINE IN WEEKLY PURCHASE VOLUME UNDER CBPP3
EURO M



Source: European Central Bank , DZ BANK Research presentation

VOLUME OF BONDS SET TO MATURE IN THE CBPP3 PORTFOLIO RISING
EURO M, FIGURES FROM AUGUST 2019 ECB ESTIMATES



Source: European Central Bank , DZ BANK Research presentation

Irrespective of whether the ECB embarks on a new APP, the volume of covered bond it purchases in the next few months is set to rise in view of a growing reinvestment requirement. Covered bonds amounting to EUR 12.4bn in the CBPP3 portfolio are already set to mature in the first half of 2020. This is EUR 1.5bn more even than in the

New purchase programme would once again drive out private investors

first half of 2019 when the figure was EUR 10.9bn. This rising trend is likely to continue in the next few months. A new covered bond purchase programme (CBPP4) or a reactivation of net purchases under CBPP3 would moreover have further noticeable effects on the pfandbrief and covered bond market. From our perspective (as per August), we could envisage monthly new purchases in a range of EUR 2 - 2.5bn, and therefore gross purchases (new purchases and reinvestment) could reach EUR 4 - 4.5bn per month. This is likely to support the swap spreads of pfandbriefe, something which is currently (still) hampered by already very low pfandbrief yields.

The level of new ECB investment in the covered bond market will depend not least on primary market activity. The ECB already holds a substantial chunk of the eurozone covered bond market with a CBPP3 portfolio volume of around EUR 260bn at the end of July 2019. It is therefore becoming increasingly difficult to find bonds in the secondary market. However, order volumes for new issues could quickly increase from 5 per cent of the expected issue volume at present to 50 per cent for example – as was still usual at the beginning of 2018. At any rate, rising ECB purchases will once again drive out private investors who will then turn their back on the covered bond market, as they did after the launch of CBPP3. We can only hope that this will be temporary! It is already difficult for issuers to place their new issues at the moment in view of a sharp fall in yields brought about by the ECB's policy. To that extent, rising demand from the ECB in future could offset any decline from investors wanting to reduce their exposure in this market in view of ever lower yields from covered bonds.

Volume outstanding and new issues

Mortgage pfandbriefe are still a growing segment. The outstanding volume of mortgage pfandbriefe had increased to EUR 234bn by the end of 2018, therefore more than offsetting the decline in all other pfandbrief types. The only remaining outstanding benchmark aircraft pfandbrief was repaid in February 2019, more or less exactly ten years after the legal basis for that type of bond was created. The outstanding volume of public sector pfandbriefe and ship pfandbriefe also continues to decline. At the end of 2018, the pfandbrief market was worth a total of EUR 368.9bn – an increase of 0.7 per cent against the previous year. At the half-way stage in 2019, the pfandbrief market had reached EUR 370.2bn and familiar trends over the years had continued.

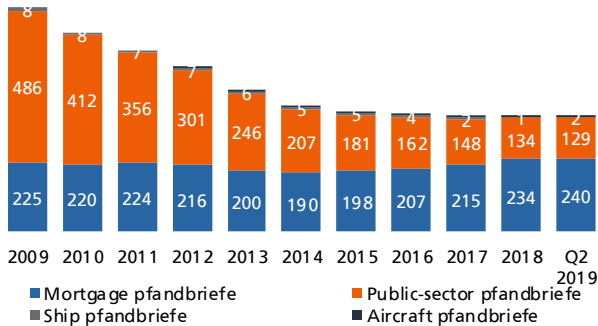
In 2018, the share registered pfandbriefe in relation to the total outstanding volume declined for the fifth year in a row, although the format is still of major importance for the pfandbrief market, accounting for 39 per cent of the outstanding volume. However, low interest rates are a problem for this market segment. We therefore expect to see a further decline in market share for this segment in the next few months.

Only temporary, we hope

Growing volume outstanding of mortgage pfandbriefe

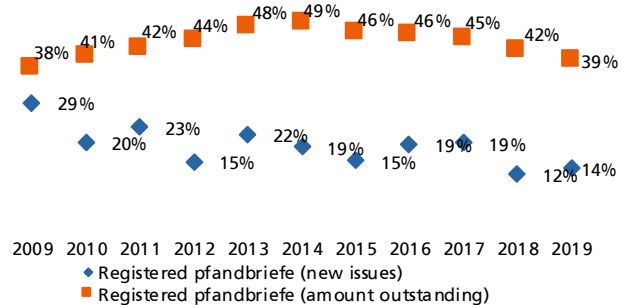
Share of registered pfandbriefe declining further

OUTSTANDING VOLUME IN THE PFANDBRIEF MARKET UP TO EUR 370.2BN AT THE END OF Q2 2019
FIGURES IN EUR BN



Source: vdp, issuers, DZ BANK Research presentation and calculations

SHARE OF REGISTERED PFANDBRIEFE IN RELATION TO TOTAL VOLUME OF PFANDBRIEFE DOWN SLIGHTLY SINCE 2014

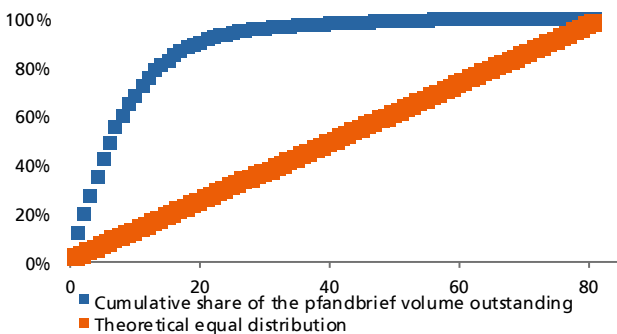


Source: Bundesbank, DZ BANK Research presentation and calculations data for 2019 up to and including June

The number of active pfandbrief banks, which continued to increase in 2018, is mainly supporting growth in the mortgage pfandbrief segment. There are now 82 active pfandbrief issuers (status as at the end of Q2 2019), most of which have a licence for the mortgage pfandbrief business. There are also four further banks and building societies (Bausparkassen) which have only recently obtained a licence to conduct mortgage pfandbrief business; they can be expected to start to launch new issues in the foreseeable future. In spite of an ever growing number of pfandbrief banks, there is still a high outstanding volume of pfandbriefe concentrated among the larger pfandbrief banks. The ten (20) largest issuers in terms of volume already account for around 69 per cent (around 91 per cent) of the total outstanding volume, and market concentration is likely to increase further in the next 12 months on the back of forthcoming mergers among pfandbrief banks. At the same time, mortgage banks are still the biggest issuer group in the pfandbrief market with a share of 42.3 per cent of outstanding of pfandbriefe, followed by the Landesbanken (public-sector credit institutions) and commercial banks which are more or less head to head at 25.7 per cent and 25.0 per cent respectively. Building societies are also set to gain more importance in future. However, as per Q2 2019, this group only accounted for 0.5 per cent of outstanding pfandbriefe.

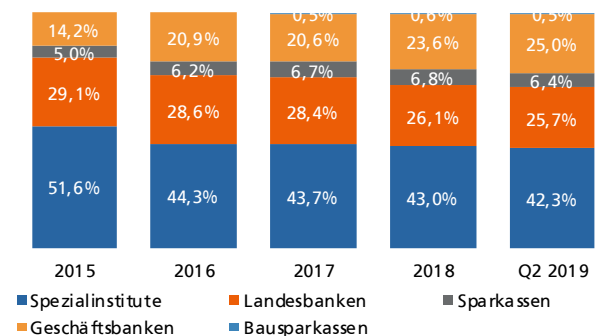
Growing number of pfandbrief banks

TEN STRONGEST ISSUERS IN TERMS OF VOLUME ACCOUNT FOR AROUND 65 PER CENT OF OUTSTANDING PFANDBRIEFE
X AXIS: NUMBER OF ISSUERS, Y AXIS: MARKET SHARE



Source: vdp, issuers, DZ BANK Research presentation and calculations, Stand Q2 2019

HARDLY ANY CHANGE IN BREAKDOWN OF OUTSTANDING PFANDBRIEFE BETWEEN ISSUER GROUPS

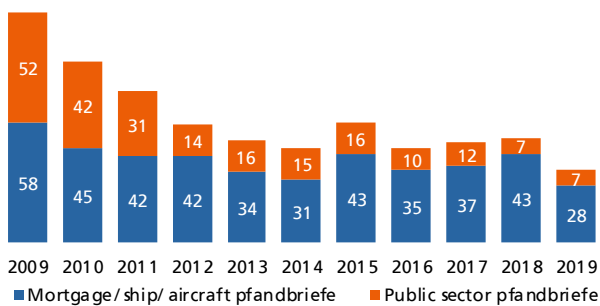


Source: vdp, issuers, DZ BANK Research presentation and calculations

Over 100 years ago, in the second half of the 19th century, mortgage banks tried to promote their pfandbriefe through lotteries (premium pfandbriefe) and termination rights for investors. Neither measure is allowed any longer under present legislation and for good reason. They do not seem to be necessary either. There are currently sufficient investors in the primary market who are interested in pfandbriefe even given the current low yields and spreads. Up to and including the end of June, there were new pfandbrief issues amounting to EUR 34.9bn. There are therefore signs that there will be an increase in the new issue volume in 2019 against last year when pfandbriefe amounting to a total of EUR 50.4bn were issued. The Verband deutscher Pfandbriefbanken (vdp) is forecasting a new issue volume of EUR 55bn based on a survey of its member institutions. This would equate to an increase of 9 per cent against 2018. The vdp also expects a positive net issue volume, which would mean further market growth this year.

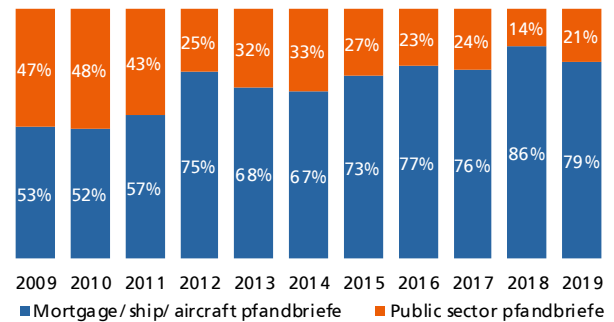
Further market growth expected in 2019

GROSS NEW ISSUE VOLUMES IN THE PFANDBRIEF MARKET: VDP EXPECTS A SLIGHT INCREASE TO EUR 55BN IN 2019
FIGURES IN EUR BN



Source: Bundesbank, DZ BANK Research presentation and calculations, data for 2019 up to and including June

GROSS NEW ISSUE VOLUME BY PFANDBRIEF TYPE

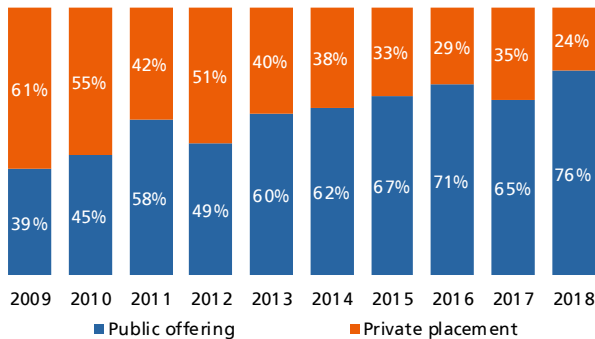


Source: Bundesbank, DZ BANK Research presentation and calculations, data for 2019 up to and including June

A growing number of pfandbriefe are being placed publicly. The share of privately placed new issues fell to 24 per cent in 2018. This trend goes hand-in-hand with a decline in the importance of registered pfandbriefe. Bonds of at least EUR 500m in size are gaining market share conversely to registered pfandbriefe. In 2018, the share of benchmark bonds (including jumbo pfandbriefe) in relation to the new issue volume was 62 per cent. This equates to an increase of 21 percentage points against 2017. This trend is likely to continue at a slower pace since benchmark pfandbriefe, as highly liquid assets with a rating of at least Aa3/ AA- qualify as Level 1 asset in the context of the minimum liquidity ratio. This regulatory preferential treatment gives banks a strong incentive to demand benchmark covered bonds with a correspondingly good rating. Pfandbrief banks also benefit from this stable demand. From the beginning of the year to the end of July 2019, pfandbrief banks issued euro-denominated benchmark pfandbriefe amounting to EUR 18.75bn. As such, German banks are the most active issuer group in the market for euro denominated benchmark covered bonds at the moment.

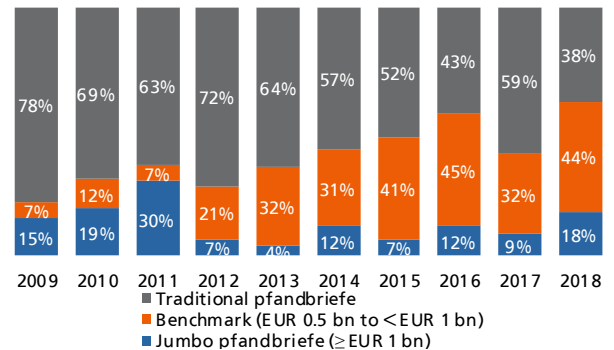
Benchmark pfandbriefe gaining in importance

ISSUANCE FORMAT: SHARE OF PRIVATELY PLACED PFANDBRIEFE GENERALLY DECLINING FURTHER
PFANDBRIEF NEW ISSUES SPLIT BY FORMAT



Source: Verband deutscher Pfandbriefbanken, DZ BANK Research presentation and calculations

BENCHMARK AND JUMBO PFANDBRIEFE MAKE SIGNIFICANT CONTRIBUTION TO FUNDING MIX OF BANKS
PFANDBRIEF NEW ISSUES SPLIT BY FORMAT



Source: Verband deutscher Pfandbriefbanken, DZ BANK Research presentation and calculations

Pfandbriefe denominated in foreign currency

Ever decreasing yields could have a side effect on the issuance behaviour of pfandbrief banks. Until now, covered bond issuers – including most pfandbrief banks – have tried to avoid negative issue yields. However, the odd financial institution in Germany has carried out a new issue or a tap where the yield has turned out to be negative for investors at the time of issue. However, such cases are still the exception. In order to avoid negative-yielding issues, the only option for pfandbrief banks is to issue increasingly long-dated bonds. However, there are limits to this development since the maturities of a pfandbrief bank's lending business cannot be ignored entirely when it comes to its refinancing. Another option is to issue foreign-currency bonds. At present, it is still possible to present clearly positive yields e.g. for bonds denominated in US dollar, even for short-dated bonds. However, investors have to accept the currency risk if the foreign currency is not simultaneously their preferred target currency for that investment. If the foreign exchange risk versus euro is hedged, there would still be a negative yield once again for investors after the foreign currency swap from the package consisting of pfandbrief and hedging transaction, depending on the status of the basis swap with a possibly slightly better risk premium than for euro bonds. To mark this occasion, we have looked at how important foreign-currency issues are for German pfandbrief banks and whether they have become more important in the last few months.

Based on figures published by the vdp, it is fair to say that the euro is by far the most importance issuance currency for the pfandbrief market. Only around 3 per cent of the volume outstanding at the end of 2018 was denominated in a foreign currency. In contrast, the share of foreign-currency new issues fluctuated between 9 and 12 per cent from 2016 to 2018. The share has therefore increased slightly in relation to the years before 2016.

Markets for liquid benchmark covered bonds have evolved in the USD and GBP currency zones. Apart from the index for euro benchmark covered bonds, Markit has therefore also developed indices for benchmark covered bonds denominated in USD or GBP. The iBoxx € Covered Index – which stood at EUR 923bn as at 30 June 2019 (market value) – covers a much larger volume than its sister indices for USD and GBP covered bonds. The geographical distribution of the euro index has become increasingly diversified in the last few years. Most recently, for example, covered bonds were

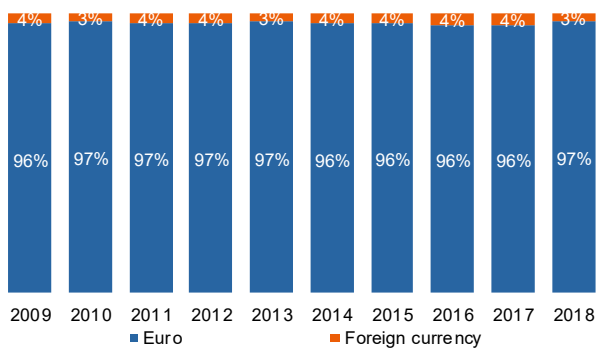
Foreign-currency pfandbriefe: a way of avoiding negative issue yields?

Euro the most important issue currency for the pfandbrief market

Markit indices for various currency zones

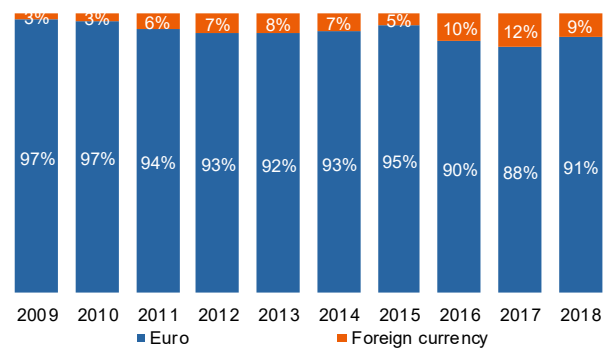
added to the index from issuers from Greece, Japan, Poland and Slovakia. At the same time, the share of German pfandbriefe in relation to the iBoxx € Covered Index has increased from 11 per cent in 2013 to around 15 per cent in mid-2019. In contrast, indices for USD and GBP markets are smaller and geographically less diversified.

EURO STILL THE MOST IMPORTANT ISSUE CURRENCY OUTSTANDING PFANDBRIEFE SPLIT BY CURRENCY



Source: Verband deutscher Pfandbriefbanken, DZ BANK Research presentation and calculations

SHARE OF FOREIGN-CURRENCY ISSUES RISING SLIGHTLY NEW PFANDBRIEF ISSUES SPLIT BY CURRENCY

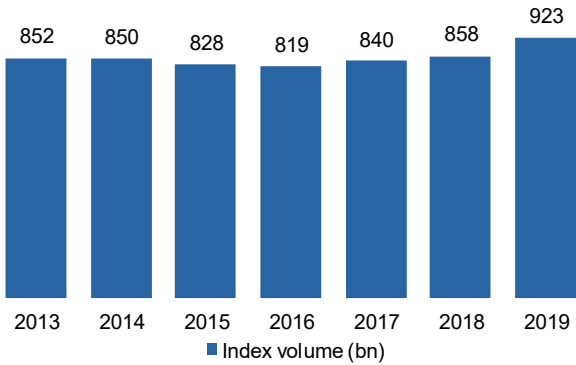


Source: Verband deutscher Pfandbriefbanken, DZ BANK Research presentation and calculations

The volume of bonds in the iBoxx \$ Covered Index has been declining since 2013. In mid-2019, the index still amounted to USD 46.5bn (nominal value of the bonds). At the height of the European debt crisis, USD-denominated covered bonds were mainly issued by Australian and Canadian banks along with some Scandinavian and Swiss banks. In 2012, the issue volume of USD benchmark covered bonds (only fixed rate bonds) amounted to around USD 43.4bn. In 2013, the volume in the index was up to USD 94.1bn. However, the annual new volume issued fell sharply in the years that followed to a range of only USD 11.7 -16.2bn between 2016 and 2018. This year, there are signs of livelier issuance; fixed-rate covered bonds amounting to USD 11.6bn were already issued in the first seven months. Australian and above all Canadian banks are among the regular USD bond issuers. This year, however, German pfandbrief banks rank in second place behind Canada in terms of country ranking of the most active issuers with a total of around USD 3.1bn at the half-way stage. This is already the highest annual issue volume from German institutions since 2010. Pfandbrief banks which are involved in lending in the US have an obvious refinancing requirement in USD. The current increase in issuance volume of USD-denominated pfandbriefe could, however, also be a reaction to the low interest-rate environment in the eurozone, as we have mentioned earlier. Nevertheless, the share of German pfandbrief banks in the iBoxx \$ Covered Index is unlikely to surge and should remain under 10 per cent for the foreseeable future.

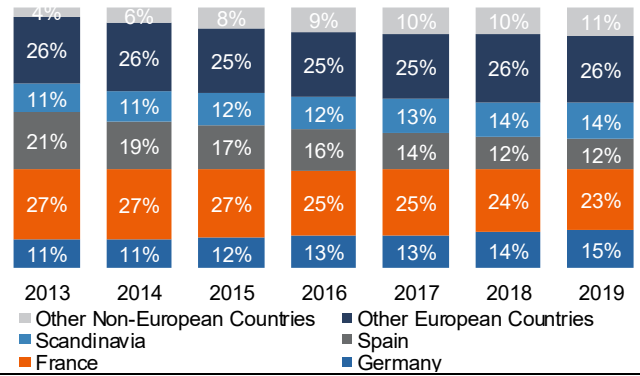
German pfandbrief banks rank second after Canada for new USD-denominated issues

VOLUME IBOXX € COVERED INDEX
FIGURES IN EUR BN, AT MARKET VALUE



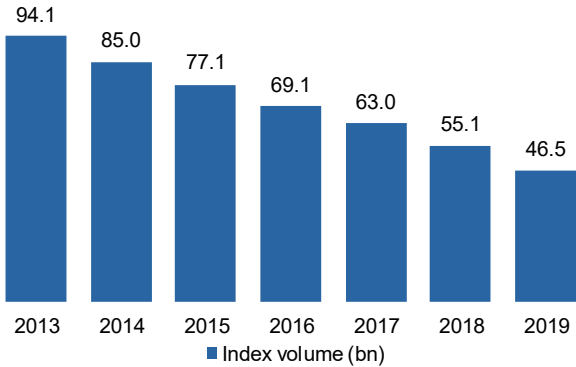
Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

GEOGRAPHICAL SPLIT OF ISSUERS IN THE IBOXX € COVERED INDEX



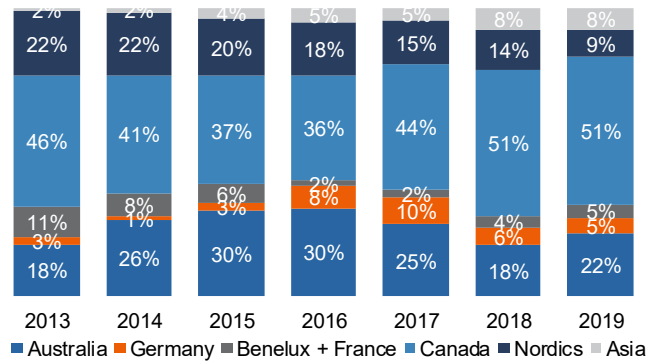
Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

VOLUME IBOXX \$ COVERED INDEX
FIGURES IN USD BN, AT NOMINAL VALUE



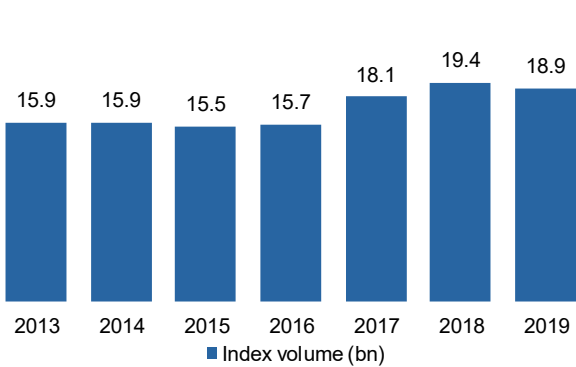
Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

GEOGRAPHICAL SPLIT OF ISSUERS IN THE IBOXX \$ COVERED INDEX



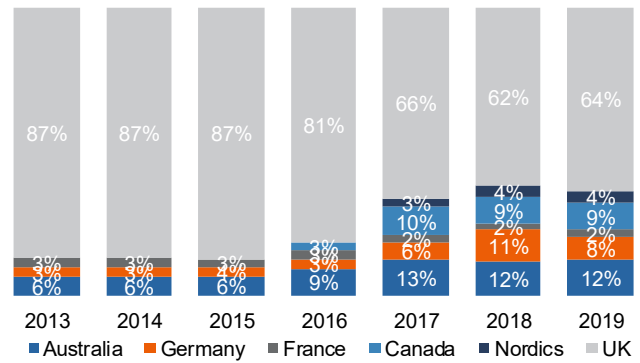
Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

VOLUME IBOXX £ COVERED INDEX
FIGURES IN GBP BN, AT NOMINAL VALUE



Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

GEOGRAPHICAL SPLIT OF ISSUERS IN THE IBOXX £ COVERED INDEX



Source: Markit, DZ BANK Research presentation and calculations, data for 2019 as per 30 June

It comes as no surprise that UK banks dominate the GBP covered bond market. These banks prefer floaters (floating-rate securities), and therefore, the volume of the iBoxx £ Covered Index – which only takes into account fixed-rate bonds – is small at GBP 18.9bn compared with other named market indices. In fourth place in the country rankings after UK banks and issuers from Australia and Canada, the GBP index includes German pfandbrief banks (status as at 30 June 2019). Similarly to USD pfandbriefe, GBP-denominated pfandbriefe are primarily issued by institutions which have a lending business to match. Since we cannot expect any rapid increase in the lending business of pfandbrief banks in the UK in the short term in view of looming Brexit, GBP is likely to remain a secondary currency for the pfandbrief market for the foreseeable future.

GBP only plays a secondary role in the pfandbrief market

The extent to which pfandbrief banks issued foreign currency bonds in order to avoid negative issue yields for their euro pfandbriefe cannot be determined precisely. We suspect that this factor plays a secondary role in the issue decision. If interest rates and swap spreads fall further and the ECB starts CBPP4, issuers and investors will have to be reconciled to the prospect of negative yields for a long period. An important advantage of foreign currency pfandbriefe is that they offer a currency-matching refinancing if the pfandbrief bank in question is actively involved in lending in the relevant currency zone. Apart from this strong motive, the pfandbrief bank in question could also be trying to target a new investor group with foreign currency pfandbriefe. The order book statistics for USD issues show for example that central banks and other public bodies from the whole world buy more USD-denominated covered bonds than euro-denominated covered bonds. The decision by a pfandbrief bank to issue a foreign currency bond should be weighed up carefully in advance since investors in and outside the eurozone have a preference for issuers who regularly launch liquid new issues in the relevant currency.

Reasons behind the issue of foreign currency pfandbriefe

MAJOR CURRENCY ZONES IN THE GLOBAL COVERED BOND MARKET

The US dollar is undoubtedly by far the most important reserve currency in the world. However, the greenback does not play first fiddle as an issue currency in the covered bond market – and if we wish to be precise, not even second or third fiddle. Instead, the euro is by far the most important issue currency in the covered bond market. In the eurozone, a number of countries with large covered bond markets – which include Germany, France and Spain – have come together. There is a broad domestic investor base for covered bonds in the eurozone. This strong investor base is in fact one of the reasons why many issuers domiciled outside the eurozone issue covered bonds in euro. Apart from the eurozone, there are many other countries with a well developed local covered bond markets in their own currency. Looked at from a country point of view, Denmark is the country with the largest covered bond market. Accordingly, the Danish krone ranks in second place in the issue currency rankings, followed by the Swedish krona and Swiss franc. The US dollar and the Norwegian krone lie closely together with the British pound.

Source: DZ BANK Research, as per 2018

ESG and green pfandbriefe

Sustainable issues such as climate change and social criteria already reached the pfandbrief market some years ago. There have been green pfandbriefe and pfandbriefe backed by loans which meet environmental, social and governance (ESG) criteria since 2014. With the regular 'Fridays for Future' protests calling for greater action on climate

Revival of social pfandbriefe?

change, the question of what further contribution could be made with covered bonds is becoming even more urgent in the financial sector as well. If we look back at the history of the pfandbrief, the social pfandbrief (Sozialpfandbrief) was already an example which fits in with the current issues. Social pfandbriefe were pfandbriefe and municipal bonds from which at least 90 per cent of the proceeds were used for supporting the construction of social housing. After WWII, these bonds helped alleviate the shortage of housing in Germany. Interest from social pfandbriefe was exempt from tax after the first Financial Market Promotion Act was passed in 1952. Although these tax-advantaged social pfandbriefe were discontinued a long time ago, the idea may enjoy a revival with green and ESG pfandbriefe.

Mortgages worldwide and indeed in Germany are among the most important asset classes in the covered bond market. At the same time, according to the vdp, around 40 per cent of CO₂ emissions in Germany can be attributed to buildings (see vdp News Letter Q2.2019). Covered bond issuers could make a contribution to the reduction in CO₂ emissions by offering cheap finance for energy-efficient commercial and residential buildings, in order thereby to provide an incentive for new building or the renovation of existing stock. One prerequisite for this would be that borrowers would have to provide the necessary details during the loan negotiations. According to the vdp, however, there is a problem: the cost of renovating existing buildings is often higher than any potential savings from lower energy consumption at some time in the future. Even if the increase in the property's value resulting from the renovation is factored in, projects of this nature are often uneconomical. Although cheaper lending terms could be one element in the incentive system for renovations, according to the vdp, additional measures from the government would be necessary to achieve a lasting success.

At present, the financial sector is working on finding common definitions for green financing. The relevant data are currently being collected and evaluated through the Energy Efficient Mortgage Initiative which is led by the European Mortgage Federation and financed by the European Commission. The initiative also involves investigating whether the default probability of green mortgages is lesser – i.e. better – than in the case of financing for conventional buildings. The aim ultimately is to develop standards for the financial sector in order to avoid "greenwashing" on the part of lenders who might only out for their own advantage. Moreover the European Commission has put in place a Technical Expert Group (TEG) on the question of "What is green?". The group presented its report on 18 June 2019. It includes proposals for technical criteria, especially in relation to energy-efficient buildings. The report can be downloaded from the European Commission's website.

A clear and transparent definition which stands the practical test of the banks' actual lending business will be an important foundation for the last step in the process: refinancing green mortgages via covered bonds. There is already a standard in the shape of the International Capital Market Association's (ICMA) Green Bond Principles which meets broad agreement among market participants. The ICMA Green Bond Principles require issuers clearly to set out the use of proceeds from an issue of green bonds along with regular reports on this use. As things stand at present, covered bond banks still have some leeway in the way they use issue proceeds, as a result of which the market lacks transparency for investors. However, a standardised definition for green mortgage bonds could help in this respect.

Green mortgage covered bonds are an important part of the sustainability segment. There are other bonds as well in the covered bond market which have a cover pool which includes loans for the promotion of relevant social or societal issues. This can

Cheap finance for energy-efficient buildings

Search for standardised definitions

Issuers still free to choose issue format

ICMA criteria for green and social bonds

involve finance for hospitals and nurseries, but also infrastructure projects in conjunction with renewable energy generation. The ICMA has corresponding criteria for social bonds for ESG covered bonds – similar to the Green Bond Principles. The criteria and green and social bonds are revised annually by the ICMA and revised if necessary. Further details on this issue can be found on the ICMA's website.

The volume of green and ESG pfandbriefe in the German pfandbrief market is still small. However, a growing number of pfandbrief banks are now turning their attention towards this type of bond and therefore, we can expect a growing number of sustainable pfandbriefe. In the years 2017 and 2018, green and ESG pfandbriefe amounting to EUR 1bn and EUR 2.5bn were issued in the market. In the first half of 2019, the new issue volume amounted to EUR 0.5bn. There is no evidence of any measurable price difference between sustainable and conventional pfandbriefe at the current very tight level of spreads. Tax incentives for investors as in the case of the social pfandbrief would be worth nothing in view of the current low interest-rate environment. Support for climate targets through the financing of sustainable projects could essentially be achieved through favourable conditions for real estate investors, whereby a certain compensation could be achieved for the higher costs because of the more expensive construction requirements. However, with the current swap-spreads more favourable credit conditions for property finances are at the expense of the pfandbrief banks' earning situation.

Advantageous terms for financing sustainable projects

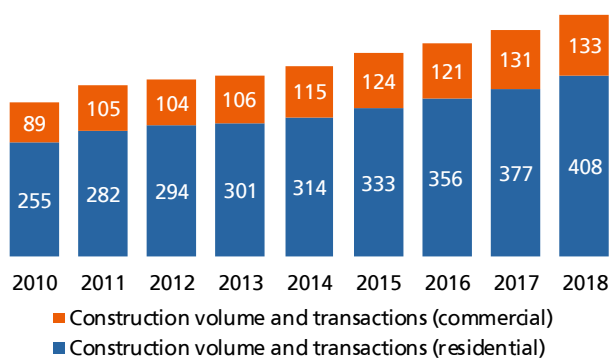
LENDING BUSINESS, DIGITALISATION AND PFANDBRIEF RATINGS

Lending business of pfandbrief banks and digitalisation

On 25 June 2019, the Association of German Pfandbrief Banks presented an analysis of the German real estate market and of the new business of its members; the study focuses first of all on the German property market. According to the report, construction investment and transaction volumes in the market for existing stock have increased continuously since 2010 after a slump in the volume of commercial real estate financing in 2008 and 2009. Construction investment and transaction volumes in commercial real estate reached around EUR 133bn in 2018 against a figure of EUR 408bn for residential property. The banks' new lending volumes have also changed in line with activities in the real estate market in which vdp members have had a substantial market share for years (in both the residential and commercial real estate markets) which amounted to 42 per cent and 60 per cent respectively at the end of 2018. The vdp's members include mortgage banks, Landesbanken, savings banks and building societies along with commercial banks – all with very different business models. On average, commercial real estate financing is dominated by the mortgage and Landesbanken; in the case of some banks, a substantial proportion of the lending is disbursed abroad. Savings banks and building societies along with commercial banks are mainly active in the German residential property market.

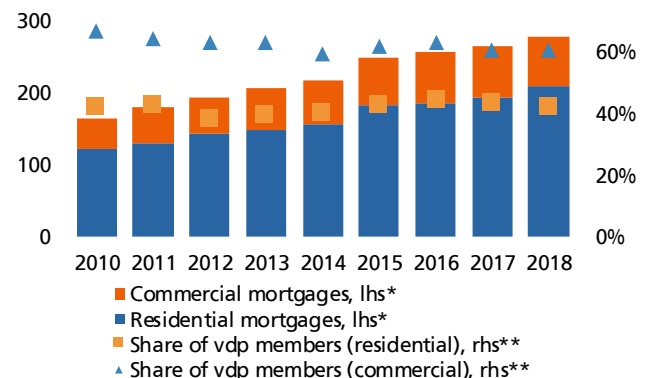
Activities in the property market reflected in new business

CONSTRUCTION AND TRANSACTION VOLUME INVOLVING EXISTING PROPERTIES INCREASING SINCE 2010
FIGURES IN EUR BN



Source: DIW, vdpResearch

VDP MEMBERS – CONSTANT MARKET SHARE OF NEW LENDING VOLUME
LEFT Y AXIS IN EUR BY, RIGHT Y AXIS AS PER CENT



Source: vdpResearch, * loans disbursed by banks and insurance companies (new business, excluding repayments) for the construction and acquisition of residential and commercial property including building work on existing buildings, ** Germany only

The increase in lending is also reflected to a lesser extent in the market for mortgage pfandbriefe. In the last few years, the volume outstanding of this type of bond has increased from EUR 220bn at the end of 2010 to just under EUR 234bn at the end of 2018. However, in this respect, the increase in volume outstanding was less pronounced than the increase in lending business. This could reflect the ECB's long-term refinancing operations (LTRO and TLTRO I to III), through which banks can access long-term central bank lending, which moreover come with attractive conditions if the banks expand their relevant lending business.

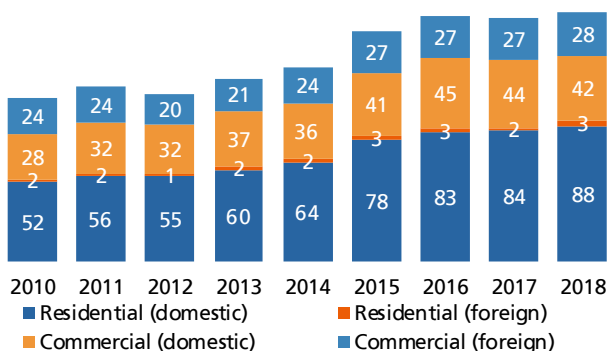
Link between pfandbrief banks' lending and deposit side

Overall, German mortgage lending dominates the cover pools of mortgage pfandbriefe. Depending on the individual pfandbrief bank's business model – above all in the case of mortgage banks – the proportion of commercial real estate can be very

German mortgage business dominant in the case of pfandbrief banks

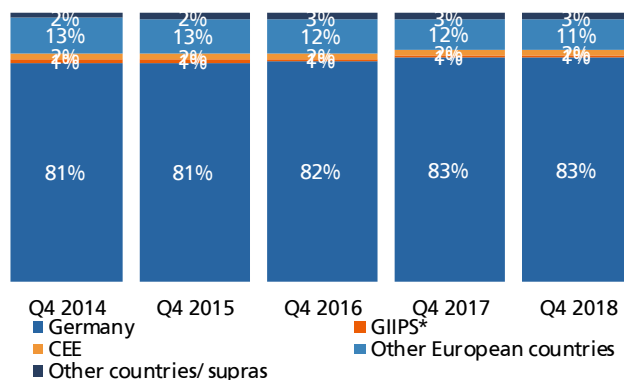
high – a point which Moody’s rated as negative in its latest Legal Report on Germany of July 2019. When pfandbrief banks abroad issue mortgage loans, they are mainly commercial property financings. It is interesting to note in this respect that new business in the UK has recently tailed off, according to the vdp – probably as a result of uncertainty surrounding Brexit. However, at 3.3 per cent at the end of 2018, the average share of UK lending in the cover pools of mortgage pfandbriefe at the end of 2018 was at a level which is slightly above the 3.1 per cent in the years 2016 and 2017. However, the foreign business of pfandbrief banks is not limited to the European internal market. In the last few years, according to the vdp, the US has become increasingly important for its members.

MAIN FOCUS ON RESIDENTIAL PROPERTIES IN GERMANY; SUBSTANTIAL NEW BUSINESS ABROAD IN COMMERCIAL REAL ESTATE
NEW BUSINESS OF VDP MEMBERS IN EUR BN



Source: vdpResearch

GEOGRAPHICAL BREAKDOWN OF COVER POOLS; MAIN FOCUS STILL IN GERMANY
BASED ON THE MORTGAGE PFANDBRIEFE OF VDP MEMBERS



Source: vdp, * GIIPS = Greece, Ireland, Italy, Portugal, Spain

Remaining competitive at home and abroad in the lending business requires not only attractive refinancing terms and conditions but also the most efficient business processes possible. The digitalisation of processes in banking – including in lending – aims to reduce costs in the long term. In this respect, the lending process is no exception. As far as possible, all data is to be collected in one place, at the beginning of the lending process within a bank. As far as possible, all the departments involved are therefore expected to use the same set of data. The technical prerequisites to achieve this are challenges which all banks must confront. In addition, there are further potential efficiency gains – e.g. in the context of digitalisation of property financing – which will also involve resolving legal issues with which the vdp is currently getting to grips (see vdp Quarterly Q1 2019 News Letter), a few of which we propose to touch on briefly below:

- » Gaining access to the land register in Germany requires the applicant to have a legitimate interest. In the case of analogue access to the land register, it is assumed that credit institutions have such an interest. In contrast, an automated retrieval of data requires the owner’s authorisation or a foreclosure. In order to simplify electronic access to the land register, the vdp is pleading in favour of a change in the law which would obviate the need for an authorisation from natural persons for banks.
- » In the case of the registration of charge on a property being mortgaged, it would be useful if the banks could communicate online with the notaries involved. This would involve enabling a complete, paper-less communication and exchange of data, and would require developing common standards between notaries and

Digitalisation in the lending business

Access to electronic land register

Exchange of information when registering a charge

credit institutions and putting in place the relevant interface between the parties involved.

» Under German law, the written form is mandatory for consumer property loan contracts; in the digital world, this can only be replaced by a qualified signature. In practice, in the view of the vdp, a qualified electronic signature (QES) could only be rolled out for specific customer segments, but not for all customers. For this reason, as a complement to the QES, the vdp is pleading for the admissibility of the text form in which customers should not be worse off in respect of existing rights of objection or specific warning functions. With the text form, the aim in future would be for more customers to have access to the digital form of signing contracts.

Simpler digital alternatives to written form

» Electronic land registers would be a great relief in the international lending business. There has been an attempt at European level with the European Land Information Service (EULIS) to set up a Europe-wide data association between land register systems. The aim of EULIS was to enable mutual access to data stored in national land register databases. However, the project was ended in 2018 and replaced by the European Commission's Land Register Interconnection (LRI). However, linking up the land register systems does not merely pose technical challenges. The meaning of individual data fields has to be clear in any exchange of information. In other words, legal correlations must be factored in carefully when translating terms used in one country into another language. The latter point assumes that the legal differences in the land register systems are clearly discernible. Unfortunately, this painstaking work is necessary because we are still a long way off having a standardised regulated euro mortgage in Europe.

International land register database within Europe

The lending process also involves the valuation of collateral assets, which, in the pfandbrief business primarily involves calculating the lending value of buildings. In this respect as well, an automation of processes and use of digital technology could streamline workflows. Automated valuation methods for common residential properties, in which key features of the building along with the address can lead to quite a precise valuation have already been in use for a long time to meet the requirements of the Regulation on the Determination of the Mortgage Lending Value. As part of calculating the lending value, geoinformation systems (GIS) can provide parameters such as land values, socio-demographic or economic metrics (see vdp Infobrief - Quarterly Q2.2019). There is still a long way to go towards the digitalisation of banking business; this could bring about potential efficiency gains in future business processes.

Support in calculating the LTV

A critical look at the methodology of rating agencies for pfandbriefe

It is not just pfandbrief banks which carry out in-depth credit quality analyses. Their pfandbriefe are also closely scrutinised by external rating agencies. Agencies already started to publish pfandbrief ratings in the 1990s. Initially, issuers were sceptical about external ratings because quite a few market participants doubted the need for a rating before a pfandbrief could legally qualify as gilt-edged in Germany. The emergence of jumbo pfandbriefe at the time and hence the need to convince international investors also of the quality of the pfandbrief meant that the agencies' seal of approval was able to establish itself. For over 20 years now, it has been the norm in the German pfandbrief market for pfandbriefe to get an external rating in the case of a public placement and above all if they were being offered to international investors.

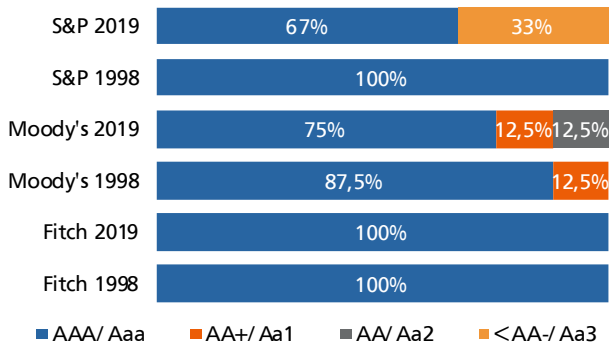
Agencies have been screening the credit worthiness of pfandbriefe since the 1990s

If we compare the rating split between 1998 and 2019, then it is immediately clear that the typical rating for a pfandbrief back then was the top rating and that is still

Long-term rating trends since 1998

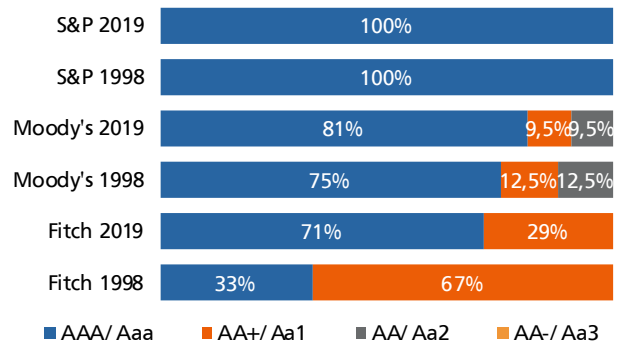
the case – i.e. AAA in the case of Fitch or S&P and Aaa in the case of Moody's. Hardly a single pfandbrief has a rating lower than AA/ Aa2. The rating split obviously changed over the years – above all during the financial crisis. However, the ratings of pfandbriefe have recovered significantly in the last few years after the international financial and European debt crisis. In some cases, the rating split in the graphs which follow only relate to just a very few ratings per agency, and therefore, optically, there can already be major changes in the split even in the event of just a few rating changes – e.g. in the case of S&P and ratings for public sector pfandbriefe.

RATING SPLIT FOR PUBLIC SECTOR PFANDBRIEFE: 1998 VERSUS 2019



Source: "Der Pfandbrief 1769-2019 – Von der preußischen Finanzinnovation zur Covered Bond Benchmark", Bloomberg, rating agencies, DZ BANK Research presentation and calculations
Number of ratings factored in: Fitch 1 (2019), 4 (1998), Moody's 16 (2019), 8 (1998), S&P 3 (2019), 16 (1998)

RATING SPLIT FOR MORTGAGE PFANDBRIEFE: 1998 VERSUS 2019

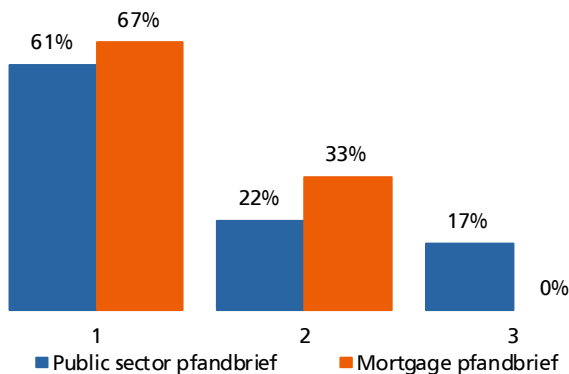


Source: "Der Pfandbrief 1769-2019 – Von der preußischen Finanzinnovation zur Covered Bond Benchmark", Bloomberg, rating agencies, DZ BANK Research presentation and calculations
Number of ratings factored in: Fitch 7 (2019), 3 (1998), Moody's 21 (2019), 8 (1998), S&P 3 (2019), 1 (1998)

Apart from the rating split, the rating landscape in the pfandbrief market has also changed in the last 20 years in a number of areas. If a pfandbrief is rated today, then it is only rated by more than once agency in exceptional cases. As a rule, therefore, a pfandbrief now only has one external rating. In 1998, 22 per cent of public pfandbriefe still had two ratings and 17 per cent still had three. The percentages shown in the graphs below only relate to pfandbriefe which had at least one rating. The overwhelming majority of pfandbrief banks, especially smaller institutions, still have no external rating for their covered bonds, even though the number of ratings issued has generally increased. In the case of public sector pfandbriefe, the number of ratings has risen minimally – from 18 in 1998 to 19 in 2019. In contrast, the number of ratings for mortgage pfandbriefe has surged from 9 to 30. Ultimately, this also reflects the growing importance of mortgage pfandbriefe in Germany. Many pfandbrief banks are now cutting back or even entirely winding up their municipal and state lending business.

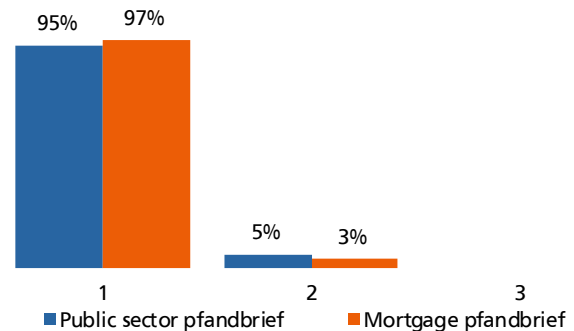
Pfandbriefe now generally only have one rating

MORE THAN ONE RATING STILL QUITE FREQUENT IN 1998
X AXIS: NUMBER OF RATINGS PER PFANDBRIEF PROGRAMME



Source: "Der Pfandbrief 1769-2019 – Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation and calculations, number of ratings factored in: public pfandbriefe: 6, mortgage pfandbriefe: 9

MORE THAN ONE RATING FOR A PFANDBRIEF THE EXCEPTION IN 2019
X AXIS: NUMBER OF RATINGS PER PFANDBRIEF PROGRAMME



Source: Bloomberg, rating agencies, DZ BANK Research presentation and calculations, number of ratings factored in: public pfandbriefe: 19, mortgage pfandbriefe: 30

There is no shortage of external rating agencies; indeed, the number of such ratings has increased steadily in the last few years. Nine rating agencies have now published a methodology for covered bonds. The three big agencies which have been active in the pfandbrief market since 1998, namely Fitch, Moody's and S&P, are still in a dominant position which is ultimately also a reflection of their recognition by the European Central Bank. Twenty years ago, S&P was the leading rating agency for public sector pfandbriefe. However, it has now been eclipsed by Moody's which has also maintained a leading position in the mortgage pfandbrief segment. The agencies have mostly left their methodology for covered bonds unchanged in the last 12 months – apart from smaller adjustments of a more technical nature.

Moody's dominates the pfandbrief market

There have hardly been any rating changes in the last few years. The rating volatility witnessed during the crisis in the financial markets and the sovereign debt crisis is now a thing of the past. The trend for German pfandbriefe seems to be very stable. We therefore propose to take a brief look behind the scenes at the agencies' methodologies. The agencies' ratings are often regarded as equivalent, and we have applied the same view in the preceding graphs. In other words, AAA from agency X is the same as the respective top rating from agency Y. However, the agencies' rating comments can differ significantly. These differences are not merely of academic interest; they have a tangible impact on rating requirements (in the form of over-collateralisation) and hence on the efficiency of the covered bond programmes (from the issuer's point of view) and on the safety package (from the investors' point of view). We shall therefore look in slightly more detail at this issue in the next section.

Stable rating trend and differences in methodology

Agency ratings only comparable to a limited extent

Moody's ratings are based on the expected loss, whereas the ratings of most other agencies reflect the probability of default of the bonds. This difference can also mean different rating requirements in order to achieve the target rating. We look at this point in detail through a comparison of Fitch and Moody's. There is another aspect which can also have an impact on the comparability of the various agency ratings: each agency uses specific idealised default probabilities and figures for expected losses for its cash-flow models. To a certain extent, these figures are a bar which an issuer has to clear in order to achieve a specific rating level. As an example in this study, we compare the relevant DBRS and Moody's figures.

Comparing ratings not entirely straightforward

Fitch versus Moody's: default probability versus expected loss

Moody's covered bond ratings are based on the expected loss which investors would incur in the event of a default of the issuer. Small payment defaults therefore are of less importance than in the case of ratings which are based entirely on the default probabilities of the bonds. Fitch evaluates the default probability of the covered bonds, but also factors in potential recoveries from the cover assets. The definitions used by both agencies do not seem to be so far apart. However, in view of fine but important methodological differences, Fitch and Moody's rating requirements can vary widely. Fitch originally drew attention to this fact in a study of 7 February 2018, "Acceptance of Low OC May Lead to Complacency in the Covered Bond Market". Fitch criticises the fact that Moody's assigns Aaa ratings to certain covered bonds without imposing any over-collateralisation requirements worth mentioning on the credit institution. Moody's over-collateralisation requirements are strongly influenced by the covered bond issuer's respective credit rating, and the latter forms the starting point for the covered bond rating through the Counterparty Risk Assessment and potential uplifts. In contrast, in order to achieve a target rating, Fitch expects from the outset that potential losses for a cover pool should be offset by a corresponding over-collateralisation in the event of a default of the issuer.

Over-collateralisation is a risk buffer designed to offset potential credit and market risks. The position of bondholders could be weakened if a rating agency relies on the rating buffer which is regarded as necessary only being built up gradually in the event of a deterioration in the issuer's credit quality. Although Fitch believes that existing minimum over-collateralisation ratios for covered bonds would mitigate this risk for bondholders, the agency is of the view that existing statutory over-collateralisation ratios, which are no higher than 5 per cent in many countries, would always provide sufficient cover for all imaginable potential risks in a stress scenario.

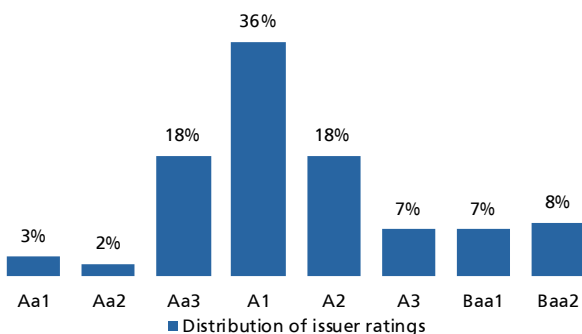
In a study, Fitch compared Q1 2017 figures from covered bond programmes which have been assigned a top rating by Fitch itself and Moody's respectively. The agency looked above all at potential losses for the cover pool and at over-collateralisation requirements and their correlation with the covered bond issuers' ratings. Fitch took into account a total of 51 covered bond programmes. We have carried out similar comparisons, using figures for Q2 2017. The data which we have considered includes all covered bond programmes rated AAA/ Aaa by Fitch/ Moody's, for which an issuer rating has also been published and which are regulated by a covered bond framework. This gives a slightly broader data basis of 60 data points for Fitch and 122 for Moody's. In our view, our slightly modified approach confirms Fitch's results.

Criticism of top ratings without over-collateralisation requirement

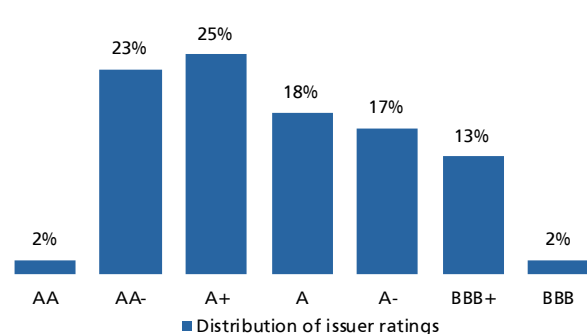
Statutory breakeven over-collateralisation not sufficient for all loss scenarios

Our calculations confirm Fitch's view

MOODY'S: DISTRIBUTION OF ISSUER RATINGS (SENIOR UNSECURED RATING, SUR)
AS PER Q2 2017, UNIVERSE 98



FITCH: DISTRIBUTION OF ISSUER RATINGS (ISSUER DEFAULT RATING, IDR)
AS PER Q2 2017, UNIVERSE 60



Source: Moody's, DZ BANK Research presentation and calculations

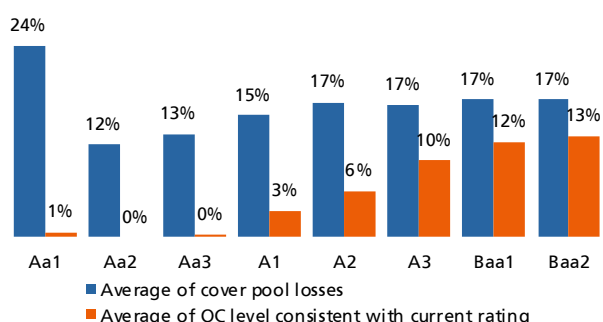
Source: Fitch, DZ BANK Research presentation and calculations

In our sample, 23 per cent and 25 per cent of the covered bond issuers had a double-A rating from Moody's and Fitch respectively. A majority of issuer ratings in the case of both agencies were in the single-A segment; in the case of Moody's A1 and in the case of Fitch A+. One striking feature, however, with covered bond programmes rated Aaa by Moody's, is that the proportion of issuers with a rating of A3 or lower was only 22 per cent, whereas the comparable figure in the case of Fitch (IDR A- or lower) was significantly higher at 32 per cent.

Fitch assigns proportionately more AAA ratings to issuers with a weak credit quality

MOODY'S: CORRELATION BETWEEN ISSUER RATING AND OVER-COLLATERALISATION REQUIREMENT

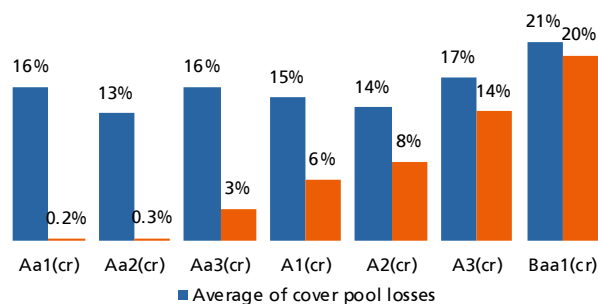
AS PER Q2 2017, UNIVERSE 98, X AXIS = SUR



Source: Moody's, DZ BANK Research presentation and calculations

MOODY'S: THE WORSE THE COUNTERPARTY RISK ASSESSEMENT, THE HIGHER THE OVER-COLLATERALISATION REQUIREMENTS

AS OER Q2 2017, UNIVERSE 122, X AXIS = COUNTERPARTY RISK ASSESSMENT



Source: Moody's, DZ BANK Research presentation and calculations

The data we have analysed clearly shows the correlation between the over-collateralisation requirements and the issuer's rating criticised by Fitch in the case of Moody's. The latter uses the Counterparty Risk (CR) Assessment as anchor point for the covered bond rating; this rating is never below the issuer rating (Senior Unsecured Rating, SUR). In many cases, however, the CR Assessment is up to two notches above the SUR. In the case of European covered bonds, moreover, Moody's assigns an additional uplift of one notch above the CR Assessment as its starting point for the covered bond rating. The following general remarks apply for both the distribution of the SUR and that of the CR Assessment. In the case of Moody's, issuers with a double-A rating do not need to have over-collateralisation of more than 1 per cent to achieve the target rating. The poorer the issuer rating, the higher the average over-collateralisation requirements imposed by Moody's. What is noticeable in this respect is that the level of loss risks calculated by Moody's in its stress test for the cover pool is largely independent from the issuer rating. Moody's average over-collateralisation requirements in all rating categories are below the average loss risks. This is precisely the point criticised by Fitch, because, in the event of a jump-to-default of the issuer (i.e. the sudden insolvency of a well-rated bank as in the case of Lehman Brothers in September 2008), the cover pool would not have a sufficient risk buffer.

Issue criticised by Fitch clearly evident from the data

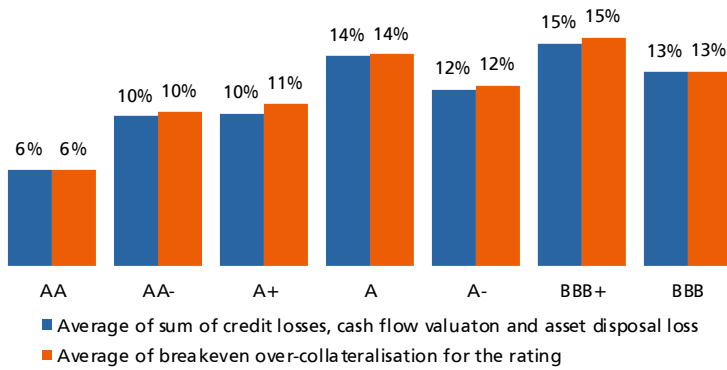
In the case of Fitch, the level of potential losses for the cover pool is less strongly dependent on the issuer rating than with Moody's. Under certain conditions, the cover pools of banks with a double-A rating are subjected to less severe stress scenarios. To that extent, all else being equal, lower loss risks can be assumed for the cover pools of these banks than in the case of credit institutions with a poorer issuer rating. The figures we have analysed moreover show that, on average, Fitch is clearly guided by potential losses in a stress scenario when setting the necessary over-collateralisation. In no rating category is the breakeven over-collateralisation (OC) applied by Fitch lower

Fitch guided by potential losses

than the average loss risks it calculates for the cover pool. This is the major difference between Moody's and Fitch.

FITCH: NO STRONG CORRELATION BETWEEN ISSUER RATING AND OVER-COLLATERALISATION REQUIREMENTS

AS PER Q2 2017, UNIVERSE 60, X AXIS = IDR



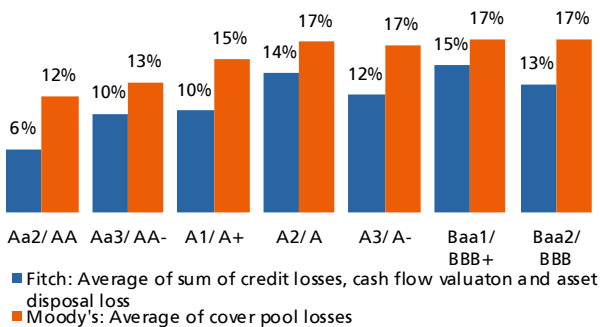
Source: Fitch, DZ BANK Research presentation and calculations, * average of the sum of credit losses, cash flow valuation and asset disposal loss (%), **Average of Breakeven OC for the Rating (%)

We have again highlighted this difference in the graphs below, by juxtaposing the relevant ratios from both rating agencies. It is noticeable that Fitch and Moody's over-collateralisation requirements for banks with a BBB rating are very close to each other. In addition, Moody's systematically calculates higher potential losses in the cover pools than Fitch. This means that Moody's seems to apply stricter stress scenarios in its cash-flow analysis than Fitch. However, in the case of banks with a higher rating, these higher potential losses do not lead to any correspondingly high over-collateralisation requirements from Moody's.

Moody's uses stricter stress scenarios for potential loss risks

MOODY'S SEEMS TO USE STRICTER STRESS CALCULATIONS FOR THE COVER POOL THAN FITCH

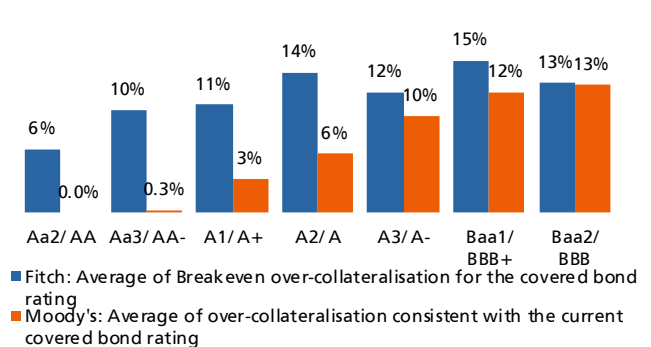
AS PER Q2 2017, X AXIS = ISSUER RATINGS



Source: Moody's, Fitch, DZ BANK Research presentation and calculations

MOODY'S AND FITCH'S OVER-COLLATERALISATION REQUIREMENTS SIMILAR IF BANKS ARE RATED IN BBB SEGMENT

AS PER Q2 2017, X AXIS = ISSUER RATINGS



Source: Moody's, Fitch, DZ BANK Research presentation and calculations

DBRS versus Moody's: different thresholds for target ratings

The next tables show DBRS and Moody's idealised default probability for individual rating categories. Each rating agency draws up individual tables based on its own empirical experience of defaults observed in borrowers in the respective rating category. In America, external ratings have been used for a long time and are widespread, above all in the market for corporate bonds. For this reason, the default probability

Each agency draws up its own default tables

tables are likely to be a strong reflection of developments in the American corporate bond market in the last few years. However, the figures given do not exactly reflect the historical default rates in each single rating category. As far as we understand, some figures may be smoothed or adjusted for better consistency within the table.

Two figures per rating agency have been highlighted in following tables. The idealised default probability of a debtor with an A (low) rating from DBRS is 0.9643 per cent for a five-year horizon. In the case of an AAA rating, the default probability would only be 0.0987 per cent. In the case of Moody's, the default probability for a debtor with an A3 rating (the equivalent of an A (low) from DBRS) and a five-year maturity is 0.73 per cent. The default probability for an Aaa rating from Moody's for the same maturity comes down to 0.0029 per cent. The figures shown here are threshold values. In order for a debtor to qualify for an AAA rating from DBRS, the default probability in the rating model must not exceed 0.0987 per cent. Moody's also calibrates ratings for unsecured bank liabilities based on default probability. In Moody's model calculation, a debtor should not exceed a default probability of 0.0029 per cent if it wishes to attain an Aaa rating. In this specific example, the bar in Moody's case is 34 times higher than with DBRS (0.0987 per cent divided by 0.0029 per cent), because Moody's threshold for default probability is much lower than in the case of DBRS.

This arbitrary example merely aims to show that even if the agencies arrive at the same assertions with their ratings – as in the example of the default probability for unsecured liabilities of a bank as debtor – the comments on the credit quality associated with the rating of the debtor in question can still deviate significantly from one another.

Uneven hurdles lead to ...

... different assertions

DBRS: IDEALISED DEFAULT PROBABILITIES PER MATURITY YEAR

Rating/maturity (years)	1	2	3	4	5	6	7	8	9	10
AAA	0.0110%	0.0264%	0.0460%	0.0699%	0.0987%	0.1330%	0.1736%	0.2212%	0.2765%	0.3405%
AA (high)	0.0161%	0.0390%	0.0691%	0.1071%	0.1539%	0.2107%	0.2784%	0.3580%	0.4501%	0.5554%
AA	0.0212%	0.0517%	0.0922%	0.1442%	0.2091%	0.2883%	0.3832%	0.4948%	0.6237%	0.7703%
AA (low)	0.0281%	0.0709%	0.1297%	0.2055%	0.2994%	0.4123%	0.5445%	0.6962%	0.8672%	1.0571%
A (high)	0.0419%	0.1095%	0.2045%	0.3280%	0.4801%	0.6602%	0.8671%	1.0991%	1.3543%	1.6306%
A	0.0487%	0.1287%	0.2419%	0.3893%	0.5704%	0.7841%	1.0283%	1.3005%	1.5978%	1.9173%
A (low)	0.0945%	0.2420%	0.4391%	0.6815%	0.9643%	1.2825%	1.6309%	2.0045%	2.3990%	2.8101%
BBB (high)	0.1860%	0.4685%	0.8333%	1.2659%	1.7521%	2.2792%	2.8359%	3.4126%	4.0013%	4.5956%
BBB	0.2318%	0.5818%	1.0305%	1.5581%	2.1460%	2.7776%	3.4384%	4.1166%	4.8024%	5.4884%
BBB (low)	0.3732%	0.8912%	1.5142%	2.2099%	2.9528%	3.7230%	4.5053%	5.2884%	6.0636%	6.8252%
BB (high)	1.0800%	2.4384%	3.9327%	5.4686%	6.9863%	8.4500%	9.8400%	11.1473%	12.3697%	13.5091%
BB	1.3627%	3.0573%	4.9001%	6.7721%	8.5997%	10.3408%	11.9738%	13.4908%	14.8921%	16.1826%
BB (low)	2.2346%	4.7297%	7.2541%	9.6836%	11.9572%	14.0507%	15.9604%	17.6938%	19.2641%	20.6863%
B (high)	3.6297%	7.4056%	11.0204%	14.3419%	17.3292%	19.9866%	22.3389%	24.4186%	26.2592%	27.8922%
B	4.8503%	9.7471%	14.3160%	18.4179%	22.0296%	25.1805%	27.9201%	30.3028%	32.3799%	34.1974%
B (low)	10.0776%	17.6609%	23.5135%	28.1371%	31.8670%	34.9314%	37.4891%	39.6528%	41.5044%	43.1047%
CCC (high)	18.7898%	30.8505%	38.8426%	44.3357%	48.2625%	51.1831%	53.4376%	55.2363%	56.7119%	57.9502%
CCC	22.2746%	36.1264%	44.9743%	50.8151%	54.8208%	57.6837%	59.8169%	61.4696%	62.7949%	63.8884%
CCC (low)	61.1373%	68.0632%	72.4872%	75.4076%	77.4104%	78.8419%	79.9085%	80.7348%	81.3974%	81.9442%
C	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

Source: DBRS. DZ BANK Research presentation , as per 2016

MOODY'S: IDEALISED AGGREGATE EXPECTED DEFAULT RATES

Rating/maturity (years)	1	2	3	4	5	6	7	8	9	10
Aaa	0.0001%	0.0002%	0.0007%	0.0018%	0.0029%	0.0040%	0.0052%	0.0066%	0.0082%	0.0100%
Aa1	0.0006%	0.0030%	0.0100%	0.0210%	0.0310%	0.0420%	0.0540%	0.0670%	0.0820%	0.1000%
Aa2	0.0014%	0.0080%	0.0260%	0.0470%	0.0680%	0.0890%	0.1110%	0.1350%	0.1640%	0.2000%
Aa3	0.0030%	0.0190%	0.0590%	0.1010%	0.1420%	0.1830%	0.2270%	0.2720%	0.3270%	0.4000%
A1	0.0058%	0.0370%	0.1170%	0.1890%	0.2610%	0.3300%	0.4060%	0.4800%	0.5730%	0.7000%
A2	0.0109%	0.0700%	0.2220%	0.3450%	0.4670%	0.5830%	0.7100%	0.8290%	0.9820%	1.2000%
A3	0.0389%	0.1500%	0.3600%	0.5400%	0.7300%	0.9100%	1.1100%	1.3000%	1.5200%	1.8000%
Baa1	0.0900%	0.2800%	0.5600%	0.8300%	1.1000%	1.3700%	1.6700%	1.9700%	2.2700%	2.6000%
Baa2	0.1700%	0.4700%	0.8300%	1.2000%	1.5800%	1.9700%	2.4100%	2.8500%	3.2400%	3.6000%
Baa3	0.4200%	1.0500%	1.7100%	2.3800%	3.0500%	3.7000%	4.3300%	4.9700%	5.5700%	6.1000%
Ba1	0.8700%	2.0200%	3.1300%	4.2000%	5.2800%	6.2500%	7.0600%	7.8900%	8.6900%	9.4000%
Ba2	1.5600%	3.4700%	5.1800%	6.8000%	8.4100%	9.7700%	10.7000%	11.6600%	12.6500%	13.5000%
Ba3	2.8100%	5.5100%	7.8700%	9.7900%	11.8600%	13.4900%	14.6200%	15.7100%	16.7100%	17.6600%
B1	4.6800%	8.3800%	11.5800%	13.8500%	16.1200%	17.8900%	19.1300%	20.2300%	21.2400%	22.2000%
B2	7.1600%	11.6700%	15.5500%	18.1300%	20.7100%	22.6500%	24.0100%	25.1500%	26.2200%	27.2000%
B3	11.6200%	16.6100%	21.0300%	24.0400%	27.0500%	29.2000%	31.0000%	32.5800%	33.7800%	34.9000%
Caa1	17.3816%	23.2342%	28.6386%	32.4788%	36.3137%	38.9667%	41.3854%	43.6570%	45.6718%	47.7000%
Caa2	26.0000%	32.5000%	39.0000%	43.8800%	48.7500%	52.0000%	55.2500%	58.5000%	61.7500%	65.0000%
Caa3	50.9902%	57.0088%	62.4500%	66.2420%	69.8212%	72.1110%	74.3303%	76.4853%	78.5812%	80.7000%
Ca	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%
C	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

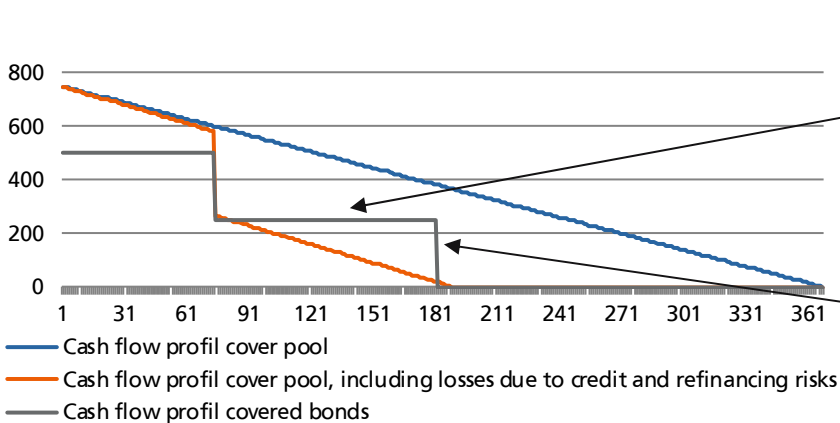
Source: Moody's, DZ BANK Research presentation , as per 2018

Rating paradox

Seen from this side, there is a paradox in connection with the rating methods surrounding the valuation of conditional pass-through covered bonds (CPT) and covered bonds which fall due immediately after a default of the issuer. In principle, all covered bondholders rank equally in their claims on the cover pool. In older covered bond frameworks such as the German Mortgage Bank Act (HBG) pre-dating 1998, there was still a rule, according to which covered bonds would also immediately fall due in the event of a default of the issuer. Under old HBG rules, recoveries from the sale of cover assets would have been distributed equally (*pari passu*) to covered bondholders. Therefore, secured bondholders would have received pro rata the same repayment on their bonds at the same time. This would naturally have involved the risk that the recovery ratio could end up being below 100 per cent in view of a potential fire sale of the cover pool assets. The rating agencies criticised these rules. Their prerequisite for a high rating was that the repayment of the covered bonds would take place at the time originally agreed, even after a default of the issuer. Covered bond frameworks were then adjusted accordingly. Under the modern Pfandbrief Act (PfandBG) also, outstanding bonds are not immediately due in the event of a default of the pfandbrief bank. However, this arrangement leads to the problem of time subordination because longer-dated bonds are only serviced at a later stage. If a disproportionately large share of the over-collateralisation were to be used up beforehand in order to repay series maturing earlier on time, then a credit loss arising at a later time could hit the remaining outstanding series. Although this would mean that bondholders had a formal equal claim on the cover assets, in view of the time subordination, holders of bonds which mature later can nevertheless face a higher loss risk than those of short-dated bonds (see next graph).

Time subordination of the covered bond series

TIME SUBORDINATION: HOLDERS OF BONDS MATURING LATER FACE HIGHER DEFAULT RISKS
X AXIS: DAY AFTER DEFAULT OF THE ISSUER, Y AXIS: EURO



From day 134, it is clear that the cover pool is overindebted because of loan defaults and therefore that the second bond cannot be repaid in full

In view of debts amassed earlier arising from credit, market and liquidity risks, the cover pool is no longer sufficient to pay back the second bond in full

Source: DZ BANK Research

In the example shown in the graph above, the figures have been chosen in such a way that the losses arising from credit, market and above all liquidity risks at the maturity date of the first bond are so high that there will not be sufficient cover assets from day 134 for the second bond which matures later because of further loan defaults occurring in the cover pool after the repayment of the first bond. In the example, a disproportionate amount of the available over-collateralisation was used up through the sale of cover assets for the timely repayment of the first bond to the detriment of the other covered bondholders. In order to limit this risk, there are contractual

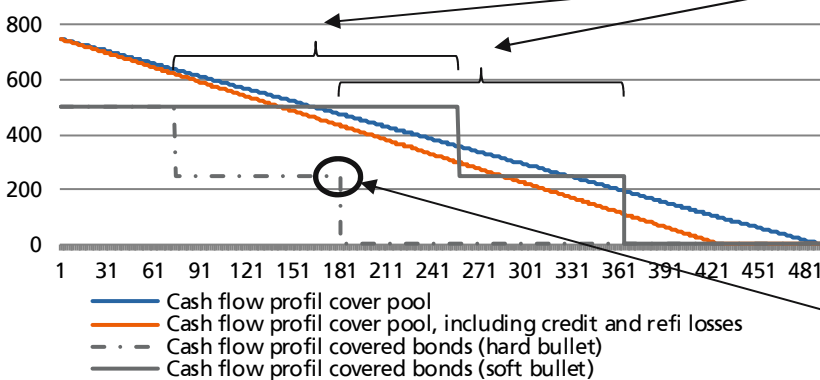
Losses accumulate over time

arrangements in some covered bond programmes which aim to ensure that each outstanding covered bond series can use only the same share of the over-collateralisation in relation to its outstanding volume. This mitigates a scenario of the kind outlined in the graph. However, in case of need, it could mean that there are not enough cover assets available to raise sufficient liquidity for the forthcoming repayment for an individual series, even though there are still many cover assets available in the cover pool. In addition, holders of bonds maturing at a later stage still face a higher risk even with this arrangement in place, because higher credit defaults can accumulate over time which then have to be borne by an ever shrinking cover pool.

In the above example, substantial losses arise for the cover pool at the original repayment date of the first bond which lead to the later default of the second bond. One possibility to avoid these losses or reduce them would be a short-term extension of the repayment (maturity extension or soft bullet). In the simplest case, the cover pool administrator can wait until sufficient cash accumulates from payments into the cover pool during the extension period to be able to repay the bond in full at a later date. This scenario is played out in the next example (see following graph). However, sufficient cash has only accumulated in the cover pool to repay the first bond after the maturity date of the second covered bond. As a general rule, efforts will be made to avoid a situation in which the in-payments collected for the deferred payment of one bond are used in the meantime to repay another bond (which has matured at a later date). Deferring the maturity of the first bond could therefore trigger a domino effect in the deferral of the repayment of all subsequent bonds.

Sticking to the repayment schedule for soft bullet bonds

NO OVERTAKING: CAN MATURITY EXTENSIONS CHANGE THE SEQUENCE OF BOND REPAYMENTS?
X AXIS: DAYS AFTER A DEFAULT OF THE ISSUER, Y AXIS: EURO



Soft bullet phase for the first and second bond

Aggregate deposits: 250

Aggregate deposits: 250

No overtaking for repayment of second bond?

Source: DZ BANK Research

In Germany, the regulatory authorities have been considering the introduction of rules on maturity extension in the Pfandbrief Act for some years. One proposal in this respect which is currently under discussion takes Polish covered bond legislation as a model. Under the Polish framework, if the maturity of one bond is extended, then all outstanding covered bonds must be repaid 12 months later. This would solve the problem of an unwanted overtaking taking place in the repayment schedule of the bonds. Under the Polish covered bond legislation, if necessary (illiquidity of the cover pool), the repayment of the covered bonds can be geared to payments inflows. This mechanism is also familiar with CPT covered bonds, representing a further development of the soft bullet structure, which can be used effectively to eliminate the liquidity risk for the cover pool. Bondholders benefit from higher recovery rates from the

Mulling over change in Pfandbrief Act

sale of the cover assets because there is no risk of losses from fire sales. However, securing the liquidity of the cover pool in this manner is achieved to the detriment of bondholders, because they may have to wait much longer for their money, if there is any doubt.

From a purely economic point of view, the process of liquidating a cover pool with CPT covered bonds is reminiscent of the original idea in the Mortgage Bank Act of 1998 in which, as we mentioned earlier, all outstanding bonds would have to be redeemed at the time of default in order to split the recovery proceeds from the cover pool *pari passu* between the bondholders. The realisation of the cover pool assets does not necessarily have to take place through a rapid and undoubtedly loss-making fire sale of the cover assets. The cover pool administrator can collect claims due from the loans and wait for a suitable opportunity for a portfolio sale. It is interesting to note that the rating agencies treat this HBG model much less well in their methodologies than CPT covered bonds whose ratings can generally move much further away from the issuer rating than bullet bonds. Compared with soft bullet covered bonds, CPT covered bonds frequently have to meet much lower over-collateralisation requirements, all else being equal, for a given rating level. We find it difficult to understand why the old HBG rules which envisaged an immediate redemption of the bonds have fallen into disfavour with the rating agencies while CPT covered bonds are viewed very favourably even though both variants represent very similar scenarios from a financial point of view.

Rating agencies admittedly reply that, under the old HBG, *pfandbriefe* have to be regarded as insolvent together with the issuer and therefore are regarded as defaulted. In the case of CPT covered bonds, it is contractually agreed that, in the event of a default of the issuer (including its insolvency), the covered bonds are not regarded as defaulted, even if payments due under the covered bonds cannot be made. In addition, with the CPT mechanism, there would be an agreement ensuring a careful sale of the cover pool assets, thus minimising losses for covered bondholders, even if the liquidation of the cover pool might take a very long time as a result. The rating agencies seem to be indifferent to whether the CPT rules are in the bond terms and conditions or whether they are regulated in the covered bond legislation, as in the case of Poland, for example. Is this a case of the snake biting its own tail, bearing in mind the fact that, ultimately, covered bond frameworks such as the Pfandbrief Act are only special legal insolvency provisions for banks? If therefore insolvency law stated that the bond was not deemed to have defaulted even if no payments are being made, then top ratings do seem more feasible. The old HGB seemingly lacked an appropriate definition and guidelines for the cover pool administrator to sell off the cover assets so as to avoid a fire sale.

CPT covered bonds versus HBG

Contractual rules and legal fiction

EUROPEAN HARMONISATION OF COVERED BOND FRAMEWORKS IN LIGHT OF 250 YEARS OF PFANDBRIEF HISTORY

The origins of today's pfandbrief legislation go all the way back to a cabinet order of 29 August 1769 from the Prussian king Frederik II for the foundation of the Silesian "Landschaft" (cooperative of noble landowners), issuer of the first pfandbriefe. Pfandbriefe therefore celebrate their 250th birthday in 2019. A complete history of the pfandbrief, interesting though it is, would go far beyond the scope of this study. Friederike Sattler and Fritz Engelhard's anniversary publication "Der Pfandbrief 1769-2019 – Von der preußischen Finanzinnovation zur Covered Bond Benchmark" gives a very vivid and detailed account of the turbulent history of the pfandbrief. We have taken a few highlights from this anniversary publication which we propose to touch on during the course of our study in honour of this 250th anniversary.

Roots of pfandbrief law go back 250 years

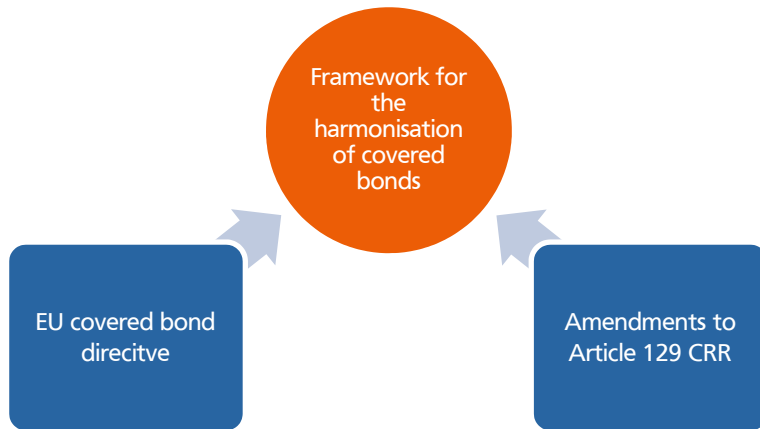
Pfandbrief legislation has changed frequently since August 1769 in order to remain successful. The pfandbriefe of 1769 and those of 2019 are therefore very different. Many of the rules which are now regarded as a matter of course are only very recent when measured against the pfandbrief's long history. A few of these rules were only included in the Pfandbrief Act (PfandBG) which was passed in 2005 and in its many subsequent amendments. For example, the legal basis for aircraft pfandbriefe was first introduced in the PfandBG in 2009. Transparency rules put in place in 2005 to make up for the loss of the specialist bank principle were first extended in 2009. The requirement for the 180-day liquidity in the cover pool was also enshrined in the PfandBG in 2009 along with a clearer segregation of bankruptcy and cover assets, which have since been referred to as insolvency-free assets. The separation principle in the event of the pfandbrief bank's insolvency was only introduced in §30 PfandBG in 2010 along with the description of the pfandbrief programme as "pfandbriefbank with limited business activity". In addition, in the same year, a link was also established in §36a PfandBG between pfandbrief legislation and restructuring legislation. A further important change in the PfandBG was finally passed in 2014 by virtue of which the Federal Financial Supervisory Authority (BaFin) is entitled by administrative act to set the level of over-collateralisation for a pfandbrief bank individually. Many of these changes came about in response to the financial and sovereign debt crisis in the years after 2008 and the collapse of Lehman Brothers, but also in response to critical questioning from the investors and rating agencies.

Big differences between then and now a testament to the pfandbrief's adaptability

However, not all the changes were reactions to criticism from market participants or an expression of crisis management. Often enough, there is simply a willingness to make adjustments aimed at a continuous improvement in the pfandbrief legislation. The regulations of neighbouring countries frequently provide a model for changes in the law. Covered bond ideas have been moving between European countries since 1769 and have served as mutual inspiration. However, there have always been differences between the various legal frameworks, and consequently, the wish for harmonisation was formulated for the first time some 50 years ago. It took a while longer for a Europe-wide harmonisation of pfandbrief legislation to be discussed at an international conference. This took place in Munich in 1981. This idea was taken a step further in a subsequent conference which took place in 1984 on the Chiemsee, where core elements of a pfandbrief directive were drawn up. The spirit of Chiemsee then led to the foundation of the Mortgage Bond Committee (Pfandbriefausschuss) in the European Mortgage Foundation in 1992, from which the European Covered Bond Council (ECBC) was born in 2004. In the end, it was the ECBC which campaigned hard for the regulation package for the harmonisation of the covered bond frameworks in the European Union (EU) which is likely to be implemented in national EU law probably from November 2019.

Willingness to adjust led to package of measures to harmonise European covered bond legislation

FRAMEWORK FOR COVERED BOND HARMONISATION CONSISTS OF TWO PARTS



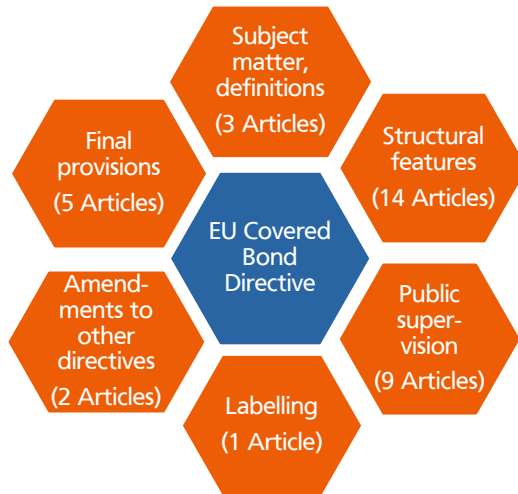
Source: Council of the European Union, diagram by DZ BANK Research, CRR = EU Capital Requirements Regulation

The current framework for the harmonisation of European covered bond legislation which consists of an EU Covered Bond Directive and changes to the Capital Requirements Regulation (CRR) for banks, will bring to an end – for the time being – decades of ongoing processes. The European pfandbrief directive prepared in the 1980s was not pursued any further lately. Once this had become clear, a partial solution was found with the introduction of the UCITS directive in 1988. The UCITS criteria, which are still in force (as per September 2019), envisage that covered bonds must be issued by a credit institutions which has its registered office in a Member State of the European Economic Area. By law, such credit institutions are subject to special public supervision designed to protect bondholders and ensure that there is sufficient cover to repay the bond and pay the coupons attached to the bonds. The first legal definition for a covered bond has served for over 30 years as the reference point for many supervisory privileges enjoyed by banks and insurance companies. European covered bond laws which have been passed in the meantime are guided by these requirements. The fundamental legal definition for covered bonds is now being thoroughly revised with the new European covered bond framework. In future, the new EU covered bond directive will replace Article 52 (4) of the Undertakings for Collective Investment in Transferable Securities (UCITS) directive and corresponding provisions in other directives.

The European Union's latest package of regulations is still a long way off the kind of full harmonisation of European covered bond frameworks envisaged in the 1980s. The latest regulations are more a principles-based harmonisation along clear criteria which were worked out beforehand in studies carried out by the European Banking Authority (EBA) and which define minimum standards. Moreover, the EU Covered Bond Directive will allow member states the right to chose whether or not to adopt certain regulations. The 34 articles in the directive include a total of 25 such options ("Member States may"). In spite of this degree of freedom in the national implementation of the new EU framework, stricter, Europe-wide quality standards than in the UCITS are enshrined in the package of regulations.

EU Covered Bond Directive to replace UCITS Directive

EU Covered Bond Directive sets out quality standards

STRUCTURE OF THE COVERED BOND DIRECTIVE

Source: EU Covered Bond Directive, presentation DZ BANK Research

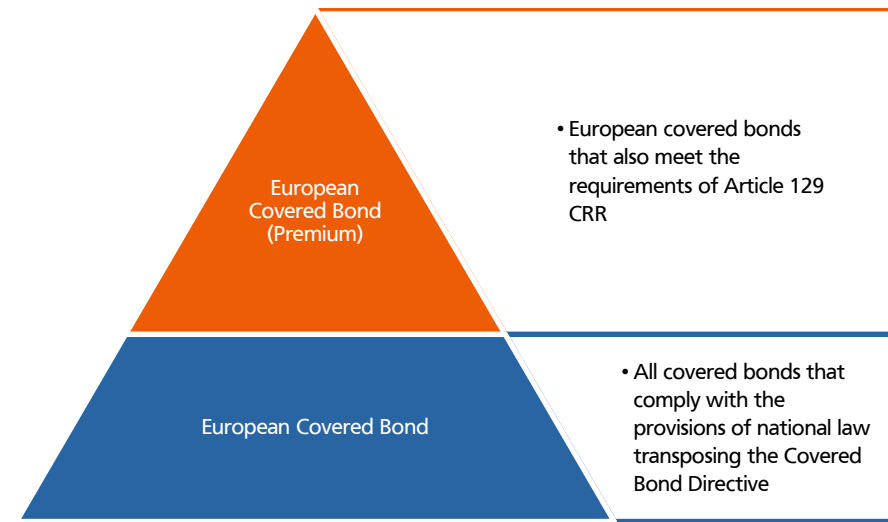
European secured notes (ESN) are not included in the current EU Covered Bond Directive. ESNs are to be used to finance SME loans and infrastructure projects and, in their basic structure, they will follow the format of a covered bond programme. This means that the issuer would be a bank and claims arising from the bond would be covered by corresponding claims from SME loans or project financings. ESNs could conceivably be covered at a later date in a revised version of the EU Covered Bond Directive – e.g. in a separate chapter. However, such a project is likely to take some years yet. After all, the current version of the EU Covered Bond Directive has not even been published yet, never mind implemented in the member states. One can only hope that the ESN project will be more successful than previous attempts going back just under 100 years. There were already attempts during the Weimar Republic to set up industrial credit institutions ("Industrieschaft"), following the model of the Landschaften (institutions lent to large landholders) and Stadtschaften (the city equivalent of Landschaften) as self-help organisations for SMEs, which would then have issued pfandbriefe. Ultimately, the attempt failed because the value of an industrial firm was subject to stronger fluctuations than those applying to land or buildings. This would have meant that the value of industrial companies had to be recalculated on an ongoing basis, and ultimately, this would have had an impact on the lending limit and hence also on the possibility of issuing pfandbriefe. The only exception thanks to stringent lending criteria and a guarantee from Saxony for the pfandbriefe it issued was the "Industrieschaft" Sächsische Landespfandbriefanstalt (Saxon State Mortgage Institution - a non-profit, public institution).

In future, covered bonds which meet the requirements of the EU Covered Bond Directive will be entitled to call themselves "European Covered Bond". If, moreover, they also conform to the amended requirements under Article 129 CRR, the bonds can claim the name of "European Covered Bond (Premium)". The vdp and its members are campaigning for the provisions in pfandbrief legislation to be adjusted in such a way that the status of "European Covered Bonds (Premium)" will be guaranteed for German pfandbriefe.

**Next long-term project:
European Secured Notes**

New seal of approval for covered bonds

DEFINITION OF LABELS FOR EUROPEAN COVERED BONDS



Source: Covered Bond Directive, presentation DZ BANK Research

Influence of harmonised framework on the Pfandbrief Act

Many provisions in the EU Covered Bond Directive seem to have been inspired by German pfandbrief legislation. For this reason, it is unlikely that there will be any major adjustment requirements resulting from the package of reforms, although, as we know, the devil is in the detail. The changes needed in the PfandBG according to the vdp are listed below, in order of the relevant articles in the EU Covered Bond Directive and the CRR.

Changes required in response to the EU Covered Bond Directive

- » Articles 8 and 9 (joint funding): The vdp is consulting to find out the extent of interest among its members in arrangements being put in place in the PfandBG for joint funding (pooling) through pfandbriefe within a group of companies and in general for banks among themselves. If there is interest, the vdp would support the implementation into German pfandbrief legislation of the optional rules set out in the EU Covered Bond.
- » Article 11 (Derivative contracts in the cover pool): Under the EU Covered Bond Directive, the inclusion of derivatives in the cover pool shall be allowed exclusively to hedge existing market risks. However, it is unclear at which point a derivative would then have to be removed from the cover pool. The Directive mentions that the derivative should be removed when the risk hedged ceases to exist. In this context, we could imagine a case in which a foreign currency-denominated loan is included in the cover pool and the derivative which serves to hedge the currency risk is entered into the cover register. If a pfandbrief in the same foreign currency were issued at a later date, then the underlying currency risk would be hedged naturally. Would this already be a case of the risk hedged ceasing to exist, as mentioned in the Directive? The regulation could become a problem if removing the derivative from the cover pool were not to depend solely on the pfandbrief bank in question. This could apply if the removal required the agreement of the counterparty. In the case of the implementation of the Directive, clear provisions would be desirable which would take into account the normal business processes of issuers. At present, derivatives are rarely to be found in the cover pools

What will change in the PfandBG through the package of reforms?

Joint funding

Derivatives in the cover pool

of German pfandbriefe, and when they are, then their net present value is small in relation to the size of the cover pool.

- » Article 13 (obligations of the cover pool monitor to report to the competent authorities): The rules in the PfandBG on the trustee's reporting obligations to the supervisory authority are currently couched in very general terms and will need to be set out slightly more precisely in order to meet the requirements of the EU Covered Bond Directive. The trustee is the equivalent of the cover pool monitor in the Directive which stipulates that there must be an obligation for the cover pool monitor to report to the competent authorities – something which is currently still lacking in the PfandBG.
- » Article 14 (transparency obligations): Transparency requirements in the PfandBG already largely meet the requirements set out in the EU Covered Bond Directive. A number of new points will have to be included, e.g. a list of the International Securities Identification Numbers (ISIN) for all outstanding pfandbriefe and the level of any contractual over-collateralisation, if in place. From an editing point of view, moreover, details in relation to credit risks in the cover pool would need to be enhanced. It remains to be seen how registered pfandbriefe which do not have an ISIN are to be taken into account in the new reporting format.
- » Article 15 (coverage calculation): Unlike the PfandBG, the EU Covered Bond Directive requires that costs related to the winding-down of the covered bond programme should be included in the coverage calculation. In addition, an interest coverage calculation will have to be introduced in the PfandBG; it was scrapped in conjunction with the introduction of the present value coverage calculation in Germany. Further, uncollateralised claims where a default has occurred shall not contribute to the coverage of the pfandbriefe.
- » Article 16 und 17 (Requirement for a cover pool liquidity buffer and conditions for maturity extensions for pfandbriefe): The requirement for a cover pool liquidity buffer for 180 days is already anchored in the PfandBG through a reserve to that effect. The vdp is now considering whether the option of a legal maturity extension (soft bullet) for all outstanding pfandbriefe should be introduced in the event of it being required (as a rule after a default of the issuer). One idea for such an eventuality would be to extend the maturity of all the pfandbriefe in a programme for 12 months at the same time. This way, the original repayment schedule for the outstanding pfandbriefe would be unchanged. This arrangement would pre-empt any repayment overtaking another in the sequence which might arise if the maturity of the pfandbriefe were to be extended one after the other because of isolated liquidity squeeze arising now and again (see also section "Rating Paradox" on this topic). A clear definition of the timing of a maturity extension or of the circumstances which might trigger it would also be desirable in order to prevent the threat of arbitrary decisions by individual person in this matter. In principle, there could be various times at which a maturity extension might be considered, e.g. once a cover pool administrator is appointed. However, the timing chosen could be slightly too early because the administrator can be appointed even before a pfandbrief bank becomes insolvent – perhaps in the context of a rescue package. On the other hand, the insolvency of the cover pool resulting from insufficient liquidity could come too late. A middle way should be found in this respect which would satisfy the interests of all those involved while remaining transparent and clearly understandable. The introduction of a maturity extension for pfandbriefe would probably bring with it an adjustment of the 180-day rule, because otherwise, the cover pool liquidity would be doubly secured for the

Reporting obligations of the cover pool monitor

Slightly extended transparency obligations

Cover pool calculation

Liquidity buffer for the cover pool

first six months – through the reserve and through the soft-bullet structure. One possibility would be for the 180-day liquidity rule to kick in for the period after the potential maturity extension. If, for example, the statutory maturity extension provided for an extension of 12 months, then the liquidity buffer rule of 180 days would only come into force from the 366th day. Overall, therefore, the cover pool would have sufficient liquidity for a total of one-and-a-half years.

- » Article 26 (disclosure requirements from the competent authorities): In future, the competent supervisory authorities (In the case of Germany, the BaFin) will be required to publish a list of programmes which are licensed and authorised to use the "European Covered Bond" label and the "European Covered Bond (Premium)" label within their jurisdiction. These rules will now have to be added in the PfandBG. In future, the competent authorities will therefore have to check whether a bond meets all the criteria of the EU Covered Bond Directive or CRR. Investors will then be able to use the authority's assessment if the question arises of whether or not a covered bond qualifies for supervisory privileges. This is likely significantly to ease the workload for investors.
- » Article 27 (labelling): Rules must be put in place in the PfandBG to ensure that the labels "European Covered Bonds" and "European Covered Bonds (Premium)" are only used for bonds which meet the requirements.

New disclosure requirements from the competent authorities

Labelling

It is important to note that aircraft pfandbriefe are already non-CRR compliant. Consequently, they will not qualify for European Covered Bond (Premium) status, because the CRR does not envisage aircraft mortgages. However, after adjustments in the PfandBG, aircraft pfandbriefe should meet the requirements for the "European Covered Bond" label since the EU Covered Bond Directive allows a much broader spectrum of cover assets in Article 6 than the CRR.

Aircraft pfandbriefe will not make the premium standard

In any case, if the aim with mortgage pfandbriefe, public sector pfandbriefe and ship pfandbriefe is for them to secure the status of European Covered Bond (Premium) by meeting the statutory requirements, then the definition of the cover assets in the PfandBG will have to be based on the provisions in Article 129 CRR. At the same time, the more broadly defined rules on the definition of cover assets for European Covered Bonds in Article 6 of the EU Covered Bond Directive could possibly form the basis for new types of pfandbriefe at a later stage. Why not then allow additional asset classes for pfandbriefe? One possibility could be to allow SME loans as cover assets if the pfandbrief banks do not want to wait for the ESN framework.

Further definition for potential cover assets in the directive

Adjustments required in view of changes in the CRR

As we have already mentioned, CRR criteria relating to eligible cover assets are stricter than those in the EU Covered Bond Directive. Aircraft pfandbriefe will therefore never be able to make Premium status based on the current legislation. A number of small changes will be needed in the PfandBG in order to achieve the objective of all other pfandbrief types – mortgage pfandbriefe, public sector pfandbriefe and ship pfandbriefe – obtaining Premium status.

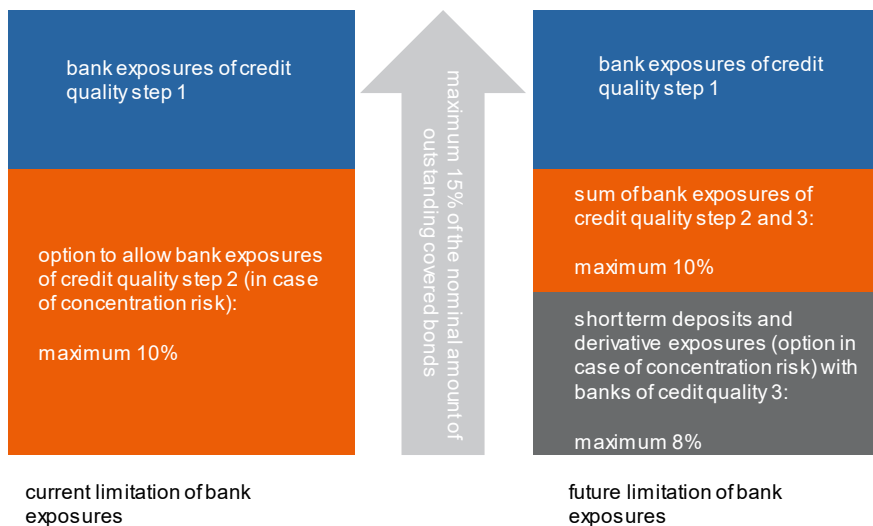
Securing premium status will require small changes in the PfandBG

- » To-date, bank exposures qualifying for credit quality step 1 (AAA to AA-) may account for up to 15 per cent of the amount of the outstanding covered bonds. The competent authorities may also allow bank exposures that qualify for credit quality step 2 (A+ to A-) to account for up to 10 per cent of the amount of the outstanding covered bonds. This exemption can be granted if it can be shown that the restriction to credit quality step 1 banks might lead to substantial concentration risks. The EBA has to be consulted beforehand in the case of this

Claims against banks

complicated process which has to be carried out on an annual basis. However, there will soon be a simplification in this respect since, in future, credit quality step 2 bank exposures will generally only be allowed to account for a maximum of 10 per cent of the outstanding nominal volume of the covered bonds.

CHANGES IN CREDIT QUALITY REQUIREMENTS APPLYING TO BANK EXPOSURES IN THE COVER POOL



Source: Regulation amending the CRR, DZ BANK Research presentation

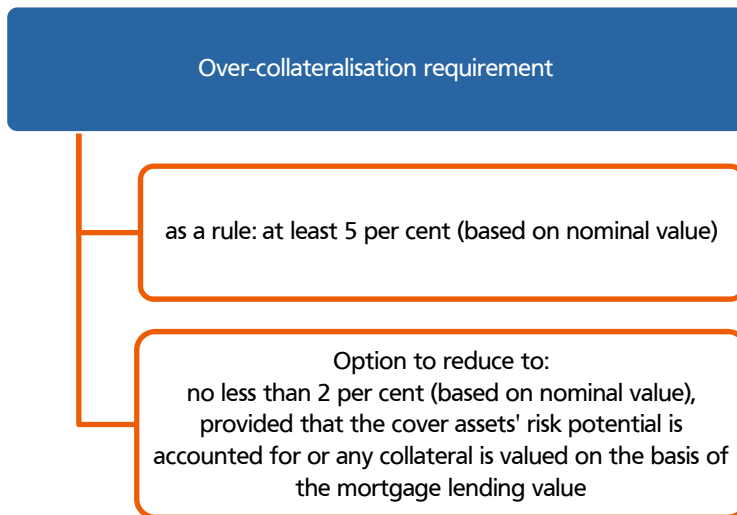
In addition, exposures from short-term deposits and derivative transactions with banks which qualify for credit step 3 (BBB+ to BBB-) can amount to a maximum of 8 per cent of the covered bonds outstanding in the cover pool. However, in order to be able to factor in derivative transactions with banks which qualify for credit quality step 3, the competent national covered bond authorities must exercise their right under Article 129 (1a) CRR and demonstrate potential concentration risks as well as consulting the EBA beforehand. The CRR also states clearly that bank exposures also include exposures from derivatives. We expect the current rules in the PfandBG on derivatives in pfandbrief cover pools to be redrafted since, as things stand at present, there is no limit on the currency derivatives, for example, which can be included in the cover pool.

- » The amended Article 129 CRR now includes a minimum over-collateralisation requirement of 5 per cent. However, this requirement does not have to be included in the PfandBG. Instead, over-collateralisation can consist of statutory, contractually committed or voluntary over-collateralisation. In other words: It does not matter why there is over-collateralisation; the cover pool merely has to include a minimum level of over-collateralisation of 5 per cent of the cover pool in order for the covered bond to be eligible for preferential capital treatment. However, the over-collateralisation is calculated based on the nominal value principle. It may only consist of eligible cover assets as per Article 129 (1) CRR. If the over-collateralisation consists of mortgage loans, for example, then they must meet the quality criteria listed in Article 129 CRR, including LTV limits. In our view, it would not be possible for the over-collateralisation in this example to consist solely of those parts of the loans which were above the respective LTV limits. There is also a simplification in relation to over-collateralisation: the limits on bank exposures in the cover pool are not applied in the case of exposures to banks which are part of the over-collateralisation. This means that the over-collateralisation can consist of

Requirements regarding the form of over-collateralisation ...

exposures to banks although the limits which apply in principle to bank exposures may already be reached.

MINIMUM OVER-COLLATERALISATION LIMIT MAY BE REDUCED TO 2 PER CENT FROM 5 PER CENT



Source: Regulation amending the CRR, presentation DZ BANK Research

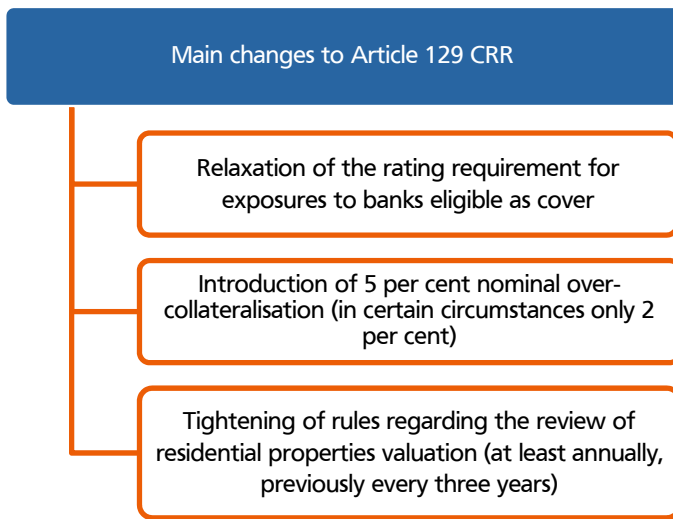
Under certain circumstances, the 5 per cent level can be reduced to as low as 2 per cent. If the over-collateralisation calculation takes into account the underlying risk relating to the cover assets or is subject to an LTV defined in the CRR when carrying out a valuation of the cover assets, then the over-collateralisation can be reduced to 2 per cent or the competent authorities can be empowered to set the level of the over-collateralisation.

... and increase in minimum over-collateralisation to 5 per cent (in exceptional cases 2 per cent)

- » The cycle for monitoring the value of residential property has now been tightened in Article 129 CRR which now requires not only the value of commercial property but also a residential property to be monitored annually in future. Statistical methods may be used to monitor the value of immovable property, for example linking the property price to a suitable property index. The work involved for pfandbrief banks in the case of granular cover pools with residential property in particular could increase significantly in future because the review only had to take place every three years in the past.

Regular review of property valuations

REQUIREMENTS FOR PREFERENTIAL CAPITAL TREATMENT OF COVERED BONDS IN SOME INSTANCES RELAXED AND IN OTHERS TIGHTENED



Source: Regulation amending the CRR, presentation DZ BANK Research

Opinions on the European harmonisation package

How do the rating agencies view the harmonisation package?

The reactions of the rating agencies to the harmonised European covered bond framework have generally been positive, but they definitely raise a number of issues.

DBRS expects the harmonisation of the definition of European covered bonds to increase investor confidence (see „The New Legislative Proposal On European Covered Bonds“ of 6 March 2019). Like the other rating agencies, DBRS also regards the rules relating to the 180-day liquidity buffer as an improvement in the status quo which would mainly help countries such as Portugal. Likewise, DBRS rates a stronger standardisation of trigger events for maturity extensions (soft bullet) as positive. The minimum over-collateralisation of 5 per cent in the CRR is welcomed by the agency. However, it is unlikely that this over-collateralisation level would be sufficient to have any major influence on covered bond ratings in the case of poorer rated countries such as Italy for example. According to the agency, the Spanish covered bond legislation would benefit most from the harmonisation. Apart from Canada, DBRS assigns most of its covered bond ratings in Italy, Portugal and Spain.

According to Fitch, the minimum standards in the new EU Covered Bond Directive will support the credit quality of covered bonds, although existing national regulations and market conventions already meet many of these standards (see Fitch "EU Covered Bond Directive Broadly Positive; Impact Uneven" of 18 April 2019). According to the rating agency, the new mandatory 180-day liquidity buffer has the greatest potential ratings impact. The lack of such a liquidity buffer in a number of countries such as Portugal, Spain and Hungary had so far limited the agency's capacity to rate covered bonds significantly above the issuing bank's Issuer Default Rating. In our view, this also applies to Austria. The degree of harmonisation, says Fitch, will ultimately depend on how national authorities transpose the directive into their own covered bond regimes. For this reason, the agency cites in particular rules relating to the cover pool monitor (the Treuhänder in the PfandBG) and special cover pool administrator (the Sachwalter in the PfandBG) and arrangements regarding the liquidity buffer (including in relation to extendable covered bonds).

Assessments generally positive

DBRS

Fitch

From Moody's point of view, the harmonised framework will support the credit standards of European covered bonds overall (see Moody's "Newly agreed EU covered bond law supports credit standards" of 28 March 2019). The new rules would mean that a series of changes had to be made to national covered bond frameworks which in turn would raise legal standards for covered bonds in the EU. However, according to the agency, there are also a number of regulations which could have a mixed or negative impact. Among the positive requirements, Moody's – like Fitch – lists the introduction of the 180-day liquidity buffer, the minimum over-collateralisation of 5 per cent for the covered bonds to ensure preferential capital treatment along with cooperation between the competent covered bond authorities and the resolution authority. According to Moody's, it is too early at this stage to say much on the impact of the widening of eligible cover assets in the EU directive, since it will depend on individual national implementation. Looked at in isolation, easing the credit quality requirement for bank exposures in Article 129 CRR is regarded as credit negative, although there will now potentially be more counterparties for derivative transactions in view of looser criteria, allowing hedging transactions with more contracting parties in the cover pools. The agency regards as potentially credit negative the fact of leaving it up to each member state to define the potential objective triggers for a maturity extension in the respective national law, creating the potential for differences in implementation. In addition, member states have the option to count the 30-day liquidity requirement held under the LCR as part of the 180-day liquidity buffer in order to avoid double counting. Moody's is concerned about this issue since the LCR liquidity is not held in the cover pool and covered bondholders would not have priority claim on this liquidity in the event of a default of the issuer. The coverage of the cover pool would therefore not be ensured during the first 30 days.

Moody's

S&P rates the harmonised framework as generally positive, citing higher standards for credit quality, reporting obligations and public supervision (see S&P "Harmonization Accomplished: A New European Covered Bond Framework" of 18 April 2019). The agency does not expect any immediate impact from the harmonisation on its covered bond ratings. Most countries are likely to have to make adjustments to their own covered bond legislation according to S&P, with Austria and Spain seen by the agency as two countries which will need more substantial changes. Moreover, for S&P, the introduction of a brand name for covered bonds, namely "European Covered Bond" and "European Covered Bond (Premium)" would support the bond segment as a major funding instrument for banks in the EU.

S&P

Other views on the harmonisation package

Similarly to the rating agencies, other key market players are also positive about the European Union's harmonisation package, even though the odd detail here and there might still need improvement. The European Banking Authority (EBA) for example would like the over-collateralisation in all countries to be raised to at least 5 per cent and would not like to see any option for a reduction to 2 per cent. Using ships as collateral for covered bonds is still a major problem for the EBA. In addition, the cover pool monitor should be an essential requirement in covered bond frameworks and not be optional. The EBA hopes that the new standards will serve as model for the legal basis for covered bonds in third countries. The European Central Bank has long since made its concerns known about the fact that its English abbreviation (ECB) could be mistaken for the abbreviation for European Covered Bond. What is likely to reassure the world's biggest investor in covered bonds in this respect? In addition, the ECB would like to see stricter rules for cover assets. The European Covered Bond Council (ECBC) has responded to this point by saying that ultimately, covered bonds will have to establish themselves in the market and find sufficient investors. In the long term,

Generally positive feed-back from market participants

cover assets which might not be accepted by investors could not survive in the market. The ECBC is therefore pleading for a more relaxed approach in this matter. Long debates about what cover assets are eligible in Article 6 of the EU Covered Bond Directive and how some of the wording in the directive should be interpreted might resolve themselves in due course through a market-based approach.

From our point of view, the harmonisation package is very successful. The principles-based approach allows sufficient scope in the implementation of the directive into national law to satisfy country-specific features. At the same time, the reform creates new quality standards which go far beyond the hitherto key UCITS criteria. Not least, this will also help further increase the confidence of market participants in covered bonds. In our view, however, too much is optional in the EU Covered Bond Directive, above all when it comes to such important points such as the cover pool monitor or cover pool administrator. Both are already implemented in the PfandBG and therefore pfandbrief holders would not need to have any concerns about the issue. However, these are two examples where opportunities have been missed for achieving a more far-reaching quality harmonisation and improvement between the European covered bond frameworks.

What next?

As soon as the EU Covered bond Directive is translated into the languages of the official European Union and final approval of the European Parliament has been obtained, there will be nothing more standing in the way of the publication of the new EU directive in the Official Journal of the EU. The implementation period will begin once the directive has been published (this is expected in November 2019) and could be tight in some cases. This applies especially for countries in which a new parliament was only voted in a few months ago, or in which elections are scheduled in a few months' time. Each and every day needed for a potentially long-drawn out period in which a government has to be formed will be one day less for work on the implementation of the EU Covered Bond Directive – although it is definitely not politically controversial. For this reason, the 18-month implementation period up to probably Q2 2021 could become a challenge for some countries. In the case of Germany, however, we do not expect any delay. One plus point worth mentioning in this respect is that the UK regulator (the Financial Conduct Authority) has indicated in its business plan for 2019/2020 that the new EU covered bond framework will also be implemented in the UK, in spite of Brexit – at least one bright spark in the seemingly unending Brexit saga.

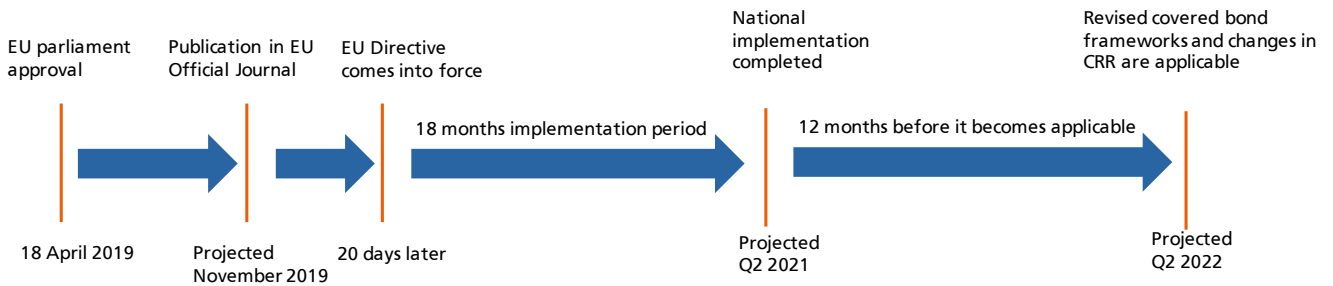
The issues surrounding the treatment of covered bonds from third countries and ESNs have not been dealt with in the Covered Bond Directive and have been kicked into the long grass for the time being. Unfortunately, the reports and potential draft legislation on these topics demanded by the European Commission are unlikely to be due until Q2 2024. A rapid decision on the treatment of covered bonds from third countries would have been especially desirable in our view, since a potential mutual recognition would lead to a further deepening of the global covered bond market.

Principles-based approach leaves scope in the national implementation of the directive

Implementation deadline likely to be too tight for some member states

Treatment of covered bonds from third states and ESNs kicked into the long grass

TIMELINE FOR THE IMPLEMENTATION OF THE HARMONISED EU FRAMEWORK FOR EUROPEAN COVERED BOND

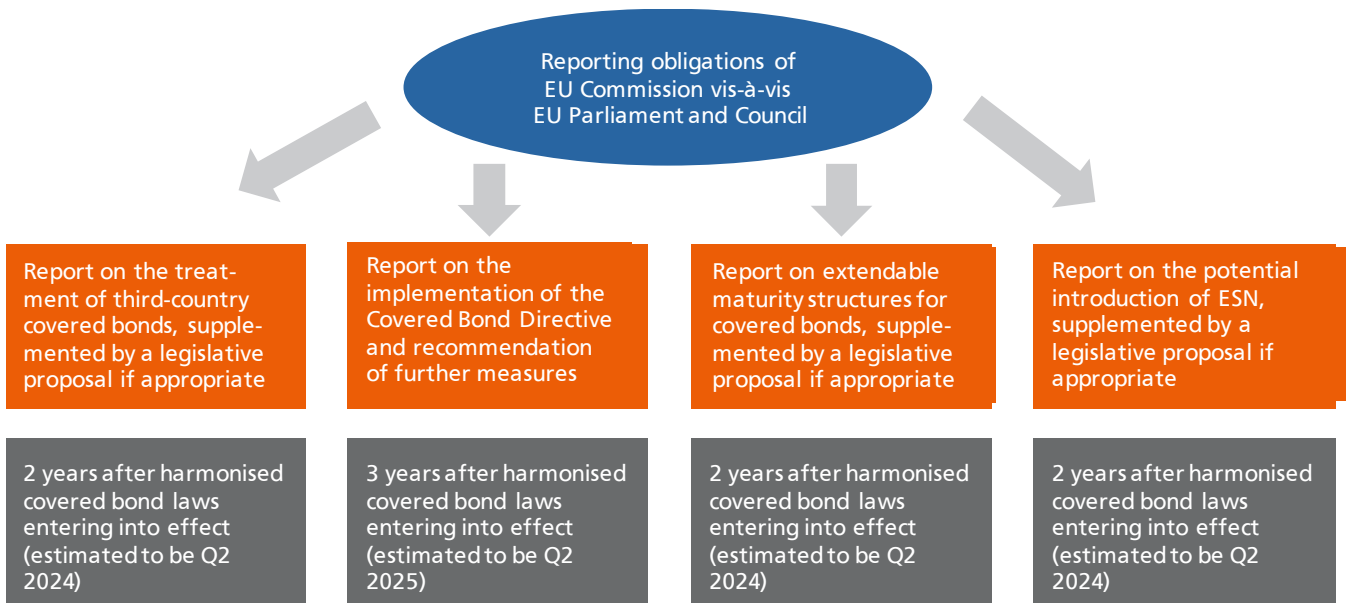


Source: Council of the European Union, presentation DZ BANK Research

In our opinion, fewer amendments are likely to be required in the PfandBG as a result of the harmonisation package compared with other countries. At the same time, even after a Europe-wide implementation of the new EU framework, the PfandBG is still likely to be among the strongest covered bond frameworks in Europe. As such, the legal principles will remain an important quality feature for the German pfandbrief in future. However, we are likely to see a convergence in the quality of European frameworks for covered bonds, even though there will still be differences – not least in light of the many features in the EU Covered Bond Directive which are merely optional. It remains to be seen whether third countries outside Europe will use the European framework as a yardstick.

Legal principles are important quality feature

PURSUANT TO ARTICLE 31 COVERED BOND DIRECTIVE, EU COMMISSION MUST ADDRESS FOUR TOPICS IN GREATER DETAIL



Source: Covered Bond Directive, presentation DZ BANK Research

In the next chapter we would like to present you with an up-to-date summary of the most important provisions of the Pfandbrief Act, in which we have also incorporated the changes to the Pfandbrief Act that have become necessary as a result of Brexit. Our overview of the legal foundations of the pfandbrief is based largely on Otmar Stöcker's article "Grundzüge des Pfandbriefrechts und des Refinanzierungsregisters" in the Bankrechts-Handbuch (2011). Our study also incorporates the changes made to

Current status of the PfandBG

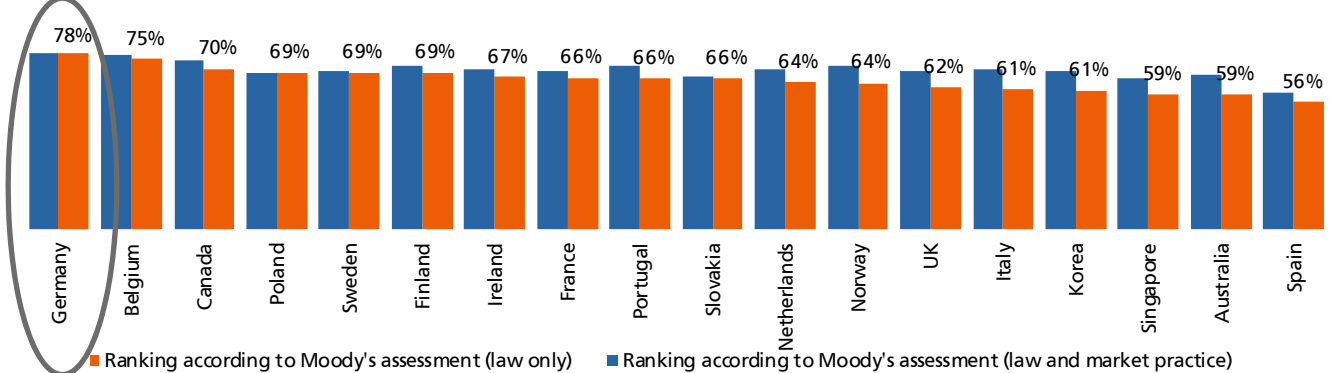
the Pfandbrief Act since 2011 based on the relevant Bundestag publications. The vdp also makes the documents concerning revisions to the Pfandbrief Act available on its website; they provide interesting insights into the reasoning behind the modifications of Germany's pfandbrief legislation. A summary of these documents can also be found in a study published by the vdp, "10 Years of Pfandbrief Act – Compilation of texts and materials" published in 2015 (German original "10 Jahre Pfandbriefgesetz – Textsammlung und Materialien"), which is a direct continuation of the vdp's publication "The Pfandbrief Act: Text of the Act and materials" published in 2005 (German original "Das Pfandbriefgesetz: Gesetzestext und Materialien").

LEGAL FRAMEWORK

In the anniversary year of the German pfandbrief, on 2 July 2019 Moody's presented an updated version of a report entitled "Germany – Legal framework for covered bonds". This is one of a series of legal reports, in which the legal bases of 6 rating categories with a total of 47 sub-categories is systematically reviewed. A percentage score is then calculated based on the ratings. The higher the percentage rate, the better the rating. In its updated report Moody's has made only one change to its assessment of the Pfandbrief Act and has raised the rating for derivatives in the cover pool (collateral posting/ counterparty replacement). The score of the Pfandbrief Act has thus improved slightly. Germany has consolidated its leading position slightly compared to other laws evaluated by Moody's. In the agency's view, the strengths of pfandbrief law are the loan-to-value concept and strict LTV limits of 60 per cent, as well as mandatory stress tests as part of the net present value calculation, and the 180-day rule to secure cover pool liquidity. Another positive factor highlighted by Moody's is mandatory over-collateralisation (minimum over-collateralisation) which may only be held in the form of certain high quality assets. The legal report also cites the roles of supervisors and cover pool monitor as strengths. The list of advantages also includes rules on the cover pool administrator and the authority they exercise for the liquidation of cover assets and the set-off ban for bank creditors with regard to cover assets. This impressive listing is marred by only two weaknesses, both of which relate to the selection of eligible cover assets. Pfandbriefe can be secured by the financing of commercial property, ships or aircraft. The agency also sees heightened risks for cross-border credit business outside the European Economic Area which is permitted by the Pfandbrief Act. We will discuss all these aspects in great detail on the following pages.

Moody's gives German Pfandbrief Act a good report

MOODY'S: EVALUATION OF VARIOUS COVERED BOND LAWS; PFANDBRIEF LAW STILL IN PEAK POSITION



Source: Moody's, DZ BANK Research presentation

Pfandbrief licence

Since 2005, the inclusion of pfandbrief business as banking business within the meaning of the German Banking Act (Kreditwesengesetz) enables all credit institutions which are authorised to engage in banking activities in principle to issue pfandbriefe. However, they need to apply to the BaFin for a licence to issue pfandbriefe. A pfandbrief licence will be issued providing the credit institution in question meets specific minimum requirements. These include the following:

Requirements to quality for a pfandbrief licence

Regular pfandbrief issues

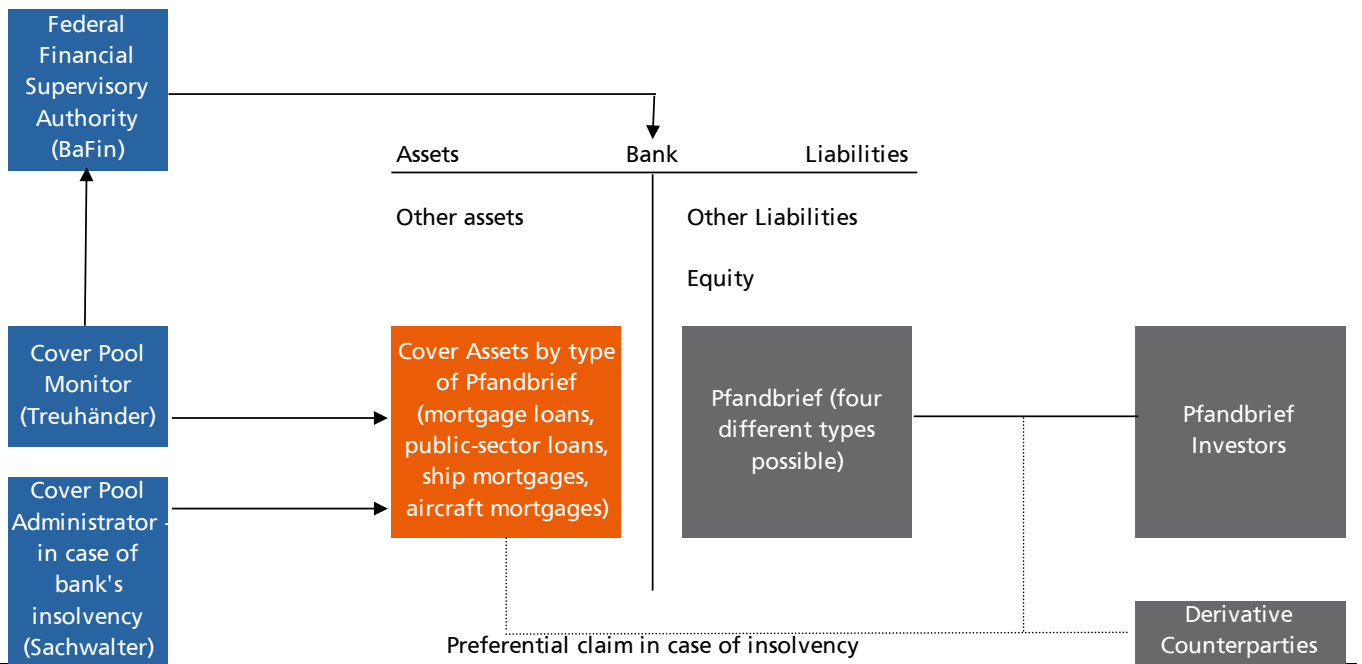
- » The credit institution must have a licence to engage in pfandbrief business. Pfandbrief issuers must demonstrate to the BaFin through a business plan that they intend to engage in pfandbrief business regularly and on a sustained basis.
- » The bank's core capital must be of at least twenty five million euros.
- » The pfandbrief bank must have a suitable risk management for its pfandbrief business. The credit institution's organisational structure and resources must be geared to the pfandbrief business.

Minimum capital and suitable risk management

A pfandbrief licence once issued can also be revoked. However, this would only apply if a bank no longer met the quality requirements under the Pfandbrief Act or if the pfandbrief bank had not issued any more pfandbriefe for two years and there was no prospect of a resumption of the pfandbrief business on a sustained basis within the next six months. If a licence is revoked, the BaFin can order the run-off of the cover pools by an administrator.

Licence can also be revoked

GENERAL STRUCTURE OF A GERMAN COVERED BOND (PFANDBRIEF)



Source: DZ BANK Research

There are four different categories of pfandbrief under current pfandbrief legislation: mortgage pfandbriefe, public sector pfandbriefe, ship pfandbriefe and aircraft pfandbriefe. The pfandbrief licence can be restricted by the BaFin to specific types of pfandbrief. The Pfandbrief Act does not stipulate a minimum issuance volume in terms of the total pfandbriefe to be issued. Nor does the Pfandbrief Act explicitly limit the outstanding volume of a bank's pfandbriefe. Instead, an implicit ceiling is set by reference to the bank's assets, in other words, a pfandbrief bank's total assets which are eligible as cover assets. In contrast, covered bond legislation in many other countries – above all outside Europe – specifies a ceiling for covered bonds. This reflects concerns that the growing practice of reserving bank assets (known as asset encumbrance) for the benefit of specific creditor groups could hollow out bank balance sheets. This would increase the risk of losses for unsecured bank creditors in the event of default. However, covered bonds are just one of a bank's activities where providing underlying

Four types of pfandbriefe each with their own specific cover requirements

collateral is standard practice. The article entitled "Asset Encumbrance and German Pfandbriefe" in the vdp publication "The Pfandbrief 2012/2013 Facts and Figures about Europe's Covered Bond Benchmark" shows in detail that, alongside covered bonds, central bank funding operations, derivatives activities and secured money-market transactions (repos) also contribute to asset encumbrance. The conflict of interest which exists between unsecured and secured bank creditors is moreover inherent to the system and also stems from the intended protection given to pfandbrief creditors in the Pfandbrief Act. Secured refinancing instruments such as pfandbriefe have provided a way for banks to obtain liquidity, precisely in times of crisis. The vdp article therefore concludes that a rigid issuance limit for pfandbriefe is not appropriate.

Actively managing the risk inherent in a credit institution and its cover pool(s) is one of the most important elements in the protection of pfandbrief creditors. In light of the fact that the risks involved in pfandbrief operations can differ from the general risks relating to other banking business, the German legislator has defined specific requirements for the risk management of pfandbrief banks. In accordance with these requirements, each pfandbrief institution must have a risk management system suitable for pfandbrief operations. The risk management system must ensure that all the risks associated with the pfandbrief business such as default risks, interest and exchange-rate risks, as well as operational and liquidity risks can be identified, evaluated, managed and monitored. The risk management system must satisfy a number of requirements, including the following:

- » limit the concentration of risks through a limit system;
- » establish a procedure which ensures a risk is reduced when a particular risk increases and guarantees the timely notification of decisions makers;
- » offer the flexibility to respond to changing conditions and also be subject to at least one annual review;
- » regular presentation (at least quarterly) of a risk report to the Management Board, and
- » clear and detailed documentation on the risk management system.

General cover requirements and maturity-matching rules

All assets used as cover for a bank's outstanding pfandbriefe shall be recorded in a separate cover register for the respective pfandbrief type. This makes it possible to identify clearly the assets belonging to the relevant cover pool. A dedicated administrative order (cover register statutory order or Deckungsregisterverordnung) specifies the details of the required form and contents of this cover register and the information to be entered. The cover register was introduced in German pfandbrief law with the Mortgage Bank Act of 1899. The act also stipulated that pfandbrief creditors have a preferential claim in relation to the assets recorded in the cover register in the event of issuer default. The option of a direct lien over the mortgage, such as forerunners of the then Mortgage Bank Act had provided, was rejected. There were practical reasons for this: issuing mortgage certificates for all cover pool loans would have been too laborious. Moreover, at the turn of the 20th century, Germany's land registry was not yet sufficiently or comprehensively developed to serve as an alternative to registered land charges.

Risk management requirements

Limit system and reduction of risks if necessary

Flexibility and regular review

Separate cover register for each pfandbrief category

The current Pfandbrief Act stipulates that the respective aggregate volume of a bank's outstanding pfandbriefe per type must at all times be covered by assets at least equal to their nominal and net present value. The calculation of this cover based on the net present value of the pfandbriefe in relation to the cover assets is subject to specific regulatory requirements defined in the Pfandbrief Net Present Value Regulation (Pfandbrief-Barwertverordnung). The Regulation requires pfandbrief banks to ensure that the net present value cover is maintained even in stress scenarios. In addition, the pfandbrief issuer must also maintain an over-collateralisation of 2 per cent of the volume outstanding of pfandbriefe (including for stressed net present values).

Nominal and net present-value cover with minimum over-collateralisation of 2 per cent

Stress tests under Pfandbrief law

The Pfandbrief Act requires pfandbrief issuers to test the intrinsic value of their cover pools through weekly stress tests. This is intended to ensure that the cover pool's net present value continues to provide cover for the outstanding pfandbriefe even when the markets are very volatile.

The Net Present Value Regulation (Pfandbrief-Barwertverordnung) stipulates that the pfandbrief bank must also ensure that the outstanding pfandbriefe remain covered in net present-value terms even in the event of interest and exchange-rate changes. The cover assets must be sufficient to guarantee a continuing minimum net present value over-collateralisation of 2 per cent.

The stress scenarios incorporate an interest-rate component and an exchange-rate component. For both components, the issuer has the discretion to choose either a static or a dynamic test. In a static test, the yield curve used to discount the cover assets and outstanding pfandbriefe is subjected to a 250 basis-point parallel shift. In the case of the static exchange-rate stress test, the Net Present Value Regulation specifies set percentage premiums and discounts for potential currencies. In contrast to the set requirements for static tests, in the dynamic test, the stress figures for the shift in the curve and the premiums/discounts applicable to exchange rates are determined by reference to the recorded over the last 250 trading days; however, the curve must always be shifted by at least 100 basis points.

Pfandbrief banks can also use their own risk model for the calculation of the stress tests, providing the model has been checked in advance by the BaFin and deemed satisfactory.

Source: DZ BANK Research based on the Pfandbrief-Barwertverordnung

The traffic light model was the precursor of the net present value cover. Under an agreement reached between the mortgage banks and the BaFin at the end of 2000 which came into force from April 2001, risks arising from movements of interest rate calculated based on net present value could not amount to more than 20 per cent of the regulatory capital of the mortgage bank in question. If net present value risks arising from movements of interest rates exceeded 10 per cent of the regulatory capital, this could be grounds for a review of the bank's risk-bearing capacity. The figure had to be calculated daily and reported once a month to the regulator. Changes in the Mortgage Bank Act of July 2002 anchored the net present value calculation of cover assets in law. The amendment allowed derivatives to be included in the cover pool. The BaFin's ordinances concerning the present value calculation of cover of December 2003 gave more precise details on the implementation of the statutory present value calculation of cover for pfandbriefe. The over-collateralisation requirement of 2 per cent (net present value) mentioned earlier was not introduced until 2004 with the amendment of the Mortgage Bank Act.

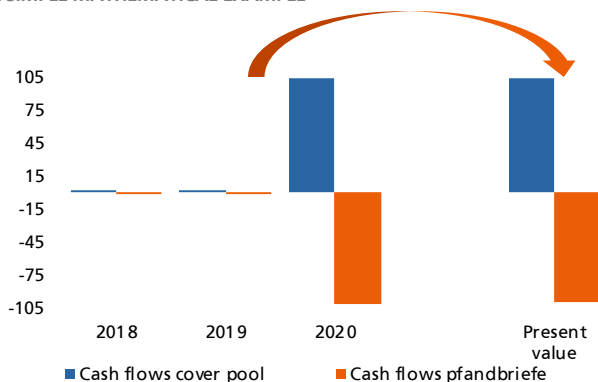
Traffic light model the precursor of the net present value test

In our view, the calculation rules applying to the risk-adjusted net present value still appear to be working and therefore help make pfandbriefe a safe investment for holders. However, the current calculation rules for net present value and risk-adjusted

Net present value calculation makes it easier to adhere to statutory over-collateralisation

net present value under pfandbrief legislation do not cancel out the effect arising from the fact that the over-collateralisation requirement is tied to the net present value calculation under a stressed scenario. In view of the link between the statutory over-collateralisation and the net present value calculation (under a stress scenario), it is slightly easier for pfandbrief banks to meet coverage requirements in relation to a straightforward nominal value calculation. Moody's criticism regarding the current rules on net present value calculations under German pfandbrief legislation does not go far enough (see Moody's study "Low Interest Rates Limit Protection Offered by Stressed Present Value OC Requirement" of 13 March 2017). What it should say is that the statutory over-collateralisation ratios are not only based on a net present value calculation under stressed scenario, but also that a similarly high over-collateralisation to nominal value should be required. This should not pose all too great a problem for the pfandbrief banks. In any case, as a rule, the rating agencies expect over-collateralisation ratios which are above the statutory 2 per cent. In the course of the implementation of the European harmonisation regulations, an over-collateralisation of at least 2 per cent on a nominal value basis is also likely to be introduced anyway.

MARGIN ON LENDING BUSINESS MAY LEAD TO HIGHER OVER-COLLATERALISATION UNDER THE NET PRESENT VALUE CALCULATION THAN UNDER THE NOMINAL VALUE CALCULATION
A SIMPLE MATHEMATICAL EXAMPLE



	Cash flows cover pool	Cash flows pfandbriefe
2018	2	-1.25
2019	2	-1.25
2020	102	-101.25
	Cover pool	Pfandbriefe
Nominal value	100.0	100.0
Over-collateralisation (Nominal value)	0.0 per cent	
Present value	103.0	-100.7
Over-collateralisation (present value)	2.2 per cent	

Source: DZ BANK Research

Source: DZ BANK Research

Should risks arise for the intrinsic value of the cover pool, BaFin can impose higher individual over-collateralisation requirements on the respective pfandbrief bank. Through this provision, the BaFin can, if necessary, counteract the threat of a deterioration in the cover pool. The provision can have the same effect as an issue ban for a pfandbrief bank. However, in our view, compared with an actual issue ban, the BaFin's power to set a specific over-collateralisation level provides better protection for the interests of pfandbrief creditors. In addition, the Pfandbrief Act makes it clear that pfandbrief creditors shall have a preferential claims over any assets over and above the statutory over-collateralisation or over-collateralisation required by BaFin in the event of the insolvency of the pfandbrief bank.

Over-collateralisation fully at the disposal of pfandbrief creditors

The statutory over-collateralisation shall be held in the form of liquid cover assets (statutory or minimum over-collateralisation), which are subject to specific legal requirements. The minimum over-collateralisation (sichernde Überdeckung) can be held in the form of a deposit with the Bundesbank for example or with the ECB or any other European central bank of a member state of the EU. Other eligible assets include sovereign bonds issued by member states of the EEA or deposits with appropriate credit institutions provided they have a Level 1 rating as defined by the European Bank Capital Requirements Regulation. As an exception, BaFin may, after consultation with EBA, allow to use claims against banks with a Level 2 rating in order to avoid

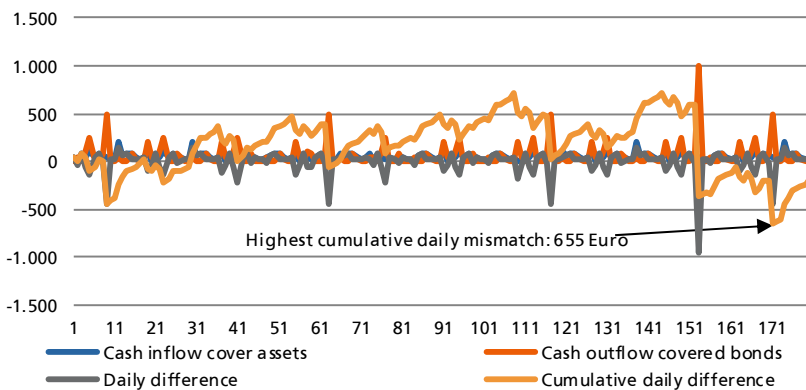
Over-collateralisation in the form of especially liquid assets

concentration risks. This regulation is intended to ensure that the minimum over-collateralisation is held in as liquid a form as possible so that the cover assets are sufficient for the cover pool to meet its payment obligations even immediately after a separation from the pfandbrief bank.

In addition, in order to safeguard the liquidity of the cover pool immediately after an insolvency of the pfandbrief bank, the Pfandbrief Act requires that the issuer must compare and check, accurately to the day, the next 180 days' claims maturing under recorded cover assets and maturing liabilities under outstanding pfandbriefe. The cumulative daily difference arising shall be calculated for each individual day. The biggest liquidity shortfall identified in this manner must be covered by a reserve of liquid cover assets such as cash deposits or government bonds. The following chart shows an example to illustrate the liquidity cover requirements in the Pfandbrief Act. The biggest cumulative daily difference (light orange line and marked with an arrow) in this example occurs towards the end of the 180-day period and amounts to 655 euros. This would be the amount needed in the cover pool in the form of liquid assets.

Ability to make next 180 days' payments on pfandbriefe must be guaranteed

ILLUSTRATIVE CALCULATION OF 180 DAYS LIQUIDITY NEEDS
VERTICAL AXIS: EURO, HORIZONTAL AXIS: TIME IN DAYS



Source: DZ BANK Research

The Pfandbrief Act does not require a perfect matching between the cash flows of the cover pool and the covered bonds outstanding. As mentioned earlier, the Pfandbrief Act requires the issuer to hold the required minimum over-collateralisation and reserves for payment obligations arising during the next 180 days, but not provided for through the anticipated cash inflows from the cover assets, in the form of especially liquid assets. The Pfandbrief Act also defines specific rules for each pfandbrief type, setting out which assets are appropriate as collateral for the pfandbriefe (ordinary or regular cover), which we describe in the following subsections for the individual pfandbrief types in more detail. However, in order to give the pfandbrief banks more flexibility in managing their cover pools, the Pfandbrief Act also allows them to include further cover assets in the pfandbrief cover register, albeit on a limited scale. In this respect, however, the legislator also appears to have had in mind the liquidity of the cover pool over a longer horizon. The eligible further cover assets are slightly less liquid in nature than the standards defined for minimum over-collateralisation assets. However, they appear to be suited to the task of improving the cover pool liquidity in the event of the insolvency of the pfandbrief bank. Claims eligible to serve as further cover assets are identical for all four pfandbrief types, although their percentage in relation to the outstanding volume of covered bonds varies (see also the article "Further Cover Assets as a Necessary Component of Pfandbrief Cover Pools" in the vdp

Other cover assets on top of ordinary cover

publication "The Pfandbrief 2012/2013 Facts and Figures about Europe's Covered Bond Benchmark"). In principle, claims defined as eligible for use as further cover assets include the following:

- » Claims against the ECB, the Bundesbank or other central banks of EU member states and claims against suitable credit institutions. Claims against one and the same credit institution may not exceed 2 per cent of the total volume of outstanding pfandbriefe.
- » For mortgage, ship and aircraft pfandbriefe: claims which would qualify as ordinary cover for public sector pfandbriefe.
- » Hedging transactions involving derivatives which cushion against changes in the value of the cover pool through fluctuations in interest and exchange rates can be used as further cover assets and be included in the insolvency-proof pfandbrief register. However, the Pfandbrief Act restricts the use of derivatives for cover purposes. Based on the net present value of the derivatives, the share of the pfandbrief bank's claims under the derivative transactions included in the cover assets and the share of the liabilities resulting from the derivative transactions included in the cover pool in relation to outstanding pfandbriefe must not exceed 12 per cent. However, this 12 per cent ceiling does not take into account derivatives used to hedge exchange-rate positions. All derivatives assigned to the cover pool are subject to special requirements regarding the underlying contractual terms. Among other things, the insolvency of the pfandbrief bank may not trigger the early termination of the derivatives.

Claims against central banks, credit institutions ...

... and public sector debtors

Derivatives with suitable counterparties

The EBA announced in April 2017 that it regards the introduction of a partial waiver of rating requirements for claims against banks in Germany included in cover pools as justified. Article 129 (1c) CRR stipulates that exposures to banks with a maturity exceeding 100 days in the cover pool must not exceed 15 per cent of the nominal amount of outstanding covered bonds and that these banks must at least qualify for credit quality step CQS 1 (at least AA-). If these requirements are not met, then the covered bonds in question of European institutions cannot enjoy preferential treatment in terms of risk weight under CRR. There are currently not many banks with such a high CQS. Consequently, there could be a concentration risk in the cover pool if pfandbrief banks had to be restricted for their other cover assets to just a few banks with a high CQS. After consulting the EBA, the competent national supervisory authorities have the option to waive rating requirements. The minimum rating can be reduced from CQS 1 to CQS 2 (at least A-), and then allow exposures to these banks to be a maximum of 10 per cent instead of 15 per cent of the outstanding covered bonds of the issuing institution.

EBA sees relaxing of CRR rating requirements as justified

In the case of mortgage, ship and aircraft pfandbriefe, the further cover assets recorded in the cover register may not exceed 20 per cent of the volume outstanding of each type of outstanding pfandbrief. Claims against the ECB, central banks of EU member states and bonds of suitable credit institutions must not thereby exceed 10 per cent. In the case of mortgage, ship and aircraft pfandbriefe, moreover, issuers may include in their cover pool up to 20 per cent of assets which are eligible as regular cover for public sector pfandbriefe, whereby the claims mentioned above must be included in the calculation. In the case of public sector pfandbriefe, the share of further cover assets is generally limited to 10 per cent of the outstanding volume of the public sector pfandbriefe. However, claims from derivatives transactions do not count towards these ceilings, irrespective of pfandbrief type. They are subject to a separate 12 per cent limit as described previously.

Share of additional cover assets regulated by law

Preferential right of pfandbrief creditor and insolvency-proof trust

The cover assets are intended to be unrestrictedly available to satisfy the claims of the pfandbrief investors in the event of the issuer's insolvency (insolvency-proof cover pool). In the case of public sector and mortgage pfandbriefe, the combined value of cover assets which do not guarantee the priority of pfandbrief creditors in insolvency may not exceed 10 per cent of the total cover assets. In the case of ship and aircraft pfandbriefe, the ceiling is 20 per cent.

Issues in the context of the preferential treatment of pfandbrief creditors in the event of insolvency can arise above all in the international credit business. Our understanding is that all claims on borrowers domiciled in a member state of the EEA, can be regarded as guaranteeing the prior rights of pfandbrief creditors in a bankruptcy scenario in view of standardised European regulations. The EU directive on the reorganisation and winding-up of credit institutions (Winding-up Directive) means that, in the event of the insolvency of a pfandbrief bank, German insolvency legislation will also be recognised in the member states of the EEA. The preferential claim of pfandbrief creditors on cover assets located within the EEA is protected by the fact that there is no threat of secondary insolvency proceedings in a third country. In the case of secondary insolvency proceedings under foreign legislation, there would be no guarantee that cover assets located in a third country would be left out from these insolvency proceedings. It is therefore important to exercise greater caution in the case of cover assets located outside the European Economic Area. In order to preserve the expected equivalent security of the pfandbrief creditors' recourse over cover assets, the directive requires the provision of an additional contractual security in accordance with the corresponding statutory requirements in the third country in question with respect to claims on non-EEA-domiciled debtors and with regard to collateral in the form of real property or equivalent mortgage rights and to ships and aircraft located outside the EEA. This contractual assurance can, for example, provide for the appointment of a double trustee for the pfandbrief creditors while also preserving the interests of the pfandbrief bank. In a crisis situation, the trustee of the foreign assets shall guarantee the protection of the preferential rights of pfandbrief creditors on the foreign cover assets, notwithstanding foreign recognition of German measures under winding-up legislation.

Potential restrictions applying to cover assets outside the EEA shall apply if the pfandbrief bank has failed to ensure that these cover assets are insolvency proof vis-à-vis the pfandbrief creditors through suitable measures. Through experience, approaches have evolved such as the model of the double trustee mentioned above. Moody's comments on these measures which apply to cover assets located in Japan, Canada, the US and Switzerland in its Special Comment of 22 July 2014, "Structural Protection Mechanisms for Non-EEA Assets in German Cover Pools". According to the agency, the trust structures used by banks for US and Swiss cover assets are suitable for limiting the potential risks to pfandbrief creditors in the event of the insolvency of the bank and therefore for guaranteeing their preferential treatment. Moody's also finished the legal analysis on cover assets located in Japan (see Moody's press release "Moody's updates on Japanese assets in German cover pools", published 15. August 2016). Also this trust structure does in Moody's view ensure the priority claim of pfandbrief creditors regarding Japanese cover assets in the event of an insolvency of the pfandbrief issuer.

The Pfandbrief Act generally gives issuers the option for domestic and international business to include loans and mortgages held in trust by third parties to be used as collateral. This assumes that the assets meet the general requirements of the Pfand-

Pfandbrief creditors have unconditional preferential claim over cover assets in the event of issuer's insolvency

Threat of enforcement action in the case of foreign cover assets

Trust model ensures preferential rights of pfandbrief creditors

Trust model for cover assets

brief Act. Before assets held in trust can be used as collateral for pfandbriefe, it is important to ensure that the pfandbrief bank has unrestricted access to these assets (insolvency-proof trust) in the event of the trustee's insolvency. An insolvency-proof trust can be created for example by entering assets in a refinancing register. Credit institutions can use the refinancing register, which is regulated in the German Banking Act (Kreditwesengesetz) and in the Refinancing Register Ordinance (Refinanzierungsregisterverordnung), to assign mortgage-backed loans to pfandbrief banks while continuing to administer the loans or mortgages in question and retain them on their balance sheet.

Provisions for the refinancing register in the German Banking Act are closely based on the wording of the Pfandbrief Act. The trustee credit institution (or refinancing company) shall properly maintain the refinancing register in which the assets and/or mortgages are recorded for the benefit of the pfandbrief bank. A specially appointed administrator shall audit the proper management of the refinancing register. In the event of the insolvency of the refinancing institution, the German financial services regulator BaFin shall appoint an administrator who will manage the refinancing register independently of the insolvency administrator. If necessary, BaFin can even appoint this administrator who will manage the refinancing register before insolvency proceedings are initiated. Both the terminology and the working used in the German Banking Act provisions are very similar to those in the Pfandbrief Act.

Although recording of claims and mortgages in the refinancing register prevents these assets from falling into the refinancing institution's general bankrupt estate (insolvency-proof trust), the beneficiary (the pfandbrief bank) and the trustee credit institution must still conclude a formal agreement (or contract) which substantiates the pfandbrief bank's claims over the assets. This can be done for example within an agreement between syndicating banks. Entry of the assets in the refinancing register is not sufficient on its own. The refinancing company forwards an excerpt of the refinancing register to the beneficiary, which proves the beneficiary's title to claim the assets. We see three aspects of this situation as particularly important:

- » The agreement between the pfandbrief bank and the refinancing institution must be legally binding and effective. Rating agencies have warned that they will be checking this point as part of their analyses (see for example S&P "German Refinancing Registers Could Help Source Assets for Pfandbriefe", October 2007).
- » The contracts underlying claims on customers (such as loan contracts) must specifically permit the sale and assignment of the claims and, where necessary, the associated collateral (mortgages in the case of property loans).
- » The recording of assets in the refinancing register does not restrict the right of third parties to object and appeal against the registered claims or mortgage securities. As we understand it, one example of this would be the undisclosed (silent) assignment of the loan claims. In this case, the borrower shall not be informed of the transfer of the loan to the pfandbrief bank (at least not immediately). The rights of the borrower, to offset mutual claims against its loan liabilities in the event of the trustee credit institution's insolvency for example, are not affected by the recording of the relevant claim in the refinancing register (see for example Fitch's Special Report "The Refinancing Register in German Structured Finance Transactions", December 2011).

The German Banking Act makes it clear that, even in the case of syndicated loans where several banks take only parts of the loan amount and the borrower knows

German Banking Act borrows from the Pfandbrief Act

Refinancing register creates an insolvency-proof trust

Contract required

Assets/collateral must be assignable

Third-party objection rights preserved

Pfandbrief and refinancing register closely linked

about this arrangement between the banks when the loan agreement is signed (anfänglich offene Konsortialfinanzierung), these loans are subject to the regulations applying to the refinancing register. The provision in the German Banking Act moreover ensures that cover assets recorded in a refinancing register for the benefit of a pfandbrief bank can only be deleted from the register with the agreement of the bank and that of the pfandbrief cover pool monitor (as independent controller of the pfandbrief bank's cover register). The pfandbrief bank is also authorised at any time to demand a statement of the assets recorded for its account in the funding register from the administrator of the funding register. The information right is intended to put the pfandbrief bank in a position to verify the correctness of entries effectively.

In contrast to entries in the land register, the refinancing register is not open for public inspection. Pfandbrief creditors have to put their faith in the diligence of the refinancing institution, although the orderly management of the register by the administrator appointed by BaFin is subject to regular monitoring. All in all, the complexity of the transaction structure of a pfandbrief programme is increased by its inclusion in the refinancing register. From the pfandbrief investor's perspective and from the point of view of credit aspects, we believe that the use of a refinancing register also creates a weak link with the refinancing institution's credit rating.

Refinancing registers offer several application options in the context of the pfandbrief business. Commercial banks which do not have a pfandbrief licence can use the mechanism to make cover assets available for pfandbrief banks and thereby benefit indirectly from cheap funding via pfandbriefe, assuming pfandbrief banks offer their services to other credit institutions as refinancing platforms in this way (pooling model).

In addition, a refinancing register permits several pfandbrief banks to use syndicated loans - including subsequently syndicated loans - to constitute the cover pool for their respective pfandbrief programs, dependent on the risk ratio taken on. The advantage of using the refinancing register route in these examples is that it postpones or even completely obviates the need for any costly and time-consuming formal amendment of land registers to show a transfer of liens on properties and notification of borrowers to a later date (e.g. if this becomes necessary through the insolvency of the refinancing institution).

Special requirements for ordinary cover assets for each pfandbrief type

Public sector pfandbriefe

The term public sector pfandbrief was not coined until the 1990s, when it replaced the previously customary terms municipal bonds (Kommunalobligation or Kommunalschuldverschreibung). Germany's Pfandbrief Act only permits claims on sovereigns and local and regional governments (sub-sovereigns) or claims on public-law institutions or corporations to be used to provide cover for public sector pfandbriefe if they are either subject to a Maintenance Obligation (Anstaltslast) or Liability Obligation (Gewährträgerhaftung) or explicitly guaranteed by a sub-sovereign entity. Examples of this latter category are claims on public sector development banks or bonds from and monetary claims on public sector companies which are a public-law institution and benefit from Liability Obligation (Gewährträgerhaftung). The Pfandbrief Act lists detailed requirements for potential ordinary cover assets for public sector pfandbriefe; they can be summarised as follows:

- » Claims on domestic sovereign and sub-sovereign governments or public-law institutions authorised to charge fees, raise levies or impose other taxes.

Greater complexity

Pfandbrief banks as refinancing platform

Simplifying syndicated loan business

Claims on local and regional governments

Detailed requirements concerning borrowers

- » Claims on member states of the EU or of the EEA and/or their central banks and claims on regional and local authorities from member states of the European Union and of the EEA.
- » Claims against British debtors, which are in the cover pool at the time of the departure of Great Britain, will be grandfathered and will remain eligible as cover assets. It is already regulated by law that Great Britain will also be included in the list of eligible third countries upon Brexit, so that new claims from Great Britain can also be eligible as cover assets for the time after the Brexit. However, the Pfandbrief creditors' preferential right in the event of insolvency must be ensured for new British cover assets if they are not to be counted towards the relevant 10 per cent limit.
- » Claims on the United States of America, Japan, Switzerland and Canada or their central banks, on regional and local governments, provided they qualify for Credit Quality Level 1 of the EU Capital Requirements Regulation and Directive (CRR/CRD).
- » Claims on the ECB and other multilateral development banks and international organisations listed in the EU Capital Requirements Regulation and Directive (CRR/CRD).
- » Public sector entities of a EU or EEA member state.
- » Public sector entities within the meaning of the EU Capital Requirements Regulation and Directive (CRD/CRR) domiciled in the United States of America, Japan, Switzerland and Canada, provided they qualify for Credit Quality Step 1 of the EU Banking directive.
- » Claims guaranteed by any of the above states or sub-sovereign entities.
- » Export finance credits benefiting from a guarantee from a public sector institution or government.

The Treaty Establishing the European Stability Mechanism (ESM treaty) requires the inclusion of collective action clauses (CAC) in the terms and conditions of bonds issued by ESM-treaty signatory states. The documentation governing the sovereign bonds of other countries also includes similar clauses. They allow a retroactive modification of bond terms and conditions (T&Cs), subject to the consent of the majority of the bondholders affected. The Pfandbrief Act makes it clear that sovereign bonds featuring provisions of this kind qualify for use as cover (whether as ordinary cover as in the case of public sector pfandbriefe or as further cover assets for all other pfandbrief categories).

Bonds including collective action clauses are eligible as cover

SME loans and publicly guaranteed export finance as cover for public sector pfandbriefe

Although unsecured loans to small and midsize enterprises (SMEs) do not qualify as pfandbrief cover assets. Issuers have the option, however, to obtain a guarantee from a public entity (such as KfW) in relation to SME loans; the resulting guaranteed loans satisfy the defined requirements for cover assets backing public sector pfandbriefe. In the same connection, there is another way - frequently used in the past - that allows issuers to include loans relating to SME exports in the cover pool for their public sector pfandbriefe. The precondition is that these export finance arrangements must be guaranteed by, say, Euler Hermes. The use of these guarantees could also permit the inclusion of other assets such as for example aircraft loans or project finance in public sector pfandbrief cover pools in our opinion. In conjunction with Hermes guarantees, serious discussions have been ongoing for some years between the legislator, the regulatory authority, the vdp as the representative of the pfandbrief banks and Euler Hermes. One result of these discussions is that the export credit insurer has been offering a special product for pfandbrief banks since 1 December 2017. This new product is aimed at securing the insolvency pre-emption rights of pfandbrief holders even for claims which are domiciled outside the European Economic Areas (see vdp Infobrief Q1 2018).

Source: DZ BANK Research

Export finance credits located outside the EU and guaranteed by a public sector default guarantee must be factored in the 10 per cent cap for loans which do not enjoy the absolute guaranteed preferential claim of pfandbrief creditors in the event of the insolvency of the pfandbrief bank, if the risk of secondary insolvency proceedings over the pfandbrief bank's assets in the third country in question cannot be ruled out with certainty. However, if the public export credit insurance guarantees not only the credit default risk of the export finance debtor but also the preferential claim of pfandbrief creditors on these loans in the event of the insolvency of the pfandbrief bank, then the loans do not count against the 10 per cent cap.

The Pfandbrief Act allows claims on the public sector entities listed above to be fully recognised in cover calculations, irrespective of the debtor's or guarantor's credit rating. The vdp's member institutions have agreed standards for the recognition of the credit quality of public sector entities in pfandbrief cover calculation, which go beyond the requirements of the Pfandbrief Act. The vdp calls this standardised procedure the "[vdp Credit Quality Differentiation Model](#)". When including claims on member states of the EEA and their sub-sovereign entities, vdp member institutions factor rating-based discounts into their cover calculation (a more detailed presentation can be found in the article "The vdp credit quality differentiation model" in the vdp publication "Pfandbrief 2013/2014 Facts and Figures about Europe's Covered Bond Benchmark"). The valuation discounts are updated on an ongoing basis. The currently used valuation discounts are shown in the next table.

Export finance credits with a public sector guarantee in non-European countries

Pfandbrief Act lacks rating rules for public sector debtors

RATING-BASED VALUATION DISCOUNTS/HAIRCUTS IN THE VDP CREDIT QUALITY DIFFERENTIATION MODEL: HARDLY ANY CHANGES SINCE 2012

Rating*	Haircut used until 31 December 2013	Haircut used until 31 December 2014	Haircut used until 31 December 2015	Haircut used until 31 December 2017	Haircut used until 1 January 2018	Haircut used since 1 January 2019
AAA	0%	0%	0%	0%	0%	0%
AA+	0%	0%	0%	0%	0%	0%
AA	0%	0%	0%	0%	0%	0%
AA-	0%	0%	0%	0%	0%	0%
A+	0%	0%	0%	0%	0%	0%
A	0%	0%	0%	0%	0%	0%
A-	0%	0%	0%	0%	0%	0%
BBB+	0%	0%	0%	0%	0%	0%
BBB	0%	0%	0%	0%	0%	0%
BBB-	0%	0%	0%	0%	0%	0%
BB+	9%	10%	11%	9%	8%	8%
BB	11%	12%	13%	11%	11%	10%
BB-	14%	15%	16%	14%	13%	13%
B+	18%	19%	20%	18%	17%	16%
B	21%	23%	24%	21%	20%	20%
B-	26%	27%	28%	26%	24%	24%
CCC	36%	37%	38%	36%	34%	34%
CC	55%	56%	57%	55%	54%	54%
C	80%	81%	81%	80%	79%	79%
D	100%	100%	100%	100%	100%	100%

Source: vdp, presentation DZ BANK Research, as of July 2019, * ratings of S&P or corresponding Fitch or Moody's rating

Mortgage pfandbriefe

The only permitted cover assets for mortgage pfandbriefe are mortgage-backed loans which meet specific conditions. This means for example that only mortgages may be used for cover purposes which are secured on real property, rights equivalent to real property or rights under foreign law which have the same effect as rights equivalent to real property under German law. Further requirements imposed on mortgage loans include mandatory insurance and a loan-to-value (LTV) calculation.

The LTV calculation only recognises the property's long-term sustainable asset value or cost value based on the cost approach (Sachwert) and income value (Ertragswert), and therefore the property's lending value will generally be lower than the market value. The approach for calculating a property's mortgage lending value is specified in detail in the Regulation on the Determination of the Mortgage Lending Value (Beleihungswertermittlungsverordnung or BelWertV). The lending value has to be identified in accordance with the prudential principle, i.e. based solely on the property or land's permanent features and the resulting sustainable yield. The lending value is driven by the income value of the property. The income value is the upper bound for the lending value. If the sustainable asset value for the property is more than 20 per cent lower than the income value, the sustainability of the income generated by the property must be double-checked. In case needed, the income assumption for the property has to be reduced.

The Regulation on the Determination of the Mortgage Lending Value determines the discount factors to be used for the income value, which are derived from the capitalization interest rates. The capitalization interest rates for residential real estate may not be lower than 5 per cent. For commercial real estate at least 6 per cent must be applied, whereby in justified exceptional cases this percentage may be undercut by

Mortgage-backed loans

Cost approach versus income value

Higher capitalisation factors for determining the income value?

0.5 percentage points. Against the background of the sustained fall in interest rates, the vdp had hoped for a debate at the end of 2018 on the level of capitalisation interest rates. As a result of the continuing loose monetary policy, the net initial yields for retail and office buildings in the top segment of the most attractive German cities had fallen to around 3 per cent (as at the end of 2018). Accordingly, there is currently a gap between earnings and market values. The vdp expects that real estate price increases in recent years will not be exaggerated. Lower capitalisation interest rates would also lead to higher income values and thus higher mortgage lending values of the properties due to higher discount factors. This, in turn, would mean that the pfandbrief bank could take a larger proportion of the loan into account in the cover calculation and thus expand the issue volume for mortgage pfandbriefe.

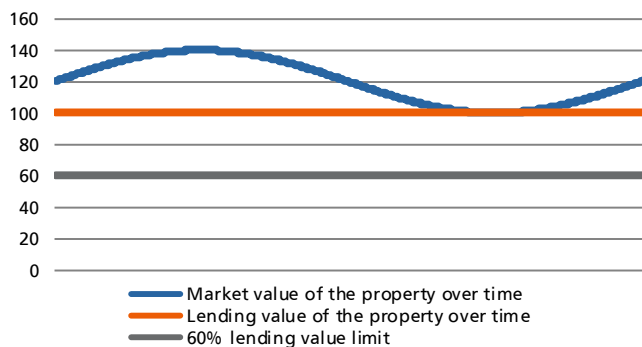
In general the property's lending value does not exceed its market or sale value as it fluctuates over time. The lending value must not contain any speculative element. The lending value has to be identified by an independent appraiser who plays no part in the decision to lend. This person must possess the necessary professional experience and specialist know-how to perform lending value appraisals. The procedures for establishing the lending values of properties in Germany and abroad are subject to the same requirements.

Germany's pfandbrief legislation allows an exception for houses in Germany (owner-occupied). If the building is used partly for commercial purposes, then the proportion of income from this commercial use may not exceed one third of the total gross income generated from the property as a whole. In addition, the loan amount may not exceed 400,000 euros. The amount of such loans in a pfandbrief bank's retail business must factor in potential pre-existing charges on a property. The ceiling is determined by the loan amount to be secured, in other words, the amount of the surety which is entered into the land registry and which is available to the pfandbrief bank. According to the vdp, the bulk of the domestic retail business comes under the small-loans rules (see vdp Infobrief Q4 2015). In such cases, the banks can use a simplified process to calculate the LTV. One concession for small loans is that there is no obligation to carry out a valuation appraisal for the property. In the case of small loans as defined in pfandbrief legislation, simplified documentation is sufficient for the valuation calculation, which can be implemented for example through standardised forms. Automated valuation processes, based on hedonic pricing models, for example, can be used to support the valuation of a home. Assessing the location of the property and its state of upkeep can be done using standardised formulations or through a set scale. A further concession relates to the person carrying out the valuation. The valuer in question must be sufficiently trained; must be independent and may not take the final lending decision. In some cases, it is possible to make do without viewing a property, and external viewing will suffice.

Lending value calculation only takes into account a building's permanent attributes

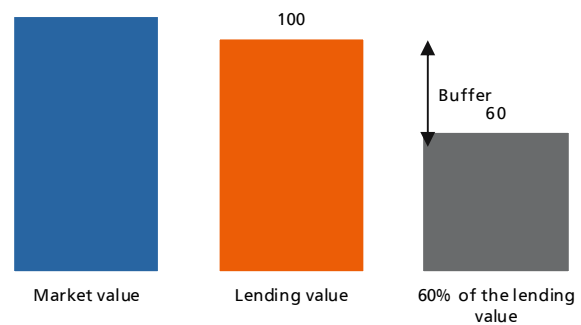
Less stringent requirements for loans falling below small-loan threshold

LENDING VALUE ONLY REFLECTS BUILDING'S PERMANENT ATTRIBUTES



Source: vdp, presentation DZ BANK Research

60 PER CENT LTV LIMIT OFFERS ADDITIONAL PROTECTION



Source: DZ BANK Research

What is special about the lending value concept is that the figure in question should apply over the full term of the loan. The Regulation on the Determination of the Mortgage Lending Value does not affect other laws requiring regular reviews of property valuations, however. Above all in the case of commercial property for example, it is mandatory for the assumptions underlying valuations to be regularly tested. If there is any question about their accuracy, then the lending value may also need to be reassessed. As a rule, therefore, in context of the pfandbrief legislation potential changes in loan to value only arise because the loan is repaid. Increases in value through a rise in property prices (resulting from a rise in market values) have no effect on a property's lending value or therefore on the loan's LTV. However, should property prices fall significantly in a region, then the lending values for properties in this region have to be reviewed and adjusted if necessary. This strategy for accommodating market fluctuations treats a price fall of at least 20 per cent for residential property (minimum of 10 per cent in the case of commercial property) as the threshold which triggers a revaluation of the properties.

Sharp fall in prices triggers revaluation

Article 208 (3) CRR which has been in force since 2014 sets out a three-step process in connection with monitoring property values in the context of the credit business. The first step e.g. using statistical methods such as the concept of market changes for commercial (every year) and residential property (every three years) checks whether there are indications of any sustained and significantly fall in house prices. In Germany, granular models have become established which highlight price fluctuations for several types of properties based on postal costs. If there has been a sharp fall in property prices (10 per cent for commercial properties and 20 per cent for residential properties), then the second step in the monitoring process will involve a review of the property valuation. The review must be carried out by a valuer who is independent from the credit decision process and property qualified. Should the review confirm the significant fall in value indicated by the model, then in a third step, a revaluation of the property must be carried out. In order to meet CRR requirements, the market value is used to monitor the lending value of a property, which is per se is conceived as being separate from temporary fluctuations in the market. If the market value of a property falls below the lending value after a revaluation, then its lending value must be reviewed and, where appropriate, the property must be revalued if fluctuations in market price are regarded as lasting.

Market changes concept as first step in the monitoring process

ILLUSTRATIVE LENDABLE VALUE CALCULATION: TWO PILLARS PRINCIPLE USING THE EXAMPLE OF A NEWLY-BUILT OFFICE BUILDING

Income approach (first pillar)		Cost approach (second pillar)	
Land value		Land value	
600 square meter à 5,200 Euro per square meter	3,120,000 Euro	600 square meter à 5,200 Euro per square meter	3,120,000 Euro
Gross income		Value of the building	
2,000 square meters of office space à 30 Euro per square meter and month sustainable rent	720,000 Euro	Building costs: 11,500 cubic meters à 520 Euro per cubic meter	5,980,000 Euro
15 underground parking spaces à 110 Euro per parking space and month	19,800 Euro	Depreciation (0 Euro, as new building)	0 Euro
Gross annual rent	739,800 Euro	Subtotal	5,980,000 Euro
Less operating expenses (costs that are not allocable to tenants)		Plus costs of the outside area (3 per cent)	
- Management costs (3 per cent of gross income)	22,194 Euro	Subtotal	6,159,400 Euro
- Maintenance costs	31,125 Euro	Less safety margin pursuant to section 16 (2) BelWertV of 10 per cent	615,940 Euro
- Loss of rental income risk (4 per cent of gross income)	29,592 Euro	Subtotal	5,543,460 Euro
Total operating expenses	82,911 Euro	Plus incidental building costs pursuant to section 16 (3) BelWertV of 16 per cent	886,954 Euro
In per cent of gross income	11.2 per cent	Value of the building	6,430,414 Euro
Minimum operating expenses according to BelWertV	15.0 per cent	Land value	3,120,000 Euro
Stated operating expenses	110,970 Euro	Depreciated replacement cost value**	9,550,414 Euro
Net annual income	628,830 Euro	Depreciated replacement cost value (rounded)	9,550,000 Euro
Capitalisation rate: 6.00 per cent			
Expected return on land	187,200 Euro	Income value / depreciated replacement cost value - 1	6.83 per cent
Net income of building	441,630 Euro	The depreciated replacement cost value is only 6.83 per cent below the income value (which is less than 20 per cent), therefore the lending value is based on the income value (the sustainability of the income generated by the property has not to be double-checked in this case).	
Income value of the building*	7,136,741 Euro		
Land value	3,120,000 Euro		
Income value*	10,256,741 Euro	Mortgage lending value (income properties)	10,250,000 Euro
Income value (rounded)	10,250,000 Euro	Inclusion in cover (lending limit 60 per cent)	6,150,000 Euro

Source: vdp, presentation DZ BANK Research, BelWertV = determination of the mortgage lending value or Beleihungswertermittlungsverordnung.

* capitalisation rate 6 per cent, remaining useful life 60 years, multiplier 16.16 according to Annex IV of BelWertV, * income value (Ertragswert), ** cost value or sustainable asset value (Sachwert)

The prudential principle which is reflected in the lending values has the effect of smoothing LTV changes over time. Rising or moderately falling property prices do not affect the current LTV. Another objective of the lending value rules is to achieve cautious property valuations which are sustainable in the long term. However, this comes at the cost of transparency, since lending-value based LTVs do not reflect current property values.

Under the terms of the Pfandbrief Act, only first-lien mortgage loans with the first ranking 60 per cent of the property's lending value may be used as cover for mortgage pfandbriefe. This ceiling applies irrespective of whether the loan is on a residential-use or commercial-use building. Although loans whose current LTV is above 60 per cent can be included in the cover pool, the cover they provide is calculated solely on the prime portion of the loan up to the 60 per cent limit (soft LTV limit); this is because the pfandbrief creditors' preferential claim over the loans in the event of the pfandbrief bank's insolvency is capped at this 60 per cent ceiling. We regard this regulation as an extremely strong provision which protects pfandbrief creditors.

Fitch's report "Market vs. Mortgage Lending Values in Pfandbriefe" of 4 September 2017 highlights the advantages of the mortgage lending value (MLV) in relation to the market value of a property from a lending point of view. The use of the MLV in conjunction with a loan to mortgage lending value (LTMLV) limit of 60 per cent under

Lending-value concept smoothes LTV trend

Blanket LTV ceiling of 60 per cent

Fitch analysis confirms positive impact of LTV concept

the Pfandbrief Act creates a substantial safety cushion for cover assets. In the report of September 2017 mentioned above which takes into account the mortgage pfandbriefe valued by Fitch at that time, the agency comes to the conclusion that house prices could fall by 50 per cent without the loans in the cover pool suffering any losses. Fitch highlights two reasons for this. Firstly, the LTMVT would not be above market value from the time of its conception, but rather below that; and secondly, any later increases in house prices would create a buffer for the valuations. As mentioned, any later increase in property values is not factored in subsequently into the original LTMLV. However, the agency stresses that these buffers would disappear again in the event of falling property prices.

LENDABLE VALUE CONCEPT GENERATES VALUATION RESERVES WHEN HOUSE PRICES RISE

	Example 1: Property is not revalued	Example 2: Property is revalued
LTV limit	60 per cent	60 per cent
Loan size	90	90
Starting situation:		
- Property value	100	100
- Qualifying loan value for cover pool purposes	60 (= 100 * 60 per cent)	60 (= 100 * 60 per cent)
percentage house price can fall by before the cover pool suffers a potential liquidation loss	40 per cent (= (100 - 60)/100)	40 per cent (= (100 - 60)/100)
Position after house prices rise by 50 per cent:		
- New property value	150	150
- Qualifying loan value for cover pool purposes	60 (= 100 * 60 per cent)	90 (= 150 * 60 per cent)
percentage house price can fall by before the cover pool suffers a potential liquidation loss	60 per cent (= (150 - 60)/150)	40 per cent (= (150 - 90)/150)

Source: Moody's, presentation DZ BANK Research

Moody's also highlights two strengths of the German approach - the 60 per cent LTV ceiling (strict by international standards) and the conservative valuation rules which flow from the Determination of the Mortgage Lending Value. The study "German Mortgage Covered Bonds: Pfandbrief Act is Conservative in its Treatment of Rising House Prices" of 24 June 2013 uses a numeric example to demonstrate how, in a rising property market, the lending value concept leads to a gradual accumulation of valuation reserves which ultimately bolster the security of pfandbrief creditors (see example one in the following table). In other countries, rises in house prices can be used to increase the portion of the mortgage which is eligible as collateral. Rises in house prices therefore lead (more or less automatically) to an increase in the size of the cover pool (see example two in the table above), a fact which hampers the build-up of latent valuation reserves as in the case of the German LTV concept.

As with public sector pfandbriefe, mortgage pfandbriefe are also subject to geographical restrictions on top of the cover asset requirements discussed. Cover assets need to originate in the European Economic Area, Australia, Canada, Japan, New Zealand, Singapore, Switzerland or the US. Claims against British debtors, which are in the cover pool at the time of the departure of Great Britain, will be grandfathered and will remain eligible as cover assets. It is already regulated by law that Great Britain will also be included in the list of eligible third countries upon Brexit, so that new claims from Great Britain can also be eligible as cover assets for the time after the Brexit. However, the Pfandbrief creditors' preferential right in the event of insolvency must be ensured for new British cover assets if they are not to be counted towards the relevant 10 per cent limit

Also Moody's highlights lending value concept as positive factor

Geographical restrictions

As already mentioned earlier, only mortgages on land, or leasehold rights or similar rights under a foreign legal system can be used as cover assets which are comparable with leasehold rights under German law. In 2005, the vdp formed a round table which regularly carries out a comparison of international security rights over real property. The method used is described in the article by Andreas Luckow "Grundpfandrechte – internationaler Vergleich auf einen Blick" in the magazine Immobilien & Finanzierung issue 03 – 2016. A detailed description can be found in volume 54 of the vdp publication series "Grundpfandrechte 2016 in Europa und darüber hinaus". The analysis is well thought out and very soundly based. The panel of international experts sitting at vdp's round table works out a standardised set of questions for each country. Responses are evaluated using a scoring process designed to enable a comparison of different legal systems. The comparison looks at four different perspectives, which are then combined into a whole. At first, the four perspectives take into account the various interests of the lending bank, of the borrower, of the subordinated and unsecured creditors and the general applicability of the security rights, separately from one another.

- » Bank's perspective/enforcement: the issue here is how quickly the holder of a mortgage could exploit the security and get proceeds in line with its ranking.
- » Perspective of the owner of the property: the interests of the owner of the property are diametrically opposed to the interests of the lending bank in questions of realising the value of an asset. All legal frameworks try to ensure that there is a reconciliation of interests in order to ensure a fair enforcement process.
- » Bank's perspective/usability: As regards the issue of the usability of a mortgage, the interests of the borrower and lender are fairly even. The issue here is how flexibly the mortgage can be used. For example, can it be used for several exposures? In this case, vdp's round table comes to the conclusion that non-accessory mortgages which envisage a separation between the loan claim and the mortgage and which are linked through a security agreement offer crucial advantages.
- » Perspective of the legislator: this regroups aspects such as how the legislator reconciles interests between the parties involved and how it protects the rights of subordinated or unsecured lenders.

Taking the assessment of vdp's round table as a whole, the security rights which ultimately form the basis for securing the mortgage pfandbrief stand out especially well in Germany, Norway, Sweden and Switzerland. In contrast, security rights in Belgium, Italy and Slovakia have the weakest rating (as of 2017). The laborious, detailed and very soundly-based analysis carried out by vdp's round table shows just how multi-tiered the role of security rights is. The analyses also show how much individual legal frameworks can differ and that a closer look at these issues is well worth it.

There are provisions under the Pfandbrief Act for mandatory insurance against risks depending on the type and location of a building if loans in the cover pool are secured against these properties. In the event of the pfandbrief bank becoming insolvent, the insurance benefits also stand the pfandbrief creditors in good stead. In practice, these general building-insurance requirements come up against real life which is where there are always new challenges for pfandbrief banks in the international lending business through changes in the insurance industry. It is often impossible to insure against damage to buildings from earthquakes and other natural disasters such as tornadoes and flooding at replacement value of the property. However, using statistical

Foreign mortgages must be comparable with German law

Enforcement

Factoring in the interests of the borrower

Advantages for non-accessory mortgages

Format of reconciliation of interests

Marked differences in individual legal systems

Building insurance mandatory

methods and based on location, it is possible to predict fairly accurately the probable maximum loss, or PML, depending on the fabric of the building. The total sum insured can then be set based on the PML. Companies which own several buildings often take out a blanket insurance for all the buildings. If the buildings are located in different places for example, the total sum insured in the policy is not calculated simply by adding the value of all the buildings. The total sum insured can be smaller because of an imperfect correlation between the probability of fire damage for example happening to all properties at the same time.

In addition, some property owners agree an excess for their building insurance which aims to reduce the insurance premium. The Pfandbrief Act takes these aspects into account in so far as it allows three options with regard to level of insurance:

- » expected replacement costs of the building;
- » probable maximum loss which is very unlikely to be exceeded,
- » respective outstanding claims on the loan.

A more detail presentation of this issue can be found in the article by Andreas Luckow on new arrangements for building insurance for cover assets for mortgage pfandbriefe "Neuregelung der Gebäudeversicherung bei Deckungswerten für mortgage pfandbrief" in Immobilien & Finanzierung, issue 03 - 2015 of February 2015.

Ship pfandbriefe

Loan rights backed by ship mortgages qualify to serve as ordinary cover assets for ship pfandbriefe. The loans may only relate to ships or ships under construction which are recorded in a public register. The loan term may not extend beyond 20 years from launch. The regulator may permit exceptions in individual cases. Loans secured by foreign registered ships or ships under construction can only be included in the cover pool under certain conditions defined by the Pfandbrief Act. Ships and ships under construction have to be insured for at least one hundred and 10 per cent of the loan's residual sum through the term of the loan.

The calculation of the lending value of ships and ships under construction is also subject to explicit rules, including the same 60 per cent LTV ceiling for assets that applies to mortgage pfandbriefe. The lending value for ships and ships under construction must be determined by an independent and expert appraiser. The valuation must take account of the ship's long-term characteristics (permanent features) as well as its age and possible uses. The valuation process must include an inspection of the ship. The calculation of the ship's lending value must have regard to the following four market values/prices:

- » The current market value is an estimate for the price that a ship might fetch in the normal course of business on the valuation date, when both buyer and seller are acting with the requisite prudence and without duress (i.e. no fire sale).
- » The average market value refers to the average market value fetched by comparable ships over the ten years preceding the year of valuation.
- » The new-build price is the construction price agreed with the yard plus reasonable standard add-on costs.

Excess reduces insurance premium

Rights in ships and ships under construction

60 per cent LTV and duty to insure

Current market value

Average market value

New-build price

- » The purchase price is the contractually agreed price for acquiring the ship being valued.

Purchase price

The ship's lending value may not be higher than the current and/or average market value. If the average market value for the last ten years cannot be established, then additional safety discounts must be applied: either 15 per cent (if the average relates to less than ten but more than three years) or 25 per cent (if the average is based on three years or less). If neither the current nor the average market value can be determined, then another suitable method must be used, but in this case, the ship's lending value must not exceed 75 per cent of the new-build price or purchase price.

Ship's lending value based on lower of cost or market principle

The ship's lending value should reflect its long-term value. If however there should be good reason subsequently to question whether the assumptions underlying the valuation might not have deteriorated significantly, then these assumptions must be tested and amended if necessary. The Regulation on the Determination of the Mortgage Lending Values of Ships and Ships under Construction (Schiffsbeleihungswertermittlungsverordnung) stipulates that this applies particularly in cases where the general market price level has fallen sharply. As with property loans, the Regulation on the Determination of the Mortgage Lending Values of Ships and Ships under Construction does not affect other laws requiring regular reviews of ships' lending values.

Fall in price can trigger revaluation

Aircraft pfandbriefe

Loans secured by a right in rem in aircraft (aircraft mortgage) qualify as ordinary cover assets for aircraft pfandbriefe. Only aircraft recorded in a public register are eligible. The registered lien or foreign aircraft mortgage must also cover the engines, which account for a large proportion of the value of an aircraft. As we saw with ship mortgages, the duration of the loan on an aircraft may not exceed 20 years. The regulatory authority can allow exceptions in individual cases. Loans secured by foreign registered aircraft may also be included in the cover pool under certain conditions defined in the Pfandbrief Act. The aircraft must be insured throughout the term of the loan for at least one hundred and 10 per cent of the respective loan outstanding.

Aircraft mortgages which extend to the engines

As in the case of property and ship loans, the aircraft loan may not exceed the first 60 per cent of the value of the aircraft (aircraft lending value) in order to qualify as cover asset. The underlying lending value of the collateral for aircraft pfandbriefe is also subject to explicit rules defined in the Regulation on the Determination of Aircraft Lending Values (Flugzeugbeleihungswertermittlungsverordnung), and these are similar to the provisions governing ships. The aircraft lending value must be determined by an independent expert appraiser. The valuation must focus on the aircraft's long-term features. In contrast to the methodology for identifying the lending values of ships, the process for aircraft essentially focuses on the market price and the average market price in the last ten years along with the plane's value given well-balanced market conditions and in relation to the aircraft's average state (the aircraft's estimated value factoring in its maintenance condition). The lending value shall not exceed any of these three figures. If the average market price of the last ten years is not available, then the value based on the aircraft's average state is assumed to be the lending value, subject to a 10 per cent markdown. As we saw with the valuation of real property and ships, the valuation of aircraft is also subject to possible review. The Regulation on the Determination of Aircraft Lending Values cites strong fluctuations in aircraft prices as one reason which could make a revaluation necessary. However, the Regulation does not affect other rules requiring the review of aircraft lending values.

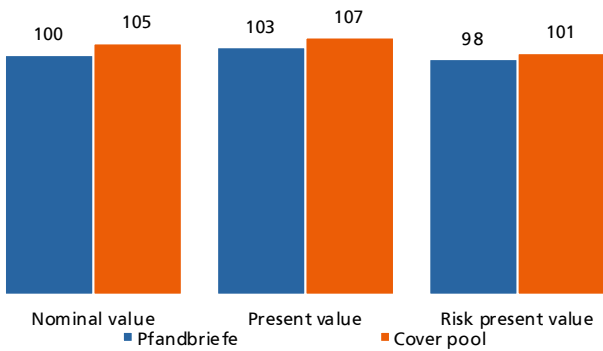
Independent expert must appraise the aircraft's value

Transparency regulations applying to quarterly reports

Investors information needs have increased over the last years. The legislator is trying to meet the greater needs of investors for information by repeated additions to the existing reporting obligations of pfandbrief issuers in order to improve transparency with respect to the composition of the cover pools for market participants through every amendment. All pfandbrief banks are required to publish a minimum standard of information on the outstanding pfandbriefe and cover assets in a publicly accessible form on a quarterly basis. For example, the Pfandbrief Act requires the pfandbrief banks to disclose the respective total volume of the outstanding pfandbriefe in each category as well as the corresponding cover pools in the amount of the nominal value, the net present value and the risks-adjusted net present value. In the case of the risk-adjusted net present value, only the result of the stress scenario which leads to the smallest over-collateralisation has to be disclosed. The pfandbrief banks must also provide a breakdown of the maturity structure (broken down by fixed-interest periods) of the pfandbriefe and of the cover pools in the given maturity bands. Cover assets and pfandbriefe with a fixed-interest period of up to 24 months must reported in four bands of six months each. This is followed by three further maturity bands of one year each up to a maximum fixed-rate term of five years. The last two maturity bands are five to ten years and over ten years. In order to give investors a feeling for possible interest-rate or currency mismatches in the context of a bank's pfandbrief business, mandatory disclosures include a breakdown of the cover pool and outstanding pfandbriefe based on fixed and variable rates. In addition, the net present value of open currency positions between cover assets and pfandbriefe has to be disclosed and the current net present value of the derivatives in the cover pool must be disclosed.

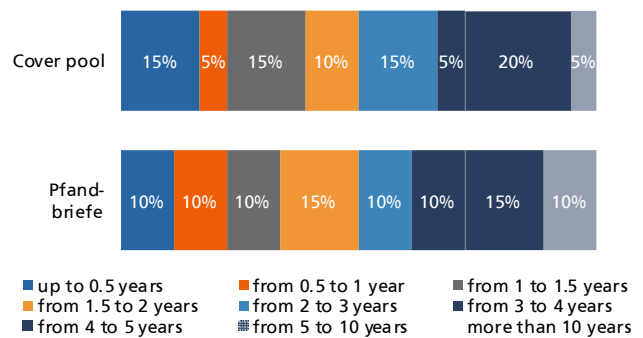
Mandatory reporting statutes

AGGREGATED COVER POOL AND OUTSTANDING PFANDBRIEF VALUES
ARBITRARY NUMERIC EXAMPLE: IN EURO



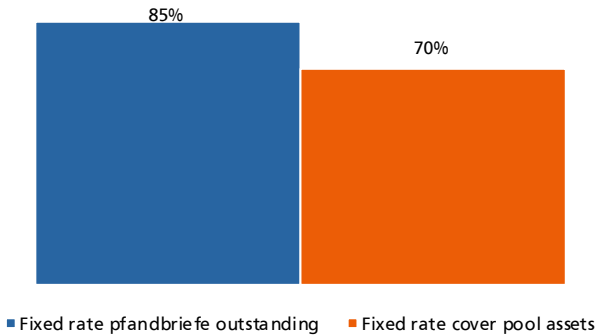
Source: DZ BANK Research

FIXED-INTEREST PERIODS OF COVER POOL AND OUTSTANDING PFANDBRIEFE
ARBITRARY NUMERIC EXAMPLE



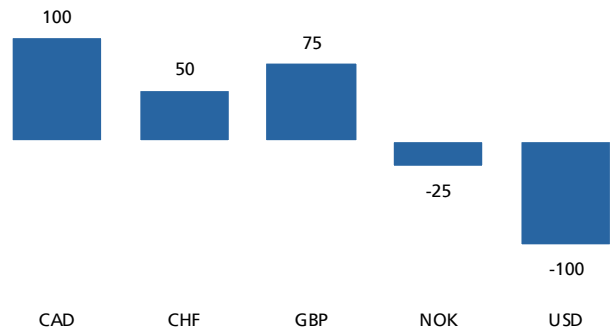
Source: DZ BANK Research

INTEREST ON THE COVER POOL AND OUTSTANDING PFANDBRIEFE
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

CURRENCY MISMATCHES BETWEEN PFANDBRIEFE AND COVER POOL
ARBITRARY NUMERIC EXAMPLE: NET PRESENT VALUE IN EURO



Source: DZ BANK Research

Issuers are required to report separately for each pfandbrief type the aggregate amount of non-performing loans (in arrears by over 90 days). This shall solely include loans whose arrears are equivalent to 5 per cent or more of the total claim on the loan in question. In addition, the geographical breakdown of the cover pool by country also has to be disclosed. This must include details of ordinary and further cover assets.

Issuers are also required to report the amount of assets which form part of the cover pool but against which they cannot issue pfandbriefe because of restrictions or ceilings imposed in the Pfandbrief Act. One such example would be further cover assets; their percentage share in the cover pool is capped by the Pfandbrief Act. If for example, the proportion of further cover assets in the cover pool should exceed the statutory ceiling, then these surplus further cover assets must be reported separately. In addition, there is also a cap on the amount of cover pool assets located outside the EEA for which preferential claim of pfandbrief creditors in the case of bankruptcy of the issuer is not established beyond doubt. Pfandbrief banks are required to report any breaches of this ceiling. Moreover, there are further regular disclosure requirements for each pfandbrief type.

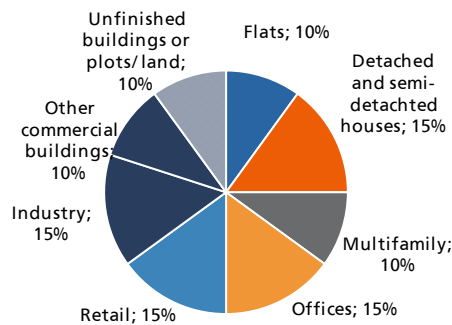
Issuers have to disclose the breakdown of the property loans in their mortgage pfandbrief cover pool by property type and loan receivables volume. They must also disclose the volume-weighted average seasoning of the loans in the cover pool. This figure is to be reported on an aggregated basis for all the property loans and not separately for residential and commercial property. The seasoning figure is an interesting parameter above all in the case of owner-occupied homes. Empirical data and statistics show that the longer a household services its loan, the more the probability of this borrower falling into arrears dwindles over time. In our view and in principle, it would therefore be better to show the seasoning of home loans and commercial loans separately. However, this poses a practical difficulty, namely in which category to assign mixed-use properties. A borderline case could be for example that of a self-employed architect who lives and works in the same building, which also serves as collateral for the loan.

Information on non-performing loans and geographical breakdown

Assets which exceed defined caps to be shown separately

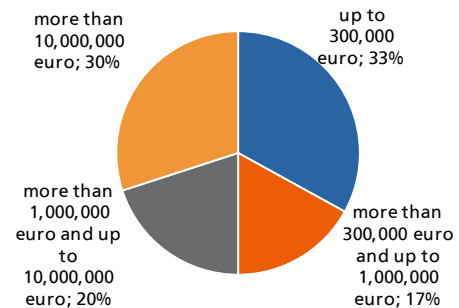
Specific information on mortgage pfandbriefe

MORTGAGE PFANDBRIEFE: STRUCTURE OF COVER POOL PROPERTY LOANS BY PROPERTY TYPE
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

MORTGAGE PFANDBRIEFE: BREAKDOWN OF LOANS BY SIZE CATEGORY
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

Pfandbrief banks are also under obligation to report regularly the average LTV of the cover pool backing their mortgage pfandbriefe. In the following table, we have shown an illustrative calculation for the average LTV.

Illustrative average LTV calculation

ILLUSTRATIVE LTV CALCULATION

	Loan 1	Loan 2
Prime mortgage	20	400
Second-lien mortgage	80	600
Lendable value	100	1.000
Reckonable value of primary-lien loan	20	400
Reckonable value of secondary-lien loan	30	550
LTV of prime cover loan*	20 per cent	40 per cent
LTV of secondary cover loan**	50 per cent	60 per cent

Source: DZ BANK Research

* LTV of prime loan: reckonable value of prime loan relative to lendable value.

** LTV of secondary loan: reckonable value of secondary loan plus the value of the prime loan relative to lendable value. Both are subject to an absolute top limit of 60 per cent (statutory limit on the recognition of mortgages as collateral in mortgage pfandbrief cover pools).

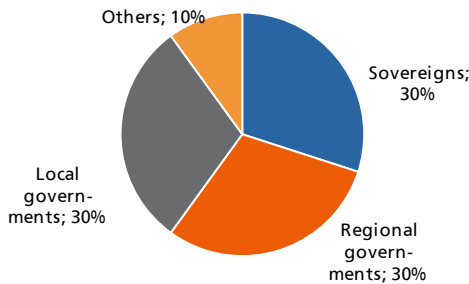
A loan's LTV is calculated by setting the loan principal against the lending value of the plot of land or property, including any up-front expenses. Only the loan components recognised for cover-calculation purposes feed into the LTV calculation; in other words, no loan's LTV will ever exceed the statutory ceiling of 60 per cent. The loans are weighed with the respective current principal. In the example shown below (which assumes that all loans are recognised in the cover pool as far as possible), the average LTV comes out at 59.2 per cent.

Weighting with loan value

In the case of public sector pfandbriefe, a breakdown of municipal and state loans in the cover pool by borrower type must be disclosed in line with the structure level of the regional and municipal authority. Issuers must also disclose the proportion of export finance credits with a public guarantee in the cover pool. Although the specific state level guaranteeing the export financing is not explicitly disclosed, it is fair to assume that, as a rule, the central government guarantees that the terms of the loan are met in the case of public sector guaranteed export finance credits. The claims must also be split by group size, although the breakdown of these groups is different from what it is in the case of mortgage pfandbriefe.

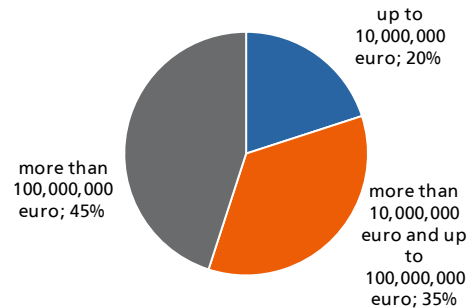
Proportion of public sector guaranteed export finance credits must be disclosed

PUBLIC SECTOR PFANDBRIEF: STRUCTURE OF COVER POOL STATE-SECTOR LOANS BY BORROWER TYPE
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

PUBLIC SECTOR PFANDBRIEF: BREAKDOWN OF LOANS BY SIZE
ARBITRARY NUMERIC EXAMPLE

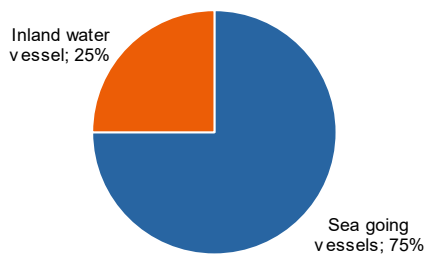


Source: DZ BANK Research

The statutory requirements in the context of transparency rules for aircraft and ship pfandbriefe are less detailed than they are in the case of mortgage pfandbriefe. In the case of ship pfandbriefe, issuers are merely required to disclose whether the ships used as collateral for the mortgage are sea-going or inland waterway vessels. In the case of aircraft pfandbriefe, there is not even a roughly comparable breakdown of the cover assets by type of aircraft. The pfandbrief bank merely has to indicate the share of aircraft mortgages in relation to the cover assets overall. In the case of aircraft and ship pfandbriefe, claims also have to be broken down into the prescribed size categories, whereby other size categories apply than in the case of mortgage and public sector pfandbriefe. Pfandbrief banks which issue aircraft and ship pfandbriefe often give detailed information of cover assets in investor presentations and therefore go beyond legal requirements. The low level of detail required by the Pfandbrief Act in the case of these pfandbrief types may reflect the fact that they are both niche products in the pfandbrief market.

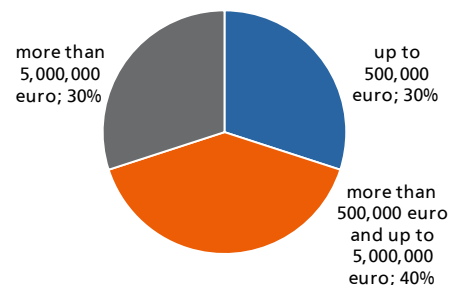
Few details in the case of aircraft and ship pfandbriefe

SHIP PFANDBRIEF: BREAKDOWN BY TYPE OF SHIP
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

AIRCRAFT AND SHIP PFANDBRIEF: BREAKDOWN OF LOANS BY SIZE
ARBITRARY NUMERIC EXAMPLE



Source: DZ BANK Research

For years now, the vdp has provided the compulsory disclosures of its member institutions on their pfandbrief programmes in standardised form on its [website](#). Reports can now be found on the vdp's website which conform with an international standard of the Harmonised Transparency Template (HTT) for over half the vdp member banks. The Covered Bond Label launched by the ECBC assumes regular reporting in the HTT. Only a few pfandbrief bank carry the Covered Bond Label. The major of vdp

Information can be downloaded centrally from the websites of banking associations

pfandbrief banks voluntarily provide quarterly reports in HTT format on top of their statutory disclosures, even without a covered bond label. Detailed information on the cover pools of individual pfandbrief banks can also be found in DZ BANK Research's "Covered Bond Monitor: Germany".

Independent monitoring by cover pool monitor

A new concept in German pfandbrief law was created as long ago as 1899 to oversee compliance with statutory cover requirements, namely the cover pool monitor (Treuhand). As was the case back then, every pfandbrief bank is still required to appoint a cover pool monitor and at least one deputy for this post, whose task it is to ensure that the cover register is properly maintained and to check the prescribed cover for the pfandbriefe. The appointment is made by the BaFin after consultation with the pfandbrief bank. The cover pool monitor operates independently to ensure compliance with the statutory and supervisory requirements relating to the pfandbrief cover. The pfandbrief bank needs the prior consent of the cover pool monitor to issue new pfandbriefe or to remove assets from the cover pool. Prior to the issue of new pfandbriefe, the cover pool monitor is required to issue a certificate confirming that there will still be sufficient cover after the issue to comply with statutory requirements.

In order to enable the cover pool monitor to perform his duties, he is empowered at any time to inspect any bank documents that are relevant to pfandbriefe and to ask for any information about the bank's outstanding pfandbriefe and the assets entered in the cover register. In addition, the Pfandbrief Act also stipulates that both the cover pool monitor and its deputies must have the expertise and experience necessary to perform their duties. The Pfandbrief Act does not explicitly stipulate any formal qualification requirement such as chartered tax adviser or accountant. The law only voices the assumption that a qualification as certified auditor or sworn accountant would suggest that the "requisite expertise is given".

Special supervision by BaFin

In addition to its independent control through a cover pool monitor, BaFin also exercises a special public supervisory role over a bank's pfandbrief business. Pfandbrief issuers are therefore not only subject to supervision by the relevant banking authorities such as the ECB as banks, but also subject to special supervision by BaFin in relation to their pfandbrief business. BaFin is empowered to issue any instructions that are appropriate and necessary for the operations of the pfandbrief bank to continue to comply with the Pfandbrief Act and any related ordinances. Of crucial importance is the right of the supervisory authority to audit samples of pfandbrief cover pools in order to check their compliance with legal requirements. As a rule, these checks take place once every two years (for more details, see article "The supervision of Pfandbrief banks" in the vdp's publication "The Pfandbrief 2013/2014 Facts and Figures about Europe's Covered Bond Benchmark").

In addition, BaFin is empowered at any time to take measures of its own such as issuing recommendations for management or appointing monitors for the cover pool. BaFin proposes a cover pool administrator (Sachverwalter) at the latest at the start of the insolvency of a bank. For a more detailed discussion of the role of the administrator and provisions in the event of a pfandbrief bank's insolvency, see the later section "Administrator of a pfandbrief bank with limited business activities".

Under the European banking union framework, the ECB took over the supervision of some, but not all, pfandbrief banks in November 2014. At the same time, within the

Cover pool monitor checks compliance with statutory requirements on ongoing basis

Extensive information rights

BaFin usually audits cover pools every two years

BaFin also plays key role in the event of issuer insolvency

Information rights and intervention powers for BaFin

context of the reporting system on the economic situation of cover pools and of the special supervision of the German pfandbrief market, the BaFin is in a strong position, including for banks for which the ECB has taken over responsibility. As the responsible regulatory and supervisory authority for the German banks' pfandbrief business, BaFin has the power to define specific cover add-ons for each individual cover pool. The intention is to give the BaFin administrative power to order a cover add-on if it considers the general statutory minimum over-collateralisation requirement to be inadequate to the task in light of the cover pool's specific composition. This is intended to give BaFin the ability to react to individual variations in the collateralisation of pfandbrief liabilities. The rationale for this part of the Pfandbrief Act cites the following examples of when a higher minimum cover requirement might be justified:

- » The cover pool assets' market values deviate considerably from the value assumptions factored into the cover calculation.
- » There are significant risk concentrations in the cover pool.
- » The cover pool contains a considerable proportion of assets whose intrinsic value depends on the solvency of companies associated with the pfandbrief bank.
- » Significant interest and exchange-rate mismatches exist between the cover assets and pfandbrief liabilities where these are not already adequately taken into account through the requirement to provide appropriate risk cover based on the risk-adjusted cover calculation.

Potential mismatches between outstanding pfandbriefe and the cover pool assets are likely to play a central role in the imposition of individual cover add-ons. A difficult issue to judge, although luckily purely hypothetical so far, is how a bankruptcy court which has appointed a cover pool administrator would rule on the possible transfer of parts of the cover pool to the bankrupt estate. There are considerable hurdles in the way of reassigning cover pool assets. At the same time, however, the potential official imposition of a minimum over-collateralisation for a pfandbrief bank by BaFin is a strong statement which a bankruptcy court is likely to take into account when ruling on this issue.

Administrator of a pfandbrief bank with limited business activities

In the event of the issuer's insolvency, a pfandbrief bank's cover pools become a pfandbrief bank with limited business activity. In spite of its insolvency, the original issuer remains the legal entity responsible for the cover pool. After the insolvency of the pfandbrief bank, it is no longer represented by its executive board but rather by a cover pool administrator. At the request of BaFin, the competent court shall appoint one or two natural persons to act as cover pool administrator. A cover pool administrator can even be appointed by the competent court before the pfandbrief bank defaults if BaFin deems this necessary. The administrator shall continue to conduct the pfandbrief bank's pfandbrief operations separately from the bank's bankruptcy estate as an insolvency-free fund. The pfandbriefe shall not automatically be called in for redemption upon opening of insolvency proceedings against the pfandbrief bank; instead, they shall be repaid in line with the originally agreed maturity from cover pool cash flows. In addition, the pfandbrief creditors will not be involved in any potential restructuring process of the issuer. Pfandbrief creditors are therefore not forced to forfeit part of their secured claims against the issuer in order to participate in the bank's rescue (bail-in).

Will reassignment of voluntary over-collateralisation become more likely?

Cover pool administrator continues to administer pfandbrief business of non-bankrupt estate

The number of pfandbrief banks with limited business activities corresponds to the number of cover pools. If a pfandbrief bank has several cover pool registers, for example one for public sector pfandbriefe and one for mortgage pfandbriefe, then there will be one pfandbrief bank with limited business activities for each cover pool after the issuer's insolvency. The administrator therefore performs legal transactions required to wind up the cover pool while ensuring the full and timely satisfaction of the pfandbrief creditors. The administrator may assign all or parts of the cover pool together with the corresponding pfandbriefe to another solvent pfandbrief bank. In this case, the solvent pfandbrief bank would assume the liabilities arising from the pfandbriefe of the original pfandbrief bank and take over the administration of the cover pool. Should it prove impossible to find a solvent pfandbrief bank, then the administrator shall oversee an orderly run-off the cover assets. Only when all the pfandbrief creditors' claims have been satisfied in full can any remaining cover assets be used to meet the claims of the bank's other creditors.

Assignment of cover pool plus pfandbriefe to third-party pfandbrief banks

The liquidation of the cover pools can give rise to liquidity risks if the duration of the cover assets exceeds that of the outstanding pfandbriefe. The refinancing risks arising from liquidity gaps are a particular focus of attention for the rating agencies which see this as a major source of risks in their rating analysis. The Pfandbrief Act gives the cover pool administrator full authority to do everything necessary to ensure the timely repayment of the pfandbriefe. The administrator has the discretion for example to take out bridging loans or to sell cover assets in order to ensure the prompt fulfilment of the payment obligations associated with the pfandbriefe. In order further to limit liquidity risks following the insolvency of the pfandbrief bank, the Pfandbrief Act even provides a formal option for the administrator to enter into funding operations with the Bundesbank in order to bridge any temporary liquidity shortfalls, namely by treating the non-bankruptcy estate as a pfandbrief bank with limited business activities, thus meeting the formal criteria for access to central bank liquidity.

Liquidity gaps under scrutiny

Conversion of pfandbriefe into shares during the major banking crisis after 1900

The first few years of the 20th century were marked by a major mortgage bank crisis during which two banking groups, the Preußenbank Group with Preußische Hypotheken Actien-Bank and the Deutsche Grundschuldbank along with the Pommernbank Group with the Pommersche Hypotheken-Aktien-Bank and the Mecklenburg-Strelitzsche Hypothekenbank were involved. The banking crisis was triggered by excessive risk-taking in lending and refinancing business activities during a period of economic stagnation following the great stock market crash (Gründerkrach) of 1873 after the boom of the founders' period (Gründerjahre). Bankruptcy proceedings only had to be opened for one of the institutions listed above – the Deutsche Grundschuldbank. The crisis was caused by transactions predating 1900 which were not permissible under Mortgage Bank Act rules. However, the restructuring of the other institutions meant that pfandbrief holders had to waive coupon payments or accept their postponement along with the conversion of interest claims into equity. In addition, a certain number of pfandbriefe were also converted into equity, whereby pfandbrief holders even had to waive part of the nominal value. The meetings of pfandbrief holders at the time had agreed to this approach. This rescue plan is very similar to the scenario of a present-day bail-in. The only difference is that current bail-in rules generally exempt holders of secured covered bonds from a haircut. However, the gains on banking shares which materialise after the bank rescues offset the losses of pfandbrief holders at the time.

Source: DZ BANK Research based on Tim Lassen's article "Lehren aus der Hypothekenbankkrise von 1900" (Lessons learned from the mortgage bank crisis), Immobilien & Finanzierungen, issue 18 – 2003

However, the ECB has decided that institutions whose business purpose is to wind down their activities, i.e. "wind-down entities", would no longer qualify for repo transactions with the central bank in future. This decision was announced in July 2017. In our view, it is unlikely that the ECB wanted to invalidate arrangements laid out in the Pfandbrief Act with this new rule. However, in our opinion a pfandbrief bank with

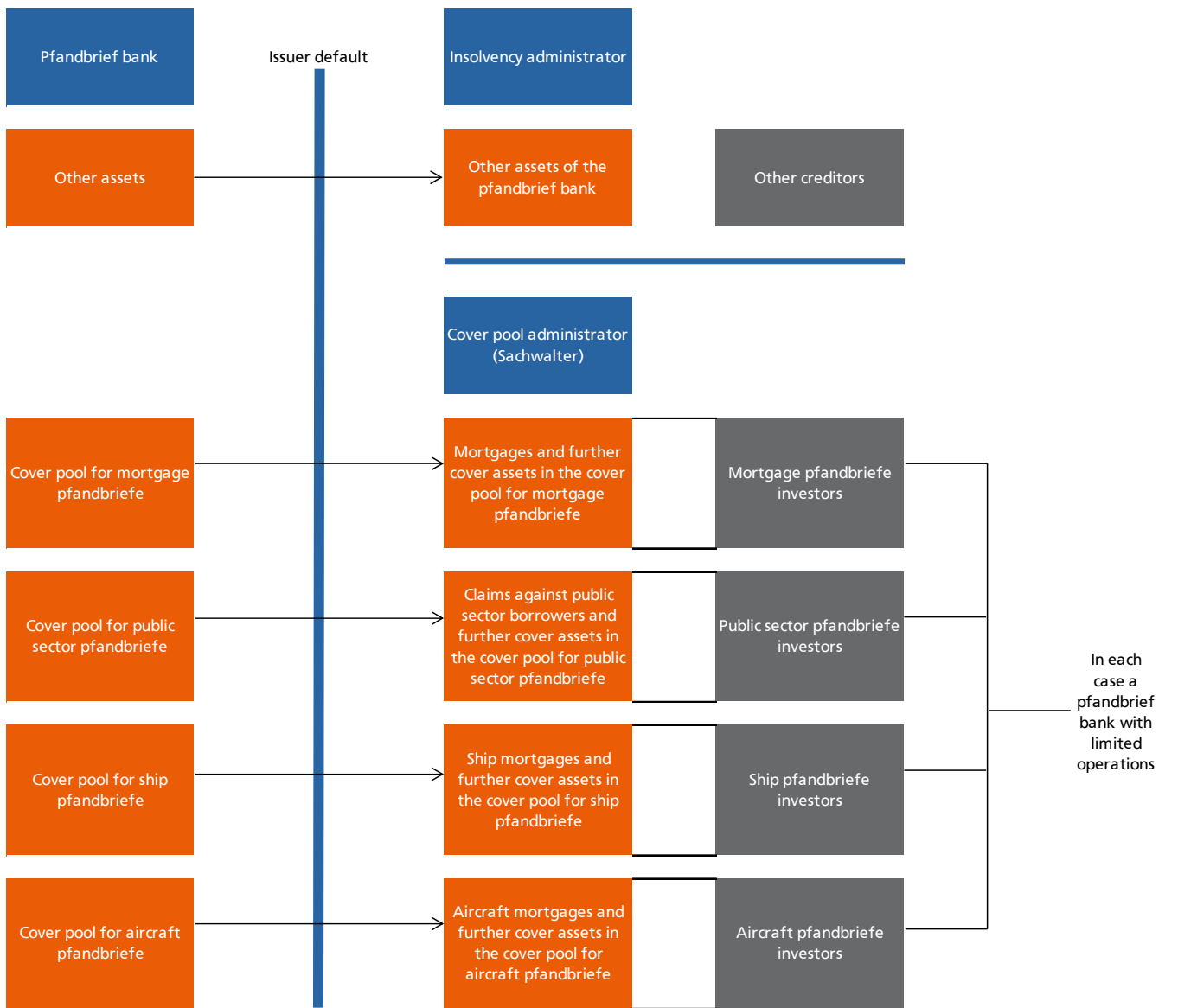
New ECB rules likely to bar administrator access to refinancing via the Bundesbank

limited business activity would fit in well with the ECB's definition of a "wind-down entity". A pfandbrief bank with limited business activities would then probably no longer meet the amended formal ECB requirements for access to central bank liquidity. The Bundesbank could then provide liquidity for the cover pool by purchasing pfandbriefe newly issued by the administrator, if the bonds were taken onto the Bundesbank's own books. As things stand at present, however, these are mere theoretical conjectures.

A more technical question concerns the operational risks that could present following the insolvency of a pfandbrief bank, namely the issue of what resources are at the disposal of the administrator in the performance of his duties. The Pfandbrief Act makes it clear that the cover pool administrator is entitled to use the pfandbrief bank's staff and infrastructure in order to fulfil his function. The cover pool shall cover any actual costs incurred. However, there is still the issue of how long it takes before the administrator can start his work and what happens to the cover pool during the transition period, especially if payments are due. The rules laid down by the Pfandbrief Act, namely the minimum over-collateralisation and the requirement to maintain 180 days of cover-pool liquidity, give the administrator a certain amount of time immediately after the start of insolvency proceedings against the pfandbrief bank and after the split of the cover assets from the rest of the pfandbrief bank's assets.

Operational risks: Who administers the cover pool?

PFANDBRIEF CREDITORS' PRIORITY IN BANKRUPTCY



Source: vdp, presentation DZ BANK Research

We believe that the regulations concerning the role of the cover pool administrator in the Pfandbrief Act target operational risks and attempt to make the administration of the cover pool as efficient as possible following the insolvency of a pfandbrief bank. For example, if a pfandbrief bank faces the threat of insolvency, BaFin is empowered to appoint a special representative who can subsequently take over the role of cover pool administrator if necessary. This special representative shall only have access to information which is intended to prepare him for the possible subsequent function of administering the pfandbrief bank with limited business activities (the insolvent pfandbrief bank's cover assets). This gives the persons involved the necessary time to work their way into the cover pool's complex administration without causing a public stir.

Special representative with information rights

The provisions of the Pfandbrief Act assign clear authorities. The responsibilities for the court decisions concerning the nomination and appointment of the cover pool administrator are defined in insolvency law. BaFin has the right to propose a candidate

Clear responsibilities

when an administrator is appointed – this can be even before the pfandbrief bank becomes insolvent. However, the actual appointment of the administrator is always reserved for the competent court, irrespective of whether the pfandbrief bank has already defaulted or not. The Pfandbrief Act also makes it clear that the cover pool administrator and the pfandbrief bank's insolvency administrator are equal partners. The pfandbrief bank's insolvency administrator has no power to dispute the cover pool administrator's actions performed in the proper course of his duties. The preamble to the law is quite clear that this is the case even if the action has the effect of reducing the insolvent pfandbrief bank's entitlements.

The Pfandbrief Act writes the cover pool administrator's entitlement to remuneration into law. The specific terms of an appropriate compensation package for services rendered and the reimbursement of outlays will be regulated by an administrative order which the Federal Ministry of Finance is empowered to issue in the Pfandbrief Act. On the other hand, the administrator is liable to the pfandbrief bank with limited business activities for any losses caused by breaches of his duties. The Pfandbrief Act also stipulates that a business decision does not constitute a breach of the administrator's duties if the administrator could reasonably assume that he was acting in the interests of the pfandbrief creditors based on appropriate information. Another provision is the administrator's power to appoint a committee of up to five members. This body of expert shall support the cover pool administrator and provide advice on complex issues where necessary. The advisory panel is a way for the administrator of avoiding the need to call on external advice on specific urgent issues. At the end of 2012, the rating agency Fitch noted on record that the administrator faces a very complex task with the resolution and/or administration of the cover pool. This slightly more critical stance in relation to previous assessments of this aspect has meant that an interim result in the context of the qualitative assessment of pfandbriefe has turned out one notch lower, although, all in all, the change did not have a negative impact on the overall valuation (see Fitch press release: "D-Cap Unchanged for 18 German Covered Bond Programmes" of 4 December 2015).

If the cover pool administrator determines, however, that it is not possible to assign the cover pool and outstanding pfandbriefe to another solvent pfandbrief bank and that the intrinsic value of the cover assets is no longer sufficient to fully satisfy the creditors' claims, then a separate insolvency procedure needs to be initiated for the cover pool. In this event, the pfandbriefe would be called in and the cover pool liquidated. The proceeds would be paid out to the pfandbrief creditors in equal parts. The Pfandbrief Act also gives the administrator the option to continue to operate an illiquid or over-indebted pfandbrief bank with limited business activities for its own account. In this scenario, BaFin now has the option - as an alternative to initiating bankruptcy proceedings over the cover pool - to order it to continue its core operations if this is in the creditors' interest (self-administration of the cover pool or Eigenverwaltung). Should the creditors committee oppose this option unanimously, the competent court would decide whether or not to uphold the continuation order.

Although running off the cover pool assets on the basis of self-administration could take longer than a normal insolvency process, recovery rates could be higher. We believe that the flexibility created by this additional option should it become necessary to wind up the cover pool is helpful as a way of avoiding a fire-sale situation due to forced liquidation. This provision serves the interests of the pfandbrief creditors in our view. These provisions are in our view very similar to the repayment structure of a conditional pass through (CPT) covered bond. Upon issuer default and in the event of an illiquid cover pool a CPT covered bond will be repaid according to the cash inflow

Advisory committee to advise cover pool administrator

Run-off of cover assets on self-administration basis a long-winded process ...

... but offers the chance of higher recovery rates like CPT covered bonds

into the cover pool. This repayment options substantially reduces the refinancing and liquidity risk for the cover pool (see also the above remarks in the section "Rating Paradox").

Residual legal risks following the insolvency of a pfandbrief bank

The options we have described above for administering the cover pool (or a pfandbrief bank with limited business activities) following the insolvency of the issuer mainly aim to mitigate operational risks and secure the pfandbrief creditors' preferential claim on the cover pool. When analysing the potential issuer insolvency scenario, rating agencies investigate the extent of the threat to the cover pool's intrinsic value in specific circumstances. In this context, we consider the following legal issues:

- » The Pfandbrief Act ensures that pfandbrief creditors have a preferential claim over the entire cover pool (including the entire over-collateralisation). As regard the liquidity of the cover pool, as we have described earlier, the issuer has to maintain the necessary over-collateralisation in the form of liquid cover assets. In addition, the 180-day rule aims to ensure that sufficient liquidity is available to cover payment obligations in connection with the cover pool during the next six months. However, the pfandbrief bank's insolvency administrator can attempt to reclaim some of this over-collateralisation. In order to do so, however, he must demonstrate to the competent court that the assets in question will clearly not be needed to satisfy the pfandbrief creditors' claims. BaFin's ability to impose individual over-collateralisation levels on pfandbrief banks now gives a further reference point for bankruptcy courts to use when coming to a decision. We believe that the hurdles in the way of a potential reassignment (claw back risk) of parts of the cover pool to the bankrupt estate of the insolvent pfandbrief bank are generally very high. They should prevent any available free over-collateralisation being automatically handed back to the pfandbrief bank's bankrupt estate.
- » Pfandbrief bank customers who have both cash on deposit at the bank and a loan from the bank could try to offset opposing (or mutual) claims against each other after the issuer's insolvency. However, the Pfandbrief Act obviates this potential set-off risk to pfandbrief creditors if for example the pfandbrief bank's cover pool assets are to be netted off against for example (due) deposits held with the insolvent bank. Cover pool assets and liabilities falling due can be netted off however; the aim in this case is to reduce the volume of the cover pool and the volume of the outstanding pfandbriefe by the same amount.
- » It is unlikely to be the norm for pfandbrief banks that all their cover pool related cash flows will be accounted for separately and booked to a separate clearing account even before the insolvency of the issuer. For this reason, the rating agencies point out that there is a risk for the cover pools that, after the insolvency of the issuer, the cover pool administrator might not have direct access to all cash flows into the cover pool. In the worst-case scenario, it could become impossible to separate cash inflows from the bankrupt estate and they could therefore become entirely lost to the cover pool. We believe that this risk is mitigated by the fact that a cover pool administrator can be appointed even before the pfandbrief bank defaults. The administrator would then have the opportunity to initiate appropriate precautionary measures such as the prompt redirection of cash flows. The Pfandbrief also makes it clear that cash inflows which replace assets in the cover pool automatically belong to the cover pool. However, this assumes that cash inflows are booked to accounts listed in the cover register for the pfandbriefe. We understand this phrasing as intended to give the pfandbrief banks the

Other issues in the context of the insolvency of a pfandbrief bank

Reassignment of cover assets (claw back risk)

Set-off risks

Commingling of cash flows

option to limit the pfandbrief creditors' potential loss risk which can arise through the irreversible commingling of cover pool receipts with the pfandbrief bank's other assets and eventual loss of the bankrupt estate, especially in the event of the bank's insolvency.

Even though the residual legal risks for pfandbrief creditors in the event of the insolvency of the issuer outlined here as examples cannot be excluded with absolute certainty, there are nevertheless regulations in the Pfandbrief Act which limit these risks and contribute to avoiding them at best. In our view, these are quality features of the legal framework of German pfandbriefe.

Our assessment

The Pfandbrief Act offers pfandbrief creditors a high level of protection – including by international standards. This helps explain why the pfandbrief is currently one of the safest investments available. We also believe that the rest of the financial sector would probably provide mutual support in the event of a pfandbrief bank getting into difficulties, since protecting the pfandbrief "brand" would be very much in the interests of German banks.

Repeated revisions of the Pfandbrief Act since its creation in 2005 underline the fact that the German legislator is prepared to respond to changing general conditions and to adjust the legal framework governing German pfandbriefe promptly. This phenomenon is nothing new, merely a continuation of established practice since the introduction of the Mortgage Bank Act. However, the frequency of changes to the Pfandbrief Act has increase compared to the frequency of amendments implemented during the reign of the Mortgage Bank Act. At the same time, it is a good thing in our view that, so far, the legislator has regularly reviewed the legal framework and, where necessary, realigned it to a continually changing regulatory environment and new market standards. The harmonisation of European covered bond laws under discussion has led to a certain need to adapt the German Pfandbrief Act in order to ensure the status of mortgage pfandbriefe, public sector pfandbriefe and ship pfandbriefe as European Covered Bonds (Premium). From our point of view this proves that the regular amendments to Pfandbrief Act will result in a modern framework that complies with current international standards and can even be regarded as a model for this.

Provisions against residual legal risks

Pfandbrief Act offers very high level of protection

Adaptability of German pfandbrief a strength

SUMMARY PFANDBRIEF ACT

Covered bond categories	Mortgage pfandbriefe, public sector pfandbriefe, ship pfandbriefe, aircraft pfandbriefe
Issuers	Universal banks holding a pfandbrief license
Specialist banks principle	No
Special public supervision	Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)
Independent, periodic cover pool monitoring	Yes (trustee/Treuhänder)
Main categories of permitted "regular" cover assets	Depends on pfandbrief category: mortgage loans, public sector loans, ship finance or aircraft finance
Other permitted cover assets	For all pfandbrief categories: claims on the ECB, central banks and other qualifying financial institutions (up to 10 per cent), derivatives Additionally for mortgage, ship and aircraft pfandbriefe: claims on public sector entities (up to 20 per cent including asset types named above)
Geographical restrictions on cover assets	Public sector pfandbrief: EEA, Switzerland, USA, Canada, Japan Mortgage pfandbrief: EEA, Australia, Canada, Japan, New Zealand Singapore, Switzerland, USA Aircraft pfandbrief, ship pfandbrief: no restrictions
Loan-to-value (LTV) ceilings	Residential mortgages: 60 per cent Commercial mortgages: 60 per cent Ship mortgages: 60 per cent Aircraft mortgages: 60 per cent
Basis for calculating LTV	Mortgage lending value
Do covered bond creditors have a prior claim on the portions of loans in excess of the LTV ceiling?	No
Specific cover regulations	Aggregate claims on a single credit institution may not exceed 2 per cent of outstanding pfandbrief volume Present value of derivatives: max. 12 per cent Cap on pool share of non-EEA countries that do not guarantee priority of pfandbrief creditors in bankruptcy: max. 10 per cent
Statutory minimum over-collateralisation	2 per cent (in present-value terms in stress test context)
Do covered bond creditors also have a prior claim on cover assets in excess of the statutory minimum over-collateralisation?	Yes
Issuance cap	No
Cover calculation/matching and liquidity rules	Present-value and nominal cover required, issuer must maintain a 180-days liquidity buffer
Stress test included in cover calculation rules?	Yes
Special regulations governing covered bond repayment modalities*	No
Treatment of covered bonds in insolvency event	Servicing continues as per issue T&Cs

Source: European Covered Bond Council (ECBC), DZ BANK Research

REGULATORY TREATMENT OF GERMAN PFANDBRIEFE

Covered bonds and therefore also pfandbriefe are more and more recognised worldwide. In its revision of the Basel III accord, the Basel Committee on Banking Supervision (the Basel Committee) makes provision for privileged capital status for covered bonds, bringing it in line with European banking law ("Basel III: Finalising post-crisis reforms" of December 2017). This means that, under the credit risk standardised approach, a lower risk weight will apply in future to a covered bond than to senior unsecured bank debt. The Basel Committee's formulations are largely based on European banking law. The UCITS criteria have formed the basis for the definition of the covered bond concept in the Basel III rules. For the covered bonds to qualify for privileged treatment, the cover pool may contain only claims on public sector entities or mortgage loans. No mention is made of ship or aircraft loans. Up to 15 per cent of the cover pool may nevertheless consist of claims on financial institutions if the risk weight does not exceed 30 per cent. Duties of disclosure are also formulated for the covered bond programme, which are in line with those contained in the European Capital Requirements Regulation (CRR). However, one aspect of the Basel Committee's criteria goes beyond the applicable European law: nominal over-collateralisation of 10 per cent must be maintained at all times for a covered bond which qualifies for privileged status. The Basel Committee is thus sticking to its principles here. Very similar criteria, including the 10 per cent over-collateralisation requirement, were also already formulated in April 2014 as a precondition for assigning a reduced exposure value to covered bonds when calculating large exposures.

Revised Basel III accord makes provision for privileged capital status for covered bonds and is thus based on European standards

German pfandbriefe meet the requirements of article 52(4) of the Directive regulating Undertakings for Collective Investment in Transferable Securities (UCITS). Pfandbriefe are also eligible in principle for use as collateral for funding operations with the ECB. With the exception of aircraft pfandbriefe, all other categories of pfandbriefe also meet the criteria defined by the CRR. In principle, banks can use any type of pfandbrief for their liquidity portfolios in the context of the Liquidity Coverage Ratio (LCR), assuming the bonds meet specific requirements, e.g. in relation to issue volume and ratings. On 22 September 2017, the EBA issued a statement (Single Rulebook Q&A) saying that covered bonds secured by aircraft loans do not meet the requirements for eligibility as high-quality assets in the context of calculating the LCR (neither as Level 1 assets or Level 2A or Level 2B assets). The EBA's interpretation would mean that the requirements for preferential treatment always had to be met in order for covered bonds to be eligible for LCR purposes. In our view, however, this does not conform to the underlying LCR rules. A fundamental requirement for LCR eligibility in Article 10(1)(f)(i) LCR Regulation is that covered bonds should meet the general requirements of Article 52(4) of the UCITS Directive or meet the prerequisites for preferential treatment as per paragraph 4 or 5 of Article 129 CRR. This "or" rule would no longer have any meaning whatsoever if the EBA interpretation were applied. There is another curious rule. In principle, aircraft, mortgage and ship pfandbriefe qualify as high-quality liquid assets (HQLA) so long as they are rated at least A3 or A-. If the rating for aircraft and ship pfandbriefe along with mortgage pfandbriefe, which are partly secured by commercial property loans, falls below this threshold, then a classification in the HQLA 2B category is still possible. Financings for aircraft, commercial real estate or ships are explicitly excluded from HQLA category 2B.

Criteria of UCITS and CRR/CRD met

SUMMARY OF THE REGULATORY TREATMENT OF PFANDBRIEFE

Relevant regulation	Treatment/assessment of Pfandbriefe
Criteria of article 52 (4) UCITS directive satisfied?	Yes
Do the cover assets meet the criteria of article 129 (1) CRR?	Yes (mortgage pfandbriefe, public sector pfandbriefe, ship pfandbriefe), No (aircraft pfandbriefe)
LCR eligible in principle?	Yes, but pfandbriefe backed by aircraft, commercial property or ship financings and rated lower than A3 or A-, are not HQLAs.
ECB eligible in principle?	Yes

Source: DZ BANK Research

Article 129 CRR regulates under what circumstances investors in the banking sector may apply a privileged risk weight when calculating their regulatory capitalisation requirement (credit risk standard approach). In the first paragraph of this article, a conclusive list is given of those assets which may be included in the cover pool for a privileged treatment of the covered bonds to be possible in principle. Aircraft loans are not included in the assets listed in article 129 CRR.

In addition, in order for the covered bonds ultimately to qualify for a privileged risk weight, investors must also be in a position to demonstrate that they have access to information on the cover assets which is updated at least half-yearly. According to the vdp, the transparency requirements of the Pfandbrief Act should meet CRR requirements.

Definition of cover assets

Transparency requirements must also be met

PFANDBRIEFE ARE GILT-EDGE (MÜNDELSICHER) INVESTMENTS UNDER GERMAN LAW

German law authorises certain forms of "gilt-edged" investments as safe destinations for the funds of wards of court and require their trustees/guardians to use these gilt-edge (mündelsicher) investments. The treatment of such funds is regulated in §1805 following of the German Civil Code (Bürgerliches Gesetzbuch). All assets are defined as gilt-edged where the legislature considers the possibility of losses of the investment to be virtually excluded. These include sovereign bonds along with German Pfandbriefe.

Up to 1940, the regulation in Germany for this gilt-edge aspect of pfandbriefe was uneven. The Regulation of 7 May 1940 on trustee/gilt-edge investments recognised all pfandbriefe and public-sector bonds in Germany as gilt-edge investments. Prior to that, there had been differences between pfandbriefe from southern and northern Germany issuers. In the South, all the pfandbriefe of most mortgage banks were recognised as gilt-edge, but public-sector bonds only in exceptional cases. In contrast, in the North, most public-sector bonds enjoyed that privilege, but it only allowed the mortgage banks' pfandbriefe in exceptional cases.

Source: Bellinger/ Kerl (1995) "Hypothekenbankgesetz – Kommentar"

GLOSSARY OF PFANDBRIEFE

Pfandbriefe and covered bonds prior to the introduction of the Pfandbrief Act (up to 2005)

Güterpfandbriefe (pfandbriefe on a specific property), pfandbriefe issued by "Landschaften"	Güterpfandbriefe (pfandbriefe on a specific property) were issued at the end of the 18th century by Landschaften (cooperative of noble landowners such as the Silesian Landschaft). Initially, Landschaften were compulsory public-law cooperatives of noble landowners with large estates (Rittergüter) in a particular region (e.g. Silesia or Eastern Prussia). The Landschaften helped their members access credit by issuing pfandbriefe which were then handed out to borrowers and sold on by them to creditors. The Landschaft guaranteed the pfandbriefe which were issued for which in turn all the members (initially) stood as guarantors jointly and severally. The credit framework for each individual member was dependent on the respective earning power of that member's estate who could lend up to half its value.
Pfandbriefe issued by "Stadtschaften"	In the 19th century, "Stadtschaften" also emerged modelled on the Prussian Landschaften. These Stadtschaften were an association including urban house owners among others. The local Stadtschaften were regrouped in the Prussian Central Stadtschaft in order to better coordinate their pfandbrief issues. Looking back, this is a precursor of the pooling idea.
Pfandbriefe issued by "Industrieschaften"	"Industrieschaften" in turn copied the model of the Landschaften and Stadtschaften. They were associations of small and medium-sized enterprises which aimed to provide funding for their members through the issue of pfandbriefe. In the end, however, this precursor of SME covered bonds could not gain a foothold.
Rentenbriefe	Agricultural reforms in Prussia in the early 19th century were aimed at enabling farmers to buy their freedom from compulsory labour and other obligations towards the landowners. However, farmers often lacked the necessary means. A solution to this problem was offered by the Rentenbanken which date from the same time with the issue of tradable "Rentenbriefe" or annuity bonds, which were handed over to the landowners as a form of compensation. The farmers paid interest and principal to the Rentenbanken, with which the latter in turn serviced the Rentenbriefe. Rentenbriefe differ significantly from Güterpfandbriefe in so far as they did not envisage compulsory membership of all farmers in a specific region who would be jointly and severally liable for each other. Farmers were free to decide to sign an agreement with the Rentenbank and were only liable for their own debt to the Rentenbank which in turn were liable to the bondholders. This fundamental innovation was also used by the mortgage banks which sprang up at the same time and gradually also established itself with the Landschaften.
Pfandbriefe issued by mortgage banks under the Mortgage Bank Act (HBG)	In the mid-19th century, mortgage banks developed as limited companies which were allowed to issue pfandbriefe. In general, the mortgage banks lending business was strictly limited and concentrated on property financing. There were also mixed mortgage banks with a broader spectrum of activities. Any pfandbriefe issued always had to be covered to a sufficient degree by mortgage loans. The Mortgage Bank Act was passed in 1899 under the German Reich in order to standardise the legal principles for pfandbriefe; the act came into force on 1 January 1900. The HBG was only replaced by the Pfandbrief Act on 19 July 2005. The trademark "pfandbrief" was first registered in 1930. Rules were approved in 1940 making pfandbriefe gilt-edge instruments.
Public-sector bonds (Kommunalschuldverschreibungen) or pfandbriefe under the Act relating to Pfandbriefe and Similar Instruments issued by Public Credit Institutions (ÖPG)	Mortgage banks have issued municipal bonds (Kommunalschuldverschreibungen) since the end of the 19th century for the purpose of funding loans to the public sector. In this manner, the special credit institutions opened up a new business activity. There were also issuers of municipal bonds which were could be involved in a much broader spectrum of credit activities than the mortgage banks which were regulated by law (including industrial loans). These banks also issued pfandbriefe which became the object of a debate in the 1920s under the heading "Pfandbrief ohne Pfand (or pfandbrief without pledge). Ultimately, this debate led to the Act relating to Pfandbriefe and Similar Instruments issued by Public Credit Institutions (ÖPG) of 21 December 1927 which was replaced from 19 July 2005 by the Pfandbrief Act. Key provisions in the ÖPG are modelled on the HBG. The ÖPG made provisions for matching cover of loans and issued covered bonds, for a cover register to be kept and for the preferential claim of bondholders in the event of a default of the issuer.
Pfandbriefe under the Ship Banking Act (SchBG)	The Ship Banking Act was approved on 14 August 1933; the Act regulated the issue of pfandbriefe backed by ship mortgages; it was replaced by the Pfandbrief Act on 19 July 2005.
Liquidation-gold pfandbriefe (liquidation pfandbrief or Liquidationspfandbrief)	After hyperinflation in Germany had been overcome in 1923, the value of mortgages and bond claims was raised by law, in order slightly to offset the huge losses incurred by bondholders after the devaluation of the currency. The value of pfandbriefe was raised slightly more than that of other asset classes, as a result of which, pfandbrief holders suffered slightly smaller losses. However, pfandbrief issuers were unable to compensate the increase in value of the old issue immediately in cash. Holders of the old pfandbriefe received liquidation pfandbriefe in compensation, which were paid interest and repaid after a few years.

Source: "Der Pfandbrief 1769-2019 - Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

Modern pfandbriefe as per Pfandbrief Act (post 2005)

Aircraft pfandbriefe	Only claims secured by registered liens on aircraft or foreign aircraft mortgages may be used as cover for aircraft pfandbriefe. The legal basis was set out in the Pfandbrief Act in 2009.
Mortgage pfandbriefe	Only mortgages may be used as cover for mortgage pfandbriefe insofar as they meet the requirements of the Pfandbrief Act. They are the oldest type of pfandbrief.
Public sector pfandbriefe	The Pfandbrief Act defines the debtors (public-sector bodies and public institutions) whose claims may be used in the cover pool for public pfandbrief. The term "public sector pfandbrief" was first coined at the beginning of the 1990s and was aimed at making a clear distinction in relation to mortgage pfandbriefe. The terms commonly used before that were "Kommunalobligation" or "Kommunalschuldverschreibungen" (public-sector bonds or municipal bonds).
Ship pfandbriefe	Only loan claims which are secured by ship mortgages may be used as cover for ship pfandbriefe insofar as they meet the requirements set out in the Pfandbrief Act. Today's ship pfandbriefe go back to the pfandbriefe under the Ship Banking Act of 1933.

Source: "Der Pfandbrief 1769-2019 - Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

Market relevant criteria for pfandbriefe

All the pfandbriefe shown in the table below only differ in terms of the format of their issue and are subject to the same collateral requirements. As explained in detail in the section on the Pfandbrief Act, all pfandbriefe of a specific type (e.g. mortgage pfandbriefe) from a particular issuer are collateralised against the same cover pool.

Bearer pfandbriefe	Bearer pfandbriefe are freely tradable securities and can be securitised by a certificate. The transfer of a bearer pfandbrief does not require the prior approval of the issuer.
Registered pfandbriefe	Registered pfandbriefe differ from bearer pfandbriefe in so far as they are issued individually in line with the needs of investor and issued in the latter's name. Consequently, they are not fungible and any transfer to other investors is an onerous task.
Traditional pfandbriefe	Traditional pfandbriefe have an issue volume of under EUR 500m. Unlike in the case of benchmark or jumbo pfandbriefe, there is no market-making on offer involving at least three banks. Other so-called sub-benchmarks also come under this label; these have an issue volume of at least EUR 250m - a relevant issue size for the minimum liquidity ratio. As a rule, this category includes privately placed bonds, among which not least registered pfandbriefe.
Benchmark pfandbriefe	Benchmark pfandbriefe have an issue volume of at least EUR 500m and are placed publicly. The syndicate of banks which manages the placement is committed to quote bid and ask prices on demand, also for the time after the new issue has been launched. Benchmark pfandbriefe with an issue volume of EUR 1bn or over are called "jumbo" pfandbriefe. Benchmark pfandbriefe became popular in the wake of the ECB's first covered bond purchase programme (CBPP1) and were also called "Jumbolinos" at the beginning. Markit includes euro-denominated benchmark pfandbriefe (or benchmark covered bonds) in its iBoxx € Covered Index if they have a minimum maturity of over one year and an investment grade rating.
Jumbo pfandbriefe	The minimum size of jumbo pfandbriefe is EUR 1bn and they are placed publicly. The syndicate of banks involved in the placement of such pfandbriefe are committed to provide bid and ask price, also for the time after the new issue has been launched. Like benchmark pfandbriefe, jumbo pfandbriefe also qualify for inclusion in the iBoxx € Covered Index for example, if they also meet relevant criteria regarding the minimum maturity and rating.
Sub-benchmark pfandbrief	The size of sub-benchmark pfandbriefe is less than EUR 500m but at least EUR 250m. This minimum level is important in the context of rules about the minimum liquidity ratio of banks, because, under certain conditions such as rating, covered bonds with an issue volume of at least EUR 250m can qualify as Level 2A assets.
Foreign-currency pfandbriefe	Typically, pfandbriefe tend to be denominated in euro, the official currency in Germany. However, they can also be denominated in other currencies. Non-euro-denominated pfandbriefe are also called foreign currency pfandbriefe from the German point of view.
Zero-coupon pfandbriefe	Interest is paid for depositing money, and in the case of bonds such as pfandbriefe, interest is in the form of a coupon (fixed or variable rate). For pfandbriefe with a coupon of 0 per cent (or a zeron coupon), attracting investors for the money handed over for the duration of the pfandbrief is the difference between the issue price at the time of purchase or issue and the repayment amount at the maturity of the pfandbrief. In view of generally very low interest rates since 2019, situations could arise in which the pfandbriefe are issued above par and repaid at par even though there was no coupon payment during the lifetime of the bond. In such cases, the pfandbrief's (issue) yield is negative. The advantage for investors is merely that other similar forms of investment lead to higher losses.

Source: Verband deutscher Pfandbriefbanken, DZ BANK Research

Pfandbriefe with a societal impact

ESG pfandbrief	Issue proceeds from ESG pfandbriefe are only used to finance public-sector projects or property financings which meet a fairly broad definition of sustainability criteria (environmental, social & governance, ESG). The cover used for these pfandbriefe is the same as in the case of all other bonds of this type.
Green pfandbrief	The Verband deutscher Pfandbriefbanken holds the right to the trademark "Grüner Pfandbrief" or "Green pfandbrief" (www.gruener-pfandbrief.de). To date there have only been green mortgage pfandbriefe and the proceeds from these issues have mainly been used to finance especially energy-efficient buildings. Like ESG pfandbriefe, green pfandbriefe relate to the same cover pool as all other bonds of the same type.
Rentenbriefe	See above under "Pfandbriefe and covered bonds prior to the introduction of the Pfandbrief Act (up to 2005)"
Social pfandbriefe	Social pfandbriefe were pfandbriefe and public-sector bonds of which 90 per cent of the proceeds were used to promote social housing construction. They were used in the post-war era to alleviate the housing shortage in Germany. Interest on social pfandbriefe was made tax-free in 1952 with the first Act to Promote the Capital Market. These tax-advantaged social pfandbriefe have all been repaid already.

Source: "Der Pfandbrief 1769-2019 - Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

Special repayment agreements for pfandbriefe in last 250 years

Pfandbriefe with termination rights	If the necessary agreements are made at the time of the issue of the bond, issuers can repay their bond before it matures. This termination option has been available for a long time. In the past, it was used to help manage matching maturities between the refinancing of the mortgage bank and its lending business (back then, pfandbriefe with a 50-year maturity were not unusual). Calling partial amounts of the volume outstanding of a pfandbrief was also possible, whereby repayments to individual series were determined by random selection. In the 19th century, there were also pfandbriefe with holder termination rights (to make the pfandbrief more attractive). However, termination rights are no longer allowed in the case of modern pfandbrief holders in order to protect the issuer's liquidity and that of the cover pool.
Redemption pfandbriefe	Under an old rule in the Mortgage Bank Act, for a suitable share of newly issued pfandbriefe, repayment had to begin after one third of the term of the bonds had elapsed. A share of 40% was regarded as appropriate and it could also include pfandbriefe with an original maturity of less than 15 years. This rule was therefore of no practical relevance.
Gold pfandbriefe along with grain pfandbriefe on rye and wheat	In the case of some pfandbriefe dating back from the period of hyperinflation in Germany in the 1920s, the repayment amount of the bond was pegged to the value of a specific amount of gold or grain types such as rye and wheat in order to ensure that the pfandbrief kept its value in real terms. The pfandbriefe were securitised by mortgage loans, as usual.
Bonus pfandbriefe	Bonus pfandbriefe were repaid during their life based on a fixed repayment and bonus plan. In addition to the regular capital repayments, there were annual prize draws in which specific series of outstanding pfandbriefe were identified which then received a bonus payment. The aim of the lottery was to promote the attraction of pfandbriefe against sovereign bonds in order to increase the sale of pfandbriefe. The issue of bonus pfandbriefe was banned in 1871.
Premium pfandbriefe and index pfandbriefe	In the case of premium pfandbriefe, the bonds' redemption value exceeds their nominal or face value. Prior to the introduction of the Mortgage Bank Act, there were pfandbriefe which were repaid with a premium of 10 to 20% against the nominal value upon termination. However, premium pfandbriefe were banned with the introduction of the Mortgage Bank Act. Pfandbriefe with a step-up-coupon, however, are still allowed. In addition, according to the Mortgage Bank Act, indexed pfandbriefe are also permissible for which the redemption value is higher than the nominal value, so long as the maximum redemption value is known at the time of issue.
Existing savers' (Altsparer) pfandbriefe	After WWII, pfandbriefe as well as cash were devalued based on a ratio of 10:1 through the currency reform in 1948 in the western German occupied zone. The gains of mortgage debtors through the devaluation of the loan claims were confiscated by law and put towards the general equalisation of the war burden (Lastenausgleich). Consequently, part of the intrinsic value of the properties underlying the cover pool for the mortgage pfandbriefe as collateral was withdrawn. To offset this, existing savers (i.e. those with holdings at 1 January 1940) received compensation of 10%. Bonds which had been converted and were still denominated in Reichsmark were combined into Altsparerpfandbrief series and were moreover exempt from tax. In exchange for the compensation paid to former investors, the mortgage banks received claims on the state (central government body).

Source: "Der Pfandbrief 1769-2019 - Von der preußischen Finanzinnovation zur Covered Bond Benchmark", DZ BANK Research presentation

OVERVIEW: EURO-BENCHMARK-PFANDBRIEFE

We have included all DZ HYP's euro denominated pfandbriefe with an individual issuance volume of at least EUR 250m. All these pfandbriefe are hard bullet.

EURO-BENCHMARK-PFANDBRIEFE (WITH AN ISSUANCE VOLUME OF AT LEAST EUR 500M)

As of 2 September 2019	ISIN	Pfandbrief type	Due date	Coupon (in per cent)	Volume (EUR m)	Indicative swap spreads (in basis points)	LCR-Category
DZ HYP	DE000A12UGK4	Public sector pfandbrief	20.11.2019	0.250%	500	-28	1
DZ HYP	DE000A1REYW6	Mortgage pfandbrief	29.01.2020	1.375%	500	-16	1
DZ HYP	DE000A1R1CU6	Mortgage pfandbrief	29.05.2020	1.125%	500	-11	1
DZ HYP	DE000A12T606	Mortgage pfandbrief	21.01.2021	0.250%	500	-5	1
DZ HYP	DE000A11QBA6	Mortgage pfandbrief	21.07.2021	0.875%	500	-6	1
DZ HYP	DE000A1MLZQ1	Mortgage pfandbrief	29.03.2022	2.500%	500	-5	1
DZ HYP	DE000A14KK32	Mortgage pfandbrief	29.07.2022	0.500%	500	-5	1
DZ HYP	DE000A14KKJ5	Mortgage pfandbrief	30.09.2022	0.125%	500	-4	1
DZ HYP	DE000A161ZU5	Mortgage pfandbrief	24.03.2023	0.200%	500	-4	1
DZ HYP	DE000A2G9HC8	Mortgage pfandbrief	30.06.2023	0.250%	500	-5	1
DZ HYP	DE000A161ZL4	Mortgage pfandbrief	27.10.2023	0.625%	500	-4	1
DZ HYP	DE000A2BPJ45	Mortgage pfandbrief	01.03.2024	0.125%	500	-4	1
DZ HYP	DE000A13SWZ1	Mortgage pfandbrief	05.06.2024	0.625%	500	-5	1
DZ HYP	DE000A12UGG2	Mortgage pfandbrief	18.09.2024	1.125%	750	-4	1
DZ HYP	DE000A2AAW12	Mortgage pfandbrief	06.12.2024	0.050%	500	-5	1
DZ HYP	DE000A2AASB4	Mortgage pfandbrief	06.06.2025	0.375%	750	-3	1
DZ HYP	DE000A2G9HE4	Mortgage pfandbrief	13.11.2025	0.500%	1,000	-5	1
DZ HYP	DE000A161ZQ3	Mortgage pfandbrief	02.02.2026	0.750%	875	-4	1
DZ HYP	DE000A14KKM9	Mortgage pfandbrief	31.03.2026	0.375%	500	-4	1
DZ HYP	DE000A2BPJ78	Mortgage pfandbrief	16.06.2026	0.500%	500	-2	1
DZ HYP	DE000A2AAX45	Mortgage pfandbrief	31.08.2026	0.100%	500	-4	1
DZ HYP	DE000A2AAW53	Mortgage pfandbrief	30.09.2026	0.500%	500	-3	1
DZ HYP	DE000A14J5J4	Mortgage pfandbrief	01.04.2027	0.500%	750	-4	1
DZ HYP	DE000A2G9HD6	Mortgage pfandbrief	30.06.2027	0.750%	500	-2	1
DZ HYP	DE000A2BPJ86	Mortgage pfandbrief	30.08.2027	0.625%	750	-3	1
DZ HYP	DE000A2G5P56	Mortgage pfandbrief	22.03.2028	0.875%	750	-1	1
DZ HYP	DE000A2G9HL9	Mortgage pfandbrief	30.01.2029	0.875%	750	-1	1
DZ HYP	DE000A2TSDV6	Mortgage pfandbrief	29.06.2029	0.050%	750	-3	1
DZ HYP	DE000A13SR38	Mortgage pfandbrief	18.01.2030	0.875%	750	-1	1
DZ HYP	DE000A2NB841	Mortgage pfandbrief	17.04.2034	0.875%	500	0	1

Source: Bloomberg, DZ BANK Research

SUB-BENCHMARK-PFANDBRIEFE (BONDS WITH A VOLUME OF AT LEAST EUR 250M, BUT LESS THAN EUR 500M)

As of 2 September 2019	ISIN	Pfandbrief type	Due date	Coupon (in per cent)	Volume (EUR m)	Indicative swap spreads (in basis points)	LCR-Category
DZ HYP	DE000A2BPJ60	Public sector pfandbrief	26.02.2025	0.625%	250	0	2A
DZ HYP	DE000A2BPJ60	Public sector pfandbrief	23.03.2037	1.375%	250	14	2A

Source: Bloomberg, DZ BANK Research

I. Imprint

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Published by:

DZ HYP AG

Hamburg Head Office

Rosenstrasse 2, 20095 Hamburg
Phone +49 40 3334-0

Münster Head Office

Sentmaringer Weg 1, 48151 Münster
Phone +49 251 4905-0

Homepage: www.dzhyp.de

E-Mail: info@dzhyp.de

Represented by the Board of Managing Directors:

Dr. Georg Reutter (CEO), Dr. Carsten Düerkop, Manfred Salber

General Executive Managers: Jörg Hermes, Artur Merz, Markus Wirsén

Chairman of the Supervisory Board: Uwe Fröhlich

Head office of the company:

Registered as public limited company in Hamburg,
Commercial Register HRB 5604 and Münster, Commercial Register HRB 17424

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VAT ident. no.: DE 811141281

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Responsible for the contents:

Anke Wolff, Head of Communications,
Marketing & Investor Relations

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DZ HYP OFFICES

Hamburg Head Office

Rosenstrasse 2
20095 Hamburg
PO Box 10 14 46
20009 Hamburg
Telephone +49 40 3334-0

Münster Head Office

Sentmaringer Weg 1
48151 Münster
Mailing address:
48136 Münster
Telephone +49 251 4905-0

Regional Centres

Berlin Regional Centre

Pariser Platz 3
10117 Berlin, Germany
Phone +49 30 31993-5101
(Commercial Real Estate Investors)
Phone +49 30 31993-5080
(Housing Sector)
Phone +49 30 31993-5086
(Retail Customers/Private Investors)

Dusseldorf Regional Centre

Ludwig-Erhard-Allee 20
40227 Dusseldorf, Germany
Phone +49 211 220499-30
(Commercial Real Estate Investors)
Phone +49 251 4905-3830
(Housing Sector)
Phone +49 211 220499-5832
(Retail Customers/Private Investors)

Munich Regional Centre

Türkenstrasse 16
80333 Munich, Germany
Phone +49 89 512676-10
(Commercial Real Estate Investors)
Phone +49 89 512676-42
(Housing Sector)
Phone +49 89 512676-41
(Retail Customers/Private Investors)

Hamburg Regional Centre

Rosenstrasse 2
20095 Hamburg, Germany
Phone +49 40 3334-3778
(Commercial Real Estate Investors)
Phone +49 40 3334-4704
(Housing Sector)
Phone +49 40 3334-4706
(Retail Customers/Private Investors)

Frankfurt Regional Centre

CITY-HAUS I, Platz der Republik 6
60325 Frankfurt/Main, Germany
Phone +49 69 750676-21
(Commercial Real Estate Investors)
Phone +49 211 220499-5833
(Housing Sector)
Phone +49 69 750676-12
(Retail Customers/Private Investors)

Stuttgart Regional Centre

Heilbronner Strasse 41
70191 Stuttgart, Germany
Phone +49 711 120938-0
(Commercial Real Estate Investors)
Phone +49 89 512676-42
(Housing Sector)
Phone +49 711 120938-38
(Retail Customers/Private Investors)

Regional Offices

Hanover Regional Office

Berliner Allee 5
30175 Hanover, Germany
Phone +49 511 86643808

Mannheim Regional Office

Augustaanlage 61
68165 Mannheim, Germany
Phone +49 621 728727-20

Schwäbisch Gmünd Regional Office

Maiglöckchenweg 12
73527 Schwäbisch Gmünd, Germany
Phone +49 7171 8077230

Kassel Regional Office

Rudolf-Schwander-Strasse 1
34117 Kassel, Germany
Phone +49 561 602935-23

Münster Regional Office

Sentmaringer Weg 1
48151 Münster, Germany
Phone +49 251 4905-7314

Leipzig Regional Office

Schillerstrasse 3
04109 Leipzig, Germany
Phone +49 341 962822-92

Nuremberg Regional Office

Am Tullnaupark 4
90402 Nuremberg, Germany
Phone +49 911 94009816

Institutional Clients

Rosenstrasse 2
20095 Hamburg, Germany
Phone +49 40 3334-2159

Public-Sector Clients

Sentmaringer Weg 1
48151 Münster, Germany
Phone +49 251 4905-3333

DZ HYP AG

**Rosenstrasse 2
20095 Hamburg
Germany
Phone +49 40 3334-0**

**Sentmaringer Weg 1
48151 Münster
Germany
Phone +49 251 4905-0**

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