Government Bonds

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Methodology Rates Markets Research Government Bonds

BONDS

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The bonds of 18 issuers are covered as part of the analysis work of DZ BANK's Rates Markets Research for Government Bonds. These issuers are **Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Hungary.**

We issue one recommendation for each senior unsecured e**uro-denominated bond** issued by the states mentioned above (referred to in the following as "**bonds**" or "**government bonds**").

The eurozone countries of **Estonia, Luxemburg, Malta and Cyprus** are only analysed in the context of their impact on the 18 issuers covered. Other government issuers who issue euro-denominated bonds are not covered. We **do not publish** an **investment recommendation** for **any issuer apart from the 18 mentioned above**.

Our investment recommendations for the bonds of government issuers are based first and foremost on a fundamental analysis of the respective issuer and, derived from that, on an assessment of the approximate default risk from the point of view of the next three years. Our investment recommendation methodology also factors in the expected volatility of risk premiums in order to take into account potential unusual developments and events − so-called idiosyncratic risks − such as an increase in political threats or differences in the tradability of bonds (liquidity) in the secondary market.

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

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THEORETICAL BASIS

Our investment recommendations for the bonds of government issuers are based first and foremost on a fundamental analysis of the respective issuers and, derived from that, on an assessment of the approximate default risk from the point of view of the next three years. Our investment recommendation methodology also factors in the expected volatility of risk premiums in order to take into account potential unusual developments and events − so-called idiosyncratic risks − such as an increase in political threats or differences in the tradability of bonds (liquidity) in the secondary market.

Risk premium or credit spread

For the purpose of a relative comparison of the volatility of the issuers' risk premiums, we look at their spread in relation to the yield of less risky Bunds. Since Bunds currently have an AAA rating, they are regarded as largely risk-free by the capital market. The spread therefore expresses a risk premium in relation to a risk-free investment. In a wider sense, risks premiums can be compared in terms of concept with the credit spreads in DZ BANK's credit research; the difference is that Bund yields are the risk-free value in this instance and not the swap rates. Essentially, however, risk premiums in the case of EMU sovereign bonds also reflect a different default risk in relation to an issuer without default risk and they can therefore be described virtually as credit spreads. These credit spreads change over time on the back of market-led changes in the assessment of the issuer. As regards volatility, it is a statistical measure of fluctuation based on mathematical methods.

Credit trend

The credit trend is the analyst’s opinion regarding the likely direction of an issuer’s agency ratings. The credit trend is a visualized forecast of the change in direction of the simple average of Moody's, Fitch and S&P ratings over the next twelve months: “Positive” and/or (🡅) is assigned in the case of forecast upgrades, “negative” and/or (🡇) is assigned in the case of corresponding forecast downgrades, “stable” and/or (🡆) is assigned in the case of forecast unchanged ratings. If none of the three agencies mentioned has assigned a rating, no forecast of the credit trend is made for the issuer concerned.

WIDER FACTORS

In any analysis of individual bonds in EMU government bond research, analysts have to factor in not only the issuer-specific aspects which we describe later on, but also wider aspects. These are factors of a general nature which can influence an issuer's credit rating and the investment recommendation to be derived. The analyst in charge of a specific issuer must take these factors into consideration in the analysis of the respective issuer in such a way that DZ BANK Research's assessments and recommendations can be based on identical criteria and be essentially consistent.

DZ BANK Research's economic forecasts are key parameters. Growth rates for GDP and its components, inflation rates, data on the global economy and similar figures can be important in assessing the issuer in question. DZ BANK Research's interest rate forecast is another wider reference point for the analysis of individual securities and the recommendations derived from it. Political aspects of a global nature are another important aspect. Global political uncertainties, wars and conflicts can even have an influence on the assessment of third-party issuers which are not directly involved or on the recommendation derived from it.

New, wider regulatory requirements, monetary policy and sundry factors can also be relevant for the investment recommendation.

Likewise, a general risk assessment of the market also has to be taken into account. In the event of a general rise in risk aversion in the market, e.g. in the wake of a sudden deterioration in the global economic situation, there also tends to be an increase in the volatility of risk premiums, above all in the case of issuers with a poorer credit rating. Conversely, the volatility of risk premiums generally declines during periods of strong economic activity.

DZ BANK Research's wider forecasts have to be taken into account by analysts in their analysis of the bonds of individual issuers. As part of this process, it is the responsibility of the respective analysts to assess the potential impact of central requirements on the object of their analysis.

RELEVANT FACTORS IN THE ANALYSIS OF GOVERNMENT BONDS

The bonds of 18 issuers are covered as part of the analysis work of DZ BANK's Rates Markets Research for government bonds. These issuers are Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia and Spain. We issue a recommendation for euro-denominated government bonds for the entirety of the bonds of these individual issuers. We only look at euro states Estonia, Luxemburg, Malta and Cyprus in so far as they have any impact on the 18 issuers we cover. We do not issue any investment recommendation for the bonds of these other EMU states.

Our analysis of the bonds of sovereign issuers consists of a fundamental analysis of the respective issuer along with a market-related analysis of the expected volatility of the risk premiums of any outstanding bonds. Both parts of the analysis are combined through the respective analyst's expert knowledge. This knowledge is based on the analysts' experience of the relevant markets, of the peer group covered by DZ BANK Government Bond Research and of individual issuers. The result of the combination forms the investment recommendation. The depth of analysis depends to a great extent on the information which is provided by individual states on the respective authorities or on the information which can be obtained from third-party sources such as institutions or organisations.

» **Fundamental analysis of the issuer**
DZ BANK's government bond research involves firstly a fundamental analysis of the issuer. This focuses on the issuer's credit rating, in other words the prospect of the issuer meeting its payment obligations in full in the next three years. For this purpose, our analysts use the current assessments by rating agencies Moody's, S&P and Fitch as a guide. In addition, under the heading "Credit Trend", the analysts carry out an assessment of the likely rating changes over the next 12 months. The analysts also conduct their own assessment of the issuer's fundamental situation. For this purpose, they look at the issuer's debt sustainability from the point of view of the next three years. As part of this process, the analysts make certain assumptions on the pace of economic growth, new

and total debt, the risk premium trend, along with assumptions on the issuer's options for accessing the primary market, on the political situation, the influence of monetary policy and other factors which influence an issuer's credit rating, taking into account DZ BANK's interest-rate and economic forecasts.

» **Market-related analysis of the issuer**
Another part of the analysis involves an assessment of the expected volatility of the risks premiums. This is influenced by the market as a whole as well as by factors specific to each issuer. The analysts will make assumptions on the future volatility trend based on their own expert knowledge, taking into account empirical values relating to past movements in the volatility of a particular issuer's bonds, and make assumptions about the performance of the market as a whole on issuer-specific factors. Reasons which could lead to a general increase in market volatility would include for example an unexpected decision by a relevant central bank such as the ECB or US Federal Reserve. Issuer-specific factors which influence volatility include for example parliamentary elections or decisions regarding economic policy.

These investment recommendations are primarily the result of a fundamental analysis of the relevant issuer. Apart from our main focus on this fundamental analysis, our investment recommendation methodology also takes into account the expected volatility of risk premiums in order to factor in potential unusual developments and events relating to the issuers. The analyst's approach is therefore specific to each situation and cannot be applied universally to each market situation. Consequently, the analysts' professional experience and methodological knowledge are a crucial factor in the opinion-forming process in a fundamental and market-related analysis of sovereign issuers in various market situations.

RELEVANT FACTORS IN ASSIGNING INVESTMENT RECOMMENDATIONS

In Fixed Income Research, investment recommendations on individual issuers in our coverage are split into the following categories: "**low risk (LR)**", "**moderate risk (MR)**" and "**elevated risk (ER)**". They are each valid for twelve months and relate to euro-denominated senior bonds.

Low risk (LR)

The "low risk" investment recommendation indicates
a) that we rate the default probability of the issuer as exceptionally low over a three-year horizon and/or
b) that we expect low spread volatility for the issuer's euro-denominated senior bonds compared with other issuers in the segment.

The bonds of issuers rated as "low risk" are therefore fundamentally suitable for a longer-term investment and hence as a core part of a portfolio.

Moderate risk (MR)

The "moderate risk" investment recommendation indicates
a) that we regard the default probability of the issuer over the next three years as limited and/or
b) that we expect moderate spread volatility for the issuer's euro-denominated senior bonds compared with other issuers in the segment.

The "moderate risk" investment recommendation differs from the "low risk" recommendation through a greater risk. Bonds rated as "moderate risk" are therefore more suitable as an additional investment in a portfolio.

Elevated risk (ER)

The "elevated risk" investment recommendation indicates
a) that we rate the default probability of the issuer over the next three years as slightly elevated to and/or
b) that we expect heightened spread volatility for the issuer's euro-denominated senior bonds compared with other issuers in the segment.

Risks involved in the case of an "elevated risk" recommendation are greater than with a "moderate risk" recommendation. The bonds of issuers rated as "elevated risk" are therefore only suitable as a speculative investment under specific conditions which will be outlined in each case.

DZ BANK INVESTMENT RECOMMENDATION METHODOLOGY

Recommendation	Default probability	Spread volatility	Suitability
Elevated Risk	slightly elevated to high	high	as speculative investment under certain conditions, which are specified in each individual case
Moderate Risk	low	medium	as addition to portfolio
Low Risk	extremely low	low	longer-term investment / basic investment

Source: DZ BANK Research

SOURCES: DATA, STUDIES, INFORMATION

As regards the sources of information which DZ BANK Research uses to form an opinion, a distinction is made between concrete and non-concrete origin. Our information is taken from specialist sources.

» **Concrete sources of information**
As part of the ongoing analysis of all relevant issuers and instruments, there may be crucial changes in the relevant environment which can lead to an adjustment (which must comply with technical and methodological requirements) of expectations regarding the evolution of issuer profiles or of the market performance of relevant financial instruments in the coverage. In such an eventuality, there will be concrete information in the form of information available in the public domain from the media, freely accessible academic analyses, widely known/discussed legislation plans, state budget plans, regulation measures, public communication from central banks or a rating agency and/or concrete calculations carried out by the analyst which has led to a crucial change in the expectation. This is also true of tactically/strategically-driven investment recommendations.

Non-concrete sources of information

As part of the analysis coverage of EMU government bonds, analysts are constantly processing relevant information which determines the current direction of the market and factoring it into the way they form their opinion. As part of this process, the analysts have to take into account as yet unverified information just as much as the ongoing public discussion (political also) regarding the market trend and balance this with their own views of the market. In addition, they have to process general information put forward by the media or statements from the political front and/or other bodies such as institutions or central banks or general, public reporting on geopolitics. Analysts have to evaluate, disregard or take on board this information in their permanent processing in order to adjust or stick to their opinion.

Technical sources of information

From a technical point of view, the information systems from which our analysts draw their information are Bloomberg, Reuters, Datastream and other market information service providers, along with publicly accessible websites of country-specific offices, authorities, institutions and overarching organisations. In addition, various print media and TV reporting services are used.

I. IMPRINT

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DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main is subject to the supervision of the Federal Financial Supervisory Authority (BaFin) and the European Central Bank (ECB).

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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 Publications** (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 Publications (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 Publications** (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 Publication confirms that
- this Research Publication 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 Publication.

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

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.de/mandatory 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.de/mandatory 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.de/mandatory disclosures**).

5 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.de/mandatory disclosures**).

5.1 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.

5.2 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.

5.3 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.

6. Scheduled Updates and Validity Periods of Investment Recommendations

6.1 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.

6.2 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**.

6.3 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

6.4 Evaluations of isolated aspects without investment recommendation have the following validity periods:

Sustainability analyses:	one month
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

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

6.6 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.

7. 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.

8. Avoiding and Managing Conflicts of Interest

8.1 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. Materiel aspects of this policy, which can be **read** and **downloaded free-of-charge** under **www.dzbank.com/disclosures** are summarized as follows.

8.2 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.

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

8.4 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.

8.5 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 8.2** and the other measures described in the policy.

8.6 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.

8.7 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.

8.8 **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.**

8.9 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**.

8.10 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

3) DZ BANK or any of its affiliates beneficially **owns 1 % or more** of any class of common equity securities of the issuer.

4) The issuer holds shares of DZ BANK exceeding 5 % of its total issued share capital.

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.

6) DZ BANK, any of its affiliates or a natural or legal person involved in the preparation of the investment recommendation acting under contract, has **managed or co-managed** a **private and / or publicly disclosed offering** of financial instruments of the issuer in the past 12 months.

7) The issuer is or has been a **client** to DZ BANK regarding **investment banking services** over the 12-month period preceding the date of publication of this research report.

8) DZ BANK or any of its affiliates received **compensation** for **investment banking services** from the issuer in the past 12 months.

9) DZ BANK or any of its affiliates expects to receive or intends to seek **compensation** for **investment banking services** from the issuer in the next 3 months.

10) The issuer is or has been a **client** to DZ BANK, to any of its affiliates or a natural or legal person involved in the production of the investment recommendation acting under contract regarding **securities-related services** as set out in Sections A and B of Annex I of Directive 2014/65/EU, which agreement has been in effect or has given rise to the obligation to pay or receive compensation during the 12-months period preceding the date of publication of this research report.

11) The issuer is or has been a **client** to DZ BANK regarding **non-securities services** over the 12-month period preceding the date of publication of this research report.

12) DZ BANK and / or any of its affiliates have been a party to an **agreement** with the issuer relating to the **preparation of investment recommendations** concerning financial Instruments issued by him.

9. Recipients and Use of Financial Analyses

9.1 Recipients

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10. FIXED INCOME RESEARCH: RECOMMENDATION CHANGES WITHIN THE LAST 12 MONTHS

ABN AMRO Bank	18.09.2019	Underperformer
Achmea Bank	02.12.2019	Underperformer
Adolf Würth GmbH & Co. KG	02.12.2019	Marketperformer
Aegon	07.10.2019	Marketperformer
Ahold Delhaize	14.05.2020	Marketperformer
AIB Group	13.12.2019	Marketperformer
AIB Group	18.09.2019	Underperformer
AIB Group	11.09.2019	Marketperformer
Airbus	02.12.2019	Marketperformer
Akzo Nobel	23.04.2020	Marketperformer
Allianz	30.10.2019	Underperformer
America Movil	17.07.2019	Outperformer
Amgen	28.11.2019	Marketperformer
Anheuser-Busch InBev	03.03.2020	Marketperformer
Apple	04.02.2020	Outperformer
AT&T	02.12.2019	Marketperformer
Australia and New Zealand Banking Group	18.09.2019	Marketperformer
Austria	29.08.2019	Underperformer
Austria	25.06.2019	Marketperformer
AXA	02.12.2019	Marketperformer
Bank of America	23.04.2020	Outperformer
Bank of America	18.09.2019	Marketperformer
Bank of America	25.06.2019	Outperformer
Bank of Ireland Group	13.12.2019	Marketperformer
Bank of Ireland Group	18.09.2019	Underperformer
Bank of Ireland Group	11.09.2019	Marketperformer
Bank of Nova Scotia	02.12.2019	Underperformer
Barclays PLC	13.12.2019	Marketperformer
BASF	26.03.2020	Marketperformer
Bayerische Landesbank	02.12.2019	Marketperformer
BayWa	02.12.2019	Marketperformer
Belfius Bank	18.09.2019	Underperformer
Belfius Bank	25.06.2019	Outperformer
Belgium	19.11.2019	Marketperformer
Belgium	29.08.2019	Underperformer
Belgium	25.06.2019	Outperformer
Berlin Hyp	25.06.2019	Marketperformer
BNP Paribas	14.02.2020	Marketperformer
BP	09.03.2020	Underperformer
BPCE	25.06.2019	Marketperformer
BT Group	11.09.2019	Underperformer
Carrefour	29.10.2019	Marketperformer
Carrefour	11.09.2019	Outperformer
Carrefour	18.07.2019	Marketperformer
Carrefour	27.05.2019	Outperformer
Caterpillar	02.12.2019	Marketperformer
CEZ	27.03.2020	Outperformer
Citigroup	02.12.2019	Marketperformer
Commonwealth Bk of Australia	18.09.2019	Marketperformer
Cooperatieve Rabobank UA	18.09.2019	Underperformer
Cooperatieve Rabobank UA	25.06.2019	Outperformer
Crédit Agricole	25.06.2019	Marketperformer
Crédit Mutuel Arkéa SACC	25.06.2019	Outperformer
Credit Suisse Group	18.09.2019	Underperformer
Credit Suisse Group	25.06.2019	Outperformer
Danone	06.03.2020	Marketperformer
Danone	25.07.2019	Underperformer
Danske Bank	28.11.2019	Underperformer
DekaBank	02.12.2019	Marketperformer
Deutsche Bank	08.07.2019	Outperformer
Deutsche Bank	25.06.2019	Marketperformer
Deutsche Pfandbriefbank	25.06.2019	Marketperformer
De Volksbank	18.09.2019	Underperformer
De Volksbank	25.06.2019	Outperformer
Dexia Group	02.12.2019	Underperformer
DNB Bank	18.09.2019	Underperformer
DNB Bank	25.06.2019	Outperformer
E.ON	17.09.2019	Marketperformer
Enel	03.06.2019	Underperformer
ENGIE	02.12.2019	Marketperformer
ENI	09.03.2020	Marketperformer
ENI	03.06.2019	Underperformer
Equinor	26.09.2019	Marketperformer
Erste Group Bank	18.09.2019	Underperformer
EWE	02.12.2019	Marketperformer
Féd. des caisses Desjardins	02.12.2019	Marketperformer
Finland	19.11.2019	Underperformer
Finland	25.06.2019	Marketperformer
Ford Motor	19.02.2020	Underperformer
France	29.08.2019	Marketperformer
France	25.06.2019	Outperformer
Fresenius SE & Co. KGaA	31.07.2019	Marketperformer
General Electric	11.05.2020	Underperformer
General Electric	11.11.2019	Marketperformer
General Electric	16.08.2019	Underperformer
Germany	29.08.2019	Underperformer
Germany	25.06.2019	Marketperformer
GlaxoSmithKline	09.09.2019	Marketperformer
Goldman Sachs Group	25.06.2019	Marketperformer
Greece	29.08.2019	Outperformer
Greece	25.06.2019	Marketperformer
GRENKE	03.09.2019	Marketperformer
Hamburg Commercial Bank	07.05.2020	Marketperformer
Hamburg Commercial Bank	02.12.2019	Outperformer
Hannover Rück	21.11.2019	Underperformer
HeidelbergCement	07.04.2020	Marketperformer
HeidelbergCement	21.01.2020	Outperformer
Henkel	02.12.2019	Underperformer
Hochtief	23.01.2020	Marketperformer
Hochtief	09.09.2019	Outperformer
HSBC Holdings	18.09.2019	Marketperformer
HYPO NOE	02.12.2019	Underperformer
IBM	02.12.2019	Outperformer
ING Groep	18.09.2019	Underperformer
Intesa Sanpaolo	26.02.2020	Marketperformer
Intesa Sanpaolo	30.08.2019	Outperformer
Intesa Sanpaolo	03.06.2019	Underperformer
Italy	29.08.2019	Outperformer
Italy	03.06.2019	Underperformer
JPMorgan Chase & Co.	17.04.2020	Outperformer
JPMorgan Chase & Co.	18.09.2019	Marketperformer
JPMorgan Chase & Co.	25.06.2019	Outperformer
KBC Groep	18.09.2019	Underperformer
KBC Groep	25.06.2019	Outperformer
Koninklijke KPN	24.07.2019	Marketperformer
LafargeHolcim	07.04.2020	Outperformer
LafargeHolcim	06.03.2020	Marketperformer
LafargeHolcim	27.02.2020	n.a.
Landesb. Baden-Württemberg	02.12.2019	Underperformer
Landesbank Hessen-Thüringen	02.12.2019	Underperformer
Linde PLC	08.05.2020	Marketperformer
Lloyds Banking Group	13.12.2019	Marketperformer
Lufthansa	24.04.2020	Underperformer
Lufthansa	26.03.2020	Marketperformer
Lufthansa	24.02.2020	Underperformer
Merck KGaA	10.03.2020	Marketperformer
Microsoft	24.02.2020	Outperformer
Mondelez International	13.05.2020	Outperformer
Mondelez International	31.07.2019	Marketperformer
Munich Re	02.12.2019	Underperformer
National Australia Bank	18.09.2019	Marketperformer
Nationwide Building Society	13.12.2019	Marketperformer
Nationwide Building Society	22.11.2019	Underperformer
Nestlé	02.12.2019	Marketperformer
Netherlands	29.08.2019	Underperformer
Netherlands	25.06.2019	Marketperformer
NORD/LB Girozentrale	02.12.2019	Marketperformer
Nordea Bank Abp	18.09.2019	Underperformer
Nordea Bank Abp	25.06.2019	Outperformer
Novartis	02.12.2019	Marketperformer
Nykredit Realkredit	02.12.2019	Underperformer
OMV	09.03.2020	Marketperformer
OMV	02.12.2019	Underperformer
OP Corporate Bank	18.09.2019	Underperformer
OP Corporate Bank	25.06.2019	Outperformer
Orange	31.03.2020	Outperformer
PepsiCo	20.02.2020	Marketperformer
Petrobras	02.08.2019	Marketperformer
Peugeot SA	30.10.2019	Marketperformer
Pfizer	18.10.2019	Marketperformer
Portugal	25.06.2019	Marketperformer
Procter & Gamble	30.09.2019	Marketperformer
Renault	21.10.2019	Underperformer
Repsol	09.03.2020	Underperformer
Repsol	20.11.2019	Marketperformer
Rio Tinto Ltd.	02.12.2019	Outperformer
RLB Niederösterreich	02.12.2019	Marketperformer
RLB Oberösterreich	23.10.2019	Marketperformer
Robert Bosch GmbH	02.12.2019	Underperformer
Roche	11.02.2020	Marketperformer
Roche	02.12.2019	Outperformer
Rolls-Royce Holdings	12.03.2020	Underperformer
Royal Bank of Canada	02.12.2019	Underperformer
Royal Bank of Scotland Group	13.12.2019	Marketperformer
Royal Dutch Shell	29.11.2019	Marketperformer
RWE	02.12.2019	Marketperformer
Saint-Gobain	01.10.2019	Marketperformer
Sanofi	02.12.2019	Marketperformer
SBAB Bank	02.12.2019	Underperformer
Schlumberger	09.03.2020	Underperformer
Schlumberger	28.01.2020	Marketperformer
SEB	18.09.2019	Underperformer
SEB	25.06.2019	Outperformer
Siemens	01.08.2019	Marketperformer
Société Générale	18.09.2019	Marketperformer
Sparebank 1 SMN	02.12.2019	Underperformer
Sparebank 1 SR-Bank	02.12.2019	Underperformer
Sparebank 1 Østlandet	02.12.2019	Underperformer
Sparebanken Vest	02.12.2019	Underperformer
Standard Chartered	02.12.2019	Marketperformer
SUEZ	05.03.2020	Marketperformer
Svenska Handelsbanken	18.09.2019	Underperformer
Svenska Handelsbanken	25.06.2019	Outperformer
Swedbank	02.12.2019	Underperformer
Swiss Re	13.11.2019	Underperformer
Telenor	30.04.2020	Marketperformer
Telenor	07.04.2020	n.a.
Telia Company	02.12.2019	Underperformer
Telstra Corp	15.01.2020	Marketperformer
The Kraft Heinz Company	27.03.2020	Underperformer
thyssenkrupp	28.02.2020	Marketperformer
Total	09.03.2020	Outperformer
Total	11.09.2019	Marketperformer
Toyota Motor	02.12.2019	Marketperformer
UBS Group	18.09.2019	Underperformer
UBS Group	25.06.2019	Outperformer
Unibail-Rodamco-Westfield	20.04.2020	Marketperformer
Unicredit	26.02.2020	Marketperformer
Unicredit	30.08.2019	Outperformer
Unicredit	03.06.2019	Underperformer
Unilever N.V.	12.02.2020	Underperformer
Vattenfall	02.12.2019	Marketperformer
Veolia Environnement	02.12.2019	Underperformer
Vodafone Group	14.06.2019	Marketperformer
Vonovia	12.05.2020	Outperformer
Wells Fargo	02.12.2019	Marketperformer
Westpac Banking Corp.	18.09.2019	Marketperformer
Zurich Insurance Group	29.11.2019	Underperformer

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