

Covered Bonds

A Research Publication by DZ BANK AG



Methodological approach to covered bonds credit research

DZ BANK's Credit Research Covered Bonds is aimed at the local cooperative banks (Volks- und Raiffeisenbanken), institutional clients in Germany and abroad, as well as central banks. It is illegal and forbidden for this research to be disseminated or otherwise made available to natural or legal persons or other institutions having their place of residence and/or business in the United States of America (USA). The research is not generally suitable for private clients.

Covered bonds are issued by credit institutions. In order to secure the claims of covered bond creditors, assets belonging to the issuer (e.g. credit exposures such as residential and commercial real estate loans or exposures to public-sector entities) are separated from its other assets and grouped together in a cover pool. In the event of the issuer's insolvency, this cover pool is available to the covered bond creditors on a priority basis in order to meet their claims from the covered bonds. Provided a covered bond issuer is solvent, no use is made of the cover pool and the issuer makes the due interest and principal payments from its current business operations.

The universe of covered bonds (coverage) considered by DZ BANK's Credit Research Covered Bonds is not geographically limited. As a rule, these are issuers that have used their covered bond programmes for covered bonds in the euro benchmark format (issue volume of at least EUR 500 million). However, exceptions to this rule are possible. An overview of the currently covered covered bond issuers with legal form and country of domicile can be found on DZ BANK's website under "[Mandatory disclosures and DZ BANK Research information requiring disclosure](#)" (see [here](#)). Within the publication series "Covered Bond Monitor", Credit Research Covered Bonds publishes current information on all covered bond programmes included in coverage regularly and in a standardised form. The information includes, for example, the covered bond rating, volume outstanding, volume of the cover pool and key figures on the credit quality of the cover pool. The publication series "Covered Bond Monitor" may also contain covered bond programmes which, for example, are not covered due to a lack of individual market relevance, but which are nevertheless included in the Covered Bond Monitor for reasons of complete presentation of the covered bond market of a country.

Credit Research Covered Bonds can also make investment recommendations for individual bonds from the universe of covered bonds included in coverage. The methodological principles on which such a recommendation is based are described below in the chapter "Methodological approach for investment recommendations".

In addition, the Credit Research Covered Bonds may also issue country weighting recommendations, which are not investment recommendations. The methodological basis for this is explained in the chapter "Methodological approach for country weighting recommendations".

Important: The explanations regarding possible conflicts of interest can be found in the section "Mandatory Disclosures for Financial Analyses and Further Remarks". Please read the section "Mandatory Disclosures for Financial Analyses and Further Remarks" and the section "Disclaimer" at the end of this study.

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METHODOLOGICAL APPROACH FOR INVESTMENT RECOMMENDATIONS

After taking into account a fundamental analysis, DZ BANK's Credit Research Covered Bonds team can issue investment recommendations for covered bonds which are included in coverage. DZ BANK's Credit Research Covered Bonds team does not issue investment recommendations on covered bonds from issuers belonging to the German Cooperative Financial Services Network.

No investment recommendation for covered bonds issued by the German Cooperative Financial Services Network

Theoretical basis

Our investment recommendations for covered bonds are made on the basis of a combination of **fundamental analysis** and **relative value analysis**.

Fundamental and relative value analysis

The fundamental analysis of covered bonds essentially comprises the creditworthiness assessment of the issuer and the respective cover pool, while taking into account the relevant covered bond legislation and regulatory characteristics. The relative value analysis builds on this and leads to an assessment of the relative attractiveness of the respective covered bonds with additional consideration of the expected overall market development. This is exclusively based on our expectations for the development of the asset swap spread (credit spread) of the covered bonds. Our investment recommendation is supported by our assessment of the development of the credit spreads of the covered bonds relative to the total market (iBoxx € Covered Index), a comparable market (such as the iBoxx € Germany Covered Index) or a different group of comparable covered bonds – to be defined on a case-by-case basis. The covered bonds recommended in each investment recommendation and each individual selected peer group of covered bonds are indicated in the study concerned. The investment recommendation applies in principle to all benchmark or sub benchmark covered bonds denominated in euros that have been issued under the respective covered bond programme of the issuer in question.

Our analyses of covered bonds do not include any credit rating as defined in Regulation (EU) 1060/2009 of 16 September 2009 on credit rating agencies.

Excursus: Asset swap spread (credit spread)

With an asset swap, a fixed-income bond is combined with an interest-rate swap and in this way a bond with virtually no interest-rate risk is synthetically created. The premium for the credit risk of the bond can be depicted as a mark-up (or mark-down) to the floating interest-rate base of the swap. This mark-up (or mark-down) represents the credit spread of a bond.

Credit spread

Superordinate factors

In the analysis of covered bonds by Credit Research, the analyst must take into account superordinate factors in addition to the fundamental analysis described below. These are influencing factors of a general nature that can affect the creditworthiness of a covered bond and the resulting investment recommendation. The analyst must take appropriate account of these influential factors in their analysis of the individual covered bonds to ensure that the assessments and recommendations of DZ BANK Research are based on identical conditions and are consistent in themselves.

General influencing factors

The macroeconomic forecasts of DZ BANK Research are key determining factors. Growth rates in gross domestic product and its components, inflation rates, data on the global economy and similar macroeconomic variables can play a significant role

Macroeconomic forecasts as key determining factors

in the assessment of individual covered bonds. The interest rate forecasts of DZ BANK Research constitute another superordinate reference point for the analysis of individual covered bonds and the investment recommendations derived from this. Political factors of a global or national nature are another point. Global political uncertainties, wars, trade conflicts or problems in individual countries can also influence the assessment of third, non-directly involved issuers or the investment recommendation derived from this.

In addition, new regulatory requirements, monetary policy and other factors may also be relevant when arriving at an investment recommendation for covered bonds.

The general assessment of the risk appetite of market participants should also be borne in mind. In the event of an overall rise in risk appetite in the market, for example, the credit spreads of the bonds of all issuers tend to fall; in such an environment, the covered bonds of issuers with a poorer credit rating – whose credit spreads are at relatively high levels – consequently offer the greatest return from the carry and credit spread tightening. Conversely, a deterioration in general market sentiment and rising risk aversion will result in a situation where credit spreads for all covered bonds tend to widen; in such an environment, the covered bonds of issuers with a superior creditworthiness, whose credit spreads are at relatively tight levels, tend to offer a greater return (or smaller loss) from the carry and credit spread widening. But it is also conceivable that there will be cases in which the high carry for covered bonds of issuers with a poorer creditworthiness is sufficient to nevertheless generate a higher return (or smaller loss) than covered bonds from issuers with a superior creditworthiness.

The superordinate forecasts of DZ BANK Research must be taken into account by the analysts in their analysis of the individual covered bonds. It is the responsibility of the analyst concerned to gauge the impact of the key assessments on the individual subject of their analysis and their investment recommendation.

Factors relevant to the fundamental analysis of covered bonds

The fundamental analysis of covered bonds consists of several building blocks relating to various risk factors that can cause a default or in exceptional circumstances a bail-in. These individual building blocks are not grouped together model-like in a creditworthiness assessment (howsoever formulated), but are individually analysed and evaluated by the analyst on the basis of their expert knowledge. The depth of analysis is heavily dependent on what information is available about the issuer and its covered bond programme.

» Since the timely payment of interest and principal on outstanding covered bonds first of all depends on the issuer's ability to pay, the assessment of their financial strength plays an important role in the analysis of covered bonds. Wherever possible, the analysis produced by the DZ BANK Credit Research Financials team is used to assess the individual issuer creditworthiness (see also the study "Methodological approach to financials credit research", which is available on the DZ BANK website). Since coverage by the DZ BANK Credit Research Financials team does not contain all issuers whose covered bonds are included in the covered bond coverage, the credit ratings and rating reports of rating agencies authorised or recognised in the European Union are additionally used. One of the tasks of the analyst concerned is to identify and take into account special issuer-specific circumstances that may also impact on the creditworthiness assessment of the covered bonds.

Risk appetite assessment

Evaluation of the higher-level forecasts

Various risk factors

Creditworthiness assessment of the issuer

» Assessment of the credit quality of the cover pool is an important component of fundamental covered bond analysis. The quality of the exposures contained in the cover pool has an impact on the intrinsic value of the cover pool and therefore on its marketability as well, should a sale become necessary. The reports regularly published by issuers on their covered bond programme (investor reports) are the primary source of information for this analysis. These investor reports contain information on the type of cover assets (residential mortgages, commercial mortgages, exposures to public-sector entities, etc.), the geographic distribution of borrowers as well as a raft of key figures depending on the individual type of exposures (distribution of loan-to-value ratios, seasoning, proportion of loans in arrears, etc.). This is supported by the use of key figures published by the rating agencies on the individual covered bond programmes. Based on this information, the analyst's job is to form a picture of the quality of the cover pool and to take the particular strengths and weaknesses into account in their overall assessment.

Credit quality of the cover pool

» In the course of the analysis, any specific characteristics of the individual covered bond programme need to be examined and assessed. Specific characteristics might include a special repayment structure (e.g. conditional pass-through) or exotic cover assets (such as loans to small and medium-sized enterprises).

Specific characteristics of the covered bond programme

» The applicable legal framework of the covered bonds also needs to be taken into account in the fundamental covered bond analysis. Covered bond laws may differ very widely from country to country and offer a varied degree of creditor protection functions. In addition to the applicable covered bond laws, rules must also be taken into account that the issuers may have individually specified in their program documentation.

Structure of the legal framework of covered bonds

» For example under European banking regulations, covered bonds were given a degree of preferential treatment (e.g. fundamental exclusion of the bail-in, lower capital requirements than unsecured bank bonds, LCR eligibility) that is tied to certain conditions. Since banks are an important group of investors for covered bonds, their regulatory treatment in the banking sector can also have an impact on the covered bond market as a whole. In this connection, the possibility of whether covered bonds can be used as collateral for refinancing operations with the European Central Bank (ECB eligibility) also plays a role. Therefore the individual regulatory treatment of covered bonds must be taken into account by the analyst as part of the fundamental analysis.

Applicability of regulatory privileges

In all cases, the above building blocks of "Creditworthiness assessment of the issuer" and "Credit quality of the cover pool" refer to historical data. However, it is possible that the analyst will identify trends that need to be analysed. The fundamental assessment of covered bonds is to a very large extent dependent on the general economic situation. Thus a weakening of economic growth generally results in rising insolvencies, a higher unemployment rate and falling property prices. In the case of covered bond issuers, this may in turn be reflected in higher risk provisioning, reduced credit demand and rising risk bearing assets. The credit quality of the cover assets would also suffer in such a scenario, unless the issuer's non-performing loans are removed from the cover pool and replaced. Therefore, analysts additionally use forecasts regarding the future economic situation in their assessment of the creditworthiness of covered bonds.

Forecast of future economic development of importance

Factors relevant to the relative value analysis of covered bonds

In fixed income research, investment recommendations on individual covered bonds are divided into the categories of “**Outperformer**”, “**Underperformer**” and “**Market performer**”. Key to the investment recommendation for specific covered bonds is whether the analyst believes the bonds will perform better than, worse than or in line with covered bonds included in the relevant peer group in the next six months. “Outperformer” means the covered bonds are expected to produce a better performance than the peer group. “Underperformer” means the covered bonds are expected to produce a poorer performance than the peer group. “Market performer” means the analyst believes the performance of the covered bonds will not differ significantly from the performance of the peer group. The investment recommendations issued have a validity period of one trading day.

The “Outperformer”, “Underperformer” and “Market performer” recommendation categories are based on the analyst’s assessment as to how the covered bonds concerned will perform relative to their peer group. This peer group does not need to be defined in exact terms. It generally comprises the bonds that are contained in the iBoxx € Covered Index or a subindex of the iBoxx € Covered Index (e.g. the iBoxx € Germany Covered Index or iBoxx € Covered AA Index). A different group of comparable covered bonds can also be defined in individual cases. The covered bonds recommended in an investment recommendation and respective selected peer group of covered bonds are stipulated in the study.

Various components are key to the performance of the respective covered bonds expected by the analyst. Besides the carry, the development of the credit spreads of the covered bonds compared with the relevant peer group is important. These credit spreads may be constant, or they may rise or fall during the forecasting period (six months). Falling credit spreads would be positive for the investor. If the reduction in the premium for entering into the credit risk is higher than for the peer group, the covered bonds of the issuer concerned show a better performance than the peer group, all other things being equal.

The decision is based on the analyst’s assessment of the credit profile for the covered bonds. Generally speaking, this depends on whether they expect an improvement or deterioration in the creditworthiness and whether the capital markets also expect that. Other factors come into play: the analyst needs to take into account how the general economic situation, central bank policy, geopolitical risks and the behaviour of the capital markets in the months ahead will impact on the credit spreads of the covered bond issuer the analyst is following (see “Superordinate factors”).

Thus investment recommendations are arrived at based on a combination of **fundamental analysis** and **relative value analysis**. The investment recommendations are issued based on the above-described fundamental analysis of the creditworthiness of the covered bonds, enabling an approximate assessment of the bonds’ default risk. DZ BANK Research does not, however, produce a “fair” absolute credit spread level derived from fundamental data based on which an investment recommendation for the covered bonds is issued. Rather, the valuation is performed through a comparison of the risks observed by DZ BANK’s Credit Research Covered Bonds for the totality of an issuer’s covered bonds with the risks for comparable bonds while taking into account the respective credit spreads.

Categories of investment recommendations

Expected performance in comparison to peer group

Carry and credit spread are relevant

Expectation for the development of the credit profile

Summary

Therefore, the investment recommendation is ultimately a relative assessment

– meaning the analyst needs to keep an eye on comparable covered bonds as well as the covered bonds they analyse.

Sources: Data, studies, information

- » Credit Research Covered Bond analysts use a broad spectrum of data and information. The original company reports are the main basis for the fundamental analysis. A series of other information sources, including reports from rating agencies, as well as news from Bloomberg, are also used.
- » Since the assessment of the expected fundamental performance of covered bonds is essentially determined by the future economic situation (including gross domestic product, unemployment, real estate markets) in the core markets in which the respective issuer operates, the Credit Research Covered Bond analysts also use the relevant forecasts and expectations of the corresponding analysts of DZ BANK Research but also other sources deemed suitable and reliable.
- » When assessing other factors relevant to the evaluation of the expected performance of covered bonds, the analysts use other appropriate, reliable sources such as legal texts and regulatory statements.
- » The market-relevant data – in particular bond and index data – used by the analysts is mainly taken from Bloomberg and Markit.

External sources**Internal sources****Laws etc****Data providers**

Since the analysis of covered bonds is extremely complex, information currently regarded by the analyst as being key to the performance of a covered bond needs to be filtered out from the wealth of information available.

Filtering of information

METHODOLOGICAL APPROACH FOR COUNTRY WEIGHTING RECOMMENDATIONS

DZ BANK's Credit Research Covered Bonds submits **weighting recommendations** for every national covered bond segment within its coverage. These weighting recommendations are regularly published in the Covered Bond Biweekly and can also be a part of individual studies. The stated weighting recommendations **do not represent an investment recommendation of any kind** for individual bonds or issuers, but rather reflect our recommended allocation of individual market segments in relation to the market as a whole. These are portfolio recommendations, tailored towards regions and not individual bonds or issuers. The validity period of the weighting recommendations is six months.

The weighting recommendations are based on our evaluation of whether the performance (measured by the development of the index's asset swap spread) of covered bonds from a certain country segment (sub-segment of the overall market) will on average significantly outperform (recommendation: overweight) or significantly underperform (recommendation: underweight) the iBoxx € Covered Index (overall market) in the next six months. A neutral weighting indicates that we do not expect the performance of the country segment in question to diverge materially from the iBoxx € Covered Index. Our weighting recommendations are based mainly on current market trends and relative value considerations in addition to macroeconomic factors including political risks.

The iBoxx € Covered Index is a basket of bonds and is defined and calculated by Markit. In order for covered bonds to be included in the iBoxx € Covered Index, they must meet certain conditions. These include, among other things: euro as the bond currency, fixed-rate interest coupon, an average rating as calculated by Markit in the investment grade area (at least Baa3/BBB-), residual maturity of at least one year and a minimum issuance volume of EUR 500m. Given its nature as a basket of bonds, differences can arise in terms of the average durations for the various country segments.

Portfolio recommendation, no investment recommendation

Categories of weighting recommendations

Notes on the iBoxx € Covered Index

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II. MANDATORY DISCLOSURES FOR FINANCIAL ANALYSES AND FURTHER REMARKS

1. Responsible Company

1.1 This **Financial Analysis** has been prepared by **DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main (DZ BANK)** as an investment firm.

Financial analyses are independent client information containing **generic investment recommendations** regarding **specific issuers or specific financial instruments, but they do not** make allowance for any individual investment criteria.

1.2 The **mandatory disclosures for Research Reports** (Financial Analyses and Other Research Information) as well as **further remarks, especially the Conflicts of Interest Policy of DZ BANK Research**, regarding **used methods, procedures, and statistics**, can be **read and downloaded free-of-charge** under www.dzbank.com/disclosures.

2. Competent Supervisory Authorities

DZ BANK is supervised as a credit institution and as an investment firm by:

– **European Central Bank - www.ecb.europa.eu**

Sonnemannstraße 20 in 60314 Frankfurt / Main and

– **Federal Financial Supervisory Authority (BaFin) - www.bafin.de**

Marie-Curie-Straße 24 - 28 in 60439 Frankfurt / Main

Regarding Research Reports (Financial Analyses and Other Research Information) the DZ BANK linked **local cooperative banks are supervised by:**

– **Federal Financial Supervisory Authority (BaFin) - www.bafin.de**

Marie-Curie-Straße 24 - 28 in 60439 Frankfurt / Main

3. Independent Analysts

3.1 The **Research Reports** (Financial Analyses and Other Research Information) of DZ BANK are independently prepared by its employed analysts or by competent analysts commissioned in a given case on the basis of the binding **Conflicts of Interest Policy**.

3.2 Each analyst involved in the preparation of the contents of this Research Report confirms that

- this Research Report represents his independent specialist evaluation of the analysed object in compliance with the Conflicts of Interest Policy of DZ BANK and
- his compensation depends neither in full nor in part, neither directly nor indirectly, on an opinion expressed in this Research Report.

4. Definitions of the Categories for Investment Recommendations in Financial Analyses

The **categories for investment recommendations in Financial Analyses** of DZ BANK are defined as follows:

4.1 Shares:

- Fundamental Analysis:

"Buy" means that the absolute appreciation expected in the next twelve months is greater than 10%.

"Sell" means that the absolute depreciation expected in the next twelve months is greater than 5%.

"Hold" means that the absolute *price* volatility expected in the next twelve months lies between +10% and -5%.

4.2 Fixed Income Instruments:

1. Government Bonds, SSAs, Financials and Corporate Bonds

The terms **"Low Risk"**, **"Moderate Risk"** and **"Elevated Risk"** are used as investment ratings when assessing individual issuers from the market segments Government Bonds, Agency Bonds, Financials (senior unsecured) and Corporate Bonds (senior unsecured). The classifications are independent of overriding allocation recommendations for market segments (cf. mandatory disclosures on other research information at www.dzbank.com/disclosures). This estimate is based on DZ BANK's expectations regarding the probability of default and/or the relative volatility of risk premiums over the next three years (cf. DZ BANK methodological studies at www.dzbank.com/disclosures).

The investment recommendation **"Low Risk"** indicates that DZ BANK a) considers the issuer's probability of default to be extremely low over a three-year period and/or b) expects a low spread volatility of the issuer's (senior) bonds denominated in EUR compared with other issuers in the segment. Senior bonds denominated in EUR from issuers classified as "Low Risk" are therefore generally suitable for longer-term investments and thus qualify as a basic investment in a portfolio.

The investment recommendation **"Moderate Risk"** indicates that DZ BANK a) considers the issuer's probability of default to be low over a three-year period and/or b) expects a moderate spread volatility of the issuer's (senior) bonds denominated in EUR compared with other issuers in the segment. Senior bonds denominated in EUR from issuers classified as "Moderate Risk" are suitable as an addition to a portfolio.

The investment recommendation **"Elevated Risk"** indicates that DZ BANK a) considers the issuer's probability of default is slightly elevated to high over a three-year period and/or b) expects a higher spread volatility of the issuer's (senior) bonds denominated in EUR compared with other issuers in the segment. Senior bonds denominated in EUR from issuers classified as "Elevated Risk" are only suitable as a speculative investment under certain conditions specified in individual cases.

2. Covered Bonds

When assessing an issuer's covered bond programme, the terms **"Outperformer"**, **"Market Performer"** and **"Underperformer"** are used as investment recommendation. The investment recommendation is based on DZ BANK's assessment of whether the credit spread return of an issuer's covered bonds will perform better than the market ("Outperformer"), perform worse than the market ("Underperformer") or perform in line with the market ("Market Performer") for bonds of comparable covered bond programmes over the next six months. The recommendation categories refer to covered bonds ("covered bank bonds") in EUR and are only valid for the publication date. Since issuers have usually issued a large number of bonds, the expected credit return cannot be quantified (cf. DZ BANK methodological studies at www.dzbank.com/disclosures).

4.3 Categories for isolated statements without investment recommendation

Statements on the **isolated evaluation of specific aspects that precede an investment recommendation** on a financial instrument and / or an issuer - **especially** according to the **sustainability criteria** defined by DZ BANK, its defined **value approach**, its defined **asset allocation** (DZ BANK Sample Portfolio), its defined sector strategy Euro-Stoxx (**DZ BANK Sector Favorites**), its defined valuation of payments to beneficiaries (**DZ BANK**

Dividend Aristocrats), their **weighting recommendations for market segments** or otherwise defined groups of different issuers, i.e. their **weighting recommendations in the overall market strategy Fixed Income**, in the *sector strategy Corporates* and their **weighting recommendations for covered bond jurisdictions** - are **not investment categories** and therefore **do not contain any investment recommendations**.

These isolated statements **alone** are **not sufficient** to form the basis of an investment decision. Reference is made to the explanation of the used relevant methods.

In the case of recommendations on market segments or otherwise defined groups of different issuers, the terms "**Overweight**", "**Underweight**" and "**Neutral weight**" are used.

"**Overweight**" means that the aforementioned bond segment is expected to perform significantly better on a six-month horizon than the average of the other bond segments in coverage, both in the event of a positive and negative overall market trend.

"**Underweight**" means that the aforementioned bond segment is expected to perform significantly worse on a six-month horizon than the average of the other bond segments in coverage, both in the event of a positive and negative overall market trend.

"**Neutral weight**" means that the bond segment in question is expected to perform approximately in line with the average of the other bond segments in the coverage over a six-month period.

The weighting recommendations for market segments or otherwise defined groups of different issuers are independent of the recommendations for individual issuers or those of superordinate or subordinate market segments. They are relative, i.e. if not all the segments mentioned are weighted "neutral", at least one bond segment is rated "overweight" and one bond segment is rated "underweight". Accordingly, the weighting recommendations are not an absolute statement about profit and loss (cf. DZ BANK methodological studies at www.dzbank.com/disclosures).

1. Overall market strategy

The weighting recommendations in the overall Fixed Income market strategy refer to the comparison of bond segments relative to one another. There are currently five bond segments in the overall market strategy: 1. Government Bonds, 2. Agency Bonds, 3. Covered Bonds, 4. Bank Bonds (senior unsecured), 5. Corporate Bonds (senior unsecured). Calculations of the total return are decisive for the expected performance. The weighting recommendations in the overall market strategy are independent of the weighting recommendations within the individual bond segments themselves, because the respective peer group within each individual bond segment is a completely different one. For example, weighting recommendations within government bond sector refer to issuer countries in relation to each other, which have no relevance at the level of weightings in the overall market strategy.

2. Sector strategy corporate bonds

In the corporate bond segment, we summarise the relative performance we expect of a sector in comparison with the developments forecast for the other sectors in a sector assessment. Calculations of the credit spread return are decisive for the expected performance.

3. Strategy covered bonds

Our weighting recommendations for Covered Bond jurisdictions ("country") are based on a comparison of the respective country segment (sub-index within the iBoxx € Covered Index) with the total index (iBoxx € Covered Index). The credit spread return is decisive for the expected performance.

5. Scheduled Updates and Validity Periods of Investment Recommendations

5.1 The frequency of **updates of Financial Analyses** depends in particular on the underlying macroeconomic conditions, current developments on the relevant markets, the current development of the analyzed companies, measures undertaken by the issuers, the behavior of trading participants, the competent supervisory authorities and the competent central banks as well as a wide range of other parameters. The periods of time named below therefore merely provide a **non-binding indication** of when an updated investment recommendation may be expected.

5.2 **No obligation exists to update an investment recommendation.** If an investment recommendation is updated, this update **replaces** the previous **investment recommendation with immediate effect**.

If no update is made, investment recommendations **end / lapse on expiry** of the **validity periods** named below. These periods **begin** on the **day** and at the **time** the investment recommendation is **completed**.

5.3 The **validity periods** for investment recommendations (**financial analyses**) are as follows:

Shares:

Fundamental analysis six months

Fixed income instruments:

Government bonds twelve months

SSAs twelve months

Financials (senior unsecured) twelve months

Corporate Bonds (senior unsecured) twelve months

Covered Bonds one trading day

5.4 **Evaluations of isolated aspects without investment recommendation**

have the following validity periods:

Sustainability analyses:

Analyses according to the **value approach**: one month

Asset allocation analyses (**DZ BANK Sample Portfolio**): one month

Euro Stoxx sector strategy (**DZ BANK Sector Favorites**): one month

Dividends (**DZ BANK Dividend Aristocrats**): three months

Credit Trend Issuers twelve months

Share indices (fundamental): three months

Currency areas: six to twelve months

Weighting recommendations for market segments six months

Overall market strategy six months

Sector strategy Corporate Bonds six months

Strategy Covered Bonds: six months

Derivatives:

(Bund futures, Bobl futures, treasury futures, Buxl futures): one month

Commodities: one month

5.5 In a given case, updates of analyses may also be **temporarily suspended without prior announcement** on account of compliance with supervisory regulations.

5.6 If **no updates are to be made in the future** because the analysis of an object is to be discontinued, notification of this shall be made in the final publication or, if no final publication is made, the close of the analysis shall be given in a separate note.

6. General Overview of Investment Recommendations on Financial Instruments and Issuers

Each working day DZ BANK prepares a **general overview of all investment recommendations** on financial instruments and / or issuers disseminated in the last **twelve months**, containing all details specified by the supervisor. This list can be **read and downloaded free-of-charge** under www.dzbank.com/disclosures.

7. Avoiding and Managing Conflicts of Interest

7.1 DZ BANK Research has a binding **Conflicts of Interest Policy** which ensures that the relevant conflicts of interest of DZ BANK, the DZ BANK Group, the analysts and employees of the Research and Economics Division and persons closely associated with them are avoided, or - if such interests are effectively unavoidable - are appropriately identified, managed, disclosed and monitored. Material aspects of this policy, which can be **read and downloaded free-of-charge** under www.dzbank.com/disclosures are summarized as follows.

7.2 DZ BANK organizes its Research and Economics Division as a confidentiality area and protects it against all other organizational units of DZ BANK and the DZ BANK Group by means of Chinese walls. The departments and teams of the Division that produce Financial Analyses are also protected by Chinese walls and by spatial separation, a closed doors and clean desk policy. Beyond the limits of these confidentiality areas, communication may only take place in both directions according to the need-to-know principle.

7.3 The Research and Economics Division does not disseminate Research Reports on issues of DZ BANK or on financial instruments issued by companies of the DZ BANK Group.

7.4 **In principle, employees of the Research and Economics Division and persons closely associated with them may not unrestrictedly invest in financial instruments covered by them in the form of Financial Analyses. For commodities and currencies, DZ BANK has also defined an upper limit based on the annual gross salary of each employee which, in the opinion of DZ BANK, also excludes the possibility of personal conflicts of interest among employees in the preparation of Other Research Information.**

7.5 Other theoretically feasible, information-based personal conflicts of interest among employees of the Research and Economics Division and persons

closely associated with them are avoided in particular by the measures explained in **sub-paragraph 7.2** and the other measures described in the policy.

- 7.6** The remuneration of employees of the Research and Economics Division depends neither in whole nor in the variable part directly or materially on the earnings from investment banking, trade in financial instruments, other securities related services and / or trade in commodities, merchandise, currencies and / or on indices of DZ BANK or the companies of the DZ BANK Group.
- 7.7** DZ BANK and companies of the DZ BANK Group issue financial instruments for trading, hedging and other investment purposes which, as underlying instruments, may refer to financial instruments, commodities, merchandise, currencies, benchmarks, indices and / or other financial ratios also covered by DZ BANK Research. Respective conflicts of interest are primarily avoided in the Research and Economics Division by means of the aforementioned organizational measures.
- 7.8 Investment recommendations for the same financial instrument / issuer that have deviated in the last 12 months are stated in the respective current Financial Analysis together with the relevant investment recommendation category and date.**
- 7.9** The **quarterly information** on the share of the investment categories stated in **sub-paragraph 4.1** and **4.2** for **shares and fixed income instruments** in the total number of investment recommendations of DZ BANK and the **information** on the share of these categories relating to the issuers to whom DZ BANK has rendered services in the **past twelve months** in accordance with Appendix I Sections A and B of Directive 2014/65/EU, can be **read and downloaded free-of-charge** under **www.dzbank.com/disclosures**.
- 7.10** The following **definitions** explain the potential conflicts of interest (so-called **'keys'**) of DZ BANK and / or the companies of the DZ BANK Group that must be stated in accordance with supervisory regulations in respect of the issuers and / or financial instruments analyzed in a Financial Analysis:
- 1)** DZ BANK owns a **net long position** exceeding 0,5% of the total issued share capital of the issuer, calculated according to Article 3 of Regulation (EU) No. 236/2012 and Chapter III and IV of Commission Delegated Regulation (EU) No. 918/2012.
 - 2)** DZ BANK owns a **net short position** exceeding 0,5% of the total issued share capital of the issuer, calculated according to Article 3 of Regulation (EU) No. 236/2012 and Chapter III and IV of Commission Delegated Regulation (EU) No. 918/2012
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 - 5)** DZ BANK, any of its affiliates or a natural or legal person involved in the preparation of the investment recommendation acting under contract, is a **market maker, designated sponsor and / or liquidity provider** in financial instruments of the issuer at the time of publication of this research report.
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10. FIXED INCOME RESEARCH: RECOMMENDATION CHANGES WITHIN THE LAST 12 MONTHS FOR COVERED BONDS

Issuer	covered bond programme	validity day	Recommendation
Aareal Bank	mortgage covered bonds	09.02.2022	Marketperformer
ABN AMRO Bank	mortgage covered bonds	16.03.2022	Underperformer
Achmea Bank	mortgage covered bonds CPT programme		16.03.2022
	Outperformer		
Aegon Bank	mortgage covered bonds CPT programme		16.03.2022
	Outperformer		
Aktia Bank	mortgage covered bonds	11.03.2022	Marketperformer
Ålandsbanken Abp	mortgage covered bonds	11.03.2022	Underperformer
AXA Bank Europe SCF	mortgage covered bonds	10.02.2022	Marketperformer
AXA Home Loan SFH	mortgage covered bonds	10.02.2022	Marketperformer
Banca Carige	mortgage covered bonds	15.02.2022	Outperformer
Banca Monte dei Paschi di Siena	mortgage covered bonds OBG1	25.10.2021	Underperformer
Banca Monte dei Paschi di Siena	mortgage covered bonds OBG1	02.08.2021	Outperformer
Berlin Hyp	mortgage covered bonds	27.01.2022	Marketperformer
Berlin Hyp	mortgage covered bonds	05.11.2021	Marketperformer
Berlin Hyp	public-sector covered bonds	27.01.2022	Marketperformer
Berlin Hyp	public-sector covered bonds	05.11.2021	Marketperformer
BPER Banca	mortgage covered bonds	15.02.2022	Underperformer
Coöperatieve Rabobank UA	mortgage covered bonds	16.03.2022	Underperformer
Danske Mortgage Bank	mortgage covered bonds	11.03.2022	Marketperformer
De Volksbank	mortgage covered bonds	16.03.2022	Underperformer
DNB Boligkreditt	mortgage covered bonds	16.11.2021	Marketperformer
F. van Lanschot Bankiers	mortgage covered bonds CPT programme		16.03.2022
	Outperformer		
HSBC SFH (France)	mortgage covered bonds	21.06.2021	Underperformer
ING BANK	mortgage covered bonds	16.03.2022	Underperformer
Landesb. Baden-Württemberg	mortgage covered bonds	27.01.2022	Marketperformer
Landesb. Baden-Württemberg	mortgage covered bonds	05.11.2021	Marketperformer
Landesb. Baden-Württemberg	public-sector covered bonds	27.01.2022	Marketperformer
Landesb. Baden-Württemberg	public-sector covered bonds	05.11.2021	Marketperformer
Landesbank Hessen-Thüringen	mortgage covered bonds	05.11.2021	Marketperformer
Landesbank Hessen-Thüringen	public-sector covered bonds	05.11.2021	Marketperformer
Lloyds Bank	mortgage covered bonds	09.04.2021	Outperformer
MMB SCF	mortgage covered bonds	21.06.2021	Outperformer
Mortgage Society of Finland (Suomen Hypoteekkiyhdistys)	mortgage covered bonds		11.03.2022
	Underperformer		
Nationale-Nederlanden Bank	mortgage covered bonds CPT programme		16.03.2022
	Outperformer		
Nationwide Building Society	mortgage covered bonds	09.04.2021	Underperformer
NIBC Bank	mortgage covered bonds CPT programme		16.03.2022
	Outperformer		
Nordea Mortgage Bank	mortgage covered bonds	11.03.2022	Marketperformer
Oma Säästöpankki Oyj	mortgage covered bonds	11.03.2022	Underperformer
OP Mortgage Bank	mortgage covered bonds	11.03.2022	Marketperformer
Raiffeisen Bank International	mortgage covered bonds	16.03.2022	Outperformer
Sbanken Boligkreditt	mortgage covered bonds	16.11.2021	Underperformer
Sbanken Boligkreditt	mortgage covered bonds	23.04.2021	Outperformer
Sp Mortgage Bank	mortgage covered bonds	11.03.2022	Underperformer
Unicredit	mortgage covered bonds OBG2	25.10.2021	Marketperformer
Unicredit	mortgage covered bonds OBG2	02.08.2021	Underperformer
UniCredit Bank Austria	mortgage covered bonds	16.03.2022	Underperformer

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