

Financials

A Research Publication by DZ BANK AG

Methodological approach to financials credit research

BONDS

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- » DZ Bank's Financials Credit Research is aimed at the local cooperative banks (Volks- und Raiffeisenbanken), institutional clients in Germany and abroad and central banks; forwarding and making it available, by whatever means, to natural and legal persons as well as any other institutions with place of domicile and/or business in the United States of America (USA) is inadmissible and prohibited. It is generally not suitable for private clients.
- » **"Financials"** is a collective term for banks and insurance companies. Within DZ Bank's Financials Credit Research unsecured bonds of about 80 financials from Europe, Australia, Canada and the USA are examined and analysed as part of the **"Financials Master List"**. We issue an investment recommendation for these issuers' senior unsecured (senior preferred or senior non-preferred) bonds.
- » The term **"bonds"** relates in this context and also in the following paragraphs exclusively to the respective issuer's euro-denominated fixed rate senior unsecured (senior preferred or senior non-preferred) bonds.
- » Analysis of the bonds of financials essentially comprises two parts, namely the issuer's creditworthiness and, based on this, an assessment of the relative attractiveness of the respective bonds, with additional consideration of the bond-specific risks and expected overall market development. In doing so, we focus exclusively on the expected credit spread trend (asset swap spread) of the bonds. Assessments about the development of the yield curve are not included in our recommendations.
- » Our analyses do not include a credit rating within the meaning of Regulation (EC) No. 1060/2009 of 16 September 2009.

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THEORETICAL BASIS

Our investment recommendations for bonds are based on our assessment of the development of the asset swap spreads of the respective issuers' bonds relative to the market as a whole.

In an asset swap a fixed-rate bond is combined with an interest rate swap and in this way, a bond that is virtually free of interest rate risk is created synthetically. The yield of this bond can be stated as a pick-up over the relevant interest rate curve, and, in the case of euro-denominated bonds, the Euribor curve. This pick-up represents the credit spread and is an indicator of this bond's credit risk.

SUPERORDINATE FACTORS

When carrying out single value analysis in credit research, analysts must also take into account superordinate aspects in addition to the issuer-specific analysis described below. These are influencing factors of a general nature that can affect the credit rating of an issuer and the resulting investment recommendation. The analyst responsible for the relevant issuer must take these influencing factors into consideration accordingly when analysing the individual bonds so that the assessments and recommendations of DZ BANK Research are based on identical assumptions and are consistent in themselves.

The economic forecasts of DZ BANK Research are a key determining factor. Growth rates of GDP and its components, inflation rates, data on the global economy and similar parameters may be of importance when assessing the respective issuer. The interest rate forecast of DZ BANK Research forms a further superordinate reference point for analysing individual values and the resultant recommendations. Political aspects of a global or national nature are an additional point. Worldwide political uncertainties, wars, conflicts or problems in individual countries can also have an influence on the assessment of third-party issuers not directly involved or the recommendation derived from this.

Moreover, new regulatory stipulations, monetary policy and other factors may be relevant for formulating an investment recommendation.

The general risk assessment of the market should also be taken into account. In the event of a rising general risk propensity on the market, the credit spreads of the bonds of all issuers tend to go down, meaning that in such an environment the bonds of issuers with a worse credit rating, whose credit spreads are trading at a relatively higher level, offer the largest yield from "carry" and credit spread narrowing. Conversely, a deterioration in the general market sentiment and a rising risk aversion tend to lead to a situation where the credit spreads of all the issuers' bonds widen and in such a climate, the bonds of issuers with a better credit rating, whose credit spreads are trading at a relatively narrow level, tend to offer the greatest yield (or lower loss) from "carry" and credit spread widening.

The superordinate forecasts of DZ BANK Research have to be taken into account by analysts when analysing the individual issuers. The respective analyst has to evaluate the effects of the key estimates on their respective object of analysis.

RELEVANT FACTORS IN THE CREDIT ANALYSIS OF FINANCIALS

The credit analysis of financials is made up of several modules relating to various risk aspects which can cause a default or a bail-in. The individual components are not combined as a kind of model for a credit assessment with a set wording, but are analysed and evaluated individually by the analyst based on his expert knowledge. The depth of the analysis depends very much on what information the individual banks provide.

» Analysis of the income statement

A bank's current income should generally be sufficient to support the operating expenses and the expected credit losses. In addition, the bank should try to generate a profit so as to be able to strengthen its equity base after possible distributions to equity providers.

Thus, on the income side, the analyst examines what sources (net interest result, net commission income, trading result, other income), regions and business sectors are particularly relevant for the bank, how they have developed in the short and medium term, what reasons were responsible for this (e.g. whether there were one-time effects or whether the bank took higher risks to achieve them) and how the income will develop in the future.

A similar approach is adopted for expenses. Here too the idea is to "understand" the bank, in particular to separate one-time charges from recurring ones to estimate the future development of expenses.

» Analysis of the risks of the loan book

The main source of income, and hence the largest risk factor, of most banks is the lending business. Therefore, the analyst examines the composition of the loan portfolio based on criteria such as loan type, debtor, debtor's registered office, development of the loan book and credit quality over time. In the case of the latter, he especially focuses on the development of the risk provision, net depreciations and loan loss reserves. Moreover, at times the focus of the analysis can be directed at specific lending commitments due to the risk involved, e.g. the bank's exposure to the US subprime sector, in the shipping sector or to the energy industry.

» Analysis of equity situation

A bank's equity is designed to absorb unexpected losses and keep the business running. For this purpose, the bank must comply with a large number of regulatory capital requirements, such as Common Equity Tier 1 (CET1) ratio, Tier 1 capital ratio, leverage ratio, and also provide internal buffers that it can fall back on in the event of a crisis. As the calculation of the risk-weighted capital ratios is virtually incomprehensible to outsiders, the analysis in this case is largely limited to the development of the reported ratios and comparison with other banks.

» Analysis of the liquidity situation

Analysis of a bank's liquidity and refinancing situation focuses on the sources a bank uses to refinance and the risks involved. Thus, retail deposits are, for example, a relatively stable form of refinancing, while in a crisis it could be that deposits made by institutional customers are withdrawn or short-term capital market refinancing cannot be rolled over. In addition, it is also relevant to what

extent the bank has a liquidity portfolio with which interim liquidity shortfalls can be remedied.

The above-mentioned components always relate to data from the past. However, trends may be detected that have to be analysed by the analyst.

A bank's fundamental position depends to a large degree on the economic trend; a slowdown in economic growth, for example, generally leads to rising insolvencies, a higher unemployment rate and falling property prices. This, in turn, is reflected in a rise in risk provisions, a lower demand for credit and an increase in a bank's risk assets. Therefore, analysts also use forecasts for future economic trends when assessing a bank's credit standing.

In addition, a number of other factors are crucial to a bank's fundamental development and are therefore also taken into account in the analysis, such as regulatory developments, monetary policy measures or competition intensity, which have an impact on a bank's income, liquidity or equity situation.

RELEVANT FACTORS WHEN ISSUING INVESTMENT RECOMMENDATIONS

In fixed income research, recommendations for individual issuers are subdivided into the categories "**Outperformer**", "**Underperformer**" and "**Market performer**". An investment recommendation for an issuer is determined by whether its bonds will, in the opinion of the analyst, perform better or worse than or the same as bonds from comparable issuers in the following six months. "Outperformer" means that the issuer's bonds are expected to perform better than bonds of comparable issuers. "Underperformer" means that the issuer's bonds are expected to perform worse than bonds of comparable issuers. "Market performer" means that the development of the issuer's bonds will, in the opinion of the analyst, not differ substantially from the development of the bonds of comparable issuers.

The recommendation categories "Outperformer", "Underperformer" and "Market performer" are based on the assessment of the analyst as to how the bonds of the relevant issuer will perform relative to those of comparable issuers ("peer group"). The peer group does not have to be defined exactly and generally comprises the issuers analysed by DZ BANK Research of the relevant market segment.

The performance of the bonds expected by the analyst is based on various components. In addition to the ongoing interest return on the bonds, it is the development of the asset swap spreads of all the respective issuer's bonds. This can be constant in the period under review or it can rise or fall. Falling spreads would be positive for the investor. If the premium for taking on the credit risk goes down, the bonds of the relevant issuer perform better, all things being equal, than the swap market. The analyst must then decide, taking into account the performance of the peer group's bond universe, whether the bonds of the relevant issuer will, in his opinion, perform better, the same or worse.

The analyst's decision is based on his assessment of the issuer's creditworthiness. Generally it comes down to whether he forecasts an improvement or a deterioration in the creditworthiness, whether the capital markets expect this, or whether the realisation of his expectations would come as a surprise to the majority of market

players. Other factors also play a part. He must take into account what effect the general economic trend, central bank policies, geopolitical risks and the behaviour of the capital markets in the coming months will have on the spreads of the issuer he is analysing (see above).

Investment recommendations are therefore issued on the basis of a combination of **fundamental analysis** and **relative-value analysis**. A basis for issuing investment recommendations are provided by the credit analysis/fundamental analysis described above, which enables a rough estimate of the risk of an issuer defaulting or the risk of a bail-in. DZ BANK Research however does not create a “fair” absolute credit spread level derived from fundamental data, on the basis of which an investment recommendation is issued for an issuer’s bonds. Rather, the evaluation is carried out by comparing the risks perceived by DZ BANK for all the bonds of the respective issuer with the risks for comparable bonds of other issuers, taking into account the respective credit spreads. **The investment recommendation is therefore a relative assessment**, i.e. the analyst must not only keep an eye on the issuers he is analysing, but also comparable issuers.

SOURCES: DATA, STUDIES, INFORMATION

- » Credit financials analysts refer to a broad range of data and information. Fundamental analysis primarily focuses on original corporate reporting. In addition, a number of other information sources, including reports by the rating agencies Moody’s, S&P and Fitch and news articles from Bloomberg, Reuters and SNL, are used.
- » As the assessment of a bank’s expected fundamental development is mainly determined by the future economic trend (e.g. GDP, unemployment, property markets) in the core markets in which the bank operates, credit financials analysts also rely on the relevant forecasts and expectations of the corresponding analysts at DZ BANK, but also other sources.
- » When assessing other factors which are relevant for evaluating issuers or the expected performance of bonds the analysts draw on other sources, such as legislative texts and regulatory announcements.
- » Analysts mainly obtain data on market indicators, essentially bond and index data, from Bloomberg, Reuters and Markit.

As the analysis of issuers/bank bonds is extremely complex, it is a matter of filtering out from the abundance of offerings available the information that will ultimately determine the development of a bank bond.

I. IMPRINT

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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:

The terms "outperformer", "market performer" and "underperformer" are used in the assessment of individual issuers. These are relative estimates, i.e. they are independent of their respective peer groups and therefore independent of any overriding allocation recommendations for market segments (cf. mandatory disclosures on other research information).

The basis for the assessment is the expectation of the credit return/total return of an issuer's bonds - defined differently depending on the segment - over the next six months (cf. DZ BANK method studies at www.dzbank.com/disclosures). As a rule, the analyst's main scenario is assumed. In cases where an issuer is exposed to high idiosyncratic risks, alternative spread scenarios are also taken into account when calculating the expected credit turn/total return. Since issuers have generally issued a large number of bonds, the expected credit return/total return cannot naturally be quantified.

The expected credit return/total return is compared with the expected credit return/total return of a relevant peer group, usually the respective coverage/peer group. If it is significantly higher than that of the peer group, the assessment is **"outperformer"**. Normally, a higher weighting in the portfolio than in the benchmark should be applied here.

If the credit return/total return is significantly lower than that of the peer group, the assessment is **"underperformer"**. Normally, a lower portfolio weighting should be applied here than in the benchmark.

If the expected credit return/total return essentially corresponds to that of the peer group or if the risk profile includes strong fluctuations in both directions so that no active positioning against the benchmark should be taken, the assessment is **"market performer"**.

1. Government bonds

The issuer-specific investment recommendation for government bonds of a country in the covered peer group is based on whether DZ BANK estimates that the performance resulting from the total return will be better, worse or similar to the peer group of the relevant segment in the following six months.

The basis for the assessment is the expectation of the total return of the issuer's bonds on the basis of national law in the coming six months (cf. DZ BANK method studies at www.dzbank.com/disclosures).

2. Financials (senior unsecured)

The issuer-specific investment recommendation for an issuer's euro-denominated unsecured senior bonds relative to its peer group (iBoxx Banks Senior Index) is based on whether DZ BANK estimates that the performance resulting from the credit return will be better, worse or similar to the peer group in the following six months.

The basis for the assessment is the expected credit return on the issuer's bonds over the next six months (see DZ BANK methodological studies at www.dzbank.com/disclosures).

3. Corporate Bonds (senior unsecured)

The issuer-specific investment recommendation for the euro-denominated unsecured senior bonds of an issuer relative to its peer group (sector/rating class) is based on whether DZ BANK estimates that the performance resulting from the credit return will be better, worse or similar to that of the peer group over the next six months.

¹⁾ – ¹²⁾ Important: Please read the references to possible conflicts of interest and disclaimers/disclosures at the end of this report.

The basis for the assessment is the expected credit return of the issuer's bonds over the next six months (see DZ BANK method studies at www.dzbank.com/disclosures).

4. Covered Bonds

The investment recommendation for a covered bond programme of an issuer is based on DZ BANK's assessment as to whether the covered bonds can move better, worse or in step with bonds of comparable covered bond programmes in the following six months. The recommendation categories relate to covered bonds ("collateralised bank bonds" or "covered bonds") denominated in euros and apply only to the publication date.

The basis for the assessment is the expectation of the credit return of the bonds from an issuer's covered bond programme over the next six months (validity of the recommendation: one trading day) (cf. DZ BANK Methodologies 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.

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 six months

Financials (senior unsecured) six months

Corporate Bonds (senior unsecured) six months

Covered Bonds one trading day

- 5.4 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

- 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 Publications 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

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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
- 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.

8. Recipients and Use of Financial Analyses

8.1 Recipients

Financial Analyses of DZ BANK are directed at **eligible counterparties** as well as **professional clients**. They are therefore **not** suitable for dissemination to **retail clients** unless (i) a financial analysis has been **explicitly** labelled by DZ BANK as suitable also for retail clients or (ii) is disseminated by an investment firm properly authorized in the European Economic Area (EEA) or Switzerland to retail clients, who evidently have the necessary knowledge and sufficient experience in order to understand and evaluate the relevant risks of the relevant investment recommendations.

Financial Analyses are authorized by DZ BANK for dissemination to the aforementioned recipients in in **Member States of the European Economic Area and Switzerland** as well as in accordance with the **provisions set forth in sub-paragraphs 8.4 and 8.5** in the therein named additional country.

8.2 Main Sources of Information

For the preparation of its Research Publications, DZ BANK uses only information sources which it considers itself to be reliable. However, it is not feasible to make own checks of all the facts and other information taken from these sources in every case. If in a specific case, however, DZ BANK has

doubts over the reliability of a source or the correctness of facts and other information, it shall make specific reference to this in the Research Publication. The main sources of information for Research Publications are:

Information and data services (e.g. Refinitiv, Bloomberg, VWD, IHS Markit), licensed rating agencies (e.g. Standard & Poors, Moody's, Fitch, DBRS), specialist publications of the sectors, the business press, the competent supervisory authorities, information of the issuers (e.g. annual reports, securities prospectuses, ad-hoc disclosures, press and analyst conferences and other publications) as well as its own specialist, micro and macro-economic research, examinations and evaluations.

8.3 No securities prospectus | no individual investment recommendation
Under no circumstances can or should a Research Publication replace a securities prospectus and / or specialist investment advice necessary for a specific investment. For this reason a Research Publication cannot be used as sole basis for an investment decision.

8.4 International Restrictions of Use outside the EEA and Switzerland
This Financial Analysis may **only** be brought into the **Republic of Singapore** by the respective company set forth in **sub-paragraph 8.5** and be used in this country in accordance with the regulations applicable to them there.

Republic of Singapore

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

ABN AMRO Bank	18.09.2019	Underperformer	Germany	29.08.2019	Underperformer	Sparebank 1 SR-Bank	02.12.2019	Underperformer
Achmea Bank	02.12.2019	Underperformer	Germany	25.06.2019	Marketperformer	Sparebank 1 Østlandet	02.12.2019	Underperformer
Adolf Wüth GmbH & Co. KG	02.12.2019	Marketperformer	GlaxoSmithKline	09.09.2019	Marketperformer	Sparebank 1 Østlandet	13.03.2019	NR
Aegon	07.10.2019	Marketperformer	Goldman Sachs Group	25.06.2019	Marketperformer	Sparebanken Vest	02.12.2019	Underperformer
AIB Group	13.12.2019	Marketperformer	Greece	29.08.2019	Outperformer	Standard Chartered	02.12.2019	Marketperformer
AIB Group	18.09.2019	Underperformer	Henkel	25.06.2019	Marketperformer	Svenska Handelsbanken	18.09.2019	Underperformer
AIB Group	11.09.2019	Marketperformer	GRENKE	03.09.2019	Marketperformer	Svenska Handelsbanken	25.06.2019	Outperformer
AIB Group	23.05.2019	Underperformer	Hamburg Commercial Bank	02.12.2019	Outperformer	Swedbank	02.12.2019	Underperformer
AIB Group	07.05.2019	Marketperformer	Hannover Rück	21.11.2019	Underperformer	Swiss Re	13.11.2019	Underperformer
Airbus	02.12.2019	Marketperformer	HeidelbergCement	21.01.2020	Outperformer	Telefónica	10.05.2019	Marketperformer
Akzo Nobel	24.04.2019	Underperformer	Henkel	02.12.2019	Underperformer	Telefónica	27.02.2019	Outperformer
Allianz	30.10.2019	Underperformer	Hochtief	23.01.2020	Marketperformer	Telia Company	02.12.2019	Underperformer
America Movil	17.07.2019	Outperformer	Hochtief	09.09.2019	Outperformer	Telstra Corp	15.01.2020	Marketperformer
Amgen	28.11.2019	Marketperformer	HSBC Holdings	18.09.2019	Marketperformer	Tesco	24.04.2019	Marketperformer
Amgen	25.11.2019	n.a.	HSBC Holdings	23.05.2019	Underperformer	Tesco	10.04.2019	Outperformer
Anglo American PLC	22.02.2019	Underperformer	HSBC Holdings	03.05.2019	Marketperformer	thyssenkrupp	10.05.2019	Underperformer
Apple	04.02.2020	Outperformer	Hungary	12.04.2019	NR	Total	11.09.2019	Marketperformer
Apple	20.12.2019	n.a.	HYPONOE	02.12.2019	Underperformer	Toyota Motor	02.12.2019	Marketperformer
AT&T	02.12.2019	Marketperformer	Iberdrola	25.04.2019	Underperformer	Turkey	12.04.2019	NR
Australia and New Zealand Banking Group	18.09.2019	Marketperformer	IBM	02.12.2019	Outperformer	UBS Group	18.09.2019	Underperformer
Austria	29.08.2019	Underperformer	IBM	24.07.2019	NR	UBS Group	25.06.2019	Outperformer
Austria	25.06.2019	Marketperformer	Indonesia	12.04.2019	NR	Unicredit	30.08.2019	Outperformer
AXA	02.12.2019	Marketperformer	ING Groep	18.09.2019	Underperformer	Unicredit	03.06.2019	Underperformer
Bank of America	18.09.2019	Marketperformer	Intesa Sanpaolo	30.08.2019	Outperformer	Unicredit	27.03.2019	Marketperformer
Bank of America	25.06.2019	Outperformer	Intesa Sanpaolo	03.06.2019	Underperformer	Vale	09.04.2019	Outperformer
Bank of Ireland Group	13.12.2019	Marketperformer	Intesa Sanpaolo	27.03.2019	Marketperformer	Vattenfall	02.12.2019	Marketperformer
Bank of Ireland Group	18.09.2019	Underperformer	Israel	12.04.2019	NR	Veolia Environnement	02.12.2019	Underperformer
Bank of Ireland Group	11.09.2019	Marketperformer	Italy	29.08.2019	Outperformer	Vodafone Group	14.06.2019	Marketperformer
Bank of Ireland Group	23.05.2019	Underperformer	Italy	03.06.2019	Underperformer	Vodafone Group	27.02.2019	Underperformer
Bank of Ireland Group	08.05.2019	Marketperformer	Italy	27.03.2019	Marketperformer	Wells Fargo	02.12.2019	Marketperformer
Bank of Nova Scotia	02.12.2019	Underperformer	Jefferies Group LLC	02.12.2019	n.a.	Westpac Banking Corp.	18.09.2019	Marketperformer
Barclays PLC	13.12.2019	Marketperformer	Jefferies Group LLC	12.02.2019	NR	Zurich Insurance Group	29.11.2019	Underperformer
Barclays PLC	23.05.2019	Underperformer	JPMorgan Chase & Co.	18.09.2019	Marketperformer			
Barclays PLC	25.04.2019	Marketperformer	JPMorgan Chase & Co.	25.06.2019	Outperformer			
BASF	27.02.2019	Underperformer	KBC Groep	18.09.2019	Underperformer			
Bayerische Landesbank	02.12.2019	Marketperformer	KBC Groep	25.06.2019	Outperformer			
BayWa	02.12.2019	Marketperformer	Koninklijke KPN	24.07.2019	Marketperformer			
BayWa	06.05.2019	NR	Landesb. Baden-Württemberg	02.12.2019	Underperformer			
Belfius Bank	18.09.2019	Underperformer	Landesbank Hessen-Thüringen	02.12.2019	Underperformer			
Belfius Bank	25.06.2019	Outperformer	Linde PLC	06.05.2019	Underperformer			
Belgium	19.11.2019	Marketperformer	Lloyds Banking Group	13.12.2019	Marketperformer			
Belgium	29.08.2019	Underperformer	Lloyds Banking Group	23.05.2019	Underperformer			
Belgium	25.06.2019	Outperformer	Lloyds Banking Group	02.05.2019	Marketperformer			
Berlin Hyp	25.06.2019	Marketperformer	Merck KGaA	28.02.2019	Underperformer			
BNP Paribas	02.05.2019	Underperformer	Mexico	12.04.2019	NR			
BP	06.02.2019	Outperformer	Mondelez International	31.07.2019	Marketperformer			
BPCE	25.06.2019	Marketperformer	Munich Re	02.12.2019	Underperformer			
Brazil	12.04.2019	NR	National Australia Bank	18.09.2019	Marketperformer			
BT Group	11.09.2019	Underperformer	Nationwide Building Society	13.12.2019	Marketperformer			
Bulgaria	12.04.2019	NR	Nationwide Building Society	22.11.2019	Underperformer			
Carrefour	29.10.2019	Marketperformer	Nestlé	02.12.2019	Marketperformer			
Carrefour	11.09.2019	Outperformer	Netherlands	29.08.2019	Underperformer			
Carrefour	18.07.2019	Marketperformer	Netherlands	25.06.2019	Marketperformer			
Carrefour	27.05.2019	Outperformer	NORD/LB Girozentrale	02.12.2019	Marketperformer			
Caterpillar	02.12.2019	Marketperformer	Nordea Bank Abp	18.09.2019	Underperformer			
Chile	12.04.2019	NR	Nordea Bank Abp	25.06.2019	Outperformer			
Citigroup	02.12.2019	Marketperformer	Novartis	02.12.2019	Marketperformer			
Colombia	12.04.2019	NR	Nykredit Realkredit	02.12.2019	Underperformer			
Commonwealth Bk of Australia	18.09.2019	Marketperformer	OMV	02.12.2019	Underperformer			
Cooperatieve Rabobank UA	18.09.2019	Underperformer	OP Corporate Bank	18.09.2019	Underperformer			
Cooperatieve Rabobank UA	25.06.2019	Outperformer	OP Corporate Bank	25.06.2019	Outperformer			
Crédit Agricole	25.06.2019	Marketperformer	Orange	21.02.2019	Marketperformer			
Crédit Mutuel Arkéa SACC	25.06.2019	Outperformer	Peru	12.04.2019	NR			
Credit Suisse Group	18.09.2019	Underperformer	Petrobras	02.08.2019	Marketperformer			
Credit Suisse Group	25.06.2019	Outperformer	Peugeot SA	30.10.2019	Marketperformer			
Croatia	12.04.2019	NR	Pfizer	18.10.2019	Marketperformer			
Czech Republic	12.04.2019	NR	Philippines	12.04.2019	NR			
Danone	25.07.2019	Underperformer	Poland	12.04.2019	NR			
Danske Bank	28.11.2019	Underperformer	Portugal	25.06.2019	Marketperformer			
DekaBank	02.12.2019	Marketperformer	Procter & Gamble	30.09.2019	Marketperformer			
Deutsche Bahn	01.04.2019	Outperformer	Renault	21.10.2019	Underperformer			
Deutsche Bank	08.07.2019	Outperformer	Renault	15.02.2019	Marketperformer			
Deutsche Bank	25.06.2019	Marketperformer	Repsol	20.11.2019	Marketperformer			
Deutsche Pfandbriefbank	25.06.2019	Marketperformer	Rio Tinto Ltd.	02.12.2019	Outperformer			
Deutsche Pfandbriefbank	13.05.2019	Outperformer	RLB Niederösterreich	02.12.2019	Marketperformer			
De Volksbank	18.09.2019	Underperformer	RLB Oberösterreich	23.10.2019	Marketperformer			
De Volksbank	25.06.2019	Outperformer	Robert Bosch GmbH	02.12.2019	Underperformer			
Dexia Group	02.12.2019	Underperformer	Roche	02.12.2019	Outperformer			
DNB Bank	18.09.2019	Underperformer	Romania	12.04.2019	NR			
DNB Bank	25.06.2019	Outperformer	Romania	19.03.2019	Marketperformer			
E.ON	17.09.2019	Marketperformer	Royal Bank of Canada	02.12.2019	Underperformer			
Enel	03.06.2019	Underperformer	Royal Bank of Scotland Group	13.12.2019	Marketperformer			
ENGI	02.12.2019	Marketperformer	Royal Bank of Scotland Group	23.05.2019	Underperformer			
ENI	03.06.2019	Underperformer	Royal Bank of Scotland Group	26.04.2019	Marketperformer			
ENI	25.04.2019	Marketperformer	Royal Dutch Shell	29.11.2019	Marketperformer			
ENI	15.02.2019	Outperformer	Russia	12.04.2019	NR			
Equinor	26.09.2019	Marketperformer	RWE	02.12.2019	Marketperformer			
Erste Group Bank	18.09.2019	Underperformer	Saint-Gobain	01.10.2019	Marketperformer			
EWI	02.12.2019	Marketperformer	Sanofi	02.12.2019	Marketperformer			
Féd. des caisses Desjardins	02.12.2019	Marketperformer	SBAB Bank	02.12.2019	Underperformer			
Finland	19.11.2019	Underperformer	Schlumberger	28.01.2020	Marketperformer			
Finland	25.06.2019	Marketperformer	Schlumberger	23.01.2020	n.a.			
France	29.08.2019	Marketperformer	SEB	18.09.2019	Underperformer			
France	25.06.2019	Outperformer	SEB	25.06.2019	Outperformer			
Fresenius SE & Co. KGaA	31.07.2019	Marketperformer	Siemens	01.08.2019	Marketperformer			
Fresenius SE & Co. KGaA	20.02.2019	Outperformer	Siemens	10.05.2019	Outperformer			
General Electric	11.11.2019	Marketperformer	Société Générale	18.09.2019	Marketperformer			
General Electric	16.08.2019	Underperformer	South Africa	12.04.2019	NR			
General Electric	25.02.2019	Outperformer	Sparebank 1 SMN	02.12.2019	Underperformer			

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