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CREDIT OPINION

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Deutsche Pfandbriefbank AG - Mortgage Covered Bonds

Update to New Issue Report, reflecting data as of 31 March 2019 - German covered bonds

Ratings

Exhibit 1

Cover Pool (€)	Ordinary Cover Pool Assets	Covered Bonds (€)	Rating
19,855,385,490	Commercial mortgage loans	17,159,274,896	Aa1

Source: Moody's Investors Service

Summary

The covered bonds issued by Deutsche Pfandbriefbank AG (the issuer) under the Deutsche Pfandbriefbank AG - Mortgage Covered Bonds programme are full recourse to the issuer and are secured by a cover pool of assets consisting of commercial assets (73.7%), multi-family assets (19.4%), supplementary assets (6.8%) and residential assets (0.1%).

Credit strengths include the full recourse of the covered bonds to the issuer and support provided by the German legal framework for *Pfandbriefe*, which provides for the issuer's regulation and supervision.

Credit challenges include the high level of dependency on the issuer. As with most covered bonds in Europe, there are few restrictions on the future composition of the cover pool. 56.4% of the commercial mortgages have bullet repayment.

Our credit analysis takes into account the cover pool's credit quality, which is reflected in the collateral score of 6.8%, and the current over-collateralisation (OC) of 17.1% (on an unstressed present value basis) as of 31 March 2019.

Credit strengths

» ***Recourse to the issuer***: The covered bonds are full recourse to the issuer (Unpublished CR Assessment). (See "Covered bond description")

» ***Support provided by the German legal framework***: The covered bonds are governed by the German *Pfandbrief* Act, which provides for the issuer's regulation and supervision and sets certain minimum requirements for the covered bonds and the cover pool. (See "Moody's related publications: Covered Bond Legal Frameworks")

- ***High credit quality of the cover pool***: The covered bonds are supported by a cover pool of high-quality assets. The cover pool consists of commercial assets (73.7%), multi-family assets (19.4%), supplementary assets (6.8%) and residential assets (0.1%). The collateral quality is reflected in the collateral score, which is currently 6.8%. (See "Cover pool analysis")
- ***Refinancing risk*:** Following what we call a covered bond (CB) anchor event, refinancing risk would be mitigated by a well-established and deep market for German *Pfandbriefe*, as well as the liquidity-matching requirements. A CB anchor event occurs when the issuer, or another entity within the issuer group that supports the issuer, ceases to service the payments on the covered bonds. The liquidity matching requirement for the next 180 days also reduce refinancing risk. (See "Covered bond analysis")
- ***Interest rate and currency risks***: Interest rate risk is mitigated by the 2% OC requirement, which has to be maintained in stressed market conditions (that is, yield curve movements and changes in the relevant exchange rates). The currency of the cover assets and the outstanding covered bond are reasonably well matched. The vast majority of the assets (71.5%) and liabilities (77.7%) are denominated in Euros. (See "Covered bond analysis")
- ***Provisions for a cover pool administrator***: Following an issuer default, the covered bondholders would benefit from a cover pool administrator (the *Sachwalter*) that acts independently from the issuer's insolvency administrator. Furthermore, if the German banking regulator BaFin deems it necessary, the *Sachwalter* may be appointed ahead of any issuer default. (See "Covered bond analysis")

Credit challenges

- ***High level of dependency on the issuer:*** As with most covered bonds, before the insolvency of the issuer, the issuer can materially change the nature of the programme. For example, the issuer can add new assets to the cover pool, issue new covered bonds with varying promises and enter into new hedging arrangements. Also similar to most covered bonds in Europe, this programme has few restrictions on the future composition of the cover pool. These changes could affect the credit quality of the cover pool as well as the overall refinancing and market risks. Further, if the quality of the collateral deteriorates below a certain threshold, the issuer would have the ability, but not the obligation, to increase the OC in the cover pool. (See "Covered bond analysis")
- ***Market risks***: Following a CB anchor event, covered bondholders, to achieve timely principal payment, might need to rely on proceeds raised through the sale of, or borrowing against, the cover pool assets. The market value of these assets may be subject to high volatility after a CB anchor event. In addition, covered bondholders might have exposure to interest rate and currency risks. (See "Covered bond analysis")
- ***Time subordination****:* After a CB anchor event, later-maturing covered bonds are subject to time subordination. Principal cash collections may be used on a first-come, first-served basis, paying earlier-maturing covered bonds before later-maturing covered bonds. This subordination could lead to the erosion of OC before any payments are made to later-paying covered bonds. (See "Covered bond analysis")
- ***Lack of liquidity facility*:** The programme would not benefit from any designated source of liquidity if cash flow collections are interrupted. (See "Covered bond analysis")

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Key characteristics

Exhibit 2
Covered bond characteristics

Moody's Programme Number:	169
Issuer:	Deutsche Pfandbriefbank AG
Covered Bond Type:	Commercial mortgage loans
Issued under Covered Bonds Law:	Yes
Applicable Covered Bonds Law:	German Pfandbrief Act (Pfandbriefgesetz)
Entity used in Moody's TPI analysis:	Deutsche Pfandbriefbank AG
CR Assessment:	Unpublished
CB Anchor:	CR assessment +1 notch
Senior unsecured/deposit rating:	Unpublished
Total Covered Bonds Outstanding:	€ 17,159,274,896
Main Currency of Covered Bonds:	EUR (77.7%)
Extended Refinance Period:	No
Principal Payment Type:	Hard bullet (no extension period)
Interest Rate Type:	Fixed rate covered bonds (92.4%) , floating rate covered bonds (7.6%),
Committed Over-Collateralisation:	2.0% (present value)
Current Over-Collateralisation:	17.1% (present value)
Intra-group Swap Provider:	n/a
Monitoring of Cover Pool:	Cover pool monitor (*Treuhänder*), mandatory by operation of the *Pfandbrief* Act
Trustees:	n/a
Timely Payment Indicator:	High
TPI Leeway:	Unpublished

n/d - information not disclosed by the issuer
Source: Moody's Investor Services, issuer data

Exhibit 3
Cover pool characteristics

Size of Cover Pool:	€ 19,855,385,490
Main Collateral Type in Cover Pool:	Commercial (73.7%), Multi-family assets (19.4%), Other supplementary assets (6.8%), Residential (0.1%)
Main Asset Location of Ordinary Cover Assets:	Germany (45.2%), UK (15.9%), France (9.8%)
Main Currency:	EUR (71.5%)
Loans Count:	2,045 Commercial
Number of Borrowers:	894 Commercial
WA current LTV*:	49.5% Commercial
WA Seasoning (in months):	36 Commercial
WA Remaining Term (in months):	47 Commercial
Interest Rate Type:	Fixed rate assets (51.9%), floating rate assets (48.1%)
Collateral Score:	6.8%
Cover Pool Losses:	15.5%
Further Cover Pool Details:	See Appendix 1
Pool Cut-off Date:	31 March 2019

* LTV Threshold is based on mortgage lending values.
Source: Moody's Investor Services, issuer data

Covered bond description

The covered bonds issued under the mortgage covered bond programme of Deutsche Pfandbriefbank AG are full recourse to the issuer. Upon a CB anchor event, covered bondholders would have access to a cover pool of mixed loan receivables of commercial and multifamily loans as well as high quality substitute assets.

The bonds

All outstanding covered bonds have a bullet repayment at maturity, without any extension period for the repayment of the bonds.

Issuer recourse

The covered bonds are full recourse to the issuer. Therefore, the issuer is obliged to repay principal and pay interest on the covered bonds.

Recourse to cover pool and over-collateralisation

If the issuer becomes insolvent, the covered bondholders would have priority claims over a pool of assets (cover pool). (See "Cover pool description" for the cover pool characteristics and "Cover pool analysis" for our analysis of the pool)

As of March 2019, the level of OC in the programme was 17.1% on a unstressed net present value basis.

The current covered bond rating relies on an OC within the minimum legal requirements by the German *Pfandbrief* Act. The act requires a minimum OC of 2% on a stressed NPV basis. Based on data as of 31 March 2019, 4.5% of OC is sufficient to maintain the current covered bond rating, which is higher than committed OC. This shows that our analysis currently relies on OC that is not in committed form.

Although the issuer has the ability to increase the OC in the cover pool if collateral quality deteriorates below a certain threshold, the issuer does not have any obligation to do so. The failure to increase OC following a deterioration of the collateral could lead to a negative rating action.

Legal framework

The covered bonds are governed by the *Pfandbrief* Act. There are a number of strengths in this legislation, including the regulation of the issuer by BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as certain minimum requirements for the covered bonds and the cover pool. No specific structural features beyond the statutory requirements are implemented for Deutsche Pfandbriefbank AG's mortgage covered bond programme. (See Covered Bonds: Germany - Legal Framework for Covered Bonds, July 2019, for a description of the general legal framework for *Hypothekenpfandbriefe* governed by the *Pfandbrief* Act.)

Covered bond analysis

Our credit analysis of the covered bonds primarily focuses on the issuer's credit quality, refinancing risk, interest rate risk and currency risk, as well as the probability that payments on the covered bonds would be made in a timely fashion following a CB anchor event, which we measure using the Timely Payment Indicator (See "Timely Payment Indicator").

Primary analysis

Issuer analysis - Credit quality of the issuer

The reference point for the issuer's credit strength in our analysis is the CB anchor, which for covered bond programmes under the covered bond law in Germany is the CR Assessment plus one notch. Moody's has assessed the credit strength of the issuer. However, the CR Assessment for Deutsche Pfandbriefbank AG is not published.

Issuer analysis - Dependency on the issuer's credit quality

The credit quality of the covered bonds depends primarily on the credit quality of the issuer. If the issuer's credit strength were to deteriorate, there would be a greater risk that a CB anchor event would occur, leading to refinancing risk for the covered bonds. Consequently, the credit quality of the covered bonds would deteriorate unless other credit risks were to decrease.

In the event that the CB anchor deteriorates, the issuer would have the ability, but not the obligation, to increase the OC in the cover pool. Failure to increase the level of OC under these circumstances could lead to a negative rating action.

Reasons for the high level of dependency of the covered bonds with the issuer also include exposure to decisions made by the issuer in its discretion as manager of the covered bond programme. For example, before a CB anchor event, the issuer may add new assets to the cover pool and remove assets from the cover pool, issue further bonds and enter new hedging arrangements. Such actions could reduce the value of the cover pool.

As with most covered bonds in Europe, there are few contractual restrictions on the future composition of the cover pool, which creates substitution risk. Nevertheless, cover pool quality over time will be protected by, among other things, the requirements of the German *Pfandbrief* Act, which specifies what types of assets are eligible. (See “Moody's related publications: Covered Bond Legal Frameworks”)

Refinancing risk

Following a CB anchor event, the “natural” amortisation of the cover pool assets alone cannot be relied on to repay the principal. We assume that funds must be raised against the cover pool at a discount if covered bondholders are to receive timely principal payment. Where the portion of the cover pool that is potentially exposed to refinancing risk is not contractually limited, our expected loss analysis typically assumes that this amount is in excess of 50% of the cover pool.

After a CB anchor event, the market value of these assets may be subject to volatility. Examples of the stressed refinancing margins we use for different types of prime-quality assets are published in our Rating Methodology. (See “Moody's related publications - Moody's Approach to Rating Covered Bonds”)

The refinancing-positive factors outweigh the negative ones. The refinancing-positive aspects of this covered bond programme include:

» The *Pfandbrief* Act: At the time of the declaration of the issuer's bankruptcy, or earlier if BaFin considers it necessary, a cover pool administrator (the *Sachwalter*) would take over management responsibility of the covered bond programme. The *Sachwalte*r would have the ability to sell all or part of the cover pool, with or without all or parts of the liabilities attached.

» The depth of the German market and the high level of government and financial market support expected to be available to *Pfandbriefe* in Germany, where refinancing risk is perceived as lower than in most other jurisdictions. In the modeling of this transaction, we have used refinancing margins that are lower than the refinancing margins used for most other jurisdictions.

» The issuer is also required to cover potential liquidity gaps over the next 180 days between payments expected to be received under the cover pool assets and the payments due under the outstanding covered bonds.

The refinancing-negative aspects of this covered bond programme include the fact that the programme does not benefit from any contractual provisions to allow for an extension of a principal refinancing period; all covered bonds issued under this programme will have a hard bullet repayment with no extension period, which is typical of German *Pfandbrief* programmes.

Interest rate and currency risk

As with the majority of European covered bonds, there is potential for interest rate and currency risks, which could arise from the different payment promises and durations made on the cover pool and the covered bonds.

Exhibit 4
Overview of assets and liabilities

	WAL Assets (Years)	WAL Liabilities (Years)	Assets (%)	Liabilities (%)
Fixed rate	5.3	6.4	51.9%	92.4%
Variable rate	2.7	1.4	48.1%	7.6%

WAL = weighted average life
Source: Moody's Investors Service, issuer data

In the event of issuer insolvency, we currently do not assume that the *Sachwalter* would always be able to efficiently manage any natural hedge between the cover pool and the covered bonds. Therefore, following a CB anchor event, our model would separately assess the impact of increasing and decreasing interest rates on the expected loss of the covered bonds, taking the path of interest rates that leads to the worst result. The interest rate and currency stresses used over different time horizons are published in our Rating Methodology.

Aspects of this covered bond programme that are market-risk positive include:

» The requirement under the *Pfandbrief* Act that the stressed present value OC of the cover pool must exceed, by at least 2%, the total of outstanding covered bonds issued against the cover pool, and the requirement that *Pfandbrief* issuers must regularly run stress tests regarding interest rate and foreign-exchange risks. Deutsche Pfandbriefbank AG opted for the “dynamic” stress test to meet mandatory stress tests requirements which includes a parallel movement of the interest rate curve by at least 100 basis points.

Aspects of this covered bond programme that are market-risk negative include:

» A potential sale of fixed-rate assets to meet payments due on covered bonds following a CB anchor event could lead to a crystallisation of mark-to-market losses caused by interest rate movements upon issuer default, 51.9% of the cover pool assets have a fixed rate.

» As of the date of this report, Deutsche Pfandbriefbank AG has not entered any swaps into the cover pool register. We understand that there are no plans to change this in the near future.

» The currency of the cover assets and the outstanding covered bond are reasonably well matched. The vast majority of the assets (71.5%) and liabilities (77.7%) are denominated in Euros. However, some unhedged currency risk remain. Moody's analysis takes into account, among other factors, the impact of this currency gap.

Timely Payment Indicator

Our Timely Payment Indicator (TPI) assesses the likelihood that timely payments would be made to covered bondholders following a CB anchor event, and thus determines the maximum rating a covered bond programme can achieve with its current structure while allowing for the addition of a reasonable level of OC. We have assigned a TPI of High to these covered bonds, in line with other mortgage covered bonds issued under the *Pfandbrief* Act.

The TPI-positive aspects of this covered bond programme include:

» The high level of government and financial market support provided to *Pfandbriefe* in Germany

» The refinancing-positive factors discussed in the “Refinancing risk” section

» The strength of the German *Pfandbrief* legislation, including:

  – The *Sachwalter* would take over management responsibility of the covered bond programme at the time of the declaration of the issuer's bankruptcy, or earlier if BaFin were to consider it necessary.

  – The *Sachwalter* would act independently from the issuer’s insolvency administrator. Having an independent cover pool administrator might reduce potential conflicts of interest between the covered bondholders and other creditors.

  - The issuer is required to cover potential liquidity gaps over the next 180 days between payments expected to be received under the cover pool assets and payments due under the outstanding covered bonds.
  - Set-off: We understand that the *Pfandbrief* Act excludes from set-off loans registered in the cover pool that are under German law and located in Germany.

» The credit quality of the cover pool assets, reflected by the collateral score of 6.8%.

The TPI-negative aspects of this covered bond programme include:

» All covered bonds outstanding have a bullet repayment at maturity, without any extension period for the repayment of the bonds.

» The covered bond programme does not benefit from any designated source of liquidity if cash flow collections are interrupted.

» Commingling risk: Upon the appointment of the *Sachwalter*, it is our understanding that the *Sachwalter* has a priority claim on all cash flows stemming from the cover pool assets. However, these cash flows have to be separated from other cash flows to the issuer before they can be used to make payments to covered bondholders.

Additional analysis

Liquidity

The covered bond programme would not benefit from any designated source of liquidity if cash flow collections were to be interrupted. However, before an issuer default, the *Pfandbrief* Act requires the issuer to cover potential liquidity gaps for the next 180 days and to maintain a minimum OC level of 2%. After an issuer default, the *Sachwalter* would have the ability to sell a portion of the cover pool to make timely payments on the bonds.

Time subordination

After a CB anchor event, later-maturing covered bonds would be subject to time subordination. Principal cash collections may be used on a first-come, first-served basis, paying earlier-maturing covered bonds before later-maturing covered bonds. Such payments could result in the erosion of OC before any payments are made to later-paying covered bonds. However, if it is determined that cover pool assets will not be sufficient to repay covered bonds, cover pool insolvency will trigger acceleration and this will mean all covered bond holders rank equally.

Cover pool description

Pool description as of 31 March 2019

As of 31 March 2019, the cover pool consisted of commercial assets (73.7%), multi-family assets (19.4%), and residential assets (0.1%) under the *Pfandbrief* Act. The remainder of the cover pool assets are so-called further cover assets (Weitere Deckungswerte), which are public-sector debt and claims against financial institutions. The majority of the properties, which are serving as security for the mortgage loans, are located in Germany, of which most of those loans are located in Berlin, North Rhine-Westphalia and Bavaria.

On a nominal value basis, the cover pool assets total €19.9 billion, which back €17.2 billion in covered bonds, resulting in an OC level of 17.1% on a unstressed present value basis. (For issuer's underwriting criteria, see "Appendix: Income underwriting and valuation")

As Exhibit D shows, mortgage loans amount to €18.5 billion. Of this amount, 43.5% are backed by office properties and 20.8% are backed by multifamily properties, while the remainder are mainly backed by retail, industrial and other properties.

As Exhibit 5 shows, the properties backing the pool are primarily in Germany (45.2%), with some geographical concentration in Berlin and North Rhine-Westphalia. Most of the assets (99.9%) are performing.

The weighted average current loan-to-value (LTV) ratio of the loans is 49.5%.

Exhibits 5 through 8 show more details about the cover pool characteristics.

Commercial mortgage loans

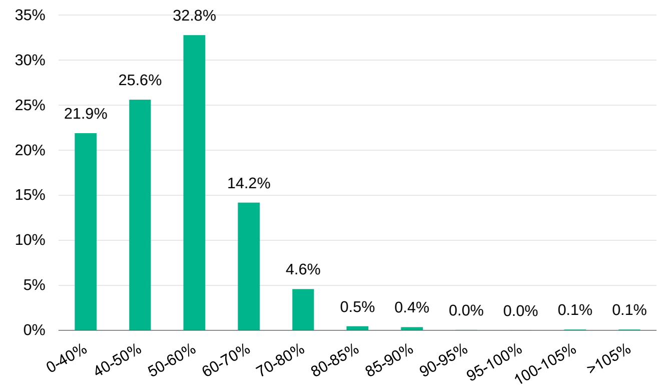
Exhibit 5

Cover pool summary - Commercial mortgage loans

Overview		Specific Loan and Borrower characteristics	
Asset type:	Commercial	Bullet loans:	56.4%
Asset balance:	18,477,056,549	Loans in non-domestic currency:	29.6%
Average loan balance:	9,035,235	Percentage of fixed rate loans:	49.4%
Number of loans:	2,045	**Performance**	
Number of borrowers:	894	Loans in arrears ≥ 2 months:	0.1%
Number of properties:	3,699	Loans in a foreclosure procedure:	0.0%
Largest 10 loans:	n/d	**Details on LTV**	
WA remaining term (in months):	47	WA current LTV(*):	49.5%
WA seasoning (in months):	36	WA indexed LTV:	n/d
Main countries:	Germany (45.2%), UK (15.9%), France (9.8%)	Valuation type:	Market Value
		LTV Threshold:	60.0%
		Junior ranks:	71.9%

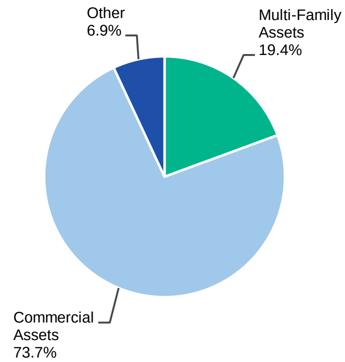
(*) LTV threshold is based on mortgage lending values
n/d : information not disclosed by issuer
Source: Moody's Investors Service, issuer data

Exhibit 6
Balance per LTV-band



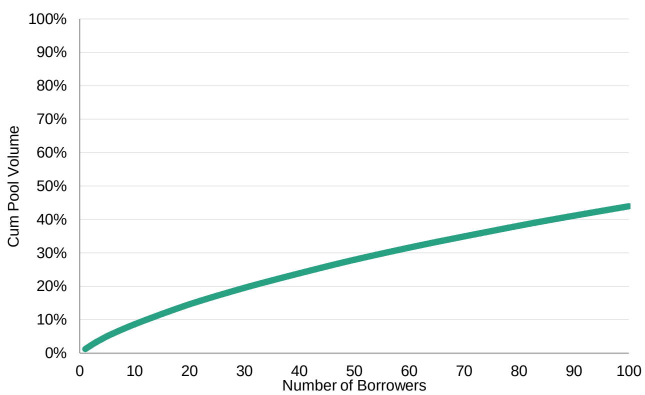
Source: Moody's Investors Service, issuer data

Exhibit 7
Percentage of commercial mortgage assets



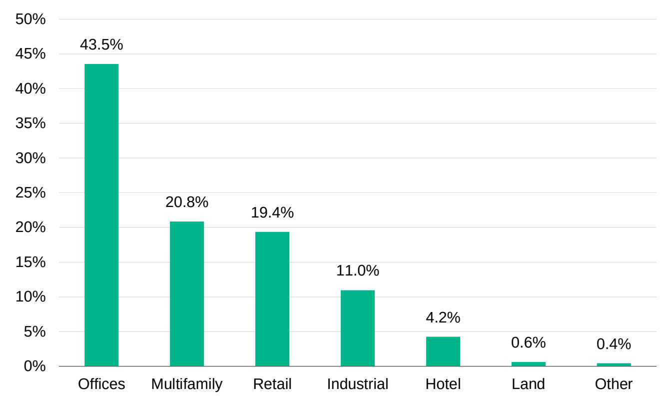
Source: Moody's Investors Service, issuer data

Exhibit 8
Borrower concentration



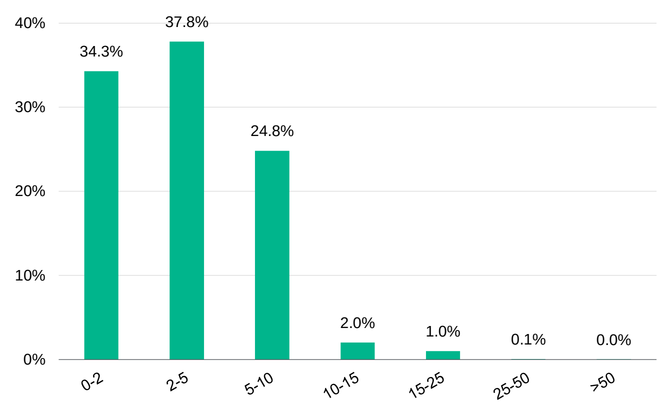
Source: Moody's Investors Service, issuer data

Exhibit 9
Property type



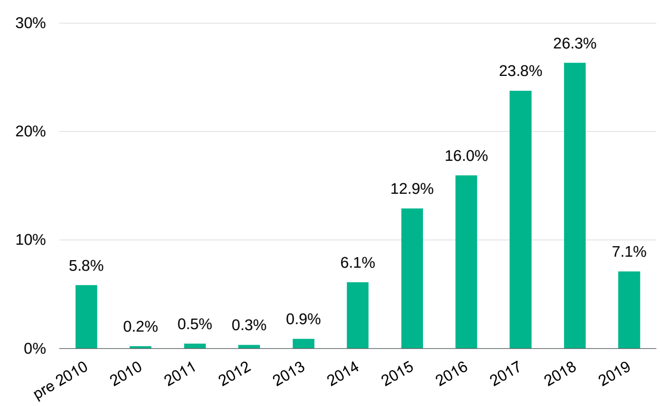
Source: Moody's Investors Service, issuer data

Exhibit 10
Remaining term



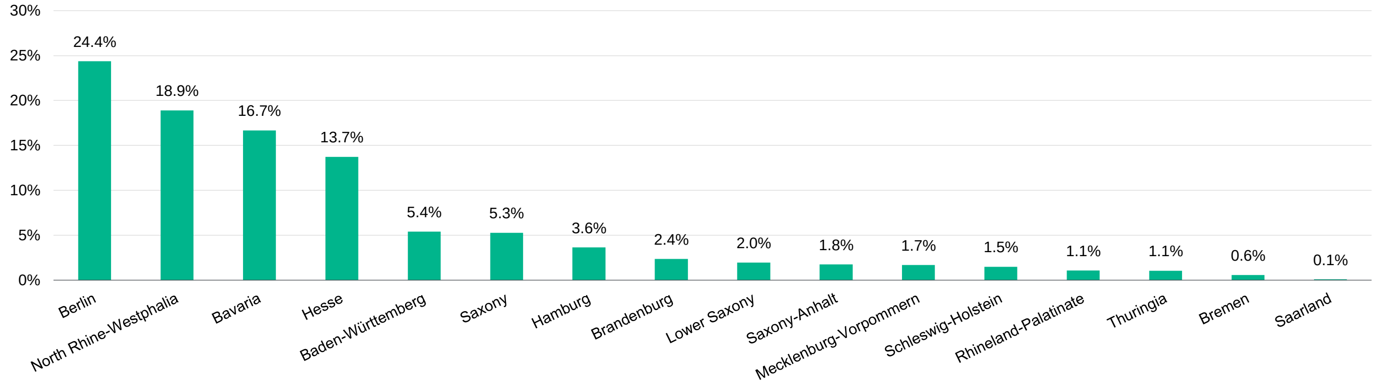
Source: Moody's Investors Service, issuer data

Exhibit 11
Year of loan origination



Source: Moody's Investors Service, issuer data

Exhibit 12
Regional distribution of main country



Source: Moody's Investors Service, issuer data

Substitute assets

Of the cover assets, €1.4 billion (6.8%) are substitute assets. The substitute assets currently consist primarily of German and European public sector and financial institutions' debt.

Cover pool monitor

Pursuant to the *Pfandbrief* Act, the regulator (BaFin) has appointed a cover pool monitor (*Treuhänder*). (See “Moody's related publications: Covered Bond Legal Frameworks”)

Cover pool analysis

Our credit analysis of the pool takes into account specific characteristics of the pool, as well as legal risks.

Primary cover pool analysis

We calculate the collateral score for the commercial mortgages using a multifactor model that is created through a Monte Carlo simulation. Our analysis takes into account, among other factors, the impact of concentration on borrower, regional and country levels, as well as the credit quality of the individual borrowers.

For this programme, the collateral score of the current pool is 6.8%, comparable with the average collateral score in other German mortgage covered bonds. (For details, see “Moody's related publications - Sector update”).

The following factors support the credit quality of the pool: (1) majority of the of the assets are performing (99.9%), and (2) the over-collateralisation in the cover pool is 17.1% on an unstressed net present value basis.

The weighted-average LTV ratio of the commercial cover assets is 49.5%.

Comparables

Exhibit 13

Comparables - Deutsche Pfandbriefbank AG - Mortgage Covered Bonds and other selected German deals

PROGRAMME NAME	Deutsche Pfandbriefbank AG - Mortgage Covered Bonds	Landesbank Berlin AG - Mortgage Covered Bonds	Hamburg Commercial Bank AG - Mortgage Covered Bonds	Bayerische Landesbank - Mortgage Covered Bonds
Overview				
Programme is under the law	Pfandbrief Act	Pfandbrief Act	Pfandbrief Act	Pfandbrief Act
Main country in which collateral is based	Germany	Germany	Germany	Germany
Country in which issuer is based	Germany	Germany	Germany	Germany
Total outstanding liabilities	17,159,274,896	3,847,000,000	4,785,750,000	2,734,868,734
Total assets in the Cover Pool	19,855,385,490	4,482,462,937	5,203,107,494	6,310,878,958
Issuer name	Deutsche Pfandbriefbank AG	Landesbank Berlin AG	Hamburg Commercial Bank AG	Bayerische Landesbank
Issuer CR assessment	Unpublished	Aa2(cr)	Baa2(cr)	Aa3(cr)
Group or parent name	n/a	n/a	n/a	0
Group or parent CR assessment	n/a	n/a	n/a	n/a
Main collateral type	Commercial	Commercial	Commercial	Commercial
Collateral types	Commercial 93%, Residential 0%, Public Sector 0%, Other/Supplementary assets 7%	Commercial 88%, Residential 7%, Public Sector 0%, Other/Supplementary assets 5%	Commercial 89%, Residential 0%, Public Sector 0%, Other/Supplementary assets 11%	Commercial 94%, Residential 1%, Public Sector 0%, Other/Supplementary assets 6%
Ratings				
Covered bonds rating	Aa1	Aaa	Aa2	Aaa
Entity used in Moody's EL & TPI analysis	Deutsche Pfandbriefbank AG	Landesbank Berlin AG	Hamburg Commercial Bank AG	Bayerische Landesbank
CB anchor	CR Assessment + 1 notch	CR Assessment + 1 notch	CR Assessment + 1 notch	CR Assessment + 1 notch
CR Assessment	Unpublished	Aa2(cr)	Baa2(cr)	Aa3(cr)
SUR / LT Deposit	Unpublished	n/a	Baa2	Aa3
Unsecured claim used for Moody's EL analysis	Yes	Yes	Yes	Yes
Value of Cover Pool				
Collateral Score	6.8%	14.5%	11.5%	10.6%
Collateral Score excl. systemic risk	n/a	14.4%	n/a	n/a
Collateral Risk (Collateral Score post-haircut)	4.5%	9.7%	7.7%	7.1%
Market Risk	11.0%	12.1%	7.3%	13.5%
Over-Collateralisation Levels				
Committed OC*	2.0%	2.0%	2.0%	2.0%
Current OC	17.1%	22.9%	13.3%	139.4%
OC consistent with current rating	4.5%	0.0%	2.5%	1.5%
Surplus OC	12.6%	22.9%	10.8%	137.9%
Timely Payment Indicator & TPI Leeway				
TPI	High	High	High	High
TPI Leeway	Unpublished	6	2	5
Reporting date	31 March 2019	31 March 2019	31 December 2018	31 December 2018

*We consider this level of OC as committed according to our methodology even though the level of OC provided via the asset cover test might be higher because the issuer could reduce the level of OC down to this level without a rating impact on our covered bond rating.

Source: Moody's Investor Services

Additional cover pool analysis

Legal risks for assets outside of Germany

In the event of the issuer's insolvency, we believe that cover pool assets outside of Germany would be less protected against claims of the issuer's other creditors than would be assets in Germany. In particular, we have identified and analysed the following scenarios:

- Claims against borrowers outside of Germany or loans not governed by German law: In the case of loans not governed by German law, the borrower might be allowed to exercise set-off, thereby reducing the amount that would be payable to the benefit of covered bondholders. Mortgage loans outside of Germany account for around 54.8% of the cover pool as of 31 March 2019. However, borrower set-off risk is low because loan agreements contain an exclusion of set-off rights between the lending bank and the borrower.
- Loans to borrowers outside of the European Economic Area (EEA): All of the mortgage loans are granted to borrowers within the EEA. If this criteria were to change, in addition to the above risk, the cover pool assets might not be available to the covered bondholders on a priority basis because other (unsecured) creditors of the issuer might successfully access the assets in the cover pool. These actions might result in lower recovery, owing, for example, to secondary proceedings commenced under the respective domestic law. Loans to borrowers outside the EEA (but without Swiss debtors) accounted for 7.9% of the mortgage loans, loans to Swiss borrowers account for 0.8% of the mortgage loans as of 31 March 2019. Mitigant: Deutsche Pfandbriefbank has implemented legal structures for the US assets, which are designed to prevent unsecured creditors to access such assets to satisfy their claims against the issuer upon issuer default.

Methodology and monitoring

The primary methodology we use in rating the issuer's covered bonds is "Moody's Approach to Rating Covered Bonds", published in February 2019. Other methodologies and factors that may have been considered in the rating process can also be found on http://www.moodys.com. In addition, we publish a weekly summary of structured finance credit, ratings and methodologies, available to all registered users of our website, at www.moodys.com/SFQuickCheck.

We expect the issuer to deliver certain performance data to us on an ongoing basis. In the event that this data is not made available to us, our ability to monitor the ratings may be impaired. This lack of data availability could negatively affect the ratings or, in some cases, our ability to continue to rate the covered bonds.

Appendix: Income underwriting and valuation

Exhibit 14

A. Residential and Commercial Income Underwriting	
1 Is income always checked?	Yes
2 Does this check ever rely on income stated by borrower ("limited income verification") ?	No, figures are generally provided by borrowers and verified by time of underwriting
3 Percentage of loans in Cover Pool that have limited income verification	Very limited
4 If limited income verification loans are in the Cover Pool, describe what requirements lender has in place for these loans.	Not applicable
5 Does income in all cases constrain the amount lent (for example through some form of Income Sufficiency Test ("IST")?	Yes, through DSCR/ ISCR/ other financial covenants which need to be fulfilled
6 If not, what percentage of cases are exceptions.	Not applicable
For the purpose of any IST:	
7 Is it confirmed that income after tax is sufficient to cover both interest and principal?	Yes, in general income after tax is sufficient to cover both interest and amortisation (resulting in repayment or repayment of principal via refinancing or planned sale of property).
8 If so over what period is it assumed principal will be paid (typically on an annuity basis)? Any exceptions?	Typically a regular amortisation between 1-3% p.a. is agreed. Commercial real estate finance transaction tend to have an original legal maturity between 3-5 years with partial amortisation.
9 Does the age of the borrower constrain the period over which principal can be amortised?	Not applicable, in general the commercial real estate loans are granted to SPVs.
10 Are any stresses made to interest rates when carrying out the IST? If so when and for what type of products?	Yes, however most of the transactions are fully hedged over the term of the loan and therefore no interest rate risk during the term. In addition stress tests are performed to assess exit risk at maturity of the loan.
11 Are all other debts of the borrower taken into account at the point the loan is made?	Yes, but due to largely SPV lending, no other loans in place/ permitted
12 How are living expenses of the borrower calculated? And what is the stated maximum percentage of income (or income multiple if relevant) that will be relied on to cover debt payments. (specify if income is pre or post tax)	Not applicable in case of commercial mortgage loans. In case of commercial mortgage lending all associated costs are taken in to consideration in the cash flow calculation.
Other comments	None

B. Residential and Commercial Valuation	
1 Are valuations based on market or lending values?	Commercial assets are based on market values, whereas LTV thresholds are based on Mortgage Lending Value (Beleihungswert).
2 Are all or the majority of valuations carried out by external valuers (with no direct ownership link to any company in the Sponsor Bank group)?	The vast majority of lending values are done by internal valuers who hold CIS HypZert qualification. For properties, which are located outside of Germany, the lending value is generally based on external market value reports, which have to be qualified by internal Property Analysts. In all cases the valuers are independent from the credit decision.
3 How are valuations carried out where an external valuer not used?	The German Pfandbrief legislation requires that the valuer has the relevant skills and knowledge. Every valuation has to meet the minimum requirement set out in the regulations for the lending value. The German Financial Supervisory Authority is going to check that the lending value has been calculated in accordance with the regulatory requirements during its regular cover pool audit once every two years.
4 What qualifications are external valuers required to have?	All valuers are required to have a relevant certificate. For the production of the lending value for all cover pool relevant properties Deutsche Pfandbriefbank generally uses internal valuers that hold CIS HypZert qualification (in accordance with DIN EN ISO/IEC 17024). For its lending business outside Germany (market valuation) Deutsche Pfandbriefbank generally uses qualified external valuers that holds a certificate according to for example the RICS standard.
5 What qualifications are internal valuers required to have?	All internal valuers in charge of the lending value report hold CIS HypZert qualification (in accordance with DIN EN ISO/IEC 17024).
6 Do all external valuations include an internal inspection of a property?	As a general rule, yes
7 What exceptions?	In the case of financing big residential portfolios not every single flat can be inspected internally. The internal inspection of at least one flat in every housing unit therefore seems sufficient.
8 Do all internal valuations include an internal inspection of a property?	As a general rule all internal valuations include an internal inspection of the property.
9 What exceptions?	As long as the external market valuation report or a technical due diligence report, instructed by the Deutsche Pfandbriefbank holds sufficient and traceable information/ data in accordance with the German mortgage lending value decree an internal inspection by Deutsche Pfandbriefbank's Property Analysts can be omitted.
Other comments	

Source: Moody's Investors Service, issuer data

Moody's related publications

Rating Methodology

» Moody's Approach to Rating Covered Bonds, February 2019 (1154442)

Special Comments

» Germany - Legal Framework for Covered Bonds, July 2019 (1178095)

» Sector update - Q1 2019: EU covered bond law supports credit standards; first covered bonds from Romania, May2019 (1166962)

Performance Overview

» Deutsche Pfandbriefbank Mortgage Covered Bonds, March 2019 (SF481409)

Webpages

» Covered Bonds: www.moodys.com/coveredbonds

» Covered Bond Legal Frameworks: www.moodys.com/Pages/CoveredBondLegalFrameworks.aspx

To access any of these reports or webpages, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

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