

Morgan Stanley

Morgan Stanley Europe Holding SE

Group Annual Report 2022

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⁽¹⁾ Please note that the English version of the Consolidated Financial Statements and Group Management Report as at 31 December 2022 is a convenience translation. Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, issued the Independent Auditors' Report only for the German version of the Consolidated Financial Statements and the Group Management Report as at 31 December 2022. Therefore, the German version prevails.

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GROUP MANAGEMENT REPORT

Overview of 2022

Business Model

Economic Report

Risk Report

Opportunities and Outlook

Sustainability Report

Overview of 2022

Net revenues of the Morgan Stanley Europe Holding SE Group (the “Group” or the “MSEHSE Group”) increased from €686 million in 2021 to €947 million in 2022. Profit before tax (“PBT”) for the year increased from €195 million in 2021 to €236 million in 2022. The increase was predominantly driven by higher equity and fixed income client activity and a gain from the sale of the Real Assets business unit. Total assets increased by 71% from €69,411 million at 31 December 2021 to €118,977 million at 31 December 2022. Refer to the section “Net Assets, Financial Position and Results of Operations” for further details.

The Group has undertaken capital actions totaling €1,850 million in 2022 to support sustainable business growth in the European Economic Area (“EEA”). Refer to the section “Capital Management” for further details.

On 1 September 2022, Morgan Stanley Europe SE, Frankfurt am Main (“MSESE”), a wholly owned subsidiary of Morgan Stanley Europe Holding SE, Frankfurt am Main (“MSEHSE”),

was formally authorised as a Capital Requirements Regulation (“CRR”) credit institution (Class 1 Investment Firm) by the European Central Bank (“ECB”). Refer to the section “Corporate Structure” for further details.

On 5 December 2022, the Federal Financial Supervisory Authority (“BaFin”) in consultation with the Deutsche Bundesbank has categorised MSEHSE as an Other Systematically Important Institution (“O-SII”).

During the reporting period, the Group complied with all of its capital and liquidity requirements.

During the reporting period, the Group has become subject to the Directive 2014/95/EU, implemented in Germany by virtue of sections 289b-289e of the German Commercial Code (“HGB”). In compliance with the regulation the Group publishes its Consolidated Non-financial Statement for the first time as an integral part of this Group Management Report. Refer to the section “Sustainability Report” for further details.

Business Model

Corporate Structure

MSEHSE is the parent company of the Group, authorised by the ECB as a financial holding company in accordance with Section 2f (1) and (3) of the German Banking Act (*Kreditwesengesetz* or “KWG”). MSEHSE is a superordinated undertaking in accordance with Section 10a (2) of the KWG. MSEHSE coordinates the strategy and directs the management of the financial resources of its subsidiaries.

MSEHSE directly holds 100% of the shares in MSESE, which in turn directly holds 100% of the shares in Morgan Stanley Bank AG, Frankfurt am Main (“MSBAG”).

There are control agreements (*Beherrschungsverträge*) in place between MSEHSE and MSESE and between MSESE and MSBAG which include loss compensations in accordance with Section 302 of the German Stock Corporation Act (*Aktiengesetz* or “AktG”).

Letters of Comfort are provided by MSEHSE to benefit MSESE and MSBAG as well as by MSESE to benefit MSBAG. MSESE and MSBAG entered into a Profit and Loss Transfer Agreement on 5 December 2022. With entry in the Commercial Register on 27 December 2022, an income tax group (*Ertragsteuerliche Organschaft*) was established in accordance with the Corporation Tax Act (*Körperschaftsteuergesetz*).

MSEHSE is the sole shareholder of Morgan Stanley France Holdings I S.A.S., Paris, France (“MSFH I”) with its subsidiaries Morgan Stanley France Holdings II S.A.S., Paris, France (“MSFH II”) and Morgan Stanley France S.A., Paris, France (“MSF”).

MSEHSE is a wholly owned subsidiary of Morgan Stanley International Limited, London, United Kingdom (“MSI”). MSEHSE’s ultimate parent undertaking and controlling entity is Morgan Stanley, Delaware, United States of America (“US”). Morgan Stanley is a global

financial services firm authorised as a Financial Holding Company and regulated by the Board of Governors of the Federal Reserve System in the US. All companies of the MSEHSE Group are fully integrated into the global Morgan Stanley Group (the “Morgan Stanley Group”).

MSESE and MSBAG are subject to joint supervision by the ECB, BaFin and the Deutsche Bundesbank. MSF and MSFH I are subject to supervision by the Autorité de Contrôle Prudentiel et de Résolution, Paris. MSFH II is not subject to regulatory supervision.

On 1 September 2022, MSESE, which was previously an investment firm, was granted a formal authorisation as a CRR credit institution (Class 1 Investment Firm). Besides additional reporting implications, the supervisory and regulatory regimes applicable to MSESE remained largely unchanged. Furthermore, MSESE’s activities under its license remained unchanged. MSESE is not authorised to provide either deposit taking services or lending.

The principal activity of MSESE is the provision of financial services to a client base mainly in the EEA consisting of corporations, governments and financial institutions. To expand its local footprint in the region, MSESE opened a branch in Copenhagen, Denmark, in 2022 in addition to its established branches in France, Italy, the Netherlands, Poland, Spain and Sweden.

MSBAG also acts as a CRR credit institution and has a full banking license. It is an integral part of the Morgan Stanley Group’s Euro liquidity management, operates a lending business and acts as a securities settlement service provider for the MSEHSE Group. MSBAG has a representative office in Italy.

MSF is an investment firm that provides financial services to a client base primarily in France consisting of corporations, governments and financial institutions. MSFH I, an investment holding company and MSFH II, a holding company, are immediate parent undertakings of MSF.

Throughout 2022, except for the month of March, the Management Board of MSEHSE consisted of four members. The Management Board was overseen by the Supervisory Board of MSEHSE, consisting of eight members. Meetings of the Management Board are generally held fortnightly, but at least once a

month. The Supervisory Board meets at least twice per calendar half-year.

Business Strategy

The Group’s business strategy is closely integrated into the strategy of the Morgan Stanley Group’s Institutional Securities Group (“ISG”). The Group’s principal business units within ISG are the Institutional Equities Division (“IED”), the Fixed Income Division (“FID”), the Investment Banking Division (“IBD”), Global Capital Markets (“GCM”) as well as Lending and Loan Trading.

In executing Morgan Stanley Group’s strategies, the MSEHSE Group is a key contributor in the following areas:

- sales, trading, financing and market-making activities in equity and fixed income products, including foreign exchange and commodities;
- financial advisory services, including advice on mergers, acquisitions and restructurings;
- investment activities;
- corporate lending; and
- capital raising.

The Group is Morgan Stanley’s primary hub to facilitate EEA clients’ business. The Group makes Global products available to EEA clients and also provides EEA products to Global clients via other Morgan Stanley entities. Market making activities such as Euro interest rate swaps, Euro inflation swaps, government bonds linked to inflation as well as automated market-making of European bonds and stocks are risk managed within the Group.

Morgan Stanley Group’s European operations

The Morgan Stanley Group continues to assess and refine the scope and location of its European operations.

On 1 December 2022, the Real Assets business unit of MSESE and MSF was transferred to MSIM Fund Management (Ireland) Limited, a subsidiary of MSI, in exchange for €90 million cash consideration. This resulted in a net gain on transfer of €64 million. The Real Assets business unit was responsible for managing European private real estate and private infrastructure assets on behalf of its clients, as part of a global investment platform.

Economic Report

Business Environment

The Group Management Report contains certain forward-looking statements. These statements are made by the Management Board in good faith, based on the information available at the time of the approval of this report and such statements should be treated with caution due to the inherent uncertainties, including both economic and business risk factors, underlying any such forward-looking information.

The global economic and geopolitical environment in the period, which has been characterised by persistent inflation, rising interest rates and volatility in global financial markets, had a mixed impact on the Group. Despite the challenging market conditions, the Group's performance remained resilient in 2022. In addition to the aforementioned conditions, certain institutions have come under significant stress in early 2023. While the full impact of these events in the banking sector remains uncertain, there has so far been limited impact on the results or financial condition of the Group.

Global markets and economic conditions

Growth in global Gross Domestic Product ("GDP") slowed down in 2022. A large part of last year's growth can still be seen as a rebound following 2020's record contraction and as a consequence of significant fiscal and monetary stimulus decided in the wake of the pandemic. Important regional differences in the recovery persisted. Growth in the US fell markedly as reopening dynamics waned. The Euro area economy expanded, despite the war in Ukraine and a record surge in inflation. Growth in China continued to be significantly affected by Covid-19 related measures which were only ended at the end of 2022. Throughout 2022, the main macroeconomic factor globally has been soaring inflation. In Europe this was mainly driven by disrupted supply chains and higher energy prices, sparked by the ongoing war in Ukraine.

Against that backdrop the policy mix has changed significantly in 2022. Fiscal policy measures to ease the burden of high energy prices were put forward in large parts of Europe. Meanwhile, the process of withdrawal of

monetary policy accommodation gathered speed in 2022. With inflation surging unabated until the later parts of 2022, central banks significantly increased the speed with which policy rates were raised, reaching restrictive territory in the US and the United Kingdom ("UK").

In the Euro area, the ECB ended net asset purchases under its Pandemic Emergency Purchase Programme in March and under its Asset Purchase Programme in June. It started raising rates in July 2022, reaching a deposit facility rate of 2% in December 2022. Disbursements under the European Recovery Fund continued throughout 2022, with most countries reaching their set goals. The European Recovery and Resilience Facility is worth €724 billion (in current prices) with funds raised from the capital markets. Of the funds raised, €338 billion is to be provided in grants and up to €386 billion in loans. Euro area inflation reached 8.4% in 2022 with the German measure at 7.9%.

Russia and Ukraine war

The Group continues to monitor the war in Ukraine and its impact on the world economies and the financial markets. The Group has no exposure in Ukraine and de minimis direct exposure in Russia.

Net Assets, Financial Position and Results of Operations

Net assets, financial position and results of operations in 2022 were influenced by a variety of business activity related factors as well as elevated fair values of derivatives due to market movements. Overall, the Group's total assets increased by €49,566 million to €118,977 million, PBT increased by €41 million to €236 million and profit for the year remained largely the same as the year before.

Consolidated income statement

Set out below is an overview of the financial results for the years 2022 and 2021. In this year's Group Management Report, the Group has elected to enhance the presentation of its results of operations with a more granular

breakdown of revenues and expenses to promote clarity of disclosure. The comparative results for 2021 are also presented in this revised format.

€ in millions	2022	2021	Increase/ (decrease)	Variance in %
Sales and trading	554	344	210	61%
Investment banking	205	223	(18)	(8%)
Lending	59	85	(26)	(31%)
Other	129	34	95	279%
Net revenues	947	686	261	38%
Staff related expenses	(370)	(256)	(114)	45%
Non-staff related expenses	(336)	(234)	(102)	44%
Operating expenses	(706)	(490)	(216)	44%
Net impairment loss	(5)	(1)	(4)	400%
Profit before tax	236	195	41	21%
Income tax expense	(94)	(54)	(40)	74%
Profit after tax	142	141	1	1%

Net revenues**Sales and trading**

Sales and trading income is comprised of commission and trading income. Commission income arises from arrangements in which the client is charged commission for executing and clearing transactions related to securities and other listed products. Trading income is largely derived from client activity and was affected by a variety of interrelated factors, including market volumes, bid-offer spreads and the impact of market conditions on inventory held to facilitate client activity.

Sales and trading revenues in 2022 increased 61% compared to 2021. This was driven by strong client engagement and increased client flow activity in an environment characterised by inflationary pressures, central bank actions and fiscal activity driving higher volatility.

Investment banking

Investment banking fee income is derived from client engagements in which the Group acts as an advisor in relation to mergers and acquisitions, divestitures and corporate restructurings, underwriter of equity and fixed income securities or distributor of capital.

Investment banking revenues in 2022 decreased 8% compared to 2021, reflecting lower volumes in underwriting activity as well as a decrease in advisory revenues due to unfavourable market conditions. The Group has

seen a contraction of client activity in mergers and acquisitions, equity and debt issuance, as well as auxiliary financing in 2022.

Lending

Lending income is generated by extending loans and credit commitments to clients as well as by loan trading. In 2022 lending revenues decreased 31% compared to the prior year due to lower financing needs in investment banking-related activities.

Other

Other revenues include all other activities not covered by the aforementioned income streams including gains recognised from the sale of the Real Assets business unit in 2022. Refer to the section "Morgan Stanley Group's European operations" for further details.

Operating expenses**Staff related expenses**

Staff related expenses include base salaries and fixed allowances, discretionary incentive compensation, amortisation of deferred cash and equity awards and other items including health and welfare benefits.

The average number of employees of the Group during the year has increased from 592 in 2021 to 805 in 2022, driving much of the 45% increase in staff related expenses.

Non-staff related expenses

Non-staff related expenses include management charges from other Morgan Stanley Group undertakings relating to other services, brokerage fees, administration and corporate services, professional and other services, expenses and taxes. Non-staff related expenses increased by 44% in 2022 compared to 2021, reflecting an increase in transaction-related expenses, including brokerage and transaction taxes, driven by increased client activity in Sales and trading.

Net impairment loss

During the year, the Group provided for an additional €5 million of expected credit losses

(“ECL”) primarily related to the lending business of MSBAG due to updated inputs into the ECL model, reflecting a weaker macroeconomic outlook.

Income tax expense

The Group's tax expense for the period is €94 million, compared to €54 million for the prior year. The main reason for the higher effective tax rate in 2022 is the increase of non-tax-deductible contributions to the Single Resolution Fund and interest expenses in the higher interest rate environment. Refer to the section “Capital Management” for further details.

Consolidated Statement of Financial Position

€ in millions	31 December 2022	31 December 2021	Increase/ (decrease)	Variance in %
ASSETS				
Cash and short term deposits	16,125	8,328	7,797	94%
Trading financial assets	58,821	32,379	26,442	82%
Secured financing	18,267	12,335	5,932	48%
Trade and other receivables	25,474	16,193	9,281	57%
Total other assets	290	176	114	65%
TOTAL ASSETS	118,977	69,411	49,566	71%
LIABILITIES AND EQUITY				
Bank loans and overdrafts	7,632	102	7,530	7,382%
Trading financial liabilities	61,051	31,519	29,532	94%
Secured borrowing	18,446	9,748	8,698	89%
Trade and other payables	21,166	20,547	619	3%
Debt and other borrowings	4,125	2,873	1,252	44%
Total other liabilities	196	241	(45)	(19%)
TOTAL LIABILITIES	112,616	65,030	47,586	73%
EQUITY				
TOTAL EQUITY	6,361	4,381	1,980	45%
TOTAL LIABILITIES AND EQUITY	118,977	69,411	49,566	71%
Contingent liabilities and Commitments				
Contingent liabilities	7	36	(29)	(81%)
Commitments	13,649	8,530	5,119	60%

The increase in total assets of the Group in 2022 is primarily attributed to higher business activity in Sales and trading as well as rising interest rates across all major markets and currency rates fluctuations, driving an increase in the fair value of financial instruments on the balance sheet.

Cash and short-term deposits

‘Cash and short-term deposits’ increased 94% as at 31 December 2022 compared to 31 December 2021 mainly due to higher deposits received from other Morgan Stanley Group undertakings which were subsequently deposited at the Deutsche Bundesbank.

Trading financial assets and liabilities

'Trading financial assets' and 'Trading financial liabilities' primarily include derivatives measured at fair value. The increase of 82% and 94% respectively as at 31 December 2022 compared to the prior year is driven by higher client activity in Sales and trading, as well as increases in fair values of foreign exchange and interest-rate derivatives due to market movements.

Secured financing and borrowing

'Secured financing' increased 48% year on year mainly due to a higher level of securities purchased under agreements to resell. 'Secured borrowing' increased 89% during the same period primarily due to a higher level of securities sold under agreements to repurchase.

Trade and other receivables and payables

The year on year increase of 57% in 'Trade and other receivables' reflects higher amounts of cash collateral pledged due to fair value movements in over-the-counter ("OTC") derivatives. 'Trade and other payables' on the other hand increased only 3% reflecting a lower increase in cash collateral received as well as differences in the composition of cash and securities posted and received as collateral.

Bank loans and overdrafts

The significant increase in 'Bank loans and overdrafts' as at 31 December 2022 compared to 31 December 2021 relates to a higher amount of deposits received from other Morgan Stanley Group undertakings, following a revised Morgan Stanley Group Euro investment strategy amid the changing interest rate environment.

Debt and other borrowings

'Debt and other borrowings' as at 31 December 2022 increased 44% compared to 31 December 2021 primarily due to the issuance of additional tranches of senior subordinated debt funding to Morgan Stanley in the amount of €1,000 million. Refer to the section "Capital Management" for further details.

Equity structure

Total Equity increased from €4,381 million to €6,361 million during the financial year. Refer to the section "Capital Management" for the breakdown of the most significant contributions, which include €1,450 million of Common Equity Tier 1 ("CET1") and €400 million of Additional Tier 1 ("AT1") instruments.

Other commitments and contingent liabilities

Contingent liabilities and other commitments increased mainly due to an increase of a fully-collateralised overdraft facility to a fellow Morgan Stanley Group undertaking from €1,000 million to €5,000 million. This was partially offset by a decrease in loan commitments from €6,390 million to €5,160 million, of which €2,055 million have been sub-participated to other Morgan Stanley Group undertakings. Unsettled repo and reverse repo transactions as at 31 December 2022 increased €2,851 million, compared to the prior year, offset by a €502 million reduction in other commitments.

Capital Management

The Group actively manages and monitors its capital in line with established policies and procedures and in compliance with local regulatory requirements. MSESE and MSBAG have been granted a Capital waiver in accordance with Article 7 of the CRR and therefore capital requirements are met at the consolidated Group level. On 27 September 2022, MSESE applied for the individual consolidation method under Article 9 of the CRR. The permission was granted by the ECB on 5 December 2022 and is applicable as of 1 January 2023. Under this permission, capital requirements will be managed on both levels going forward, MSEHSE Group and MSESE individual consolidated basis. In line with the Morgan Stanley Group's capital management policies, the Group manages its capital position based upon, among other things, business opportunities, risks, capital availability and rates of return together with internal capital policies, regulatory requirements and rating agency guidelines.

Regulatory capital

The Group is subject to minimum capital requirements as calculated in accordance with the CRR and the Capital Requirements Directive (Directive 2013/36/EU or "CRD").

The Group conducts an Internal Capital Adequacy Assessment Process ("ICAAP") at least quarterly in order to meet its obligations under CRD and the requirements of the ECB. The ICAAP is a key information tool for the Group Management Boards to approve capital adequacy targets and limits, establish ongoing monitoring processes and internal thresholds, and review identified risks in line with the

business strategy. Refer to the section “Risk Report” for further information on ICAAP.

The Joint Supervisory Team (“JST”) with representatives of ECB, BaFin and Deutsche Bundesbank reviews the ICAAP through its Supervisory Review and Evaluation Process (“SREP”) and sets a Total SREP Capital Requirement (“TSCR”), comprising of Pillar 1 and Pillar 2 Requirements (“P2R”) and Pillar 2 Guidance (“P2G”), which establishes the minimum level of regulatory capital for the Group. As of 31 December 2022 the Total Capital requirement of the Group was 10.75% of Risk Weighted Assets (2021: 10.75%) excluding capital buffers, with the individual P2R set at 2.75%. As part of the SREP decision 2021, the P2G was set at 2.25%.

The Capital Conservation Buffer (“CCB”) requires banks to build up a capital buffer that can be utilised to absorb losses during periods of stress, whilst remaining compliant with minimum requirements, and must be met with CET1 capital. As at 31 December 2022, the CCB remains at 2.5% (2021: 2.5%).

The Countercyclical Capital Buffer (“CCyB”) was introduced to ensure that excessive growth in specific countries is accounted for by increasing minimum capital ratios by between 0% and 2.5% and must be met with CET1 capital. As of 31 December 2022, the CCyB for the Group stood at 0.3500% (2021: 0.0434%). The Group’s CCyB is set to increase further in 2023 driven by announced increases in domestic and other European country CCyB rates. These changes are incorporated as part of the Group’s capital planning and target setting processes. Forecast capital resources are sufficient to meet these increased requirements.

On 5 December 2022, MSEHSE was notified of its classification as an O-SII by the BaFin. As of 1 January 2023, the Group is required to hold an additional 0.25% CET1 capital as an O-SII buffer. This increase in requirements enters into force at the same time as a concurrent decrease of P2G requirements from 2.25% to 2.0%.

The regulatory capital resources managed by the Group include Tier 1 and Tier 2 instruments such as subordinated debt subject to regulatory adjustments.

In 2022, the Group has undertaken further capital actions to strengthen its regulatory capital. In connection with the expansion of its

business activities and increased market volatility the Group received the following capital contributions in the course of the year:

- CET1 capital from MSI in the amount of €600 million and €400 million of AT1 capital from Morgan Stanley in April 2022; and
- CET1 capital from MSI in the amount of €850 million in November 2022.

The Group has also issued additional tranches of senior subordinated debt funding to Morgan Stanley in the amount of €500 million in July 2022 and €500 million in September 2022 to meet its Minimum Requirement for own funds and Eligible Liabilities (“MREL”) and Total Loss Absorbing Capacity (“TLAC”) requirements, bringing the total amount outstanding to €2,500 million.

Additionally, the Group has adjusted its capital structure by converting €3,000 million of capital reserves on the balance sheet of MSEHSE into ordinary shares. This transaction had no impact on the total capital amount of the Group.

Refer to the section “Risk Report” for further details of the Group’s Capital Resources.

The Pillar 3 Regulatory Disclosures Report of the MSEHSE Group as of 31 December 2022 is available at: <https://www.morganstanley.com/about-us-ir>.

Liquidity and Funding Management

The primary goal of the Group’s liquidity and funding management framework is to ensure that the Group has sufficient liquidity to cover its business operations and regulatory requirements, as well as access to adequate funding across a wide range of market conditions and time horizons. It manages resources mainly based on business opportunities, risks, availability and rates of return, which are driven by internal policies, regulatory requirements and rating agency guidelines.

Liquidity resources, funding and balance sheet management

The Group maintains sufficient liquidity resources (“Liquidity Resources”) to comply with internal liquidity stress testing and regulatory requirements. The total amount of Liquidity

Resources is actively managed by the Group considering the following components:

- balance sheet size and composition;
- funding needs in a stressed environment inclusive of contingent cash outflows;
- collateral requirements; and
- regulatory requirements.

The amount of Liquidity Resources held is based on the Group's risk tolerance and is subject to change dependent on market and firm-specific events.

The Liquidity Resources consist of cash at central banks and high-quality unencumbered assets. Eligible unencumbered highly liquid securities include primarily Level 1 (as defined in the Commission Delegated Regulation (EU) 2015/61) government bonds and German sub-sovereign obligations.

In managing the Group's funding risk, the composition and size of the entire balance sheet, not just financial liabilities, is monitored and evaluated. The liquid nature of the marketable securities and short-term receivables arising principally from Sales and trading activities provides the MSEHSE Group with flexibility in managing and monitoring the composition and size of its balance sheet.

Refer to the section "Risk Report" for further information on the Liquidity Risk framework, Liquidity framework and Liquidity Stress Tests.

Credit ratings

The cost and availability of financing and cash collateral are impacted by the credit ratings of MSESE and MSBAG, among other variables. In addition, credit ratings can impact trading revenues, particularly in those businesses where longer-term counterparty performance is a key consideration, such as certain OTC derivative transactions. When determining credit ratings, rating agencies consider both company-specific and industry-wide factors. The Group's senior unsecured ratings are provided in the section "Non-financial key performance indicators".

Recovery and Resolution Planning ("RRP")

The MSEHSE Group prepares a recovery plan on an annual basis which identifies mitigation tools available to the Group in times of severe stress.

In terms of RRP, the Group is supervised by the Single Resolution Board ("SRB") as well as the BaFin as the national resolution authority. The Group produces information for the aforementioned authorities in the form of resolution reporting templates and ad-hoc regulatory submissions, in accordance with the European Union ("EU") statutory and regulatory requirements.

The Morgan Stanley Group has developed a resolution plan in accordance with the requirements of Section 165(d) of Title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act and its implementing regulations adopted by the Federal Reserve Board and the Federal Deposit Insurance Corporation. The resolution plan presents the Morgan Stanley Group's strategy for resolution of the Morgan Stanley Group upon material financial distress or failure. Both MSESE and MSBAG are considered Material Operating Entities of the Morgan Stanley Group and are within the scope of the resolution strategy adopted by the Morgan Stanley Group.

Minimum Requirement for own funds and Eligible Liabilities and Total Loss Absorbing Capacity

MREL serves to ensure that the Group has sufficient eligible liabilities in a bail-in scenario to absorb losses and safeguard existing capital requirements. The BaFin, as the Group's national supervisor, shares the responsibility to determine MREL requirements with the SRB. MREL is applied to the Group on a consolidated basis and applies to MSESE on an individually consolidated basis from 1 January 2023.

With a similar objective, TLAC requirements serve to ensure that the Group has sufficient resources to absorb losses. TLAC is applied to the Group on a consolidated basis only.

Financial and Non-financial Key Performance Indicators

The financial and non-financial key performance indicators (“KPIs”) of the Group are aligned to its objective to further expand its business activities and strengthen performance, soundness and sustainability of the business considering regulatory requirements. To assess the effectiveness of the execution of the Group's strategy, the following major KPIs were set by the Group Management Boards and are assessed on a quarterly basis.

Financial Key Performance Indicators

Major financial KPIs to assess the performance of the Group include PBT, Return on Equity (“ROE”) and Efficiency Ratio, also disclosed in 2021, and Tier 1 Capital Ratio, Liquidity Coverage Ratio (“LCR”) and Net Stable Funding Ratio (“NSFR”), disclosed for the first time this year.

In last year's Management Report the Group expected continued progress on its financial KPIs. Actual year on year developments are summarised below.

PBT

€ in millions



€ in millions	2022	2021	Increase	Variance in %
PBT	236	195	41	21%

PBT increased by 21% from €195 million to €236 million, reflecting higher revenues in 2022, particularly from Sales and trading and the proceeds of the sale of the Real Assets business unit.

ROE

in %



in %	2022	2021
ROE	2.6%	3.6%

ROE represents profit for the year in relation to year-to-date average equity. The Group's ROE decreased from 3.6% in 2021 to 2.6% in 2022 driven by lower performance in Investment banking and Lending activities, as well as an increase in average total equity to support business expansion and increased market volatility.

Efficiency Ratio

in %



	2022	2021
Net revenues (€ in millions)	947	686
Operating expense (€ in millions)	706	490
Efficiency Ratio (in %)	75%	71%

Efficiency Ratio, defined as operating expenses in relation to net revenues, measures the Group's period-to-period operating performance and increased from 71% to 75% during the financial year. The increase reflects lower than expected revenue growth on the back of an unexpectedly challenging business environment.

Tier 1 Capital Ratio

in %

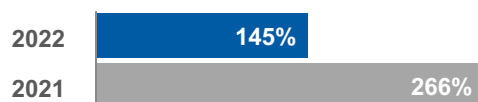


in %	2022	2021
Tier 1 Capital Ratio	21.9%	18.9%

Tier 1 Capital Ratio is the sum of CET1 and AT1 capital of the Group expressed as a percentage of the total risk-weighted assets. As at 31 December 2022, the Tier 1 Capital Ratio stood at 21.9% compared to 18.9% at 31 December 2021. The increase in the Group's Tier 1 Capital outpaced the increase of the risk-weighted assets supporting future growth of business and increased market volatility.

LCR

in %



in %	2022	2021
LCR	145%	266%

LCR measures the extent to which liquidity outflows less liquidity inflows in stressed conditions are covered by high quality liquid assets. LCR decreased as at 31 December 2022 to 145% from 266% a year before due to utilization of excessive liquidity throughout 2022 to support business growth, but remains well above the minimum regulatory requirement of 100%.

NSFR

in %



in %	2022	2021
NSFR	194%	208%

NSFR is defined as the amount of available stable funding relative to the amount of required stable funding, both calculated using factors, which reflect the liquidity characteristics of each category of instruments according to the supervisory assumptions. NSFR decreased to 194% as at 31 December 2022, but remains well above minimum regulatory requirement of 100%.

Non-financial Key Performance Indicators**Credit Rating**

The credit ratings of the Group's main operating entities, MSESE and MSBAG, were stable and have not changed throughout the financial year.

		31 December 2022	31 December 2021
Moody's	Short Term	P-1	P-1
Investor	Long Term	Aa3	Aa3
Service, Inc ("Moody's")	Outlook	Stable	Stable
Standard &	Short Term	A-1	A-1
Poor's Rating	Long Term	A+	A+
Service ("S&P")	Outlook	Stable	Stable

Other performance indicators

Market shares and League Table Rankings of the Group's business units are monitored and assessed, specifically for the IED, FID and IBD/GCM businesses. The Group maintained a top 3 market position by volume for cash equity products in the IED business in its key markets in Germany, France, Spain, Italy and Nordics. Additionally, the Group achieved its target share in core products in the FID business.

Risk Report

During 2022, the Group's Risk Division continued to focus on enhancing the Group's Risk Management Framework and on regulatory engagements. Key areas of focus included:

- evolution of the Risk Management Framework in line with the increased size and complexity of the business;
- management of risks resulting from increased market volatility driven by the Russia and Ukraine war and associated energy crisis, strong inflationary pressures and rapidly increasing interest rates, within the Group's Risk Appetite;
- further development of the incorporation of climate risk in the Risk Management Framework; and
- regulatory approvals for the use of advanced capital models.

Risk Management Framework

Risk taking is an inherent part of the Group's business activities and effective risk management is vital to the success of the Group.

MSESE and MSBAG have been granted waivers pursuant to CRR Article 7 and Article 8, which permit the Group to manage its own funds requirements at the MSEHSE Group level and liquidity requirements at the level of MSESE sub-consolidated with MSBAG. Consistent with this and in alignment with the waiver pursuant to Section 2a KWG, the Group's Risk Management Framework was established at the level of the consolidated MSEHSE Group, encompassing the risk management culture, risk governance, approach and practices that support risk identification, measurement, monitoring, escalation and decision-making processes.

The Group's Risk Management culture is rooted in the following key principles: integrity, comprehensiveness, independence, accountability and transparency. The MSEHSE Group Management Boards are responsible for overseeing the adoption of the Morgan Stanley Group's risk culture by the Group.

The MSEHSE Group Management Boards have established a Risk Management Framework, including a Committee Structure and a "Three Lines of Defence" framework. The framework separately identifies risk owners from independent risk control functions and creates a clear delineation of responsibilities with a view to address potential conflicts of interest. The structure applies to all legal entities and branches within the Group. The functions responsible for carrying out the activities across the Three Lines of Defence are summarised below:

- **First Line of Defence:** Business units as well as support and control functions have primary responsibility for managing all business unit risks as well as ensuring compliance with applicable laws, rules and regulations and the Group policies. This includes the consideration of emerging risk pathways as determined by the Risk Division, such as the risks arising from climate change.
- **Second Line of Defence:** Responsible for independent identification, analysis, reporting, management and escalation of risks arising from the Group's activities, including the risks arising from climate change, where applicable. It further sets policies and monitors adherence with these policies. This includes (but is not limited to) the below:
 - The Risk Division is responsible for the independent identification, measurement, monitoring and reporting of credit, market, liquidity, operational and model risk arising from the Group's business activities. It reports to the Chief Risk Officer ("CRO"), who is also a member of the MSEHSE Group Management Boards.
 - The Compliance Division maintains an enterprise-wide Compliance Risk Management Program and is responsible for the design and development of the overall Conduct Risk Framework of the Group. The Compliance Division is independent of the business units and reports directly to

the MSEHSE Group Management Boards.

- The Global Financial Crimes division is responsible for the Financial Crimes Risk Management Framework covering money laundering as well as fraud and other relevant criminal offences. The team acts independently from the business units, reporting directly to the MSEHSE Group Management Boards.
- The Group’s Central Outsourcing Control Office (“COCO”) is independent of individual business divisions and is responsible for ensuring the proper execution of outsourcing frameworks and guidelines, working closely with divisional management accountable for supervising any outsourcings by their division to ensure outsourcing regulatory requirements are maintained on a continuous basis.
- Third Line of Defence: The Internal Audit Division (“IAD”) is independent of the First and Second Lines of Defence. The IAD provides an independent assessment of the Group’s control environment and risk management processes and further reviews and tests the Group’s compliance with internal guidelines set for risk management and risk monitoring, as well as external rules and regulations governing the Group.

The Group has established policies and procedures which set out the standards that govern the identification, measurement, monitoring, management and reporting of the various types of risk involved in its business activities.

Risk Division organisation

The Risk Division reports to the CRO and assists the MSEHSE Group Executive Risk Committee (“ERC”) and Management Boards in monitoring and managing risk through a number of control processes. The CRO is a member of the MSEHSE, MSESE and MSBAG Management Boards and leads the Risk Division, covering market risk, credit risk, liquidity risk, operational risk and model risk.

The Risk Division is organised by the following departments, each with a Department Head, reporting into the CRO:

- Credit Risk
- Liquidity Risk;
- Market Risk;
- Operational Risk;
- Risk Analytics;
- Model Risk Management;
- Risk Control, Stress Testing & Capital; and
- Risk Governance & Risk COO (Chief Operating Office).

The Risk Division assists the MSEHSE Group Management Boards in their oversight through a series of control processes as described in the sections for the respective risk types in this Risk Report.

Committee governance

The MSEHSE Group Management Boards are responsible for the establishment, implementation and oversight of an effective Risk Management Framework. Therefore, the MSEHSE Group Management Boards have established a committee structure for the governance of material risks. This includes the cross-divisional ERC, which is chaired by the CRO and assists the MSEHSE Group Management Boards in the oversight of the Group’s management of risk. The Committee is responsible for overseeing:

- (i) the development and implementation of a risk strategy, including the risk appetite statement;
- (ii) risk identification and measurement;
- (iii) risk framework and policies;
- (iv) risk culture;
- (v) financial resource management and capital; and
- (vi) assessment of recovery and/or resolution limits.

The MSEHSE Group ERC has established a series of sub-committees with dedicated

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responsibilities for particular risk matters directly reporting to the MSEHSE Group ERC. The following provides an overview of these sub-committees:

- MSEHSE Group Credit Risk Committee: Reviews, approves and recommends actions on matters related to credit risk management within the Group.
- MSEHSE Group Market Risk Committee: Provides oversight of the risk profile, control and governance framework on matters related to market risk management within the Group.
- MSEHSE Group Operational Risk Oversight Committee: Assists the MSEHSE Group ERC to discharge its responsibilities in relation to operational risk.
- MSEHSE Group Asset & Liability Committee: Assists the MSEHSE Group ERC in the oversight of the capital adequacy, funding and liquidity risk management of the Group.
- MSEHSE Group Stress Testing Committee: Forum to review and approve all aspects of the Group's Stress Testing Framework.
- MSEHSE Group Model Oversight Committee: Provides the Group with oversight of the development, validation and performance of the market, credit, operational, liquidity risk and stress testing models.

In addition to the Committees directly reporting to the MSEHSE Group ERC outlined above, the MSEHSE Group Risk Governance Committee ("RGC") provides the CRO with oversight of the control framework within the Risk Division.

Risk identification, risk appetite and risk limits/tolerances

Risk identification

The Group has established a framework to identify and assess material risks and risk factors stemming from the Group's business activities, which is updated on a quarterly basis. The materiality of risks is assessed on a quantitative and qualitative basis, using risk specific stress tests where possible. In addition, other risk management processes such as regular risk reviews, horizon scanning and ad-hoc stress tests are conducted to assess

impacts of potential market events and regulations and thereby support the continuous process of risk identification. Material risks identified through these processes inform the design of key risk and capital management processes, including the Group's Risk Strategy and Risk Appetite Statement, individual risk management frameworks, macroeconomic stress testing scenarios, as well as the Group's Internal Capital and Liquidity Adequacy Assessment Processes ("ICAAP" / "ILAAP").

The following risk types involved in the Group's business activities were assessed as material as determined through the Group's Risk Identification Framework:

- credit risk;
- market risk;
- liquidity risk;
- operational risk;
- earnings at risk and strategic risk;
- model risk;
- conduct risk;
- compliance risk;
- leverage risk;
- valuation risk; and
- reputational risk.

For information on the risk identification of climate and environmental risk drivers, refer to the "Climate and Environmental Risks" section.

The MSEHSE Group Management Boards have established frameworks to identify, analyse, monitor, mitigate and report these risks. Information on how these risks are managed is summarised in the respective sections in this Risk Report.

Risk appetite

The MSEHSE Group Management Boards determine the Risk Strategy of the Group consistent with the business strategy and the risks stemming from it. The Risk Strategy sets the framework for how risks will be identified, measured, monitored and reported.

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The centrepiece of the Risk Strategy is the Risk Appetite Statement (“RAS”), which articulates the aggregate level and type of risk that the Group is willing to accept in executing the business strategy while protecting its capital and liquidity resources. The RAS consists of both qualitative and quantitative statements. To remain adequate in a changing environment, the Group’s RAS and the underlying limits and tolerance frameworks are reviewed by the MSEHSE Group Management Boards when required (e.g., when the business strategy is amended by the Management Boards), but at least annually. This review takes into account changes in the Group’s business strategy, financial resources and plans as well as any anticipated changes in risk appetite.

Risk limits and tolerances

The Risk Appetite of the Group is translated into a comprehensive set of risk limits and risk tolerances. The Group’s limits and tolerance framework mostly covers limits and tolerance across credit risk, market risk, operational risk and liquidity risk, each at different granularity levels to manage risk taking in line with the Group’s risk appetite.

The Group’s aggregate Risk Appetite for market and credit risk is expressed as a percentage of Total Capital Resources. It is operationalised through the Macroeconomic Stress Loss Limit (“MSLL”) and monitored through a suite of severe, but plausible Macroeconomic Scenarios, designed to capture key portfolio vulnerabilities of the Group. The credit and market risk limits are calibrated to reflect the MSEHSE Group’s market and credit risk appetite as expressed by the MSLL. As of 31 December 2022, the stress loss in the Group’s binding macroeconomic stress scenario was €244 million.

Stress testing

Stress testing provides a flexible approach to understanding the aggregate risk for the Group and assessing the Group’s resilience to different scenarios over a range of severities. At a more granular level, stress tests provide detailed insights of potential areas of weakness in portfolios at the business area and counterparty level, respectively. Stress testing is a key risk management tool for the Group, informing a number of processes and associated decisions and is performed in line with internal and external regulatory requirements. The Group conducts both cross-risk stress tests and risk

specific stress tests with the following objectives:

- identification of material risk concentrations and vulnerabilities in adverse scenarios;
- estimation of aggregate size of exposure and losses in adverse shocks;
- management of tail risks or vulnerabilities against risk appetite;
- informing ICAAP, ILAAP and the recovery plan; and
- meeting regulatory requirements.

Results are communicated to interested parties and committees, such as the MSEHSE Group ERC, the MSEHSE Group Management Boards and the Group’s Supervisory Board on a regular basis.

Cross-risk stress tests

Cross-risk stress tests ensure that concentration risks are captured and measured across the material risks. Cross-risk stress tests can be classified into macroeconomic stress tests, reverse stress tests and topical stress tests.

Macroeconomic scenarios are the Group’s primary stress testing tool to monitor, assess and manage the Group’s vulnerability to downside risk. The Group runs macroeconomic stress scenarios on a regular basis to measure its market and credit risk loss potential and monitor those against the MSLL. Each scenario is supported by a macroeconomic narrative, a detailed set of macroeconomic projections and instantaneous market shocks, and selected credit risk default rules as appropriate.

There are internal models in place to quantify stress losses for credit risk, market risk and risks from Derivative Valuation Adjustments (“xVA”).

- Stress losses for credit risk are calculated as the sum of expected losses, unexpected losses and Central Counterparty Clearing House (“CCP”) add-on losses, under each scenario.
- Stress losses for market risk (including xVA) are computed by applying risk factor shocks across all asset classes (Credit, Equity, Rates, Foreign Exchange, xVA), either using purely full revaluation or a combination of full

revaluation and a sensitivities based approach.

The risk appetite for climate risk, which is defined as a driver for market and credit risk, is set via a specific stress loss limit. For more information refer to the “Climate and Environmental Risks” section.

Existential threats to the Group’s business model are captured through the Group’s Reverse Stress Tests (“RST”). The scenarios used in RST are extreme and border-line plausible and are designed for the Group to become unviable and considered as failing or likely to fail. RST is used to inform the ICAAP, the ILAAP and is a key input for recovery planning.

Specific market events or portfolio vulnerabilities are assessed through Topical Stress Tests, such as scenarios related to the Russia and Ukraine war, to evaluate a possible impact of “downside” scenarios on the Group’s risk and resource profile.

Risk-specific stress tests

Risk-specific stress tests identify and measure vulnerabilities and concentrations that may arise in a particular risk area, country or industry. The Group conducts risk-specific stress tests for operational risk, market risk, credit risk and liquidity risk.

Risk reporting

The Group has put in place a Risk Reporting Framework to monitor and report the Group’s risk profile against set risk limits and tolerances and to provide timely risk information and/or escalation to responsible limit owners, the Group’s Risk Committees and the MSEHSE Group Management Boards, as appropriate. Furthermore, the Group’s Risk Reporting Framework covers all material risks, it identifies matters for escalation and decisions and highlights emerging risks, mitigating actions and other risk matters that are deemed significant to the Group’s Risk Committees and/or the MSEHSE Group Management Boards.

The key purpose of risk reporting is to provide decision makers and risk managers with an accurate and timely representation of risk exposures, including risk concentrations, at the group level, across business lines and between legal entities. To provide this information, the

Group generates various risk reports across individual risk functions, including market, credit, operational, liquidity and model risk, at different frequencies (e.g. daily, weekly).

In addition, the Group has established a set of overarching principles for risk reports which are applied to risk reporting, such as the appropriate level of aggregation, balance between qualitative and quantitative information or implementation of controls to ensure reported information is complete and accurate. The Group’s Data Quality (“DQ”) monitoring and reporting processes are integrated into the Morgan Stanley Group’s global DQ management processes. The data quality for risk-related data is reviewed through defined KPIs which are summarised in respective DQ Dashboards for certain risk areas such as credit risk, market risk and liquidity risk. At the Group level, any material data limitations/issues on risk data goes through governance and is escalated to the MSEHSE Group Management Boards if necessary.

Detailed information about the reporting for each risk type is included in the respective risk sections on the following pages.

Internal Capital Adequacy Assessment Process

The ICAAP is a key information tool for the MSEHSE Group Management Boards to plan the Group’s capital actions, approve capital adequacy targets and limits, establish ongoing monitoring processes and internal thresholds and review identified risks in line with the business strategy. As such, the ICAAP is designed to ensure that all material risks, which the Group is exposed to, are appropriately capitalised. The ICAAP is updated at the beginning of each year in line with the annual strategic planning process as well as quarterly for material changes.

The ICAAP comprises of two capital assessment perspectives, the “Normative Perspective” and the “Economic Perspective”. While methodologies differ in forecasting horizon and objectives, the two perspectives are set up to complement and inform each other.

Normative perspective

The assessment under the Normative Perspective is conducted over a three-year

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planning horizon, assessing the Group's ability to fulfil all its capital-related supervisory requirements. It assesses the Group's capital adequacy under expected and stressed operating environments over the three-year capital planning horizon. It uses stress testing to size capital buffers aimed at ensuring the Group will continue to operate above regulatory requirements under a range of severe but plausible stress scenarios. The Normative Perspective takes into account all material risks affecting the relevant regulatory ratios, over the planning horizon. It is also used as a basis to set and review internal capital targets.

The Normative Perspective requires base and adverse scenarios to be assessed over the planning horizon. The Group's base scenario considers the main macroeconomic variables, including GDP growth, inflation rate changes, interest rates and currency market movements. These variables are applied on the business growth laid down in the Group's Business Strategy. In addition to the base forecast, the Group assesses its capital-related supervisory requirements in two macroeconomic stress scenarios (European Crisis and Financial Crisis). These scenarios capture the vulnerabilities of the Group's forecast portfolio comprehensively and conservatively.

To model stress capital impacts under the Normative Perspective, the Group uses internal models (refer to the "Stress Testing" section) that appropriately cover all material risk types.

Capital requirements are calculated in accordance with regulatory rules, taking into account the Group's permissions to use internal models.

In addition to capital-related supervisory requirements, internal capital ratio minima are set to ensure the Group has sufficient capital to meet its regulatory requirements at all times. Set out below are details of the Group's Capital Resources.

€ in millions	31 December 2022	31 December 2021
<i>Normative Perspective</i>		
CET1 Capital	5,069	3,412
AT1 Capital	1,000	600
Tier 1 Capital	6,069	4,012
Tier 2 Capital	1,000	1,000
Total Own Funds	7,069	5,012
Risk Weighted Assets ("RWAs")	27,760	21,221
CET1 Capital Ratio	18.3%	16.1%
Tier 1 Capital Ratio	21.9%	18.9%
Total Capital Ratio	25.5%	23.6%

The Group's Tier 1 Capital Ratio increased from 18.9% as of 31 December 2021 to 21.9% as of 31 December 2022 due to the capital actions totaling €1,850 million executed in 2022, primarily required to support business growth and increased market volatility.

Additional information is presented in the "Capital Management" section.

Economic perspective

In the Economic Perspective, the Group assesses its capital adequacy by ensuring that all material risks that could cause losses or have other material impacts on its capital position are quantified and adequately covered by its internal capital ("Risk Bearing Capacity" or "RBC"). In line with the ECB ICAAP guidelines, capital requirements are assessed using internal methodologies, which generally target a 99.9% loss severity over a time horizon of one year.

Credit risk: For the calculation of credit risk capital requirements, the Group employs a multifactor credit concentration model, using internal credit risk parameters for Exposure at Default ("EAD"), Probability of Default ("PD") and Loss Given Default ("LGD"). The model simulates the asset returns of the individual counterparties in a correlated manner to capture the dependency between the defaults. The default triggers are derived from the PDs of the counterparties and internal downturn LGDs are used to quantify the default losses. Counterparty credit risk ("CCR") exposures are quantified using Morgan Stanley's global Internal Model Method ("IMM") model for the calculation of Own Funds Requirements, which has a wider product scope than MSEHSE Group's IMM model. Default events are simulated using a Monte-

Carlo model, and the tail loss at a 99.9% confidence level is calculated.

Operational risk: To calculate the capital requirements related to operational risk, the Group utilises an internal loss model. Under this model, operational risk capital is calculated for each of the Group's Risk Segments, some of which are designated as Top Operational Risks ("TORs") and Top Operational Risk Pathways ("TORPs"). Standalone capital is calculated for each of the Risk Segments by fitting parametric distributions to Scenario Analysis loss estimates. To derive an aggregate loss distribution for the Group, the Operational Risk Capital Model combines the marginal loss distributions of all the Risk Segments. The 99.9% percentile of the final distribution is chosen as the loss estimate.

Market risk: Market risk capital is primarily calculated using the Group's Economic Value-at-Risk ("EVaR") and Incremental Risk Charge ("IRC"). The EVaR is calculated using historical simulation and includes xVA in its scope. The EVaR is derived as the 99.9% percentile of a loss distribution over a one-year risk horizon, which is calculated from bootstrapped returns based on 15 years of market data. A six-month liquidity horizon is used for portfolios with low market depth (such as xVA), while a three-month liquidity horizon is applied to portfolios with higher market activity or ability to hedge, such as market making portfolios. Risks Not in VaR ("RNIV") capital add-ons are also used as a component to calculate market risk capital. The IRC is calculated over the time period of one year (Pillar 1 IRC model). Refer to the "Market Risk" section for more information.

Other risks under the Economic Perspective include: Interest Rate Risk in the Banking Book ("IRRB"), pension risk and valuation risk.

Capital requirements are conservatively aggregated without diversification benefits. Total internal capital requirements are then compared with available internal capital resources, i.e., the RBC. To calculate the RBC, regulatory Own Funds are used as the starting point and AT1 and Tier 2 capital are deducted; additionally, minor adjustments may be made to reflect other risks.

The Group aims to maintain an Economic Capital Adequacy Ratio (RBC divided by internal capital requirements) of at least 100%.

Economic Capital Adequacy is assessed on a quarterly basis.

The table below presents a comparison of internal capital (RBC) and economic capital requirements for year-end 2021 and 2022.

€ in millions	31 December 2022	31 December 2021
<i>Economic Perspective</i>		
Risk Bearing Capacity	5,053	3,365
Capital Requirements	2,870	2,237
Credit risk	1,929	1,514
Market risk	279	221
Operational risk	535	411
Other	127	91

As of 31 December 2022, the Group was adequately capitalised and reported an economic capital adequacy ratio of 176% (2021: 150%).

The Group has performed stress testing to understand sensitivities of the capital assessment to severe, but plausible macroeconomic stress scenarios. At the time of assessment, the Group remains well capitalised under these stress scenarios.

Credit Risk

Credit risk is an inherent part of the Group's business activities. Credit risk refers to the risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations. Credit risk includes country risk – i.e., the risk that economic, social and political conditions and events in a country will adversely affect a client's⁽²⁾ ability and/or willingness to fulfil its obligations. As part of credit risk, credit concentration risk refers to the risk of loss due to an outsized exposure to a client or a group of connected counterparties in the same industry or geographic region. The assessment of credit risk also considers climate risk, in particular the credit exposure to obligors and counterparties highly vulnerable to transition and/or physical climate risks. Respective definitions and further information are disclosed in the "Climate and Environmental Risks" section.

The Credit Risk Management ("CRM") Department reports to the CRO and is

⁽²⁾ Client refers to a borrower, counterparty or issuer in this context.

independent from the business units. It is responsible for managing and overseeing the credit risk profile of the Group. CRM has put in place a Risk Management Framework to identify, measure, control and report credit risks. Key components of the Credit Risk Framework include:

- (1) **Risk Identification:** The identification and assessment of credit risks forms an integral part of CRM and is performed on an ongoing, continuous basis. To identify and assess credit risks, CRM uses ongoing monitoring of clients' credit quality, the utilisation of credit limits, credit risk concentrations and single factor as well as multi-factor stress results. Additionally, the New Product Approval ("NPA") process is leveraged to identify and assess credit risks arising from new activities.
- (2) **Risk Measurement:** The measurement of credit risks primarily comprises of the analysis of clients' credit quality and credit risk exposures generated from transactions.

The analysis of obligors' credit quality results in the assignment of internal credit ratings which reflect the obligor's likelihood of default and are subject to credit officer review and approval. As part of this internal rating process, each rating is linked to a single name credit limit and mapped to a specific PD. The Group has developed industry specific rating templates, of which the templates for supranationals, financial institutions, including banks and broker-dealers, and corporates are the most material. To estimate the PD, the Group maps internal ratings to S&P ratings and then applies S&P's extensive default history to determine the PD. The Group takes different approaches to estimate PDs for its low default portfolio ("LDP") and its non-LDP. Internal models are used to estimate the expected loss in the event of default; these include, in addition to the PD, the LGD and EAD, whereby the most material risk for the LGD is for traded products.

To measure credit risk exposures, the Group uses a list of metrics such as current and simulated future exposures, as well as single and multi-factor stress metrics and portfolio risk sensitivities, all of which are calculated using internal models.

- (3) **Risk Appetite and Limits:** In order to ensure that credit losses remain within the defined risk appetite, CRM has implemented a Credit Limits Framework, which includes limit categories to capture single name, industry (including sub-industries such as shadow banks and climate segments), country, and product limit concentrations as well as different limit types to monitor lending, counterparty, treasury placement and other exposures to ensure appropriate governance with the different levels comprising the MSEHSE Group Management Boards, the MSEHSE Group ERC, the MSEHSE Group Credit Risk Committee and CRM.
- (4) **Risk Reporting:** All significant credit risk exposures, concentrations and limit utilisations are reported on a regular and ad-hoc basis to the MSEHSE Group ERC, the MSEHSE Group Management Boards and other interested parties.

The Group's credit risk is mainly driven by:

- **Treasury Placements:** Credit risk arising from Treasury activities primarily relates to deposit placements at the ECB via the Deutsche Bundesbank.
- **Counterparty Risk:** Counterparty risk arises from the Group's sales and trading business. The Group offers clients a wide spectrum of traded products, including OTC derivatives, foreign exchange, secured financing transactions and listed derivatives, all of which give rise to counterparty credit risk.
- **Lending:** Lending risk arises from extending commitments to corporate clients in the form of relationship or event loans.
- **Morgan Stanley Affiliates:** Credit risk to Morgan Stanley Affiliates results from indirect clearing, back-to-back trades with Morgan Stanley Group entities and loan participations or guarantees.

To reduce credit and counterparty risks, CRM relies on standard risk mitigants including netting provisions and the provision of collateral, including with other Morgan Stanley Group undertakings. Collaterals for derivatives are mostly cash and liquid securities. Lending risk may be mitigated through the transfer of risk to Morgan Stanley Affiliates, for example to reduce concentrations.

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The Group has a limited amount of issuer risk exposures, which are managed within the market risk limits framework and feed into aggregated credit risk exposure metrics.

Consistent with its business and risk strategy, the Group's credit risk portfolio is dominated by investment grade quality obligors in the EEA.

The Group has established processes to calculate ECL for provisions in accordance with IFRS 9 "Financial Instruments". The Group's provisioning levels are not material which is a reflection of the high credit quality of the Group's loan book and the use of risk transfers within the Morgan Stanley Group.

The below table shows RWAs and EADs for credit risk as of 31 December 2022 and

31 December 2021, including Credit Valuation Adjustment risk ("CVA risk"). The RWAs calculated via the advanced capital models (Internal Model Method or "IMM" and Foundation Internal Ratings Based or "F-IRB") and under the standardised approach are shown separately. Consistent with its regulatory approvals, the Group calculates its own fund requirements for credit risk with a partial use F-IRB approach. For counterparty credit risk, the EADs, which serve as an input for the calculation of the own funds requirements according to partial use F-IRB approach, are computed with a partial use IMM approach.

€ in millions	31 December 2022		31 December 2021	
	RWAs	EADs	RWAs	EADs
Credit risk ⁽¹⁾	2,622	18,916	3,262	13,449
Of which, internal models (F-IRB)	2,028	2,801	2,674	13,123
Counterparty credit risk (excluding CVA risk) ⁽²⁾	12,270	21,189	7,148	20,056
Of which, internal models (IMM)	8,165	11,503	4,651	9,808
Total (excluding CVA and Settlement risk)	14,892	40,105	10,410	33,505
Credit Valuation Adjustment (CVA risk)	3,211	9,108	3,561	7,469
Settlement risk	45	12	336	55
Total	18,148	49,225	14,307	41,029

⁽¹⁾ Credit risk from lending, treasury and other sources of credit risk.

⁽²⁾ Exposures subject to Equity IRB approach are reported under Credit Risk. Exposures to central counterparties are reported under Counterparty credit risk.

The Group has implemented a Credit Limits Framework to monitor credit concentration risk. Credit risks are primarily concentrated in treasury and counterparty exposures with regional focus on EU 27-countries, UK and the US. From a counterparty perspective, the credit portfolio is primarily concentrated in Financials and Governments and from a country perspective in the UK, the US and Germany whereas treasury exposures are mostly driven by cash balances placed with central banks. Overall, the country risk evaluation includes a determination of Country of Risk and Country of Jurisdiction. The Country of Risk is the country whose political, economic and commercial environment most affects an entity's ability to meet its obligations. The Country of Jurisdiction is defined as the country of registered incorporation or formation of the obligor. For calculation purposes, the breakdown in the following table is based on the Country of Risk whilst the Industry classifications are based on

the Global Industry Classification Standards ("GICS").

The following tables provide an overview of the Group's industry and country concentration, whereby the exposure metric used is consistent with internal credit risk management. This metric captures exposure from Treasury placements, lending commitments and trading activities, offset by credit risk mitigants such as collateral.

Breakdown per industry

Exposure € in millions	31 December 2022	31 December 2021
Financials	6,557	5,249
Governments	16,022	8,482
All others	4,190	3,538
Total⁽¹⁾	26,769	17,268

⁽¹⁾ Exposures to Morgan Stanley Group Affiliates are excluded.

Breakdown per
country

Exposure € in millions	31 December 2022	31 December 2021
France	3,359	2,794
US	3,052	2,374
UK	1,925	1,242
Germany	1,607	1,452
All others	3,932	3,487
Total⁽¹⁾	13,875	11,349

⁽¹⁾Exposures to Supranationals are excluded.

The Group's credit risk remained within risk appetite for 2022, as in 2021. The impact of the Russia and Ukraine war and associated energy crisis on credit risk exposures and obligors' credit quality was a key focus throughout 2022.

At the inception of the war between Russia and Ukraine, on-shore agent bank balances in Russia were materially reduced and residual counterparty exposures were de-risked. No credit losses were incurred. To capture second order impacts on other parts of the portfolio, selected counterparties were added to an internal focus list for heightened monitoring. The overall increase in volatility across interest rates, foreign exchange, inflation and commodities led to selected single name and portfolio exposure increases, for which appropriate mitigation actions were taken. The continued impact of the war on both credit risk exposures as well as obligors' credit quality will remain a key focus throughout 2023.

Market Risk

Market risk is an inherent part of the Group's business activities. Market risk is the risk that a change in the level of one or more market prices, rates, indices, volatilities, correlations or other market factors, such as market liquidity, will result in losses for a position or portfolio owned by the Group. This includes risks from xVA, which refers to the risk of changes in derivative valuation adjustments due to changes in credit spreads and other market factors. Market risk includes the consideration of financial risk arising from climate change. Further, market risk includes non-traded market risk such as IRRBB.

Price risk arises for example, in trading portfolios, lending portfolios measured at fair value and associated mark-to-market hedges.

The Market Risk Department ("MRD"), which is independent from the business units, has put in place a Risk Management Framework to identify, measure, control and report market risks. Key components of the Market Risk Framework include:

- (1) Risk Identification: To identify and assess market risks, MRD monitors significant changes in the market risk profile, limit utilisation, risk concentrations as well as stress tests results.
- (2) Risk Measurement: Market risks are measured by simulating shocks for a selection of input market parameters from securities and derivatives valuation models, the results of which are used as standard risk sensitivities and stress testing measures. MRD measures market risks using the internal Value at Risk ("Management VaR"), Regulatory VaR, Regulatory Stressed VaR ("SVaR") and IRC models. The VaR models are maintained to be measured against limits and used for capital requirement purposes. For the VaR models, a potential loss over a given time horizon (1 day or 10 days) and confidence interval (95% or 99%) is used. For the Regulatory SVaR, the same methodology and portfolio composition as Regulatory VaR is used, however, the Regulatory SVaR is based on a continuous one-year historical period of significant market stress which is recalibrated on a regular basis. For the IRC model, a potential loss from default and migration risk of unsecuritised credit products in the trading book over a one-year time horizon and 99.9% level of confidence is used.
- (3) Risk Appetite and Limits: To ensure that market risk losses remain within risk appetite, MRD has established overarching VaR limits as well as sensitivity limits for individual market risk factors.
- (4) Risk Reporting: All significant changes in market risk exposures, market risk concentrations and market risk limit utilisations are reported on a regular and ad-hoc basis to the MSEHSE Group ERC, the MSEHSE Group Management Boards and other interested parties.

Interest rate risk is inherent in the business of financial institutions. Interest rate risk is the exposure of the Group's financial condition

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arising from adverse movements in interest rates both in absolute and relative terms. IRRBB is defined as the risk of losses arising from adverse changes in the interest rate curves within the defined banking book population either from a present value (Delta Economic Value of Equity or "Delta EVE") or Net Interest Income (Delta Net Interest Income, or "Delta NII") perspective. IRRBB arises from interest rate exposures derived from traditional treasury and banking activities such as customer lending as well as inter-affiliates borrowing and lending. The MRD and the Group's Treasury Department are responsible for the monitoring and control of these exposures through the calculation of the measures Delta EVE and Delta NII. As of 31 December 2022, IRRBB exposure is a small component of the Group's market risk profile. It is monitored daily and reported at least quarterly to senior management. Both, Delta EVE and NII are subject to risk limits to ensure the IRRBB remains within the Group's Risk Appetite.

The following table presents the results for the regulatory prescribed scenarios as of 31 December 2022:

€ in millions	31 December 2022
	Delta EVE
Parallel shock down	(5.4)
Parallel shock up	2.7
Flattener shock	1.2
Steeper shock	(2.9)
Short rates shock down	(5.2)
Short rates shock up	2.6

As of 31 December 2022, IRRBB was approximately 0.09% of CET1 capital under the Delta EVE perspective with "Parallel shock down" as the relevant scenario as it results in the highest loss.

The Group's market making activities in Euro interest rate swaps, European government bonds, Euro inflation swaps as well as automated market making of European bonds and stocks are risk managed within the Group. Risk from xVA is also hedged by a dedicated trading desk within the Group which manages exposures coming from counterparties such as credit and funding risk. The main risk factors resulting from these exposures are credit, interest rates, funding basis, equity and foreign exchange related exposures. The organic growth of the client activity in the EEA led to an increase in xVA risk.

The Group uses the Management and Regulatory VaR to assess portfolio market risk. The Regulatory VaR is calibrated and scoped using regulatory requirements to capitalise for market risk and is subject to a daily backtesting calculation validating the accuracy of the model. In addition, the Management VaR is used for internal risk management purposes to ensure the Group's risk appetite stays within approved limits. The average total Management VaR of the Group for the year 2022 was €3.9 million (2021: €2.1 million), equally driven by credit sensitivity from xVA as well as interest rate and basis risk from fixed income trading activities.

The following shows the market risk RWAs as of 31 December 2022 and 31 December 2021, as calculated using the advanced capital model (Internal Model Approach, "IMA") and under the standardised approach, where applicable. Consistent with its regulatory approvals, the Group currently uses the advanced capital model for the calculation of own funds requirements for market risk.

RWAs	31 December 2022	31 December 2021
€ in millions		
Standardised approach	81	42
Internal model approach ⁽¹⁾	8,522	6,239
Total	8,603	6,281

(1) Including RWAs for Risk not in VaR ("RNIV")

The increase in RWA is attributable to the increase in market volatility as well as higher interest rate, inflation and credit exposures related to the expansion of market making activities. Additionally, RWA increased due to discounting valuation adjustments on highly collateralised exposures.

The Russia and Ukraine war has triggered a significant increase in market volatility. In particular, rapid jumps in energy prices, heightened inflation and the sharp rise of interest rates across European and North American economies have affected market volatility. The Group has ensured that appropriate mitigation actions were taken to remain within the Group's risk appetite throughout 2022. The continued impact of the increased market volatility on market risk exposures will remain a key focus throughout 2023.

Liquidity Risk

Liquidity risk is an inherent part of the Group's business activities. Liquidity risk is the risk that the Group's financial condition or overall soundness is adversely affected by an inability or perceived inability to meet its financial obligations in a timely manner. Liquidity risk encompasses the associated funding risk triggered by stress events which may cause unexpected changes in funding needs or an inability to raise new funding.

Liquidity risks from the Group's business activities primarily arise from OTC and listed derivatives as well as lending. These liquidity risks are covered by the Group's liquidity resources. Intraday risk continues to be a key driver of liquidity risk for MSEHSE Group and remains a core focus area.

The responsibility for daily liquidity management sits within Treasury, while the Liquidity Risk Department ("LRD") is responsible for the oversight of liquidity risk arising from the Group's business activities. LRD has put in place a Risk Management Framework to identify, measure, control and report liquidity risks arising from business activities. Key components of the Liquidity Risk Framework include:

- (1) Risk Identification: The identification and assessment of liquidity risks forms an integral part of the Group's liquidity risk management and is performed on an ongoing basis, considering risks to the financial condition or overall soundness in a business-as-usual environment and in stress conditions. To identify and assess liquidity risks, LRD uses ongoing monitoring of limit utilisations, regulatory as well as internal liquidity risk metrics, including the Internal Liquidity Stress Test ("ILST") results. Additionally, the NPA process is leveraged to identify and assess liquidity risks arising from new activities.
- (2) Risk Measurement: Liquidity risks are measured using established methods and processes for the assessment of current and projection of future cash and securities flows over various time horizons (including intraday) in business-as-usual and stress scenarios. Key metrics include the Liquidity Coverage Ratio, the Net Stable Funding Ratio and the coverage of assumed cash

outflows under internally developed liquidity stress scenarios as part of the ILST, which consider market wide idiosyncratic as well as combined stress scenarios.

- (3) Risk Appetite and Limits: Risk Appetite for Liquidity Risk is expressed via Liquidity and Funding Limits, which are owned by the MSEHSE Group Management Boards and which consist of the excess liquidity limit for the most binding of the ILST scenarios, for a period of one day up to 12 months with limited reliance on parent support beyond month one, or the LCR and NSFR Funding Limit. In order to ensure that liquidity outflows under stress remain within the defined risk appetite, LRD has implemented a Liquidity Risk Limit Framework comprising of excess liquidity requirements over regulatory and internal stress requirements as well as minimum cash and business unit level limits and Key Risk Indicators ("KRIs").
- (4) Risk Reporting: The monitoring of adherence to relevant regulatory requirements, internal limits and KRIs, including ensuring sufficient levels of highly liquid assets is reported on a regular and ad-hoc basis to the MSEHSE Group ERC, the MSEHSE Group Management Boards and other stakeholders.

The LCR, per the Delegated Act (EU) 2015/61 as a supplement to the CRR, is a regulatory stress test with the objective of promoting short-term resilience of the Group's liquidity risk profile by ensuring that it has sufficient high-quality liquid assets ("HQLA") to withstand a significant stress scenario lasting 30 days. The Group's LCR exceeded the regulatory minimum requirement as of 31 December 2022 and 31 December 2021. The details of the Group's LCR are presented in the following table:

€ in millions	31 December 2022	31 December 2021
HQLA	16,801	9,349
Cash Outflows	18,248	9,380
Cash Inflows	6,653	5,861
Net Outflow	11,595	3,519
LCR Ratio	145%	266%

High quality liquid assets and cash outflows both increased during 2022 due to the significant increase in deposits received from other Morgan Stanley Group affiliates, which were

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subsequently deposited at the Deutsche Bundesbank. Another driver of increased total cash outflows was increased business activity. As of 31 December 2022, the Group's HQLA comprises cash balances with central banks and government bonds.

The NSFR is another regulatory metric which measures the stability of the Group's funding profile over a one-year time horizon, as determined by the prescribed factors assigned to on-balance sheet and specific off-balance sheet assets (Required Stable Funding or "RSF") and liabilities (Available Stable Funding or "ASF"). It complements the LCR by requiring the Group to maintain minimum amounts of stable funding to support the Group's assets, commitments and derivatives exposures over the one-year horizon. As of 31 December 2022, the Group's NSFR ratio exceeded the regulatory minimum requirement as in the previous year.

The Group further uses Liquidity Stress Tests to model external and intercompany liquidity flows across multiple scenarios over a range of time horizons. The ILST is designed to simulate severe but plausible stress conditions with eligible liquidity resources having to exceed ILST requirements for a period of one day up to 12 months with limited reliance on parent support beyond month one.

As of 31 December 2022, the Group maintained sufficient liquidity to meet current and contingent funding obligations as modelled in its Liquidity Stress Tests.

Operational Risk

Operational risk is defined as the risk of loss, or damage to the Group's reputation, resulting from inadequate or failed processes or systems, human factors or from external events (e.g., fraud, theft, legal and compliance risks, cyber-attacks or damage to physical assets). This includes legal risk and risks arising from Environmental, Social and Governance factors (e.g., climate risk) but excludes strategic risk.

Primary responsibility for the management of operational risk is with the business units, the support and control functions, and the business managers therein. The business managers maintain processes and controls designed to identify, assess, manage, mitigate and report operational risk. In the event of a new product or a business activity, operational risks are

considered and any necessary changes in processes or controls are implemented.

The Operational Risk Department ("ORD"), which is independent from the business units, is responsible for the assessment and monitoring of operational risks. ORD has put in place a comprehensive Risk Management Framework to identify, measure, control and report operational risks arising from business activities. Effective operational risk management is essential to reducing the negative impact of operational risk incidents and mitigating legal and regulatory risks. The Framework is continually evolving to account for changes in the Group and to respond to the changing regulatory and business environment. Key components of the Operational Risk Framework include:

- (1) Risk Identification: Operational risk data and assessment systems are employed to monitor and analyse internal and external operational risk events, which are captured in dedicated databases to assess business environment as well as internal control factors and to perform scenario analysis. Internal operational risk events are captured in the Morgan Stanley Group's internal loss database. Operational Risk and Control Self-Assessments ("RCSA") are a key instrument for operational risk identification. RCSAs are executed by the business units while the ORD oversees the process and challenges the results.
- (2) Risk Measurement: Internal capital requirements for operational risks are measured using an operational risk capital model which encompasses both quantitative and qualitative assessments. The quantitative results are based on scenario analysis results, which are direct inputs into the model, while internal and external operational incidents, business environment and internal control factors are evaluated as part of the scenario analysis process.
- (3) Risk Appetite and Tolerances: To ensure that potential losses remain within the defined risk appetite the MSEHSE Group Management Boards have set risk tolerance levels for the Group in aggregate and for all Top Operational Risks. ORD monitors that tolerance levels are not exceeded through a combination of loss projections from scenario analysis and realised operational risk losses. As of

31 December 2022, the binding scenario resulted in a scenario loss of €47 million.

- (4) Risk Reporting: All significant Operational Risk Incidents and the operational risk profile relative to the tolerance level are reported on a regular and ad-hoc basis to the MSEHSE Group ERC, the MSEHSE Group Management Boards and other stakeholders.

Regulatory own funds requirements for operational risk are currently calculated under the Basic Indicator Approach (“BIA”). As of 31 December 2022, the Group’s operational RWAs were €1,005 million (2021: €632 million). The Group recognises that the BIA is not a risk-based measure and therefore uses an operational risk modelling approach to calculate internal operational risk capital requirements (refer to the operational risk figure disclosed in the table in the “Internal Capital Adequacy Assessment Process” section, “Economic perspective” sub-section).

The Group holds sufficient capital to cover the incremental capital requirement over and above the Pillar 1 requirement for Operational Risk.

The ORD scope also includes oversight of technology risk, cybersecurity risk and information security risk. ORD partners with the MSEHSE Group Anti Money Laundering and Fraud Prevention Officer to oversee fraud risk. ORD, in conjunction with the COCO, oversees third party risk (supplier and affiliate risk).

Cybersecurity

The Group’s Cybersecurity and Information Security Framework, which includes policies, procedures and technologies, is designed to protect the Group’s own data, client data and the Group’s employee data against unauthorised disclosure, modification or misuse and is also designed to address regulatory requirements. This Framework covers a broad range of areas including the following: identification of internal and external threats, access control, data security, protective controls, detection of malicious or unauthorised activity, incident response and recovery planning.

Business Continuity Management and Disaster Recovery

Morgan Stanley Group’s Resilience organization maintains global programs for Business

Continuity Management (“BCM”), Disaster Recovery (“DR”) and Third Party Resilience and Key Business Service Resilience that facilitates activities designed to protect the Morgan Stanley Group during a business continuity incident. A business continuity incident is an interruption with potential impact to normal business activity of the Morgan Stanley Group’s personnel, technology, suppliers and/or facilities. These programs require plans to be documented that identify and detail the options available to recover assets and services during an incident. Additionally, plans are required to be tested to provide a reasonable expectation that, during a business continuity incident, the Business Unit will be able to recover and perform its critical business processes and limit the impact of the incident to the Morgan Stanley Group, its clients and financial markets. As a part of Morgan Stanley Group’s Resilience organization, the MSEHSE Group has dedicated staff responsible for management of the aforementioned programs, which are governed by the Business Resilience Governance Committee. In addition, the MSEHSE Group Management Boards oversee the program implementation at the MSEHSE Group level.

Third party risk management

In connection with its ongoing operations, the Group utilises the services of third party suppliers which include other Morgan Stanley Group undertakings as well as external third party vendors. The Group mostly utilises the services of other Morgan Stanley Group undertakings as they are subject to the same global standards and frameworks. These services include, for example, outsourced processing and support functions and other professional services. The Group’s risk-based approach to managing exposure to these services includes the execution of due diligence, risk assessments, implementation of service level and other contractual agreements as well as consideration of operational risks and performance of ongoing monitoring and supervision of the third party suppliers’ performance. In addition, a dedicated Second Line of Defence control function (COCO) reviews adherence to applicable regulatory requirements. The Group maintains a third and fourth party inventory and an Outsourcing and Sourcing Framework which includes governance through policies, procedures, templates and technology and is designed to meet applicable regulatory requirements and be in line with the

Morgan Stanley Group's third party risk management program.

Model Risk

Model risk is the potential for adverse consequences from decisions based on incorrect or misused model outputs. Model risk can lead to financial loss, poor business and strategic decision-making or damage to the Group's reputation.

The independent Model Risk Management ("MRM") department performs the Second Line of Defence function with the objective that all models in use are fit for purpose and establishes the standards, principles and practices, governance processes, definitions, roles and responsibilities for sound model risk management. Key components of the Model Risk Framework include:

- (1) Risk Identification: MRM employs model identification and tiering frameworks, aligning model risk management activities with the level of models' inherent risk.
- (2) Risk Management and Monitoring: MRM conducts independent review and validation of models to verify that the models are performing as expected and in line with their designed objectives and intended use. Ongoing monitoring ensures that models continue to perform consistently with their intended purpose and that the outputs of models remain reliable.
- (3) Risk Appetite and Tolerances: To ensure that model risk does not pose a material risk to capital adequacy, reputation and regulatory standing, model governance and control processes have been established.
- (4) Risk Reporting: MRM reports on model risk to the MSEHSE Group Model Oversight Committee and provides a quarterly report on model risk to the MSEHSE Group ERC and the MSEHSE Group Management Boards.

The Group uses internal models for valuation, risk management and capital calculations. Valuation models include models that are used to produce valuation and/or risk measures for end of day books and records related to a position and models that are used to adjust a portfolio's value. Risk models are used for the

measurement and management of credit risk, market risk, counterparty risk, operational risk and liquidity risk, for stress testing, and for the calculation, planning and management of regulatory and internal capital requirements.

Conduct Risk

Conduct risk is defined as the risk arising from misconduct by individual employees or contingent workers (collectively, "Covered Persons") or groups of Covered Persons or the risk arising from conduct by the Group where the outcome has an adverse impact on clients or markets.

The Group's independent Compliance Division is responsible for the design and development of a Conduct Risk Framework and for the execution of compliance-related responsibilities as defined in the Group's policies and procedures. A consistent global framework is in place for managing conduct risk and Conduct Risk Incidents ("CRIs") including within the Group.

Key components of the Conduct Risk Framework include:

- (1) Risk Identification: Business units as well as support and control functions are responsible for identifying, assessing, managing and recording the conduct risks, which arise from their current or planned strategies and activities.
- (2) Risk Management and Monitoring: Internal controls and processes have been established to manage conduct risks identified. CRIs are identified and escalated through a range of processes within the First, Second and Third Lines of Defence. A review will be performed by the appropriate division and recommendations made to relevant decision-makers on next steps.
- (3) Risk Appetite and Tolerances: The Group does not have an appetite for conduct risk. However, the Group acknowledges that it remains inherent in the Group's products, activities, processes and systems and, therefore, cannot be eliminated entirely.
- (4) Risk Reporting: Processes have been established to ensure reporting of risks and incidents as well as prompt escalation and appropriate notification. The Group's Head of Compliance attends the Europe, Middle

East and Africa (“EMEA”) Conduct Risk Committee and reports to the MSEHSE Group Management Boards periodically on the Group relevant conduct matters and on developments in the Conduct Risk Framework as well as on developments in the applicable regulatory environment.

The MSEHSE Group Management Boards hold executive management accountable for compliance with business conduct risk standards through a variety of measures and controls.

Compliance Risk

Compliance risk is defined as the risk of legal or regulatory sanctions, material financial loss or damage to reputation resulting from the failure to comply with laws, rules, regulations, related self-regulatory organization standards and codes of conduct applicable to the Group’s activities.

The Group’s independent Compliance Division is responsible for identifying applicable compliance risks and obligations as well as for establishing and maintaining a compliance risk management program for the Group. All of the Group’s businesses and operations are subject to the compliance risk management program. Key components of the compliance risk management programme include:

- (1) Risk Identification: Business units as well as support and control functions are responsible for identifying, assessing, managing and reporting compliance risk. The Group’s Compliance Division completes an annual Compliance Risk Assessment for the Group to identify material compliance risk.
- (2) Risk Management and Monitoring: The annual Compliance Risk Assessment for the Group evaluates compliance risks and is reported to the MSEHSE Group Management Boards. In addition, the Compliance Division subsequently develops an Annual Compliance Plan for the Group that prioritises Compliance Division activities (including Compliance monitoring) based on the Compliance Risk Assessment and other inputs, as appropriate.
- (3) Risk Appetite and Tolerances: The Group seeks to comply with applicable laws, rules and regulations. The Group has no appetite for transactions, business activities, or conduct by employees, contingents, customers, or counterparties that give rise to a significant breach of the Group’s compliance obligations.
- (4) Risk Reporting: The Group’s Compliance Division reports to the MSEHSE Group Management Boards on a quarterly basis on compliance risk, significant regulatory compliance related developments and the progress of the Annual Compliance Plan. The Group’s Compliance Division also produces an annual Compliance report which is reviewed by the Management Boards.

Climate and Environmental Risks

Climate and environmental risks may include impacts to biodiversity, pollution of land, water or air, climate change, deforestation and forest degradation and other significant negative impacts on the environment as a result of human activities. Within climate and environmental risk, the risks arising from climate change are a particular area of focus.

The Morgan Stanley Group divides climate and environmental risks into two main categories: transition risks and physical risks.

- **Transition risks:** Transitioning to a low-carbon and more environmentally sustainable economy will entail extensive regulatory, policy, legal, technology and market initiatives as society adapts to climate change, mitigates its causes and promotes a more sustainable environment. Depending on the nature, speed and focus of these changes, transition risks may pose varying types and levels of financial and reputational risk to businesses and other organisations.
- **Physical risks:** These risks include both acute physical events such as flooding, and chronic physical risks related to longer-term shifts in climate patterns such as more frequent and prolonged drought and progressive shifts like biodiversity loss, land use change, habitat destruction and resource scarcity. Financial implications for organisations can range from direct damage to assets to indirect impacts from supply chain disruption, driven by factors such as changes in water availability, food security and agricultural productivity. Extreme

temperature changes may affect an organisation's physical locations, operations, supply chain, transport needs and employee safety.

In addition, the Group may be exposed to litigation risk or reputational risk losses arising from reliance on statements or representations in relation to Environmental, Social and Governance ("ESG") matters, which are later discovered to be incorrect or misleading.

Managing climate and environmental risks

Climate and environmental risks are managed by integrating climate change and other environmental considerations into the MSEHSE Group Risk Management Framework as drivers of credit, market, operational and liquidity risk. The management of climate and environmental risks is also integrated into policies and procedures. The MSEHSE Group Risk Management Framework continues to be developed to meet the requirements set out in new and evolving regulations.

Risk identification and materiality assessment

Materiality assessment in the short-term

As part of its established Risk Identification and Materiality Assessment process, the Group performed a granular risk assessment of short-term climate and environmental risks. This includes:

- **Risk inventory:** The risk inventory captures climate and environmental risks as drivers of existing risks. In 2022, MSEHSE Group expanded the assessment to consider additional risk events. Risk events assessed for their impact on credit, market, liquidity and operational risks include: 1) transition risk driven by climate policy (carbon repricing and accelerated green technology) and other environmental policy (management of water stress, biodiversity protection and reduction of pollution); and 2) climate physical risk (heat stress, wildfire, river floods, sea level rise and coastal floods and violent weather). In addition, the Group has assessed the impact of climate and environmental risks on litigation, reputational and strategic risks.
- **Materiality assessment:** A quantitative assessment is performed across risk types to

determine the materiality of the impact of climate and environmental risks. A risk is considered material if the estimated stress loss or outflow is above the existing risk identification materiality thresholds.

Results of short-term materiality assessment

In 2022 for the MSEHSE Group, climate transition risk driven by carbon repricing or an accelerated green energy technology transition was assessed as material for credit risk exposures. Climate transition and physical risks were assessed as non-material for MSEHSE Group collateral positions. Climate and environmental risks were assessed as non-material for operational risk (business disruption, litigation risk and reputational risk), market risk, liquidity risk and strategic risk given estimated losses fall below respective materiality thresholds. As the assessment is performed quarterly, the materiality assessment may change in the future.

Materiality assessment in the long-term

The Group also performed a long-term assessment of climate risks. Long term assessments consider a late climate policy action focusing on transition risk and a no action scenario focusing on physical risk. This materiality assessment concluded that the late action scenario focused on transition risk is material for credit risk in the long term.

Risk appetite and limit framework

Credit and market risk limits: Climate risk

Climate transition risk is incorporated into the MSEHSE Group's Risk Appetite and Limit Frameworks. The MSEHSE Group Management Boards set a Climate Stress Loss Limit ("CSLL") across credit and market risks which is reviewed on an annual basis.

In addition to the Climate Stress Loss Limit, climate risk is incorporated into the Credit Risk Management Framework through industry sector limits as well as country and borrower ratings. Limits and ratings are monitored as per standards in credit risk management policies and procedures.

- **Climate Stress Loss limit:** The MSEHSE Group Management Boards manage portfolio risk appetite via the CSLL. To monitor potential credit and market risk losses against this limit, the Group runs a short-term

transition risk carbon repricing scenario assuming that a global effort to address carbon emissions leads to a sudden and sustained carbon repricing across all countries. The results of this scenario are reported to the MSEHSE Group ERC and the MSEHSE Group Management Boards on a monthly basis.

- **Industry Sector Limits:** Credit risk limits are established for industries highly exposed to climate risk. This process includes a portfolio segmentation of industries into groups with common climate risk profiles. The credit limits for the industry sectors highly exposed to transition and physical risks enable the Group to monitor and manage credit risks arising from climate change.
- **Country Ratings:** ESG considerations are incorporated into the internal sovereign credit rating assessment. The sovereign rating is an important input in determining country limits, therefore ESG considerations influence risk appetite at the country level.
- **Borrower Ratings:** Climate risk is incorporated into the rating assessment for corporates. The corporate rating is an important input in determining single name limits, therefore climate risk influences risk appetite at a single name level.

In addition to the credit limits, the Group includes an assessment of ESG risks in the lending transaction approval documentation in line with the European Banking Authority's guidelines on loan origination and monitoring.

Liquidity and operational risk limits: Climate risk

In 2022, climate risks are assessed as non-material for liquidity and operational risk. Hence, MSEHSE Group has not established specific climate risk limits for liquidity and operational risks.

Credit, market, liquidity and operational risk limits: Other environmental risks

In 2022, other environmental risks were assessed as non-material for credit, market, liquidity and operational risk. Hence, MSEHSE Group manages other environmental risks within the existing risk appetite and limit frameworks.

Scenario analysis and stress testing

Scenario Analysis is central to the Group's Climate Risk Management Framework.

- **Short-term credit and market risk scenario analysis:** Informed by carbon emissions data from external providers, the Group assesses the financial impact of climate policy (carbon repricing) in a scenario that captures both counterparties' probability of default and market price movements. An additional credit risk scenario that considers an accelerated transition to green energy technology is assessed for the counterparties in the Energy sector and updated on a quarterly basis. Physical risk vulnerabilities are assessed on a quarterly basis and as of 2022 are deemed as non-material. As transition risk is a material credit risk, a Climate Stress Loss Limit was established for a transition risk scenario.
- **Operational risk scenario analysis:** A number of physical risk scenarios are assessed focusing on business disruption due to climate change events (including extreme weather). Physical risk scenarios are selected based on a combination of probability and severity.
- **Litigation and Reputational Risk Scenarios:** Litigation risk arising from Product Design is assessed, including inadequate due diligence and disclosure. Reputational risk losses are assessed for the scenario that is expected to result in the greatest harm to clients.
- **Strategic risk:** The transition risk carbon repricing scenario was assessed for Strategic Risk.
- **Reverse Stress Testing:** The Group has developed a reverse stress test focused on physical risk of sea level rise. The scenario losses are below the Group's reverse stress testing outcome definition.
- **Long-term strategy scenarios:** The Group conducted an exploratory long term scenario analysis, running two 30-year quantitative scenarios modelling late action (transition risk) and no additional action (physical risk) to inform the Group's materiality assessment and business strategy.

Metrics

Climate Stress Loss Limit

The Group remained within its portfolio Climate Stress Loss Limit throughout 2022.

Credit exposures

The Group's exposure to industries identified as highly exposed to climate transition or physical risk is a small percentage of overall credit exposure.

Exposures to industries with high climate transition or physical risk are subject to credit industry sector limits and comprise 8% and 4% of the Group's aggregate credit and counterparty risk net exposure, respectively. Credit exposures to climate risk in the table below include treasury placements, lending commitments and trading activities, offset by credit risk mitigants such as collateral. Trade and other receivables are excluded.

Credit exposures to climate risk

Climate Risk	2022		2021	
	Exposure	% of Portfolio Total	Exposure	% of Portfolio Total
€ in millions				
Transition Risk	2,088	8%	1,945	11%
Physical Risk ⁽¹⁾	971	4%	784	5%
Portfolio Total ⁽²⁾	26,769		17,268	

⁽¹⁾ The industries identified as having high climate physical risk were updated in 2022. The 2021 figures included in this table have been re-stated accordingly.

⁽²⁾ Total portfolio exposures exclude Morgan Stanley Group Affiliates.

The table includes the credit exposure to industry sectors highly vulnerable to climate transition and climate physical risks. The vulnerability of obligors is assessed based on a segmentation approach which differentiates between low, medium, high and very high (high and very high presented in the table). The segments are sub-industries with consistent climate risk profile. The assessment considers expert credit assessment, greenhouse gas emissions data and external physical risk scores.

Other Material Risks

In addition to the above risks, the Group has put in place a framework to identify, measure, control and report on the following other material risks:

- **Leverage risk:** Leverage risk is defined as the risk resulting from an institution's

vulnerability due to leverage or contingent leverage that may require unintended corrective measures to its business plan, including distressed selling of assets that might result in losses or in valuation adjustments to its remaining assets.

- **Valuation risk:** Valuation risk represents the possibility that a valuation estimate of a position measured at fair value would differ from the price in an actual transaction on the same terms at the reporting date.
- **Earnings at risk and Strategic risk:** Earnings at risk and Strategic risk are defined as the risk to earnings posed by falling or volatile income ("Earnings at risk"), and the broader risk of a legal entities' business model or strategy proving inappropriate due to macroeconomic, geopolitical, industry, regulatory, climate change or other factors ("Strategic risk").
- **Reputational risk:** Reputational risk (also referred to as "Franchise risk") describes potential risks associated with the way in which the Group conducts its business and the perception of the Group by external parties including its shareholders, clients, regulators and the public.

Risk Summary

The Group's risk strategy and risk appetite are aligned with the Group's business strategy as well as capital and liquidity resources and are embedded into risk management processes. The Group's risk bearing capacity was sufficient at each quarter-end during 2022. In addition, the Group's capital and liquidity are deemed sufficient to exceed regulatory minimums under both normal and in stressed market environments. Adequate capital and liquidity were maintained as of 31 December 2022. Whilst periods of heightened market volatility were observed in 2022 due to the Russia and Ukraine war and the associated energy crisis, strong inflationary pressures and sharp increases in interest rates, the Group remained within the set risk appetite. The Group's Risk Management Framework and the Group's Risk Governance structures are effective and commensurate with the size and complexity of the Group's risk profile and the Group's Risk Division is appropriately staffed with experienced risk managers.

Opportunities and Outlook

The outlook for global markets and economic environment, summarized in this section, represents the Group's internal projections and expectations based upon propriety models and research as of March 2023. The assumptions underpinning particular forward-looking statements are disclosed where appropriate.

Global markets and economic outlook

Global growth is expected to slow down from 3% in 2022 to 2.6% in 2023, at a level below potential and in a territory that is typically seen as recessionary. Consumption is expected to remain weak and tighter monetary policy to weigh negatively on the world economy. While supply chain impasses have largely receded, tendencies to focus economies on domestic growth and reduce strategic dependencies are notable headwinds for growth in 2023. The ongoing war between Russia and Ukraine continues to be a source of significant uncertainty. Europe's transition away from Russian energy towards a greener economy will be key in shaping the economic outlook for the years to come.

For some time, Europe lagged other key regions in its economic recovery, catching up only around the middle of 2021, when it grew at a stronger pace than the US and China. This trend has also continued in 2022, albeit at a more muted pace than expected at the beginning of 2022, mainly due to the impact from the Russia and Ukraine war. Growth is set to weaken significantly in 2023 and the Euro area is expected to stagnate in the first quarter of 2023, widening the gap to the US and China. Weak consumption and subdued investment demand, set in a challenging global background with weak external demand and tightening monetary policy will likely prevent a strong rebound. Euro area GDP is expected to expand below potential both in 2023 and 2024. From a medium-term perspective, the required acceleration of the energy transition and associated investments appear to provide a promising path to higher growth. The ongoing progress in the implementation of the Next Generation EU Recovery Fund, while slower than originally envisaged, should also contribute to an increase in potential growth. Finally, Euro area economies will have to confront the issue of

changing demographics over the next decade, before shrinking labour forces start weighing on the potential growth of many Euro area economies.

Business priorities

Despite the macroeconomic headwinds the Group continues to see opportunities for its products and services with existing and new clients. Specifically, the MSEHSE Group sees business opportunities in its stable and sustainable client relationships, its strategic advisory approach, its extensive product range and its ability to deliver the Integrated Investment Bank to its clients. The Group will focus on maintaining its strong position in Investment Banking across advisory as well as capital markets activities, both on the debt and equity side. The Group expects an uptick in client interest to strengthen their balance sheet positions as further clarity on monetary policy and softening of inflation outlook globally provides certainty to clients. After a challenging and uncertain year for Global Capital Markets in 2022, the Group expects improved levels of debt and equity capital market activity in 2023. In this context, the Group will continue to monitor the impact on the Group's risk profile and risk appetite closely to ensure the Group's risk management framework remains aligned to its business strategy.

The Group's lending activities primarily include the origination of relationship and event loans as well as the trading of loan products. In 2023, the Group will further seek to expand its lending footprint across jurisdictions with a focus on strategic client relationships and transactions.

Financial projections

The MSEHSE Group forecasts a significant increase in PBT in 2023 in comparison to 2022, due to the higher interest rate environment and the assumption of increased underwriting revenues as client activity normalises. This will have a limited impact on ROE, which will stay broadly flat, as the increase in PBT is forecast to be largely offset by the impact of capital issuances required to support the expanded market risk management of EU products (see below). Efficiency Ratio is forecast to

moderately decrease in 2023, as are the Tier-1 Capital Ratio and NSFR, reflecting expected growth in business, balance sheet and capital. Tier-1 Capital Ratio and NSFR will remain well above the regulatory minimums. The forecast for LCR is to moderately increase due to reduced unsecured funding requirements as a result of the increased capital base.

In alignment with its business strategy and regulatory expectations, the MSEHSE Group plans to expand its business activities by implementing booking model changes which will result in market risk management of additional EU products within the Group.

In 2022, the ECB conducted an Asset Quality Review (“AQR”) as part of the MSEHSE Group’s onboarding under ECB supervision. As per the established process, the quantitative results of the AQR were published on 31 March 2023.

The Group expects to remain in compliance with all capital requirements as its business continues to grow.

Regulatory Developments

Finalising Basel III reforms

The Basel Committee on Banking Supervision (“BCBS”) sets the standard for international banking prudential regulation in a series of accords (“Basel Accords”), that are implemented in the EU through the CRR and the CRD as well as standards issued by the European Banking Authority (“EBA”) and the ECB.

Following the impact of the COVID-19 pandemic on the global banking system, the BCBS has decided to defer the remaining standards of the Basel III reform package (referred to as “Finalisation of Basel III”) by one year to 1 January 2023. The key remaining amendments include revised market RWA requirements through the Fundamental Review of the Trading Book, new CVA RWA requirements, revisions to the credit RWA calculations covering both standardised and advanced treatments, and a new RWA requirement for operational risk. They also introduce an aggregate floor for RWA generated by the internal models, which will be set at 72.5% of total standardised RWA. The output floor will be phased in over five years. Banks will also need to disclose their RWA based upon the standardised approaches.

In October 2021, the European Commission published a proposal of amendments, known as the CRR III and CRD VI, to implement these final standards. There is a proposed effective date of 1 January 2025, but the final timing and impact remain uncertain.

The final EBA Guidelines on Interest Rate Risk arising from non-trading book activities (“IRRBB”) will apply incrementally from 30 June 2023 and 31 December 2023. These specify how to deal with risks arising from changes in interest rates and with credit spread risk of non-trading book activities and complete the onboarding into EU law of the BCBS IRRBB standards.

Other regulatory developments

As part of the CRR II and CRD IV the European Commission also published final rules on Intermediate Parent Undertaking (“IPU”) requirements, mandating for single consolidated supervision of the third-country group’s EU activities, as opposed to individual supervision of several standalone entities. These requirements will apply from 31 December 2023. MSEHSE, already supervised on a consolidated basis, is expected to be formally designated as an IPU.

ESG

The Sustainable Finance Disclosure Regulation (Regulation (EU) 2019/2088, “SFDR”) entered into force on 29 December 2019 with most provisions applying from 10 March 2021. Under the SFDR Level 1 requirements, MSESE, as a financial advisor (as defined under SFDR), provides certain disclosures on its website including: information on whether sustainability risks are integrated into investment advice, information on whether MSESE considers principal adverse impacts on sustainability factors of the investment advice provided, and information on how remuneration policies are consistent with the integration of sustainability risks. These disclosures are located on the website at https://www.morganstanley.com/content/dam/msdotcom/global-offices/MSESE_SFDR_disclosure.pdf

The Taxonomy Regulation (Regulation (EU) 2020/852, “Taxonomy Regulation”) entered into force on 12 July 2020 and establishes criteria for determining whether an economic activity is “environmentally sustainable”. Article 8 of the Taxonomy Regulation requires organisations

subject to the Non-financial Reporting Directive (“NFRD”) to report on how and to what extent their activities are associated with environmentally sustainable economic activities. MSESE is subject to Taxonomy Regulation reporting requirements from the financial year ended 31 December 2022. MSBAG and MSF are subject to Taxonomy Regulation reporting requirements from the financial year ending 31 December 2025 as a result of the scoping criteria of the Corporate Sustainability Reporting Directive (“CSRD”) outlined below.

On 28 November 2022, the European Commission adopted the CSRD which replaces the existing reporting requirements of the NFRD. The CSRD extends the scope of entities required to report on non-financial matters and introduces a requirement to report according to mandatory EU sustainability reporting standards.

The CSRD was published in the Official Journal of the EU on 16 December 2022 and EU Member States have 18 months to transpose the CSRD into their national laws. The requirements will apply to financial years commencing on or after 1 January 2024, with disclosures required by MSESE for the financial year ending 31 December 2024 and by MSBAG and MSF for the financial year ending 31 December 2025.

Sustainability Report

Overview

The Morgan Stanley Group's sustainability strategy focuses on integrating sustainability into core businesses and support functions. Sustainability activity at Morgan Stanley Group is organised across three core areas of focus:

- sustainable solutions and services;
- the Institute for sustainable investing; and
- firmwide sustainability.

The MSEHSE Group's approach to sustainability is consistent with that of the Morgan Stanley Group. Further information on the Morgan Stanley Group's approach to integrating sustainability can also be found at <https://www.morganstanley.com/about-us/sustainability-at-morgan-stanley>.

Sustainable solutions and services

As part of its focus on Sustainable Solutions and Services, the Morgan Stanley Group is responding to client demand with financial solutions and services designed to help deliver both competitive financial returns and positive environmental and social outcomes. For more on this core focus area, refer to the section "Accelerating the adoption of sustainable investing and finance" and <http://www.morganstanley.com/about-us/sustainable-solutions-services>.

Institute for sustainable investing

Housed within the Morgan Stanley Group's Global Sustainable Office ("GSO"), the Morgan Stanley Institute for Sustainable Investing (the "Institute") works to accelerate the adoption of sustainable investing and finance by fostering innovation, empowering investors through actionable analysis and developing the next generation of leaders in the field. The Institute supports two capacity-building efforts that help emerging talent contribute their ideas to sustainable solutions: the Sustainable Investing Challenge and the Sustainable Investing Fellowship. The Institute also runs the Sustainable Solutions Collaborative that channels \$250,000 awards to innovators engaged in breakthrough sustainable solutions that range from commercial to non-profit. For

more on this core focus area, refer to <https://www.morganstanley.com/what-we-do/institute-for-sustainable-investing>.

Firmwide sustainability

The Morgan Stanley Group's commitment to sustainable business, climate action and inclusive growth extends to integrating ESG considerations across business practices, operations and culture. Priorities include building a diverse and inclusive workforce, improving business resilience and maintaining strong governance practices and prudent risk management. For more on this core focus area, refer to the section "Operational sustainability" and <https://www.morganstanley.com/about-us/corp-sustainability>.

Governance

The Morgan Stanley Group takes an integrated approach to ESG management with oversight from leadership and input from across core business and support functions. To coordinate and support the EMEA region's efforts around sustainability, a management-level EMEA ESG Oversight Committee has been established to support the MSEHSE Group and the wider EMEA business in the continued development of an ESG strategy and risk management framework. The EMEA ESG Oversight Committee oversees the embedding of ESG risks into the risk and control framework and the tracking, analysis and implementation of key regional regulatory requirements. The MSEHSE Group COO Co-Chairs the Committee, and the MSEHSE Group Chief Risk Officer and Chief Finance Officer are members of the Committee.

During 2022, the MSEHSE Group Management Boards had oversight of various climate related matters on a regular basis. In particular, the MSEHSE Group Management Boards approved the MSEHSE Group Business Strategy which included the commitment to sustainability and delivering ESG related regulatory requirements. In addition, the MSEHSE Group Management Boards reviewed and approved the MSEHSE Group Risk Strategy, which included updates to the Risk Appetite Statement to include climate change as a driver of existing risks. Furthermore, the MSEHSE Group Management

Boards approved the KPI for lending exposure retained on MSEHSE Group to align to Morgan Stanley's Net Zero commitment and targets. The MSEHSE Group Supervisory Boards also received updates relating to the management of climate risk. In particular the Risk Committee received updates on meeting climate supervisory deliverables and also on the KPI that monitors MSEHSE Group's lending exposure.

On a monthly basis, the MSEHSE Group Management Boards review the utilisation of the Climate Stress Loss Limit and the credit risk limits that are established for industries highly exposed to climate risk (refer to the section "Climate and Environmental Risks, Risk appetite and limit framework" for further details).

Basis of preparation

This Sustainability Report is prepared in accordance with paragraph 340i (5) in conjunction with sections 315c and 289b - 289e HGB, collectively known as NFRD.

Due to evolving regulation in this area, the MSEHSE Group has elected not to employ any of the existing ESG reporting frameworks as permitted by section 289d HGB.

As required by section 289c (1) HGB, the Group has described its business model in the "Business Model" section of this Group Management Report.

Managing ESG Risks

In addition to the management of financial risks arising from climate change and environmental degradation, which is described in the section "Climate and Environmental Risks", a Morgan Stanley-wide approach is taken to the management of environmental and social risks that could impact its reputation. Morgan Stanley's Environmental and Social Risk Management Group ("ESRM") provides internal subject matter expertise on environmental and social risk, conducts diligence on relevant transactions, engages with stakeholders and monitors emerging risks and developments in partnership with business units and GSO.

Due diligence and risk management processes are designed to identify, assess and address potentially significant environmental and social issues that may impact Morgan Stanley Group,

clients and other stakeholders and apply globally to following types of transactions:

- lending (corporate and project);
- debt and equity underwriting;
- private placements;
- investment banking and capital markets advisory assignments;
- investment management activities; and
- other transactions or activities as applicable and appropriate.

Business units and internal control groups refer transactions to ESRM for due diligence when they identify potential environmental and social issues that may pose franchise risk to Morgan Stanley. ESRM analyses environmental and social risks through a due diligence process that incorporates international frameworks, such as the International Finance Corporation ("IFC") Performance Standards and the World Bank Group Environmental, Health and Safety Guidelines, as well as relevant industry good practices and sector-specific internal guidelines. Clients are expected to comply with all relevant local and national laws, as well as with host-country obligations under international laws.

As outlined in Morgan Stanley Group's Environmental and Social Policy Statement, Morgan Stanley Group has tailored approaches to certain sectors and activities, including carbon-intensive sectors. Transactions that meet designated environmental and social risk criteria may require approval by the Global Franchise Committee, or Regional Franchise Committees such as the EMEA Franchise Committee, as well as senior management. This Policy Statement is reviewed annually and updated to reflect strategy and key developments. For further detail, refer to Morgan Stanley's Environmental and Social Policy Statement which can be found at <http://www.morganstanley.com/about-us-governance>.

Materiality Assessment

A materiality assessment of sustainability matters was conducted by the MSEHSE Group in 2022 based upon the requirements of section 289c HGB. The assessment aimed to identify those issues for which disclosures are required to understand the development, performance and position of the Group as well as the impact of the Group on the sustainability aspect (the

concept known as “double materiality”). In terms of the approach taken, the Group considered a comprehensive list of potentially material issues based upon the views and expectations of internal and external stakeholders. A series of surveys with internal stakeholders were subsequently conducted and the issues deemed material for the Group are summarised in the table below and described thereafter.

Sustainability Aspect according to HGB 289c	Material issue(s) within the Aspect
Environmental matters	Climate change
	Accelerating the adoption of sustainable investing and finance
Employee matters	Operational sustainability
	Culture and conduct
	Diversity and inclusion
	Talent management
Social matters	Supporting wellbeing
	Giving back to the community
Respect for human rights	Human rights in the supply chain
Anti-corruption and bribery matters	Anti-financial crime

Environmental Matters

Climate change

The Morgan Stanley Group’s climate change strategy is built on four pillars:

- support the transition to a low-carbon economy by mobilising capital toward low-carbon solutions for clients and publishing industry-leading research and thought leadership for an investor audience;
- manage climate risk by integrating climate change considerations across all risk management processes and governance structures (see “Climate and Environmental Risks” section of this Group Management Report);
- provide relevant, transparent, useful and timely climate-related disclosures in Morgan Stanley’s Task Force on Climate-related Financial Disclosures (“TCFD”) report and other publications (see “Morgan Stanley Group sustainability disclosures” section); and
- enhance the climate resilience of operations by minimising footprint and enhancing

operational resiliency (see “Operational sustainability” section).

Central to Morgan Stanley Group’s climate change strategy is the commitment, announced in September 2020, to reach net-zero financed emissions by 2050. To demonstrate progress toward this commitment, the Morgan Stanley Group set interim 2030 financed emissions lending intensity (“FELI”) targets, announced in November 2021, for the three most emissions-intensive sectors: Auto Manufacturing, Energy and Power. The MSEHSE Group has established a KPI for lending exposure retained on MSEHSE Group to align to Morgan Stanley’s Net Zero commitment and targets in these three sectors and accountability for the KPI sits with the MSEHSE Management Board. For details on the Morgan Stanley Group’s targets and methodology, including its Measure-Manage-Report framework launched in 2021, refer to <https://www.morganstanley.com/about-us/sustainability-at-morgan-stanley/net-zero-financed-emissions>.

Financed emissions metrics

The development and embedding of appropriate methodologies to measure financed emissions is critical to achieving the Morgan Stanley Group’s commitment to reach net-zero financed emissions by 2050 and the 2030 interim targets.

Morgan Stanley Group has played an active role in key industry-led initiatives that inform how financial institutions set net-zero targets and measure and disclose financed emissions, including the Net-Zero Banking Alliance (“NZBA”) and the Partnership for Carbon Accounting Financials (“PCAF”). While these industry initiatives inform Morgan Stanley’s work, the Morgan Stanley Group makes independent decisions that consider the interests of the firm, clients and shareholders.

In the Morgan Stanley Group’s 2021 Climate Report baseline financed emissions were disclosed for lending activities in the sectors for which the Morgan Stanley Group has established interim targets. These were reported in accordance with PCAF’s Global Greenhouse Gas Accounting and Reporting Standard and the Morgan Stanley Group’s Financed Emissions Lending Intensity metric. For more details on the methodology, refer to <https://www.morganstanley.com/about-us/sustainability-at-morgan-stanley/net-zero-financed-emissions>.

The MSEHSE Group exposure and Greenhouse Gas (“GHG”) Lending Intensity for its lending portfolio is shown in the following table. This is based on the ECB 2022 Climate Risk Stress Test methodology and includes lending exposure in emissions-intensive sectors for which Morgan Stanley has set interim targets as well as lending exposure in other emissions-intensive sectors. This methodology is similar but distinct from the PCAF methodology the Morgan Stanley Group utilised to calculate and report its financed emissions in its 2021 Climate Report. For further information on the ECB methodology, refer to [https://www.bankingsupervision.europa.eu/ecb/pub/pdf/](https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climateriskstresstest2021~a4de107198.en.pdf)

[ssm.climateriskstresstest2021~a4de107198.en.pdf](https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climateriskstresstest2021~a4de107198.en.pdf).

As presented in the following table, the Group’s credit exposure to emissions-intensive sectors has remained relatively constant at €2,112 million as at 31 December 2022 with a small increase of less than 2% throughout the year. The weighted average GHG Lending Intensity of the portfolio increased by 17% to 2,451 tonnes per 3 years average revenue. The increase is mostly driven by methodological guidance on approximation of Scope 3 emissions, where these values are not directly available at time of publication.

MSEHSE Group GHG Lending Intensity as per ECB Climate Risk Stress Test Methodology

Sector	2022			2021		
	Number of Counter-parties	Exposure (%)	GHG Lending Intensity (tCO ₂ e/€ in millions of 3 years average revenue)	Number of Counter-parties	Exposure (%)	GHG Lending Intensity (tCO ₂ e/€ in millions of 3 years average revenue)
Utilities	10	29%	2,205	8	18%	1,258
Transportation	6	18%	690	4	16%	680
Automobiles and Components	3	12%	5,001	2	15%	3,873
Energy	2	9%	10,014	4	21%	4,703
Pharma, Biotech & Life Sciences	2	9%	160	1	10%	135
Other as per ECB Climate Stress Test	8	23%	636	10	20%	796
Weighted average			2,451			2,088
Total (%)		100%			100%	
Total	31	€2,112 million		29	€2,089 million	

Note:

Exposure considers corporate exposures to non-SME (“non-small and medium enterprises”), non-financial obligors. Emissions-intensive sectors according to Statistical Classification of Economic Activities in the European Community Codes (“NACE-Codes”), as defined in the ECB Climate Risk Stress Test methodology, have been mapped to GICS codes in the table. Within each sector, a materiality threshold of 1% of total non-SME corporate credit exposures by sector (i.e., by group of NACE codes) applies, the exposure below that threshold is not reported.

GHG lending intensity metric for counterparties is the counterparties’ Scope 1, 2 & 3 GHG emissions in tones (tCO₂e) / counterparties’ average revenues for the last 3 years (subject to revenue data availability). The sector intensity metric is the weighted average (based on exposure) of the GHG intensity of the counterparties in the sector.

The most recent GHG emissions data is for the year 2021, but is not currently available for all emission scopes. When data for one of these categories is unavailable, it is estimated by scaling counterparties’ 2020 emission values by their year-over-year change in revenues, as prescribed under the ECB Climate Risk Stress Test methodology. If data is unavailable for a previous year then sectorial estimates are used to proxy the missing emission data for 2021. At time of publication, Scope 3 Downstream data for 2021 was not available thus a portion of the Scope 3 data is estimated using the ECB methodology and may differ from reported values disclosed at a later date. The Scope 3 emissions data will therefore be prone to large year-over-year changes driven by counterparties’ financial performance until reporting timelines are expedited. Morgan Stanley Group performs a data quality review of GHG vendor data, ensuring sufficient coverage and a best effort toward accuracy. For further detail on how the Morgan Stanley Group sources GHG data, refer to <https://www.morganstanley.com/content/dam/msdotcom/about-us/netzero/Morgan-Stanley-Net-Zero-Target-Methodology.pdf>.

Accelerating the adoption of sustainable investing and finance

The Morgan Stanley Group continues to partner with clients and stakeholders to mobilise capital at scale for the low-carbon transition and in 2021, increased its commitment to \$750 billion by 2030. This goal is part of a larger commitment to mobilise \$1 trillion in capital toward broader sustainability solutions in support of the United Nations Sustainable Development Goals. Together, these goals drive the Morgan Stanley Group's efforts to develop innovative, market-leading climate finance and investment solutions that meet growing client demand. By incorporating climate considerations into business activities, the Morgan Stanley Group aims to manage business for the long term while providing value for clients and shareholders. For details, refer to <https://www.morganstanley.com/ideas/low-carbon-finance-1-trillion-dollar-pledge>.

Operational sustainability

Morgan Stanley Group's commitment to sustainability includes steps to address its own operations. In pursuit of this commitment, Corporate Services operates the Group's real estate in accordance with the targets set out below and the Morgan Stanley Environmental and Social Policy Statement, mentioned in the "Managing ESG Risks" section. It seeks to minimise its operational greenhouse gas emissions while striving toward reductions in energy, water, paper and waste.

Morgan Stanley Group is committed to sustainable and responsible operations through enhanced standards for its owned and leased facilities. Morgan Stanley Group focuses on requirements related to location, architecture, energy use, water efficiency, air quality, materials and waste management that incorporate environmental best practice. The firm aims to create a high-performance built environment by achieving Leadership in Energy and Environmental Design ("LEED") certification.

For new leases and renewals, Morgan Stanley Group strives to include green lease rights and services to align landlord and tenant incentives for continuous improvement and environmental data reporting transparency. Water conservation is achieved through the deployment of equipment, systems and operational

procedures. Morgan Stanley Group takes measures to reduce total waste volumes, promote waste separation and to enhance recycling efficacy. It also educates its employees on waste management with clear signage at points of disposal. Morgan Stanley Group aims to transform its use of printed paper and archived paper records through the optimization of technology and electronic records management.

Morgan Stanley Group established the following group-wide goals in relation to Operational Sustainability:

- 100% carbon neutrality by 2022;
- 100% renewable electricity by 2022.

The goal for carbon neutrality covers Scope 1 and 2 emissions and Scope 3 business travel emissions. Progress towards both of these goals will be reported in the Morgan Stanley Group's Sustainability report that will be published later in 2023 at <https://www.morganstanley.com/about-us/sustainability-reports-research>.

Morgan Stanley Group sustainability disclosures

Further information about the Morgan Stanley Group's efforts to support climate change mitigation is available in the Climate Report, which is guided by the recommendations of the TCFD. This is available at https://www.morganstanley.com/content/dam/msdotcom/en/assets/pdfs/Morgan_Stanley_2021_Climate_Report.pdf.

The Morgan Stanley Group's Sustainability Report focuses on investor-relevant ESG topics and goals in line with the Sustainability Accounting Standards Board standards for Investment Banking, Asset Management and Commercial Banking guide. This is available at https://www.morganstanley.com/content/dam/msdotcom/en/assets/pdfs/Morgan_Stanley_2021_Sustainability_Report.pdf.

The Climate Report and Sustainability Report for 2022 will be published later in the year.

Employee Matters

The Group's employees are its most important asset. The Group strives to create a diverse and inclusive workplace, with a strong culture and opportunities for employees to grow and develop in their careers and be supported by

competitive compensation, benefits and health and wellness programs.

As at 31 December 2022, of the MSEHSE Group employees, 63% were male and 37% female. Overall the Group has seen Full-Time Equivalent (“FTE”) growth of 39% in the last two years.

Culture and conduct

Employees of the Group are accountable for conducting themselves in accordance with Morgan Stanley core values: Put Clients First, Do the Right Thing, Lead with Exceptional Ideas, Commit to Diversity & Inclusion and Give Back. The Morgan Stanley Group core values drive a shared set of behaviours and attributes that help employees make decisions consistent with the expectations of our clients, shareholders, regulators, Management Board and the public. Morgan Stanley Group is committed to reinforcing and confirming adherence to the core values through its governance framework, tone from the top, management oversight, risk management and controls, and three lines of defence structure (business, control functions such as Risk Management and Compliance, and Internal Audit).

The Morgan Stanley Group Board is responsible for overseeing the Morgan Stanley Group practices and procedures relating to culture, values and conduct, as set forth in the Morgan Stanley Corporate Governance Policies. The Morgan Stanley Culture, Values and Conduct Committee oversees Morgan Stanley Group-wide culture, values and conduct program and complements ongoing business and region-specific culture initiatives. A fundamental building block of this program is the Morgan Stanley Group Code of Conduct, which establishes standards for employee conduct that further reinforce the Morgan Stanley commitment to integrity and ethical conduct. Every new employee and every current employee must attest annually to their understanding of and adherence to the Code of Conduct.

Each year, Managing Directors and other senior staff lead mandatory Morgan Stanley Group-wide culture conversations, engaging employees and onsite contingent workers in a dialogue about appropriate conduct, behaviour and decision-making. Case studies and other reference materials used during the sessions

encourage robust discussion on sustaining Morgan Stanley Group culture, and attendance is tracked to ensure participation.

The Group’s remuneration policies and practices ensure that there is an alignment between reward, risk, culture and conduct. Conduct, culture and core values are considered in the employee annual performance evaluation process.

Diversity and inclusion

Morgan Stanley Group’s diversity and inclusion strategy is designed to drive meaningful and sustainable change, and to help achieve a truly diverse and inclusive workforce. It informs the way the Morgan Stanley Group engages with and supports its employees, as well as how it serves clients, investors and the diverse communities in which it operates. The strategy is built on five key pillars: accountability, representation, advancement, culture and outreach.

Morgan Stanley Group is an equal opportunity employer committed to ensuring, within the framework of the law, that the workplace is free from unlawful discrimination. The Morgan Stanley Group aims to ensure that staff achieve their full potential and that all employment decisions are taken without reference to irrelevant or discriminatory criteria. The Dignity at Work Policy for the Group aims to draw attention to, and therefore prevent, all forms of unacceptable behaviour and to ensure all staff are treated with dignity and respect.

The correlation between inclusive teams and improved decision-making, innovation and performance aligns with Morgan Stanley Group’s core values. The EMEA Diversity Action Council acts as a catalyst to drive forward the EMEA diversity strategy. Accountability is underscored by quarterly meetings with the European Operating Committee and regular discussion at Divisional Operating Committees.

Every effort is also made to ensure that disabled applicants and employees are treated fairly on terms comparable with those of other employees. Appropriate training is arranged for disabled persons, including retraining for alternative work for employees who become disabled, to promote their career development within the organisation.

Talent management

Both the MSEHSE Group and the Morgan Stanley Group place considerable value on the investment in their employees and have continued their practice of keeping employees informed on matters affecting them. Employees are encouraged to present their suggestions and views on Morgan Stanley Group performance to management and employees participate directly in the success of the business through various Morgan Stanley Group compensation incentive plans.

The Group's recruiting strategy aims to attract top tier talent in all disciplines required for the execution of business activities. The recruitment priorities include a mandate seeking to identify a diverse pool of candidates with the requisite skills and demonstrated abilities to contribute meaningfully and productively to the Morgan Stanley Group's culture, consistent with its values and standards. The Morgan Stanley Group also encourages internal mobility to retain talent and provide growth opportunities within.

Supporting wellbeing

Morgan Stanley Group aims to foster an inclusive culture that supports employees' entire wellbeing, encompassing positive physical, mental, social and financial health, by raising awareness, educating employees on preventive care and providing best-in-class support for employees and their families.

In September 2022, the Morgan Stanley Group launched a community of wellbeing culture carriers known as the Global Wellbeing Influencer Network. These individuals will help to guide the Morgan Stanley Group's wellbeing strategy, amplify awareness and surface key issues that arise from the work environment.

Social Matters

Giving back to the community

The Morgan Stanley Group is committed to giving back to the communities in which it operates through a range of philanthropic programs.

Volunteering

In 2022, following a two-year hiatus due to the pandemic environment, the Morgan Stanley Group restarted its traditional Global Volunteer

Month, engaging over 41,000 employees across all offices globally. In Frankfurt, 89% of employees were involved, supporting local community organisations. Additionally, over 20 employees from across continental Europe provided pro-bono advice to a local charity in Frankfurt, through their 'Make a Difference Day' program.

Giving

Employees in offices across Europe nominate charity partners, raising funds over a two-year period, supported by the Morgan Stanley International Foundation, the philanthropic arm of Morgan Stanley Group's EMEA efforts. The employee-nominated charity partners in Europe include: L'Envol in Paris, Fundacion Aladina in Madrid, Association CAF Onlus in Milan and Deutscher Kinderschutzbund in Frankfurt. All work to support a range of children's causes. In 2021, Frankfurt employees nominated Kinderschutzbund Frankfurt as their new charity partner for two years, with a fundraising target of €70,000, matched by the Morgan Stanley International Foundation. This partnership will establish a Family House, where families with young children who are in need of help will be provided with a place to talk about their situation and also provided with clothing, baby equipment and supplies. In 2022, Frankfurt based employees raised €33,000.

In response to the humanitarian crisis in Ukraine Morgan Stanley Group and its employees contributed \$4.5 million to the International Rescue Committee to provide critical assistance to civilians affected. In EMEA, over \$300,000 was raised with \$62,000 committed by employees in Frankfurt.

Community reach / focus

The Morgan Stanley International Foundation has partnered with charities across Europe. In Paris, Alliance pour l'éducation, who support young people in accessing equal opportunities and making informed choices about their future and professional careers. In Madrid, Fundación Tomillo, who help young people develop their employability and engagement within their communities, with a focus on those at risk of facing social exclusion. In Frankfurt, the Morgan Stanley International Foundation has partnered with Anna-Freud-Institut Frankfurt e.V., to enable the charity to extend its mental health support to children and adolescents through qualified youth psychoanalysts. As part of this, the institute will

work with 20 high schools to raise awareness and provide education on mental health, with the aim to reach approximately 15,000 children and their teachers through consultations, group sessions and seminars.

Also in Frankfurt, the Morgan Stanley International Foundation supports Die Arche, who provide a safe space for children living in financial and emotional poverty. By enabling targeted supervision, emotional support and healthy nutrition, the grant helps over 200 children per day with their educational needs, increasing their chances of educational success.

The Morgan Stanley International Foundation also provides support to Joblinge in Frankfurt, where the project seeks to help disadvantaged young people overcome difficulties faced with regards to employment. This provides unemployed youths with the opportunity to earn a long-term placement in vocational training or a job and thus lead a self-determined life. In 2022 more than 967 young people have registered on the platform, and more than 630 of them have received or are receiving support.

Respect for Human Rights

The Morgan Stanley Group is committed to being a responsible corporate citizen and fulfilling the important role business can play in protecting and advancing global standards for human rights, including equal opportunity, the freedom to associate and bargain collectively, and the elimination of modern slavery, human trafficking and harmful or exploitative forms of child labour.

Human rights considerations are incorporated into transaction due diligence processes, engagement with companies, supplier expectations and own operations.

The Morgan Stanley Group is committed to complying with the laws and regulations of the countries in which it operates while simultaneously conducting its business and encouraging the promotion of human rights through own policies, standards and practices. Its approach is guided by leading frameworks, including the Universal Declaration of Human Rights, adopted by the United Nations (“UN”) General Assembly, and the UN Guiding Principles on Business and Human Rights.

Morgan Stanley Group’s Supplier Code of Conduct outlines its expectations for suppliers

with regard to human rights, employment and non-discrimination practices, health and safety, diversity and inclusion, and data protection. As outlined in the Supplier Code of Conduct, suppliers must conduct their operations in a socially responsible, non-discriminatory manner, and in full compliance with applicable laws including, but not limited to, those associated with personal information, equal opportunity, child labour, forced or compulsory labour, working hours and compensation, freedom of association, collective bargaining and harassment-free work environment.

Each year the Morgan Stanley Group publishes a Modern Slavery and Human Trafficking Statement that outlines the steps taken by the Morgan Stanley Group during the preceding financial year to address the risk of modern slavery in its own operations or any of the suppliers of the Morgan Stanley Group and its consolidated subsidiaries, as well as its future plans in that regard.

For further detail, refer to the Morgan Stanley Group’s Human Rights Statement, Modern Slavery and Human Trafficking Statement, Environmental and Social Policy Statement, and Supplier Code of Conduct, which can be found at <http://www.morganstanley.com/about-us-governance>.

Both the Supplier Code of Conduct and the Modern Slavery and Human Trafficking Statement are part of the supplier agreements. If Morgan Stanley finds information through its negative media searches that a supplier is violating them, they would be considered in breach of contract, and subject to termination of the agreement.

In 2022 Morgan Stanley Group has not found any instances of suppliers practising modern slavery or human trafficking.

Anti-corruption and Bribery Matters

The Group, principally through Morgan Stanley Group’s Legal and Compliance Division, has established and implemented policies, procedures and internal controls reasonably designed to comply with applicable anti-corruption laws and regulations in the jurisdictions in which it operates, including Germany.

The Morgan Stanley Group’s Global Anti-Corruption Policy and the local country

supplement for Germany, which are updated annually and approved by the Group's Audit Committee, address corruption risks and prohibit offering, promising, giving or authorising others to give anything of value, either directly or indirectly, to any party, to improperly obtain or retain business or gain an improper business advantage. The policies also prohibit receiving, or agreeing to receive, anything of value that results or may result in the improper performance of employees' duties at Morgan Stanley. These values are embedded within the Morgan Stanley Group's Code of Conduct and the local country supplement for Germany, which employees must attest their understanding of, and adherence to, on an annual basis. For details, refer to <https://www.morganstanley.com/about-us-governance/code-of-conduct>.

An annual risk assessment is performed to consider key areas of potential corruption risk to the Morgan Stanley Group.

Anti-corruption training is provided to all staff globally on an annual basis and targeted training is additionally conducted as necessary. In 2022 all MSEHSE Group employees have completed corresponding annual training on financial crimes risk.

The Group maintains whistleblowing policies and procedures to ensure that individuals can confidentially report concerns when these arise. Management information regarding the anti-corruption program is reported to appropriate senior management personnel through Legal and Compliance Division governance frameworks.

Taxonomy Regulation Article 8 Disclosure

Overview

The Taxonomy Regulation was published in 2020 with an effective date of 1 January 2022. It provides a system for classification of economic activities deemed as environmentally sustainable underpinned by six environmental goals:

- climate mitigation;
- climate adaptation;
- the sustainable use and protection of water and marine resources;

- transition to a circular economy;
- pollution prevention and control; and
- protection and restoration of biodiversity and ecosystems.

Under Article 8 of the Taxonomy Regulation and the related Climate Disclosures Delegated Act, the MSEHSE Group must disclose its eligible assets for the year ended 31 December 2022. Eligibility indicates whether the activities that the MSEHSE Group is financing are in scope of the Taxonomy Regulation, i.e. are potentially environmentally sustainable, but does not determine if the activities meet the Taxonomy's technical screening criteria ("TSC") to consider an activity as "green" (i.e., environmentally sustainable).

Eligibility disclosure provides a starting point for the second phase of required disclosures effective from 1 January 2023 when Taxonomy-eligible economic activities of our counterparties will be assessed to determine whether they are Taxonomy-aligned (i.e., environmentally sustainable) against the TSC defined by the Taxonomy Regulation.

Scope of consolidation

Eligibility disclosures are calculated based on the MSEHSE Group's prudential scope of consolidation as at 31 December 2022.

Assets in scope of Taxonomy-eligibility ratio denominator

The denominator for the Taxonomy-eligibility ratio is total on-balance sheet exposures less exposures to sovereigns, central banks and held for trading instruments. The denominator is referred to as "covered assets".

Assets in scope of Taxonomy-eligibility ratio numerator

The numerator includes on-balance sheet exposures covering loans and advances, debt securities and equity instruments not held for trading.

Other assets are excluded from the Taxonomy and therefore cannot be assessed for eligibility and are excluded from the numerator. In addition, the numerator is restricted to exposures to companies within the scope of the NFRD, certain household exposures and specific local government financing. As at

31 December 2022, MSEHSE Group had no household exposures or local government financing.

Taxonomy-eligible economic activities

Taxonomy-eligible economic activities are those activities which can be assessed in future disclosures as either environmentally sustainable or not. Eligibility related disclosures are based on actual information publicly disclosed by the counterparty.

Article 8 of the Taxonomy Regulation permits additional voluntary disclosures, where estimates of Taxonomy-eligibility are based on proxies when no eligibility information is publicly available from the counterparty. MSEHSE Group has elected not to provide these additional disclosures.

Data limitations

Availability of required external data is expected to expand in future years as more companies are required to adopt the Taxonomy disclosures. This shall enhance the Group's own subsequent Taxonomy reporting. As a result of data limitations, it has not been possible to assess all scoping criteria for determining the NFRD status of all counterparties. Public disclosures of the counterparties were reviewed to establish whether the entity was subject to the NFRD and Taxonomy eligibility data was used where available. In addition, the Taxonomy-eligibility ratio has been calculated using a sample-based review of the largest counterparties by amount of exposure.

Business strategy

Morgan Stanley Group partners with clients and stakeholders to mobilise capital at scale to tackle sustainability challenges and embed ESG considerations in business processes (as set out above under "Accelerating the adoption of sustainable investing and finance", "Managing ESG risks" and "Climate change" sections). The MSEHSE Group will continue to consider the incorporation of the Taxonomy into business strategy, internal processes and client engagement as reported data improves and client needs evolve.

Mandatory Taxonomy Eligibility Disclosure

Taxonomy-eligible assets as a percentage of covered assets are 1%.

As outlined above, only those covered assets which face counterparties that are in scope for NFRD themselves can be assessed for eligibility and included in the numerator, but all covered assets are included in the denominator. For MSEHSE Group the covered assets excluded from the numerator primarily face financial corporations outside the EU (largely other Morgan Stanley Group entities in the UK) and are therefore not currently in scope of NFRD reporting as implemented in the EU. In addition, 46% of MSEHSE's total assets are held for trading and are therefore currently not reflected in the eligibility ratio, even where the counterparty is within the scope of NFRD.

Mandatory disclosure of Taxonomy-eligible activities in accordance with Article 8 of the Taxonomy Regulation as at 31 December 2022

	Gross carrying amount	Of which assets Taxonomy eligible		Of which assets Taxonomy non-eligible		% Ratio on total assets
	€ million	€ million	% Ratio on total covered assets	€ million	% Ratio on total covered assets	
Potentially eligible assets	3,735	421	1%	3,314	8%	
Financial assets excluding held for trading						
Financial Corporations subject to NFRD	3,694	421	1%	3,273	8%	
Non-Financial corporations subject to NFRD	41	–	–	41	–%	
Non-eligible assets	38,311					32%
Financial Corporations not subject to NFRD	37,184					31%
Non-Financial corporations not subject to NFRD	356					–%
On demand interbank loans	602					1%
Cash	4					–%
Other assets	165					–%
Total covered assets	42,046					35%
Trading assets	54,648					46%
Governments, central banks and supranational exposures	22,288					19%
Total Assets	118,982					

Note:

For financial assets measured at amortised cost, the gross carrying amount is the carrying amount before adjusting for any loss allowance

CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Income Statement

**Consolidated Statement of Comprehensive
Income**

**Consolidated Statement of Changes in
Equity**

Consolidated Statement of Financial Position

Consolidated Statement of Cash Flows

**Notes to the Consolidated Financial
Statements**

MORGAN STANLEY EUROPE HOLDING SE

CONSOLIDATED INCOME STATEMENT

Year ended 31 December 2022

€ in millions	Note	2022	2021
Net gains from financial instruments at fair value through profit or loss	4	245	11
Fee and commission income	5	587	674
Other revenue	1	114	6
Total non-interest revenues		946	691
Interest income	6	198	(108)
Interest expense	6	(197)	103
Net interest income/(expense)		1	(5)
Net revenues		947	686
Non-interest expense:			
Operating expense	7	(706)	(490)
Net impairment loss on financial instruments		(5)	(1)
PROFIT BEFORE TAX		236	195
Income tax expense	8	(94)	(54)
PROFIT FOR THE YEAR		142	141

All operations were continuing in the current and prior year.

The notes on pages 55 to 114 form an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
 Year ended 31 December 2022

€ in millions	Note	2022	2021
PROFIT FOR THE YEAR		142	141
OTHER COMPREHENSIVE INCOME, NET OF TAX			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of net defined benefit liability	8	31	2
Items that may be reclassified subsequently to profit or loss:			
Currency translation reserve:			
Foreign currency translation differences arising on foreign operations	8	(2)	–
OTHER COMPREHENSIVE INCOME AFTER TAX		29	2
TOTAL COMPREHENSIVE INCOME FOR THE YEAR ATTRIBUTABLE TO OWNER OF THE COMPANY		171	143

The notes on pages 55 to 114 form an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
 Year ended 31 December 2022

€ in millions	Note	Equity instruments	Capital contribution reserve	Currency translation reserve	Pension reserve	Debt valuation adjustment reserve	Retained earnings	Total equity
Balance at 1 January 2021	19	600	2,929	1	(24)	1	10	3,517
Profit for the year		–	–	–	–	–	141	141
Other comprehensive income for the period:								
Remeasurement of defined benefit liability	8	–	–	–	2	–	–	2
Total comprehensive income		–	–	–	2	–	141	143
Reclassification of debt valuation adjustment reserve to retained earnings		–	–	–	–	(1)	1	–
Transactions with owners:								
Capital contribution		–	450	–	–	–	–	450
Transfer of subsidiaries		–	92	–	–	–	–	92
Transfer of activities		–	–	–	–	–	10	10
Issue of share capital	19	200	–	–	–	–	–	200
Coupons on Additional Tier 1 capital	19	–	–	–	–	–	(31)	(31)
Balance at 31 December 2021		800	3,471	1	(22)	–	131	4,381
Profit for the year		–	–	–	–	–	142	142
Other comprehensive income for the period:								
Remeasurement of defined benefit liability	8	–	–	–	31	–	–	31
Foreign currency translation differences arising on foreign operations	8	–	–	(2)	–	–	–	(2)
Total comprehensive income		–	–	(2)	31	–	142	171
Transactions with owners:								
Issue of share capital	19	1,450	–	–	–	–	–	1,450
Conversion of capital contribution reserve to share capital	19	3,000	(3,000)	–	–	–	–	–
Issue of Additional Tier 1 capital	19	400	–	–	–	–	–	400
Coupons on Additional Tier 1 capital	19	–	–	–	–	–	(41)	(41)
Balance at 31 December 2022		5,650	471	(1)	9	–	232	6,361

The total equity as of 31 December 2022 and 31 December 2021 is attributable to the owner of the Company.

The notes on pages 55 to 114 form an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

As at 31 December 2022

€ in millions	Note	31 December 2022	31 December 2021
ASSETS			
Cash and short-term deposits	20	16,125	8,328
Trading financial assets (of which €1,372 million (2021: €1,158 million) were pledged to various parties)	10	58,821	32,379
Secured financing	9	18,267	12,335
Loans and advances	9	107	17
Trade and other receivables	12	25,474	16,193
Current tax assets		44	6
Deferred tax assets	18	40	60
Property, plant and equipment		98	89
Other assets		1	4
TOTAL ASSETS		118,977	69,411
LIABILITIES AND EQUITY			
LIABILITIES			
Bank loans and overdrafts	20	7,632	102
Trading financial liabilities	10	61,051	31,519
Secured borrowing	9	18,446	9,748
Trade and other payables	15	21,166	20,547
Debt and other borrowings	16	4,125	2,873
Provisions	17	9	6
Current tax liabilities		51	58
Deferred tax liabilities	18	1	1
Other liabilities		115	110
Post employment benefit obligations	30	20	66
TOTAL LIABILITIES		112,616	65,030
EQUITY			
Share capital	19	4,650	200
Other equity instruments	19	1,000	600
Capital contribution reserve	19	471	3,471
Currency translation reserve	19	(1)	1
Pension reserve	19	9	(22)
Retained earnings		232	131
Equity attributable to the owner of the Company		6,361	4,381
TOTAL EQUITY		6,361	4,381
TOTAL LIABILITIES AND EQUITY		118,977	69,411
Contingencies and Commitments			
Contingent liabilities	17	7	36
Commitments	17	13,649	8,530

The notes on pages 55 to 114 form an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

Year ended 31 December 2022

€ in millions	Note	2022	2021
NET CASH USED IN OPERATING ACTIVITIES	20b	(2,598)	(333)
INVESTING ACTIVITIES			
Purchase of property, plant and equipment		(5)	(5)
Transfer of activities	1	90	13
Acquisition of subsidiaries		–	110
NET CASH FLOWS FROM INVESTING ACTIVITIES		85	118
FINANCING ACTIVITIES			
Issue of ordinary share capital	19	1,450	–
Capital contribution	19	–	450
Additional Tier 1 capital	19	400	–
Coupons on Additional Tier 1 capital	19	(41)	(31)
Payment of principal portion of lease liabilities	20c	(10)	(6)
Issue of senior subordinated loan liabilities	16	1,000	1,500
Interest on senior subordinated loan liabilities		(25)	–
Interest on subordinated loan liabilities		(13)	(11)
NET CASH FLOWS FROM FINANCING ACTIVITIES		2,761	1,902
NET INCREASE IN CASH AND CASH EQUIVALENTS		248	1,687
Foreign currency translation differences on cash and short-term deposits		19	12
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	20a	8,226	6,527
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	20a	8,493	8,226

The notes on pages 55 to 114 form an integral part of the consolidated financial statements.

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1. Corporate Information

Morgan Stanley Europe Holding SE (the “Company” or “MSEHSE”) is incorporated and domiciled in Germany, at the following address: Grosse Gallusstrasse 18, 60312 Frankfurt am Main. The registered number of the Company in the Commercial register of the local court in Frankfurt am Main is HRB 109678.

The Company’s wholly owned direct and indirect subsidiaries are as follows:

- Morgan Stanley Europe SE, Frankfurt am Main, (“MSESE”),
- Morgan Stanley Bank AG, Frankfurt am Main, (“MSBAG”),
- Morgan Stanley France Holdings I S.A.S., Paris, (“MSFH I”),
- Morgan Stanley France Holdings II S.A.S., Paris, (“MSFH II”),
- Morgan Stanley France S.A., Paris, (“MSF”).

The Company together with its subsidiaries form the Morgan Stanley Europe Holding SE Group (the “Group”, or the “MSEHSE Group”). The Company is a financial holding company, which coordinates the strategy and financial resources for its subsidiaries.

The principal activity of MSESE is the provision of financial services to a client base mainly in the European Economic Area (“EEA”) consisting of corporations, governments, and financial institutions. MSESE operates branch offices in Denmark, France, Italy, the Netherlands, Poland, Spain, and Sweden.

On 1 September 2022, MSESE, which was previously an investment firm, was granted a formal authorisation as a CRR credit institution (Class 1 Investment Firm).

MSBAG is closely integrated into the Morgan Stanley Group’s Euro liquidity management, operates a lending business and acts as a securities settlement service provider for the MSEHSE Group. MSBAG also has a representative office in Italy.

MSF is an investment firm that provides financial services to a client base primarily in France. MSFH I, an investment holding company and MSFH II, a holding company, are immediate parent undertakings of MSF.

Further information on the Company and its subsidiaries are set forth in the “Business Model” section of the Group Management Report.

The Company’s immediate parent undertaking is Morgan Stanley International Limited, London, United Kingdom, (“MSI”) which is registered in England and Wales. Copies of its financial statements can be obtained from the Registrar of Companies for England and Wales, Companies House, Crown Way, Cardiff CF14 3UZ.

The Company’s ultimate parent undertaking and controlling entity is Morgan Stanley, which together with the Company and Morgan Stanley’s other subsidiary undertakings, form the Morgan Stanley Group. Morgan Stanley is incorporated in the State of Delaware, in the United States of America (“U.S.”). Copies of its financial statements can be obtained from www.morganstanley.com/investorrelations.

Transfer of business

On 1 December 2022, the Real Assets business unit of MSESE and MSF was transferred to MSIM Fund Management (Ireland) Limited, Dublin, Republic of Ireland (“MSIM FMIL”), a subsidiary of MSI. This involved the transfer of 26 employees. The Group received €90 million consideration, for the sale of the business unit to MSIM FMIL, in the form of cash. As a result, the Group recognised a gain of €90 million. This is included in the consolidated income statement within “Other revenue”. Furthermore, the Group recognised a tax expense of €26 million (net gain of €64 million).

Capital actions

During the year, the Group has undertaken capital actions to further strengthen its regulatory capital.

The Group issued €600 million and €850 million of Common Equity Tier 1 (“CET1”) capital to MSI on 4 April 2022 and 30 November 2022, respectively. Details of the capital actions during the year are shown in note 19.

The Group also issued €400 million of Additional Tier 1 ("AT1") capital to Morgan Stanley on 12 April 2022. Details of the terms of the instruments and the coupons paid are shown in note 19.

In addition, the Group converted €3,000 million of capital contribution reserves into ordinary shares on 16 September 2022.

Furthermore, during the year the Group has issued two tranches of senior subordinated debt instruments of €500 million each on 28 July 2022 and 14 September 2022. Details of the terms of the subordinated debt instruments are included in note 16.

2. Basis of Preparation

Statement of compliance

MSEHSE has prepared its consolidated financial statements in accordance with International Financial Reporting Standards ("IFRSs") issued by the International Accounting Standards Board ("IASB") as adopted by the EU, Interpretations issued by the IFRS Interpretations Committee ("IFRIC") and the additional requirements of German commercial law pursuant to Article 315e (1) of the German Commercial Code (Handelsgesetzbuch, or "HGB").

Disclosures about the nature and extent of exposure to risks arising from financial instruments as required by IFRS 7, *Financial Instruments: Disclosures* are set forth in note 22 and the "Risk Report" section of the Group Management Report and are an integral part of the consolidated financial statements.

Disclosures relating to management of capital as required by IAS 1, *Presentation of Financial Statements* are included in the "Business Model" section of the Group Management Report and form an integral part of the consolidated financial statements.

New standards and interpretations adopted during the year

The following amendments to standards relevant to the Group's operations were adopted during the year. Except where otherwise stated, these amendments to standards did not have a material impact on the Group's consolidated financial statements.

Amendments to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* ('IAS 37'): Onerous Contracts – Cost of Fulfilling a Contract were issued by the IASB in May 2020, for modified retrospective application in accounting periods beginning on or after 1 January 2022. The amendments were endorsed by the EU in July 2021.

As part of the 2018-2020 Annual Improvements Cycle published in May 2020, the IASB made an amendment to IFRS 9 *Financial Instruments*, relating to the treatment of fees in the assessment of whether financial liabilities are modified or exchanged, where such transactions occur on or after 1 January 2022. The amendments were endorsed by the EU in July 2021.

There were no other standards, amendments to standards or interpretations relevant to the Group's operations which were adopted during the year.

New standards and interpretations not yet adopted

At the date of authorisation of these consolidated financial statements, the following amendments to standards relevant to the Group's operations were issued by the IASB but not mandatory for accounting periods beginning 1 January 2022. The Group does not expect that the adoption of the following amendments to standards will have a material impact on the Group's consolidated financial statements.

Amendments to IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*: Definition of Accounting Estimates were issued by the IASB in February 2021, for prospective application in accounting periods beginning on or after 1 January 2023. Early application is permitted. The amendments were endorsed by the EU in March 2022.

Amendments to IAS 1 *Presentation of Financial Statements*: Disclosure of Accounting Policies were issued by the IASB in February 2021, for prospective application in accounting periods beginning on or after 1 January 2023. Early application is permitted. The amendments were endorsed by the EU in March 2022.

Amendments to IAS 12 *Income Taxes*: Deferred Tax related to Assets and Liabilities arising from a Single Transaction were issued by the IASB in May 2021, for retrospective

application in accounting periods beginning on or after 1 January 2023. Early application is permitted. The amendments were endorsed by the EU in August 2022.

Basis of measurement

The consolidated financial statements of the Group are prepared under the historical cost basis, except for certain financial instruments that have been measured at fair value as explained in note 3 “Summary of significant accounting policies”.

Critical accounting judgements and key sources of estimation uncertainty

In preparing the consolidated financial statements, the Group makes judgements and estimates that affect the application of accounting policies and reported amounts.

Critical accounting judgements are key decisions made by management in the application of the Group’s accounting policies, other than those involving estimations, which have the most significant effects on the amounts recognised in the consolidated financial statements.

Key sources of estimation uncertainty represent assumptions and estimations made by management that can result in a material adjustment to the carrying amount of assets and liabilities within the next financial year.

The Group’s key sources of estimation uncertainty are as follows:

- *Recognition and measurement of deferred tax balances:* assumptions and estimations are used as to whether there will be sufficient taxable profits in future years to recognise deferred tax assets. See accounting policy note 3(j) and note 8.
- *Valuation of Level 3 financial instruments:* Valuation techniques used to measure the fair value of instruments categorised in Level 3 of the fair value hierarchy are dependent on unobservable parameters, and as such require the application of judgement, involving estimations and assumptions. The fair value for these financial instruments has been determined using parameters appropriate for the valuation methodology based on

prevailing market evidence. It is recognised that the unobservable market parameters could have a range of reasonable possible alternate values. See accounting policy note 3(d) and note 26(d)(ii) ‘Sensitivity of fair values to changing significant assumptions to reasonable possible alternatives’.

No critical accounting judgements have been made in the process of applying the Group’s accounting policies that have had a significant effect on the amounts recognised in the consolidated financial statements.

The Group evaluates the critical accounting judgements and key sources of estimation uncertainty on an ongoing basis and believes that these are reasonable.

Basis of consolidation

The consolidated financial statements of the Group comprise the financial statements of the Company and its subsidiaries as at 31 December 2022. Subsidiaries are entities over which the Group has direct or indirect control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements for the subsidiaries are prepared for the same reporting year as the Group (from 1 January 2022 to 31 December 2022), using consistent accounting policies. Subsidiaries are consolidated from the date that the Group gains control until the date that control ceases.

Intra-group balances, transactions, income and expenses and profits and losses resulting from intra-group transactions are eliminated in preparing the consolidated financial statements.

Details of the Group’s interests in subsidiaries are given in note 13 to these consolidated financial statements.

The going concern assumption

The Group’s business activities, together with the factors likely to affect its future development, performance and position, and the Group’s objectives, policies and processes for managing its capital; its financial risk management; and its exposures to credit risk and liquidity risk, are reflected in the Group Management Report on pages 3 to 47. As set out in the Group Management Report, retaining sufficient liquidity

and capital remains central to the Morgan Stanley Group's and the MSEHSE Group's strategy.

Taking these factors into consideration, the Management Board believes that the Group will have access to adequate resources to continue in operational existence for the foreseeable future. Accordingly, the Management Board continues to adopt the going concern basis in preparing the consolidated financial statements.

Change in presentation

The Group has updated the income statement presentation for gains and losses arising on financial instruments measured at fair value through profit and loss ("FVPL"), such that these are now presented in the 'Net gains from financial instruments at fair value through profit or loss' income statement line. In prior reporting periods, this information was presented across two income statement lines: 'Net income from other financial instruments held at fair value' and 'Net trading income', both of which are now included in note 4. This presentation is more closely aligned to the way that the business is managed and therefore provides more relevant information. The comparative period has also been re-presented.

3. Summary of Significant Accounting Policies

a. Functional currency

Items included in the consolidated financial statements are measured and presented in Euros, the currency of the primary economic environment in which the Group operates.

All currency amounts in the consolidated financial statements and the Group Management Report are rounded to the nearest million Euros (unless otherwise stated).

b. Foreign currencies

All monetary assets and liabilities denominated in currencies other than Euros are translated into Euros at the rates ruling at the reporting date. Transactions and non-monetary assets and liabilities denominated in currencies other than Euros are recorded at the rates prevailing

at the dates of the transactions. Assets and liabilities of foreign operations outside of the Eurozone are translated into Euros using the closing rate method. Translation differences arising from the net investments in foreign operations outside of the Eurozone are taken to the 'Currency translation reserve'. All other translation differences are taken through the consolidated income statement. Exchange differences recognised in the consolidated income statement are presented in 'Other revenue' or 'Operating expense', except where noted in note 3(c) below.

c. Financial instruments

Financial instruments mandatorily at fair value through profit or loss

Trading financial instruments

Trading financial instruments include government debt securities, corporate and other debt as well as corporate equities where the Group acquires the financial asset or financial liability for the purpose of selling or repurchasing in the near term or is part of a portfolio for which there is evidence of a recent actual pattern of short-term profit taking, and all derivative contracts. Guarantees received or provided in respect of derivative contracts are accounted for also as derivative contracts.

Purchases and sales of non-derivative financial instruments classified as trading are initially recognised on settlement date at fair value, including regular way securities transactions. For purchases of non-derivative financial instruments classified as trading, from the date that the terms are agreed (trade date) until the settlement date, the Group recognises any unrealised fair value changes in the consolidated statement of financial position as 'Trading financial instruments' with corresponding profit or loss recognised within the consolidated income statement in 'Net gains from financial instruments at fair value through profit or loss'. Upon settlement date the sales of non-derivative financial instruments are recognised or derecognised from the consolidated statement of financial position.

All subsequent changes in fair value and foreign exchange differences are reflected in the consolidated income statement in 'Net gains from financial instruments at fair value through profit or loss'.

Derivatives are initially recorded on trade date at fair value (see note 3(d) below). All subsequent changes in fair value are reflected in the consolidated income statement in 'Net gains from financial instruments at fair value through profit or loss'.

Transaction costs are incremental costs that are directly attributable to the acquisition, issue or disposal of a financial instrument. For all trading financial instruments, transaction costs are excluded from the initial fair value measurement of the financial instrument. These costs are recognised in the consolidated income statement in 'Operating expense'.

Non-trading financial assets at fair value through profit or loss

Non-trading financial assets at FVPL include secured financing transactions such as cash collateral on securities borrowed and securities purchased under agreements to resell, prepaid over-the-counter ("OTC") contracts and other financial assets.

Non-trading financial assets at FVPL are principally non-derivative financial assets where the Group makes decisions based upon the assets' fair values. These assets are generally recognised on settlement date at fair value (see note 3(d) below). From the date the terms are agreed (trade date), until the financial asset is settled (settlement date), the Group recognises any unrealised fair value changes in the financial asset as non-trading financial assets at FVPL. On settlement date, the fair value of consideration given is recognised as a non-trading financial asset at FVPL.

All subsequent changes in fair value and foreign exchange differences are reflected in the consolidated income statement in 'Net gains from financial instruments at fair value through profit or loss'. For these instruments, interest is included within 'Interest income' or 'Interest expense'.

Transaction costs are excluded from the initial fair value measurement of the financial assets and are recognised in the consolidated income statement in 'Operating expense'.

Financial liabilities designated at fair value through profit or loss

Financial liabilities designated at FVPL include prepaid OTC contracts, cash collateral on securities loaned and securities sold under agreements to repurchase and other financial liabilities.

The Group has designated certain financial liabilities at FVPL when the designation at fair value eliminates or significantly reduces an accounting mismatch which would otherwise arise. The Group has also designated certain financial liabilities at FVPL where:

- the financial liability forms part of a group of financial assets or financial liabilities or both which are managed, evaluated and reported internally on a fair value basis; or
- the financial liability contains an embedded derivative that significantly modifies the cash flows that would otherwise be required under the contract.

From the date the transaction in a financial liability designated at FVPL is entered into (trade date) until settlement date, the Group recognises any unrealised fair value changes as a financial liability designated at FVPL in the consolidated statement of financial position. On settlement date, the fair value of consideration received is recognised as a financial liability designated at FVPL (see note 3(d) below).

All subsequent changes in fair value, foreign exchange differences and dividends are reflected in the consolidated income statement in 'Net gains from financial instruments at fair value through profit or loss' other than Debt Valuation Adjustment ("DVA") on financial liabilities designated at FVPL which is recognised in other comprehensive income after tax where those changes do not create or enlarge an accounting mismatch. For these instruments, interest is included within 'Interest income' or 'Interest expense'.

DVA presented within other comprehensive income is not subject to reclassification to the consolidated income statement, but is transferred to 'Retained earnings' when realised.

Transaction costs are excluded from the initial fair value measurement of the financial instrument. These costs are recognised as

incurred in the consolidated income statement in 'Operating expense'.

See note 9 for an analysis of financial liabilities designated at FVPL.

Financial assets and financial liabilities at amortised cost

Financial assets at amortised cost include cash and short-term deposits, loans and advances and trade and other receivables.

Financial assets are recognised at amortised cost when the Group's business model objective is to collect the contractual cash flows of the assets and where these cash flows are Solely Payments of Principal and Interest ("SPPI") on the principal amount outstanding until maturity. Such assets are recognised when the Group becomes a party to the contractual provisions of the instrument. The instruments are initially measured at fair value (see note 3(d) below) and subsequently measured at amortised cost less expected credit losses ("ECL") allowance. Interest is recognised in the consolidated income statement in 'Interest income', using the effective interest rate ("EIR") method as described below. Transaction costs that are directly attributable to the acquisition of the financial asset are added to the fair value on initial recognition. ECL, and reversals thereof, are recognised in the consolidated income statement in 'Net impairment loss on financial instruments'.

Financial liabilities classified at amortised cost include bank loans and overdrafts, certain secured borrowings, certain trade and other payables, and certain debt and other borrowings.

Financial liabilities are classified as being subsequently measured at amortised cost, except where they are held for trading or are designated as measured at FVPL. They are recognised when the Group becomes a party to the contractual provisions of the instrument, are initially measured at fair value (see note 3(d) below) and subsequently measured at amortised cost. Interest is recognised in the consolidated income statement in 'Interest expense' using the EIR method as described below. Transaction costs that are directly attributable to the issue of a financial liability are deducted from the fair value on initial recognition.

The EIR method is a method of calculating the amortised cost of a financial instrument (or a group of financial instruments) and of allocating the interest income or interest expense over the expected life of the financial instrument. The EIR is the rate that exactly discounts the estimated future cash payments and receipts through the expected life of the financial instrument (or, where appropriate, a shorter period) to the carrying amount of the financial instrument. The EIR is established on initial recognition of the financial instrument. The calculation of the EIR includes all fees and commissions paid or received, transaction costs, and discounts or premiums.

Secured financing and secured borrowings

In the course of financing its business, the Group enters into arrangements which involve the sale of securities with agreements to repurchase, the purchase of securities with resale agreements, the lending of securities with collateral received and the borrowing of securities with collateral given.

Securities received by the Group under resale arrangements and securities borrowing arrangements are generally not recognised on the consolidated statement of financial position. Where cash collateralised, the resulting cash collateral receivable and accrued interest arising under resale agreements and securities borrowing arrangements are classified as 'Non-trading at FVPL' as they are managed on a fair value basis.

Securities pledged or sold by the Group under sale and repurchase agreements and securities lending arrangements are generally not derecognised from the consolidated statement of financial position. Where cash collateralised, the resulting cash collateral balances repayable and accrued interest are designated at FVPL where the financial liability forms part of a group of financial assets or financial liabilities or both, which are managed, evaluated and reported internally on a fair value basis; or at amortised cost if not so designated.

d. Fair value

Fair value measurement

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e. the “exit price”) in an orderly transaction between market participants at the measurement date.

Fair value is a market-based measure considered from the perspective of a market participant rather than an entity-specific measure. Therefore, even when market assumptions are not readily available, assumptions are set to reflect those that the Group believes market participants would use in pricing the asset or liability at the measurement date.

Where the Group manages a group of financial assets and financial liabilities on the basis of its net exposure to either market risk or credit risk, the Group measures the fair value of that group of financial instruments consistently with how market participants would price the net risk exposure at the measurement date.

In determining fair value, the Group uses various valuation approaches and establishes a hierarchy for inputs used in measuring fair value that requires the most observable inputs be used when available.

Observable inputs are inputs that market participants would use in pricing the asset or liability that were developed based on market data obtained from sources independent of the Group. Unobservable inputs are inputs that reflect assumptions the Group believes other market participants would use in pricing the asset or liability, that are developed based on the best information available in the circumstances.

The fair value hierarchy is broken down into three levels based on the observability of inputs as follows, with Level 1 being the highest and Level 3 being the lowest level:

- Level 1 - Quoted prices (unadjusted) in an active market for identical assets or liabilities

Valuations are based on quoted prices in active markets that the Morgan Stanley Group has the ability to access for identical assets or liabilities. Valuation adjustments and block discounts are not applied to Level 1

instruments. Since valuations are based on quoted prices that are readily and regularly available in an active market, valuation of these products does not entail a significant degree of judgement.

- Level 2 - Valuation techniques using observable inputs

Valuations based on one or more quoted prices in markets that are not active or for which all significant inputs are observable, either directly or indirectly.

- Level 3 - Valuation techniques with significant unobservable inputs

Valuations based on inputs that are unobservable and significant to the overall fair value measurement.

The availability of observable inputs can vary from product to product and is affected by a wide variety of factors, including the type of product, whether the product is new and not yet established in the marketplace, the liquidity of markets and other characteristics particular to the product. To the extent that a valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgement. Accordingly, the degree of judgement exercised by the Group in determining fair value is greatest for instruments categorised in Level 3 of the fair value hierarchy.

The Group considers prices and inputs that are current as of the measurement date, including during periods of market dislocation. In periods of market dislocation, the observability of prices and inputs may be reduced for many instruments. This condition could cause an instrument to be reclassified from Level 1 to Level 2 or from Level 2 to Level 3 of the fair value hierarchy.

In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the total fair value amount is disclosed in the level appropriate for the lowest level input that is significant to the total fair value of the asset or liability.

The Group incorporates Funding Valuation Adjustment (“FVA”) into the fair value measurements of OTC uncollateralised or partially collateralised derivatives and in

collateralised derivatives where the terms of the agreement do not permit the re-use of the collateral received. In general, the FVA reflects a market funding risk premium inherent in the noted derivative instruments. The methodology for measuring FVA leverages the Group's existing credit-related valuation adjustment calculation methodologies, which apply to both assets and liabilities.

For assets and liabilities that are transferred between levels in the fair value hierarchy during the period, fair values are ascribed as if the assets or liabilities had been transferred as of the beginning of the period.

Valuation techniques

Many cash instruments and OTC derivative contracts have bid and ask prices that can be observed in the marketplace. Bid prices reflect the highest price that a party is willing to pay for an asset. Ask prices represent the lowest price that a party is willing to accept for an asset. The Group carries positions at the point within the bid-ask range that meets its best estimate of fair value. For offsetting positions in the same financial instrument, the same price within the bid-ask spread is used to measure both the long and short positions.

Fair value for many cash instruments and OTC derivative contracts is derived using pricing models. Pricing models take into account the contract terms, as well as multiple inputs including, where applicable, commodity prices, equity prices, interest rate yield curves, credit curves, correlation, creditworthiness of the counterparty, creditworthiness of the Group, option volatility and currency rates.

Where appropriate, valuation adjustments are made to account for various factors such as liquidity risk (bid-ask adjustments), credit quality, model uncertainty and concentration risk and funding in order to arrive at fair value.

Adjustments for liquidity risk adjust model-derived mid-market amounts of Level 2 and Level 3 financial instruments for the bid-mid or mid-ask spread required to properly reflect the exit price of a risk position. Bid-mid and mid-ask spreads are marked to levels observed in trade activity, broker quotes or other external third-party data. Where these spreads are unobservable for the particular position in question, spreads are derived from observable levels of similar positions.

The Group applies credit-related valuation adjustments to its Borrowings which are designated at FVPL and to OTC derivatives. The Group considers the impact of changes in own credit spreads based upon observations of the secondary bond market spreads when measuring the fair value for Borrowings.

For OTC derivatives, the impact of changes in both the Group's and the counterparty's credit rating is considered when measuring fair value. In determining the expected exposure the Group simulates the distribution of the future exposure to a counterparty, then applies market-based default probabilities to the future exposure, leveraging external third-party credit default swap ("CDS") spread data. Where CDS spread data is unavailable for a specific counterparty, bond market spreads, CDS spread data based on the counterparty's credit rating or CDS spread data that references a comparable counterparty may be utilised. The Group also considers collateral held and legally enforceable master netting agreements that mitigate its exposure to each counterparty.

Adjustments for model uncertainty are taken for positions whose underlying models are reliant on significant inputs that are neither directly nor indirectly observable, hence requiring reliance on established theoretical concepts in their derivation. These adjustments are derived by making assessments of the possible degree of variability using statistical approaches and market-based information where possible.

The Group may apply concentration adjustments to certain of its OTC derivative portfolios to reflect the additional cost of closing out a particularly large risk exposure. Where possible, these adjustments are based on observable market information but in many instances significant judgement is required to estimate the costs of closing out concentrated risk exposures due to the lack of liquidity in the marketplace.

Valuation process

Valuation Control ("VC") within Finance is responsible for ensuring that the inventory carried at fair value in the Group's financial statements and associated disclosures is presented in accordance with applicable accounting standards. VC is independent of the business units and reports to the Chief Financial Officer of the Group, who has final authority over the valuation of the inventory. VC implements

valuation control processes designed to validate the fair value of the Group's financial instruments measured at fair value including those derived from pricing models.

Model Control

VC, in conjunction with the Model Risk Management ("MRM") department, which reports to the Chief Risk Officer of the Group, independently reviews valuation models. VC is responsible for reviewing that the model valuation methodology is appropriate, model inputs and valuations are consistent with accounting standards and an independent price verification can be performed. The Group generally subjects valuations and models to a review process initially and on a periodic basis thereafter.

Independent Price Verification

The business units are responsible for determining the fair value of financial instruments using approved valuation models and valuation methodologies. Generally on a monthly basis, VC performs an independent review of the valuation in the books and records by determining the appropriateness of the inputs used by the business units and by testing compliance with the documented valuation methodologies approved in the model review process described above. External pricing data used to validate the valuation must meet minimum quality standards set by VC.

The results of this independent price verification and any adjustments made to the fair value generated by the business units are presented to management of the Morgan Stanley Group's three business segments (i.e. Institutional Securities, Wealth Management and Investment Management) and the Management Board of the Group on a regular basis.

VC reviews the models and valuation methodology used to price new material Level 2 and Level 3 transactions and both Finance and MRM must approve the fair value of the trade that is initially recognised.

Gains and losses on inception

In the normal course of business, the fair value of a financial instrument on initial recognition is the transaction price (i.e. the fair value of the consideration given or received). In certain circumstances, however, the fair value will be

based on other observable current market transactions in the same instrument, without modification or repackaging, or on a valuation technique whose variables include only data from observable markets. When such evidence exists, the Group recognises a gain or loss on inception of the transaction.

When the use of unobservable market data has a significant impact on determining the fair value at the inception of the transaction, the entire initial gain or loss indicated by the valuation technique as at the transaction date is not recognised immediately in the consolidated income statement. Instead it is deferred and recognised over the life of the instrument or at the earlier of when the unobservable market data become observable, maturity or disposal of the instrument.

e. Derecognition of financial assets and liabilities

The Group derecognises a financial asset when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset or enters into certain pass through arrangements on the cash flows of the financial asset and substantially all the risk and rewards of ownership of the asset.

If the asset has been transferred, and the Group neither transfers nor retains substantially all of the risks and rewards of the asset, then the Group determines whether it has retained control of the asset.

If the Group has retained control of the asset, it continues to recognise the financial asset to the extent of its continuing involvement in the financial asset. If the Group has not retained control of the asset, it derecognises the asset and separately recognises any rights or obligation created or retained in the transfer.

Upon derecognition of a financial asset, the difference between the previous carrying amount and the sum of any consideration received, together with the transfer of any cumulative gain/(loss) previously recognised in equity, are recognised in the consolidated income statement within 'Net gains/(losses) on derecognition of financial assets measured at amortised cost'.

The Group derecognises financial liabilities when the Group's obligations are discharged or cancelled or when they expire.

f. Impairment of financial instruments

Measurement of ECL

The Group recognises a loss allowance for ECL on financial assets measured at amortised cost, in scope loan commitments and financial guarantees and applies a three stage approach to measuring ECLs based on the change in credit risk since initial recognition.

- Stage 1: if the credit risk of the financial instrument at the reporting date has not increased significantly since initial recognition then the loss allowance is calculated weighted with the probability of default within the next 12 months.
- Stage 2: if there has been a significant increase in credit risk ("SICR") since initial recognition, the loss allowance is calculated as the ECL over the remaining life of the financial instrument. If it is subsequently determined that there has no longer been a SICR since initial recognition, then the loss allowance reverts to reflecting 12 month expected losses.
- Stage 3: if there has been a SICR since initial recognition and the financial instrument is deemed credit-impaired, the loss allowance is calculated as the ECL over the remaining life of the financial instrument. If it is subsequently determined that there has no longer been a SICR since initial recognition, then the loss allowance reverts to reflecting 12 month expected losses.

Notwithstanding the above, for trade receivables a lifetime ECL is always calculated, without considering whether a SICR has occurred.

Assessment of SICR

When assessing SICR, the Group considers both quantitative and qualitative information and analysis. These are based on historical information and conditions expected in the future, which are assessed by credit risk experts

The determination of a SICR is generally based on changes in the probability of default ("PD"), in conjunction with a rebuttable presumption that a SICR has occurred if a financial asset is more than 30 days past due.

Calculation of ECL

ECL is calculated using three main components:

- PD: for accounting purposes, the 12 month and lifetime PD represent the expected point-in-time probability of a default over the next 12 months and over the remaining lifetime of the financial instrument respectively, based on conditions existing at the balance sheet date and future economic conditions.
- Loss given default ("LGD"): the LGD represents expected loss conditional on default, taking into account the mitigating effect of collateral, including the expected value of the collateral when realised and the time value of money.
- Exposure at default ("EAD"): this represents the expected EAD, taking into account the expected repayment of principal and interest from the balance sheet date to the date of default event together with any expected drawdowns of the facility over that period.

These parameters are generally derived from internally developed statistical models, incorporating historical, current and forward-looking macro-economic data and country risk expert judgement. The macro-economic scenarios are reviewed quarterly.

Presentation of ECL

ECL is recognised in the consolidated income statement within 'Net impairment loss on financial instruments'.

g. Revenue recognition

Revenues are recognised when the promised services are delivered to the Group's customers, in an amount that is based on the consideration the Group expects to receive in exchange for those services when such amounts are not probable of significant reversal.

Investment banking

Revenue from investment banking activities consists of revenues earned from underwriting primarily equity and fixed income securities and advisory fees for mergers, acquisitions, restructuring and advisory assignments.

Underwriting revenues are generally recognised on trade date, if there is no uncertainty or

contingency related to the amount to be paid. Underwriting costs are deferred and recognised when the related underwriting revenues are recorded.

Advisory fees are recognised over time based on estimated progress of work as advice is provided to the client and when the revenue is not probable of a significant reversal. Advisory expenses are recognised as incurred, including when reimbursed.

Fee and commission income

Fee and commission income results from transaction-based arrangements in which the client is charged a fee for the execution of transactions. Such revenues primarily arise from services related to sales and trading activities. Fee and commission income is recognised on trade date when the performance obligation is satisfied.

Fee and commission income in the consolidated income statement includes sales commissions, placement fees and advisory fees.

h. Impairment of non-financial assets

Non-financial assets that are subject to depreciation or amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and its value in use. Non-financial assets, other than goodwill, that have suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

i. Cash and cash equivalents

For the purpose of the statement of cash flows, 'Cash and cash equivalents' comprise cash and demand deposits with banks, net of outstanding bank loans and overdrafts, along with highly liquid investments, with original maturities of three months or less, that are readily convertible to known amounts of cash and subject to insignificant risk of change in value. This may include segregated client funds that are not available for use by the Group.

j. Income tax

The income tax expense represents the sum of the tax currently payable and deferred tax.

The tax currently payable is calculated based on taxable profit for the year. Taxable profit may differ from profit/(loss) before taxation as reported in the consolidated income statement because it excludes items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. Taxable profit is also adjusted if it is considered that it is not probable that a taxation authority will accept an uncertain tax treatment. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the reporting date. Current tax is charged or credited in the consolidated income statement, except when it relates to items charged or credited directly to other comprehensive income or equity, in which case the current tax is also recorded within other comprehensive income or equity respectively.

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit, and is accounted for using the balance sheet liability method. Deferred tax liabilities are generally recognised for all taxable temporary differences and deferred tax assets are recognised to the extent that it is probable that sufficient taxable profits will be available in the future against which deductible temporary differences can be utilised.

Deferred tax liabilities are recognised for taxable temporary differences arising on investments in subsidiaries, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at each reporting date and limited to the extent that it is probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax is calculated at the tax rates that are expected to apply in the period when the liability is settled or the asset is realised, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax is charged or credited in the

consolidated income statement, except when it relates to items charged or credited directly to other comprehensive income or equity, in which case the deferred tax is reflected within other comprehensive income or equity, respectively.

Current tax assets are offset against current tax liabilities when there is a legally enforceable right to set off current tax assets against current tax liabilities and the Group intends to settle its current tax assets and current tax liabilities on a net basis or to realise the asset and settle the liability simultaneously. Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the Group intends to settle its current tax assets and current tax liabilities on a net basis.

The income tax effect of distributions are recognised in profit or loss, other comprehensive income or equity dependant on where those past transactions that generated the distributable profits were recognised. The income tax effect of coupons of AT1 capital instruments accounted for as distributions must be recognised in profit or loss.

k. Provisions, contingent liabilities and commitments

Provisions are recognised when the Group has an identified present obligation as a result of a past event, when it is probable that an outflow of resources embodying economic benefits will be required to settle that obligation and when a reliable estimate can be made of the amount of the obligation.

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation, taking into account the risks and uncertainties surrounding the obligation. A provision is measured using the cash flows estimated to settle the present obligation, with its carrying amount reflecting the present value of those cash flows, where the effect of discounting is material.

The expected credit loss allowance on loan commitments and financial guarantees is presented in the consolidated statement of financial position within 'Provisions, contingent liabilities and commitments'.

A contingent liability is a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group or a present obligation that arises from past events but is not recognised because either an outflow of economic benefits is not probable or the amount of the obligation cannot be reliably measured.

A commitment is any legal obligation to potentially make or receive cash payments or transfer cash.

Contingent liabilities and commitments are not recognised in the consolidated financial statements. However, disclosure is made unless the probability of settlement is remote.

Certain loan commitments are recognised in the financial statements in accordance with the accounting policies discussed in note 3(c) *Trading financial instruments* and 3(c) *Non-trading financial assets at fair value through profit or loss*. Otherwise commitments and contingent liabilities are not recognised in the financial statements. Disclosure is made unless the probability of settlement is remote.

l. Offsetting of financial assets and financial liabilities

Where there is a currently legally enforceable right to set off the recognised amounts and an intention to either settle on a net basis or to realise the asset and the liability simultaneously, financial assets and financial liabilities are offset and the net amount is presented on the consolidated statement of financial position. In the absence of such conditions, financial assets and financial liabilities are presented on a gross basis.

m. Employee compensation plans

Equity-settled share-based compensation plans

Morgan Stanley issues awards in the form of restricted stock units ("RSUs") to employees of the Morgan Stanley Group for services rendered to the Group. Awards are equity-settled and the cost of the equity-based transactions with employees is measured based on the fair value of the equity instruments at grant date. The fair value of RSUs is based on the market price of

Morgan Stanley common stock measured as the volume-weighted average price on the grant date ("VWAP"). The fair value of RSUs not entitled to dividends until conversion is measured at VWAP reduced by the present value of dividends expected to be paid on the underlying shares prior to the scheduled conversion date.

Awards generally contain clawback and cancellation provisions. Certain awards also provide Morgan Stanley the discretion to clawback or cancel all or a portion of the award under specified circumstances. Compensation expense for these awards is adjusted for changes in the fair value of Morgan Stanley's common stock until conversion.

The Group recognises compensation cost over the relevant vesting period for each separately vesting portion of the award. An estimation of awards that will be forfeited prior to vesting due to the failure to satisfy service conditions is considered in calculating the total compensation cost to be amortised over the relevant vesting period.

Under Morgan Stanley Group chargeback agreements, the Group pays Morgan Stanley for the procurement of shares. The Group pays Morgan Stanley the grant date fair value and any subsequent movement in fair value up to the time of conversion of the award and delivery of shares to the employees.

Share based compensation expense is recorded within 'Operating expense' in the consolidated income statement (see note 7).

Deferred cash-based compensation plans

Morgan Stanley may award deferred cash-based compensation on behalf of the Group for the benefit of employees, providing a return to the participating employees based upon the performance of various referenced investments. Compensation expense for deferred cash-based compensation awards is calculated based on the notional value of the award granted, adjusted for changes in the fair value of the referenced investments that employees select.

The Group recognises compensation cost over the relevant vesting period for each separately vesting portion of the deferred award. Forfeitures due to failure to satisfy service conditions are accounted for as they occur.

Deferred cash-based compensation expense is recorded within 'Operating expense' in the consolidated income statement. The liability for the awards is measured at fair value and is included within 'Other liabilities' in the consolidated statement of financial position.

Prior to 1 March 2022 the Group entered into a variety of derivative contracts with other Morgan Stanley Group undertakings to economically hedge the exposure created by these deferred compensation plans. The derivatives were recognised within 'Trading financial instruments' in the consolidated statement of financial position and the related gains and losses are recorded within 'Net gains from financial instruments at fair value through profit or loss' in the consolidated income statement. These derivative contracts were terminated during the year.

n. Post-employment benefits

The Group operates defined contribution and defined benefit post-employment plans.

Contributions due in relation to the Group's defined contribution post-employment plans are recognised in 'Operating expense' in the consolidated income statement when payable.

Obligations of the Group's defined benefit post-employment plans are measured on an actuarial basis in accordance with the advice of an independent qualified actuary using the projected unit credit method and discounted using a high quality corporate bond rate.

Insurance policies with third parties are held to fund defined benefit pension obligations. These policies are accounted for as plan assets as the proceeds of the policies are restricted such that they can only be used by the Group to pay employee benefits under the plan and are protected from the Group's other creditors in the event of bankruptcy. Plan assets consisting of insurance contracts are measured at their fair value at the reporting date. A surplus or deficit of plan assets over liabilities is recognised in the consolidated statement of financial position as an asset or a liability respectively. If the fair value of the plan assets is higher than the present value of the defined benefit obligation, the measurement of the resulting defined benefit asset is limited to the asset ceiling. The asset ceiling is the present value of economic benefits that are unconditionally available to the Group in the form of refunds or reductions in future

contributions, and the related adjustment is recognised in other comprehensive income.

The current service cost and any past service costs together with the net interest on the net defined benefit obligation/asset is charged to 'Direct staff costs' within 'Operating expense' in the consolidated income statement. Remeasurements that arise in calculating the Group's net obligation in respect of defined benefit plans are recognised in other comprehensive income, in the period in which they occur.

The Group also participates in a multi-employer defined benefit plan and accounts for this plan as a defined contribution plan in accordance with IAS 19 'Employee Benefits'.

Details of the plans are given in note 30 to these consolidated financial statements.

4. Net Gains from Financial Instruments at Fair Value through Profit or Loss

€ in millions	2022	2021
Assets and liabilities held for trading	243	7
Non-trading financial assets at FVPL:		
Secured financing and others	6	8
Total non-trading financial assets at FVPL	6	8
Financial liabilities designated at FVPL:		
Secured borrowing and others	(4)	(4)
Total financial liabilities designated at FVPL	(4)	(4)
Net gains from financial instruments at fair value through profit or loss	245	11

Non-trading financial assets at FVPL and Financial liabilities designated at FVPL are frequently economically hedged with trading financial instruments. Accordingly, gains or losses arising from Non-trading financial assets at FVPL and Financial liabilities designated at FVPL can be partially offset by gains or losses reported in assets and liabilities held for trading.

5. Fee and Commission Income

€ in millions	2022	2021
Commission income	285	244
Investment banking ⁽¹⁾	257	376
Other fee and commission income	45	54
Total fee and commission income	587	674
<i>Of which, revenue from contracts with customers</i>	<i>288</i>	<i>480</i>

⁽¹⁾ Includes advisory and underwriting revenues

Total fee and commission income is stated after the transfer of revenues totalling €299 million (2021: €194 million) from other Morgan Stanley Group undertakings. These transfers are in accordance with the Morgan Stanley Group Global Transfer Pricing Policy, refer to note 31, and do not relate to revenue from contracts with customers.

6. Interest Income and Interest Expense

The table below presents interest income and expense by accounting classification. Interest income and expense is calculated using the effective interest rate method for financial assets and financial liabilities measured at amortised cost.

€ in millions	2022	2021
Financial assets measured at amortised cost	163	(49)
Non-trading financial assets at FVPL ⁽¹⁾	35	(59)
Total interest income	198	(108)
<i>Of which, negative interest income</i>	<i>(103)</i>	<i>(136)</i>
Financial liabilities measured at amortised cost	208	(61)
Financial liabilities designated at FVPL ⁽¹⁾	(11)	(42)
Total interest expense	197	(103)
<i>Of which, positive interest expense</i>	<i>(175)</i>	<i>(168)</i>

⁽¹⁾ Relates to interest on secured financing and borrowing transactions

The recognition of negative interest income and positive interest expense may result from transactions in certain currencies which may at times have negative interest rates. In addition, 'Interest income' includes fees paid on securities borrowed transactions. 'Interest expense' includes fees received on securities loaned and fees from prime brokerage customers for stock loan transactions incurred to cover customers' short positions.

7. Operating Expense

€ in millions	2022	2021
Direct staff costs	328	226
Management charges from other Morgan Stanley Group undertakings relating to staff costs	42	30
Staff related expense	370	256
Management charges from other Morgan Stanley Group undertakings relating to other services	127	83
Brokerage fees	52	40
Administration and corporate services	22	15
Professional services	17	15
Other taxes	93	63
Auditor's remuneration:		
Fees payable to the Group's auditor and its associates for:		
– Audit services	3	3
– Other confirmation services to the Group	1	1
Other	21	14
Non-staff related expense	336	234
Total operating expense	706	490

The Group employs staff directly and also utilises the services of staff who are employed by other Morgan Stanley Group undertakings.

During the year, 26 employees transferred out of the Group to MSIM FMIL. See note 1 for further information on the transfer of the Real Assets business unit.

The average number of direct employees of the Group in 2022 and 2021 is set out below:

	2022	2021
Institutional Securities	400	265
Investment Management	20	19
Infrastructure and Control	385	308
Total	805	592

Information regarding employee compensation plans is provided in note 29.

8. Income Tax

€ in millions	2022	2021
Current tax		
Current year	88	71
Adjustment in respect of prior years	–	1
Deferred tax		
Origination and reversal of temporary differences	5	(17)
Adjustment in respect of prior years	1	(1)
Income tax expense	94	54

Reconciliation of effective tax rate

The Group's tax rate is sensitive to the geographic mix of profits and tax rates in jurisdictions outside Germany, as well as the non-deductibility of certain expenses for tax purposes. The current year income tax expense is higher than that resulting from applying the average standard rate of corporation tax in Germany for the year of 31.92% (2021: 31.92%). The main differences are as follows:

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€ in millions	2022	2021
Profit before income tax	236	195
Income tax expense using the average standard rate of corporation tax for banking companies in Germany of 31.92%	75	62
Impact on tax of:		
Expenses not deductible for tax purposes	33	6
Tax deductible coupons on AT1 capital instruments	(9)	(8)
Effect of tax rates in foreign jurisdictions	(6)	(6)
Net effect of foreign withholding taxes	–	1
Other	1	(1)
Total income tax expense in the consolidated income statement	94	54

In addition to the amount reflected in the consolidated income statement, the aggregate amount of current and deferred tax relating to each component of other comprehensive income was as follows:

31 December 2022

€ in millions	Before tax	Tax expense	Net of tax
Pension reserve:			
Remeasurement of net defined benefit liability	46	(15)	31
Currency translation reserve:			
Foreign currency translation differences arising on foreign operations	(2)	–	(2)
Other comprehensive income	44	(15)	29

31 December 2021

€ in millions	Before tax	Tax expense	Net of tax
Pension reserve:			
Remeasurement of net defined benefit liability	3	(1)	2
Other comprehensive income	3	(1)	2

9. Financial Assets and Financial Liabilities by Measurement Category

The following table analyses financial assets and financial liabilities presented in the consolidated statement of financial position by IFRS 9 classifications as at 31 December 2022 and 31 December 2021.

31 December 2022

€ in millions	FVPL (mandatorily)	FVPL (designated)	Amortised cost	Total
Cash and short-term deposits	–	–	16,125	16,125
Trading financial assets	58,821	–	–	58,821
Secured financing:				
Cash collateral on securities borrowed	3,642	–	–	3,642
Securities purchased under agreements to resell	13,995	–	–	13,995
Other secured financing	630	–	–	630
Loans and advances	–	–	107	107
Trade and other receivables	1,338	–	24,082	25,420
Total financial assets	78,426	–	40,314	118,740
Bank loans and overdrafts	–	–	7,632	7,632
Trading financial liabilities	61,051	–	–	61,051
Secured borrowings:				
Cash collateral on securities loaned	–	2,251	779	3,030
Securities sold under agreements to repurchase	–	7,768	7,447	15,215
Other financial liabilities	–	201	–	201
Trade and other payables	–	1,348	19,653	21,001
Debt and other borrowings	–	–	4,125	4,125
Total financial liabilities	61,051	11,568	39,636	112,255

31 December 2021

€ in millions	FVPL (mandatorily)	FVPL (designated)	Amortised cost	Total
Cash and short-term deposits	–	–	8,328	8,328
Trading financial assets	32,379	–	–	32,379
Secured financing:				
Cash collateral on securities borrowed	3,808	–	–	3,808
Securities purchased under agreements to resell	7,720	–	–	7,720
Other secured financing	807	–	–	807
Loans and advances	–	–	17	17
Trade and other receivables	100	–	16,044	16,144
Total financial assets	44,814	–	24,389	69,203
Bank loans and overdrafts	–	–	102	102
Trading financial liabilities	31,519	–	–	31,519
Secured borrowings:				
Cash collateral on securities loaned	–	1,737	1,203	2,940
Securities sold under agreements to repurchase	–	1,015	5,178	6,193
Other financial liabilities	–	615	–	615
Trade and other payables	–	100	20,286	20,386
Debt and other borrowings	–	–	2,873	2,873
Total financial liabilities	31,519	3,467	29,642	64,628

Financial liabilities designated at FVPL

The financial liabilities designated at FVPL consist primarily of the following:

Prepaid OTC contracts: The risk on these financial instruments is hedged back-to-back with other Morgan Stanley entities. Prepaid contract liabilities are designated at FVPL as they form part of a group of financial assets and liabilities which are managed, evaluated and reported internally on a fair value basis.

Cash collateral on securities loaned and securities sold under agreements to repurchase: These balances are designated at FVPL where the financial liability forms part of a group of financial assets or financial liabilities or both, which are managed, evaluated and reported internally on a fair value basis; otherwise, they are classified as 'Financial liabilities at amortised cost'.

Other financial liabilities: These include financial liabilities that arise as a result of continuing recognition of certain financial assets and the simultaneous recognition of an associated financial liability.

The financial liabilities arising from continuing recognition are designated at FVPL in order to eliminate or significantly reduce an accounting mismatch which would otherwise arise or, where the financial liabilities form a part of a group of financial assets and financial liabilities which are managed, evaluated and reported internally on a fair value basis.

There were no gains or losses realised as a result of the derecognition of such financial liabilities during the current and prior year. At 31 December 2022 and 31 December 2021, the carrying amount of financial liabilities designated at FVPL was equal to the contractual amount due at maturity.

10. Trading Financial Assets and Liabilities

Trading assets and trading liabilities are summarised as follows:

31 December 2022

€ in millions	Assets	Liabilities
Government debt securities	1,328	1,312
Corporate and other debt	62	24
Corporate equities	4	1
Derivatives (see note 11)	57,427	59,714
	58,821	61,051

31 December 2021

€ in millions	Assets	Liabilities
Government debt securities	1,166	1,909
Corporate and other debt	–	37
Corporate equities	16	35
Derivatives (see note 11)	31,197	29,538
	32,379	31,519

11. Derivatives

Derivatives are summarised as follows:

31 December 2022

€ in millions	Bilateral OTC	Cleared OTC	Exchange-traded derivative contracts	Total
Derivative assets:				
Interest rate contracts	22,563	15,728	–	38,291
Credit contracts	492	63	–	555
Foreign exchange and gold contracts	14,952	–	–	14,952
Equity and other contracts	1,429	–	154	1,583
Commodity contracts	2,046	–	–	2,046
	41,482	15,791	154	57,427
Derivative liabilities:				
Interest rate contracts	20,573	16,406	–	36,979
Credit contracts	513	33	–	546
Foreign exchange and gold contracts	18,536	–	–	18,536
Equity and other contracts	1,455	–	141	1,596
Commodity contracts	2,057	–	–	2,057
	43,134	16,439	141	59,714

31 December 2021

€ in millions	Bilateral OTC	Cleared OTC	Exchange-traded derivative contracts	Total
Derivative assets:				
Interest rate contracts	16,764	2,064	–	18,828
Credit contracts	487	61	–	548
Foreign exchange and gold contracts	7,431	–	–	7,431
Equity and other contracts	1,876	–	1	1,877
Commodity contracts	2,513	–	–	2,513
	29,071	2,125	1	31,197
Derivative liabilities:				
Interest rate contracts	14,988	2,356	–	17,344
Credit contracts	523	22	–	545
Foreign exchange and gold contracts	7,407	–	–	7,407
Equity and other contracts	1,715	–	14	1,729
Commodity contracts	2,513	–	–	2,513
	27,146	2,378	14	29,538

12. Trade and Other Receivables

The following table provides an analysis of trade and other receivables by measurement classification:

€ in millions	31 December 2022	31 December 2021
Trade and other receivables (amortised cost)		
Trade receivables		
Contracts with customers	22	28
Amounts due from other Morgan Stanley Group undertakings	9,217	5,146
Cash collateral paid	12,531	8,790
Less: ECL allowance	(4)	(2)
Total trade receivables	21,766	13,962
Other receivables		
Amounts held at exchanges	2,200	1,993
Amounts due from other Morgan Stanley Group undertakings	106	88
Other amounts receivable	64	50
Total other receivables	2,370	2,131
Total trade and other receivables (amortised cost)	24,136	16,093
Trade and other receivables (FVPL)		
Prepaid OTC contracts	1,338	100
Total	25,474	16,193

13. Investments in Subsidiaries

Composition of the Group

Details of all investments in subsidiaries of the Company at 31 December 2022 and 31 December 2021 are as follows:

Name of Company	Country of incorporation /Principal place of business	Type of shares held	Proportion of shares held by the Group		Proportion of voting rights held by the Group		Nature of business
			2022	2021	2022	2021	
Morgan Stanley Europe SE	Germany	Ordinary	100%	100%	100%	100%	Credit institution ⁽¹⁾
Morgan Stanley Bank AG	Germany	Ordinary	100%	100%	100%	100%	Credit institution
Morgan Stanley France Holdings I S.A.S.	France	Ordinary	100%	100%	100%	100%	Investment holding company
Morgan Stanley France Holdings II S.A.S.	France	Ordinary	100%	100%	100%	100%	Holding company
Morgan Stanley France S.A.	France	Ordinary	100%	100%	100%	100%	Investment firm

⁽¹⁾ A formal authorisation as a credit institution under the CRR was received on 1 September 2022.

All subsidiaries are included in the Group's consolidated financial statements.

14. Interests in Unconsolidated Structured Entities

During the year, the Group entered into transactions with a number of special purpose entities, which are deemed to be structured entities. As at 31 December 2022, the Group did not control the structured entities and therefore did not consolidate them. The Group's interest in the structured entities arose from total return swaps that reference the structured entities. The structured entities are securitisation vehicles whose notes are backed by physical commodity assets.

The Group's maximum exposure to loss is limited to the higher of the notional amounts and carrying values of the total return swaps. The reported exposure does not include the offsetting benefit of hedges. Liabilities issued by structured entities are non-recourse to the Group.

The table below shows the Group's non-consolidated interest as at 31 December 2022:

€ in millions	31 December 2022
Structured entities assets that the Group does not consolidate	1,927
Maximum exposure to loss - Total return swaps	1,338
Carrying value of interests - Total return swaps ⁽¹⁾	1,338

⁽¹⁾ Amounts are recognised in the consolidated statement of financial position in 'Trade and other receivables'.

The Group has not provided financial support to, or otherwise agreed to be responsible for supporting financially, any unconsolidated structured entity.

15. Trade and Other Payables

The following table provides an analysis of trade and other payables by measurement classification:

€ in millions	31 December 2022	31 December 2021
Trade and other payables (amortised cost)		
Trade payables		
Cash collateral received	19,477	20,128
Total trade payables	19,477	20,128
Other payables		
Amounts due to other Morgan Stanley Group undertakings	136	122
Other amounts payable	205	197
Total other payables	341	319
Total trade and other payables (amortised cost)	19,818	20,447
Trade and other payables (designated at FVPL)		
Prepaid OTC contracts	1,348	100
Total	21,166	20,547

16. Debt and Other Borrowings

Debt and other borrowings are summarised as follows:

€ in millions	31 December 2022	31 December 2021
Debt and other borrowings (amortised cost)		
Senior subordinated debt	2,500	1,500
Subordinated debt	1,000	1,000
Other borrowings	625	373
Total	4,125	2,873

Senior subordinated debt instruments that comply with Minimum Requirements for Own funds and Eligible liabilities (“MREL”) and Total Loss Absorbing Capacity (“TLAC”) rules were increased from €1,500 million to €2,500 million in 2022. The increase was executed in two tranches of €500 million on 28 July 2022 and 14 September 2022.

The terms of the senior subordinated debt instruments are shown below:

Counterparty	Morgan Stanley
Maturity	13 months evergreen, and maximum 10 years after issuance dates
Interest Rate	Morgan Stanley Proxy ⁽¹⁾

€ in millions	31 December 2022	31 December 2021
Accrued Interest	0.2	–
Balance	2,500	1,500

⁽¹⁾ Interest rate at which Morgan Stanley is offering loans, in the relevant currency, to members of the Morgan Stanley Group on the issuance date, which counterparties have acknowledged and agreed to apply to any loan, acting on an arm's length basis.

The terms of the subordinated debt instruments are shown below:

Counterparty	MSI
Repayment Date	27 October 2031
Interest Rate	EURIBOR ⁽¹⁾ plus 1.6%

€ in millions	31 December 2022	31 December 2021
Accrued Interest	6	2
Balance	1,000	1,000

⁽¹⁾ European Interbank Offered Rate (“EURIBOR”)

The Group has not defaulted on principal, interest or breached any terms of its subordinated debt or senior subordinated debt during the year or prior year.

17. Provisions, Contingent Liabilities and Commitments

Provisions

Details of provisions of the Group at 31 December 2022 and 31 December 2021 are as follows:

€ in millions	31 December 2022	31 December 2021
Provisions recognised under IAS 37	6	6
Loan commitments issued	3	–
Total	9	6

As at 31 December 2022, the Group had property provisions under IAS 37 of €3 million (2021: €3 million) and litigation provisions of €3 million (2021: €3 million).

Property provisions represent the net present value of expected future costs of reinstating leasehold improvements at the end of the lease term. Lease reinstatement provisions are released when the reinstatement obligations have been fulfilled. The related asset for lease reinstatement provisions is included within ‘Property, plant and equipment’ in the consolidated statement of financial position.

The provisions recognised for litigation under IAS 37 result from employment related litigations.

ECL provisions in the amount of €3 million (2021: €nil) were recognised in respect of the loan commitments issued.

Contingent liabilities arising from litigation matters

In addition to the matter described below, in the normal course of business, entities within the Group may be named, from time to time, as a defendant in various legal actions, including arbitrations, class actions and other litigation, arising in connection with its activities as an affiliate of a global diversified financial institution. Certain of the actual or threatened legal actions may include claims for substantial compensatory and/or punitive damages or claims for indeterminate amounts of damages.

The Group may also be involved, from time to time, in other reviews, investigations and proceedings (both formal and informal) by governmental or other regulatory agencies regarding the business and accounting and operational matters, certain of which may result in adverse judgments, settlements, fines, penalties, injunctions or other relief.

While below any individual proceedings or investigations have been identified where a material loss may be reasonably possible, individually or collectively, there can be no assurance that additional material losses will not be incurred from claims that have not yet been asserted or those where potential losses have not yet been determined to be probable or possible and reasonably estimable.

The Group contests liability and/or the amount of damages as appropriate in each pending matter. Where available information indicates that it is probable a liability had been incurred at the date of the consolidated financial statements and an amount for that loss can reasonably be estimated, the estimated loss is accrued by a charge to income.

In many proceedings and investigations, however, it is inherently difficult to determine whether any loss is probable or even possible or to estimate the amount of any loss. In addition, even where a loss is possible or an exposure to loss exists in excess of the liability already accrued with respect to a previously recognized loss contingency, it is not always possible to reasonably estimate the size of the possible loss or range of loss, particularly for proceedings and investigations where the factual record is being developed or contested or where plaintiffs or government entities seek substantial or indeterminate damages, restitution, disgorge-

ment or penalties. Numerous issues may need to be resolved before a loss or additional loss, or range of loss or additional range of loss, can be reasonably estimated for a proceeding or investigation, including through potentially lengthy discovery and determination of important factual matters, determination of issues related to class certification and the calculation of damages or other relief, and consideration of novel or unsettled legal questions relevant to the proceedings or investigations in question.

For certain other legal proceedings and investigations, reasonably possible losses, additional losses, ranges of loss or ranges of additional loss can be estimated in excess of amounts accrued but the Group does not believe, based on current knowledge and after consultation with counsel, that such losses could have a material adverse effect on the Group's consolidated financial statements as a whole, other than the matter referred to in the following paragraph.

Entities within the Group are responding to requests for information and documents from authorities in Germany related to the period 2006 to 2022, including from the Federal Tax Office, the Düsseldorf Tax Office and the Cologne Public Prosecutor, in relation to certain equities transactions over dividend record dates and related tax matters. The Group is cooperating with the relevant authorities.

Contingent liabilities and commitments from other matters

At 31 December, the Group had the following outstanding contingent liabilities arising from off-balance sheet financial instruments and commitments:

€ in millions	31 December 2022	31 December 2021
Contingent liabilities:		
Financial guarantees	7	36
	7	36

Commitments:		
Loan commitments	10,160	7,390
Unsettled securities purchased under agreements to resell ⁽¹⁾	2,001	9
Unsettled securities sold under agreements to repurchase ⁽¹⁾	868	9
Loans pending settlement	620	1,122
	13,649	8,530

⁽¹⁾ Unsettled securities purchased under agreements to resell and sold under agreements to repurchase have a trade date at or prior to, and settle subsequent to, the year end.

18. Deferred Tax Assets and Liabilities

Deferred taxes are calculated on all temporary differences under the balance sheet liability method. The movement in the deferred tax account is as follows:

€ in millions	2022		2021	
	Deferred tax asset	Deferred tax liability	Deferred tax asset	Deferred tax liability
At 1 January	60	(1)	39	(2)
Assets of a subsidiary acquired during the year	–	–	6	–
Amount recognised in the consolidated income statement	(6)	–	16	1
Amount recognised in other comprehensive income	(14)	–	(1)	–
At 31 December	40	(1)	60	(1)

For the purpose of presentation in the consolidated statement of financial position, certain deferred tax assets and liabilities have been offset. The deferred taxes included in the consolidated statement of financial position are as follows:

€ in millions	31 December 2022		31 December 2021	
	Deferred tax asset	Deferred tax liability	Deferred tax asset	Deferred tax liability
Deferred compensation	14	–	45	–
Deductible temporary differences within interest expense	24	(1)	13	(1)
Other temporary differences	2	–	2	–
	40	(1)	60	(1)

19. Equity Instruments

Equity instruments of the Group are summarised as follows:

€ in millions	Ordinary shares of €1 each	AT1 capital	Total equity instruments
Issued and fully paid			
At 1 January 2021⁽¹⁾	0	600	600
Ordinary shares issued	200	–	200
At 31 December 2021	200	600	800
Ordinary shares issued	4,450	–	4,450
AT1 capital issued	–	400	400
At 31 December 2022	4,650	1,000	5,650
Voting rights at 31 December 2022	100%	Non-voting	

⁽¹⁾ Equity instruments at 1 January 2021 comprise 120,000 ordinary shares of €1 each

Equity instruments

At 31 December 2022, the total equity instruments in issue of the Group equated to €5,650 million (1 January 2021: €600 million, 31 December 2021: €800 million) comprising 4,650,000,000 ordinary shares of €1 each (1 January 2021: 120,000 ordinary shares of €1 each, 31 December 2021: 200,120,000 ordinary shares of €1 each), and AT1 capital instruments of €1,000 million (1 January 2021: €600 million, 31 December 2021: €600 million). All equity instruments are fully paid.

Ordinary shares

The subscribed capital amounts to €4,650 million and is entirely divided into 4,650,000,000 registered no par value shares of €1 each. Each registered no par value share has one voting right in the Annual General Meeting.

On 4 April 2022, the Group issued 600,000,000 new registered no par value shares of €1 each to MSI. On 16 September 2022, the Group issued 3,000,000,000 new registered no par value shares of €1 each by conversion from capital contribution reserve. In addition, on 30 November 2022, the Group issued 850,000,000 new registered no par value shares of €1 each to MSI.

AT1 capital

AT1 capital of the Group comprises two instruments in the total amount of €1,000 million. One instrument in the amount of €600 million (120 notes, each with a principal amount of €5 million) was issued to MSI in 2020 with a non-cumulative coupon payable at a fixed rate of 4.7% per annum. The other instrument in the amount of €400 million (80 notes each with a principal amount of €5 million) was issued to Morgan Stanley on 12 April 2022 with a non-cumulative coupon payable at a fixed rate of 5% per annum.

The coupons of €41 million (2021: €31 million) on the instruments were paid on 30 November 2022 to MSI and Morgan Stanley out of reserves available for distribution.

To qualify as AT1 capital under the EU Capital Requirements Regulation (“CRR”) and EU Capital Requirements Directive (“CRD”), instruments must have principal loss absorption through a conversion to common shares or a write-up/write-down mechanism allocating losses at a trigger point and must also meet further requirements (perpetual with no incentive to redeem; institution must have full dividend/coupon discretion at all times, etc.). The Group’s AT1 capital instrument is structured in line with the CRR/CRD requirements and features a temporary write-down mechanism. In the event of a local resolution action for the Group, the local resolution authority, BaFin, has the authority to trigger the write-down of the instruments upon the exercise of its statutory powers.

Reserves

Currency translation reserve

The 'Currency translation reserve' of €(1) million (2021: €1 million) comprises all foreign exchange differences arising from the translation of the total assets less total liabilities of foreign operations, mainly in Sweden.

Capital contribution reserve

At 31 December 2022 the 'Capital contribution reserve' amounted to €471 million (2021: €3,471 million). The decrease of €3,000 million compared to previous year is due to the conversion of capital contribution reserve into ordinary shares.

Pension reserve

The 'Pension reserve' of €9 million (2021: €(22) million) comprises cumulative actuarial gains or losses on scheme assets and obligations net of current tax.

20. Additional Cash Flow Information

a. Cash and cash equivalents

For the purposes of the consolidated statement of cash flows, cash and cash equivalents comprise the following balances, which have less than three months maturity from the date of acquisition:

€ in millions	31 December 2022	31 December 2021
Cash and short-term deposits	16,125	8,328
Bank loans and overdrafts	(7,632)	(102)
	8,493	8,226

Included within 'Cash and short-term deposits' is €351 million (2021: €108 million) of segregated client funds that are not available for use by the Group. The corresponding payable is recognised and included in 'Trade and other payables'.

Bank loans and overdrafts are repayable on demand and carry positive interest rates of 2% (2021: negative 0.5%). They primarily represent deposits received from Morgan Stanley Group undertakings, following a revised Morgan Stanley Group Euro investment strategy amid the changing interest rate environment.

b. Reconciliation of cash flows from operating activities

€ in millions	Note	2022	2021
Profit for the year		142	141
Adjustments for:			
Net impairment loss on financial instruments		5	1
Depreciation on property, plant and equipment		15	11
Provisions		–	1
Interest income		(198)	108
Interest expense		197	(103)
Income tax expense	8	94	54
Gains on sale of business	1	(90)	–
Operating cash flows before changes in operating assets and liabilities		165	213
Changes in operating assets			
(Increase)/decrease in secured financing		(5,932)	3,953
(Increase) in trade and other receivables		(9,271)	(9,264)
(Increase) in trading financial assets		(26,442)	(16,136)
Decrease/(increase) in other operating assets		6	(35)
(Increase) in loans and advances		(90)	(13)
		(41,729)	(21,495)
Changes in operating liabilities			
Increase/(decrease) in secured borrowing		8,698	(4,360)
Increase in trade and other payables		592	8,705
Increase in debt and other borrowings		252	21
Increase in trading financial liabilities		29,532	16,606
(Decrease)/increase in other operating liabilities		(1)	8
		39,073	20,980
Interest received		187	117
Interest paid		(143)	(99)
Income taxes paid		(131)	(36)
Effect of foreign exchange movements		(20)	(13)
Net cash used in operating activities		(2,598)	(333)

c. Reconciliation of liabilities arising from financing activities

€ in millions	Lease liabilities
Balance at 1 January 2021	37
Cash flows	(6)
Non-cash changes:	
Leases of subsidiaries and businesses acquired during the year	39
New leases	1
Balance at 31 December 2021	71
Cash flows	(10)
Non-cash changes:	
New leases	6
Modifications ⁽¹⁾	15
Balance at 31 December 2022	82

⁽¹⁾ Lease modifications represent primarily the renewals of the Group's existing leases.

21. Expected Maturity of Assets and Liabilities

The table below shows an analysis of assets and liabilities analysed according to when they are expected to be recovered, realised or settled.

€ in millions	31 December 2022			31 December 2021		
	Less than or equal to twelve months	More than twelve months	Total	Less than or equal to twelve months	More than twelve months	Total
ASSETS						
Cash and short-term deposits	16,125	–	16,125	8,328	–	8,328
Trading financial assets	58,821	–	58,821	32,379	–	32,379
Secured financing	18,267	–	18,267	12,335	–	12,335
Loans and advances	–	107	107	–	17	17
Trade and other receivables	25,474	–	25,474	16,193	–	16,193
Current tax assets	44	–	44	6	–	6
Deferred tax assets	16	24	40	–	60	60
Property, plant and equipment	17	81	98	16	73	89
Other assets	1	–	1	4	–	4
	118,765	212	118,977	69,261	150	69,411
LIABILITIES						
Bank loans and overdrafts	7,632	–	7,632	102	–	102
Trading financial liabilities	61,051	–	61,051	31,519	–	31,519
Secured borrowing	18,446	–	18,446	9,748	–	9,748
Trade and other payables	21,055	111	21,166	20,462	85	20,547
Debt and other borrowings	624	3,501	4,125	372	2,501	2,873
Provisions	7	2	9	2	4	6
Current tax liabilities	4	47	51	33	25	58
Deferred tax liabilities	–	1	1	1	–	1
Other liabilities	106	9	115	107	3	110
Post-employment benefit obligations	–	20	20	–	66	66
	108,925	3,691	112,616	62,346	2,684	65,030

22. Financial Risk Management

22.1. Risk Management Procedures

Risk taking is an inherent part of the Group's business activities and effective risk management is key to the success of the Group. The Group seeks to identify, assess, monitor and manage each of the types of risk involved in its business activities in accordance with defined policies and procedures.

The Group has developed risk management policies and procedures which are consistent with the risk management policies and procedures of the Morgan Stanley Group and include escalation to the Group's Management Board.

Significant risks resulting from the Group's business activities are set out in the following chapters. A comprehensive overview of Risk Management is presented in the "Risk Report" section of the Group Management Report and forms part of the consolidated financial statements.

22.2. Market Risk

Market risk is the risk that a change in the level of one or more market prices, rates, indices, volatilities, correlations, or other market factors,

such as market liquidity, will result in losses for a position or portfolio owned by the Group. This includes risks from Derivative Valuation Adjustments ("xVA"), which refers to the risk of changes in derivative valuation adjustments due to changes in credit spreads and other market factors. Market risk includes the consideration of financial risk arising from climate change. Further, market risk includes non-traded market risk such as Interest Rate Risk in the Banking Book ("IRRBB").

Price risk arises, for example, in trading portfolios, lending portfolios measured at fair value, and associated mark-to-market hedges.

Additional information on market risk is presented in the Group Management Report and forms part of the consolidated financial statements.

VaR for the year ended 31 December 2022 and 31 December 2021

The table below presents the Management VaR on a year end, average and annual high and low basis for 31 December 2022 and 31 December 2021.

The VaR resulting from interest rate and credit sensitivity from xVA is disclosed as a separate category from the Primary Risk Categories and includes counterparty credit valuation adjustments and related hedges.

€ in millions	95 %/ one-day VaR for the year ended 31 December 2022 ⁽¹⁾				95 %/ one-day VaR for the year ended 31 December 2021 ⁽¹⁾			
	Year end	Average	High	Low	Year end	Average	High	Low
<i>Market risk category:</i>								
Interest rate and credit spread	2.1	2.4	6.6	0.7	0.7	0.9	3.7	0.2
Equity price	0.1	0.2	0.4	0.1	0.2	0.2	0.8	0.1
Foreign exchange rate	0.1	0.0	0.3	0.0	0.0	0.0	0.2	0.0
Commodity price	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Less diversification benefit ⁽²⁾⁽³⁾	(0.1)	(0.2)	N/A	N/A	(0.3)	(0.2)	N/A	N/A
Primary Risk Categories VaR	2.2	2.4	6.6	0.7	0.7	0.9	3.7	0.3
VaR resulting from "xVA"	3.0	2.9	3.8	2.1	2.1	1.9	2.5	1.4
Less diversification benefit ⁽²⁾⁽³⁾	(1.4)	(1.4)	N/A	N/A	(0.8)	(0.7)	N/A	N/A
Total Management VaR	3.8	3.9	8.4	1.9	2.0	2.1	3.9	1.4

⁽¹⁾ The VaR is originally calculated in U.S. dollars and converted to Euros with the exchange rate as at 31 December.

⁽²⁾ Diversification benefit equals the difference between total trading VaR and the sum of the standalone VaRs for the four market risk categories. This benefit arises because the simulated one-day losses for each of the four primary market risk categories occur on different scenario dates in the simulation; similar diversification benefits also are taken into account within each category.

⁽³⁾ N/A - Not Applicable. The minimum and maximum VaR values for the total VaR and each of the component VaRs might have occurred on different scenario dates in the simulation and therefore the diversification benefit is not an applicable measure.

The Group's average VaR for Primary Risk Categories for 2022 was €2.4 million (2021: €0.9 million). The average VaR resulting from "xVA" for 2022 was €2.9 million (2021: €1.9 million). The average total Management VaR for 2022 was €3.9 million (2021: €2.1 million).

The increase in VaR is primarily driven by the Russian invasion of Ukraine and the resulting increase in market volatility. In particular, sharp increases in energy prices, heightened inflation and a rise in interest rates across European and North American economies have affected market volatility. Additionally, the expansion of market making in Euro Interest Rate Swaps and Inflation products has led to an increase in Primary Risk VaR.

Non-trading risks for the year ended 31 December 2022 and 31 December 2021

The Group believes that sensitivity analysis is an appropriate representation of the Group's non-trading risks. The following sensitivity analysis covers all of the non-trading risk in the Group's portfolio.

Interest rate risk

The Group's VaR excludes certain funding liabilities, lending and deposit transactions related to non-trading risks. The application of a parallel shift in interest rates of 200 basis points decrease or increase to these positions would result in a net loss of €5.4 million and a net gain of €2.7 million respectively as of 31 December 2022. This compares to a net loss of €7.3 million and a net gain of €10.3 million respectively as of 31 December 2021.

Currency risk

The Group has foreign currency revaluation risk arising from its trading activities and assets and liabilities in currencies other than Euros. It actively manages this exposure by hedging it back to Euros. Foreign exchange exposure in the banking book as of 31 December 2022 was €22 million (2021: €42 million) primarily arising from long U.S. dollar positions.

The Group also has foreign currency exposures arising from foreign operations, primarily in Sweden. The majority of this foreign currency risk has been hedged by the Morgan Stanley

Group, by putting in place forward foreign currency exchange contracts.

The tables below summarise the foreign currency exposure for the Group relating to the retranslation of its branches outside of the Eurozone. The tables summarise the impact on total comprehensive income of a reasonably possible parallel shift of the foreign currency in relation to Euro, with all other variables held constant. This analysis does not take into account the effect of the foreign currency hedges held by other members of the Morgan Stanley Group.

€ in millions	2022	
	Swedish Krona	Polish Zloty
Foreign Currency exposure	(1)	2
Percentage change applied	8%	7%
Other Comprehensive Income	(0.1)	0.1

€ in millions	2021	
	Swedish Krona	Polish Zloty
Foreign Currency exposure	29	1
Percentage change applied	4%	7%
Other Comprehensive Income	1	–

The reasonably possible percentage change in the currency rate in relation to Euro has been calculated based on the greatest annual percentage change over the 5 year period from 1 January 2018 to 31 December 2022 (2021: 1 January 2017 to 31 December 2021).

22.3. Credit Risk

Credit risk refers to the risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations. Credit risk includes country risk – i.e. the risk that economic, social and political conditions and events in a country will adversely affect an obligor's ability and willingness to fulfil its obligations. As part of credit risk, credit concentration risk refers to the risk of loss due to an outsized exposure to a counterparty or a group of connected counterparties in the same industry or geographic region. This assessment also considers climate risk, in particular the credit exposure to obligors and counterparties highly vulnerable to transition and/or physical climate risks.

Additional information on credit risk management is presented in the Group Management Report and forms part of the consolidated financial statements.

Exposure to credit risk

The maximum exposure to credit risk ("gross credit exposure") of the Group as at 31 December 2022 and 31 December 2021 is disclosed below. This is based on the carrying amounts of the financial assets and the maximum amount that the Group could have to pay in relation to unrecognised financial instruments, which the Group believes are subject to credit risk. The table includes financial instruments subject to ECL and not subject to ECL. Those financial instruments that bear credit risk but are not subject to ECL are subsequently measured at fair value. Exposure arising from financial instruments not recognised on the consolidated statement of financial position is measured as the maximum amount that the Group could have to pay.

In order to manage the credit exposure on financial instruments, the Group may enter into credit enhancements including receiving cash and security as collateral and master netting agreements. The financial effect of the credit enhancements is disclosed below. The net credit exposure represents the credit exposure remaining after the effect of the credit enhancements.

Trading financial assets, excluding derivatives, are subject to traded credit risk through exposure to the issuer of the financial instrument; the Group manages this issuer credit risk through its market risk management infrastructure and this traded credit risk is incorporated within the VaR based risk measures included in the market risk disclosure.

Exposure to credit risk by class	31 December 2022			31 December 2021		
	Gross credit exposure ⁽¹⁾	Credit enhancements	Net credit exposure	Gross credit exposure ⁽¹⁾	Credit enhancements	Net credit exposure
Class						
€ in millions						
Subject to ECL:						
Cash and short-term deposits	16,125	–	16,125	8,328	–	8,328
Loans and advances	107	–	107	17	–	17
Trade and other receivables ⁽²⁾	24,082	–	24,082	16,044	–	16,044
Not subject to ECL:						
Trading financial assets - derivatives	57,427	(55,632)	1,795	31,197	(29,778)	1,419
Secured financing	18,267	(17,953)	314	12,335	(12,268)	67
Trade and other receivables ⁽²⁾	1,338	(1,039)	299	100	(100)	–
	117,346	(74,624)	42,722	68,021	(42,146)	25,875
Unrecognised financial instruments						
Subject to ECL:						
Loan commitments	7,823	(247)	7,576	3,856	(201)	3,655
Financial guarantees	7	–	7	4	–	4
Not subject to ECL:						
Loan commitments	2,337	(2,337)	–	3,534	(3,534)	–
Financial guarantees	–	–	–	32	(32)	–
Unsettled securities purchased under agreements to resell ⁽³⁾	2,001	–	2,001	9	–	9
Total unrecognised financial instruments	12,168	(2,584)	9,584	7,435	(3,767)	3,668
	129,514	(77,208)	52,306	75,456	(45,913)	29,543

⁽¹⁾ The carrying amount recognised in the consolidated statement of financial position best represents the Group's maximum exposure to credit risk.

⁽²⁾ Trade and other receivables primarily include cash collateral pledged against the payables on OTC derivative positions.

⁽³⁾ For unsettled securities purchased under agreements to resell, collateral in the form of securities will be received at the point of settlement.

The impact of master netting arrangements and similar agreements on the Group's ability to offset financial assets and financial liabilities is disclosed in note 25.

Exposure to credit risk by internal rating grades

Internal credit ratings are derived using methodologies generally consistent with those used by external agencies.

Investment grade: AAA - BBB

Non-investment grade: BB - CCC

Default: D

The table below shows gross carrying amounts and, in the case of unrecognised financial instruments, nominal amounts by internal rating grade.

At 31 December 2022

€ in millions	AAA	AA	A	BBB	Total Invest- ment Grade	Non- Invest- ment Grade	Unrated ⁽¹⁾	Total	Net of ECL
Subject to ECL:									
Cash and short-term deposits	15,498	148	297	163	16,106	6	13	16,125	16,125
Loans and advances									
Stage 1	–	–	–	56	56	30	–	86	86
Stage 3	–	–	–	–	–	22	–	22	21
Trade and other receivables:									
Stage 1	5	150	9,360	20	9,535	111	177	9,823	9,823
Stage 2	3	5,122	6,220	2,352	13,697	256	292	14,245	14,245
Stage 3	–	–	6	9	15	1	2	18	14
Total subject to ECL	15,506	5,420	15,883	2,600	39,409	426	484	40,319	40,314
Not subject to ECL:									
Trading financial assets - derivatives	2,223	22,169	24,117	7,744	56,253	1,143	31	57,427	57,427
Secured financing	1,791	1,638	13,653	1,135	18,217	50	–	18,267	18,267
Loans and advances	–	–	–	–	–	1	(1)	–	–
Trade and other receivables	–	–	1,338	–	1,338	–	–	1,338	1,338
Total not subject to ECL	4,014	23,807	39,108	8,879	75,808	1,194	30	77,032	77,032
Unrecognised financial instruments subject to ECL:									
Loan commitments									
Stage 1	–	440	5,805	916	7,161	187	–	7,348	7,347
Stage 2	–	–	–	354	354	121	–	475	473
Financial guarantees	–	6	–	–	6	1	–	7	7
Total unrecognised financial instruments subject to ECL	–	446	5,805	1,270	7,521	309	–	7,830	7,827
Unrecognised financial instruments not subject to ECL:									
Loan commitments									
Unsettled securities purchased under agreements to resell	233	506	1,192	70	2,001	–	–	2,001	2,001
Total unrecognised financial instruments not subject to ECL	233	919	1,484	1,025	3,661	677	–	4,338	4,338

⁽¹⁾ For the unrated trade receivables, a lifetime ECL is always calculated without considering whether SICR has occurred.

At 31 December 2021

€ in millions	AAA	AA	A	BBB	Total Investment Grade	Non-Investment Grade	Unrated ⁽¹⁾	Total	Net of ECL
Subject to ECL:									
Cash and short-term deposits	8,031	71	160	42	8,304	8	16	8,328	8,328
Loans and advances	–	–	–	11	11	6	–	17	17
Trade and other receivables:									
Stage 1	225	3,416	10,042	2,062	15,745	146	150	16,041	16,041
Stage 3	–	–	2	2	4	–	2	6	3
Total subject to ECL	8,256	3,487	10,204	2,117	24,064	160	168	24,392	24,389
Not subject to ECL:									
Trading financial assets - derivatives	2,941	6,124	15,029	6,025	30,119	1,065	13	31,197	31,197
Secured financing	286	539	11,023	449	12,297	38	–	12,335	12,335
Trade and other receivables	–	–	100	–	100	–	–	100	100
Total not subject to ECL	3,227	6,663	26,152	6,474	42,516	1,103	13	43,632	43,632
Unrecognised financial instruments subject to ECL:									
Loan commitments	–	336	2,155	1,091	3,582	274	–	3,856	3,856
Financial guarantees	–	–	4	–	4	–	–	4	4
Total unrecognised financial instruments subject to ECL	–	336	2,159	1,091	3,586	274	–	3,860	3,860
Unrecognised financial instruments not subject to ECL:									
Loan commitments	–	293	871	1,128	2,292	1,225	17	3,534	3,534
Financial guarantees	–	–	–	–	–	32	–	32	32
Unsettled securities purchased under agreements to resell	–	–	9	–	9	–	–	9	9
Total unrecognised financial instruments not subject to ECL	–	293	880	1,128	2,301	1,257	17	3,575	3,575

⁽¹⁾ For the unrated trade receivables, a lifetime ECL is always calculated without considering whether a SICR has occurred.

Expected credit loss allowance

As at 31 December 2022, ECL on trade receivables of €4 million, on loans of €1 million and on loans commitments of €3 million were recognised. (2021: €2 million, €Nil, €Nil, respectively).

ECL on cash and short-term deposits as of 31 December 2022 and 31 December 2021 is de minimis owing to either their short tenure and/or their low credit risk.

22.4. Liquidity Risk

Liquidity risk is the risk that the Group's financial condition or overall soundness is adversely affected by an inability or perceived inability to meet its financial obligations in a timely manner. Liquidity risk encompasses the associated funding risk triggered by stress events, which may cause unexpected changes in funding needs or an inability to raise new funding.

Additional information on liquidity risk management is presented in the Group Management Report and forms part of the consolidated financial statements.

Maturity analysis

In the following maturity analysis of financial liabilities, derivative contracts and other trading financial liabilities measured and managed at fair value are disclosed as on demand. Financial liabilities designated at fair value through profit or loss are disclosed according to their earliest contractual maturity. All other amounts represent undiscounted cash flows payable by the Group arising from its financial liabilities to their earliest contractual maturities. Repayments of financial liabilities that are subject to immediate notice are treated as if notice were given immediately and are classified as on demand. This presentation of the maturity analysis is considered by the Group to appropriately reflect the liquidity risk arising from those financial liabilities, presented in a way that is consistent with how the liquidity risk on these financial liabilities is managed by the Group.

31 December 2022

€ in millions	On demand	Less than 1 month	1 month – 3 months	3 months – 1 year	1 year – 5 years	Greater than 5 years	Total
Financial liabilities							
Bank loans and overdrafts	7,632	–	–	–	–	–	7,632
Trading financial liabilities:							
Derivatives	59,714	–	–	–	–	–	59,714
Other	1,337	–	–	–	–	–	1,337
Secured borrowing	12,087	5,260	420	679	–	–	18,446
Trade and other payables	20,900	6	1	10	59	25	21,001
Debt and other borrowings	–	14	639	79	2,688	1,163	4,583
Total financial liabilities	101,670	5,280	1,060	768	2,747	1,188	112,713
Unrecognised financial instruments							
Loan commitments	10,160	–	–	–	–	–	10,160
Unsettled securities purchased under agreements to resell ⁽¹⁾	2,001	–	–	–	–	–	2,001
Financial guarantees	–	–	–	1	6	–	7
Loans pending settlement	620	–	–	–	–	–	620
Total unrecognised financial instruments	12,781	–	–	1	6	–	12,788

⁽¹⁾ The Group enters into forward-starting reverse repurchase agreements (agreements which have a trade date at or prior to 31 December 2022 and settle subsequent to year end). These agreements are generally settled within three business days.

31 December 2021

€ in millions	On demand	Less than 1 month	1 month – 3 months	3 months – 1 year	1 year – 5 years	Greater than 5 years	Total
Financial liabilities							
Bank loans and overdrafts	102	–	–	–	–	–	102
Trading financial liabilities:							
Derivatives	29,538	–	–	–	–	–	29,538
Other	1,981	–	–	–	–	–	1,981
Secured borrowing	8,355	424	219	750	–	–	9,748
Trade and other payables	20,213	103	2	8	39	23	20,388
Debt and other borrowings	0	7	379	8	1,568	1,097	3,059
Total financial liabilities	60,189	534	600	766	1,607	1,120	64,816
Unrecognised financial instruments							
Loan commitments	7,390	–	–	–	–	–	7,390
Unsettled securities purchased under agreements to resell ⁽¹⁾	9	–	–	–	–	–	9
Financial guarantees	–	–	–	19	10	7	36
Loans pending settlement	1,122	–	–	–	–	–	1,122
Total unrecognised financial instruments	8,521	–	–	19	10	7	8,557

⁽¹⁾ The Group enters into forward-starting reverse repurchase agreements (agreements which have a trade date at or prior to 31 December 2021 and settle subsequent to year end). These agreements are generally settled within three business days.

The Group does not expect that all of the potential cash flows associated with financial guarantees and loan commitments will be required.

23. Transfers of Financial Assets, including Pledges of Collateral

Transferred financial assets that are not derecognised in their entirety

In the ordinary course of business, the Group enters into various arrangements, including selling securities under agreements to repurchase, purchasing securities under agreements to resell, securities borrowed and securities loaned to, amongst other things, acquire securities to cover short positions and settle other securities obligations, to accommodate customers' needs and to finance the Group's inventory positions.

The Group pledges certain financial instruments to collateralise repurchase agreements and other securities financings. Pledged financial instruments that can be sold or repledged by the secured party are identified as trading financial instruments (pledged to various parties) in the consolidated statement of financial position. The Group has determined that it retains substantially all the risks and rewards of these financial instruments including credit risk, settlement risk, country risk and market risk, and therefore has not derecognised them. In addition, it recognises a financial liability in respect of the consideration received.

Other financial assets transferred that continue to be recognised for accounting purposes include pledges of securities as collateral for derivative transactions or otherwise, as well as certain sales of securities with related transactions, such as derivatives, that result in the Group retaining substantially all the risks and rewards of the financial assets transferred. In addition, it recognises a financial liability in respect of the consideration received.

All of these transactions are mostly conducted under standard agreements used by financial market participants and are undertaken with counterparties subject to the Group's normal credit risk control processes. The resulting credit exposures are controlled by daily monitoring and collateralisation of the positions. The carrying amount of the associated financial liabilities related to financial assets transferred that

continue to be recognised is €566 million (2021: €1,098 million).

Trading financial assets of the Group include debt securities of €1,372 million (2021: €1,158 million) which have been sold or otherwise transferred, but remain recognised on the consolidated statement of financial position.

24. Financial Assets accepted as Collateral

The Group's policy is generally to take possession of securities received as collateral, securities purchased under agreements to resell and securities borrowed. The Group monitors the fair value of the underlying securities as compared with the related receivable or payable, including accrued interest, and, as necessary, requests additional collateral to ensure such transactions are adequately collateralised. The Group's agreements with third parties specify its rights to request additional collateral. These transactions are generally conducted under standard documentation used by financial market participants.

The fair value of collateral accepted under these arrangements, where the Group is permitted to sell or repledge the collateral in the absence of default by the owner of the collateral, as at 31 December 2022 was €25,939 million (2021: €15,459 million). Of this amount €22,921 million (2021: €12,751 million) has been sold or repledged to third parties in connection with financing activities, or to comply with commitments under short sale transactions.

25. Financial Assets and Financial Liabilities subject to Offsetting

To manage credit exposure arising from its business activities, the Group applies various credit risk management policies and procedures, see note 22 for further details. Primarily in connection with securities purchased under agreements to resell and securities sold under agreements to repurchase, securities borrowed and securities loaned transactions and derivative transactions, the Group enters into master netting arrangements and collateral arrangements with its counterparties. These agreements provide the Group with the right, in the ordinary course of business and/or in the event of a counterparty default (such as bankruptcy or a counterparty's failure to pay or perform), to net a counterparty's rights and obligations under such agreement and, in the event of counterparty default, set off collateral held by the Group against the net amount owed by the counterparty.

In certain circumstances, the Group may not have such an agreement in place; the relevant insolvency regime (which is based on type of counterparty of the entity and the jurisdiction of organisation of the counterparty) may not support the enforceability of the agreement; or the Group may not have sought legal advice to support the enforceability of the agreement. In cases where the Group has not determined an agreement to be enforceable, the related amounts are not offset.

In the consolidated statement of financial position, financial assets and financial liabilities are offset and presented on a net basis only where there is a current legally enforceable right, in the ordinary course of business and in the event of a counterparty default, to set off the recognised amounts and an intention to either settle on a net basis or to realise the asset and the liability simultaneously. In the absence of such conditions, financial assets and financial liabilities are presented on a gross basis.

The following tables present information about the offsetting of financial instruments and related collateral amounts. The tables do not include information about financial instruments that are subject only to a collateral agreement but not subject to a master netting agreement. The effect of master netting arrangements, collateral agreements and other credit enhancements, on the Group's exposure to credit risk is disclosed in note 22.

€ in millions	Gross amounts	Amounts offset ⁽¹⁾	Net amounts	Amounts not offset, collateralised by:		Net exposure ⁽³⁾
				Financial instruments	Cash collateral ⁽²⁾	
31 December 2022						
Assets						
Secured financing:						
Cash collateral on securities borrowed	3,642	–	3,642	(3,615)	–	27
Securities purchased under agreement to resell	15,450	(1,455)	13,995	(13,708)	–	287
Trading financial assets:						
Derivatives	216,393	(158,966)	57,427	(45,671)	(9,961)	1,795
Total assets	235,485	(160,421)	75,064	(62,994)	(9,961)	2,109
Liabilities						
Secured borrowing:						
Cash collateral on securities loaned	3,030	–	3,030	(3,030)	–	–
Securities sold under agreement to repurchase	16,670	(1,455)	15,215	(15,215)	–	–
Trading financial liabilities:						
Derivatives	222,226	(162,512)	59,714	(41,841)	(16,160)	1,713
Total liabilities	241,926	(163,967)	77,959	(60,086)	(16,160)	1,713
31 December 2021						
Assets						
Secured financing:						
Cash collateral on securities borrowed	3,808	–	3,808	(3,752)	–	56
Securities purchased under agreement to resell	9,253	(1,533)	7,720	(7,709)	–	11
Trading financial assets:						
Derivatives	70,613	(39,416)	31,197	(20,166)	(9,612)	1,419
Total assets	83,674	(40,949)	42,725	(31,627)	(9,612)	1,486
Liabilities						
Secured borrowing:						
Cash collateral on securities loaned	2,940	–	2,940	(2,940)	–	–
Securities sold under agreement to repurchase	7,726	(1,533)	6,193	(6,193)	–	–
Trading financial liabilities:						
Derivatives	67,272	(37,734)	29,538	(18,797)	(8,047)	2,694
Total liabilities	77,938	(39,267)	38,671	(27,930)	(8,047)	2,694

⁽¹⁾ Includes €3,987 million (2021: €3,793 million) and €7,533 million (2021: €2,111 million) of trading financial assets – derivatives and trading financial liabilities – derivatives, respectively, which have been offset against cash collateral received and cash collateral paid, respectively.

⁽²⁾ Cash collateral not offset is recognised within Trade and other receivables and Trade and other payables, respectively.

⁽³⁾ Includes €0.1 million (2021: €6 million) of cash collateral on securities borrowed, €79 million (2021: €525 million) of trading financial assets - derivatives and €132 million (2021: €154 million) of trading financial liabilities – derivatives which are either not subject to master netting agreements or collateral agreements or are subject to such agreements but the Group has not determined the agreements to be legally enforceable.

26. Financial Instruments measured at Fair Value

a. Financial assets and liabilities recognised at fair value on a recurring basis

The following tables present the carrying value of the Group's financial assets and financial liabilities recognised at fair value on a recurring basis, classified according to the fair value hierarchy:

€ in millions	Quoted prices in active market (Level 1)	Valuation techniques using observable inputs (Level 2)	Valuation techniques with significant unobservable inputs (Level 3)	Total
31 December 2022				
Trading financial assets:				
- Government debt securities	1,311	16	1	1,328
- Corporate and other debt	–	14	48	62
- Corporate equities	4	–	–	4
- Derivatives				
Interest rate contracts	1	37,931	359	38,291
Credit contracts	–	551	4	555
Foreign exchange and gold contracts	–	14,948	4	14,952
Equity contracts	43	1,366	174	1,583
Commodity contracts	127	1,919	–	2,046
Total trading financial assets	1,486	56,745	590	58,821
Secured financing:				
- Cash collateral on securities borrowed	–	3,642	–	3,642
- Securities purchased under agreements to resell	–	13,995	–	13,995
- Other	–	630	–	630
Total secured financing	–	18,267	–	18,267
Trade and other receivables:				
- Prepaid OTC contracts	–	1,338	–	1,338
Total trade and other receivables	–	1,338	–	1,338
Total financial assets measured at fair value	1,486	76,350	590	78,426
Trading financial liabilities:				
- Government debt securities	1,268	44	–	1,312
- Corporate and other debt	–	8	16	24
- Corporate equities	1	–	–	1
- Derivatives				
Interest rate contracts	1	36,592	386	36,979
Credit contracts	–	542	4	546
Foreign exchange and gold contracts	–	18,532	4	18,536
Equity contracts	40	1,382	174	1,596
Commodity contracts	109	1,948	–	2,057
Total trading financial liabilities	1,419	59,048	584	61,051
Secured borrowing:				
- Cash collateral on securities loaned	–	2,251	–	2,251
- Securities sold under agreements to repurchase	–	7,768	–	7,768
- Other	–	201	–	201
Total secured borrowing	–	10,220	–	10,220
Trade and other payables:				
- Prepaid OTC contracts	–	1,348	–	1,348
Total trade and other payables	–	1,348	–	1,348
Total financial liabilities measured at fair value	1,419	70,616	584	72,619

31 December 2021

€ in millions	Quoted prices in active market (Level 1)	Valuation techniques using observable inputs (Level 2)	Valuation techniques with significant unobservable inputs (Level 3)	Total
Trading financial assets:				
- Government debt securities	1,144	21	–	1,165
- Corporate equities	17	–	–	17
- Derivatives				
Interest rate contracts	–	18,402	426	18,828
Credit contracts	–	536	12	548
Foreign exchange and gold contracts	–	7,407	24	7,431
Equity contracts	–	1,801	76	1,877
Commodity contracts	162	2,351	–	2,513
Total trading financial assets	1,323	30,518	538	32,379
Secured financing:				
- Cash collateral on securities borrowed	–	3,808	–	3,808
- Securities purchased under agreements to resell	–	7,720	–	7,720
- Other	–	807	–	807
Total secured financing	–	12,335	–	12,335
Trade and other receivables:				
- Prepaid OTC contracts	–	100	–	100
Total trade and other receivables	–	100	–	100
Total financial assets measured at fair value	1,323	42,953	538	44,814
Trading financial liabilities:				
- Government debt securities	1,806	103	–	1,909
- Corporate and other debt	–	37	–	37
- Corporate equities	31	4	–	35
- Derivatives				
Interest rate contracts	–	17,007	337	17,344
Credit contracts	–	538	7	545
Foreign exchange and gold contracts	–	7,390	17	7,407
Equity contracts	4	1,649	76	1,729
Commodity contracts	190	2,323	–	2,513
Total trading financial liabilities	2,031	29,051	437	31,519
Secured borrowing:				
- Cash collateral on securities loaned	–	1,737	–	1,737
- Securities sold under agreements to repurchase	–	1,015	–	1,015
- Other	–	615	–	615
Total secured borrowing	–	3,367	–	3,367
Trade and other payables:				
- Prepaid OTC contracts	–	100	–	100
Total trade and other payables	–	100	–	100
Total financial liabilities measured at fair value	2,031	32,518	437	34,986

The Group's valuation approach and fair value hierarchy categorisation for certain significant classes of financial instruments recognised at fair value on a recurring basis is as follows:

Asset and Liability / Valuation Technique	Valuation Hierarchy Classification
Government debt securities	
<p>Non-US Government Obligations</p> <ul style="list-style-type: none"> Fair value is determined using quoted prices in active markets when available. When not available, quoted prices in less-active markets are used. In the absence of position-specific quoted prices, fair value may be determined through benchmarking from comparable instruments. 	<ul style="list-style-type: none"> Level 1 – if actively traded and inputs are observable Level 2 – if the market is less active or prices are dispersed Level 3 – in instances where the prices are unobservable
Corporate and Other Debt and Corporate Loans	
<p>Corporate Bonds</p> <ul style="list-style-type: none"> Fair value is determined using recently executed transactions, market price quotations, bond spreads and CDS spreads obtained from independent external parties, such as vendors and brokers, adjusted for any basis difference between cash and derivative instruments. The spread data used are for the same maturity as the bond. If the spread data do not reference the issuer, then data that reference comparable issuers are used. When position-specific external price data are not observable, fair value is determined based on either benchmarking to comparable instruments or cash flow models with yield curves, bond or single-name CDS spreads and recovery rates or loss given default as significant inputs. 	<ul style="list-style-type: none"> Level 2 – if value based on observable market data for comparable instruments Level 3 – in instances where prices or significant spread inputs are unobservable or if the comparability assessment involves significant sensitivity
<p>Loans and Lending Commitments</p> <ul style="list-style-type: none"> Fair value of corporate loans is determined using recently executed transactions, market price quotations (where observable), implied yields from comparable debt, market observable CDS spread levels obtained from independent external parties adjusted for any basis difference between cash and derivative instruments, along with proprietary valuation models and default recovery analysis where such transactions and quotations are unobservable. 	<ul style="list-style-type: none"> Level 2 – if value based on observable market data supported by market liquidity for comparable instruments Level 3 – in instances where significant spread inputs are unobservable or not supported by market liquidity or if the comparability assessment involves significant subjectivity
Corporate Equities and Equity investments	
<ul style="list-style-type: none"> Exchange traded equity securities are generally valued based on quoted prices from the exchange. Unlisted equity securities are generally valued based on an assessment of each security, considering rounds of financing and third-party transactions, discounted cash flow analyses and market-based information, including comparable transactions, trading multiples and changes in market outlook, among other factors. Listed fund units are generally marked to the exchange-traded price if actively traded or Net Asset Value ("NAV") if not. Unlisted fund units are generally marked to NAV. 	<ul style="list-style-type: none"> Level 1 – actively traded exchange-traded securities and fund units Level 2 – if not actively traded, inputs are observable, or if undergoing a recent mergers and acquisitions event or corporate action Level 3 – if not actively traded, inputs are unobservable, or if undergoing an aged mergers and acquisitions event or corporate action
Derivatives	
<p>Exchange-Traded Derivative Contracts</p> <ul style="list-style-type: none"> Exchange-traded derivatives that are actively traded are valued based on quoted prices from the exchange. Exchange-traded derivatives that are not actively traded are valued using the same techniques as those applied to OTC derivatives. 	<ul style="list-style-type: none"> Level 1 – when actively traded Level 2 – when not actively traded

Asset and Liability / Valuation Technique**Valuation Hierarchy Classification****OTC Derivative Contracts**

- OTC derivative contracts include forward, swap and option contracts related to interest rates, foreign currencies, credit standing of reference entities, equity prices or commodity prices.
 - Depending on the product and the terms of the transaction, the fair value of OTC derivative products can be modelled using a series of techniques, including closed-form analytic formulas, such as the Black-Scholes option-pricing model, simulation models or a combination thereof. Many pricing models do not entail material subjectivity as the methodologies employed do not necessitate significant judgement, since model inputs may be observed from actively quoted markets, as is the case for generic interest rate swaps, many equity, commodity and foreign currency option contracts and certain credit default swaps. In the case of more established derivative products, the pricing models used by the Group are widely accepted by the financial services industry.
 - More complex OTC derivative products are typically less liquid and require more judgement in the implementation of the valuation technique since direct trading activity or quotes are unobservable. This includes certain types of interest rate derivatives with both volatility and correlation exposure, equity, commodity or foreign currency derivatives that are either longer-dated or include exposure to multiple underlyings and credit derivatives, including credit default swaps on certain mortgage or asset-backed securities, basket CDS. Where required inputs are unobservable, relationships to observable data points, based on historical and/or implied observations, may be employed as a technique to estimate the model input values.
- Level 2 – when valued using observable inputs supported by market liquidity, or where the unobservable input is not deemed significant
 - Level 3 – when valued using observable inputs with limited market liquidity or if an unobservable input is deemed significant

Securities purchased under Agreements to Resell, Securities Sold under Agreements to Repurchase, Cash collateral on Securities Borrowed and Securities Loaned and Other Secured Financings and Secured Borrowings

- Fair value is computed using a standard cash flow discounting methodology.
 - The inputs to the valuation include contractual cash flows and collateral funding spreads, which are the incremental spread over the overnight indexed swap (“OIS”) rate for a specific collateral rate (which refers to the rate applicable to a specific type of security pledged as collateral).
- Level 2 – when the valuation inputs are observable and supported by market liquidity
 - Level 3 – in instances where the valuation input is observable but not supported by market liquidity or if an unobservable input is deemed significant

Prepaid OTC contracts

- The Group carries prepaid OTC contracts which are primarily composed of instruments whose payments and redemption values are linked to the performance of a specific index, a basket of stocks, a specific security, a commodity, a credit exposure or basket of credit exposures, and instruments with various interest-rate-related features including step-ups, step-downs, and zero coupons.
 - Fair value is determined using valuation models for the derivative and debt portions of the instruments. These models incorporate observable inputs referencing identical or comparable financial instruments, including prices to which the instruments are linked, interest rate yield curves, option volatility and currency rates, and commodity or equity prices.
 - Independent, external and traded prices for the instruments are considered as well as the impact of the Group’s own credit spreads which are based on observed secondary bond market spreads.
- Level 2 – when valued using observable inputs, or where the unobservable input is not deemed significant
 - Level 3 – in instances where the unobservable inputs are deemed significant
-

b. Transfers between Level 1 and Level 2 of the fair value hierarchy for financial assets and liabilities recognised at fair value on a recurring basis

There were no material transfers between Level 1 and Level 2 of the fair value hierarchy during 2022 and 2021.

c. Changes in Level 3 financial assets and liabilities recognised at fair value on a recurring basis

The following tables present the changes in the fair value of the Group's Level 3 financial assets and financial liabilities for the years ended 31 December 2022 and 31 December 2021. Level 3 instruments may be hedged with instruments classified in Level 1 and Level 2. The realised and unrealised gains/(losses) for assets and liabilities within the Level 3 category presented in the following tables do not reflect the related realised and unrealised gains/(losses) on hedging instruments that have been classified by the Group within the Level 1 and/or Level 2 categories.

The unrealised gains/(losses) during the year for assets and liabilities within the Level 3 category presented in the following tables may include changes in fair value during the period that were attributable to both observable and unobservable inputs.

The Morgan Stanley Group operates a number of intra-group policies to ensure that, where possible, revenues and related costs are matched. Where the trading positions included in the below table are risk managed using financial instruments held by other Morgan Stanley Group undertakings, these policies potentially result in the recognition of offsetting gains or losses in the Group.

2022

€ in millions	Balance at 1 January 2022	Total gains or (losses) recognised in consolidated income statement ⁽¹⁾	Purchases	Sales	Issuances/ Settlements	Net transfers in and/or (out) of Level 3 ⁽²⁾	Balance at 31 December 2022	Unrealised gains or (losses) for Level 3 assets/ liabilities outstanding as at 31 December 2022 ⁽³⁾
Trading financial assets:								
Government debt securities	–	1	–	–	–	–	1	1
Corporate and other debt	–	(7)	55	–	–	–	48	(7)
Net derivative contracts ⁽⁴⁾	102	44	19	–	(155)	(37)	(27)	31
Total trading financial assets	102	38	74	–	(155)	(37)	22	25
Total financial assets measured at fair value								
	102	38	74	–	(155)	(37)	22	25
Trading financial liabilities:								
Corporate and other debt	–	–	–	16	–	–	16	–
Total trading financial liabilities	–	–	–	16	–	–	16	–
Total financial liabilities measured at fair value								
	–	–	–	16	–	–	16	–

⁽¹⁾ The total gains or (losses) are recognised in the consolidated income statement and the consolidated statement of comprehensive income as detailed in the financial instruments accounting policy (note 3(c)).

⁽²⁾ For financial assets and financial liabilities that were transferred into and out of Level 3 during the year, gains or (losses) are presented as if the assets or liabilities had been transferred into or out of Level 3 as at the beginning of the year.

⁽³⁾ Amounts represent unrealised gains or (losses) for the year ended 31 December 2022 related to assets and liabilities still outstanding at 31 December 2022. The unrealised gains or (losses) are recognised in the consolidated income statement or consolidated statement of comprehensive income as detailed in the financial instruments accounting policy (note 3(c)).

⁽⁴⁾ Net derivative contracts represent trading financial assets – derivative contracts net of trading financial liabilities – derivative contracts.

2021

€ in millions	Balance at 1 January 2021	Total gains or (losses) recognised in consolidated income statement ⁽¹⁾	Purchases	Issuances/ Settlements	Net transfers in and/or (out) of Level 3 ⁽²⁾	Balance at 31 December 2021	Unrealised gains or (losses) for Level 3 assets/ liabilities outstanding as at 31 December 2021 ⁽³⁾
Trading financial assets:							
Net derivative contracts ⁽⁴⁾	88	19	35	(34)	(6)	102	60
Total trading financial assets	88	19	35	(34)	(6)	102	60
Total financial assets measured at fair value	88	19	35	(34)	(6)	102	60

⁽¹⁾ The total gains or (losses) are recognised in the consolidated income statement and the consolidated statement of comprehensive income as detailed in the financial instruments accounting policy (note 3(c)).

⁽²⁾ For financial assets and financial liabilities that were transferred into and out of Level 3 during the year, gains or (losses) are presented as if the assets or liabilities had been transferred into or out of Level 3 as at the beginning of the year.

⁽³⁾ Amounts represent unrealised gains or (losses) for the year ended 31 December 2021 related to assets still outstanding at 31 December 2021. The unrealised gains or (losses) are recognised in the consolidated income statement or consolidated statement of comprehensive income as detailed in the financial instruments accounting policy (note 3(c)).

⁽⁴⁾ Net derivative contracts represent trading financial assets – derivative contracts net of trading financial liabilities – derivative contracts.

d. Valuation of Level 3 financial assets and liabilities recognised at fair value on a recurring basis

The following disclosures provide information on the sensitivity of fair value measurements to key inputs and assumptions.

i) Quantitative information about and qualitative sensitivity of significant unobservable inputs

The following table provides information on the valuation techniques, significant unobservable inputs and the ranges and averages for each material category of assets and liabilities measured at fair value on a recurring basis.

The level of aggregation and breadth of products cause the range of inputs to be wide and not evenly distributed across the inventory of financial instruments. Further, the range of unobservable inputs may differ across groups in the financial services industry because of diversity in the types of products included in each group's inventory.

The following disclosures also include qualitative information on the sensitivity of the fair value measurements to changes in the significant unobservable inputs. There are no predictable relationships between multiple significant unobservable inputs attributable to a given valuation technique.

31 December 2022	Fair value € in millions	Predominant valuation technique/ Significant unobservable inputs	Range (Average ⁽¹⁾)
ASSETS			
Trading financial assets:			
Corporate and other debt	48	Comparable pricing	
		Comparable bond price	54 to 100 pts (95 pts)
Net derivative contracts: ⁽²⁾			
– Equity ⁽³⁾		– Option model	
		Equity volatility	16% to 47% (22%)
		Equity volatility skew	-1% to 0% (-1%)
		Equity – Equity correlation	44% to 99% (88%)
		Equity – Foreign exchange correlation	-65% to -12% (-15%)
LIABILITIES			
Trading financial liabilities:			
Corporate and other debt	16	Comparable pricing	
		Comparable bond price	49 to 86 pts (61 pts)
Net derivative contracts: ⁽⁴⁾			
– Interest rate	27	Option model	
		Bond volatility	N/M
		Interest rate curve correlation	47% to 95% (78%/83%)
		Interest rate volatility skew	N/M

⁽¹⁾ A single amount is disclosed for range and average when there is no significant difference between the minimum, maximum and average. Amounts represent weighted averages except where simple averages and the median of the inputs are provided when more relevant.

⁽²⁾ Net derivative contracts represent trading financial assets – derivative contracts net of trading financial liabilities – derivative contracts.

⁽³⁾ The market value of both equity derivative assets and liabilities as of 31 December 2022 is €174 million.

⁽⁴⁾ Net derivative contracts represent trading financial liabilities – derivative contracts net of trading financial assets – derivative contracts.

31 December 2021	Fair value € in millions	Predominant valuation technique/ Significant unobservable inputs	Range (Average ⁽¹⁾)
ASSETS			
Trading financial assets:			
Net derivative contracts: ⁽²⁾			
– Interest rate	89	Option model	
		Bond volatility	5% to 32% (15%/9%)
		Interest rate curve correlation	79% to 95% (87%)
		Interest rate volatility skew	44% to 55% (52%)
– Foreign exchange and gold	7	Option model	
		Currency basis	-0.6% to -0% (-0.3%/-0.4%)
		Interest rate volatility skew	44% to 55% (52%)
– Credit	5	Credit default swap model	
		Credit spread	14 bps to 189 bps (74.22 bps)
– Equity ⁽³⁾		– Option model	
		Equity volatility	14% to 43% (21%)
		Volatility skew	-3% to 0% (0%)
		Equity – Equity correlation	5% to 97% (82%)
		Equity – Foreign exchange correlation	-65% to -23% (-47%)

⁽¹⁾ A single amount is disclosed for range and average when there is no significant difference between the minimum, maximum and average. Amounts represent weighted averages except where simple averages and the median of the inputs are provided when more relevant.

⁽²⁾ Net derivative contracts represent trading financial assets – derivative contracts net of trading financial liabilities – derivative contracts.

⁽³⁾ The market value of both equity derivative assets and liabilities as of 31 December 2021 is €76 million.

Significant Unobservable Inputs – Description and Sensitivity

During the year, there were no significant revisions made to the descriptions of the significant unobservable inputs.

An increase/(decrease) to the following significant unobservable inputs would generally result in an impact to the fair value, but the magnitude and direction of the impact would depend on whether the Group is long or short the exposure:

- **Correlation:** A pricing input where the payoff is driven by more than one underlying risk. Correlation is a measure of the relationship between the movements of two variables (i.e. how the change in one variable influences a change in the other variable).
- **Credit spread:** The credit spread reflects the additional net yield an investor can earn from a security with more credit risk relative to one with less credit risk. The credit spread of a particular security is often quoted in relation to the yield on a credit risk-free benchmark security or reference rate.
- **Interest rate curve:** The term structure of interest rates (relationship between interest rates and the time to maturity) and a market's measure of future interest rates at the time of observation. An interest rate curve is used to set interest rate and foreign exchange derivative cash flows and is a pricing input used in the discounting of any OTC derivative cash flow.

- **Volatility:** The measure of the variability in possible returns for an instrument given how much that instrument changes in value over time. Volatility is a pricing input for options, and, generally, the lower the volatility, the less risky the option. The level of volatility used in the valuation of a particular option depends on a number of factors, including the nature of the risk underlying that option, the tenor and the strike price of the option.
 - **Volatility skew:** The measure of the difference in implied volatility for options with identical underliers and expiry dates but with different strikes.
 - **Currency Basis:** Currency basis is a measure of the relative liquidity between two currencies and is a premium/discount added to the cost of swapping funding from one currency into another. The basis spread is added to one side of the funding cost when valuing cross currency swaps.
- ii) Sensitivity of fair values to changing significant assumptions to reasonably possible alternatives

As detailed in note 3, the valuation of Level 3 financial instruments requires the application of critical accounting judgement, involving estimations and assumptions and it is recognised that there could be a range of reasonably possible alternative values.

The Group has reviewed the unobservable parameters to identify those which would change the fair value measurement significantly if replaced by a reasonably possible alternative assumption.

In estimating the potential variability, the unobservable parameters were varied individually using statistical techniques and historic data. The potential variability estimated is likely to be greater than the actual uncertainty relating to the financial instruments as any diversification effect has been excluded.

The potential impact of favourable changes on net derivative contracts is a gain of €25 million (2021: €15 million) and the potential impact of unfavourable changes on net derivative contracts is a loss of €25 million (2021: €19 million), both of which would be reflected in the consolidated income statement. Net derivative contracts represent

trading financial liabilities – derivative contracts net of trading financial assets – derivative contracts.

e. Financial instruments valued using unobservable market data

The amounts not recognised in the consolidated income statement relating to the difference between the fair value at initial recognition (the transaction price) and the amounts determined at initial recognition using valuation techniques are as follows:

€ in millions	2022
At 1 January	–
New transactions	24
Amounts recognised in the consolidated income statement during the year	(17)
At 31 December	7

The balance above predominantly relates to derivatives. There were no amounts to be disclosed as at 31 December 2021.

27. Assets and Liabilities not measured at Fair Value

For all financial instruments not measured at fair value, the carrying value is a reasonable approximation of fair value as at 31 December 2022 owing to their short-term nature, with the exception of €1,000 million (2021: €1,000 million) of subordinated loan liabilities for which the fair value is €958 million (2021: €1,027 million) which is included in Level 2 of the fair value hierarchy. The fair value of the subordinated loan liability has been determined based on the assumption that it is held to maturity.

28. Replacement of London Interbank Offered Rate and replacement or reform of other interest rate benchmarks

Central banks around the world, including the European Central Bank, the Bank of England and the Federal Reserve, have commissioned committees and working groups of market participants and official sector representatives to replace London Interbank Offered Rate ("LIBOR") and replace or reform other interest rate benchmarks (collectively, the "IBORs"). The Morgan Stanley Group continues to implement its IBOR transition plan. At 31 December 2022, the Group's exposure to financial instruments which did not contain fallback provisions to allow for the transition to alternative reference rates upon the cessation of the applicable IBOR rate was not significant.

29. Employee Compensation Plans

Morgan Stanley maintains various equity-settled share-based and cash-based deferred compensation plans for the benefit of employees. Awards under these plans are generally granted in January following the performance year.

Equity-settled share-based compensation plans

Morgan Stanley has granted RSU awards pursuant to several equity-based compensation plans. The plans provide for the deferral of a portion of certain current and former employees' incentive compensation, with awards made in the form of restricted common stock. Awards under these plans are subject to vesting over time, generally six months to seven years, and are generally contingent upon continued employment and subject to restrictions on sale, transfer or assignment until conversion to common stock. All, or a portion of an award may be forfeited if employment is terminated before

the end of the relevant vesting period or cancelled after the vesting period in certain situations. Recipients of equity-based awards may have voting rights, at Morgan Stanley's discretion, and generally receive dividend equivalents if the awards vest, unless this is prohibited by regulation.

During the year, Morgan Stanley granted 721,181 RSUs (2021: 359,031 RSUs) to employees of the Group with a weighted average fair value per unit of \$93.49 (2021: \$73.55) based on the market value of Morgan Stanley common stock at grant date.

The equity-based compensation expense recognised for the year is €51 million (2021: €33 million). The companies within the Group have also entered into a chargeback agreement with Morgan Stanley under which they are committed to pay to Morgan Stanley the grant date fair value of awards granted as well as subsequent movements in fair value. Therefore the total amount included within 'Direct staff costs' and 'Management charges from other Morgan Stanley Group undertakings relating to staff costs' within 'Operating expense' was €51 million (2021: €37 million). This includes the equity-based compensation expense and movements in the fair value of the awards granted to employees.

The related liability due to Morgan Stanley at the end of the year, reported within 'Trade and other payables' in the consolidated statement of financial position, is €63 million (2021: €58 million) of which €31 million (2021: €34 million) is expected to be settled wholly within one year and €32 million (2021: €24 million) thereafter.

The unrecognised compensation cost related to equity-based awards is shown in the table below:

€ in millions	Invested awards granted:		Total
	To 31 December 2022	In January 2023	
Expense expected to be recognised in:			
2023	15	32	47
2024	5	7	12
2025	2	3	5
Thereafter	–	1	1
	22	43	65

Amounts above do not reflect forfeitures, cancellations, accelerations or adjustments to fair value for certain awards.

Deferred cash-based compensation plans

Morgan Stanley grants deferred cash-based compensation awards to certain employees which defer a portion of the employees' discretionary compensation. The plans generally provide a return based upon the performance of various referenced investments. Awards under these plans are generally subject to a sole vesting condition of service over time, which normally ranges from one to three years from the grant date. All, or a portion of an award may be forfeited if employment is terminated before the end of the relevant vesting period or cancelled after the vesting period in certain situations. The awards are settled in cash at the end of the relevant vesting period.

The deferred cash-based compensation expense recognised in the year was €1 million (2021: €4 million).

The liability to employees of the Group at the end of the year, which is reported within 'Other liabilities' in the consolidated statement of financial position, is €14 million (2021: €32 million), of which €13 million (2021: €29 million) is expected to be settled wholly within one year and €1 million (2021: €3 million) thereafter.

Plans operated by fellow Morgan Stanley Group undertakings

As described in note 7, the Group utilises the services of staff who are employed by other Morgan Stanley Group undertakings. Management charges are incurred in respect of these employee services which include the cost of equity-settled share-based and deferred cash-based compensation plans.

30. Post-Employment Benefits

Defined contribution plans

The Group operates several Morgan Stanley defined contribution plans, which require contributions to be made to funds held separately from the assets of the Group:

- Morgan Stanley Flexible Company Pension Plan (Amsterdam);
- Skandia Pension Plan (Stockholm);
- Fonditel Pension Plan (Madrid);
- Amundi Pension Plan (Milan);
- DC Pension Plan (Copenhagen);
- Poland DC PPK Pension Plan (Warsaw).

The Group pays fixed contributions to the plans, with no legal or constructive obligation to pay further contributions.

The defined contribution pension charge in relation to the above schemes recognised within 'Direct staff costs' in 'Operating expense' in the consolidated income statement was €2 million for the year (2021: €2 million).

Multi-employer plans

Two entities within the Group are members of BVV Versicherungsverein des Bankgewerbes a.G. ("BVV"), the occupational pension fund organised for the German banking sector which provides retirement benefits to eligible employees in Germany. Contributions to BVV are paid by both the employer and the employee based on a fixed percentage of base salary. The BVV pays a fixed pension with a guaranteed return and the employer entity retains the obligation for the pension benefit to its own employees, however the plan is accounted for as defined contribution based on IAS 19.34. The expense in relation to the BVV recognised within 'Direct staff costs' in 'Operating expense' in the consolidated income statement, for the year ended 31 December 2022, was €2 million (2021: €2 million).

Defined benefit plans

The Group operates defined benefit plans for which liabilities were recognised in the consolidated statement of financial position:

€ in millions	2022	2021
Morgan Stanley General Retirement plan	12	56
Morgan Stanley Deferred Compensation Plan	7	9
MSF Indemnités de Fin de Carrière ("IFC")	1	1
At 31 December	20	66

Defined benefit plans – Morgan Stanley General Retirement plan

The Group operates the Morgan Stanley General Retirement plan ("the GP") which provides post-employment benefits to members on retirement dependent on years of service and salary. The GP was open to all permanent employees of MSBAG and other Morgan Stanley Group undertakings until 2013 when it was closed to new members but remained open to future accrual of benefit for existing members. The Group's Management Board is briefed on the status of the GP which is subject to German

Pension legislation. A third party agent administers the GP and a qualified actuary performs actuarial valuations.

The most recent actuarial valuation of the GP was carried out by the qualified actuary at 31 December 2022. The obligations under the GP are measured by discounting the best estimate of future cash flows to be paid out using the projected unit credit method. The net defined benefit obligation is presented within 'Post employment benefit obligations' in the consolidated statement of financial position.

The GP is funded by insurance contracts held with third party insurance providers within a Contractual Trust Arrangement ("CTA") which is legally separate from the Group and managed by a third party trustee. Proceeds from the insurance policies, received in the CTA, can only be used to pay or fund employee benefits under the GP and are not available to Group entities or creditors. The fair value of the insurance policies is a technical valuation provided by the insurer which approximates the cash surrender value.

The GP exposes the Group to risks such as inflation risk, longevity risk and counterparty credit risk.

Movement in net defined benefit pension obligation of the GP

2022

€ in millions	Present value of obligation	Fair value of plan assets	Total
At 1 January 2022	(106)	50	(56)
Current Service Cost	(2)	–	(2)
Net interest (expense)/income	(1)	1	–
Amounts recognised in the consolidated income statement	(3)	1	(2)
Remeasurements:			
Actuarial gain arising from changes in financial assumptions ⁽¹⁾	42	–	42
Actuarial gain arising from experience adjustments	2	–	2
Amounts recognised in the consolidated statement of comprehensive income	44	–	44
Employer Contributions	–	3	3
At 31 December 2022	(65)	54	(11)

⁽¹⁾ Primarily reflects the impact of year-over-year discount rate fluctuations

2021

€ in millions	Present value of obligation	Fair value of plan assets	Total
At 1 January 2021	(106)	47	(59)
Current Service Cost	(2)	–	(2)
Net interest (expense)/ income	(1)	–	(1)
Amounts recognised in the consolidated income statement	(3)	–	(3)
Remeasurements:			
Actuarial gain arising from changes in financial assumptions	1	–	1
Actuarial gain arising from experience adjustments	2	–	2
Amounts recognised in the consolidated statement of comprehensive income	3	–	3
Employer Contributions	–	3	3
At 31 December 2021	(106)	50	(56)

The net obligation of €11 million (2021: €56 million) represents projected inflationary increases to pensions not contractually insured and the effect of differing valuation assumptions, principally discount rates, applied in the valuation of the assets and liabilities. Of the gross defined benefit obligation €17 million (2021: €35 million) relates to active members, €40 million (2021: €61 million) relates to deferred members and €7 million (2021: €10 million) relates to retired members.

Details of the GP's impact on the Group's pension reserve are given in note 3(n) to these consolidated financial statements.

GP assets

The insurance policies cover the starting pension benefit entitlement. Subsequent statutory inflationary increases to pensions in payment are not contractually insured, however, any surpluses generated by the insurance are paid to the Group as a non-guaranteed profit share. In the event that the profit share does not fully cover the pension entitlement, the Group is required to meet the residual obligation.

Employer contributions to the GP plan are in the form of annual insurance premiums and the Group expects to contribute €3 million (2021: €3 million) in the next financial year. Should a member leave the Group before normal retirement age additional premiums may be payable in order to secure the final pension entitlement. The weighted average duration of

the GP plan defined benefit obligations at 31 December 2022 is 21.87 years (2021: 26.20 years).

GP liabilities

The following table presents the principal actuarial assumptions at the end of the reporting period:

	2022	2021
Inflation (CPI)	2.6%	2.3%
Discount rate	3.7%	1.3%
Rate of compensation increase	2.5%	2.5%

The mortality assumption follows the Heubeck AG 2018 table which is based on the latest data provided by the German Statutory Pension Insurance Scheme (Deutsche Rentenversicherung) and the German Federal Statistical Office.

The sensitivities regarding the principal assumptions used to measure the defined benefit obligation are as follows:

2022

Assumption	Change in assumption	Impact on plan liabilities
Discount rate	Increase / decrease by 0.5%	Decrease by 9.83% / increase by 11.34%
Inflation	Increase / decrease by 0.5%	Increase by 6.79% / decrease by 6.15%
Rate of compensation increase	Increase / decrease by 0.5%	Increase by 0.05% / decrease by 0.04%

2021

Assumption	Change in assumption	Impact on plan liabilities
Discount rate	Increase / decrease by 0.5%	Decrease by 11.85% / increase by 13.99%
Inflation	Increase / decrease by 0.5%	Increase by 8.07% / decrease by 7.23%
Rate of compensation increase	Increase / decrease by 0.5%	Increase by 0.08% / decrease by 0.05%

The sensitivity analysis presented above has been determined based on reasonably possible changes of the assumptions occurring at 31 December 2022 and 31 December 2021 assuming that all other assumptions are held

constant. The fair value of plan assets is not considered to be materially impacted by fluctuations in the principal assumptions used to measure the obligation and is therefore excluded from the above table.

Other defined benefits schemes – Morgan Stanley Deferred Compensation Plan

The Morgan Stanley Deferred Compensation plan was a voluntary compensation deferral plan available to certain employees of MSBAG and other Morgan Stanley Group undertakings which closed in 2005. Members have the option of taking a lump sum equal to the amount deferred plus a guaranteed interest rate or taking payments over 5 years.

The Deferred Compensation plan is partially funded by insurance contracts held with third party insurance companies. These policies are pledged by the Group to the employee, are protected from the Group's creditors in the event of insolvency and can only be used to pay or fund employee benefits under this defined benefit plan. The insurance policies are considered plan assets and are measured at fair value. Plan liabilities are measured by a qualified actuary at present value and the net defined benefit obligation is presented within 'Post employment benefit obligations' in the consolidated statement of financial position.

Movement in net defined benefit pension obligation of the Deferred Compensation Plan

2022

€ in millions	Present value of obligation	Fair value of plan assets	Total
At 1 January 2022	(16)	7	(9)
Remeasurements recognised in the consolidated statement of comprehensive income	2	–	2
At 31 December 2022	(14)	7	(7)

2021

€ in millions	Present value of obligation	Fair value of plan assets	Total
At 1 January 2021	(17)	7	(10)
Remeasurements recognised in the consolidated statement of comprehensive income	1	–	1
At 31 December 2021	(16)	7	(9)

The weighted average duration of the obligations at 31 December 2022 is 5.5 years (2021: 6.5 years).

MSESE - Paris IFC and MSF IFC

Indemnité de Fin de Carrière (IFC) is an unfunded defined benefit plan which pays a lump sum on retirement as required by French Labour law. The scheme exposes the Group to risks including inflation and interest rate risk.

MSESE - Milan Leaving Indemnity

This plan is an unfunded defined benefit plan which pays a lump sum upon termination of employment. It is closed to the accrual of future benefits and no further benefit has been attributed to service during the current or prior reporting period. The defined benefit obligation is therefore a measure of the present value of benefits for service already rendered and includes no assumption for future salary increases. The scheme exposes the Group to risks including inflation and interest rate risk.

31. Related Party Disclosures

Parent and subsidiary relationships

Parent and ultimate controlling entity

The Group's immediate parent undertaking is MSI which is registered in England and Wales. Copies of its financial statements can be obtained from the Registrar of Companies for England and Wales, Companies House, Crown Way, Cardiff CF14 3UZ.

The ultimate parent undertaking and controlling entity is Morgan Stanley. This is the largest group of which the Group is a member and for which group financial statements are prepared. Morgan Stanley has its registered office c/o The Corporation Trust Company, The Corporation Trust Center, 1209 Orange Street, Wilmington, DE 19801, United States of America and is incorporated in the state of Delaware, in the United States of America. Copies of its financial statements can be obtained from www.morganstanley.com/investorrelations.

Key management compensation

Key management personnel are defined as those persons having authority and responsibility for planning, directing and controlling the activities of the Group. Key management personnel include Management and Supervisory Board members of MSEHSE, MSESE and MSBAG.

Compensation paid to key management personnel, in respect of their services rendered to the Group, comprised the following:

€ in millions	2022	2021
Short-term employee benefits	10	10
Share-based payments	4	6
	14	16

The share-based payment costs disclosed above reflect the amortisation of equity-based awards granted to key management personnel and are therefore not directly aligned with staff costs within 'Operating expense'.

Key management personnel compensation is borne by the Group and by other Morgan Stanley Group undertakings. Management recharges in respect of key management personnel compensation borne by other Morgan Stanley Group undertakings are included in 'Management charges from other Morgan Stanley Group undertakings relating to staff costs' within 'Operating expense', as disclosed in note 7.

The members of the Management Board of MSEHSE collectively received compensation totaling €6 million for the year ended 31 December 2022 (2021: €5 million).

The members of the Supervisory Board of MSEHSE collectively received a total remuneration of €3 million for the year ended 31 December 2022 (2021: €4 million).

MSEHSE has not provided any loans or other credit advances to its Management and Supervisory Board members during the year.

Transactions with related parties

The Morgan Stanley Group conducts business for clients globally through a combination of both functional and legal entity organisational structures. Accordingly, the Group is closely

integrated with the operations of the Morgan Stanley Group and enters into transactions with other Morgan Stanley Group undertakings on an arm's length basis for the purposes of utilising financing, trading and risk management, and infrastructure services. The nature of these relationships along with information about the transactions and outstanding balances is given below. The provision the Group has made for impairment relating to the amount of outstanding balances from related parties is de minimis.

Cash

The Group receives cash and termed deposits from other Morgan Stanley Group undertakings. All such transactions are entered into on an arm's length basis. Details of these balances are as follows:

€ in millions	Interest gains/ (losses)	Balance
2022		
Amounts due to the Company's direct and indirect parent undertakings	(17)	6,930
Amounts due to other Morgan Stanley Group undertakings	–	702
2021		
Amounts due to the Company's direct and indirect parent undertakings	–	1
Amounts due to other Morgan Stanley Group undertakings	8	92

Funding

The Group receives funding from, and provides funding to, other Morgan Stanley Group undertakings in the following forms:

General funding

General funding is undated, unsecured, floating rate lending, other than certain funding which is dated on a rolling 395 day term. Funding may be received or provided for specific transaction related funding requirements, or for general operational purposes. The interest rates are established by the Morgan Stanley Group Treasury function for all entities within the Morgan Stanley Group and approximate the market rate of interest that the Morgan Stanley Group incurs in funding its business.

Details of the outstanding balances in the consolidated statement of financial position on these funding arrangements and the related interest income or expense recognised in the consolidated income statement during the year are shown in the table below:

€ in millions	2022		2021	
	Interest gains/ (losses)	Balance	Interest gains/ (losses)	Balance
Undated				
Amounts due from other Morgan Stanley Group undertakings	1	106	1	88
	1	106	1	88
Undated				
Amounts due to the Company's direct and indirect parent undertakings	–	64	–	53
Amounts due to other Morgan Stanley Group undertakings	–	67	–	66
	–	131	–	119
Rolling 395 day term				
Amounts due to the Company's direct and indirect parent undertakings	(105)	625	30	323
Amounts due to other Morgan Stanley Group undertakings	–	–	–	50
	(105)	625	30	373

Subordinated debt

The Group issued subordinated debt and senior subordinated debt instruments to its direct and indirect parent undertakings. Details of the terms of these instruments, including the contractual maturities and the interest rates are shown in note 16.

€ in millions	Interest gains/ (losses)	Balance
2022		
Senior subordinated debt	(25)	2,500
Subordinated debt	(17)	1,000
2021		
Senior subordinated debt	–	1,500
Subordinated debt	(11)	1,000

AT1 capital

The Group issued AT 1 capital instruments to its direct and indirect parent undertakings. The coupons on these instruments were paid on 30 November 2022. Details of the terms of the instruments and the coupons paid are shown in note 19.

Ordinary shares

The Group issued ordinary shares to its immediate parent undertaking during the year. Details of the capital actions during the year are shown in note 19.

Trading and risk management

In the course of funding its business, the Group enters into collateralised financing transactions with other Morgan Stanley Group undertakings. All such transactions are entered into on an arm's length basis.

Details of the amount outstanding on such transactions and the related interest income/expense recognised in the consolidated income statement during the year are shown in the table below:

€ in millions	Interest gains/ (losses)	Balance
2022		
Amounts due from other Morgan Stanley Group undertakings	45	8,975
Amounts due to other Morgan Stanley Group undertakings	(36)	14,369
2021		
Amounts due from other Morgan Stanley Group undertakings	(20)	9,645
Amounts due to other Morgan Stanley Group undertakings	75	5,351

The Group enters into purchases and sales of securities and derivative transactions with other Morgan Stanley Group undertakings to facilitate the provision of financial services to clients on a global basis and to manage the market risks associated with such business. The Group also enters into derivative transactions with other Morgan Stanley Group undertakings to manage the market risks associated with certain compensation plans. All such transactions are entered into on an arm's length basis.

The total amounts receivable and payable from such transactions not yet settled and the fair value of such derivatives contracts outstanding at the year end were as follows:

€ in millions	2022	2021
Amounts due from other Morgan Stanley Group undertakings on unsettled securities and derivative transactions	14,519	8,337
Amounts due to other Morgan Stanley Group undertakings on unsettled securities and derivative transactions	18,265	11,333

The Group has received collateral of €2,003 million (2021: €2,385 million) from the Company's direct and indirect parent undertakings and €876 million (2021: €488 million) from other Morgan Stanley Group undertakings. The Group has pledged collateral of €6,598 million (2021: €2,881 million) to other Morgan Stanley Group undertakings. The Group has received and pledged collateral to mitigate credit risk on exposures arising under derivatives contracts between the Group and other Morgan Stanley Group undertakings.

In addition, the management and execution of business strategies on a global basis results in many Morgan Stanley transactions impacting a number of Morgan Stanley Group entities. The Morgan Stanley Group has global transfer pricing policies in place among the ultimate parent and its consolidated subsidiaries to ensure arm's length pricing. These policies are consistent with Organisation for Economic Co-operation and Development ("OECD") transfer pricing guidelines for multinational enterprises and tax administrations.

For the year ended 31 December 2022, a net gain of €269 million (2021: €69 million) was transferred to the Group from other Morgan Stanley Group undertakings relating to such transfer pricing policies and recognised in the consolidated income statement.

Infrastructure services

The Group receives and incurs management charges to and from other Morgan Stanley Group undertakings for infrastructure services, including the provision of staff and office facilities. Management recharges received during the year are as follows:

€ in millions	Staff costs ⁽¹⁾	Other services ⁽¹⁾
2022		
Amounts recharged from other Morgan Stanley Group undertakings	42	127
	42	127

⁽¹⁾ As at 31 December 2022, the amounts recharged from the Company's direct and indirect parent undertakings were de minimis.

€ in millions	Staff costs	Other services
2021		
Amounts recharged from the Company's direct and indirect parent undertakings	–	2
Amounts recharged from other Morgan Stanley Group undertakings	30	81
	30	83

Other related party transactions

The Group transferred the Real Assets business unit to a fellow Morgan Stanley Group undertaking during the year. Further details are disclosed in note 1.

The Group has a guarantee and collateral framework agreement in place with MSI. This guarantees the obligations of third parties and fellow Morgan Stanley Group undertakings to the MSEHSE Group from transactions that are part of the MSEHSE Group's day to day operations. As at 31 December 2022, the Group has received collateral of €2,003 million (2021: €2,385 million) under this arrangement as described in the "Trading and risk management" section of this note.

The Group provided a fully-secured overdraft line of €5,000 million (2021: €1,000 million) to a fellow Morgan Stanley Group undertaking.

The Group received guarantees of €816 million (2021: €391 million) from another Morgan Stanley Group undertaking related to loans and loan commitments to corporate clients during the year. Furthermore, sub-participation agreements were set up with other Morgan Stanley Group undertakings in relation to loans and loan commitments to corporate clients of €2,725 million (2021: €4,439 million).

32. Country by Country Reporting

Pursuant to Section 26a of the German Banking Act (Kreditwesengesetz, or “KWG”) the following table provides a list of all legal entities and branches of the Group, including details of the nature of business of each entity and geographical location.

Name of subsidiary/branch	Geographical location	Nature of business
Morgan Stanley Europe Holding SE	Germany	Financial holding company
Morgan Stanley Bank AG	Germany	Credit institution
Morgan Stanley France Holdings I S.A.S.	France	Investment holding company
Morgan Stanley France Holdings II S.A.S.	France	Holding company
Morgan Stanley France S.A.	France	Investment firm
Morgan Stanley Europe SE	Germany	Credit institution*
Morgan Stanley Europe SE - Amsterdam Branch	Netherlands	Credit institution*
Morgan Stanley Europe SE - Copenhagen Branch	Denmark	Credit institution*
Morgan Stanley Europe SE - Madrid Branch	Spain	Credit institution*
Morgan Stanley Europe SE - Milan Branch	Italy	Credit institution*
Morgan Stanley Europe SE - Paris Branch	France	Credit institution*
Morgan Stanley Europe SE - Stockholm Branch	Sweden	Credit institution*
Morgan Stanley Europe SE - Warsaw Branch	Poland	Credit institution*

* A formal authorisation of Morgan Stanley Europe SE as a CRR credit institution was received on 1 September 2022.

The following table sets out information on turnover, profits before tax, corporate income tax and average number of employees of the Group for the year ended 31 December 2022 split by geographical location. Turnover, profits before tax and corporate income tax amounts are reported in accordance with the Group’s 2022 consolidated income statement. Turnover is defined as net revenues before impairment and operating expenses net of intra-country eliminations.

Country	Turnover (€ in millions)	Profit before tax (€ in millions)	Corporate income tax (€ in millions)	Average number of employees
Germany	581	139	70	410
Denmark	2	–	–	3
France	206	59	15	206
Italy	50	14	4	72
Netherlands	8	4	1	2
Poland	5	1	–	6
Spain	65	14	3	87
Sweden	30	5	1	19
Total	947	236	94	805

The Group has not received any public subsidies according to Section 26a (1) Sentence 2 No. 6 of the KWG.

33. Events after the Reporting period

The Group received CET1 capital from MSI as an infusion into the capital contribution reserve of the Group in the amount of €1,000 million on 3 April 2023.

Frankfurt am Main, 18 April 2023

Morgan Stanley Europe Holding SE
The Management Board

Oliver Behrens (Chairman)

David Best

André Munkelt

Dr. Jana Währisch

Independent Auditor's Report¹

To Morgan Stanley Europe Holding SE,
Frankfurt am Main

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND GROUP MANAGEMENT REPORT

Audit Opinion

We have audited the consolidated financial statements of Morgan Stanley Europe Holding SE, Frankfurt am Main, and its subsidiaries (the Group) which comprise the consolidated statement of financial position as at 31 December 2022, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the financial year from 1 January 2022 to 31 December 2022, and the notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the Group Management Report of Morgan Stanley Europe Holding SE, Frankfurt am Main, for the financial year from 1 January 2022 to 31 December 2022. In compliance with German legal requirements, we have not audited the contents of the "Non-Financial Disclosures" ("nicht-finanzielle Konzernklärung") or references to the website of the Morgan Stanley Group included in the "Economic Report" and "Opportunities and Outlook" sections of the Group Management Report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the International Financial Reporting Standards ("IFRS") as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) of the German Commercial Code ("HGB") and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group

as at 31 December 2022 and of its financial performance for the financial year from 1 January 2022 to 31 December 2022; and

- the accompanying Group Management Report as a whole provides an appropriate view of the Group's position. In all material respects, this Group Management Report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the Group Management Report does not cover the contents of the separate nonfinancial disclosures ("nicht-finanzielle Konzernklärung") or the references to the website of the Morgan Stanley Group included in "Economic Report" and "Opportunities and Outlook" sections of the Group Management Report.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and the Group Management Report.

Basis for the Audit Opinion

We conducted our audit of the consolidated financial statements and the Group Management Report in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the evidence we have obtained is sufficient and appropriate to serve as a basis for our audit opinions on the consolidated financial statements and the Group Management Report.

¹ Translation; the German version prevails

Other Information

The Management Board is responsible for the other information. The other information includes:

- the references to the website of the Morgan Stanley Group included in “Economic Report” and “Opportunities and Outlook” sections of the Group Management Report;
- the separate nonfinancial disclosures (“nicht-finanzielle Konzernklärung”) entitled in accordance with Sections 315b and 315c HGB in conjunction with Sections 289b to 289e HGB;
- all other parts of the published annual report;
- but not the consolidated financial statements, not the audited content of the Group Management Report and not our auditor’s report thereon.

Our audit opinions on the consolidated financial statements and the Group Management Report do not cover the other information and consequently we do not express an audit opinion or any other form of assurance conclusion on them.

In connection with our audit, we have a responsibility to read the other information identified above and to consider whether the other information:

- has material discrepancies with the consolidated financial statements, with the Group Management Report or with the knowledge we have obtained during the audit; or
- otherwise appears to be materially misstated.

Responsibilities of the Management Board and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

The Management Board is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRS as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB, and that the consolidated financial statements, in

compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. Furthermore, the Management Board is responsible for the internal controls which they have determined necessary to enable the preparation of consolidated financial statements that are free of material misstatements, whether due to fraud (i.e. fraudulent financial reporting or the misappropriation of assets) or error.

In preparing the consolidated financial statements, the Management Board is responsible for assessing the Group’s ability to continue as a going concern. Furthermore, they have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting on the basis of the going concern accounting principle unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the Management Board is responsible for the preparation of the Group Management Report, which as a whole provides an appropriate view of the Group’s position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the Management Board is responsible for such arrangements and measures (systems) that they have deemed necessary to enable the preparation of a Group Management Report in accordance with the applicable German legal requirements, and to be able to provide sufficient and appropriate evidence for the assertions in the Group Management Report.

The Supervisory Board is responsible for overseeing the Group’s financial reporting process for the preparation of the consolidated financial statements and the Group Management Report.

Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements and the Group Management Report

Our objectives are to obtain reasonable assurance as to whether the consolidated financial statements as a whole are free of material misstatement, whether due to fraud or error, and whether the Group Management

INDEPENDENT AUDITOR'S REPORT

Year ended 31 December 2022

Report as a whole gives an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and with the knowledge obtained during the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report containing our audit opinions on the consolidated financial statements and the Group Management Report.

Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with Section 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements may result from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users made on the basis of these consolidated financial statements and the Group Management Report.

Throughout the audit, we exercise professional judgment and maintain professional scepticism. In addition, we also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and the Group Management Report, whether due to fraud or error, design and perform audit procedures in response to these risks, and obtain audit evidence that is sufficient and appropriate to serve as a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of the internal controls relevant to the audit of the consolidated financial statements and the arrangements and measures relevant to the audit of the Group Management Report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of the accounting policies used by the Management Board as well as the reasonableness of estimates made by the Management Board and related disclosures.
- Conclude on the appropriateness of the Management Board's use of the going concern accounting principle and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that there is a material uncertainty, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the Group Management Report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or circumstances may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in such a manner that the consolidated financial statements give a true and fair view of the Group's assets, liabilities, financial position and financial performance in compliance with IFRS as adopted by the EU and with the additional requirements of German commercial law pursuant to Section 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and the Group Management Report. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the Group Management Report with the consolidated financial statements, its conformity with German law and the view it conveys of the Group's position.

INDEPENDENT AUDITOR'S REPORT

Year ended 31 December 2022

- Perform audit procedures on the prospective disclosures presented by the Management Board in the Group Management Report. On the basis of sufficient appropriate audit evidence, we evaluate, in particular, the significant assumptions on which the Management Board bases the prospective disclosures, and assess the proper derivation of the prospective disclosures from these assumptions. We do not express an additional audit opinion on the prospective disclosures or on the underlying assumptions. There is a substantial unavoidable risk that future events will differ materially from the prospective disclosures.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, as well as significant audit findings, including any significant deficiencies in the internal controls that we identify during our audit.

Frankfurt am Main, 20 April 2023

Deloitte GmbH

Wirtschaftsprüfungsgesellschaft

signed: Martin Kopatschek
Wirtschaftsprüfer (German Public Auditor)

signed: Kevin Vogt
Wirtschaftsprüfer (German Public Auditor)

Report of the Supervisory Board in accordance with Section 171 (2) of the German Stock Corporation Act (AktG)

In 2022 the Supervisory Board of Morgan Stanley Europe Holding SE (the “Company”) had a strong focus on the development and business activities of the Company and the Morgan Stanley Europe Holding SE Group through the provision of financial services. There were nine Supervisory Board meetings that took place during 2022. The Supervisory Board discussed fundamental aspects of the corporate planning, business policy, business development, risk situation and risk management with the Management Board. At the Supervisory Board meetings and whenever required, the Management Board regularly reported comprehensively and promptly on all incidents of significant importance and on the development of the financial figures.

The Management Board of Morgan Stanley Europe Holding SE provided the Supervisory Board with the consolidated financial statements and the Group management report for the financial year 2022 without delay after their preparation. The consolidated financial statements consist of:

- Consolidated income statement,
- Consolidated statement of comprehensive income,
- Consolidated statement of changes in equity,
- Consolidated statement of financial position,

- Consolidated statement of cash flows and
- Notes to the consolidated financial statements

The Management Board therefore carried out their obligations in accordance with Section 170 (1) AktG.

The Supervisory Board examined the documentation submitted in accordance with Section 171 (1) AktG. The Auditor’s information was included in the examination. The examination has not led to any reservations.

The Supervisory Board subsequently approved the consolidated financial statements for the financial year 2022. As a result, the consolidated financial statements of Morgan Stanley Europe Holding SE for the financial year 2022 were determined in accordance with section 172 AktG.

The statutory auditors, Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, have issued an unqualified audit opinion for the consolidated financial statements and the Group management report which have been prepared in accordance with International Financial Reporting Standards (IFRS).

The Supervisory Board would like to extend its gratitude to the Management Board and to all employees for their exceptional commitment and successful contributions in 2022.

24 April 2023

Frank Mattern (Chairman)