V Opportunity and risk report

DZ BANK Group

1 Disclosure principles

In its capacity as the parent company in the DZ BANK Group, DZ BANK is publishing this opportunity and risk report in order to meet the transparency requirements for opportunities and risks applicable to the DZ BANK Group as specified in **sections 115 and 117 of the German Securities Trading Act (WpHG)** and **section 315 of the German Commercial Code (HGB)** in conjunction with **German Accounting Standard 16**.

This report also implements the applicable international risk reporting requirements on the basis of International Accounting Standard **(IAS) 34**, although the legal standards applicable to annual reporting are taken into account.

The requirements set out in **IFRS 7** are generally limited to financial instruments, shifting the focus of reporting to credit risk, equity investment risk, market risk, and liquidity risk. In contrast, the DZ BANK Group takes a holistic view of all these risks when using risk management tools and when assessing the risk position. As a consequence, the groupwide risk management system not only covers risks that arise specifically in connection with financial instruments, but also all other relevant types of risk. This integrated approach is reflected in this opportunity and risk report.

This opportunity and risk report also includes information in compliance with those recommended risk-related disclosures that have been issued by the **Financial Stability Board** (FSB), the **European Banking Authority** (EBA), and the **European Securities and Markets Authority** (ESMA) that extend beyond the statutory requirements, provided that they help to improve the usefulness of the disclosures in the decision-making process.

The quantitative disclosures in this opportunity and risk report are based on information that is presented to the Board of Managing Directors and used for internal management purposes (known as the **management approach**). This is designed to ensure the usefulness of the disclosures in the decision-making process.

2 Opportunity and risk management system

The DZ BANK Group's opportunity and risk management system was described in the combined opportunity and risk report ('2019 opportunity and risk report') in the 2019 group management report. Those disclosures are also applicable to the first half of this year, unless otherwise indicated in this report. The main aspects of the opportunity and risk management system are presented below.

2.1 Fundamental features

The DZ BANK Group defines **opportunities** as the possibility of positive changes in financial performance. **Risks** result from adverse developments affecting financial position or financial performance, and essentially comprise the risk of an unexpected future liquidity shortfall or unexpected future losses. A distinction is made between liquidity and capital. Risks that materialize can affect both of these resources.

The **management of opportunities** in the DZ BANK Group is integrated into the annual strategic planning process. Strategic planning is designed to enable the group to identify and analyze discontinuities based on different macroeconomic scenarios, trends, and changes in the markets, and forms the basis for evaluating opportunities. Opportunities that the management units identify as adding value are fed into the relevant business strategies.

Reports on future business development opportunities are based on the business strategies. As part of the general communication of the business strategies, employees are kept up to date about potential opportunities that have been identified.

Note:
In the event of differences between the English version of the opportunity and risk report and the original German version, the German version shall be definitive.

The risk management system is based on the risk appetite statement – the fundamental document for determining risk appetite in the DZ BANK Group – and the specific details and additions in **risk strategies**, which are consistent with the business strategies and have been approved by the Board of Managing Directors. The **risk appetite statement** contains risk policy guidelines and risk strategy requirements applicable throughout the group. It also sets out quantitative guidelines reflecting the risk appetite specified by the Board of Managing Directors.

The DZ BANK Group has a **risk management system** that is updated on an ongoing basis in line with changes to the business and regulatory environment. The organizational arrangements, methods, and IT systems that have been implemented – especially the limit system based on risk-bearing capacity, stress testing of all material risk types, and internal reporting – are designed to enable the DZ BANK Group to identify material risks at an early stage and initiate the necessary control measures. This particularly applies to **risks that could affect the group's survival as a going concern**.

The tools used for the purposes of risk management are also designed to enable the DZ BANK Group to respond appropriately to **significant market movements**. Possible changes in risk factors are reflected in adjusted risk parameters in the mark-to-model measurement of credit risk and market risk. Conservative crisis scenarios for short-term and medium-term liquidity are intended to ensure that liquidity risk management also takes adequate account of market crises.

The risk management system is more detailed than the system for the **management of opportunities** because risk management is subject to comprehensive statutory requirements and is also of critical importance to the continued existence of the DZ BANK Group as a going concern. The management of opportunities and risks is an integral part of the strategic planning process.

2.2 KPIs

Risks affecting liquidity and capital resources are managed on the basis of groupwide liquidity risk management and groupwide risk capital management. The purpose of **liquidity risk management** is to ensure adequate levels of liquidity reserves are in place in respect of risks arising from future payment obligations (liquidity adequacy). The aim of **risk capital management** is to ensure the availability of capital resources that are commensurate with the risks assumed (capital adequacy).

The key risk management figures used in the DZ BANK Group are the minimum liquidity surplus and the liquidity coverage ratio (LCR) in respect of **liquidity**, economic capital adequacy, the coverage ratio for the financial conglomerate, and the regulatory capital ratios in respect of **capital**, plus the leverage ratio.

2.3 Management units

All DZ BANK Group entities are integrated into the groupwide opportunity and risk management system. DZ BANK and material subsidiaries – also referred to as management units – form the core of the financial services group. The DZ BANK Group largely comprises the regulatory DZ BANK banking group and R+V.

The insurance business operated at R+V differs in material respects from the other businesses of the DZ BANK Group. For example, actuarial risk is subject to factors that are different from those affecting risks typically assumed in banking business. Furthermore, policyholders have a share in any gains or losses from investments in connection with life insurance, as specified in statutory requirements, and this must be appropriately taken into account in the measurement of risk. Not least, the supervisory authorities also treat banking business and insurance business differently. This is reflected in differing regulatory regimes for banks and insurance companies.

Because of these circumstances, two sectors – Bank sector and Insurance sector – have been created within the DZ BANK Group for the purposes of risk management. The management units are assigned to these sectors as follows:

Bank sector:
- DZ BANK
- BSH
- DZ HYP
- DVB
- DZ PRIVATBANK
- TeamBank
- UMH
- VR Smart Finanz

Insurance sector:
- R+V.

The management units represent the operating segments of the DZ BANK Group. From a risk perspective, the 'DZ BANK' management unit equates to the central institution and corporate bank operating segment and the holding function.

DZ HYP has applied the **waiver** pursuant to section 2a (1), (2), and (5) of the German Banking Act (KWG) in conjunction with article 7 (1) of the Capital Requirements Regulation (CRR), under which – provided certain conditions are met – the regulatory supervision at individual bank level may be replaced by supervision of the entire banking group.

The management units are deemed to be material in terms of their contribution to the DZ BANK Group's aggregate risk. They are directly incorporated into the group's risk management system. The other subsidiaries and investee entities of DZ BANK are included in the risk management system either indirectly as part of equity investment risk or directly as part of other types of risk. This is decided for each of them annually.

The management units' subsidiaries and investees are also included in the DZ BANK Group's risk management system – indirectly via the majority-owned entities – with due regard to the minimum standards applicable throughout the group.

Risk is managed groupwide on a consolidated basis. Risks arising in the subsidiaries therefore impact the risk-bearing capacity of DZ BANK as the group parent.

2.4 Material changes

The **modeling of business risk** in the Bank sector was changed at the start of this year. Until 2019, this risk had been measured on a decentralized basis in the management units. Business risk in the Bank sector is now calculated centrally by DZ BANK on the basis of a standardized method. The centralized model for business risk is used to calculate the risk capital requirement for each management unit in isolation and the risk capital requirement for the Bank sector as a whole, including the management units' risk contributions to the aggregate risk. The calculation covers a forecast period of 1 year. The centralized model takes account of diversification effects between the management units, thereby significantly reducing the capital requirement for business risk in the Bank sector. Replacing the decentralized calculation method with the centralized risk model should also help to reduce costs because of the simplification of data structures and management processes. Further details on business risk can be found in section 11.

2.5 Measures for dealing with the COVID-19 pandemic

To enable the banking industry to tackle the impact of the COVID-19 pandemic, the supervisory authorities introduced various relief measures concerning the **liquidity and solvency requirements** during the first half of 2020. This led to the external minimum targets for regulatory key figures being lowered until further notice. Consequently, the Board of Managing Directors of DZ BANK reduced selected **internal thresholds** for the management of capital adequacy in the DZ BANK Group's risk appetite statement. The new arrangements came into force on June 30, 2020. No material changes to the **risk strategies** were required in response to the pandemic.

In addition, changes were made to the **risk-related reporting to the Board of Managing Directors** of DZ BANK to match the management requirements at the start of the COVID-19 pandemic. This included the introduction of two new reporting instruments that can also be used to report on the risk situation to the supervisory authorities. The **financial and risk radar** was established as a regular weekly or two-weekly – depending on need – reporting format that covers economic indicators, forecasts, and the DZ BANK Group's current financial and risk position. The report is designed, in particular, to monitor the impact of the capital market turmoil brought about by the COVID-19 pandemic and any other developments that may adversely affect the business models in the DZ BANK Group. The second instrument, the **CET1 radar**, is used to report on the expected changes to the DZ BANK Group's common equity Tier 1 capital ratio. It also shows other relevant parameters that have an influence on this ratio.

Furthermore, **stress testing** now focuses on identifying and analyzing the effects of the COVID-19 pandemic. To this end, the development and simulation of specific scenarios got under way in the first half of this year. The results are made available to the Board of Managing Directors of DZ BANK as part of the report on adverse stress tests.

Further measures for dealing with the COVID-19 pandemic are described in the course of this opportunity and risk report.

3 Risk profile

The DZ BANK Group's **business model** and the associated business models used by the management units determine the risk profile of the group.

The values for the measurement of **liquidity and capital adequacy** presented in Fig. 4 reflect the liquidity risks and the risks backed by capital assumed by the DZ BANK Group. They illustrate the **risk profile** of the DZ BANK Group. The values for these KPIs are compared against the (internal) threshold values specified by the Board of Managing Directors of DZ BANK with due regard to the business and risk strategies – also referred to below as **risk appetite** – and against the (external) minimum targets laid down by the supervisory authorities.

FIG. 4 – LIQUIDITY AND CAPITAL ADEQUACY KPIS

	Measured figure		Internal minimum threshold value[1]			External minimum target		
	Jun. 30, 2020	Dec. 31, 2019	2020 (after adjustment)[2]	2020 (before adjustment)[2]	2019	2020 (after adjustment)[2]	2020 (before adjustment)[2]	2019
LIQUIDITY ADEQUACY								
DZ BANK Group (economic perspective)								
Economic liquidity adequacy (€ billion)[3]	8.1	12.5	4.0	4.0	4.0	0.0	0.0	0.0
DZ BANK banking group								
Liquidity coverage ratio (%)[4]	140.3	144.6	110.0	110.0	110.0	< 100.0	100.0	100.0
CAPITAL ADEQUACY								
DZ BANK Group (economic perspective)								
Economic capital adequacy (%)[5]	161.8	160.2	120.0	120.0	120.0	100.0	100.0	100.0
DZ BANK financial conglomerate (normative internal perspective)								
Coverage ratio according to CRR minimum capital requirement (%)[6]	178.2	174.6	120.0	120.0	120.0	100.0	100.0	100.0
Coverage ratio according to SREP minimum total capital requirement (%)[6]	130.6	127.6				100.0	100.0	100.0
DZ BANK banking group (normative internal perspective)								
Common equity Tier 1 capital ratio (%)[6 7]	14.0	14.4	10.0	11.5	11.5	9.0	9.8	9.8
Tier 1 capital ratio (%)[6 7]	15.4	15.9	11.9	13.0	13.0	10.8	11.3	11.3
Total capital ratio (%)[6 7]	17.3	17.9	14.3	15.0	15.0	13.3	13.3	13.3
Leverage ratio (%)[6]	4.6	4.9	3.5	3.5	3.5			
MREL ratio (%)[8]	10.2	11.0	8.3	8.3	8.5	8.0	8.0	8.2

Not available

1 As specified by the Board of Managing Directors.
2 'Before adjustment': internal thresholds originally planned for 2020 and external minimum requirements originally specified by the supervisory authorities for 2020. 'After adjustment': internal thresholds and external minimum requirements after factoring in the changes triggered by the COVID-19 pandemic.
3 The measured value relates to the stress scenario with the lowest minimum liquidity surplus. The internal minimum target relates to the observation threshold.
4 In view of the COVID-19 pandemic, the supervisory authorities will tolerate a value below the external minimum target of 100 percent until further notice.
5 The internal threshold value is the amber threshold in the traffic light system for managing and monitoring economic capital adequacy. The value originally measured as at December 31, 2019 was 159.3 percent and has been adjusted due to the scheduled recalculation of the overall solvency requirement for the Insurance sector.
6 Measured values based on full application of the CRR.
7 The external minimum targets are the binding regulatory minimum capital requirements. Details on the minimum capital requirements can be found in section 6.2.2.
8 Calculated using the hybrid approach. The measured value as at June 30, 2020 is not yet available, so the measured value as at March 31, 2020 is shown instead.

In view of the fallout from the COVID-19 pandemic, the supervisory authorities tolerated values that had temporarily fallen below the external minimum targets for liquidity adequacy and capital adequacy during the reporting period. This applies analogously to the internal thresholds defined by the Board of Managing Directors.

The **solvency** of DZ BANK and its subsidiaries was never in jeopardy on any risk measurement date during the reporting period. They also complied with regulatory requirements for liquidity adequacy. By holding ample liquidity reserves, the group aims to be able to protect its liquidity against any potential crisis-related threats. In addition, the DZ BANK Group remained within its economic **risk-bearing capacity** in the first half of 2020 and also complied with regulatory requirements for capital adequacy on every reporting date.

4 Potential opportunities and general risk factors

4.1 Potential opportunities

The potential opportunities described in the 2019 opportunity and risk report – **corporate strategy** and **digitalization and new competitors** – continued to be relevant to the DZ BANK Group in the first 6 months of this year and apply equally to the second half of 2020.

The **Outlook** section of the interim group management report describes expected developments in the market and business environment together with the business strategies and the implications for the DZ BANK Group's financial performance forecast for the second half of the year. The expected developments in the market and business environment are crucial factors in the **strategic positioning** and the resulting opportunities for increasing earnings and cutting costs.

The **credit ratings** of DZ BANK and the cooperative financial network also represent significant potential opportunities for the DZ BANK Group.

In the reporting half-year, rating agency Fitch changed the outlook for the issuer rating of DZ BANK and the cooperative financial network from stable to negative. This was due to the impact of the COVID-19 pandemic on Germany's economy and the resulting additional pressure on German banks' income and risk situation. Fig. 5 provides an overview of DZ BANK's credit ratings.

On August 12, 2020, Moody's announced that it was lowering the long-term rating for non-preferred unsecured bonds of DZ BANK from A1 to A2. All other bond issue ratings of DZ BANK and the issuer rating were confirmed.

As at June 30, 2020, the long-term credit ratings for the cooperative financial network issued by Fitch and Standard & Poor's remained unchanged at AA-.

FIG. 5 – DZ BANK RATINGS

	Standard & Poor's		Moody's		Fitch	
	2020	2019	2020	2019	2020	2019
Issuer rating	AA-	AA-	Aa1	Aa1	AA-	AA-
Covered bonds (DZ BANK BRIEFE)	AA+	AA+	Aaa	Aaa	-	-
Long-term rating for deposits	-	-	Aa1	Aa1	AA-	AA-
Long-term counterparty risk assessment/ derivative counterparty rating	-	-	Aa1	Aa1	AA-	AA-
Long-term rating for unsecured, 'preferred' bonds	AA-	AA-	Aa1	Aa1	AA-	AA-
Long-term rating for unsecured, 'non-preferred' bonds	A+	A+	A1	A1	AA-	AA-
Short-term rating	A-1+	A-1+	P-1	P-1	F1+	F1+

4.2 General risk factors

4.2.1 Concept and material changes

The DZ BANK Group is subject to a range of risk factors that apply generally to the German and European banking industry as a whole. These are environmental, regulatory, and macroeconomic risk factors. The factors can fundamentally be classified under business risk but also affect other types of risk. The general risk factors are therefore examined here.

The risk factors relevant to the DZ BANK Group were essentially explained in detail in the 2019 opportunity and risk report. The risk factors listed there continued to be relevant to the DZ BANK Group in the first 6 months of this year and apply equally to the second half of 2020.

The following risk factors grew in significance in the first half of 2020, primarily due to the COVID-19 pandemic. That is why they are explained in detail.

4.2.2 Low interest rates

If there is a long period of low interest rates, the DZ BANK Group could face the risk of lower earnings, including lower earnings from BSH's extensive **building society operations**. When interest rates are very low, home savings loans lose their appeal for customers, while high-interest home savings deposits become more attractive. Consequently, interest income on home savings loans would fall and the interest expense for home savings deposits would rise. Furthermore, available liquidity could only be invested at low rates of return, an additional factor depressing earnings.

Because of the long period of low interest rates, the challenge faced by the DZ BANK Group's **asset management activities**, brought together under UMH, is to ensure that the guarantee commitments given to customers in respect of individual products can actually be met from the investment instruments in those products. This particularly affects the pension products and the guarantee fund product group. The pension products mainly consist of UniProfiRente, a retirement pension solution certified and subsidized by the German government. The amounts paid in during the contributory phase and the contributions received from the government are guaranteed to be available to the investor at the pension start date. The pension is then paid out under a payment plan with a subsequent life annuity. Guarantee funds are products for which UMH guarantees that a minimum percentage of capital is preserved, depending on the precise product specification. If UMH is unable to draw some of the management fees, or has to inject fresh capital, so that it can meet its guarantee commitments, this could have a substantial detrimental impact on the financial performance of the DZ BANK Group.

The entire insurance industry is affected by the low interest rates in the capital markets. These low interest rates are having a particular effect on the **business model of the personal insurance companies** at R+V. For example, products that guarantee minimum returns pose the risk that the guaranteed minimum interest rates agreed when the contract is signed are higher than the current interest rates in the capital markets and therefore cannot be achieved over the long term. This risk is further exacerbated by the fall in interest rates in the context of the COVID-19 pandemic.

A long period of low interest rates and the growing importance of central banks' bond-buying programs also increase the risk of **incorrect valuations** in the financial and real estate markets in which the entities in the DZ BANK Group operate.

The developments described above affect market risk in the Bank sector, business risk in the Bank sector, and market risk in the Insurance sector.

4.2.3 Global recession

The **COVID-19 pandemic** and the containment measures imposed to tackle it pushed the global economy into a deep recession in the spring. Most countries have now managed to reduce the number of cases and the restrictions have begun to be lifted, enabling an economic recovery to get under way. However, there is a risk that a potential second wave of the virus in individual countries – or even worldwide – could bring about a relapse into a renewed recessionary phase.

Moreover, if the United States were to further ramp up its protectionist action and Europe and China were to respond with retaliatory measures, the consequence could be an escalation of the **trade disputes** that would have a huge negative impact on global trade, which has already been weakened by the fallout from the COVID-19 pandemic. This would adversely affect the global economy and put further strain on the heavily export-dependent German economy.

DZ BANK and DZ HYP grant a substantial number and volume of loans to German businesses. The global recession creates the risk of a deterioration in the credit quality of German businesses, which would lead to greater credit risk and, if individual businesses default, higher impairment losses in the Bank sector. Default risk may also increase in the retail banking business if there is a rise in unemployment and in the number of personal insolvencies.

Other potential consequences of the crisis include a widening of credit spreads and a fall in the market liquidity of government and corporate bonds, which could cause a rise in market risk in both the Bank sector and the Insurance sector. This mainly affects DZ BANK, DZ HYP, and BSH in the Bank sector and R+V in the Insurance sector because these entities hold considerable portfolios of securities from German and European issuers.

There is also a risk that fair value losses on government and corporate bonds could have a temporary or permanent adverse impact on capital.

4.2.4 Economic divergence in the eurozone

In **Italy**, the current COVID-19 pandemic is expected to result in a sharp fall in GDP, a high and rising level of unemployment, and a marked increase in the already high level of government debt. This is the likely outcome of the fiscal spending in connection with the government's support measures to reduce the adverse effects of the pandemic. At the same time, the Italian administration continues to show no signs of willingness to implement far-reaching reforms. If there are no lasting solutions to these problems, there could be perpetual concerns about whether the government debt can be sustained and/or refinanced and about whether long-term growth can be initiated. This could prejudice the ability of the country to obtain funding in international capital markets.

As a result of the economic developments in Italy, **Italian banks** are finding it increasingly difficult to secure funding via the capital markets. Moreover, the financial performance of Italian banks is suffering as they continue to make large additions to loan provisions and incur losses relating to the elimination of non-performing loans.

The COVID-19 pandemic is substantially exacerbating the existing difficulties in **Spain**. Its already high level of government debt is coming under even more pressure due to high government spending as part of its fiscal support measures. Moreover, the macroeconomic outlook has turned decidedly gloomy in view of the forecast recession and predicted further increase in the already high unemployment rate. The direction of the fiscal policy of the Spanish government, which has been in place since January 2020, is also subject to significant uncertainty. The tensions in Catalonia could give rise to further risks for the Spanish economy. This could prejudice the ability of the country and its banks to obtain funding in international capital markets.

Portugal's financial strength is weakened by a significant level of government debt that is likely to rise even higher owing to the COVID-19 pandemic and the increase in fiscal spending aimed at supporting the economy. The crisis will probably mean a sharp fall in GDP too. The banking sector harbors further risks to financial stability. Even after capitalization, the banks are still carrying substantial portfolios of non-performing loans, although these are declining. To add to this, the earnings prospects for the sector are weak because of the current low level of interest rates. The Portuguese financial market is highly susceptible to volatility in investor confidence. At the same time, the country's ability to respond to negative shocks with fiscal policy measures is limited because of the high level of public debt.

In the last few years, the **ECB's expansionary monetary policy**, and particularly its bond-buying program, largely prevented the structural problems in some EMU member countries from being reflected in the capital markets. Because the COVID-19 pandemic hit Italy and Spain particularly hard, the economic fallout in these countries is especially severe and their need to obtain funding in the capital markets has risen sharply. Expansion of the ECB's asset purchase program has so far limited the widening of credit spreads. But there is a risk that this situation could change if the asset purchase program were to end. Highly indebted countries could find it considerably more difficult to arrange funding through capital markets.

DZ BANK, DZ HYP, and R+V hold significant investments in Italian and Spanish bonds. In addition, DZ BANK and DZ HYP have substantial investments in Portuguese bonds. DZ BANK has only entered into a small volume of derivatives and money market business with Italian and Spanish counterparties. Furthermore, DZ BANK operates a very small volume of trading and lending business with short- and medium-term maturities involving counterparties in Italy, Spain, and Portugal; this business consists of trade finance and letters of credit.

The developments described above could cause a deterioration in the credit standing of the countries concerned and of the businesses based in those countries, which would lead to heightened credit risk in the Bank sector. Other potential consequences of the sovereign debt crisis include a widening of credit spreads and a fall in the market liquidity of government and corporate bonds, which could cause a rise in market risk in both the Bank sector and the Insurance sector. There is also a risk that fair value losses on government and corporate bonds could have a temporary or permanent adverse impact on capital. If individual counterparties – for example, southern eurozone periphery countries – were to become insolvent, this would give rise to a requirement for the recognition of significant additional impairment losses in the entities of the DZ BANK Group in respect of the financial instruments purchased from these countries.

Details of the lending exposure in Portugal, Italy, and Spain of the entities in the Bank sector and of R+V can be found in section 7.3.1 and section 15.2 respectively.

4.2.5 Challenging shipping and offshore markets

In the **shipping finance business**, an oversupply of tonnage is having a detrimental impact on asset values and customer credit quality. This situation has been made worse by the COVID-19 pandemic and the resulting collapse of global trade. The global bulk freighter and container ship sectors are particularly affected, whereas existing tanker tonnage is being used as floating storage due to the dramatic drop in the oil price.

To add to the problems, the low price of oil is adversely affecting global **offshore oil production**, leading to lower demand for supply ships and other floating offshore equipment. The dramatic fall in the oil price caused the already difficult situation in the offshore sector to deteriorate still further in the first half of this year. Market volatility means that the market values of the financed assets are subject to significant fluctuation.

These trends could lead to increased credit risk and to a higher level of impairment losses in the shipping finance business at DVB and DZ BANK and in the offshore finance business at DVB. The lending volume in shipping and offshore finance is presented in section 7.3.2.

5 Liquidity adequacy

5.1 Economic perspective

5.1.1 Quantitative variables

The available liquid securities and the availability and composition of the sources of funding have a significant influence on the minimum liquidity surplus of the DZ BANK Group. These factors are presented below.

Liquid securities

Liquid securities form part of the available liquidity reserves, which are referred to as **counterbalancing capacity**. Liquid securities are largely held in the portfolios of DZ BANK's Capital Markets Trading division or of the treasury units at the subsidiaries of DZ BANK. Only bearer bonds are counted as liquid securities.

Liquid securities comprise highly liquid securities that are suitable for collateralizing funding in private markets, securities eligible as collateral for central bank loans, and other securities that can be liquidated in the 1-year forecast period that is relevant for liquidity risk.

Securities are only eligible provided they are not pledged as collateral, e.g. for secured funding. Securities that have been borrowed or taken as collateral for derivatives business or in connection with secured funding only become eligible when they are freely transferable. Eligibility is recognized on a daily basis and also takes into account factors such as restrictions on the period in which the securities are freely available.

Fig. 6 shows the liquidity value of the liquid securities that would result from secured funding or if the securities were sold. The total liquidity value as at June 30, 2020 amounted to €35.6 billion (December 31, 2019: €49.6 billion). The decrease in the volume of liquid securities was attributable to the use of securities that are eligible as central bank collateral at the ECB for the purpose of borrowing under the targeted longer-term refinancing operations of the Eurosystem.

Consequently, liquid securities represent the largest proportion of the counterbalancing capacity and make a major contribution to maintaining solvency in the stress scenarios with defined limits at all times during the relevant forecast period. In the first month, which is a particularly critical period in a crisis, liquid securities are almost exclusively responsible for maintaining solvency in the stress scenarios with defined limits.

FIG. 6 – LIQUID SECURITIES

€ billion	2020	2019
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**23.2**	**26.3**
Securities in own portfolio	30.5	27.6
Securities received as collateral	11.8	9.4
Securities provided as collateral	-19.1	-10.7
Liquid securities eligible as collateral for central bank loans	**6.6**	**16.8**
Securities in own portfolio	17.7	17.7
Securities received as collateral	7.4	6.0
Securities provided as collateral	-18.5	-6.9
Other liquid securities	**5.9**	**6.5**
Securities in own portfolio	5.2	5.5
Securities received as collateral	0.7	1.2
Securities provided as collateral	-0.1	-0.2
Total	**35.6**	**49.6**
Securities in own portfolio	53.5	50.8
Securities received as collateral	19.9	16.6
Securities provided as collateral	-37.7	-17.7

1 GC = general collateral, ECB Basket = eligible collateral for ECB funding.

Funding

The short-term and medium-term funding structure is a determining factor in the level of liquidity risk in the DZ BANK Group and at DZ BANK. The main sources of funding on the unsecured money markets are shown in Fig. 7.

FIG. 7 – UNSECURED FUNDING

%	Jun. 30, 2020	Dec. 31, 2019
Local cooperative banks	44	43
Other banks, central banks	17	11
Corporate customers, institutional customers	21	12
Commercial paper (institutional investors)	18	34

Changes in the composition of the main sources of funding were attributable to a change in the behavior of customers and investors resulting from money market policy implemented by the ECB.

Further information on funding can be found in section II.5 (Financial position) of the business report in the interim group management report.

5.1.2 Risk position

Economic liquidity adequacy is assured if none of the four stress scenarios with defined limits exhibit a negative value for the internal key risk indicator 'minimum liquidity surplus'. Fig. 8 shows the results of measuring liquidity risk. The results are based on a daily calculation and comparison of forward cash exposure and counterbalancing capacity. The values reported are the values that occur on the day on which the liquidity surplus calculated over the forecast period of 1 year is at its lowest point.

The liquidity risk value measured as at June 30, 2020 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €8.1 billion (December 31, 2019: €12.5 billion). The decrease in the minimum liquidity surplus was largely due to an increase in the collateral provided by DZ BANK in view of the market movements triggered by the COVID-19 pandemic.

The risk value as at June 30, 2020 was above the internal threshold value (€4.0 billion) and above the limit (€1.0 billion). It was also above the external minimum target (€0 billion). The observation threshold, limit, and external minimum target remained unchanged compared with the first half of 2019.

The minimum liquidity surplus as at June 30, 2020 was positive in the stress scenarios with defined limits that were determined on the basis of risk appetite. This is due to the fact that the counterbalancing capacity was above the cumulative cash outflows on each day of the defined forecast period in every scenario, which indicates that the cash outflows assumed to take place in a crisis could be comfortably covered.

FIG. 8 – LIQUIDITY UP TO 1 YEAR IN THE STRESS SCENARIOS WITH DEFINED LIMITS: MINIMUM LIQUIDITY SURPLUSES

	Forward cash exposure		Counterbalancing capacity		Minimum liquidity surplus	
€ billion	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Downgrading	-99.1	-76.1	120.9	105.7	21.9	29.6
Corporate crisis	-98.9	-74.5	107.0	88.0	8.1	13.5
Market crisis	-101.2	-80.7	115.1	97.2	13.9	16.4
Combination crisis	-101.0	-80.2	111.2	92.7	10.2	12.5

5.2 Normative internal perspective

The **LCR** for the DZ BANK banking group calculated in accordance with Commission Delegated Regulation (EU) No. 2015/61 as at June 30, 2020 is shown in Fig. 9.

FIG. 9 – LIQUIDITY COVERAGE RATIO AND ITS COMPONENTS

	Jun. 30, 2020	Dec. 31, 2019
Total liquidity buffer (€ billion)	101.0	84.1
Total net liquidity outflows (€ billion)	72.0	58.2
LCR (%)	140.3	144.6

The decrease in the LCR from 144.6 percent as at December 31, 2019 to 140.3 percent as at June 30, 2020, with slightly higher excess cover, was attributable to the ratio's increased sensitivity to net liquidity outflows. Excess cover is the difference between the liquidity buffer and the net liquidity outflows.

In the reporting period, both the internal threshold value of 110.0 percent (unchanged year on year) and the regulatory minimum requirement of 100.0 percent (also unchanged year on year) were exceeded at every measurement date and at every reporting date. In view of the COVID-19 pandemic, the supervisory authorities will tolerate a value below the external minimum target of 100 percent until further notice.

6 Capital adequacy

6.1 Economic perspective

It was necessary to **recalculate the overall solvency requirement** as at December 31, 2019 owing to scheduled changes to the parameters for the risk measurement procedures and the updating of actuarial assumptions carried out in the second quarter of 2020 for the Insurance sector on the basis of R+V's 2019 consolidated financial statements. The recalculation reflects updated measurements of insurance liabilities based on annual actuarial analyses and updates to parameters in the risk capital calculation. Because of the complexity and the amount of time involved, the parameters are not completely updated in the in-year calculation and an appropriate projection is made.

The recalculation led to changes in the available internal capital, key risk indicators, and economic capital adequacy. The figures as at December 31, 2019 given in this opportunity and risk report have been restated accordingly and are not directly comparable with the figures in the 2019 opportunity and risk report. As the limits are not adjusted retrospectively in connection with the recalculation, the overall solvency requirement may exceed the original limit. Because it is looking at past data, however, a limit overrun of this type is not relevant for management purposes.

The DZ BANK Group's **available internal capital** as at June 30, 2020 stood at €29,549 million. The comparable figure as at December 31, 2019 was €27,328 million. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report came to €26,968 million. The increase in available internal capital compared with December 31, 2019 was largely due to first-time use of the transitional measure on technical provisions and the volatility adjustment in the Insurance sector (for details, see section 6.2.3). This outweighed the adverse effects of capital market movements.

The limit derived from the available internal capital was set at €23,730 million as at June 30, 2020 (December 31, 2019: €21,723 million). It was raised because of the planned expansion of business and in response to the fallout from the COVID-19 pandemic. The limit for the Insurance sector was increased by €2,268 million, whereas the limit for the Bank sector was reduced by €366 million. The limit for the centralized capital buffer requirement was raised by €105 million.

As at June 30, 2020, **aggregate risk** was calculated at €18,262 million. The comparable figure as at December 31, 2019 was €17,056 million. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report came to €16,932 million. This increase was driven by higher numbers in both the Bank sector and the Insurance sector that were primarily attributable to the market turmoil triggered by the COVID-19 pandemic.

As at June 30, 2020, the **economic capital adequacy ratio** for the DZ BANK Group was calculated at 161.8 percent. The comparable figure as at December 31, 2019 was 160.2 percent. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report was 159.3 percent. During the first half of 2020, the economic capital adequacy ratio was higher than the internal threshold value of 120.0 percent and the external minimum target of 100.0 percent at every measurement date. The internal threshold value and the external minimum target for 2020 are unchanged compared with those for 2019. The increase in the economic capital adequacy ratio compared with the end of 2019 was due to the larger rise in available internal capital relative to the rise in aggregate risk.

Fig. 10 provides an overview of the components of economic capital adequacy.

FIG. 10 – COMPONENTS OF ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

The limits and risk capital requirements including the capital buffer requirements for the Bank sector, broken down by risk type, are shown in Fig. 11.

FIG. 11 – LIMITS AND RISK CAPITAL REQUIREMENTS INCLUDING CAPITAL BUFFER REQUIREMENTS IN THE BANK SECTOR

	Limit		Risk capital requirement[3]	
€ million	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Credit risk	6,978	7,189	5,530	5,484
Equity investment risk	1,090	1,063	894	850
Market risk	5,725	5,646	4,413	3,860
Technical risk of a home savings and loan company[1]	550	706	433	397
Business risk[2]	550	1,016	416	837
Operational risk	1,020	926	872	859
Total (after diversification)	**14,835**	**15,201**	**11,711**	**11,289**

1 Market risk contains spread risk and migration risk.
2 Including business risk and reputational risk of BSH.
3 Apart from that of BSH, reputational risk is contained in the risk capital requirement for business risk.
4 Including decentralized capital buffer requirement.

Fig. 12 sets out the limits and overall solvency requirements for the **Insurance sector**, broken down by risk type, and includes policyholder participation.

FIG. 12 – LIMITS AND OVERALL SOLVENCY REQUIREMENTS IN THE INSURANCE SECTOR

	Limit		Overall solvency requirement	
€ million	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Life actuarial risk	1,400	1,200	1,198	1,049
Health actuarial risk	700	410	419	245
Non-life actuarial risk	4,500	3,960	3,962	3,724
Market risk	6,250	3,850	4,765	3,789
Counterparty default risk	200	100	105	88
Operational risk	800	680	694	637
Risks from entities in other financial sectors	140	112	119	119
Total (after diversification)	**8,170**	**5,902**	**5,908**	**5,240**

In addition to the amounts shown in Fig. 11 and Fig. 12, there was a **centralized capital buffer requirement across all types of risk** of €643 million as at June 30, 2020 (December 31, 2019: €526 million). The corresponding limit was €725 million as at the reporting date (December 31, 2019: €620 million). The increase was primarily due to the inclusion of DVB’s business risk, which is not included in the centralized risk model.

6.2 Normative internal perspective

6.2.1 DZ BANK financial conglomerate

The DZ BANK financial conglomerate comprises the DZ BANK banking group and the R+V Versicherung AG insurance group.

Until the end of the second quarter of 2020, the coverage ratio for the financial conglomerate was calculated on the basis of the minimum capital requirement according to the CRR. From the start of the third quarter, the coverage ratio has to be calculated using the minimum total capital requirement applicable to the DZ BANK banking group according to the Supervisory Review and Evaluation Process (SREP).

For reasons of transparency and comparability, the coverage ratio and its components as at June 30, 2020 are shown in Fig. 13 both in accordance with the CRR minimum capital requirement of 8 percent and in accordance with the SREP minimum total capital requirement of 13.26 percent. From July 1, 2020, only the coverage ratio calculated using the SREP minimum total capital requirement will be used.

FIG. 13 – COMPONENTS OF REGULATORY CAPITAL ADEQUACY OF THE DZ BANK FINANCIAL CONGLOMERATE

	According to SREP minimum total capital requirement		According to CRR minimum capital requirement	
	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019[1]
Own funds (€ million)	32,532	30,039	32,532	30,039
Solvency requirements (€ million)	24,912	23,552	18,256	17,205
Coverage ratio (%)	130.6	127.6	178.2	174.6

1 Final figures, which deviate from the preliminary figures given in the 2019 opportunity and risk report.

The rise in own funds and in the solvency requirements calculated for the DZ BANK financial conglomerate as at June 30, 2020 compared with December 31, 2019 was attributable to the change in own funds and in the capital requirements and solvency requirements at the level of the DZ BANK banking group and the R+V Versicherung AG insurance group (for details, see section 6.2.2 and section 6.2.3).

The coverage ratios for the financial conglomerate as at June 30, 2020, calculated using the two methods, were higher than both the external minimum target (100.0 percent) and the internal threshold value (120.0 percent). According to current projections, this is also expected to be assured in the second half of the year for the coverage ratio calculated on the basis of the SREP minimum total capital requirement.

6.2.2 DZ BANK banking group

Regulatory minimum capital requirements according to SREP

The mandatory minimum capital requirements and their components applicable to 2020 and 2019 at the level of the DZ BANK banking group are shown in Fig. 14.

FIG. 14 – REGULATORY MINIMUM CAPITAL REQUIREMENTS OF THE DZ BANK BANKING GROUP

%	2020 (after adjust-ment)[3]	2020 (before adjust-ment)[3]	2019
Minimum requirement for common equity Tier 1 capital	4.50	4.50	4.50
Additional Pillar 2 capital requirement	0.98	1.75	1.75
Capital conservation buffer	2.50	2.50	2.50
Countercyclical capital buffer	0.01	0.01	0.04
O-SII capital buffer	1.00	1.00	1.00
Mandatory minimum requirement for common equity Tier 1 capital	**9.00**	**9.76**	**9.79**
Minimum requirement for additional Tier 1 capital[1]	1.50	1.50	1.50
Additional Pillar 2 capital requirement	0.33		
Mandatory minimum requirement for Tier 1 capital	**10.82**	**11.26**	**11.29**
Minimum requirement for Tier 2 capital[2]	2.00	2.00	2.00
Additional Pillar 2 capital requirement	0.44		
Mandatory minimum requirement for total capital	**13.26**	**13.26**	**13.29**

Not available

1 The value for the countercyclical capital buffer is recalculated at each reporting date. Unlike the other reported values, which apply to the entire financial year, the countercyclical capital buffers shown for 2020 and 2019 relate solely to the reporting dates of June 30, 2020 and December 31, 2019 respectively.
2 The minimum requirement can also be satisfied with common equity Tier 1 capital.
3 'Before adjustment': minimum requirements originally planned for 2020. 'After adjustment': minimum requirements after factoring in the relief measures introduced by the supervisory authorities due to the COVID-19 pandemic.

Because of the COVID-19 pandemic, the supervisory authorities introduced various relief measures for banks, including in relation to the binding minimum capital requirements. For example, a bank can temporarily use up its capital conservation buffer and

O-SII capital buffer without incurring sanctions. In such an eventuality, it must submit a capital conservation plan to the supervisory authorities. If, as a result, the combined capital buffer requirement and thus the threshold for the maximum distributable amount are no longer met, the rules regarding the limits for distributions continue to apply. These relief measures are therefore not taken into account in Fig. 14.

However, Fig. 14 does take account of the relief measures resulting from early application of the changes to the composition of the additional capital requirements under Pillar 2. Until December 31, 2019, the additional Pillar 2 capital requirement had to be met entirely with common equity Tier 1 capital. In view of the COVID-19 pandemic, the use of additional Tier 1 instruments and of Tier 2 instruments is now partially permitted along with common equity Tier 1 capital. This rule had originally been planned for early 2021, but the supervisory authorities decided on April 8, 2020 to bring its implementation forward. This change applies retrospectively from March 12, 2020.

The supervisory authorities in some countries reduced the capital buffer rates used to calculate the countercyclical capital buffer, in some cases lowering them right down to 0 percent. In a general administrative act dated March 31, 2020, the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German Federal Financial Supervisory Authority] lowered the domestic countercyclical capital buffer rate for Germany to 0 percent (it was originally supposed to be raised to 0.25 percent with effect from July 1, 2020).

Banks are also temporarily not required to comply with the Pillar 2 capital recommendation. Applying the CRR in full, the mandatory minimum capital requirements stipulated by the supervisory authorities and the recommended minimum capital requirements were complied with on every reporting date in the first half of 2020.

Furthermore, the internal threshold values at the level of the DZ BANK banking group for the common equity Tier 1 capital ratio, the Tier 1 capital ratio, and the total capital ratio were satisfied on every reporting date during the reporting period, both before and after application of the relief measures introduced in connection with COVID-19. According to current projections, the requirements will also be satisfied throughout the rest of 2020. The internal minimum targets are shown in Fig. 4.

Regulatory capital ratios

Fig. 15 shows the DZ BANK banking group's regulatory capital ratios determined in accordance with full application of the CRR.

FIG. 15 – REGULATORY CAPITAL RATIOS OF THE DZ BANK BANKING GROUP WITH FULL APPLICATION OF THE CRR[1]

	Jun. 30, 2020	Dec. 31, 2019
Capital		
Common equity Tier 1 capital (€ million)	21,030	20,705
Additional Tier 1 capital (€ million)	2,110	2,109
Tier 1 capital	**23,140**	**22,814**
Total Tier 2 capital (€ million)	2,847	2,875
Own funds	**25,987**	**25,690**
Risk-weighted assets		
Credit risk including long-term equity investments (€ million)	127,180	124,734
Market risk (€ million)	11,993	8,350
Operational risk (€ million)	10,608	10,716
Total	**149,781**	**143,800**
Capital ratios		
Common equity Tier 1 capital ratio (%)	14.0	14.4
Tier 1 capital ratio (%)	15.4	15.9
Total capital ratio (%)	17.3	17.9

1 Full application means that the current rules are applied, disregarding the transitional guidance in Regulation (EU) No. 575/2013.

The main reason for the €325 million increase in **common equity Tier 1 capital** was the level of net profits eligible for retention. However, this positive impact on capital was outweighed by the effects in the financial markets caused by COVID-19. The interim profit calculated as at June 30, 2020 was included in common equity Tier 1 capital in accordance with article 26 (2) CRR.

The €28 million decrease in **Tier 2 capital** was mainly attributable to the reduced level of eligibility under CRR rules for own funds instruments in this capital category in the last 5 years before their maturity date.

Regulatory **risk-weighted assets** went up from €143,800 million as at December 31, 2019 to €149,781 million as at June 30, 2020. This rise of €5,981 million was primarily due to a higher level of credit risk, application of the new securitization framework to the entire portfolio of the DZ BANK banking group, and market turmoil triggered by COVID-19, which led to an increase in market risk.

Leverage ratio

The leverage ratio determined for the DZ BANK banking group with full application of the CRR is shown in Fig. 16.

FIG. 16 – LEVERAGE RATIO OF THE DZ BANK BANKING GROUP WITH FULL APPLICATION OF THE CRR

The leverage ratio went down by 0.3 percentage points during the reporting period. This decrease was primarily due to the growth of the total exposure by €36.9 billion, which was mainly attributable to the expansion of on-balance-sheet business at DZ BANK. By contrast, Tier 1 capital increased by €0.3 billion.

The internal minimum target for the leverage ratio of 3.5 percent was met on every reporting date in the first six months of 2020. The banking regulator does not currently specify an (external) minimum target for the leverage ratio.

As a result of the changed calculation that will have to be used from June 2021 onward, the leverage ratio is expected to rise by approximately 1 percentage point, in particular because loans and advances within the cooperative network and pass-through development loans will no longer have to be included.

Minimum requirement for own funds and eligible liabilities (MREL)

The MREL ratio, which was calculated using the **hybrid approach**, relates to the total liabilities and own funds of the DZ BANK banking group. The MREL volume includes the own funds of the DZ BANK banking group and the liabilities of DZ BANK that are eligible for the MREL. By contrast, liabilities of the DZ BANK banking group (including DZ BANK) were also eligible according to the calculation method used as at December 31, 2019. All other things remaining the same, the changed calculation results in a lower MREL ratio being measured. The supervisory authorities also take this into account when setting the external minimum target.

DZ BANK's Board of Managing Directors set the **internal threshold value** for the DZ BANK banking group's MREL ratio for 2020 at 8.3 percent (2019: 8.5 percent). In April 2020, BaFin notified DZ BANK that the Single Resolution Board had set an MREL ratio (**external minimum target**) of 8.0 percent for the DZ BANK banking group (2019: 8.2 percent). The internal threshold value and the external minimum target were not adjusted in light of the COVID-19 pandemic. They therefore apply for the entire financial year.

The **MREL ratio measured** for the DZ BANK banking group was 10.2 percent as at March 31, 2020 (December 31, 2019: 11.0 percent). The fall in the ratio compared with the figure as at the prior-year reporting date was attributable to the non-eligibility of existing non-preferred and non-subordinated issues because of their remaining term to maturity and to a significant increase in total assets.

The measured MREL ratio was therefore above the internal threshold value and the external minimum target. These requirements were met at every reporting date during the first half of 2020. According to current projections, the requirements will also be satisfied in the second half of the year.

The latest MREL ratio relates to March 31, 2020 because the figure as at June 30, 2020 was not yet available at the deadline date for the publication of this opportunity and risk report.

6.2.3 R+V Versicherung AG insurance group

The regulatory R+V Versicherung AG insurance group met the solvency requirements under Solvency II in the reporting period.

In the first half of this year, an application was made to use the volatility adjustment and the transitional measure on technical provisions for individual personal insurance companies of R+V. The application was approved by BaFin. The two measures help companies to meet the regulatory solvency requirements. The volatility adjustment, which can be used indefinitely, prevents a brief phase of heightened market volatility from affecting the valuation of long-term insurance guarantees. The transitional measure on technical provisions is a time-limited measure designed to make it easier for insurance companies to transition from Solvency I to the current regulatory regime, Solvency II.

The projections applied in the internal planning show that the R+V Versicherung AG insurance group's solvency ratio will continue to exceed the solvency requirement as at December 31, 2020.

Bank sector

7 Credit risk

7.1 Impact of the COVID-19 pandemic

The COVID-19 pandemic had a noticeable impact on credit risk in the Bank sector during the first half of 2020. A significant volume of **requests for liquidity support** were received from existing customers in March, April, and May. To process them, DZ BANK made use of the support programs of the Federal Republic of Germany provided through KfW and the development banks of the individual federal states.

Borrowers also applied to **defer repayments**. As well as using private moratoria in the building society operations of BSH, customers applied to use selective legislative moratoria. This affected the building society operations of BSH, the lending business of DZ HYP, and the consumer finance business of TeamBank. In addition, DZ BANK, DVB, DZ HYP, and TeamBank reached contract-specific agreements to soften the impact of the COVID-19 pandemic on borrowers.

The temporary, government-imposed shutdown of public life and economic activity (lockdown) and the resulting recession in the economy as a whole led to a significant rise in **loss allowances**. In addition to the COVID-19-related effects, loss allowances also increased because of significant impairment losses recognized on a specific exposure.

The entities in the Bank sector adapted their **process management** in the lending business to reflect the relief measures brought in by the supervisory authorities in light of COVID-19. Special provisions were temporarily introduced in this context.

In response to the fallout from the COVID-19 pandemic, the credit portfolio of the Bank sector is being **monitored** closely both at individual borrower level and at sector and country level. The content of the credit risk report was expanded. In addition, credit-risk-related effects of the pandemic were reported on at weekly or two-weekly intervals as part of the financial and risk radar.

Ad hoc **re-ratings** led to an increase in credit rating downgrades in some sectors. Export-dependent industries such as automotive, logistics, and steel as well as other industries such as services and publishing were particularly affected. Owing to the quality of the portfolio during the COVID-19 pandemic, re-ratings did not automatically result in the credit exposures in these industries being classified as credit portfolios with increased risk content.

However, the already ailing **shipping sector** was hit very hard by the COVID-19 pandemic, leading to a further deterioration in credit ratings. The macroeconomic background to this risk factor is explained in section 4.2.5. The shipping finance lending volume is presented in section 7.3.2.

A distinction must be made between shipping finance and **cruise ship finance**. Although borrowers in the latter sector have also been downgraded because of the pandemic, their credit quality remains acceptable on average.

The COVID-19 pandemic creates the risk that the European sovereign debt crisis will worsen. Given the significant credit exposure of the entities in the Bank sector, this continues to represent a major risk factor for credit risk in the Bank sector. The macroeconomic background to this risk factor is explained in section 4.2.4. Disclosures on loans and advances to borrowers in eurozone periphery countries are provided in section 7.3.1.

It is already foreseeable that the adverse effects of the pandemic on credit risk in the Bank sector will continue in the second half of this year. Depending on the duration and intensity of the pandemic, there may also be **subsequent effects** on the credit portfolio in 2021. In particular, there is expected to be a sharp rise in company insolvencies that have yet not had to be registered because of the statutory changes to the obligation to apply for insolvency. Personal insolvencies due to unemployment are also likely to increase.

7.2 Lending volume

7.2.1 Change in lending volume

The **total lending volume** increased by 5 percent overall in the first half of the year, from €398.3 billion as at December 31, 2019 to €418.6 billion as at June 30, 2020. This was mainly because of a rise of 5 percent in the lending volume in the **traditional lending business**, from €299.6 billion as at December 31, 2019 to €315.8 billion as at June 30, 2020. This rise primarily related not only to the volume of lending disbursed by DZ BANK to local cooperative banks but also to business with corporates. The lending volume in the **derivatives and money market business** also went up, swelling by 22 percent to €19.5 billion as at June 30, 2020 (December 31, 2019: €16.0 billion). This increase was largely attributable to DZ BANK. There was a 1 percent increase in the volume in the **securities business**, which advanced from €82.7 billion as at December 31, 2019 to €83.4 billion as at June 30, 2020. Again, this increase was primarily attributable to DZ BANK.

7.2.2 Sector structure of the credit portfolio

Fig. 17 shows the breakdown of the credit portfolio by sector, in which the lending volume is classified according to the industry codes used by Deutsche Bundesbank. This also applies to the other sector breakdowns related to credit risk in this opportunity and risk report.

As at June 30, 2020, a significant proportion (38 percent) of the lending volume was concentrated in the financial sector (December 31, 2019: 36 percent). In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other parts of the banking industry and other financial institutions.

In its role as central institution for the Volksbanken Raiffeisenbanken cooperative financial network, DZ BANK provides funding for the entities in the Bank sector and for the cooperative banks. For this reason, the cooperative banks account for one of the largest receivables items in the DZ BANK Group's credit portfolio. DZ BANK also supports the cooperative banks in the provision of larger-scale funding to corporate customers. The resulting syndicated business, the direct business of DZ BANK, the real-estate lending business of DZ HYP and BSH, and DZ HYP's local authority lending business determine the industry breakdown for the remainder of the portfolio.

7.2.3 Geographical structure of the credit portfolio

Fig. 18 shows the geographical distribution of the credit portfolio by country group. The lending volume is assigned to the individual country groups using the International Monetary Fund's breakdown, which is updated annually.

As at June 30, 2020, 97 percent of the total lending volume was concentrated in Germany and other industrialized countries. This was the same as the figure at the end of 2019.

7.2.4 Residual maturity structure of the credit portfolio

The breakdown of the credit portfolio by residual maturity as at June 30, 2020 presented in Fig. 19 shows that the lending volume had increased by €12.0 billion in the short-term maturity band compared with December 31, 2019. This was attributable to DZ BANK. By contrast, there was a decrease of €1.0 billion in the medium-term maturity band that was attributable to DVB. DZ BANK was primarily responsible for the rise of €9.3 billion in the lending volume in the long-term maturity band.

FIG. 17 – BANK SECTOR: LENDING VOLUME, BY SECTOR

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Financial sector	112.6	100.6	32.2	32.0	12.8	10.2	157.5	142.8
Public sector	10.4	10.7	38.8	38.1	0.8	0.7	50.0	49.5
Corporates	108.9	107.3	8.7	8.5	5.3	4.6	122.9	120.4
Retail	72.7	69.8	1.3	1.5	-	-	74.0	71.4
Industry conglomerates	10.6	10.5	2.4	2.7	0.6	0.5	13.6	13.6
Other	0.5	0.6	-	-	-	-	0.5	0.6
Total	**315.8**	**299.6**	**83.4**	**82.7**	**19.5**	**16.0**	**418.6**	**398.3**

FIG. 18 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Germany	285.3	269.4	47.3	47.7	13.0	10.7	345.5	327.8
Other industrialized countries	20.9	20.9	31.8	31.0	5.8	4.8	58.4	56.7
Advanced economies	1.7	1.9	0.8	0.8	0.1	0.1	2.6	2.8
Emerging markets	7.9	7.3	0.9	0.9	0.2	0.2	9.0	8.5
Supranational institutions	-	-	2.6	2.3	0.4	0.3	3.1	2.6
Total	315.8	299.6	83.4	82.7	19.5	16.0	418.6	398.3

FIG. 19 – BANK SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
≤ 1 year	79.8	69.3	15.1	15.3	9.6	7.8	104.4	92.4
> 1 year to ≤ 5 years	72.8	73.9	26.8	26.9	3.5	3.2	103.0	104.0
> 5 years	163.2	156.4	41.5	40.5	6.4	5.0	211.1	201.9
Total	315.8	299.6	83.4	82.7	19.5	16.0	418.6	398.3

7.2.5 Rating structure of the credit portfolio

Fig. 20 shows the consolidated lending volume by rating class according to the VR credit rating master scale.

The proportion of the total lending volume accounted for by rating classes 1A to 3A (investment grade) was 79 percent as at June 30, 2020 (December 31, 2019: 78 percent). Rating classes 3B to 4E (non-investment grade) represented 19 percent of the total lending volume as at the reporting date (December 31, 2019: 20 percent). Defaults, represented by rating classes 5A to 5E, accounted for 1 percent of the total lending volume as at June 30, 2020, which was unchanged compared with the end of 2019.

As at June 30, 2020, the **10 counterparties associated with the largest lending volumes** accounted for 6 percent of total lending (unchanged on the value as at December 31, 2019). These counterparties largely comprised financial-sector and public-sector borrowers domiciled in Germany with an investment-grade rating.

FIG. 20 – BANK SECTOR: LENDING VOLUME, BY RATING CLASS

		Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion		Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Investment grade	1A	4.7	5.0	35.2	32.6	1.2	1.0	41.1	38.6
	1B	2.1	1.8	2.6	2.9	0.2	0.9	4.8	5.6
	1C	109.0	97.4	11.4	10.7	4.9	4.0	125.3	112.1
	1D	8.6	7.4	1.7	2.4	2.5	0.4	12.8	10.2
	1E	10.9	11.7	4.1	3.2	1.5	1.5	16.5	16.5
	2A	10.4	10.8	4.3	5.0	1.3	1.0	16.0	16.8
	2B	14.9	10.6	7.4	8.4	1.6	1.8	23.9	20.9
	2C	13.4	15.6	2.4	2.4	1.5	1.1	17.3	19.1
	2D	15.9	17.4	4.0	4.2	0.4	0.9	20.3	22.6
	2E	21.0	18.7	3.3	3.7	1.4	1.4	25.7	23.8
	3A	21.3	20.2	4.3	4.5	1.4	0.6	27.0	25.4
Non-investment grade	3B	24.0	25.1	0.7	0.6	0.4	0.5	25.1	26.3
	3C	21.1	21.4	0.6	0.5	0.2	0.1	21.8	22.0
	3D	13.5	13.5	0.2	0.2	0.4	0.1	14.1	13.8
	3E	6.9	5.9	0.3	0.2	-	-	7.2	6.2
	4A	4.2	3.4	-	-	-	-	4.2	3.5
	4B	3.3	3.3	-	-	-	-	3.3	3.3
	4C	1.5	1.7	-	-	-	-	1.5	1.8
	4D	0.7	0.5	-	-	-	-	0.7	0.5
	4E	2.0	1.7	-	-	-	-	2.1	1.8
Default		4.7	4.3	0.1	0.1	-	-	4.9	4.5
Not rated		1.6	1.9	0.8	0.8	0.5	0.5	3.0	3.2
Total		**315.8**	**299.6**	**83.4**	**82.7**	**19.5**	**16.0**	**418.6**	**398.3**

7.2.6 Collateralized lending volume

Fig. 21 shows the breakdown of the collateralized lending volume at overall portfolio level by type of collateral and class of risk-bearing instrument.

In the case of **traditional lending business**, lending volume is generally reported as a gross figure before the application of any offsetting agreements, whereas the gross lending volume in the **derivatives and money market business** is shown on a netted basis. In the derivatives and money market business, collateral values are relatively low and are in the form of personal and financial collateral. In the **securities business**, there is generally no further collateralization to supplement the collateral already taken into account. For this reason, securities business is not included in the presentation of the collateralized lending volume.

The total collateral value had risen to €125.7 billion as at June 30, 2020, compared with €124.3 billion as at December 31, 2019. The collateralization rate was 37.5 percent at the reporting date (December 31, 2019: 39.4 percent).

In the **traditional lending business**, most of the collateralized lending volume – 87 percent as at June 30, 2020, which was unchanged compared with the end of 2019 – was accounted for by lending secured by charges over physical assets such as land charges, mortgages, and registered ship and aircraft mortgages. These types of collateral are particularly important for BSH, DZ HYP, and DVB. In contrast, charges over physical assets are of lesser importance at DZ BANK because DZ BANK bases its lending decisions primarily on borrower credit quality. In **securities transactions**, there is generally no further collateralization to supplement the collateral already taken into account. Equally, in the **derivatives and money market business**, collateral received under collateral agreements is already factored into the calculation of gross lending volume with the result that only a comparatively low level of collateral (personal and financial collateral) is then additionally reported.

FIG. 21 – BANK SECTOR: COLLATERAL VALUE, BY TYPE OF COLLATERAL

	Traditional lending business		Derivatives and money market business		Total	
€ billion	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Guarantees, indemnities, risk subparticipation	6.8	6.5	0.5	0.4	7.4	7.0
Credit insurance	4.5	4.0	-	-	4.5	4.0
Land charges, mortgages, registered ship and aircraft mortgages	108.7	107.4	-	-	108.8	107.4
Pledged loans and advances, assignments, other pledged assets	3.2	3.5	-	-	3.2	3.5
Financial collateral	1.2	2.2	0.5	0.1	1.8	2.3
Other collateral	0.1	0.1	-	-	0.1	0.1
Total collateral	**124.6**	**123.7**	**1.1**	**0.6**	**125.7**	**124.3**
Lending volume	315.8	299.6	19.5	16.0	335.2	315.6
Uncollateralized lending volume	**191.2**	**175.9**	**18.3**	**15.4**	**209.5**	**191.3**
Collateralization rate (%)	**39.5**	**41.3**	**5.9**	**3.7**	**37.5**	**39.4**

7.2.7 Securitizations

The Bank sector's securitization portfolio is predominantly held by DZ BANK and DZ HYP. This portfolio had a nominal amount of €2,422 million as at the reporting date (December 31, 2019: €2,797 million). The sharp fall in the nominal amount can essentially be explained by the contraction of the trading portfolio in connection with the advancing COVID-19 pandemic. The pandemic resulted in limited liquidity in the capital markets, which in turn led to a significant reduction in trading activity. This was also reflected in the distribution of credit ratings. The highest rating class, 1A, accounted for 53 percent of the nominal amount as at June 30, 2020 (December 31, 2019: 57 percent).

The above figures included the **wind-down portfolio** dating back to the period before the financial crisis in 2007, which had a nominal amount of €1,074 million (December 31, 2019: €1,178 million). The volume of the wind-down portfolio contracted during the first half of this year, primarily because of regular redemptions.

In addition, DZ BANK acts as a **sponsor** in ABCP programs that are funded by issuing money market-linked asset-backed commercial paper (ABCP) or liquidity lines. The ABCP programs are made available for DZ BANK customers who then securitize their own assets via these companies. As at June 30, 2020, drawdowns of the securitization exposures arising from DZ BANK's activities in which it acts as a sponsor amounted to €1,331 million (December 31, 2019: €1,442 million). The increase in the securitization exposures was due to new business and to fluctuations in the drawdown of liquidity lines.

7.3 Credit portfolios with increased risk content

The credit portfolios with increased risk content are analyzed separately because of their significance for the risk position. The figures presented here are included in the above analyses of the total lending volume.

Although, as explained in section 7.1, the COVID-19 pandemic resulted in a rise in credit rating downgrades, no new credit portfolios with increased risk content had been identified as at the reporting date.

7.3.1 Loans and advances to borrowers in eurozone periphery countries

As at June 30, 2020, loans and advances to borrowers in the countries directly affected by the **economic divergence in the eurozone** amounted to €7,439 million (December 31, 2019: €7,505 million). The decrease was mainly due to lower fair values and, to a lesser extent, to disposals and maturities at DZ HYP.

Fig. 22 shows the borrower structures of the entities in the Bank sector for the eurozone periphery countries by credit-risk-bearing instrument.

FIG. 22 – BANK SECTOR: LOANS AND ADVANCES TO BORROWERS IN EUROZONE PERIPHERY COUNTRIES

	Traditional lending business[1]		Securities business		Derivatives and money market business		Total	
€ million	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Portugal	34	41	1,100	1,104	-	-	1,133	1,146
of which: public sector	-	-	1,032	1,030	-	-	1,032	1,030
of which: non-public sector	34	41	68	74	-	-	102	116
of which: financial sector	3	-	-	-	-	-	3	-
Italy	71	92	3,058	3,094	76	70	3,204	3,256
of which: public sector	-	-	2,793	2,856	-	-	2,793	2,856
of which: non-public sector	71	92	265	238	76	70	411	400
of which: financial sector	35	34	39	68	76	70	150	172
Spain	164	169	2,830	2,830	107	104	3,102	3,104
of which: public sector	-	6	2,003	2,006	-	-	2,003	2,012
of which: non-public sector	164	163	827	824	107	104	1,099	1,091
of which: financial sector	36	31	271	263	99	99	406	393
Total	269	302	6,988	7,029	183	174	7,439	7,505
of which: public sector	-	6	5,828	5,892	-	-	5,828	5,898
of which: non-public sector	269	296	1,160	1,137	183	174	1,612	1,607
of which: financial sector	74	66	310	331	174	169	559	566

1 Unlike the other presentations of lending volume, traditional lending business in this case includes long-term equity investments.

7.3.2 Shipping finance and offshore finance

Business background

Within the DZ BANK Group's Bank sector, the **shipping finance business** is mainly operated by DVB and, to a lesser degree, by DZ BANK. At DVB and DZ BANK, the lending volume associated with shipping finance comprises loans and advances to customers, guarantees and indemnities, irrevocable loan commitments, and derivatives.

The non-core asset (NCA) strategy initiated by **DVB** at the start of 2018 to wind down the **shipping finance** business, which was no longer a strategic priority, in a way that preserved value was replaced by a run-off strategy in January 2020. The aim of the run-off strategy is to scale back the entire shipping finance portfolio in an orderly way that preserves value as the individual exposures mature. Key components of this strategy are the discontinuation of new business and a run-off plan designed to preserve value. Separately from the above, DVB will participate in necessary restructuring measures to improve the collection of outstanding loans and receivables.

In addition to shipping finance, **DVB** has **offshore finance** business in its credit portfolio. This business consists of various financing arrangements with broad links to the shipping sector. The portfolio includes finance for drilling platforms, drill ships, offshore construction ships, and supply ships for oil platforms. No further new business has been taken on in the business since 2017.

DZ BANK offers **shipping finance** as part of its joint credit business with the local cooperative banks. Shipping finance in the narrow sense refers to capital investment in mobile assets involving projects that are separately defined, both legally and in substance, in which the borrower is typically a special-purpose entity whose sole business purpose is the construction and operation of ships. In such arrangements, the debt is serviced from the cash flows generated by the ship. The assessment of the credit risk is therefore based not only on the recoverability of the asset, but also in particular on the capability of the ship to generate earnings.

To reduce risk, finance provided by DZ BANK must normally be secured by a first mortgage on the vessel and the assignment of insurance claims and proceeds. A distinction is made between shipping finance in the narrow sense and finance provided for shipyards and shipping companies. The following disclosures for DZ BANK relate solely to shipping finance in the narrow sense.

Shipping finance lending volume in the Bank sector

As at June 30, 2020, the **Bank sector's** shipping finance portfolio had a total volume of €5,305 million (December 31, 2019: €6,334 million). The breakdown of the lending volume between the two management units as at June 30, 2020 was as follows (corresponding figures as at December 31, 2019 in parentheses):

- DVB: €4,578 million (€5,648 million), of which €3,953 million (€5,060 million) is lending volume without increased risk content
- DZ BANK: €727 million (€686 million).

Shipping finance lending volume at DVB

The run-off strategy that has been in place since the start of this year has resulted in changes to the way in which the portfolio is defined. Consequently, the shipping finance lending volume shown for DVB as at June 30, 2020 is not directly comparable with the figures as at December 31, 2019.

DVB's shipping finance lending volume with increased risk content, which consists solely of traditional lending business, stood at €625 million as at June 30, 2020 (December 31, 2019: €558 million). The sharp rise was due to the deterioration in customers' financial circumstances and a decrease in collateral values owing to the effects of the COVID-19 pandemic.

The breakdown by country group of DVB's shipping finance portfolio with increased risk content as at June 30, 2020 was as follows (corresponding figures as at December 31, 2019 in parentheses):

- Germany: €76 million (€96 million)
- Other industrialized countries: €377 million (€348 million)
- Advanced economies: €149 million (€60 million)
- Emerging markets: €22 million (€84 million).

As at June 30, 2020, DVB's shipping finance portfolio with increased risk content included 71 financed vessels (December 31, 2019: 70 vessels). The average exposure as at the reporting date was €17 million (December 31, 2019: €15 million) and the largest single exposure was €91 million (December 31, 2019: €115 million).
The largest proportion (52 percent) of this portfolio was attributable to the financing of bulk carriers (December 31, 2019: 51 percent). The portfolio was almost fully collateralized in compliance with DVB's strategy.

Shipping finance lending volume at DZ BANK

At DZ BANK, the entire shipping finance portfolio is exposed to increased risk. The lending volume stood at €727 million as at June 30, 2020 (December 31, 2019: €686 million). These financing transactions consist almost entirely of traditional lending business, most of which is operated jointly with the local cooperative banks. As in 2019, DZ BANK's shipping finance portfolio in the first half of 2020 was mainly concentrated in Germany but broadly diversified by type of vessel, borrower, charterer, and shipping activity.

Offshore finance lending volume

As at June 30, 2020, the Bank sector's lending volume in the offshore finance business, which is attributable exclusively to **DVB** and is classified as traditional lending business, amounted to €780 million (December 31, 2019: €921 million).

7.4 Volume of non-performing loans

In the Bank sector, loans are categorized as non-performing if they have been rated between 5A and 5E on the VR credit rating master scale. These non-performing loans (NPLs) are exposures that are at acute risk of default.

The volume of non-performing loans in the entire credit portfolio of the Bank sector had risen from €4.5 billion as at December 31, 2019 to €4.9 billion as at June 30, 2020. As a result of this increase, the NPL ratio went up from 1.1 percent to 1.2 percent.

Fig. 23 shows key figures relating to the volume of non-performing loans.

FIG. 23 – BANK SECTOR: KEY FIGURES FOR THE VOLUME OF NON-PERFORMING LOANS

	Jun. 30, 2020	Dec. 31, 2019
Total lending volume (€ billion)	418.6	398.3
Volume of non-performing loans (€ billion)[1]	4.9	4.5
Balance of loss allowances (€ billion)	2.3	2.7
Coverage ratio (%)[2]	83	59
NPL ratio (%)[3]	1.2	1.1

1 Volume of non-performing loans excluding collateral.
2 Specific loan loss allowances plus collateral as a proportion of the volume of non-performing loans.
3 Volume of non-performing loans as a proportion of total lending volume.

An adjustment was made to the internal reporting relating to the calculation of the coverage ratio. Only the loss allowances directly assignable to the NPLs are now taken into account, instead of the total loss allowances. Collateral is also taken into account. As a result of these changes, the coverage ratio as at June 30, 2020 is not directly comparable with the corresponding figure as at December 31, 2019. The figure as at December 31, 2019 calculated under the new method is 82 percent.

7.5 Risk position

7.5.1 Risks in the entire credit portfolio

The risk capital requirement (including capital buffer requirement) for credit risk is based on a number of factors, including the size of single-borrower exposures, individual ratings, and the industry sector of each exposure.

As at June 30, 2020, the risk capital requirement including capital buffer requirement amounted to €5,530 million (December 31, 2019: €5,484 million) with a limit of €6,978 million (December 31, 2019: €7,189 million) that was not exceeded on any measurement date during the first 6 months of this year.

Fig. 24 shows the credit value-at-risk together with the average probability of default and expected loss. Because of the breakdown by credit-risk-bearing instrument, the risk capital requirement is presented without the capital buffer requirement.

FIG. 24 – BANK SECTOR: FACTORS DETERMINING THE CREDIT VALUE-AT-RISK

	Average probability of default (%)		Expected loss (€ million)		Credit value-at-risk[1] (€ million)	
	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019	Jun. 30, 2020	Dec. 31, 2019
Traditional lending business	0.6	0.5	491	418	2,617	2,493
Securities business	0.1	0.1	46	48	1,669	1,733
Derivatives and money market business	0.2	0.1	13	11	308	226
Total			550	477	4,594	4,452
Average	0.4	0.4				

Not relevant

1 Excluding capital buffer requirement.

7.5.2 Risks in the credit portfolios with increased risk content

The risk capital requirement for credit portfolios exposed to increased credit risk is shown in Fig. 25, again without the capital buffer requirement.

FIG. 25 – BANK SECTOR: CREDIT VALUE-AT-RISK[1] FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Jun. 30, 2020	Dec. 31, 2019
Eurozone periphery countries portfolio	1,184	1,288
Shipping finance portfolio[2]	78	57
Offshore finance portfolio	38	73

1 Excluding capital buffer requirement.
2 DVB: portfolio with increased risk content; DZ BANK: overall shipping finance portfolio.

Compared with December 31, 2019, the credit value-at-risk for the Bank sector entities' exposure in the **peripheral countries of the eurozone** had fallen as at June 30, 2020. The decrease correlated with the change in the lending volume in respect of the eurozone periphery countries, which was mainly due to reductions in fair value and, to a lesser extent, to disposals and maturities at DZ HYP.

The credit value-at-risk for the overall **shipping finance portfolio** in the Bank sector, which amounted to €326 million as at June 30, 2020 (December 31, 2019: €132 million), was largely attributable to DVB. The rise was due to the reduction in the useful life of ships and a decrease in collateral values owing to updates to forecasts to reflect the impact of the COVID-19 pandemic.

The credit value-at-risk for **offshore finance** went down because of the continued scaling back of this business operated by DVB in line with the strategy.

8 Equity investment risk

The **carrying amounts of long-term equity investments** relevant for the measurement of equity investment risk amounted to €2,974 million as at June 30, 2020 (December 31, 2019: €2,392 million).

The **risk capital requirement (including capital buffer requirement)** for equity investment risk was measured at €894 million on the reporting date (December 31, 2019: €850 million). The **limit** was €1,090 million (December 31, 2019: €1,063 million) and was not exceeded at any time during the first 6 months of the year.

9 Market risk

The increase in market risk described below is primarily the result of the rise in general market volatility in connection with the COVID-19 pandemic.

Fig. 26 shows the average, maximum, and minimum **values-at-risk** measured over the reporting period, including a further breakdown by type of market risk. In addition, Fig. 27 shows the changes in market risk by trading day in the first half of 2020.

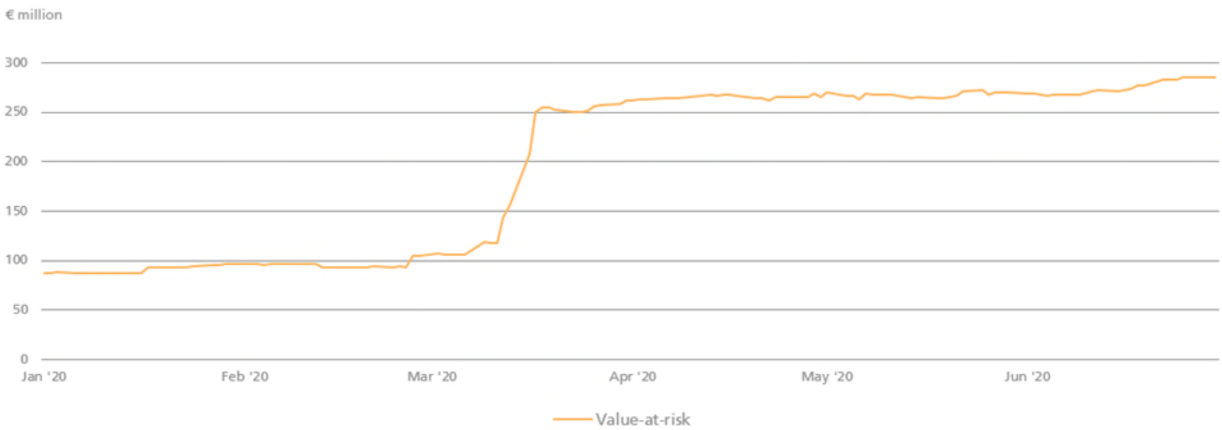
The value-at-risk for the **interest-rate risk in the banking book for regulatory purposes** amounted to €30 million as at June 30, 2020 (December 31, 2019: €11 million).

FIG. 26 – BANK SECTOR: CHANGE IN MARKET RISK BY TYPE OF RISK[1 2]

€ million	Interest-rate risk	Spread risk	Equity risk[3]	Currency risk	Commodity risk	Diversifi-cation effect[4]	Total
Jun. 30, 2020	**30**	**281**	**26**	**4**	**1**	**-56**	**286**
Average	17	197	14	4	-	-37	**195**
Maximum	30	283	26	5	2	-60	**286**
Minimum	10	88	6	3	-	-19	**87**
Dec. 31, 2019	**11**	**88**	**6**	**4**	**-**	**-21**	**88**

1 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.
2 The minimum and maximum amounts for the different subcategories of market risk may stem from different points in time during the reporting period. Consequently, they cannot be aggregated to produce the minimum or maximum aggregate risk due to the diversification effect.
3 Including funds, if not broken down into constituent parts.
4 Total effects of diversification between the types of market risk for all consolidated management units.

FIG. 27 – BANK SECTOR: CHANGE IN MARKET RISK BY TRADING DAY



1 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.

As at June 30, 2020, the **risk capital requirement (including capital buffer requirement)** for market risk amounted to €4,413 million (December 31, 2019: €3,860 million) with a **limit** of €5,725 million

(December 31, 2019: €5,646 million). The risk capital requirement including capital buffer requirement was below the limit on every measurement date during the first half of 2020.

10 Technical risk of a home savings and loan company

As at June 30, 2020, the **capital requirement** for the technical risk of a home savings and loan company amounted to €433 million (December 31, 2019: €397 million) with a **limit** of €550 million (December 31, 2019: €706 million). The increase in risk is due to updated business planning being taken into account.

11 Business risk and reputational risk

As at June 30, 2020, the **risk capital requirement (including capital buffer requirement)** for business risk (including reputational risk) amounted to €416 million (December 31, 2019: €837 million). The **limit** was €550 million as at the reporting date (December 31, 2019: €1,016 million). The decrease in the risk and the limit was due to the introduction of a centralized model for business risk (see also section 2.4). The limit was not exceeded on any measurement date during the first 6 months of the year.

12 Operational risk

12.1 Loss events

Losses from operational risk do not follow a consistent pattern. Instead, the overall risk profile can be seen from the total losses incurred over the long term and is shaped by a small number of large losses. Consequently, comparisons between net losses in a reporting period and those in a prior-year period are not meaningful. Figures for the end of the prior year are therefore not disclosed.

Over the course of time, there are regular fluctuations in the pattern of losses as the frequency of relatively large losses in each individual case is very low. Presenting the change in losses meaningfully therefore requires a sufficiently long and unchanging time horizon for reporting purposes. The data is therefore selected from the loss history for the past 4 quarters and on the basis of the date on which the expense results in a cash outflow.

Fig. 28 shows the losses reported in the past 4 quarters, classified by loss event category.

FIG. 28 – BANK SECTOR: NET LOSSES BY EVENT CATEGORY[1]

1 In accordance with the CRR, losses caused by operational risks that are associated with risks such as credit risk are also shown.

The 'Execution, delivery, and process management' event category accounted for the majority (64 percent) of total net losses. The net loss in this event category was largely attributable to 18 loss events, of which 15 loss events resulted from failures in process implementation or in process design and 3 were due to disagreements with business partners or service providers.

Losses did not reach a critical level relative to the expected loss from operational risk at any point during the first half of 2020.

At the end of June, DZ BANK became aware of a substantial loss event in the 'External fraud' event category (lending fraud). The loss event is not yet included in the figures used for Fig. 28 because it was not processed and reported on internally until July.

12.2 Risk position

Using the internal portfolio model, the **risk capital requirement (including capital buffer requirement)** for operational risk as at June 30, 2020 was calculated at €872 million (December 31, 2019: €859 million) with a **limit** of €1,020 million (December 31, 2019: €926 million). The limit was not exceeded at any time during the first 6 months of the year.

Insurance sector

13 Impact of the COVID-19 pandemic and the volatility adjustment

During the first half of 2020, R+V tightened its underwriting guidelines for various products in order to limit the adverse effects of the COVID-19 pandemic on the insurance business.

The COVID-19 pandemic creates the risk that the European sovereign debt crisis will worsen. Given the significant credit exposure of R+V, this continues to represent a major risk factor for market risk in the Insurance sector. The macroeconomic background to this risk factor is explained in section 4.2.4. Disclosures on R+V's exposure in eurozone periphery countries are provided in section 15.2.

The increases in risk presented in the sections below on the risk position in the Insurance sector were primarily driven by the market turmoil triggered by the COVID-19 pandemic. Where there were other material reasons, this is explained with regard to the affected risk type. In the first half of this year, the overall limit for the Insurance sector was raised in response to the market turmoil triggered by the pandemic (see also section 6.1). On this basis, the limits were raised for life, health, and non-life actuarial risk, market risk, and counterparty default risk.

The increase in risk was partly offset by the first-time use of the volatility adjustment (see also section 6.2.3).

14 Actuarial risk

14.1 Claims rate trend

Individual products in the **direct non-life insurance business** were affected by the fallout from the COVID-19 pandemic. An increase in claims is likely in guarantee insurance, particularly travel insolvency insurance, trade credit insurance, unemployment insurance, event cancellation insurance, and travel cancellation insurance. In its business closure insurance, R+V voluntarily covers up to 15 percent of the loss. There may be countervailing effects in motor vehicle insurance. For 2020 as a whole, the net claims rate is expected to stand at 75.9 percent, a year-on-year increase of less than a percentage point.

In **inward reinsurance**, only a few claims were received from ceding insurers in connection with the COVID-19 pandemic in the first 6 months of this year. Claims tend to be made later due to the business model. Commercial and industrial risks are particularly affected due to business interruption and business closure agreements as well as due to credit insurance and guarantee insurance. The net claims rate for 2020 is expected to be on a par with 2019 at 79.1 percent.

The claims forecasts are subject to considerable uncertainty in view of the COVID-19 pandemic.

14.2 Risk position

As at June 30, 2020, the **overall solvency requirement** for **life actuarial risk** amounted to €1,198 million (December 31, 2019: €1,049 million) with a **limit** of €1,400 million (December 31, 2019: €1,200 million).

As at June 30, 2020, the **overall solvency requirement for health actuarial risk** was measured at €419 million (December 31, 2019: €245 million). The **limit** was set at €700 million (December 31, 2019: €410 million).

As at June 30, 2020, the **overall solvency requirement** for **non-life actuarial risk** amounted to €3,962 million (December 31, 2019: €3,724 million) with a **limit** of €4,500 million (December 31, 2019: €3,960 million). The increase in risk was due not only to the market turmoil triggered by the COVID-19 pandemic but also to the expansion of business.

15 Market risk

15.1 Change in lending volume

In accordance with the breakdown specified in Solvency II, the bulk of credit risk within market risk is assigned to spread risk. The capital requirements for spread risk are calculated using a factor approach based on the relevant lending volume.

As at June 30, 2020, the **total lending volume** of R+V had advanced by 3 percent to €100.9 billion (December 31, 2019: €98.0 billion). The increase was primarily the result of the movement of interest rates and spreads in the first half of 2020.

The volume of lending in the **home finance** business totaled €11.5 billion as at June 30, 2020 (December 31, 2019: €10.8 billion). Of this amount, 87 percent was accounted for by loans for less than 60 percent of the value of the property (December 31, 2019: 89 percent). The volume of home finance was broken down by finance type as at the reporting date as follows (figures as at December 31, 2019 shown in parentheses):

– Consumer home finance: €10.5 billion (€9.9 billion)
– Commercial home finance: €0.1 billion (€0.1 billion)
– Commercial finance: €0.8 billion (€0.7 billion).

In the home finance business, the entire volume disbursed is usually backed by traditional **loan collateral**.

The financial sector and the public sector, which are the dominant **sectors**, together accounted for 69 percent of the total lending volume as at June 30, 2020 (December 31, 2019: 71 percent). This lending mainly comprised loans and advances in the form of German and European Pfandbriefe backed by collateral in accordance with statutory requirements. Loans and advances to the public sector and consumer home finance (retail) highlight the safety of this investment. Fig. 29 shows the sectoral breakdown of the lending volume in the Insurance sector.

FIG. 29 – INSURANCE SECTOR: LENDING VOLUME, BY SECTOR

€ billion	Jun. 30, 2020	Dec. 31, 2019
Financial sector	47.0	47.2
Public sector	23.0	22.5
Corporates	19.2	17.3
Retail	10.5	9.9
Industry conglomerates	1.2	1.0
Other	-	-
Total	**100.9**	**98.0**

An analysis of the **geographical breakdown** of lending in Fig. 30 reveals that, at 91 percent, Germany and other industrialized countries accounted for the lion's share of the lending volume as at the reporting date (December 31, 2019: 90 percent). European countries dominated within the broadly diversified exposure in industrialized countries.

FIG. 30 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Jun. 30, 2020	Dec. 31, 2019
Germany	37.5	35.7
Other industrialized countries	54.1	52.9
Advanced economies	1.3	1.2
Emerging markets	5.0	5.1
Supranational institutions	3.0	3.1
Total	**100.9**	**98.0**

Obligations in connection with the life insurance business require investments with longer maturities. This is also reflected in the breakdown of **residual maturities** shown in Fig. 31.

FIG. 31 – INSURANCE SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

€ billion	Jun. 30, 2020	Dec. 31, 2019
≤ 1 year	2.7	2.6
> 1 year to ≤ 5 years	13.8	13.7
> 5 years	84.4	81.7
Total	**100.9**	**98.0**

As at June 30, 2020, 84 percent (December 31, 2019: 83 percent) of the total lending volume had a residual maturity of more than 5 years. By contrast, just 3 percent of the total lending volume was due to mature within 1 year as at the reporting date (unchanged on the value as at December 31, 2019).

The **rating structure** of the lending volume in the Insurance sector is shown in Fig 32. Of the total lending volume as at June 30, 2020, 81 percent was attributable to investment-grade borrowers (December 31, 2019: 79 percent). The lending volume that is not rated, which remained unchanged compared with the end of 2019 at 18 percent of the total lending volume, essentially comprised low-risk consumer home finance for which external ratings were not available.

FIG 32 – INSURANCE SECTOR: LENDING VOLUME, BY RATING CLASS

€ billion		Jun. 30, 2020	Dec. 31, 2019
Investment grade	1A	27.1	26.2
	1B	14.7	14.3
	1C	-	-
	1D	10.4	9.0
	1E	-	-
	2A	8.4	8.2
	2B	7.5	6.9
	2C	6.7	6.2
	2D	2.8	2.8
	2E	-	-
	3A	3.5	4.0
Non-investment grade	3B	0.4	1.0
	3C	0.6	0.7
	3D	-	-
	3E	0.4	0.4
	4A	0.1	0.2
	4B	0.3	0.2
	4C	0.1	0.1
	4D	-	-
	4E	-	-
Default		-	-
Not rated		17.8	17.8
Total		100.9	98.0

To rate the creditworthiness of the lending volume, R+V uses external ratings that have received general approval. It also applies its own expert ratings in accordance with the provisions of Credit Rating Agency Regulation III to validate the external credit ratings. R+V has defined the external credit rating as the maximum, even in cases where its own rating is better. The ratings calculated in this way are matched to the DZ BANK credit rating master scale using the methodology shown in figure 23 of the 2019 opportunity and risk report.

As at the reporting date, the **10 counterparties associated with the largest lending volumes** continued to account for 18 percent of R+V's total lending volume.

15.2 Credit portfolios with increased risk content

R+V's exposure in credit portfolios with increased risk content is analyzed separately because of its significance for the risk position in the Insurance sector. The figures presented here are included in the above analyses of the total lending volume.

Investments in **eurozone periphery countries** totaled €6,188 million as at June 30, 2020 (December 31, 2019: €6,812 million), which constituted a decrease of 9 percent. Fig. 33 shows the country breakdown of the exposure.

FIG. 33 – INSURANCE SECTOR: EXPOSURE IN EUROZONE PERIPHERY COUNTRIES

€ million	Jun. 30, 2020	Dec. 31, 2019
Italy	3,139	3,897
of which: public sector	2,088	2,814
of which: non-public sector	1,051	1,083
of which: financial sector	804	782
Spain	3,049	2,915
of which: public sector	1,555	1,524
of which: non-public sector	1,494	1,391
of which: financial sector	1,275	1,128
Total	6,188	6,812
of which: public sector	3,643	4,338
of which: non-public sector	2,545	2,474
of which: financial sector	2,080	1,910

15.3 Risk position

As at June 30, 2020, the **overall solvency requirement** for market risk amounted to €4,765 million (December 31, 2019: €3,789 million) with a **limit** of €6,250 million (December 31, 2019: €3,850 million).

Fig. 34 shows the overall solvency requirement for the various types of market risk.

FIG. 34 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK

€ million	Jun. 30, 2020	Dec. 31, 2019
Interest-rate risk	1,341	1,223
Spread risk	2,476	1,473
Equity risk	2,442	2,025
Currency risk	276	207
Real-estate risk	467	397
Total (after diversification)	4,765	3,789

The overall solvency requirement for market risk includes a **capital buffer requirement**. This capital buffer requirement covers the spread and migration risk arising from sub-portfolios of Italian government bonds, while also taking account of the increase in market risk that could arise from refinement of the method for measuring interest-rate risk. Working with DZ BANK, R+V is currently examining what further changes need to be made as a result of the review process conducted by the European Insurance and

Occupational Pensions Authority (EIOPA) under Delegated Regulation (EU) No. 2015/35 (Solvency II Regulation). The capital buffer relating to the refinement of the measurement of interest-rate risk will be removed again once the new methodology has been implemented.

As at June 30, 2020, the capital buffer requirement for market risk totaled €256 million (December 31, 2019: €393 million).

16 Counterparty default risk

As at June 30, 2020, the **overall solvency requirement** for counterparty default risk was €105 million (December 31, 2019: €88 million) with a **limit** of €200 million (December 31, 2019: €100 million).

17 Operational risk

As at June 30, 2020, the **overall solvency requirement** for operational risk amounted to €694 million (December 31, 2019: €637 million) with a **limit** of €800 million (December 31, 2019: €680 million). The increase in risk was due to the expansion of business.

18 Risks from entities in other financial sectors

As at June 30, 2020, the **overall solvency requirement** for risks in connection with non-controlling interests in insurance companies and entities in other financial sectors was unchanged compared with the end of 2019 at €119 million. The **limit** was €140 million (December 31, 2019: €112 million).