Morgan Stanley Europe Holding SE Group

Pillar 3 Regulatory Disclosures Report

As of 31 December 2022

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[1] Please note that the English version of the Pillar 3 Disclosure report as of 31 December 2022 is a translation; the German version prevails.

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1. Overview and Key Metrics

The principal activity of Morgan Stanley Europe Holding SE, Frankfurt am Main, Germany ("MSEHSE") together with its subsidiaries (the "MSEHSE Group") is the provision of financial services to a client base mainly in the European Economic Area ("EEA") consisting of corporations, governments, and financial institutions. There have not been any significant changes in the MSEHSE Group's principal activities during 2022.

Following the United Kingdom's (“UK”) withdrawal from the European Union ("EU"), and in consideration of divergence in requirements between the UK and the EU, to ensure compliance with EU disclosure requirements, the MSEHSE Group will now publish a standalone Pillar 3 disclosure report. This is the first such standalone Pillar 3 report, previous disclosures were included within the Morgan Stanley International Limited Group, London, UK (“MSI Group”) Pillar 3 disclosure report.

On 18 November 2022, BaFin in consultation with the Deutsche Bundesbank categorised MSEHSE as an Other Systematically Important Institution ("O-SII"). As of 1 January 2023, the MSEHSE Group is required to hold an additional 0.25% Common Equity Tier 1 ("CET1") capital as an O-SII buffer.

Directors Responsibility Statement

To the best of my knowledge, I certify that the MSEHSE Group’s Pillar 3 Disclosure Report as of 31 December 2022 is compliant with Part 8 of the Capital Regulation Requirements (“CRR”) and has been prepared in accordance with formal governance and internal processes, systems and control procedures adopted at senior management level.

Dr. Jana Waehrisch
Chief Financial Officer
Morgan Stanley Europe Holding SE

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Key Metrics

Table 1: Key metrics (EU KM1)[4]

€MM MSEHSE Group[1]		a Q4'22	b Q3'22	c Q2'22	d Q1'22	e Q4'21[3]
	Available own funds (amounts)					
1	Common Equity Tier 1 (CET1) capital	5,191	4,235	4,222	3,632	3,412
2	Tier 1 capital	6,191	5,235	5,222	4,232	4,012
3	Total capital	7,191	6,235	6,222	5,232	5,012
	Risk-weighted exposure amounts					
4	Total risk exposure amount	27,965	33,683	28,672	21,854	21,221
	Capital ratios (as a percentage of risk-weighted exposure amount)					
5	Common Equity Tier 1 ratio (%)	18.56%	12.57%	14.73%	16.62%	16.08%
6	Tier 1 ratio (%)	22.14%	15.54%	18.21%	19.36%	18.90%
7	Total capital ratio (%)	25.71%	18.51%	21.70%	23.94%	23.62%
	Additional own funds requirements to address risks other than the risk of excessive leverage (as a percentage of risk-weighted exposure amount)					
EU 7a	Additional own funds requirements to address risks other than the risk of excessive leverage (%)	2.75%	2.75%	2.75%	2.75%	2.75%
EU 7b	of which: to be made up of CET1 capital (percentage points)	1.55%	1.55%	1.55%	1.55%	1.55%
EU 7c	of which: to be made up of Tier 1 capital (percentage points)	2.06%	2.06%	2.06%	2.06%	2.06%
EU 7d	Total SREP own funds requirements (%)	10.75%	10.75%	10.75%	10.75%	10.75%
	Combined buffer and overall capital requirement (as a percentage of risk-weighted exposure amount)					
8	Capital conservation buffer (%)	2.50%	2.50%	2.50%	2.50%	2.50%
EU 8a	Conservation buffer due to macro-prudential or systemic risk identified at the level of a Member State (%)	-	-	-	-	-
9	Institution specific countercyclical capital buffer (%)	0.35%	0.10%	0.04%	0.05%	0.04%
EU 9a	Systemic risk buffer (%)	-	-	-	-	-
10	Global Systemically Important Institution buffer (%)	-	-	-	-	-
EU 10a	Other Systemically Important Institution buffer (%)	-	-	-	-	-
11	Combined buffer requirement (%)	2.85%	2.60%	2.54%	2.55%	2.54%
EU 11a	Overall capital requirements (%)	13.60%	13.35%	13.29%	13.30%	13.29%
12	CET1 available after meeting the total SREP own funds requirements (%)	12.52%	6.53%	8.68%	10.57%	10.03%
	Leverage Ratio					
13	Total exposure measure	77,190	86,765	77,884	73,528	57,386
14	Leverage ratio (%)	8.02%	6.03%	6.71%	5.76%	6.99%
	Additional own funds requirements to address the risk of excessive leverage (as a percentage of total exposure measure)					
EU 14a	Additional own funds requirements to address the risk of excessive leverage (%)	-	-	-	-	-
EU 14b	of which: to be made up of CET1 capital (percentage points)	-	-	-	-	-
EU 14c	Total SREP leverage ratio requirements (%)	3.00%	3.00%	3.00%	3.00%	3.00%
	Leverage ratio buffer and overall leverage ratio requirement (as a percentage of total exposure measure)					
EU 14d	Leverage ratio buffer requirement (%)	-	-	-	-	-
EU 14e	Overall leverage ratio requirement (%)	3.00%	3.00%	3.00%	3.00%	3.00%
	Liquidity Coverage Ratio					
15	Total high-quality liquid assets (HQLA) (Weighted value - average)	10,663	9,145	7,562	7,736	8,063
EU 16a	Cash outflows - Total weighted value	19,522	18,121	15,228	12,904	10,834
EU 16b	Cash inflows - Total weighted value	12,648	12,767	11,569	8,815	5,667
16	Total net cash outflows (adjusted value)	7,158	5,847	4,250	4,554	5,475
17	Liquidity coverage ratio (%)[2]	158.37%	168.67%	177.92%	169.87%	147.06%
	Net Stable Funding Ratio					
18	Total available stable funding	14,430	13,058	11,866	12,850	12,006
19	Total required stable funding	7,372	10,032	9,223	6,977	5,785
20	NSFR ratio (%)	195.74%	130.16%	128.66%	184.18%	207.53%

1. The MSEHSE Group is required to maintain a minimum ratio of Own Funds to Risk Weighted Assets ("RWAs") as well as to maintain a minimum Leverage Ratio of 3% in accordance with Article 92 CRR. As of 31 December 2022, MSEHSE Group follows the CRR capital requirements.
2. Calculation of the Liquidity Coverage Ratio is based on an average of 12-month data points instead of an average Total HQLA over Total net cash outflows (change in Q3 2022)
3. Prior year values are taken from the MSI Group report, which has been reported in USD and for the purposes of this report the values have been translated in EUR applying FX rate of 1,1386 (as of 31 Dec 2021).
4. The quantitative information provided in this Pillar 3 disclosure report are rounded numbers and might not add up precisely to the totals provided in referencing documents.

As shown in Table 1 Own Funds increased primarily due to CET1 and Additional Tier 1 (“AT1”) capital issuances in 2022. The leverage ratio increased by 2% in 2022 due to an increase in Tier 1 capital partially offset by an increase in the leverage ratio exposure measure.

Morgan Stanley Group

The MSEHSE Group is a wholly owned sub-group of the MSI Group. The MSI Group is regulated by the Prudential Regulation Authority ("PRA") and the Financial Conduct Authority ("FCA") in the United Kingdom. The MSEHSE Group's, and MSI Group's, ultimate parent undertaking and controlling entity is Morgan Stanley, a Delaware corporation which, together with its consolidated subsidiaries, form the Morgan Stanley Group. Morgan Stanley is a "Financial Holding Company" as defined by the Bank Holding Company Act of 1956, as amended, and is subject to regulation and oversight of the Board of Governors of the Federal Reserve System. Details on the latest MSI Group Pillar 3 disclosure can be accessed at: https://www.morganstanley.com/about-us-ir/pillar-uk.

The MSEHSE Group is subject to joint supervision by the European Central Bank ("ECB"), the Federal Financial Supervisory Authority ("BaFin") and the Deutsche Bundesbank. The Pillar 3 disclosures as of 31 December 2022 are prepared on a consolidated basis.

The information disclosed in this document is not necessarily indicative of the Morgan Stanley Group as a whole, nor is it comprehensively representative of the Morgan Stanley Group's activity in any particular region. Investors, stakeholders, creditors, or other users seeking information on capital adequacy, liquidity, risk exposure and risk management policies of the Morgan Stanley Group should consult the public disclosures of the Morgan Stanley Group.

Details of the latest Morgan Stanley Group Pillar 3 disclosure can be accessed at http://www.morganstanley.com/about-us-ir/pillar-us. Details of the latest Morgan Stanley Group Liquidity Coverage Ratio disclosure can be accessed at https://www.morganstanley.com/about-us-ir/lcr-disclosures-us.

Morgan Stanley is listed on the New York Stock Exchange and is required, by the US Securities and Exchange Commission (“SEC”), to file public disclosures, including Annual 10-K Report and Quarterly 10-Q Report. These can be accessed at https://www.morganstanley.com/pub/content/msdotcom/en/about-us-ir/sec-filings.

Additional Regulatory Supervision

Morgan Stanley Europe SE, Frankfurt am Main, Germany (“MSESE”) as a Germany-based broker-dealer is registered with the SEC as a security-based swap dealer and provisionally registered with the Commodity Futures Trading Commission (“CFTC”) as a swap dealer. Until 31 December 2022, and pursuant to an interim no-action relief order, MSESE was complying with the CRR and German local capital requirements instead of SEC and CFTC capital requirements. Starting from 1 January 2023 compliance is maintained based on the application of substituted compliance.

2. Regulatory Frameworks

2.1 Regulatory Overview

The Basel Committee on Banking Supervision ("BCBS") sets the standard for international banking prudential regulation in a series of accords ("Basel Accords"). It is a forum for regular cooperation on the supervision of the banking system and is made up of national central banks and supervisory authorities from 28 countries.

The Basel Accords are not directly applicable legislation, and they apply only to internationally active banks. The Basel Accords have been updated several times, most recently through a series of reforms known collectively as Basel III. The Basel Accords are implemented in the EU via the Capital Requirements Directive ("CRD") and CRR, both as amended. Further detailed requirements are provided through technical standards and regulations issued by other EU bodies, for example the European Banking Authority ("EBA"), as well as the ECB and other national supervisors which includes the BaFin and the Deutsche Bundesbank.

The framework consists of three "Pillars":

- Pillar 1 – Minimum capital and liquidity requirements: defines rules for the calculation of credit, market, operational and liquidity risk;
- Pillar 2 – Supervisory review process: including a requirement for institutions to undertake an Internal Capital Adequacy Assessment ("ICAAP") and Internal Liquidity Adequacy Assessment ("ILAAP");
- Pillar 3 – Market discipline: requires expanded disclosures to allow investors and other market participants to understand capital and liquidity adequacy, particular risk exposures and risk management processes of individual institutions.

This document represents the annual public Pillar 3 qualitative and quantitative disclosures in relation to the MSEHSE Group, as of 31 December 2022. The disclosure report is published and can be found at https://www.morganstanley.com/about-us-ir/pillar-eu.html.

Pillar 3 Disclosure

The MSEHSE Group's Pillar 3 disclosures are prepared in accordance with the requirements of Part 8 of the CRR. Additional disclosure requirements are implemented by the EBA via Regulatory Technical Standards ("RTS") and Implementing Technical Standards ("ITS"). These additional disclosure requirements include published templates which have been integrated within this disclosure where applicable.

MSEHSE is the EU parent company and is authorised by the ECB as a financial holding company. 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, Germany ("MSBAG").

MSESE is considered as a large subsidiary of the MSEHSE Group. However, as of 31 December 2022 MSESE was exempted from the application of Article 6 (1) CRR, pursuant to Article 7 CRR and section 2a (2) of the German Banking Act (*Kreditwesengesetz* - "KWG"). MSBAG is classified as a non-large subsidiary in accordance with Article 4 (1) No. 146 CRR and is exempted from the requirement to publish Pillar 3 disclosures. MSESE and MSBAG have been granted a Capital waiver in accordance with Article 7 of the CRR and section 2a (3) KWG, that waives the requirement on an individual basis and therefore capital requirements are met at the consolidated MSEHSE Group level.

Moreover, MSEHSE is the sole shareholder of Morgan Stanley France Holdings I S.A.S., Paris, France ("MSFH I") together with its subsidiaries Morgan Stanley France Holdings II S.A.S., Paris, France ("MSFH II") and Morgan Stanley France S.A., Paris, France ("MSF"). MSF and MSFH I are subject to supervision by the Autorité de Contrôle Prudentiel et de Résolution ("ACPR"), Paris. As a Class 2 non-systemic investment firm, MSF falls under the scope of the Investment Firms Regulation ("IFR"). MSFH I on a consolidated basis, and MSF on a solo basis, prepare their own Pillar 3 disclosure report in accordance with the IFR rules.

The requirement to disclose information on Environmental, Social and Governance risks ("ESG") pursuant to Article 449a CRR does not apply to the MSEHSE Group as it has not issued securities that are admitted to trading on a regulated market of any Member State as of 31 December 2022.

The disclosure requirements on Remuneration in accordance with Art. 450 CRR and Institutsvergütungsverordnung are disclosed in a separate report and can be found on the following webpage: https://www.morganstanley.com/about-us-ir/pillar-eu.html.

Other

On 29 September 2022, MSESE applied for the permission to use 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 MSEHSE Group level (as before), and now additionally on MSESE individual consolidated basis (MSESE as parent institution incorporating its subsidiary MSBAG, "MSESE Consol"), in meeting the prudential requirements. Pillar 3 disclosures from 1 January 2023 will consequently include disclosures for MSESE as a large subsidiary within the MSEHSE Group on the MSESE Consol level.

On 1 September 2022, MSESE, which was previously a large investment firm, was granted a formal authorisation as a CRR credit institution. Besides additional reporting implications, the supervisory and regulatory regimes applicable to MSESE remained largely unchanged.

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.

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 risk management of additional EU products within the MSEHSE Group.

2.2 Regulatory Development of Prudential Requirements

Finalising Basel III Reforms

A number of remaining standards of the Basel III reform package have still to be fully implemented. These standards, referred to by the BCBS and international regulators as the 'Finalisation of Basel III', provide updates to key components of the regulation framework. These include revised market RWA requirements through the Fundamental Review of the Trading Book ("FRTB"), new Credit Valuation Adjustments ("CVA"), revisions to the credit RWAs calculations covering both standardised and advanced treatments, and a new RWAs requirement for operational risk. They also introduce an aggregate floor for RWAs generated by internal models, which will be set at 72.5% of total standardised RWAs. The output floor will be phased-in over five years. Banks will also need to disclose their RWAs based upon the standardised approaches.

Following the COVID-19 pandemic and its impact on the global banking system, the BCBS deferred the publication of the remaining standards of the Basel III reform package by one year to 1 January 2023.

The European Commission published draft rules in October 2021, referred to as CRR III and CRD VI, to implement these final elements of the Basel III reform package. The draft rules are largely consistent with the Basel III reform package with some adjustments to address EU specificities. The proposed rules are currently going through the European legislative process and are subject to amendments proposed by the European Parliament and the Council of the European Union. The proposal also includes an increased focus on ESG risks.

Other Requirements

As part of previous amendments to the CRD, the EU introduced a requirement for an Intermediate Parent Undertaking ("IPU") for third-country banking groups operating in the EU. Under this requirement, which applies from 31 December 2022, the MSEHSE Group is the designated IPU.

3. Risk Management

3.1 Overview

The quantitative disclosures in this document are calculated with reference to regulatory methodologies set out in the CRR and the CRD and are not necessarily the primary exposure measures used for risk management.

The business strategy acts as a key driver for the MSEHSE Group's business model, which in turn drives the risk strategy and the consequent risk profile of the MSEHSE Group. The business strategy and risk strategy are considered and aligned as part of the annual strategic review, or more frequently if necessary.

3.2 Risk Management Framework

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

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

Three Lines of Defense Framework

The MSEHSE Group Management Boards[2] have established a "Three Lines of Defence" framework, which separately identifies risk owners from independent risk control functions and creates a clear delineation of responsibilities with a view to addressing potential conflicts of interest.

The structure applies to all legal entities and branches within the MSEHSE 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 MSEHSE Group policies. This includes the consideration of emerging risk categories, such as the risk arising from Climate Change.
- **Second Line of Defence**: Responsible for independent identification, analysis, reporting, management, and escalation of risks arising from MSEHSE 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 following:
    - The Risk Division is responsible for the independent identification, measurement, monitoring and reporting of credit, market, liquidity, operational and model risk arising from MSEHSE Group's business activities. It reports to the MSEHSE Group Chief Risk Officer ("CRO") who is also a member of the MSEHSE Group Management Boards.
    - The Compliance Division maintains an enterprise-wide, independent Compliance Risk Management Program and is responsible for the design and development of an overall Conduct Risk Framework of the MSEHSE 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.

[2] The MSEHSE, MSESE and MSBAG Management Boards are collectively referred to as 'MSEHSE Group Management Boards'.

  - The MSEHSE Group Central Outsourcing Control Office ("COCO") is independent of individual business divisions and reports directly to the MSEHSE Group Management Boards. It 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 MSEHSE Group's control environment and risk management processes and further reviews and tests MSEHSE Group's compliance with internal guidelines set for risk management and risk monitoring, as well as external rules and regulations governing the MSEHSE Group.

During 2022, there were no changes to the MSEHSE Group Heads of Risk Management, Compliance, Global Financial Crimes, COCO and IAD.

During 2023, Global Financial Crimes, Compliance and Operational Risk will be organised within a single second line Non-Financial Risk Framework.

Risk Policies and Processes

Morgan Stanley has several established policies and processes which set out the standards that govern the identification, assessment, monitoring, management, and risk-mitigation of the various types of risk involved in its business activities.

The MSEHSE Group has implemented specific risk management policies to address local business and regulatory requirements where appropriate. These policies are approved by the MSEHSE Group Management Boards and reviewed at least annually.

Risk Culture

MSEHSE Group's Risk Management culture is rooted in the following key principles: integrity, comprehensiveness, independence, accountability, and transparency.

The MSEHSE Group has a risk culture that encourages open dialogue, effective challenge, escalation, and appropriate reporting of risk to senior management, the MSEHSE Group Supervisory Board Risk Committees, the MSEHSE Group Management Boards and regulators, as well as external disclosures of risk matters. Developing the MSEHSE Group's risk culture is a continuous process and builds upon Morgan Stanley's commitment to its values, including "Do the Right Thing", which make managing risk each employee's responsibility. Senior management promotes the MSEHSE Group's risk culture, which enables individuals across the organisation to make appropriate risk decisions. The MSEHSE Group Risk Appetite Statement ("RAS") is embedded in the MSEHSE Group risk culture and is linked to MSEHSE Group's short-term and long-term strategic, capital, and financial plans, as well as compensation programs.

The MSEHSE Group Management Boards are responsible for overseeing the adoption of the Morgan Stanley Group's risk culture by the MSEHSE Group.

The Compliance Division maintains an enterprise-wide, independent Compliance risk management programme as detailed in the Global Compliance Policy.

The Compliance Division has the following main responsibilities:

- promoting a strong culture of compliance;
- defining an operating model and setting standards for compliance risk management;
- identifying, measuring, mitigating and reporting on Compliance risks;
- maintaining a risk-based programme for monitoring and testing compliance risk management by the first line of defence across the MSEHSE Group;

- providing management and staff with advice, prepare guidance (including policies and, where appropriate, procedures) and training concerning the laws, regulations and policies associated with their responsibilities;
- managing an institution-wide Compliance risk reporting framework;
- reviewing new products and business initiatives;
- supporting and facilitating the framework for managing significant communications with regulators and regulatory relationships maintained by the Regulatory Relations Group.

This is reinforced by the Code of Conduct which sets out the high standards of conduct and ethical behaviour expected from all employees.

The Compliance Division is also responsible for the design and development of a Conduct Risk Framework and for the execution of compliance's related responsibilities as set out in the" EMEA & MSI Group Conduct Risk Management Supplement", which is a supplement to the Global Conduct Risk Management Policy.

Risk Identification, Risk Appetite and Risk Limits/Tolerances

Risk identification

The MSEHSE Group has established a framework to identify and assess material risks and risk factors stemming from MSEHSE Group's business activities. The materiality of risks is assessed quarterly 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 MSEHSE Group Risk Strategy and Risk Appetite Statement, individual risk management frameworks, macroeconomic stress testing scenarios, as well as the MSEHSE Group ICAAP / ILAAP.

The following risk types involved in MSEHSE Group's business activities are currently considered material as determined through the 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.

The MSEHSE Group Management Boards have established frameworks to identify, analyse, monitor, mitigate and report these risks. The frameworks for Credit risk, Market risk, Liquidity risk, Operational risk, Leverage risk and Valuation risk are described in further detail in the respective sections of this document.

A summary of other material risks is outlined below:

- **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").
- **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 MSEHSE Group's reputation.
- **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 MSEHSE Group where the outcome has an adverse impact on clients or markets.
- **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 organisation standards and codes of conduct applicable to MSEHSE Group's activities.
- **Reputational risk** (also referred to as "Franchise risk"), describes potential risks associated with the way in which the MSEHSE Group conducts its business and the perception of the MSEHSE Group by external parties including its shareholders, clients, regulators, and the public.

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

Risk appetite

The MSEHSE Group Management Boards determine the Risk Strategy of the MSEHSE 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.

The centrepiece of the Risk Strategy is the Risk Appetite Statement, which articulates the aggregate level and type of risk that the MSEHSE 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 take the most reliable decision in a changing environment, the MSEHSE Group RAS and the underlying limits and tolerance frameworks are reviewed by the MSEHSE Group Management Boards frequently (e.g., when the business strategy is amended by the Management Boards), but at least annually. This review considers changes in the MSEHSE Group business strategy, financial resources and plans as well as any anticipated changes in risk appetite.

Some of the key ratios and figures are provided in EU KM1, EU OV1 as well as the risk type specific sections.

Risk limits and tolerances

The Risk Appetite of the MSEHSE Group is translated into a comprehensive set of risk limits and tolerances. The MSEHSE Group limits and tolerance framework mostly cover 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 MSEHSE Group's risk appetite.

MSEHSE 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 and plausible Macroeconomic Scenarios, designed to capture key portfolio vulnerabilities of the MSEHSE 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.

Figure 1: MSEHSE Group Limit Framework

	MARKET RISK	CREDIT RISK	OPERATIONAL RISK	LIQUIDITY AND FUNDING RISK
RISK METRICS AND LIMITS	• Macroeconomic stress loss limit & Climate stress loss limit		• Aggregate operational risk tolerance level • Tolerances for each top operational risk	• Liquidity and Funding Limits • Granular business area specific limits on liquidity and funding
	• Legal entity and Division Value at Risk ("VaR") and exposure limits • Granular risk exposure limits are allocated by desk/products	• MSEHSE Group single name, country, and industry credit limits • Climate Risk Industry Limits • Granular product limits for certain business areas		

Stress Testing

Stress testing provides a flexible approach to understanding the aggregate risk for the MSEHSE Group and assessing the MSEHSE 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 MSEHSE Group, addressing a number of processes and associated decisions and is performed in line with internal and external regulatory requirements.

The MSEHSE 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 the capital and liquidity risk assessment and plan (ICAAP & ILAAP) and the recovery plan;
- Meeting regulatory requirements.

Results are communicated to interested parties and committees, such as the MSEHSE Group Executive Risk Committee ("ERC"), the MSEHSE Group Management Boards and the MSEHSE Group Supervisory Boards[3] 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 MSEHSE Group's primary stress testing tool to monitor, assess, and manage MSEHSE Group's vulnerability to downside risk. The MSEHSE Group runs macroeconomic stress scenarios on a regular basis to measure its market and credit risk loss potential and to monitor those against the MSLL. Each scenario is supported by a macroeconomic narrative, a detailed set of macroeconomic projections and a set of 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, FX, xVA), either purely using Full Revaluation methodology or based on a combination of Full Revaluation and sensitivities'-based approach.

[3] The MSEHSE, MSESE and MSBAG Supervisory Boards are collectively referred to as the 'MSEHSE Group Supervisory Boards'.

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 Risk" section.

Existential threats to MSEHSE Group's business model are captured through the Reverse Stress Tests ("RST"). The scenarios used in RST are extreme and border-line plausible and are designed for the MSEHSE 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 possible impact of "downside" scenarios on MSEHSE 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 MSEHSE Group conducts risk specific stress tests for operational risk, market risk, credit risk and liquidity risk.

Risk Reporting

The MSEHSE Group has put in place a Risk Reporting Framework to monitor and report MSEHSE Group's risk profile against set risk limits and tolerances and to provide timely risk information and/or escalation to responsible limit owners, relevant MSEHSE Group risk governance forums (please refer to section "Risk Governance" Figure 3) and the MSEHSE Group Management Boards, as appropriate.

The Risk Reporting Framework covers all material risks, identification of matters for escalation and decision-making and highlights emerging risks, mitigating actions and other risk matters that are deemed significant to the relevant MSEHSE Group risk governance forums 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, MSEHSE 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, MSEHSE 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.

MSEHSE 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 Key Performance Indicators ("KPIs") which are summarised in respective DQ Dashboards for certain risk areas such as credit risk, market risk and liquidity risk. At the MSEHSE Group level, any material data limitations/issues on risk data goes through governance and is escalated to the MSEHSE Group Management Boards if necessary.

Risk Governance

The MSEHSE Group has a comprehensive risk management governance framework which includes Management Board approved policies and a defined risk oversight and escalation process at various levels of the governance structure, including for key MSEHSE Group legal entities as appropriate.

Each of MSEHSE, MSESE and MSBAG is governed by a two-tier board, consisting of a Management Board and a Supervisory Board. The MSEHSE Group Management Boards are responsible for the establishment and implementation of appropriate organisational and governance arrangements and risk management frameworks across the MSEHSE Group. The MSEHSE Group Supervisory Boards are responsible for the overall supervision and oversight of the MSEHSE Group Management Boards.

As of 31 December 2022, the MSEHSE Management Board was comprised of four members, the MSESE Management Board was comprised of six members and the MSBAG Management Board was comprised of five members. The MSEHSE Group Supervisory Boards were comprised of eight members each.

Figure 2: MSEHSE Group Boards Composition as of 31 December 2022

Management Board of MSEHSE	Management Board of MSESE	Management Board of MSBAG	Supervisory Boards of MSEHSE, MSESE and MSBAG
Oliver Behrens (Chief Executive Officer and Chair)	Oliver Behrens (Chief Executive Officer and Chair)	Oliver Behrens (Chief Executive Officer and Chair)	Clare Woodman (Chair until 31 December 2022, Deputy Chair as of 1 January 2023)
David Best (Chief Operating Officer)	David Best (Chief Operating Officer)	David Best (Chief Operating Officer)	Frank Mattern (Deputy Chair until 31 December 2022, Chair as of 1 January 2023)
André Munkelt (Chief Risk Officer)	Martin Borghetto (MSESE Head of IED)	Oliver Kehren (MSBAG Head of Lending and Loan Trading)	David Cannon
Dr Jana Waehrisch (Chief Financial Officer)	Philipp Lingnau (MSESE Head of FID and BRM)	André Munkelt (Chief Risk Officer)	Raja Akram
	André Munkelt (Chief Risk Officer)	Dr Jana Waehrisch (Chief Financial Officer)	Lee Guy
	Dr Jana Waehrisch (Chief Financial Officer)		Maria Luís Casanova Morgado Dias de Albuquerque
			Lucrezia Reichlin
			Kim Lazaroo

For further details on the members of the MSEHSE Group Management Boards and MSEHSE Group Supervisory Boards including biographies and other directorships, refer to Appendix I.

MSEHSE Group Management Board Committees (associated with Risk Governance)

The MSEHSE Group Management Boards have established a robust committee structure for the governance of material risks.

In particular, the Executive Risk Committee assists the Management Boards with their oversight of the Risk Management framework and other specific areas of day-to-day activities of the MSEHSE Group. The MSEHSE Group Executive Risk Committee has further established a series of sub-committees and also leverages certain existing EMEA committees where appropriate.

MSEHSE Group Supervisory Board Committees

The MSEHSE Group Supervisory Board Risk Committees have been established to assist and provide guidance to the MSEHSE Group Supervisory Boards on the overall risk tolerance and strategy of the MSEHSE Group and its oversight of the implementation of this strategy by the MSEHSE Group Management Boards, as well as the management of financial and non-financial risks, including:

- risk strategy and appetite;
- risk identification and management;
- risk framework and policies;
- risk culture;
- financial resource management and capital; and
- recovery and resolution, in each case in relation to the MSEHSE Group.

The MSEHSE Group Supervisory Board Risk Committees met five-times in 2022 and had two additional joint meetings with the MSEHSE Group Supervisory Board Audit Committees in 2022.

The MSEHSE Group Supervisory Board Audit Committees has been established to assist and provide guidance to the MSEHSE Group Supervisory Boards in monitoring:

- financial reporting;
- internal controls;
- legal and regulatory compliance;
- internal audit; and
- the external auditors, in each case in relation to the MSEHSE Group.

The MSEHSE Group Remuneration Committees have been established to assist the MSEHSE Group Supervisory Boards in:

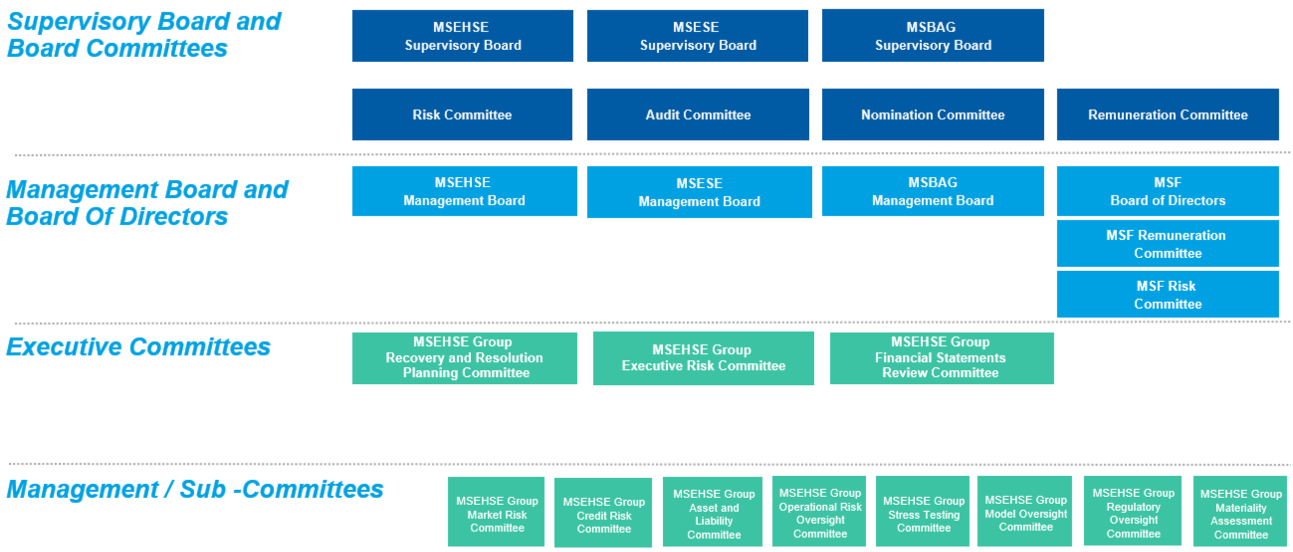
- overseeing the design and implementation of the remuneration systems, policies, and practices applicable to the MSEHSE Group; and
- overseeing compliance by the MSEHSE Group with applicable EU and German remuneration rules, statements, and guidance.

The MSEHSE Group Nomination Committees have been established to assist and provide guidance to the MSEHSE Group Supervisory Boards in relation to:

- the selection of members of the MSEHSE Group Management Boards and the preparation of proposals for the election of members of the MSEHSE Group Supervisory Boards;
- the assessment of the performance of the MSEHSE Group Management Boards and Supervisory Boards; and
- the oversight of the corporate governance framework in relation to the MSEHSE Group.

The following diagram provides an overview of the MSEHSE Group Board Committees as of 31 December 2022.

Figure 33: MSEHSE Group Board Committees as of 31 December 2022



The MS France Nomination Committee was dissolved on 29 April 2022 as MS France is no longer required to have Nomination Committee as a Class 2 Investment Firm. The MSEHSE Group Regulatory Oversight Committee has been established in October 2022.

As noted above, on 5 December 2022, MSESE was granted permission by the ECB for the individual consolidation method under Article 9 of the CRR, which is applicable as of 1 January 2023. As a result, the governance framework for the MSEHSE Group has been updated with effect from 1 January. To ensure there is appropriate governance in place on both levels of MSEHSE Group and MSESE Consol going forward, amongst others, an MSESE Executive Risk Committee has been established in addition to the MSEHSE Group Executive Risk Committee.

Adequacy of Risk Management Arrangements

The MSEHSE Group Risk Management Framework, as described above, is embedded in the day-to-day operations of the firm. The effectiveness of the framework is reviewed at least annually and, where appropriate, elements are updated to reflect best practice, evolving market conditions, lessons learned following market-wide or idiosyncratic risk events, and in response to changing regulatory expectations and requirements. The MSEHSE Group Management Boards have reviewed the adequacy of these risk management arrangements and systems, including Management's planned enhancements to strengthen these elements, and considers these appropriate given the strategy and risk profile of the MSEHSE Group.

4. Basis of Preparation and Linkage to Financial Accounts

Basis of Consolidation

The MSEHSE Group completes the prudential consolidation in compliance with CRR Part One, Title II Chapter 2, with all entities fully consolidated. The prudential consolidation scope is the same as the consolidation scope for accounting purposes.

This disclosure is prepared for the MSEHSE Group. As referenced in section 2.1 MSESE is considered a large subsidiary however was exempt from disclosure as of 31 December 2022. Commencing 1 January 2023 disclosures will be reported for MSESE Consol. Refer to section 2.1 "Regulatory Overview" for further details. This disclosure comprehensively conveys the risk profile of the MSEHSE Group.

Financial Statements

This disclosure report does not constitute a set of financial statements and does not represent any form of forward-looking statement. MSEHSE Group financial statements, have been prepared in accordance with the International Financial Reporting Standards ("IFRS"), as adopted in the EU, with additional disclosure requirements from the German Commercial Code ("HGB"). These can be found at https://www.bundesanzensregister.de as well as on the following webpage https://www.morganstanley.com/about-us-ir/subsidiaries.

The breakdown of entities of the MSEHSE Group by country (country-by-country reporting) required under section 26a (1) sentence 2 KWG and the disclosure of return on capital required under section 26a (1) sentence 4 KWG are included in MSEHSE Group's consolidated financial statements. Information on the appropriateness and effectiveness of risk management and the associated business and risk strategy, in accordance with section 25a KWG, is provided in Section 3. Risk Management.

Trading Book / Non-Trading Book

In determining its overall capital requirement, the MSEHSE Group classifies its exposures as either "Trading Book" or "Non-Trading Book" (otherwise referred to as Banking Book). Trading Book and Non-Trading Book definition used for the purposes of this disclosure report refer to the regulatory definition and may differ from the accounting definition under IFRS and HGB.

Non-Trading Book positions, which may be accounted for at amortised cost, fair value or under the equity method, are subject to credit risk capital requirements as discussed in the "Credit Risk" section. Trading Book positions represent positions that the MSEHSE Group holds as part of its market-making and underwriting businesses. These Trading Book positions, which reflect assets or liabilities that are accounted for at fair value, along with certain Non-Trading Book positions which are subject to both credit risk and market risk, are subject to market risk capital requirements, as discussed in the "Market Risk" section.

Some Trading Book positions, such as derivatives, are also subject to counterparty credit risk capital requirements. Credit and market risks related to securitisation exposures are discussed in the "Securitisation" section.

Policies and Procedures

The MSEHSE Group has policies and procedures in place to assess the appropriateness of its Pillar 3 disclosure. One or more members of the management body are required to confirm that the disclosure has been prepared in accordance with internal control processes agreed upon at the level of the MSEHSE Group Management Boards. The MSEHSE Group's Pillar 3 disclosures are not required to be, and have not been, audited by the MSEHSE Group's auditor.

Balance Sheet under the Regulatory Scope of Consolidation

Table 2 shows the MSEHSE Group's balance sheet as of 31 December 2022 on both an accounting consolidation and regulatory consolidation basis.

The carrying values are broken down into the stated risk frameworks and where they are not subject to capital requirements or subject to deduction from capital.

Table 2: Differences between the accounting scope and the scope of prudential consolidation and mapping of financial statement categories with regulatory risk categories (EU LI1)

		a	b	c	d	e	f	g
€MM				Carrying value of items				
MSEHSE Group[1.]		Carrying values as reported in published financial statements	Carrying values under scope of prudential consolidation	Subject to the credit risk framework	Subject to the CCR framework	Subject to the securitisation framework	Subject to the market risk framework	Not subject to own funds requirements or subject to deduction from own funds
Breakdown by asset class according to the balance sheet in the published financial statements								
1	Cash and short-term deposits	16,125	16,125	15,771	-	-	-	354
2	Trading financial assets	58,821	58,821	10	57,427	4	58,731	-
3	Secured financing	18,267	18,267	-	18,265	-	17,575	-
4	Loans and advances	107	107	107	-	-	107	-
5	Investment securities	-	-	-	-	-	-	-
6	Trade and other receivables	25,474	25,474	1,425	22,710	-	1,338	-
7	Current tax assets	44	44	44	-	-	-	-
8	Deferred tax assets	40	40	40	-	-	-	-
9	Other assets	1	1	1	-	-	-	-
10	Property plant and equipment	98	98	98	-	-	-	-
11	Intangible assets	-	-	-	-	-	-	-
	Total assets	**118,977**	**118,977**	**17,496**	**98,402**	**4**	**77,751**	**354**
Breakdown by liability class according to the balance sheet in the published financial statements								
1	Bank loans and overdrafts	(7,632)	(7,632)	-	-	-	-	(7,632)
2	Trading financial liabilities	(61,051)	(61,051)	-	(59,712)	-	(61,018)	-
3	Secured borrowing	(18,446)	(18,446)	-	(18,244)	-	(18,446)	-
4	Trade and other payables	(21,166)	(21,166)	-	(18,587)	-	(1,348)	(1,232)
5	Debt and other borrowings	(4,125)	(4,125)	-	-	-	(4,125)	-
6	Provisions	(9)	(9)	-	-	-	-	(8)
7	Current tax liabilities	(51)	(51)	-	-	-	-	(51)
8	Deferred tax liabilities	(1)	(1)	-	-	-	-	(1)
9	Accruals and deferred income	(115)	(115)	-	-	-	-	(115)
10	Post-employment benefit obligations	(20)	(20)	-	-	-	-	(20)
	Total liabilities	**(112,616)**	**(112,616)**	**-**	**(96,543)**	**-**	**(84,937)**	**(9,059)**

1. The total carrying values under the regulatory scope of consolidation do not equal the sum of the amounts shown in the remaining columns of this table as some of the assets included in these items are subject to regulatory capital charges in more than just one risk framework.

Table 3 shows the MSEHSE Group consolidated regulatory balance sheet (per EU LI1) reconciled to the Exposure at Default ("EAD") for items subject to the Credit Risk, Counterparty Credit Risk and Securitisation frameworks.

Table 3: Main sources of differences between regulatory exposure amounts and carrying values in financial statements (EU LI2)

		a	b	c	d	e
€MM			Items subject to:			
	MSEHSE Group[1]	Total	Credit risk framework	Securitisation framework	CCR framework	Market risk framework
1	**Assets carrying value amount under the scope of prudential consolidation (as per template LI1)**	**118,977**	**17,496**	**4**	**98,402**	**77,751**
2	**Liabilities carrying value amount under the scope of prudential consolidation (as per template LI1)**	**(112,616)**	**-**	**-**	**(96,543)**	**(84,937)**
3	**Total net amount under the scope of prudential consolidation**	**6,363**	**17,496**	**4**	**1,859**	**(7,186)**
4	**Off-balance-sheet amounts[2]**	**13,656**	**13,036**	**-**	**-**	
5	Differences in valuations	-	-	-	-	
6	Differences due to different netting rules, other than those already included in row 2[3]	14,637	-	-	14,637	
7	Differences due to consideration of provisions	-	-	-	-	
8	Differences due to the use of credit risk mitigation techniques (CRMs)[4]	(35,661)	(7,838)	-	(27,823)	
9	Differences due to credit conversion factors[5]	(2,608)	(2,608)	-	-	
10	Differences due to Securitisation with risk transfer	-	-	-	-	
11	Other differences[6]	31,431	(1,207)	2	32,636	
12	**Exposure amounts considered for regulatory purposes[7]**	**27,126**	**18,904**	**6**	**21,309**	

1. The total carrying values under the regulatory scope of consolidation do not equal the sum of the amounts shown in the remaining columns of this table as some of the assets included in these items are subject to regulatory capital charges in more than just one risk framework.
2. Under the credit risk framework, off-balance sheet amounts principally consist of undrawn credit facilities and forward starting (reverse) repos before the use of a conversion factor.
3. Differences due to different netting rules: This reflects the additional benefits allowed per regulatory rules over and above the netting permitted under the relevant accounting standards.
4. Differences due to use of credit risk mitigation techniques: impact of the credit risk mitigation such as guarantees, collaterals to the regulatory exposure values. SFT haircuts are considered.
5. Differences due to credit conversion factors: impact of the credit conversion factor ("CCF") on the off-balance sheet exposure.
6. Other differences: This reflects the difference between assets carrying values as defined per IFRS and the values defined per regulatory reporting purposes. This includes add-ons and differences in modelled and non-modelled approaches.
7. Row 12, "Exposure amounts considered for regulatory purposes", are disclosed only for Credit Risk, CCR and Securitisation frameworks (columns b – d). No exposures are reported against the Market Risk framework (column e).

5. Capital Management

The MSEHSE Group views capital as an important source of financial strength. It manages and monitors its capital in line with established policies and procedures and in compliance with regulatory requirements. In line with Morgan Stanley Group capital management policies, the MSEHSE Group manages its capital position based upon, among other things, business opportunities, risks, capital availability and rate of return together with, internal capital policies, regulatory requirements, and rating agency guidelines.

Therefore, in the future it may adjust its capital base in reaction to the changing needs of its businesses. The appropriate level of capital is determined at the MSEHSE Group level to safeguard its ability to continue as a going concern and ensure that it meets all normative and economic capital requirements. The key components of the capital management framework used by the MSEHSE Group are set out in the MSEHSE Group Capital Planning and Management Policy and include a point in time risk and leverage-based capital assessment, forward looking capital projections and stress testing. The MSEHSE Group conducts an ICAAP at least quarterly to meet its obligations under the CRR.

The ICAAP is a key tool used to inform the MSEHSE Group Management Boards on risk profile and capital adequacy of the MSEHSE Group:

- it is designed to ensure that the risks to which the MSEHSE Group is exposed are appropriately capitalised and managed, including those risks that are either not captured, or not fully captured under Pillar 1;
- it uses stress testing to size a capital buffer aimed at ensuring the MSEHSE Group will continue to operate above normative and economic requirements under a range of severe but plausible stress scenarios; and
- it assesses capital adequacy under normal and stressed operating environments over the three-year capital planning horizon to ensure the MSEHSE Group maintains a capital position in line with internal pre and post stress minimum levels.

The key elements of the ICAAP are embedded in the MSEHSE Group's day-to-day management processes and decision-making culture.

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 MSEHSE Group. As of 31 December 2022, the total capital requirement of the MSEHSE Group was 10.75% (2021: 10.75%) excluding capital buffers, with the P2R set at 2.75%. As part of the SREP decision 2021, the P2G was set at 2.25%.

MSEHSE Group capital is managed to ensure risk and leverage-based requirements assessed through the ICAAP and SREP are met. Internal capital ratio minima are set by the MSEHSE Group Management Boards to ensure the MSEHSE Group has sufficient capital to always meet its regulatory and internal requirements.

The capital managed by the MSEHSE Group broadly includes share capital, Additional Tier 1 ("AT1") capital instruments, subordinated debt, and reserves. To maintain or adjust its capital structure, the MSEHSE Group may pay dividends, return capital to its shareholders, issue new shares, or issue or repay AT1 capital instruments or subordinated debt.

There are no current or foreseen material, practical or legal impediments to the prompt transfer of capital resources or repayment of liabilities among MSEHSE and its subsidiaries as of 31 December 2022.

Russia and Ukraine War

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

6. Capital Resources

The capital resources of the MSEHSE Group are set out in Table 4.

Table 4: Own funds

€MM	MSEHSE Group Q4'22
Capital instruments eligible as CET1 capital	4,650
Prior Year Retained earnings[1]	232
Independently reviewed interim profits net of any foreseeable charge or dividend	-
Accumulated other comprehensive income	9
Other reserves	472
Adjustments to CET1 due to prudential filters	(142)
Other intangible assets	-
Internal Ratings Based shortfall of credit risk adjustments to expected losses	(3)
Defined-benefit pension fund assets	-
Insufficient coverage for non-performing exposures	(2)
Deferred tax assets that rely on future profitability and do not arise from temporary differences net of associated tax liabilities	(24)
CET1 capital	**5,191**
Additional Tier 1 ("AT1") capital	1,000
T1 capital	**6,191**
Capital instruments and subordinated loans eligible as T2 capital	1,000
Instruments issued by subsidiaries that are given recognition in T2 capital	-
T2 capital	**1,000**
Total own funds	**7,191**

1. Prior year retained earnings" includes the current year ended 31 December 2022 profits.

MSEHSE Group's capital components are based upon audited financial statements.

MSEHSE Group's Own Funds increased during 2022 due to issuances of CET1 and AT1 Capital Instruments.

The MSEHSE Group relies on its policies, procedures, controls, and systems to determine the adequacy of valuation for financial assets and compliance with accounting standards. To comply with the CRR and the CRD, additional valuation adjustments are taken in addition to those adjustments previously taken in compliance with the accounting requirements. The regulatory adjustments are referred to in the above table as prudential filters.

Table 5 provides a reconciliation of audited shareholders' equity to regulatory capital. It shows a bridge from balance sheet equity to regulatory Own Funds i.e., items considered or excluded to arrive at regulatory Own Funds.

Table 5: Reconciliation of balance sheet total equity to regulatory capital

€MM	MSEHSE Group			
	Total capital	**CET1 capital**	**AT1 capital**	**T2 capital**
Equity instruments	5,650	4,650	1,000	-
Share premium	-	-	-	-
Other reserves	472	472	-	-
Other comprehensive income	9	9	-	-
Retained earnings	232	232	-	-
Non-controlling interest	-	-	-	-
Balance sheet total equity	**6,363**	**5,363**	**1,000**	**-**
Add:				
Tier 2 instruments classified as debt and other borrowings	**1,000**	**-**	**-**	**1,000**
Less:				
Qualifying own funds subordinated debt instruments not included in consolidated T2 capital	-	-	-	-
Amortised portion of subordinated debt instruments not included in T2 capital	-	-	-	-
Part of interim or year-end profit not eligible	-	-	-	-
Minority interests (amount not allowed in consolidated CET1)	-	-	-	-
Additional value adjustments	(54)	(54)	-	-
Negative amounts resulting from the calculation of expected loss amounts	(3)	(3)	-	-
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	(88)	(88)	-	-
Intangible assets (net of related tax liability)	-	-	-	-
Defined-benefit pension fund assets	-	-	-	-
Deferred tax assets that rely on future profitability and do not arise from temporary differences net of associated tax liabilities	(24)	(24)	-	-
Insufficient coverage for non-performing exposures	(2)	(2)	-	-
Unaudited Reserve not eligible	-	-	-	-
Total own funds (transitional rules and fully loaded position)	**7,191**	**5,191**	**1,000**	**1,000**

7. Total Loss-Absorbing Capacity

The MSEHSE Group is subject to internal Total Loss Absorbing Capacity (“iTLAC”) requirements under the CRR.

These requirements are designed to enhance the resilience of the financial system by ensuring institutions have sufficient capital and eligible liabilities to absorb losses and recapitalise in resolution.

As of 31 December 2022, the minimum capacity requirements were set at 18% of RWAs and 6.75% of leverage ratio exposure measure, scaled at 90% for material subsidiaries, on a consolidated basis of a non-UK (“United Kingdom”) and non-EU Global Systemically Important Institution (“G-SII”).

The MSEHSE Group is already subject to internal Minimum Required Eligible Liabilities (“MREL”) requirements. MSESE Consol will be subject to the MREL requirements from 1 January 2024.

Morgan Stanley’s preferred resolution strategy is a Single Point of Entry (“SPOE”) strategy. Further information on the resolution strategy can be found in Morgan Stanley Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q.

The MSEHSE Group TLAC key metrics are provided in the following table.

Table 6: TLAC Key Metrics

€MM

MSEHSE Group[1]	Q4’22	Q3’22	Q2’22	Q1’22	Q4’21
Total Loss Absorbing Capacity (TLAC) available	**8,091**	**7,135**	**6,676**	**5,132**	**4,912**
Total RWA at the level of the resolution group	**27,965**	**33,683**	**28,673**	**21,854**	**21,221**
TLAC as a percentage of RWA	28.93%	21.18%	23.28%	23.48%	23.15%
Leverage ratio exposure measure at the level of the resolution group	77,190	86,765	77,884	73,528	57,386
TLAC as a percentage of leverage ratio exposure measure	10.48%	8.22%	8.57%	6.98%	8.56%

1. As of 31 December 2022, the MSEHSE Group follows the TLAC requirements.

In 2022, the MSEHSE Group’s TLAC amount increased due to an increase in Own Funds and senior subordinated debt issuance.

Table 7 provides details of the composition of the MSEHSE Group's TLAC.

Table 7: TLAC composition (EU iTLAC)

€MM MSEHSE Group[1]		b Non-EU G-SII requirement for own funds and eligible liabilities (internal TLAC)	c Qualitative information
	Applicable requirement and level of application		
EU-1	Is the entity subject to a Non-EU G-SII Requirement for own funds and eligible liabilities? (Y/N)		
EU-2	If EU 1 is answered by 'Yes', is the requirement applicable on a consolidated or individual basis? (C/I)		
EU-2a	Is the entity subject to an internal MREL requirement? (Y/N)		
EU-2b	If EU 2a is answered by 'Yes', is the requirement applicable on a consolidated or individual basis? (C/I)		
	Own funds and eligible liabilities		
EU-3	Common Equity Tier 1 capital (CET1)	5,191	
EU-4	Eligible Additional Tier 1 instruments	400	
EU-5	Eligible Tier 2 instruments	-	
EU-6	Eligible own funds	5,591	
EU-7	Eligible liabilities	2,500	
EU-8	of which permitted guarantees		
EU-9a	(Adjustments)		
EU-9b	Own funds and eligible liabilities items after adjustments	8,091	
	Total risk exposure amount and total exposure measure		
EU-10	Total risk exposure amount	27,965	
EU-11	Total exposure measure	77,190	
	Ratio of own funds and eligible liabilities		
EU-12	Own funds and eligible liabilities (as a percentage of TREA)	28.93%	
EU-13	of which permitted guarantees		
EU-14	Own funds and eligible liabilities (as a percentage of leverage exposure)	10.48%	
EU-15	of which permitted guarantees		
EU-16	CET1 (as a percentage of TREA) available after meeting the entity's requirements	10.73%	
EU-17	Institution-specific combined buffer requirement	2.85%	
	Requirements		
EU-18	Requirement expressed as a percentage of the total risk exposure amount	16.20%	
EU-19	of which may be met with guarantees		
EU-20	Internal TLAC expressed as percentage of the total exposure measure	6.08%	
EU-21	of which may be met with guarantees		
	Memorandum items		
EU-22	Total amount of excluded liabilities referred to in Article 72a (2) CRR	96,889	

1. As of 31 December 2022, the MSEHSE Group follows the iTLAC requirements

Over the second half of 2022, MSEHSE Group's TLAC increased due to an increase in CET1 capital and senior subordinated debt issuance.

Table 8a provides a breakdown of eligible instruments in the creditor hierarchy of the MSEHSE Group. Morgan Stanley, the MSEHSE Group's ultimate parent undertaking and controlling entity, is the resolution entity of the MSEHSE Group. Eligible instruments of the MSEHSE Group issued against further entities (e.g., MSI) are captured in the following table under "Other".

Table 8a: Creditor ranking - Entity that is not a resolution entity (EU TLAC2a)

	€MM	Insolvency ranking								
	MSEHSE Group	1 (most junior) Resolution entity	1 (most junior) Other	2 Resolution entity	2 Other	3 Resolution entity	3 Other	4 (most senior) Resolution entity	4 (most senior) Other	Sum of 1 to 4
2	Description of insolvency rank (free text)									
3	Liabilities and own funds including derivative liabilities	5,191		400	600	-	1,000	2,500	-	9,691
4	of which excluded liabilities	-	-	-	-	-	-	-	-	-
5	Liabilities and own funds less excluded liabilities	5,191	-	400	600	-	1,000	2,500	-	9,691
6	Subset of liabilities and own funds less excluded liabilities that are own funds and eligible liabilities for the purpose of [choose as an appropriate: internal TLAC]	5,191	-	400	600	-	1,000	2,500	-	9,691
7	of which residual maturity ≥ 1 year < 2 years	-	-	-	-	-	-	2,500	-	2,500
8	of which residual maturity ≥ 2 year < 5 years	-	-	-	-	-	-	-	-	-
9	of which residual maturity ≥ 5 years < 10 years	-	-	-	-	-	1,000	-	-	1,000
10	of which residual maturity ≥ 10 years, but excluding perpetual securities	-	-	-	-	-	-	-	-	-
11	of which perpetual securities	5,191	-	400	600	-	-	-	-	6,191

As of 31 December 2022, the MSEHSE Group's TLAC total capital and liabilities consist of total own funds of € 5,591MM and € 2,500MM senior subordinated debt issuances

8. Leverage

Leverage Ratio requirements in accordance with the CRR

The Basel III framework introduced a simple, transparent, non-risk-based leverage ratio to act as a supplementary measure to the risk-based capital requirements. The Basel Committee is of the view that a simple leverage ratio framework is critical and complementary to the risk-based capital framework and that a credible leverage ratio ensures broad and adequate capture of both the on- and off-balance sheet sources of banks' leverage.

The leverage ratio of the MSEHSE Group is calculated according to Article 429 to 429g CRR.

The MSEHSE Group has been compliant with the regulatory minimum requirements of 3% throughout the financial year 2022.

Internal monitoring process to manage the risk of excessive leverage

The MSEHSE Group’s Asset and Liability Committee (“ALCO”) is the primary governance committee responsible for monitoring leverage ratio and for ensuring that it remains within the risk appetite approved by the MSEHSE Group Management Boards. The MSEHSE Group manages the risk of excessive leverage through the application and allocation of leverage ratio exposure limits of business unit and internal leverage ratio early warning indicator (“EWI”) levels. If internal limits are exceeded, cross-functional teams identify the key drivers of the elevated exposures and consider appropriate remediation actions. EWI levels are monitored weekly to ensure that any increases above the internal thresholds are escalated to governance forums on a timely manner to allow for any appropriate management actions to be taken.

Moreover, robust capital planning ensures future leverage ratio requirements are considered. The capital planning focuses on, but is not limited to, forecasted business activity, planned mitigation, future regulatory changes, net income forecasts and required capital. In addition to capital planning, the Large Transaction Approval process requires the leverage ratio exposure impact to be assessed prior to execution. Trades are approved based on, amongst others capacity and return metrics.

The Large Transactions Approval Policy establishes the approval process that employees must adhere to, prior to booking a Large Transaction, and supports Senior Management oversight of Large Transactions. Large Transactions are defined as transactions that are anticipated to utilise capital resources in excess of defined thresholds. Thresholds relate to RWAs, leverage ratio exposure, liquidity, and funding. If a transaction exceeds the defined thresholds, the management of the MSEHSE Group provides approval before the execution takes place. Approval is based on various criteria, such as capital resources, return on investment and refinancing costs carried out.

The leverage ratio exposures of the MSEHSE Group (including business unit limit utilisation) are regularly calculated and reported to the MSEHSE Group ALCO and the EMEA ALCO. For the monitoring of the risk of excessive leverage for MSEHSE Group and its legal entities individually, additional factors are considered such as their maturity and funding profiles, considering both assets and liabilities. Additionally, weekly capital resource meetings occur between senior cross-functional stakeholders to monitor, analyse, and optimise resources including but not limited to leverage ratio exposure.

Furthermore, a quarterly risk identification assessment is in place to monitor both qualitative and quantitative leverage ratio exposure drivers and risks to ensure compliance with internal and regulatory minimums in the event contingent leverage ratio exposure was to crystallise.

Table 9 provides a reconciliation between total assets in the financial statements and the leverage ratio exposure measure for the MSEHSE Group as of 31 December 2022.

Table 9: Summary reconciliation of accounting assets and leverage ratio exposures (EU LR1)

€MM		a Applicable Amounts MSEHSE Group
1	**Total assets as per published financial statements**	**118,977**
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of prudential consolidation	(138)
3	(Adjustment for securitised exposures that meet the operational requirements for the recognition of risk transference)	-
4	(Adjustment for temporary exemption of exposures to central banks (if applicable))	-
5	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the total exposure measure in accordance with point (i) of Article 429a (1) CRR)	-
6	Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	-
7	Adjustment for eligible cash pooling transactions	-
8	Adjustment for derivative financial instruments	(28,051)
9	Adjustment for Securities Financing Transactions (SFTs)	414
10	Adjustment for off-balance sheet items (i.e., conversion to credit equivalent amounts of off-balance sheet exposures)	3,787
11	(Adjustment for prudent valuation adjustments and specific and general provisions which have reduced Tier 1 capital)	-
EU-11a	(Adjustment for exposures excluded from the total exposure measure in accordance with point (c) of Article 429a (1) CRR)	-
EU-11b	(Adjustment for exposures excluded from the total exposure measure in accordance with point (j) of Article 429a (1) CRR)	-
12	Other adjustments	(17,800)
13	**Total exposure measure**	**77,190**

The MSEHSE Group leverage ratio increased by approximately 2 % to 8.02% in 2022 due to an increase in Tier 1 capital, following issuances of both CET1 and AT1 instruments, partially offset by an increase in leverage ratio exposure.

Table 10 provides a detailed breakdown of the components of the leverage ratio exposure for the MSEHSE Group as of 31 December 2022.

Table 10: Leverage ratio common disclosure (EU LR2)

MSEHSE Group €MM		a CRR Leverage ratio exposures Q4'22	b Q4'21
	On-balance sheet exposures (excluding derivatives and SFTs)		
1	On-balance sheet items (excluding derivatives, SFTs, but including collateral)	42,067	26,149
2	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	5,253	1,941
3	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(21,161)	(11,071)
4	~~(~~Adjustment for securities received under securities financing transactions that are recognised as an asset~~)~~	-	-
5	(General credit risk adjustments to on-balance sheet items)	-	-
6	(Asset amounts deducted in determining Tier 1 capital)	(83)	(76)
7	**Total on-balance sheet exposures (excluding derivatives and SFTs)**	**26,076**	**16,943**
	Derivative exposures		
8	Replacement cost associated with SA-CCR derivatives transactions (i.e., net of eligible cash variation margin)	11,300	8,740
EU-8a	Derogation for derivatives: replacement costs contribution under the simplified standardised approach	-	-
9	Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	18,816	21,273
EU-9a	Derogation for derivatives: Potential future exposure contribution under the simplified standardised approach	-	-
EU-9b	Exposure determined under Original Exposure Method	-	-
10	(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	(1,770)	(5,131)
EU-10a	(Exempted CCP leg of client-cleared trade exposures) (simplified standardised approach)	-	-
EU-10b	(Exempted CCP leg of client-cleared trade exposures) (original Exposure Method)	-	-
11	Adjusted effective notional amount of written credit derivatives	42,826	21,006
12	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(41,796)	(20,214)
13	**Total derivatives exposures**	**29,376**	**25,674**
	Securities financing transaction (SFT) exposures		
14	Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	17,655	11,529
15	(Netted amounts of cash payables and cash receivables of gross SFT assets)	-	-
16	Counterparty credit risk exposure for SFT assets	414	240
EU-16a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 429e (5) CRR and Article 222 CRR	-	-
17	Agent transaction exposures	-	-
EU-17a	(Exempted CCP leg of client cleared SFT exposure)	-	-
18	**Total securities financing transaction exposures**	**18,069**	**11,769**
	Other off-balance sheet exposures		
19	Off-balance sheet exposures at gross notional amount	10,696	5,888
20	(Adjustments for conversion to credit equivalent amounts)	(7,026)	(2,888)
21	(General provisions deducted in determining Tier 1 capital and specific provisions associated with off-balance sheet exposures)	-	-
22	**Off-balance sheet exposures**	**3,670**	**3,000**
	Excluded exposures		
EU-22a	(Exposures excluded from the total exposure measure in accordance with point (c) of Article 429a (1) CRR)		
EU-22b	(Exposures exempted in accordance with point (j) of Article 429a (1) CRR (on and off-balance sheet))		
EU-22c	(Excluded exposures of public development banks (or units) - Public sector investments)		
EU-22d	(Excluded exposures of public development banks (or units) - Promotional loans)		
EU-22e	(Excluded passing-through promotional loan exposures by non-public development banks (or units))		
EU-22f	(Excluded guaranteed parts of exposures arising from export credits)		
EU-22g	(Excluded excess collateral deposited at triparty agents)		
EU-22h	(Excluded CSD related services of CSD/institutions in accordance with point (o) of Article 429a (1) CRR)		
EU-22i	(Excluded CSD related services of designated institutions in accordance with point (p) of Article 429a (1) CRR)		
EU-22j	(Reduction of the exposure value of pre-financing or intermediate loans)		
EU-22k	(Total exempted exposures)	-	-
	Capital and total exposure measure		
23	Tier 1 capital	6,191	4,012
24	Total exposure measure	77,190	57,386
	Leverage ratio		
25	Leverage ratio (%)	8.02%	6.99%
EU-25	Leverage ratio (excluding the impact of the exemption of public sector investments and promotional loans) (%)	8.02%	6.99%
25a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) (%)	8.02%	6.99%
26	Regulatory minimum leverage ratio requirement (%)	3.00%	3.00%

EU-26a	Additional own funds requirements to address the risk of excessive leverage (%)	0.00%	0.00%
EU-26b	of which: to be made up of CET1 capital	0.00%	0.00%
27	Leverage ratio buffer requirement (%)	0.00%	0.00%
EU-27a	Overall leverage ratio requirement (%)	3.00%	3.00%
	Choice on transitional arrangements and relevant exposures		
EU-27b	Choice on transitional arrangements for the definition of the capital measure	Fully Phased-in	Fully Phased-in
	Disclosure of mean values		
28	Mean value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	17,240	13,511
29	Quarter-end value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	17,655	11,529
30	Total exposure measure (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	76,775	59,367
30a	Total exposure measure (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	76,775	59,367
31	Leverage ratio (including the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	8.06%	6.76%
31a	Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) incorporating mean values from row 28 of gross SFT assets (after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables)	8.06%	6.76%

The off-balance sheet positions mainly comprise relationship loans (undrawn credit facilities) provided by MSBAG.

Table 11 provides a breakdown of on-balance sheet exposures into trading and non-trading (banking) book as of 31 December 2022.

Table 11: Split of on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures) (EU LR3)

		a
		CRR leverage ratio exposures
€MM		MSEHSE Group
EU-1	**Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:**	**26,158**
EU-2	Trading Book exposures	8,787
EU-3	Banking book exposures, of which:	17,371
EU-4	Covered bonds	-
EU-5	Exposures treated as sovereigns	15,587
EU-6	Exposures to regional governments, MDB, international organisations and PSE **not** treated as sovereigns	-
EU-7	Institutions	1,363
EU-8	Secured by mortgages of immovable properties	-
EU-9	Retail exposures	-
EU-10	Corporates	315
EU-11	Exposures in default	-
EU-12	Other exposures (e.g., equity, securitisations, and other non-credit obligation assets)	106

9. Capital Requirements and Risk Weighted Assets

General Overview of RWAs

RWA reflect both on- and off-balance sheet risk, as well as capital charges attributable to the risk of loss arising from the following.

Credit and Counterparty Credit Risk ("CCR") refers to the risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations. Credit and counterparty credit risk capital requirements are derived from RWAs, determined using the approved internal modelling approach - the Internal Model Method ("IMM") for CCR exposure. Standardised methods are applied for exposures not covered by internal models. Foundation Internal Ratings Based approach ("F-IRB") for credit risk or Standardised Approach ("SA") Risk Weights are applied as applicable.

CVA risk is the capital requirement that covers the risk of mark-to-market losses on the counterparty risk of derivatives. They are calculated using a combination of internal modelling and standardised approaches.

Settlement risk refers to the risk due to the possibility that a counterparty will fail to deliver on the terms of a contract at the agreed-upon time.

Securitisation exposures are a transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched. Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures. The subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme.

Market risk refers to the risk that a change in the level of one or more market prices will result in losses for a position or portfolio. Market prices that could drive losses may include security prices, rates, indices, implied volatilities, correlations or market liquidity. The market risk capital requirements are calculated using the Internal Model Approach ("IMA") and the Standardised Approach, consistent with its regulatory approvals.

Large exposures refer to risk due to concentrated exposures to a single counterparty or group of connected counterparties.

Operational risk refers to the risk of loss, or of damage to reputation, resulting from inadequate or failed processes, people, and systems or from external events (e.g., fraud, theft, legal and compliance risks, cyber-attacks, or damage to physical assets). Capital requirements for operational risk are currently calculated under the Basic Indicator Approach ("BIA").

The MSEHSE Group enhances its risk management strategy and incorporates improvements in modelling techniques while maintaining compliance with the regulatory requirements. For further discussion on credit risk, counterparty credit risk, market risk and operational risk, please refer to the specific sections within this document.

Quantitative RWAs Overview

Table 12 summarises RWAs and Total Own Funds Requirements ("TOFR") for the MSEHSE Group by risk type. The MSEHSE Group calculates Pillar 1 capital requirements as 8% of RWAs in accordance with CRR.

Table 12: Overview of risk weighted exposure amounts (EU OV1)

		a	b	c
		MSEHSE Group		
€MM		RWAs Q4'22	RWAs Q4'21	TOFR Q4'22
1	**Credit risk (excluding CCR)**	**2,563**	**3,262**	**205**
2	Of which the standardised approach	465	454	37
3	Of which the Foundation IRB ("F-IRB") approach	2,028	2,674	162
4	Of which: slotting approach	-	-	-
EU 4a	Of which: equities under the simple risk weighted approach	70	134	6
5	Of which the Advanced IRB ("A-IRB") approach	-	-	-
6	**Counterparty credit risk – CCR**	**15,745**	**10,708**	**1,260**
7	Of which the standardised approach	1,906	1,473	153
8	Of which internal model method (IMM)	8,165	4,651	653
EU 8a	Of which exposures to a CCP	138	324	11
EU 8b	Of which credit valuation adjustment - CVA	3,415	3,561	273
9	Of which other CCR	2,121	699	170
15	**Settlement risk**	**45**	**338**	**4**
16	**Securitisation exposures in the non-trading book (after the cap)**	**5**	**-**	**-**
17	Of which SEC-IRBA approach	-	-	-
18	Of which SEC-ERBA (including IAA)	5	-	-
19	Of which SEC-SA approach	-	-	-
EU 19a	Of which 1250%/ deduction	-	-	-
20	**Position, foreign exchange, and commodities risks (Market risk)**	**8,603**	**6,281**	**689**
21	Of which the standardised approach	81	42	7
22	Of which IMA	8,522	6,239	682
EU 22a	**Large exposures**	**-**	**-**	**-**
23	**Operational risk**	**1,005**	**632**	**80**
EU 23a	Of which basic indicator approach	1,005	632	80
EU 23b	Of which standardised approach	-	-	-
EU 23c	Of which advanced measurement approach	-	-	-
24	**Amounts below the thresholds for deduction (subject to 250% risk weight) (For information)[1]**	**40**	**116**	**3**
29	**Total**	**27,965**	**21,221**	**2,237**

1. "Amounts below the thresholds for deduction (subject to 250% risk weight)" is for information purposes. Amount is included in "Credit risk (excluding CCR)".

Overall RWAs increased primarily due to an increase in counterparty credit risk following receipt of regulatory guidance impacting risk weights as well as an increase in market risk that was partially due to an increase in the regulatory capital multiplier.

10. Credit Risk

10.1 Credit and Counterparty Credit Risk Management

Credit and counterparty credit risk (“CCR”) refers to the risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations to the MSEHSE Group. The MSEHSE Group is exposed to credit risk from the extension of credit to clients through lending commitments, derivatives, and securities financing activities. The MSEHSE Group primarily incurs credit risk exposure to Corporates, Institutions, Central Governments and Central Banks through its Institutional Securities business segment.

The MSEHSE Group Credit Risk Management Department (“CRMD”) is an independent risk oversight group headed by the Head of Credit Risk who reports directly to the MSEHSE Group Chief Risk Officer. The MSEHSE Group CRMD is responsible for managing and overseeing the credit risk profile of the MSEHSE Group, including the design and oversight of the credit risk and limits framework covering the independent identification, analysis, monitoring, reporting and escalation of credit risks.

To help protect the MSEHSE Group from losses resulting from its business activities, CRMD establishes practices to evaluate, monitor and control credit risk exposure at the transaction, obligor, and portfolio levels. CRMD analyses material lending and derivative transactions and helps to ensure that the creditworthiness of the MSEHSE Group’s counterparties and borrowers is periodically reviewed and that credit exposure is actively monitored and managed.

Credit Risk Policies and Procedures

CRMD policies and procedures applicable to the MSEHSE Group aim to ensure the identification of credit risks, compliance with established limits, requisite approvals for extensions of credit, and escalation of risk concentrations to appropriate senior management.

Credit Risk Limits

The MSEHSE Group Credit Limits Framework (“CLF”) is one of the primary tools used to monitor, manage, and control credit risk exposures. The MSEHSE Group Management Boards approve limits that reflect the credit risk appetite of the MSEHSE Group and serve as a basis from which more detailed limits are established.

The CLF includes single name limits (e.g., counterparty, lending, settlement, and treasury) and portfolio concentration limits by country, industry, and product type. The MSEHSE Group credit limits restrict potential credit exposure to any one borrower or counterparty and to groups of connected borrowers or counterparties. The limits are assigned based on multiple factors including the size of counterparty, the counterparty’s Probability of Default (“PD”), the perceived correlation between the credit exposure and the counterparty’s credit quality, the Loss-Given Default (“LGD”) and the tenor profile of the specific credit exposure considering the effect of enforceable netting and eligible collateral.

To ensure that credit limits are consistent with the MSEHSE Group’s credit risk appetite and linked to the MSEHSE Group Macroeconomic Stress Loss Limit, a comprehensive process has been established whereby CRMD evaluates relevant quantitative and qualitative factors to make an informed decision when recommending or setting credit limits. CRMD develops and calibrates MSEHSE Group Management Boards and Executive Risk Committee Single Name and Portfolio credit risk limits by assuming full utilisation of the corresponding credit limit (i.e., “limit-long” assumption) to derive a limit-long stress loss. Limit-long stress losses are then compared to concentration thresholds which vary by the type of credit limit (i.e., Single Name or Portfolio). For example, any single industry limit-long stress loss may account for no more than a specified percentage (i.e., the concentration threshold) of MSEHSE Group’s Risk Appetite.

Credit Evaluation

The MSEHSE Group is exposed to single-name credit risk and country risk, requiring credit analysis of specific counterparties, both initially and on an ongoing basis. Credit risk management takes place at the transaction, counterparty, and portfolio levels. For lending transactions, CRMD evaluates the relative position of its particular exposure in the borrower’s capital structure and relative recovery prospects. CRMD also considers collateral arrangements and other structural elements of the particular transaction.

10.2 Counterparty and Credit Risk Capital Requirements

The regulatory framework distinguishes between credit risk and CCR capital requirements.

The credit risk capital component reflects the capital requirements attributable to the risk of loss arising from a borrower failing to meet its obligations and relates to investments made in the Non-Trading Book such as loans and other securities that the MSEHSE Group holds until maturity with no intention to trade.

Counterparty credit risk arises from the risk that counterparties are unable to meet their payment obligations under contracts for traded products including OTC derivatives and SFTs. The distinction between credit risk and CCR exposures is due to the bilateral nature of the risk for CCR exposures, see section 11 Counterparty Credit Risk.

RWAs are determined using the IRB approach which reflects the MSEHSE Group's internal estimate of a borrower or counterparty's creditworthiness.

For exposures not covered by the IRB approach, the standardised approach is applied, consistent with the scope of MSEHSE Group's regulatory F-IRB approach.

The standardised approach assigns fixed risk weights to the following exposure classes in accordance with the CRR: Central Governments and Central Banks, Corporates, Institutions, Multilateral Development Banks, International Organisations, Regional Governments and Local Authorities.

The exception to this is exposure to European Central Governments denominated in local currency which are risk-weighted at 0%.

Credit Risk RWA Flow Statements

Table 13 summarises the movement of RWAs for MSEHSE Group credit risk exposures under the IRB approach.

Table 13: RWA flow statements of credit risk exposures under the IRB approach (EU CR8)

€MM		a MSEHSE Group Risk weighted exposure amount
1	**Risk weighted exposure amount as of the end of the previous reporting period[1]**	**2,674**
2	Asset size (+/-)	(1,182)
3	Asset quality (+/-)	536
4	Model updates (+/-)	-
5	Methodology and policy (+/-)	-
6	Acquisitions and disposals (+/-)	-
7	Foreign exchange movements (+/-)	-
8	Other (+/-)	-
9	**Risk weighted exposure amount as of the end of the reporting period**	**2,028**

1. Previous reporting period was 31 December 2021.

Over the year RWA decreased primarily due to a decrease in off-balance sheet lending commitments.

External Credit Risk Assessments

External credit risk assessments are used within the MSEHSE Group as part of the determination of risk weightings for exposure classes.

The MSEHSE Group has nominated three External Credit Assessment Institutions ("ECAI") for this purpose – Moody's Investor Service ("Moody's"), Standard and Poor's rating agency ("S&P") and Fitch Ratings ("Fitch").

When calculating the risk-weighted value of an exposure using ECAI risk assessments, the ratings are pulled from a central database using client identifiers. The systems then map ECAI ratings to Credit Quality Steps ("CQS") to derive the relevant risk weight. All other exposure classes are assigned risk weightings as prescribed in CRR.

Table 14: External Credit Assessments Institutions

CQS	Moody's	Standard & Poor's/Fitch
1	Aaa to Aa3	AAA to AA-
2	A1 to A3	A+ to A-
3	Baa1 to Baa3	BBB+ to BBB-
4	Ba1 to Ba3	BB+ to BB-
5	B1 to B3	B+ to B-
6	Caa1 and below	CCC+ and below

10.3 Internal Ratings Based Approach

The MSEHSE Group has permission to use the F-IRB approach for the calculation of credit and counterparty credit risk capital requirements. The permission covers material portfolios and is applicable to exposures to Institutions and Corporates.

The MSEHSE Group leverages the F-IRB process for internal risk management processes. Internal ratings are used in the sizing of credit limits and influence the terms under which credit exposures are undertaken, including collateral and documentation.

Rating Process

Credit Risk Management expresses the creditworthiness of each counterparty by assigning it a rating. The rating scale includes 17 segments on a scale from AAA to CCC, plus a single category for defaulted counterparties.

Each rating is linked to a single name credit limit and mapped to a specific PD. To monitor the credit risk of the portfolio, the MSEHSE Group uses internally approved rating models to estimate various risk parameters related to each counterparty and/or facility.

Ratings are assigned using methodologies based on quantitative and/or qualitative obligor risk drivers. These include but are not limited to counterparty's financial statements, market position, strategy, management, legal and environmental, industry dynamics, security prices and other financial data reflecting a market view of the counterparty. Outputs from the models are supplemented by expert judgment to include exogenous factors not captured by the methodology in the final rating.

MSEHSE Group's wholesale exposures fall into the following exposure classes: Central Governments or Central Banks, Institutions and Corporates. The Central Governments or Central Banks exposure class mainly includes traded products, lending and treasury exposures to Sovereign Governments, Central Banks, Government Guaranteed Entities, Government Guaranteed Banks and Supranational.

The Sovereign ratings process, used for Central Governments or Central Banks, applies a methodology based on quantitative and qualitative factors which incorporate consideration of the financial systems, legal and regulatory risks (e.g., macro-prudential supervision) as well as the reputational risk of extending credit in the country.

The Institutions exposure class mainly includes traded products, lending, and treasury exposures to banks. The ratings process for Institutions applies a methodology that is based on a range of risk factors including capital adequacy, asset quality, earnings, funding, and management. The regulatory environment and implicit government support is incorporated where applicable and permitted.

The Corporates exposure class mainly includes traded products and lending to wholesale counterparties not covered under the Central Governments or Central Banks and Institutions exposure classes. The ratings process for Corporates has different methodologies depending on the industry to which the counterparty belongs. The general characteristics employed include quantitative factors such as leverage, interest coverage, cash flow and company size, as well as qualitative factors such as industry and business risk, market position, liquidity/funding, event risk, management, and corporate governance. Implicit government support may be incorporated where applicable and permitted. Tailored methodologies are applied for certain specialist sectors such as broker-dealers, insurance, and funds.

Rating Philosophy and PD Estimation

The MSEHSE Group internal rating process and philosophy are similar to S&P's. MSEHSE Group uses several rating templates to rate its client portfolio of financial institutions, corporates, and investment funds. Ratings are applied consistently for both credit risk capital and risk management purposes. Rating outputs from the templates map to a uniform PD Master Scale, employed for all wholesale exposures.

For the calibration of the PD Master Scale, Credit Risk Management maps internal ratings to S&P ratings and then applies S&P's extensive default history. Minor adjustments are made for specific items, such as preserving the monotonic relationship among rating grade PDs and maintaining the regulatory floor of 0.03% for counterparties which are not Central Governments or Central Banks.

The MSEHSE Group takes different approaches to estimate PDs for its low default portfolio ("LDP") and its non-LDP.

The MSEHSE Group calculates PD for the non-LDP based on the long-run average of S&P's annual corporate default rates from 1981 to 2014. The incorporation of this data period ensures that the PD is representative of a long-run average default rate and therefore appropriate. The methodology employs an update rule, to determine the appropriateness of an update in the PDs based on annual data becoming available.

Portfolios where the MSEHSE Group has experienced less than 20 defaults historically, and where no external default data is available for the reliable estimation of PDs are classified as low default. The methodology for deriving PDs for the low default portfolio, is based on a Bayesian approach, and derives a single scaling factor that is used to scale the non-LDP PD into an appropriate and conservative PD for the low default portfolio. This scaling factor is floored at 1x.

The MSEHSE Group confirms through an internal validation process that the PD values it uses are prudent when compared to actual Morgan Stanley Group default experience. The MSEHSE Group uses supervisory-prescribed factors to calculate LGDs and conversion factors.

Control Mechanisms for the Rating System

The rating system and its components are validated on a periodic basis. The model validation process is independent of the internal models' development, implementation, and operation. The validation process includes tests of the model's sensitivity to key inputs and assumptions and evaluation of conceptual soundness. MSEHSE Group Model Oversight Committee is in place to provide appropriate technical and business review and oversight. IAD serves as the third line of defence regarding the internal rating model development process and practices, through independent review it performs periodically.

The performance of the rating system is assessed on a quarterly basis. This includes a review of key performance measures including comparison of internal ratings versus agency ratings, ratings of defaulted parties, transitions across grades, and analysis of expert overrides.

Non-Trading Book Equity Exposure and Specialised Lending

The MSEHSE Group applies the IRB simple risk weight approach for equity exposures falling outside of the Trading Book. The majority of the equity positions are held as hedges for employee long-term compensation schemes.

Table 15 shows the MSEHSE Group's equity exposures using the simple risk-weighted approach.

Table 15: IRB (Specialised Lending and Equities) (EU CR10.5)

	a	b	c	d	e	f
	Equities exposures under the simple risk-weight approach					
MSEHSE Group[1]	**On-balance sheet exposures €MM**	**Off-balance sheet exposures €MM**	**Risk weight %**	**Exposure value €MM**	**RWA €MM**	**Expected loss amount €MM**
Private equity exposures	-	-	190%	-	-	-
Exchange-traded equity exposures	-	23	290%	23	67	-
Other equity exposures[2]	-	-	370%	-	-	-
	-	-	1250%	-	3	-
Total	**-**	**23**	**-**	**23**	**70**	**-**

1. MSEHSE Group has no specialised lending.
2. Equity exposures subject to 1250% risk weight have been included under "Other equity exposures".

During 2022 equity exposures consisted of exposure to Morgan Stanley stock positions.

10.4 Credit Risk Adjustments

The main considerations for the impairment assessment include whether there are any known difficulties in the cash flows of counterparties, credit rating downgrades, or infringement of the original terms of the contract.

The MSEHSE Group determines the allowance appropriate for each individually significant asset on an individual basis. Items considered when determining the allowance amount include the sustainability of the counterparty's business plan, the counterparty's ability to improve performance once a financial difficulty has arisen, the realisable value of collateral, and the timing of expected cash flows. The impairment losses are evaluated, at least, at each reporting date.

The calculation of credit risk adjustments and allowances is based on the expected credit loss ("ECL").

The MSEHSE Group recognises ECL for the following financial instruments that are not measured at fair value through profit and loss ("FVPL"):

- financial assets measured at amortised cost;
- loan commitments, except those that can be net settled in cash or with another financial instrument; and
- financial guarantees.

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 and information existing at the balance sheet date;
- LGD: the LGD represents expected loss conditional on default, considering the mitigating effect of collateral, including the expected value of the collateral when realised and the time value of money;
- EAD: this represents the expected EAD, considering the expected repayment of principal and interest from the balance sheet date to the date of default event together with any expected drawdowns of a 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.

A financial asset is considered 'past due' where any amount of principal, interest or fee has not been paid at the date it was due. This definition is consistent for accounting and regulatory purposes. A financial asset is considered 'impaired' when an ECL is recognised and presented as ECL allowance (loss allowance).

- If, at the reporting date, there has not been a Significant Increase in Credit Risk ("SICR") of the financial asset since initial recognition then the loss allowance is calculated as the 12-month ECL, which represents the lifetime cash shortfalls that will result if a default occurs in the 12 months after the reporting date, on a collective basis, weighted by the probability of that default occurring. Interest revenue is calculated on the gross asset carrying amount without deduction for credit loss allowance. Such financial instruments are referred to as being in Stage 1 of the impairment framework;
- If there has been a SICR since initial recognition, the loss allowance is calculated as the lifetime ECL, that is, the expected credit losses that result from all possible default events over the remaining life of the financial instrument. Such financial instruments are referred to as being in Stage 2 of the impairment framework;
- If the credit risk has increased further, to the extent that the financial instrument is considered credit-impaired, these assets are referred to as being non-performing and thus in Stage 3 of the framework.

In assessing the impairment of financial instruments under the ECL model, the MSEHSE Group defines default in accordance with Credit Risk Management Department's policies and procedures. This considers whether the borrower is unlikely to pay its credit obligations to the company in full and considers qualitative indicators, such as breaches of covenants. The definition of default also includes a presumption that a financial asset which is more than 90 days past due has defaulted.

10.5 Credit Risk Mitigation

The MSEHSE Group may seek to mitigate credit risk from its lending and trading activities in multiple ways, including netting, collateral, guarantees and hedges.

At the transaction level, the MSEHSE Group seeks to mitigate risk through management of key risk elements such as size, tenor, financial covenants, seniority, and collateral. The MSEHSE Group actively hedges its credit exposure through various financial instruments that may include single-name and structured credit derivatives.

Additionally, the MSEHSE Group may sell, assign or syndicate funded loans and lending commitments to other financial institutions in the primary and secondary loan market. In connection with its derivatives trading activities, the MSEHSE Group generally enters master netting and collateral arrangements with counterparties. These agreements provide the MSEHSE Group with the ability to demand collateral, as well as to liquidate collateral and offset receivables and payables covered under the same master agreement in the event of a counterparty default.

CRMD review and analyse the value of collateral posted by the obligor in line with the MSEHSE Group collateral management policies, including arrangements for maintaining the integrity of margining process, safeguarding collateral, monitoring collateral concentrations and monitoring collateral disputes.

Netting

The MSEHSE Group has policies and procedures in place for assessing the validity, enforceability, and treatment of netting agreements with clients in connection with its derivative trading activities.

In order to net a group of similar exposures with a counterparty, a qualifying master netting agreement must be in place between the Morgan Stanley entity and the counterparty. The agreement must be valid and legally enforceable. Upon an event of default, including the event of bankruptcy or insolvency of the counterparty, all transactions within the netting set are terminated in a timely manner and a single net close-out amount is determined under a qualifying master netting agreement. Repo-style transactions must also be executed under an agreement that provides for the close-out on a net basis. The MSEHSE Group does not make use of on-balance-sheet netting of loans and deposits in regulatory capital calculations.

Collateral

The amount and type of collateral required by the MSEHSE Group depends on an assessment of the creditworthiness of the counterparty, and any relevant regulation. Collateral held is managed in accordance with the MSEHSE Group's guidelines and the relevant underlying agreements.

The MSEHSE Group actively manages its credit exposure through the application of collateral arrangements. The use of collateral in managing OTC derivative risk is standard in the marketplace, and is governed by appropriate documentation, for example, the Credit Support Annex to the International Swaps and Derivatives Association documentation. In line with these standards, the MSEHSE Group generally accepts only cash and G7 government bonds, corporate debt, and main index equities as eligible collateral. Other securities may be accepted in securities lending and repo, subject to haircuts based on assessments of collateral volatility and liquidity.

CRMD utilises an established infrastructure to manage, maintain and value collateral daily. Haircuts are taken on eligible collateral to act as a buffer against adverse price movements prior to liquidation of the collateral during the close-out process following a counterparty's default. Standard haircuts are reviewed periodically and during volatile markets.

Guarantees

A guarantee may reduce the MSEHSE Group's credit risk to a direct obligor through a documented arrangement in which a third party agrees to be responsible for some portion or all the debt or obligation of a Counterparty.

A guarantee is a financial guarantee, letter of credit, insurance, or other similar financial instrument (other than a credit derivative) that allows one party (beneficiary) to transfer the credit risk of one or more specific exposures (guaranteed or reference exposure) to another party (guarantor or protection provider).

The MSEHSE Group maintains policies and procedures which set out the process for determining the eligibility of the guarantee. Only an eligible guarantee can be used for risk mitigation purpose. The acceptable types of guarantors are sovereigns, certain supranational and multilateral development banks, banks and other financial institutions, and corporates that are rated at least investment grade.

Participations

The MSEHSE Group also uses participation as one of the credit risk mitigation techniques. A participation is a documented agreement through which a lender transfers to a third party (which may include an affiliate), certain rights and obligations of the lender under the applicable credit agreement(s), or a portion thereof, without transferring record ownership (i.e., the participant does not become lender of record on the agent's books and records).

The total risk exposure amounts covered by eligible credit mitigations are displayed in Tables CR3 and CR4 (please refer to section 23 "Appendix V: Additional Credit and Counterparty Credit Risk Tables").

11. Counterparty Credit Risk

11.1 Counterparty Credit Exposures

The MSEHSE Group leverages models under IMM and Standardised Methods for calculation of CCR exposures. The majority of OTC derivatives within the MSEHSE Group are in scope of the IMM permission.

The central process in calculating CCR exposure under IMM is a Monte Carlo simulation, which generates independent realisations of market risk factors at future time horizons across a number of simulation paths. Each trade is revalued under the simulated market conditions with future collateral requirements, along each simulation path determined by the simulated trade valuations. Finally, simulated trade values and collateral balances are aggregated based on netting agreements and legally confirmed enforceability to yield a distribution of CCR exposure across the simulation paths at each future time horizon.

Selected measures of this distribution are then calculated to report CCR exposure and full distribution is used for capital calculation. The most material risk factors are calibrated daily to market implied data, while other risk factors are calibrated based on three years or more of historical data.

Standardised Methods are applied for exposures not covered by IMM, Standardised Approach for Counterparty Credit Risk (“SA-CCR”) for Derivatives and Financial Collateral Comprehensive Method/ Master Netting Agreement for SFT.

Under SA-CCR, the EAD is comprised of the sum of two components, the replacement cost, and the potential future exposure, multiplied by a supervisory multiplier, alpha (1.4).

Table 16 shows a comprehensive view of the methods used to calculate CCR regulatory requirements and the main parameters used within each method for the MSEHSE Group as of 31 December 2022.

Table 16: Analysis of CCR exposure by approach (EU CCR1)

€MM		a	b	c	d	e	f	g	h
MSEHSE Group		Replace-ment cost (RC)	Potential future exposure (PFE)	EEPE	Alpha used for computing regulatory exposure value	Exposure value pre-CRM	Exposure value post-CRM	Exposure value	RWEA
EU1	EU- Original Exposure Method (for derivatives)	-	-		1.4	-	-	-	-
EU2	EU- Simplified SA-CCR (for derivatives)	-	-		1.4	-	-	-	-
1	SA-CCR (for derivatives)	1,640	1,529		1.4	6,178	4,500	4,500	1,906
2	IMM (for derivatives and SFTs)			7,441	1.4	36,007	11,503	11,503	8,165
2a	*Of which securities financing transactions netting sets*			-		-	-	-	-
2b	*Of which derivatives & long settlement transactions netting sets*			7,441		36,007	11,503	11,503	8,165
2c	*Of which from contractual cross-product netting sets*					-	-	-	-
3	Financial collateral simple method (for SFTs)					-	-	-	-
4	Financial collateral comprehensive method (for SFTs)					3,178	3,178	3,178	1,945
5	VaR for SFTs					-	-	-	-
6	**Total**					**45,364**	**19,182**	**19,182**	**12,016**

The above breakdown of EEPE exposure relates only to derivatives. Simplified SA-CCR according to Article 237a CRR is not applicable to the MSEHSE Group.

Table 17 summarises RWA movements for MSEHSE Group's CCR exposures under IMM.

Table 17: RWA flow statements of CCR exposures under IMM (EU CCR7)

€MM		a MSEHSE Group RWEA
1	**RWEA as of the end of the previous reporting period[1]**	**4,651**
2	Asset size	1,812
3	Credit quality of counterparties	1,701
4	Model updates (IMM only)	-
5	Methodology and policy (IMM only)	-
6	Acquisitions and disposals	-
7	Foreign exchange movements	-
8	Other	-
9	**RWEA as of the end of the current reporting period**	**8,165**

1. Previous reporting period was 31 December 2021.

The increase in RWA is mainly due to portfolio and market movements within OTC derivatives and regulatory guidance affecting risk weights used for capital calculation.

11.2 Credit Valuation Adjustment

CVA capital requirements cover the risk of mark-to-market losses on the counterparty risk of OTC derivatives. They are calculated using a combination of Advanced Method based on internal modelling approaches and Standardised Method.

Table 18 shows CVA by approach for the MSEHSE Group as of 31 December 2022.

Table 18: Transactions subject to own funds requirements for CVA risk (EU CCR2)

€MM MSEHSE Group		a Exposure value	b RWEA
1	Total transactions subject to the Advanced method	6,322	2,377
2	(i) VaR component (including the 3× multiplier)		633
3	(ii) Stressed VaR component (including the 3× multiplier)		1,744
4	Transactions subject to the standardised method	2,907	1039
EU4	Transactions subject to the Alternative approach (Based on the Original Exposure Method)	-	-
5	**Total transactions subject to own funds requirements for CVA risk**	**9,228**	**3,415**

11.3 Derivatives and SFTs Composition of Collateral

Gross positive fair value represents any long market value on derivative transactions before netting benefits are applied but after any regulatory eliminations and exemptions are applied.

Collateral held represents the market value of enforceable collateral received after regulatory eliminations and exemptions are applied. Net derivatives credit exposure represents the net exposure after collateral received has been applied.

Table 19 shows the breakdown of all types of collateral posted or received (fair value) to support or reduce CCR exposures related to derivative transactions or SFTs, including transactions cleared through a central clearing counterparty ("CCP") as of 31 December 2022 for the MSEHSE Group. The MSEHSE Group does not hold any Segregated Collateral Received.

Table 19: Composition of collateral for CCR exposures (EU CCR5)

		a	b	c	d	e	f	g	h
		Collateral used in derivative transactions				Collateral used in SFTs			
€MM		Fair value of collateral received		Fair value of collateral posted		Fair value of collateral received		Fair value of collateral posted	
MSEHSE Group		Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated	Segregated	Unsegregated
1	Cash – domestic currency	-	17,692	-	20,807	-	19,613	-	17,842
2	Cash – other currencies	-	5,869	-	8,900	-	1,395	-	2,508
3	Domestic sovereign debt	-	2,658	217	460	-	2,087	-	3,209
4	Other sovereign debt	-	4,955	983	1,215	-	12,396	-	11,566
5	Government agency debt	-	15	-	-	-	161	-	160
6	Corporate bonds	-	1,004	-	36	-	1,181	-	1,024
7	Equity securities	-	527	-	1	-	6,141	-	4,119
8	Other collateral	-	87	9	1	-	1,159	-	1,169
9	**Total**	**-**	**32,806**	**1,209**	**31,420**	**-**	**44,132**	**-**	**41,597**

11.4 Exposures to CCPs

Table 20 shows the breakdown of the exposures to Qualifying Central Counterparty ("QCCP") as of 31 December 2022 for the MSEHSE Group. The MSEHSE Group did not have any exposures to non-QCCPs as of 31 December 2022.

Table 20: Exposures to CCPs (EU CCR8)

€MM		a	b
MSEHSE Group		Exposure Value	RWA
1	**Exposures to QCCPs (total)**		**138**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	1,289	26
3	(i) OTC derivatives	889	18
4	(ii) Exchange-traded derivatives	332	7
5	(iii) SFTs	69	1
6	(iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	-	
8	Non-segregated initial margin	2,990	-
9	Prefunded default fund contributions	548	112
10	Unfunded default fund contributions	781	-
11	**Exposures to non-QCCPs (total)**		**-**
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	-	-
13	(i) OTC derivatives	-	-
14	(ii) Exchange-traded derivatives	-	-
15	(iii) SFTs	-	-
16	(iv) Netting sets where cross-product netting has been approved	-	-
17	Segregated initial margin	-	
18	Non-segregated initial margin	-	-
19	Prefunded default fund contributions	-	-
20	Unfunded default fund contributions	-	-

11.5 Credit Derivative Transactions

Table 21 shows the extent of an institution's exposures to credit derivative transactions broken down between protection bought or sold for the MSEHSE Group.

Table 21: Credit derivatives exposures (EU CCR6)

€MM MSEHSE Group[1]		a Protection bought	b Protection sold
	Notionals		
1	Single-name credit default swaps	7,037	5,474
2	Index credit default swaps	31,683	32,710
3	Total return swaps	1,013	790
4	Credit options	8,213	8,213
5	Other credit derivatives	4,170	3,899
6	**Total Notional**	**52,117**	**51,086**
	Fair values		
7	Positive fair value (asset)	278	531
8	Negative fair value (liability)	(534)	(278)

1. Credit Derivatives are not used as a CRM technique for RWA benefits.

This table represents notional value and fair value of credit derivatives mainly comprising of Index Credit Default Swaps.

11.6 Collateral Impact of a Downgrade

In connection with certain OTC trading agreements and certain other agreements where the MSEHSE Group is a liquidity provider to certain financing vehicles, the MSEHSE Group may be required to provide additional collateral or immediately settle any outstanding liability balances with certain counterparties or pledge additional collateral to certain exchanges and clearing organisations in the event of a future credit rating downgrade irrespective of whether the MSEHSE Group is in a net asset or net liability position.

The additional collateral or termination payments that may be called in the event of a future credit rating downgrade vary by contract and can be based on ratings by either or both of Moody's and S&P.

As of 31 December 2022, the future potential collateral amounts and termination payments that could be called or required by counterparties or exchanges and clearing organisations, in the event of one-notch or two-notch downgrade from the lowest of Moody's or S&P ratings were €0.1 million and an incremental €25.2 million, respectively.

11.7 Wrong Way Risk

Wrong way risk considerations are described in Credit Risk Management's "Wrong Way Risk Procedure".

Specific wrong way risk arises when a transaction is structured in such a way that the risk exposure is positively correlated with the PD of the counterparty. For example, a counterparty writing put options on its own stock, or a counterparty collateralised by its own or related party stocks. The MSEHSE Group considers these correlations when approving transactions. Ongoing monitoring of transactions with specific wrong way risk is facilitated by systematic identification from inception of the trade throughout the entire lifecycle of the trade. Further, credit and capital exposures are adjusted to reflect the identified specific wrong way risk.

General wrong way risk arises when the counterparty PD is correlated with market or macroeconomic factors that affect the value of the counterparty's trades. General wrong way risk includes exposures correlated to sovereign default risk, which is subject to heightened monitoring and limits where appropriate, and exposure correlated to other market risk factors which is identified via single-factor stress tests. Where positions raise concerns, a risk mitigation strategy is agreed between CRMD and the business units.

12. Securitisation

12.1 Securitisation Activities

The MSI Group acts, or has historically acted, as originator, sponsor, liquidity provider, servicer, and derivative counterparty to its own originated and sponsored securitisations, as well as those of third-party securitisations. The MSEHSE Group is used to facilitate distribution of securitised bonds to clients in certain jurisdictions and does not hold any end-of-day ("EOD") risk in securitised bonds.

The MSEHSE Group's strategy is to trade securitisations for the purposes of customer placement of newly securitised bonds.

The MSI Group did not originate or sponsor any new securitisations in 2022 (for further details please refer to the Pillar 3 Annual Report of MSI Group).

12.2 Regulatory Capital Treatment

The MSEHSE Group employs the Securitisation Standardised Approach ("SEC-SA"), Securitisation External Ratings Based Approach ("SEC-ERBA") and Default 1250% Approach to calculate the capital on its securitisation positions. The MSEHSE Group does not apply the Securitisation IRB Approach ("SEC-IRBA"). The MSEHSE Group uses ratings from three ECAIs: Moody's Investors Service, Standard & Poor's, and Fitch Ratings across all types of securitisation exposures.

12.3 Securitisation Exposures

As of 31 December 2022, only non-trading book securitisation exposures are held by the MSEHSE Group. The securitisation RWAs referring to corporate loans are calculated according to SEC-ERBA. Since the MSEHSE Group does not act as originator or sponsor, and there are neither trading book nor defaulted securitisation exposures, the disclosure templates EU-SEC2, EU-SEC3 and EU-SEC5 are not applicable.

Table 22 shows the securitisation exposures and MCR within the MSEHSE Group as of 31 December 2022.

Table 22: Securitisation exposures summary

€MM MSEHSE Group[1]	Trading book	Non-trading book
Exposures	-	6
MCR	-	-

1. The MSEHSE Group has one IMM non-trading book securitisation position as of 31 December 2022.

Table 23 shows securitisation exposures in the non-trading book for the MSEHSE Group as of 31 December 2022.

Table 23: Securitisation exposures in the non-trading book (EU SEC1)

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
€MM		Institution acts as originator							Institution acts as sponsor				Institution acts as investor			
		Traditional				Synthetic			Traditional		Synthetic		Traditional		Synthetic	
		STS		Non-STS					STS	Non-STS			STS	Non-STS		
MSEHSE Group[1]			Of which SRT		Of which SRT		Of which SRT	Sub-total				Sub-total				Sub-total
1	**Total exposures**		-		-	-	-	-	-	-	-	-	-	**6**	-	**6**
2	Retail (total)		-		-	-	-	-	-	-	-	-	-	-	-	-
3	Residential mortgage		-		-	-	-	-	-	-	-	-	-	-	-	-
4	Credit card		-		-	-	-	-	-	-	-	-	-	-	-	-
5	Other retail exposures		-		-	-	-	-	-	-	-	-	-	-	-	-
6	Re-securitisation		-		-	-	-	-	-	-	-	-	-	-	-	-
7	Wholesale (total)		-		-	-	-	-	-	-	-	-	-	6	-	6
8	Loans to corporates		-		-	-	-	-	-	-	-	-	-	6	-	6
9	Commercial mortgage		-		-	-	-	-	-	-	-	-	-	-	-	-
10	Lease and receivables		-		-	-	-	-	-	-	-	-	-	-	-	-
11	Other wholesale		-		-	-	-	-	-	-	-	-	-	-	-	-
12	Re-securitisation		-		-	-	-	-	-	-	-	-	-	-	-	-

1. As of 31 December 2022 there are no simple, transparent, and standardised ("STS") positions.

The table represents the securitisation exposures broken down based on retail and wholesale, non-trading book exposure where institution is acting as originator/sponsor/investor. Currently the MSEHSE Group only has exposures acting as an investor. As of 31 December 2022, there is no significant risk transfer ("SRT").

Table 24 shows securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor for MSEHSE Group as of 31 December 2022.

Table 24: Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor (EU SEC4)

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	EU-p	EU-q
	€MM	Exposure values (by RW bands/deductions)				Exposure values (by regulatory approach)				RWEA (by regulatory approach)				Capital charge after cap				
	MSEHSE Group	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW/ deductions	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW/ deduction	SEC-IRBA	SEC-ERBA (including IAA)	SEC-SA	1250% RW/ deduction
1	**Total exposures**	**-**	**-**	**6**	**-**	**-**	**-**	**6**	**-**	**-**	**-**	**5**	**-**	**-**	**-**	**-**	**-**	**-**
2	Traditional securitisation	-	-	6	-	-	-	6	-	-	-	5	-	-	-	-	-	-
3	Securitisation	-	-	6	-	-	-	6	-	-	-	5	-	-	-	-	-	-
4	Retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Of which STS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Wholesale	-	-	6	-	-	-	6	-	-	-	5	-	-	-	-	-	-
7	Of which STS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Synthetic securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Re-securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The table represents the securitisation exposures broken down as per Traditional and Synthetic non-trading book exposure based on regulatory approaches & RW banding where the MSEHSE Group is acting as investor. Currently exposure is broken down as per SEC-ERBA regulatory approach.

12.4 Accounting

If the MSEHSE Group acts as the originator of a securitisation, transfers of financial assets in the transaction are generally accounted for as sales when the MSEHSE Group has relinquished control over the transferred assets and met CRR requirements for significant risk transfer. The gain or loss on sale of such financial assets depends, in part, on the previous carrying amount of the assets involved in the transfer (generally at fair value), the sum of the proceeds and fair value of the retained interests on the date of sale.

12.5 Valuation

The MSEHSE Group may retain interests in the securitised financial assets of one or more tranches of the securitisation. These retained interests are included at fair value. Any changes in the fair value of such retained interests are recognised through the profit and loss in the audited financial statements of the entity holding such interests.

12.6 Risk Monitoring

The credit risk of the MSEHSE Group's securitisations is controlled by actively monitoring and managing the associated credit exposures. The MSEHSE Group evaluates collateral quality, credit subordination levels and structural characteristics of securitisation transactions at inception and on an ongoing basis and manages exposures against internal limits.

13. Market Risk

Market risk refers to the risk that a change in the level of one or more market prices, rates, indices, implied volatilities, correlations, or other market factors, such as market liquidity, will result in losses for a position or portfolio.

The MSEHSE Group manages the market risk associated with its trading activities at a division, business area and individual product level, and includes consideration of market risk at the legal entity level.

Sound market risk management is an integral part of the Morgan Stanley Group culture. The MSEHSE Group is responsible for ensuring that market risk exposures are well-managed and monitored. The MSEHSE Group Market Risk Department ("MRD") is responsible for ensuring transparency of material market risks, monitors compliance with established limits, and escalates risk concentrations to appropriate senior management. MRD is an independent risk oversight group headed by the MSEHSE Group Head of Market Risk, who reports to the MSEHSE Group Chief Risk Officer.

To execute these responsibilities, MRD monitors the market risk against limits on aggregate risk exposures and performs a variety of risk analysis. Aggregate market risk limits have been approved for the MSEHSE Group in line with the risk appetite set by the MSEHSE Group Management Boards. Additional market risk limits are assigned, as appropriate, to trading desks, products and/or regions and are commensurate with the aggregate limits. MRD monitors market risk measures against limits in accordance with policies set by the MSEHSE Group Management Boards and senior management. Risk analysis includes monitoring Value at Risk ("VaR"), stress testing and scenario analyses, routine reporting of risk exposures, and maintenance of the VaR and scenario analysis methodologies. The material risks identified by these processes are summarised and reported to senior management.

The MSEHSE Group has been granted a temporary non-objection by the BaFin to using internal models for market risk own funds requirements reporting, calculated under the IMA permission granted by the PRA. IMA Models are applied consistently across all sub-portfolios, with the population in scope defined according to permission criteria. Models are independently reviewed on an annual basis by Model Risk Management, and changes to methodologies are approved by the MSEHSE Group Model Oversight Committee.

The model validation process is independent of the Internal Models' development, implementation, and operation. The validation process includes tests of the model's sensitivity to key inputs and assumptions and evaluation of conceptual soundness.

The market risk management policies and procedures for the MSEHSE Group are consistent with those of the Morgan Stanley Group and include escalation to the MSEHSE Group Management Boards and appropriate management personnel.

Risk Mitigation Policies

The MSEHSE Group manages its trading positions by employing a variety of risk mitigation strategies. These strategies include diversification of risk exposures and hedging. Hedging activities consist of the purchase or sale of positions in related securities and financial instruments, including a variety of derivative products (e.g., futures, forwards, swaps, and options). Hedging activities may not always provide effective mitigation against trading losses due to differences in the terms, specific characteristics or other basis risks that may exist between the hedge instrument and the risk exposure that is being hedged.

The MSEHSE Group manages and monitors its market risk exposures, including outright and basis risks, in such a way as to maintain a portfolio that the MSEHSE Group believes is well-diversified in the aggregate with respect to market risk factors, and that reflects the MSEHSE Group's aggregate risk tolerance as established by MSEHSE Group senior management. The effectiveness of hedges and mitigants is monitored using processes such as risk and limit reporting.

Data Quality

MRD has a data quality control process to monitor, validate, remediate, escalate, and report data quality issues that impact market risk and capital reporting. The Market Risk Middle Office team is responsible for coordinating data quality control with the aim of providing MRD with high quality data that is accurate, complete, and delivered in a timely manner. Threshold based checks are performed on input data for IMA models. Significant movements are validated, and data adjustments are made where necessary, along with the appropriate escalation to ensure ongoing remediation. Completeness, accuracy, and timeliness key performance indicators for market risk metrics are reported to the senior management risk committees.

13.1 Value at Risk

The MSEHSE Group uses the statistical technique known as VaR as one of the tools used to measure, monitor, and review the market risk exposures of its trading portfolios. MRD calculates and distributes daily VaR-based risk measures to various levels of management.

VaR Methodology, Assumptions and Limitations

The MSEHSE Group calculates VaR using a model based on historical simulation for general market risk factors and for name-specific equity risk and on Monte Carlo simulation for name-specific risk in bonds, loans, and related derivatives. Market risk factors' daily moves are modelled either as absolute changes or relative changes, dependent on the most suitable stochastic process (normal or lognormal diffusion process) to describe the daily risk factor changes. The model constructs a distribution of hypothetical daily changes in the value of trading portfolios based on historical observation of daily changes in key market indices or other market risk factors, and information on the sensitivity of the portfolio values to these market risk factor changes.

The methodology for VaR at Morgan Stanley is 1-year historical simulation. The risk exposures used for the daily VaR calculation are based on greeks and full-revaluation grids, and simulations cover both systematic and specific risk components.

The total simulated profit and loss of a given position for each simulation date in the historical window is calculated considering both systematic and specific risk components of the market factor move. The final profit and loss distribution is a result of profit and losses of all risk factors and all positions being aggregated. The time series data is updated on a weekly basis, with the exception of idiosyncratic risk factors which are updated quarterly. The same valuation and aggregation approach is used for Stressed Value at Risk (“SVaR”).

A set of internal processes and controls ensure that all relevant trading positions booked by the MSEHSE Group are included in VaR. The MSEHSE Group’s 99%/one-day VaR corresponds to the unrealised loss in portfolio value that, based on historically observed market risk factor movements, would have been exceeded with a frequency of 1%, or once every 100 trading days, if the portfolio were held constant for one day. The 99th percentile is computed and is scaled by the square root of 10 to arrive at a 10-day VaR for regulatory purposes. The 95th percentile 1-day VaR is used by MRD internally to manage risk and to base the legal entity VaR limits on.

The MSEHSE Group uses VaR as one of a range of risk management tools. Among their benefits, VaR models permit estimation of a portfolio’s aggregate market risk exposure, incorporating a range of market risks and portfolio assets. One key element of the VaR model is that it reflects portfolio diversification or hedging activities.

However VaR has various limitations which include but are not limited to: use of historical changes in market risk factors, which may not be accurate predictors of future market conditions, and may not fully incorporate the risk of extreme market events that are outsized relative to observed historical market behaviour or reflect the historical distribution of results beyond the 99% confidence interval; and reporting of losses in a single day, which does not reflect the risk of positions that cannot be liquidated or hedged in one day.

The modelling of the risk characteristics of some positions relies on approximations that, under certain circumstances, could produce significantly different results from those produced using more precise measures. VaR is most appropriate as a risk measure for trading positions in liquid financial markets and will understate the risk associated with severe events such as periods of extreme illiquidity.

The MSEHSE Group is aware of these and other limitations and therefore uses VaR as only one component in its risk management oversight process. This process also incorporates stress testing and scenario analysis and extensive risk monitoring, analysis, quantification of risk not captured in VaR, and control at the trading desk, division and the MSEHSE Group levels.

The MSEHSE Group is committed to continuous review and enhancement of VaR methodologies and assumptions in order to capture evolving risks associated with changes in market structure and dynamics. As part of regular process improvement, additional systematic and name-specific risk factors may be added to improve the VaR model's ability to estimate risks more accurately for specific asset classes or industry sectors.

Since the reported VaR statistics are estimates based on historical data, VaR should not be viewed as predictive of the MSEHSE Group's future revenues or financial performance. There can be no assurance that the MSEHSE Group's actual losses on a particular day will not exceed the VaR amounts indicated below or that such losses will not occur more than once in 100 trading days. VaR does not predict the magnitude of losses which, should they occur, may be significantly greater than the VaR amount.

VaR statistics are not readily comparable across institutions because of differences in the institutions' portfolios, modelling assumptions and methodologies. These differences can result in materially different VaR estimates across institutions for similar portfolios. The impact of such differences varies depending on the factor history assumptions, the frequency with which the factor history is updated and the confidence level. As a result, VaR statistics are more useful when interpreted as indicators of trends in an institutions' risk profile rather than as an absolute measure of risk to be compared across institutions.

13.2 Market Risk Capital Requirements

The market risk capital requirements of the MSEHSE Group comprises of capital which is calculated using IMA in accordance with regulatory approved models and of capital which is calculated under the SA.

Standardised Approach

Table 25 shows the market risk RWA for the MSEHSE Group as of 31 December 2022, calculated in accordance with the SA and categorised by component type.

Table 25: Market risk under the standardised approach (EU MR1)

€MM MSEHSE Group		a RWEAs
	Outright products	
1	Interest rate risk (general and specific)	-
2	Equity risk (general and specific)	-
3	Foreign exchange risk	22
4	Commodity risk	59
	Options	
5	Simplified approach	-
6	Delta-plus method	-
7	Scenario approach	-
8	Securitisation (specific risk)	-
9	**Total**	**81**

The MSEHSE Group capital requirements under the SA are driven by commodities and foreign exchange risk.

IMA Approach

The VaR-based capital and the SVaR-based capital are determined by the higher of the 60-day average of the 10-day VaR/10-day SVaR numbers, multiplied by the regulatory internal model multiplication factor, and the 10-day VaR/10-day SVaR for the relevant day. The Incremental Risk Charge ("IRC") is determined by the higher of the average of the latest 12 weeks IRC and the IRC charge for the relevant day.

Table 26 shows the VaR, SVaR and IRC measures for the MSEHSE Group, as of 31 December 2022.

Table 26: Market risk under Internal Model Approach (EU MR2-A)

€MM		a	b
MSEHSE Group		RWEAs	Own funds requirements
1	**VaR (higher of values a and b)**	**1,057**	**85**
(a)	Previous day's VaR (VaRt-1)	267	21
(b)	Multiplication factor (mc) x average of previous 60 working days (VaRavg)	1,057	85
2	**SVaR (higher of values a and b)**	**2,921**	**234**
(a)	Latest available SVaR (SVaRt-1))	1,059	85
(b)	Multiplication factor (ms) x average of previous 60 working days (sVaRavg)	2,921	234
3	**IRC (higher of values a and b)**	**752**	**60**
(a)	Most recent IRC measure	752	60
(b)	12 weeks average IRC measure	740	59
4	**Comprehensive risk measure (higher of values a, b, and c)[1]**	**-**	**-**
(a)	Most recent risk measure of comprehensive risk measure	-	-
(b)	12 weeks average of comprehensive risk measure	-	-
(c)	Comprehensive risk measure- Floor	-	-
5	**Other**	**3,792**	**303**
6	**Total**	**8,522**	**682**

1. Comprehensive Risk Measure (CRMe) does not form part of the product scope for MSEHSE.

MSEHSE Group Market Risk RWA under IMA approach is primarily attributable to Risk Not in Value at Risk ("RNIV") and Stressed VaR-based RWA.

Table 27 summarises the key drivers of RWAs/TOFR for the MSEHSE Group market risk exposures under the IMA. The VaR and SVaR capital measures presented are based on the 60-day averages, as they were higher than the daily measures as of 31 December 2022.

Table 27: RWEA flow statements of market risk exposures under the IMA (EU MR2-B)

€MM		a	b	c	d	e	f	g
MSEHSE Group		VaR	SVaR	IRC	Comprehensive risk measure	Other[4]	Total RWAs	TOFR
1	**RWEAs at previous period end[1]**	**399**	**2,400**	**391**	**-**	**3,049**	**6,239**	**499**
1a	Regulatory adjustment[2]	(283)	(1,849)	-	-	(1,313)	(3,445)	(275)
1b	RWEAs at the previous quarter-end (end of the day)	116	551	391	-	1,736	2,794	224
2	Movement in risk levels	(74)	500	349	-	(88)	687	54
3	Model updates/changes	-	-	-	-	-	-	-
4	Methodology and policy	-	-	-	-	-	-	-
5	Acquisitions and disposals	-	-	-	-	-	-	-
6	Foreign exchange movements	-	-	-	-	-	-	-
7	Other[3]	225	8	12	-	-	245	20
8a	RWEAs at the end of the disclosure period (end of the day)	267	1,059	752	-	1,648	3,726	298
8b	Regulatory adjustment[2]	790	1,862	-	-	2,144	4,796	384
8	**RWEAs at the end of the disclosure period**	**1,057**	**2,921**	**752**	**-**	**3,792**	**8,522**	**682**

1. Previous reporting period was 31 December 2021.
2. Regulatory adjustment accounts for the difference between the RWA calculated based on the end-of-day position, compared with the RWA calculated based on the 60-day average position in the case of VaR / SVaR and 12-week average position in the case of IRC and CRM. The regulatory adjustments also account for the multiplication factors mc and ms, per Article 366 of the CRR, for the VaR, SVaR and Other respectively.
3. Other (flow driver) represents low impact data and implementation changes including time series updates and periodic parameter updates to the respective models.
4. Other (risk measure) represents Risks Not in VaR ("RNIV").

Over 2022, the MSEHSE Group Market Risk RWA under IMA increased, due to changes in the fixed income risk profile attributable to client trading activities. Additionally, VaR, SVaR and RNIV increased due to the increase in regulatory capital multiplier, with further contribution from elevated market volatility.

Table 28 provides a summary of the maximum, minimum, average, and period-end values over the six months to 31 December 2022, for the MSEHSE Group, resulting from the different types of models approved to be used for computing the regulatory capital charge.

Table 28: IMA values for trading portfolios (EU MR3)

	MSEHSE Group	a €MM
	VaR (10 day 99%)	
1	Maximum value	57
2	Average value	20
3	Minimum value	7
4	Period end	21
	SVaR (10 day 99%)	
5	Maximum value	144
6	Average value	68
7	Minimum value	46
8	Period end	85
	IRC (99.9%)	
9	Maximum value	109
10	Average value	44
11	Minimum value	16
12	Period end	60
	Comprehensive Risk Measure (99.9%)	
13	Maximum value	-
14	Average value	-
15	Minimum value	-
16	Period end	-

The MSEHSE Group VaR, SVaR and IRC mainly arise from interest rate, credit, and foreign exchange risks in the fixed income portfolio.

13.3 Positions Included in the Trading Book

Morgan Stanley has a comprehensive framework of policies, controls, and reporting to meet the requirements of the CRR for inclusion of positions in the Trading Book. The underlying policies, controls and reporting mechanisms cover a range of different aspects including Trading Intent, Valuation, Liquidity, Restrictions, Hedgeability, Active Management and transfers between the Trading and Non-Trading Books.

Governance is provided by Morgan Stanley's Banking/Trading Committee whose role with respect to the banking/trading boundary is to oversee the determination of the banking/trading/covered position designation in accordance with regulatory requirements. The committee acts as the adjudication forum for any positions where the appropriate banking/trading/covered position designation is unclear. The Banking/Trading Committee reports to the Morgan Stanley Basel Capital Steering Committee.

The Trading Book comprises financial instruments that are:

- held for trading intent or intent to hedge a trading position;
- free from restrictive covenants on tradability or for which the material risk elements can be hedged in a two-way market;
- frequently/accurately valued and actively managed on a trading desk.

If a position fails to meet the Trading Book criteria, it will be classified as Non-Trading Book.

Trading Book positions are subject to market risk-based rules, with market risk capital requirements calculated using regulatory approved internal models or a non-modelled SA.

Morgan Stanley's methodology for determining Non-Trading Book versus Trading Book classification is documented within the Morgan Stanley Trading Book, Banking Book, and Covered Positions Boundary Policy. The policy outlines criteria for identifying and classifying trading book positions for the purpose of regulatory capital and market risk measurement and sets out associated roles and responsibilities across the business unit, finance, and other stakeholder groups. This policy is subject to annual review and sign-off.

An institution-wide framework establishes controls around initial Banking/Trading classification as well as ongoing monitoring to ensure the initial classification remains appropriate over time.

13.4 Backtesting

Morgan Stanley performs regulatory backtesting for the MSEHSE Group on a daily basis at various levels of the business hierarchy to validate the accuracy of the VaR model. Backtesting is performed against the VaR model in accordance with requirements under the regulation, and per Morgan Stanley's Backtesting Policy and Procedures.

As of 31 December 2022, 99% of the MSEHSE Group market risk capital requirements are covered by the internal models. VaR represents a subset of total model-based market risk capital requirements.

Backtesting compares the profit and loss for trade date T against the 99%/one-day Regulatory VaR for T-1. As per the requirements of the CRR rules, backtesting uses 'actual' and 'hypothetical' definitions of the profit and loss.

Backtesting on hypothetical changes in the portfolio's value refers to a comparison between the portfolio's end-of-day value and, assuming unchanged positions, its value at the end of the subsequent day.

Backtesting on actual changes in the portfolio's value refers to a comparison between the portfolio's end-of-day value and its actual value at the end of the subsequent day (i.e., inclusive of intra-day trading/new activity). Both measures of the backtesting profit and loss exclude non-risk-based fees (i.e., service fees), commissions and net interest income. For the purposes of the regulatory back test, actual profit and loss incorporates liquidity and model-driven fair value adjustments (also reserves) whilst hypothetical profit and loss retains only the latter.

Performance is measured across a rolling 250 business day period and is expressed by the number of exceptions observed (instances where the MSEHSE Group level, actual or hypothetical, losses exceed 99% VaR). These exceptions are reported to the regulator. Institutions observing five or more exceptions within the measurement period are required to set aside additional market risk capital based on a sliding scale.

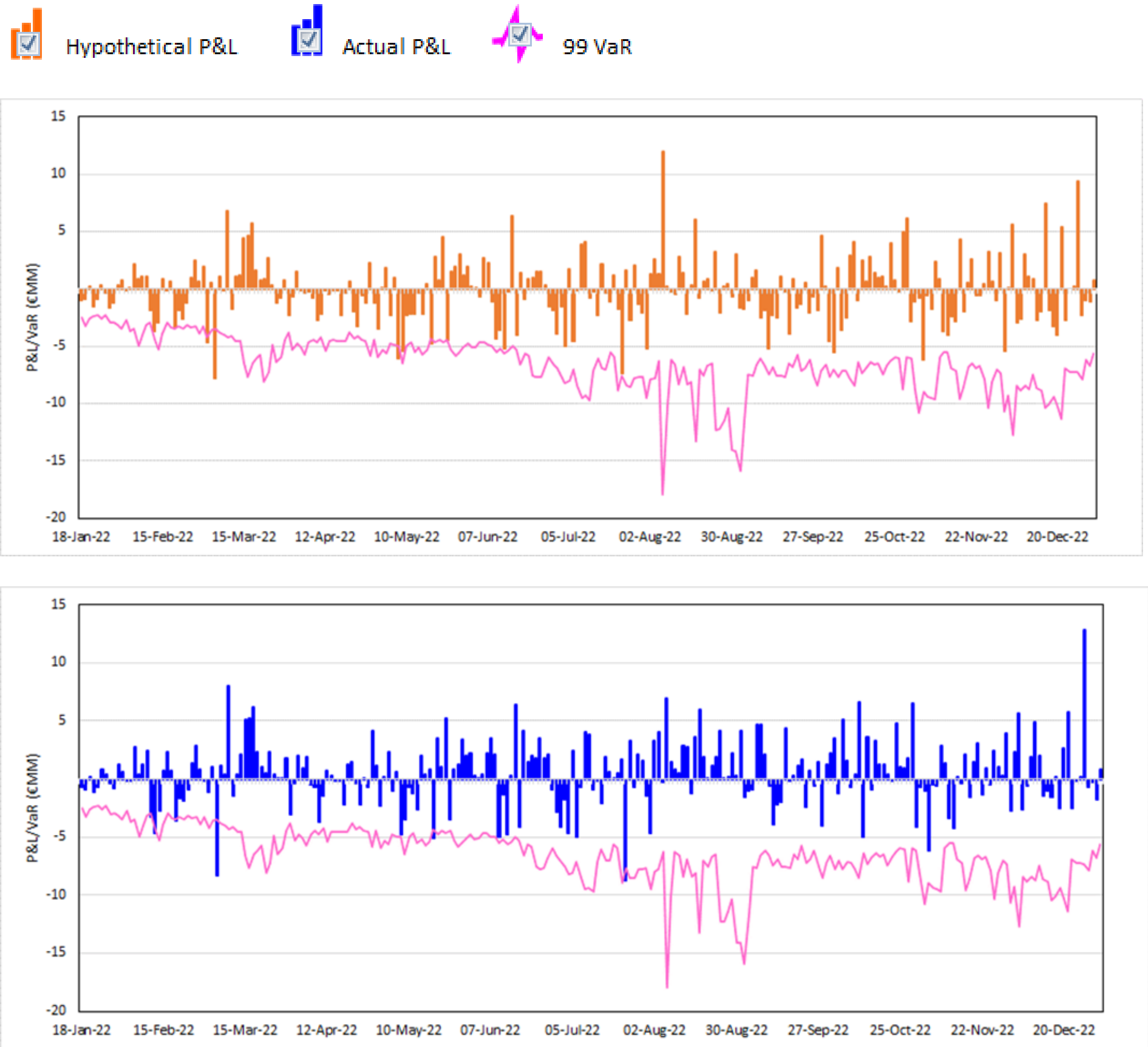
Backtesting results are reported, analysed, and discussed by the MSI Group Market Risk Backtesting Review Forum. Findings or recommendations from this forum are escalated to the MSEHSE Group Model Oversight Committee, which is responsible for authorising any further model analysis or model remediation efforts. The results of backtesting and model performance monitoring are also reported to the regulator on a periodic basis.

For the measurement period ended 31 December 2022, five hypothetical and six actual profit and loss exceptions were observed for the MSEHSE Group which result in 0.5 added to the capital multiplier. Four of the observed exceptions (three in February 2022, and one in July 2022) were on an actual P&L only basis and driven by intraday P&L outside the scope of the internal model. The remaining exceptions (two in March 2022, and three in May 2022) were either on a hypothetical P&L only, or on both a hypothetical and actual P&L basis. Morgan Stanley's analysis of the hypothetical P&L exceptions concluded that they were primarily driven by significant directional market moves in risk factors that were captured in the VaR model with sufficient granularity and did not indicate any model deficiencies.

The plots of actual and hypothetical profit and loss, covering 250 business days of MSEHSE Group backtesting monitoring to 31 December 2022 are displayed below.

Figure **4**: Comparison of VaR Estimates with Gains/Losses (EU MR4)

The graphs below show the 1-day Regulatory VaR against actual and hypothetical profit and loss for the MSEHSE Group as of 31 December 2022, values in € million:



13.5 Stressed VaR

SVaR uses the same underlying models as VaR to produce a 1-day 99% VaR constructed over a 1-year period of stress. SVaR uses historical simulations for the general market risk factors and for name-specific risk in corporate shares, and Monte Carlo simulation for name specific risk in bonds, loans, and related derivatives. The SVaR model is agreed and approved by the PRA for use in regulatory calculations. Stressed 10-day VaR is constructed by scaling the Stressed 1-day VaR.

The SVaR window for regulatory calculations is periodically set as the 1-year Unadjusted VaR window since the start of 2 January 2006 that generates the largest financial stress to the Bank's portfolio as measured by the resulting VaR.

13.6 Incremental Risk Charge

The IRC covers possible losses arising from correlated credit rating migration events and potentially joint default events for credit products in Morgan Stanley's Trading Book portfolio. The model is applied to instruments with credit-like characteristics referencing corporate, sovereign, regional, supranational and agency obligors that are approved for specific risk treatment.

This excludes securitisations and correlation trading products as these are capitalised separately. The model captures basis risks between credit derivatives and underlying reference instruments, maturity mismatches, regional and industry concentration risks, and simulates stochastic recovery rates.

The underlying model is based on a Merton style default modelling with a correlation structure between regions and industries that is calibrated to market implied default probabilities, and that uses through the cycle, historical transition matrices for rating migrations. The IRC model applies a constant level of risk with varying liquidity horizons of 3, 6 or 12 months reflective of underlying market liquidity and position concentrations in individual issuers. Table 29 outlines the average liquidity horizons for each division, which are assigned based on the constituent issuer's rating and concentration.

Morgan Stanley monitors various IRC model sensitivities and assumptions, including concentration sensitivities across industry, region, rating and security type, sensitivity to the "constant level of risk" assumption, and conservatism of stochastic loss-given default.

Table 29: IRC liquidity horizon for material sub portfolios

MSEHSE Group	Liquidity horizon (months)
Fixed Income Division	4.13
Institutional Equity Division	4.08
Overall Portfolio	**4.09**

13.7 Stress Testing

The MSEHSE Group has a comprehensive and dynamic Stress Testing Framework incorporating deterministic group-wide Macroeconomic and Climate Risk Stress tests, business area single and multi-factor scenarios, and reverse stress testing scenarios.

Stress testing is one of the MSEHSE Group's principal risk management tools used to identify and assess the impact of severe stresses on its portfolios. It complements other risk metrics by providing an assessment of MSEHSE Group's resilience under stress scenarios over a range of severities. Stress testing methodologies are applied consistently across all sub-portfolios according to the MSEHSE Group Stress Testing Procedure, which applies to the MSEHSE Group.

In addition to helping the MSEHSE Group understand the risks it is exposed and/or vulnerable to under a range of scenarios, Stress Testing is also used by the MSEHSE Group Management Boards to set the boundary for risk taking within the loss capacity of the MSEHSE Group.

14. Interest Rate Risk in the Banking Book

Interest Rate Risk in the Banking Book ("IRRBB") is defined as the risk of losses arising from adverse changes in the interest rate curves within the Banking Book .

The MSEHSE Group is exposed to interest rate risk primarily through the Trading Book which is captured in VaR. The MSEHSE Group has IRRBB primarily arising from MSEHSE Group's funding and liquidity management. The interest rate risk is measured on a daily basis through institution-wide risk systems, except for the risks on internal funding positions which are measured on a quarterly basis. The IRRBB risk is mitigated by Treasury executing financial products to manage liquidity, funding, and capital, including cash, repo, and reverse repo and interest rate derivatives as needed.

The Economic Value of Equity ("EVE") sensitivity measures the present value of cash flows assuming a static current balance sheet over the life of underlying assets and liabilities while factoring in any embedded optionality. The sensitivity is measured using proprietary Position Valuation and Risk Models ("PVRM") in the Front Office Technology systems where the positions are captured and monitored using the PV01 interest rate delta sensitivity.

The Net Interest Income ("NII") sensitivity measures the potential loss on Net Interest Income due to a predefined market rate stress event on a certain time horizon. Quantitative Risk Management ("QRM"), an external application, is used to measure and monitor the net interest income sensitivity of the MSEHSE Group's Banking Book.

The EVE and NII calculations use modelling and parametric assumptions that align to those referred to in Article 98(5a) of Directive 2013/36/EU. Changes in the EVE are evaluated using the regulatory defined scenarios that impact the level and shape of the yield curve, as listed in Table 30. Impacts on NII are measured using parallel interest rate rally and sell-off scenarios across currencies.

Table 30: Interest rate risks of non-trading book activities (EU IRRBB1)

€MM		a	b	c	d
Supervisory shock scenario		Changes of the economic value of equity		Changes of the net interest income	
		Current period[1]	Last period	Current period	Last period
1	Parallel shock up	3	10	132	89
2	Parallel shock down	(5)	(7)	(130)	(92)
3	Steepener shock	(3)	(3)		
4	Flattener shock	1	8		
5	Short rates shock up	3	11		
6	Short rates shock down	(5)	(5)		

1. Current period refers to 31 December 2022, last period refers to 31 December 2021

As of 31 December 2022, IRRBB risk was a €24k gain per 1 basis point increase in Interest rate levels, reduced from €99k gains on 31 December 2021. For the period, the down 100 basis point NII sensitivity has increased from (€42 million) to (€65 million), mainly due to a higher equity balance.

There are limits on the impact to NII under a shock of 100 basis points down and on the total IRRBB PV01 exposure. Both risk exposures have stayed within their pre-defined limits during 2022.

15. Operational Risk

Risk Management and Control

Operational risk refers to the risk of loss, or of damage to the MSEHSE Group's reputation, resulting from inadequate or failed processes, people, and systems or from external events (e.g., fraud, theft, legal and compliance risks, cyber-attacks, or damage to physical assets).

Operational risk relates to the following risk event categories as defined by Basel Capital Standards: internal fraud; external fraud; employment practices and workplace safety; clients, products, and business practices; business disruption and system failure; damage to physical assets; and execution, delivery, and process management.

The MSEHSE Group has established an operational risk framework to identify, measure, monitor and control risk across the MSEHSE Group. This framework is consistent with the framework established by the Morgan Stanley Group and includes escalation to the MSEHSE Group Management Boards and appropriate senior management personnel. Effective operational risk management is essential to reducing the impact of operational risk incidents and mitigating legal and reputational risks. The framework is continually evolving to reflect changes in the MSEHSE Group and to respond to the changing regulatory and business environment.

The MSEHSE Group has implemented operational risk data and assessment systems to monitor and analyse internal and external operational risk events, to assess business environment and internal control factors and to perform scenario analysis. The collected data elements are incorporated in the operational risk capital model. The model encompasses both quantitative and qualitative elements. Internal loss data and scenario analysis results are direct inputs to the capital model, while external operational incidents, business environment and internal control factors are evaluated as part of the scenario analysis process.

In addition, the MSEHSE Group employs a variety of risk processes and mitigants to manage its operational risk exposures. These include a governance framework, a comprehensive risk management program and insurance.

The breadth and variety of operational risks are such that the types of mitigating activities are wide ranging. Examples of such activities include continuous enhancement of defences against cyber-attacks; use of legal agreements and contracts to transfer and/or limit operational risk exposures; due diligence; implementation of enhanced policies and procedures; exception management processing controls; and segregation of duties.

Identification of Top Operational Risks[4] and Pathways ("TOR/Ps")

The MSEHSE Group has a structured process in place to determine its TOR/Ps. The MSEHSE Group's Operational Risk Department ("ORD") reviews Operational Risk data elements and forms an understanding of the risk issues within the business units and infrastructure areas. ORD proposes additions, edits, and deletions of the MSEHSE Group's TOR/Ps, supported by information and analytics performed. These proposals are presented to the governance committees to review, challenge and ultimately to recommend for adoption by the MSEHSE Group Management Boards.

The MSEHSE Group Management Boards approved TOR/Ps as of 31 December 2022 are as follows:

- Product Design, Due Diligence and Disclosure
- Market Conduct, Integrity, and Client Suitability
- Financial Crime
- Reporting and Financial Reporting Errors
- Transaction Errors
- Errors in Valuation and Models
- Unauthorised Trading, Theft and Fraud
- Business Disruption and Continuity
- Cyber Attack (Pathway)
- Electronic Trading Errors
- Third Party Risk (Pathway)
- Information Security

[4] TORs are those inherent operational risks that are most significant to the MSEHSE Group.

Management of Operational Risk

Operational risks and associated risk exposures are assessed relative to the risk tolerance established by the MSEHSE Group Management Boards and are prioritised accordingly.

The ORD provides oversight of operational risk management and independently assesses, measures, and monitors operational risk. The ORD works with the business units and control groups to help ensure a transparent, consistent, and comprehensive framework for managing operational risk within each area and across the MSEHSE Group. The ORD scope includes oversight of the technology and data risk management programs (e.g., cybersecurity), fraud risk management and prevention program and a third-party risk management program.

Business Continuity Management is responsible for identifying key risks and threats to the MSEHSE Group's operational resiliency to ensure that a recovery strategy and required resources are in place for the resumption of critical business functions following a disaster or other business interruption. Disaster recovery plans are in place for critical facilities and resources on a Group-wide basis and redundancies are built into the systems as deemed appropriate.

The MSEHSE Group maintains a program that oversees cyber and information security risks and is designed to address regulatory requirements. Cybersecurity and information security policies, procedures and technologies are designed to protect the MSEHSE Group's information assets against unauthorised disclosure, modification, or misuse. These policies cover a broad range of areas, including identification of internal and external threats, access control, data security, protective controls, detection of malicious or unauthorised activity, incident response and recovery planning.

Exposures to services provided by third parties including external vendors are managed through a variety of means such as the performance of due diligence, consideration of operational risk, implementation of service level and other contractual agreements, and ongoing monitoring of third parties' performance. The MSEHSE Group maintains a third-party risk management program with policies, organisation, governance and supporting technology that aligns with our risk tolerance and is designed to meet regulatory requirements.

The management of conduct risk is set out in the Global Conduct Risk Management policy and in the EMEA & MSI Group Conduct Risk Management supplement to the policy. The MSEHSE Group is part of the framework set out by these policies, with clearly defined roles and responsibilities, key functions, and processes for good management of conduct risk. MSEHSE Group is covered by EMEA support and governance mechanisms, such as production of key metrics. MSEHSE Group representatives are members of the EMEA Conduct Risk Committee, which oversees the implementation of the conduct risk management framework at EMEA level.

The MSEHSE Group, principally through the Morgan Stanley Group's Legal and Compliance Division, has established procedures based on legal and regulatory requirements on a worldwide basis that are designed to facilitate compliance with applicable statutory and regulatory requirements and to require that the MSEHSE Group's policies relating to business conduct, ethics and practices are followed globally.

In addition, the MSEHSE Group has established procedures to mitigate the risk that a counterparty's performance obligations will be unenforceable, including consideration of counterparty legal authority and capacity, adequacy of legal documentation, the permissibility of a transaction under applicable law and whether applicable bankruptcy or insolvency laws limit or alter contractual remedies.

Operational Risk Governance

The responsibilities of key individuals and committees for the governance of Operational Risk, up to and including the MSEHSE Group Management Boards, are clearly understood and followed throughout the MSEHSE Group. The implementation and operation of the Operational Risk Framework is overseen by forums at different levels in the MSEHSE Group's governance structure. Key forums are:

- Committees and governance forums that provide oversight of particular TOR/Ps, Risk Themes and the effectiveness of their respective management frameworks including the:
  - EMEA Outsourcing Governance Committee
  - EMEA Financial Crimes Governance Forum
  - EMEA Electronic Trading Governance Committee
- The MSEHSE Group Operational Risk Oversight Committee
- The MSEHSE Group Executive Risk Committee

Operational Risk Framework

The MSEHSE Group's Operational Risk Policy and Procedures are renewed at least annually to clearly articulate the current design and implementation of the Operational Risk Management Framework. In particular:

- The MSEHSE Group Operational Risk Management Policy;
- Key elements of the Framework covered by Policy include Risk Appetite and Tolerance; Risk Assessment and Remediation; Scenario Analysis; Operational Risk Incident Management; Industry Incident Data; Operational Risk Metrics; Risk Measurement and Operational Risk Modelling; and Reporting and Escalation;
- Underlying Procedures set out in detail the key processes which underpin the framework. In particular: the EMEA Escalation & Notification; the Risk Control Self-Assessment ("RCSAs"); identification of Horizon Risks and the Scenario Analysis workshops for TOR/Ps.

Operational Risk Reporting, Management Information and Escalation

Reporting and management information provide awareness of the state of Operational Risk throughout the governance chain, ensures targeted spend to address control environment concerns, and enables MSEHSE Group's senior management and the MSEHSE Group Management Boards to act if Operational Risk becomes elevated within risk tolerance levels.

Key management information reports include:

- Escalated incidents on a weekly basis;
- Lessons learned for selected incidents including the actions planned or taken to mitigate the Operational Risk going forward;
- Overall incident trends, emerging risks, and outsourcing;
- Operational Risk capital update;
- Operational Risk levels versus tolerance and key remedial actions and timelines.

Capital Assessment

Normative Perspective (pillar 1): Capital requirements for Operational Risk are currently calculated under the Basic Indicator Approach ("BIA"). As of 31 December 2022, the MSEHSE Group's Operational Risk Weighted Assets were €1,005MM.

Economic Perspective (pillar 2): The MSEHSE 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. The MSEHSE Group holds sufficient capital to cover the incremental capital requirement over and above the Pillar 1 requirement.

Table 31 shows operational risk own funds requirements and risk-weighted exposure amounts for MSEHSE Group.

Table 31: Operational risk own funds requirements and risk-weighted exposure amounts (EU OR1)

€MM		a	b	c	d	e
MSEHSE Group		Relevant indicator				Risk
	Banking activities	Year-3	Year-2	Last Year	Own funds requirements	exposure amount
1	Banking activities subject to basic indicator approach (BIA)	257	608	743	80	1,005
2	Banking activities subject to standardised (TSA) / alternative standardised (ASA) approaches	-	-	-	-	-
3	*Subject to TSA:*	-	-	-		
4	*Subject to ASA:*	-	-	-		
5	Banking activities subject to advanced measurement approaches AMA	-	-	-	-	-

MSEHSE Group calculates RWAs for Operational Risk using the BIA. Capital charge of 15% is applied on adjusted average net profit of 3 prior years. RWAs is 12.5 times the capital charge.

16. Climate and Environmental Risk

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

The MSEHSE 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 MSEHSE Group may be exposed to litigation risk or reputational risk losses arising from reliance on statements or representations in relation to ESG, which are later discovered to be incorrect or misleading.

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

As part of its established Risk Identification and Materiality Assessment Process, the MSEHSE Group performed a granular risk assessment of short-term climate and environmental risks. A quantitative assessment is performed across risk types to determine the materiality of the impact of climate and environmental risks.

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 collateral held by MSEHSE Group to mitigate counterparty credit risk from derivatives. 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. As the assessment is performed quarterly, the materiality assessment may change in the future.

Risk Appetite and Limit Framework

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.

Scenario Analysis and Stress Testing

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

- **Short-term credit and market risk scenario analysis**: The MSEHSE Group assesses the financial impact of climate policy (carbon repricing) in a scenario that captures both counterparties' probability of default and market price movements. Physical risk vulnerabilities are assessed on a quarterly basis.
- **Operational risk, litigation, and reputational risk scenarios**: A number of physical risk scenarios are assessed focusing on business disruption due to climate change events. In addition, litigation and reputational risk scenarios are assessed.
- **Long-term strategy scenarios**: The MSEHSE 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 MSEHSE Group's materiality assessment and business strategy.

Metrics

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

Credit Exposures: Exposures to industries with high climate transition or physical risk are subject to credit industry sector limits. Please refer to the reports and the publication links in section 4 of this report.

17. Valuation Risk

Valuation risk represents the possibility that a valuation estimate of a position would differ from the price in an actual close-out transaction due to uncertainty around the actual price that could be obtained.

17.1 Fair Valuation

Valuation Control ("VC") within Finance is responsible for the MSEHSE Group's fair value valuation control policies, processes, and procedures. VC implements valuation control processes designed to validate the fair value of the MSEHSE Group's financial instruments measured at fair value including those derived from pricing models. There are three primary control processes that mitigate the risk of valuation errors.

The Model Risk Management group, within the Market Risk Department, must

- Model Certification Process: All models are certified before use and at least annually thereafter. New models (and enhancements to existing models) are developed by Strategists within the business units, who affirm they are appropriate for intended use. Senior Traders in the BUs sign off that they have been involved in the development of the model and understand the model's assumptions and limitations. The Model Risk Management group, within the Market Risk Department, must approve the model by performing an independent review of the model to assess its appropriateness. VC must also approve the model by performing an independent review to ensure the valuation methodology and valuation outputs produced by the model are consistent with accounting standards;
- Mark Review Process: VC performs a formal monthly mark review process which covers the entire financial instruments inventory held by the MSEHSE Group. VC ensures the valuation generated by the BUs follows accounting standards. This is performed by reviewing the appropriateness of the prices or pricing inputs applied to valuation models compared to approved valuation methodologies and external pricing data. Variances are reviewed by VC in consideration of VC's tolerance framework. Tolerance breaches are communicated to controllers for consideration as part of the general ledger close. A subjectivity escalation threshold also exists at the legal entity level and is set by the MSEHSE Group Head of VC together with the MSEHSE Group Chief Financial Officer;
- Significant Transaction Analytical Review Process ("STAR"): This process reconfirms that valuation methodologies are adequate and modelling uncertainty is appropriately addressed in all trades with significant gross day 1 profit and loss as defined by the STAR policy. There are three components to the STAR process: pre-execution review; post-execution review; and trade unwind review. Reviews are documented and must be presented to, and approved by, relevant STAR Committees. Day 1 profit and loss on "Fair Value Measurement Level three trades" is not recognised until all significant inputs to the trade become observable, which is also subject to STAR Committee approval.

17.2 Prudent Valuation

VC applies the Prudent Valuation regulatory standards as prescribed in Article 105 CRR Requirements for Prudent Valuation. VC has documented policies and procedures, and specific methodologies for each valuation exposure covered by the regulation. Prudent Valuation consists of a series of Additional Valuation Adjustments ("AVAs") required to mark the Morgan Stanley's fair valued inventory to a prudent valuation. These AVAs are deducted from CET1 capital.

The AVAs represent adjustments to the point within a range of plausible values at which the MSEHSE Group could exit a valuation exposure with 90% confidence or better. The AVAs reflect the valuation uncertainty associated with Market Price Uncertainty, Close-out Costs, Model Risk, Concentrated Positions, Unearned Credit Spreads, Investing and Funding Costs, Future Administrative Costs, Early Termination, and Operational Risk.

VC documents and affirms the Prudent Valuation AVAs as capital models and ensures that the methodologies align with the independent Mark Review Process. The AVA models are independently certified on an annual basis by Model Risk Management in accordance with the Morgan Stanley's Global Model Risk Management Policy.

Table 32 shows prudent valuation adjustments for the MSEHSE Group as of 31 December 2022.

Table 32: Prudent Valuation Adjustments (PVA) (EU PV1)

€MM		a	b	c	d	e	EU-e1	EU-e2	f	g	h
MSEHSE Group		Risk category					Category level AVA - Valuation uncertainty		Total category level post-diversification		
Category level AVA		Equity	Interest Rates	Foreign exchange	Credit	Commodities	Unearned credit spreads AVA	Investment and funding costs AVA		Of which: Total core approach in the trading book	Of which: Total core approach in the banking book
1	Market price uncertainty	2	14	-	-	-	11	12	20	12	7
3	Close-out cost	1	8	-	-	-	3	-	6	6	-
4	Concentrated positions	-	1	-	-	-	-	-	1	-	1
5	Early termination	-	-	-	-	-	-	-	-	-	-
6	Model risk	-	3	-	-	-	22	18	21	4	17
7	Operational risk	-	2	-	-	-	-	-	3	2	1
10	Future administrative costs	-	3	-	-	-	-	-	3	3	-
12	**Total Additional Valuation Adjustments (AVAs)**								**54**	**27**	**26**

18. Liquidity Risk

18.1 Liquidity Risk Management

Liquidity and funding risk refers to the risk that the MSEHSE Group will be unable to finance its operations due to loss of access to the capital markets or difficulty in liquidating the MSEHSE Group's assets. Liquidity risk encompasses the risk (or perceived risk) that MSEHSE Group does not meet its financial obligations or fails to meet its financial obligations on time. Liquidity risk also encompasses the associated funding risks triggered by the market or idiosyncratic stress events that may cause unexpected changes in funding needs or an inability to raise new funding. The MSEHSE Group incurs liquidity and funding risk because of its trading, investing and client facilitation activities.

The core components of the Liquidity Risk Management Framework are the Required Liquidity Framework, Liquidity Stress Tests and Liquidity Resources, which support the target liquidity profile.

The Required Liquidity Framework establishes the amount of liquidity the MSEHSE Group must hold in both normal and stressed environments to ensure that the MSEHSE Group's financial condition and overall soundness are not adversely affected by an inability (or perceived inability) to meet financial obligations in a timely manner. The Required Liquidity Framework considers the most constraining liquidity requirement to satisfy all regulatory and internal limits at a consolidated and legal entity level.

The MSEHSE Group maintains sufficient Liquidity Resources to cover daily funding needs and to meet strategic liquidity targets sized by the Required Liquidity Framework and Liquidity Stress Tests. The total amount of Liquidity Resources is actively managed considering the following components: unsecured debt maturity profile, balance sheet size and composition; funding needs in a stressed environment, inclusive of contingent cash outflows; collateral requirements and regulatory requirements.

The MSEHSE Group's liquidity and funding risk management policies and procedures are consistent with those of the Morgan Stanley Group. The MSEHSE Group Management Boards are responsible for establishing the liquidity risk tolerance and ensuring the MSEHSE Group's liquidity risk is appropriately managed.

In addition to the internal liquidity risk management framework, the MSEHSE Group is subject to requirements prescribed by regulatory authorities, including "Mindestanforderungen an das Risikomanagement" ("MaRisk"). Subsidiary waivers are in place for MSESE and MSBAG pursuant to Article 8 CRR and allow these entities to manage and meet regulatory liquidity requirements on a sub-consolidated level. The MSEHSE Group is subject to the following:

- Delegated Regulation (EU) 2015/61 (LCR), requiring meeting 100% of net cash outflows;
- Regulation (EU) No 575/2013 (NSFR), requiring maintaining Available Stable Funding ("ASF") as 100% of over Required Stable Funding ("RSF") over the one-year horizon.

The MSEHSE Group has daily monitoring and reporting processes in place to ensure compliance with its regulatory requirements.

The primary goal of the Liquidity Risk Management Framework is to ensure that the MSEHSE Group has access to sufficient liquid assets across a wide range of market conditions and time horizons. The framework is designed to allow the MSEHSE Group to fulfil financial obligations and support the execution of the MSEHSE Group's business strategies. The following principles guide the Liquidity Risk Management Framework:

- Sufficient liquid assets should be maintained to cover maturing liabilities and other planned and contingent outflows;
- Maturity profile of assets and liabilities should be aligned, with limited reliance on short-term funding;
- Product, counterparty, currency, region, and term of funding should be diversified; and
- Liquidity Stress Tests should anticipate, and account for, periods of limited access to funding.

Structure and Organisation of the Liquidity Risk Management Function

MSEHSE Group Management Boards establish and maintain liquidity policies. Through various risk and control committees, MSEHSE Group Management Boards review business performance relative to these policies, monitor the availability of alternative sources of financing, and oversee the liquidity, interest rate and currency sensitivity of asset and liability positions.

The MSEHSE Group's Liquidity Management Function and its Interaction with other Functional Areas

The MSEHSE Group's Liquidity Risk Management Framework is critical to helping ensure that the MSEHSE Group maintains sufficient liquidity reserves and durable funding sources to meet its daily obligations and to withstand unanticipated stress events.

The Liquidity Risk Department ("LRD") is a distinct area in Risk Management, which oversees and monitors liquidity risk as the Second Line of Defence. The LRD ensures transparency of material liquidity risks, compliance with established risk limits and escalation of risk concentrations to appropriate senior management. To execute these responsibilities, the LRD:

- Establishes limits in line with the MSEHSE Group risk appetite;
- Identifies and analyses emerging liquidity risks to ensure such risks are appropriately mitigated;
- Monitors and reports risk exposures against metrics and limits, and;
- Reviews the methodologies and assumptions underpinning the Morgan Stanley Group's Liquidity Stress Tests to ensure sufficient liquidity and funding under a range of adverse scenarios;

The liquidity risks identified by these processes are summarised in reports produced by the LRD that are circulated to and discussed with the MSEHSE Group Executive Risk Committee as appropriate.

The Treasury Department and applicable business units (collectively the Centralised Liquidity Management Function) have primary responsibility for evaluating, monitoring, and controlling the liquidity and funding risks arising from the MSEHSE Group's business activities, and for maintaining processes and controls to manage the key risks inherent in their respective areas. The LRD coordinates with the Treasury Department and these business units to help ensure a consistent and comprehensive framework for managing liquidity risk across the Morgan Stanley Group.

Liquidity Risk Reporting and Measurement Systems

Morgan Stanley has a Global Liquidity Data Warehouse that is used for internal and regulatory liquidity reporting, metrics, and stress testing of MSEHSE Group. Reporting and analytical tools enable interrogation, presentation, and generation of reports for internal purposes as well as for regulatory reporting returns. The production of MSEHSE Group's liquidity reporting is outsourced to the Finance Shared Services ("FSS") department of Morgan Stanley UK Limited ("MS UK Ltd."). A control framework has been established around each step of the liquidity reporting process and is designed to ensure that source data feeds from Morgan Stanley-wide risk systems, adjustment processing and report production are all subject to a coherent set of proof and control processes to ensure accuracy and completeness of data. Reporting results are validated locally by MSEHSE Group Treasury.

Liquidity Risk Mitigation

The MSEHSE Group maintains a durable funding profile, commensurate with complexity and size of business, with diversified sources and terms of funding. The MSEHSE Group manages its funding in a manner that reduces the risk of disruption to its operations. The MSEHSE Group pursues a strategy of diversification of secured and unsecured funding sources (by product, investor, and region) and attempts to ensure that the tenor of its liabilities equals or exceeds the expected holding period of the assets being financed.

The MSEHSE Group funds itself through diverse sources. These sources may include equity capital, long-term unsecured debt, securities sold under agreements to repurchase, securities lending and lines of credit.

In managing the MSEHSE 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 in the Institutional Securities business provides the MSEHSE Group with flexibility in managing balance sheet composition and size.

Contingency Funding Plan

The MSEHSE Group's Contingency Funding Plan is integrated in the Recovery Plan and defines the roles and responsibilities of the primary functions that manage the MSEHSE Group's operating and strategic response to liquidity stress events. The MSEHSE Group's financial condition and overall soundness can be adversely affected by an inability, or perceived inability, to meet its financial obligations in a timely manner during a period of liquidity stress, therefore it is vital that the MSEHSE Group maintains a sound plan of action for managing a liquidity stress. The MSEHSE Recovery Plan is the MSEHSE Group's detailed action plan and outlines the process by which the MSEHSE Group:

- Determines whether there is a potential or actual liquidity stress event;
- Enacts a heightened decision-making and governance structure;
- Identifies available contingent funding sources;
- Identifies and acts in a deliberate and coordinated way to respond to liquidity shortfalls;
- Strategically communicates with internal and external stakeholders;
- Decides to return to standard operating liquidity management status.

Liquidity Stress Testing

The MSEHSE Group uses Liquidity Stress Tests to model external and intercompany liquidity flows across multiple scenarios over a range of time horizons. These scenarios contain various combinations of idiosyncratic and systemic stress events of different severity and duration. The methodology, implementation, production, and analysis of the Liquidity Stress Tests are important components of the Liquidity Risk Management Framework.

Adequacy of Liquidity Management Arrangements

As stated in the Liquidity Adequacy Statement which is part of the annual Internal Liquidity Adequacy Assessment Process ("ILAAP") submission, the MSEHSE Group Management Boards are satisfied that there are appropriate processes and systems in place to monitor liquidity and funding adequacy, and that there are appropriate actions available to increase liquidity or adjust funding resources if adverse developments reduce available liquidity or funding.

Liquidity Risk Profile and Business Strategy

The MSEHSE Group Risk Appetite is the articulation of the aggregate level and type of risk that the MSEHSE Group is willing to accept to execute its Business Strategy and protect its capital and liquidity resources. The MSEHSE Group's Risk Appetite comprises both of qualitative and quantitative components and is set considering the MSEHSE Group's risk profile as defined in the MSEHSE Group Business Strategy 2023 to 2025. The MSEHSE Group Risk Appetite Statement is well integrated with the MSEHSE Group's Business Strategy, ICAAP and ILAAP - all are based on a consistent financial forecast. The Risk Appetite Statement also establishes clear links into capital and liquidity planning under both the Normative and Economic Perspectives. The Liquidity Risk Limit Framework ensures that MSEHSE Group business activities are carried out consistent with the Risk Appetite Statement.

The MSEHSE Group Management Boards have concluded that the MSEHSE Group has adequate liquidity for the size, nature and complexity of its business model and strategy. Throughout 2022, MSEHSE Group and the respective subsidiaries and sub-groups exceeded all applicable internal and regulatory liquidity requirements, which include the Internal Liquidity Stress Test ("ILST"), the LCR, and the NSFR.

At year-end 2022, €16.7bn High-quality Liquid Assets ("HQLA") is primarily held in central bank reserves (90%) and level one high quality securities (10%).

18.2 Liquidity Coverage Ratio

18.2.1. LCR Qualitative Disclosures

As of 31 December 2022, the MSEHSE Group held excess HQLA over LCR required minimum of 100% (Pillar I) as specified by the total net cash outflows amount. The MSEHSE Group is subject to Pillar II requirements, assessed by the ECB/EBA, for risks not covered in the LCR (Pillar I). These risks are identified and documented by the MSEHSE Group, consequently reviewed and assessed by the ECB as part of the Supervisory Review and Evolution Process (“SREP”). As a result, the MSEHSE Group is required to hold sufficient liquidity in the form of HQLA to meet both Pillar I and Pillar II requirements.

Main Drivers of the LCR

The 12-month LCR average values have been used to analyse the main requirements drivers.

The most significant contributors to MSEHSE Group’s cash outflow amounts at year-end were outflows related to other contractual funding obligations, non-operational deposits, and outflows related to derivative exposure and other collateral requirements. These outflows reflect prescribed, industry-wide LCR rules related to liquidity risk in the MSEHSE Group’s business lines, activities, and products, as measured for a projected 30-calendar day stress period.

MSEHSE Group’s cash inflow amounts as of 31 December 2022 were primarily driven by other cash inflows, mainly capturing unsettled outright sales/purchases.

HQLA is primarily held in central bank reserves and level one high quality securities.

Explanations of the Changes in the LCR in 2022

The MSEHSE Group’s LCR decreased from 170% as of 31 March 2022 to 158% as of 31 December 2022, driven by an increase in net average cash outflows. After an increase in the ratio as of 30 June 2022 mainly due to higher cash inflows from unsettled outright sales/purchases, the ratio declined in September and December 2022 due higher outflows from non-operational deposits and other contractual funding obligations. Total cash outflows increased during 2022 reflecting higher business activity, principally due to other contractual funding obligations and non-operational deposits. Total cash inflows also increased during 2022, mainly due to unsettled outright sales/purchases. The liquidity buffer, expressed as HQLA, primarily consists of central bank reserves, followed by level one assets.

The MSEHSE Group maintained sufficient eligible HQLA to meet the regulatory LCR requirement, with compliance monitored daily.

Concentration of Funding Sources

The MSEHSE Group funds itself through transactions with affiliates in the Morgan Stanley Group for capital, unsecured and secured funding, and through a diverse range of counterparties in secured funding markets.

Derivative Exposures and Potential Collateral Calls

The MSEHSE Group is a participant in the global derivatives markets. In some cases, the derivative counterparties have contractual rights requiring the MSEHSE Group to post collateral if the respective credit rating is downgraded. All collateral amounts that could be required to be posted in accordance with the terms and conditions of the downgrade trigger clauses found in applicable legal agreements are considered when measuring collateral call risks.

The impact of potential collateral calls related to derivative exposures is inherently uncertain and depends on various interrelated factors, such as the magnitude of the downgrade, the rating relative to peers, the rating assigned by the relevant agency pre-downgrade, individual client behaviour and future mitigating actions that could be taken. The MSEHSE Group manages the risk of potential collateral calls on derivative positions by employing a variety of risk mitigation strategies, including modelling the impact of credit rating agency downgrades in the liquidity stress test program, monitoring historical changes in variation margin, diversifying risk exposures, hedging, managing counterparty and product risk limits and maintaining Liquidity Resources to enable the MSEHSE Group to meet unexpected collateral calls or other potentially adverse developments.

Currency Mismatch in the LCR

A portion of the MSEHSE Group’s business is conducted in currencies other than Euro, and changes in foreign exchange rates relative to the Euro can affect the value of non-Euro net assets, revenues, and expenses. Potential exposures because of these fluctuations in currencies are closely monitored, and strategies are adopted to reduce the impact of these fluctuations on financial performance. These strategies may include the financing of non-Euro assets with direct or swap-based borrowings in the same currency and the use of currency forward contracts or the spot market in various hedging transactions related to net assets, revenues, expenses, or cash flows.

18.2.2. LCR Quantitative Disclosures

The LCR quantitative disclosures, shown in Table 33, reflect the monthly average value for each quarter end. The figures reported in the "Total Weighted Value" column reflect the prescribed, industry-wide rules and haircuts applicable to the LCR to determine the MSEHSE Group's eligible HQLA and cash in/outflow amounts. The figures reported in the "Total Unweighted Value" columns reflect gross values prior to the application of the LCR weights.

Table 33: Quantitative Information of LCR (EU LIQ1)

€MM		a	b	c	d	e	f	g	h
MSEHSE Group[1]		Total unweighted value (average)				Total weighted value (average)			
EU 1a	**Quarter ending on (DD Month YYY)**	**31-Dec-2022**	**30-Sep-2022**	**30-Jun-2022**	**31-Mar-2022**	**31-Dec-2022**	**30-Sep-2022**	**30-Jun-2022**	**31-Mar-2022**
EU-1b	**Number of data points used in the calculation of averages**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
HIGH-QUALITY LIQUID ASSETS									
1	Total high-quality liquid assets (HQLA)					10,663	9,145	7,562	7,736
CASH-OUTFLOWS						-	-	-	-
2	Retail deposits and deposits from small business customers, of which:	-	-	-	-	-	-	-	-
3	*Stable deposits*	-	-	-	-	-	-	-	-
4	*Less stable deposits*	-	-	-	-	-	-	-	-
5	Unsecured wholesale funding	3,841	2,477	1,031	1,366	3,841	2,477	1,031	1,366
6	*Operational deposits (all counterparties) and deposits in networks of cooperative banks*	-	-	-	-	-	-	-	-
7	*Non-operational deposits (all counterparties)*	3,841	2,477	1,031	1,366	3,841	2,477	1,031	1,366
8	*Unsecured debt*	-	-	-	-	-	-	-	-
9	Secured wholesale funding					1,983	1,851	1,745	1,525
10	Additional requirements	9,260	9,461	9,655	9,543	5,098	4,853	4,591	4,463
11	*Outflows related to derivative exposures and other collateral requirements*	3,873	3,614	3,338	3,215	3,828	3,568	3,302	3,191
12	*Outflows related to loss of funding on debt products*	-	-	-	-	-	-	-	-
13	*Credit and liquidity facilities*	5,387	5,847	6,317	6,328	1,270	1,285	1,289	1,272
14	Other contractual funding obligations	10,748	11,287	10,325	7,820	8,601	8,940	7,861	5,550
15	Other contingent funding obligations	-	-	-	-	-	-	-	-
16	**Total Cash Outflows**					**19,522**	**18,121**	**15,228**	**12,904**
CASH INFLOWS									
17	Secured lending (e.g., reverse repos)	15,693	14,209	12,564	10,962	2,538	2,419	2,367	2,147
18	Inflows from fully performing exposures	1,188	1,136	1,072	912	1,188	1,136	1,072	911
19	Other cash inflows	8,941	9,226	8,144	5,769	8,941	9,226	8,144	5,769
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)					19	14	14	12
EU-19b	(Excess inflows from a related specialised credit institution)					-	-	-	-
20	**Total Cash Inflows**	**25,822**	**24,571**	**21,780**	**17,643**	**12,648**	**12,767**	**11,569**	**8,815**
EU-20a	*Fully exempt inflows*	-	-	-	-	-	-	-	-
EU-20b	*Inflows Subject to 90% Cap*	-	-	-	-	-	-	-	-
EU-20c	*Inflows Subject to 75% Cap*	23,135	22,216	19,653	15,738	12,648	12,767	11,569	8,815
TOTAL ADJUSTED VALUE									
EU-21	**Liquidity Buffer**					**10,663**	**9,145**	**7,562**	**7,736**
22	**Total Net Cash Outflows**					**7,158**	**5,847**	**4,250**	**4,554**
23	**Liquidity Coverage Ratio (%)**					**158.37%**	**168.67%**	**177.92%**	**169.87%**

1. All cash inflows and outflows shown are at the full unweighted/weighted value and do not reflect the phase in of LCR requirements.

18.3 Net Stable Funding Ratio

The NSFR as defined in the CRR is a funding liquidity ratio to ensure that the institutions have a stable funding structure to cover existing assets and off-balance sheet commitments. Compliance with the ratio requires that sufficient available weighted liabilities and own funds – available stable funding ("ASF") – are available to cover the funding requirement from weighted assets and off-balance sheet exposures – required stable funding ("RSF").

The MSEHSE Group is required to comply on a daily basis with the regulatory NSFR and held a significant excess of €6.9bn stable funding as of year-end. The MSEHSE Group maintained excess ASF, in comparison to required stable funding assets and off-balance sheet commitments, throughout 2022.

Composition of ASF and RSF

The management of the NSFR has been embedded into MSEHSE Group internal processes to ensure that sufficient durable liabilities as ASF cover the required stable funding on an ongoing basis.

ASF is managed by the central funding functions, Treasury and Bank Resource Management ("BRM"), with the primary sources of funding arising from capital, unsecured funding and SFTs. Equity capital (CET1 and AT1), Subordinated Debt (Tier 2), Senior Subordinated Funding and 13-month intercompany loan are weighted at 100% ASF factor given their term is greater than one year.

The primary drivers of MSEHSE Group's NSFR RSF are derivatives exposures and margin posted, followed by secured financing transactions used for short coverage and sourcing of securities pool, weighted based on the liquidity value of the associated collateral.

Secured Funding contributes to both ASF and RSF, with relative amounts balanced for MSEHSE Group given its funding structure. Externally secured transactions that are applied for liquidity procurement (ASF) or asset procurement (RSF) typically have an offsetting transaction with an MS subsidiary, which results in a largely NSFR-neutral impact for the MSEHSE Group. BRM actively manages the secured financing portfolio with a number of strict restrictions to ensure appropriate diversification of risks. BRM actively manage the secured funding portfolio with a rigorous set of limits in place to ensure adequate diversification of risks.

NSFR Trending

The figures reported in the "Unweighted value by residual maturity Total Unweighted Value" columns reflect gross values that are not included in the calculation used to determine the MSEHSE's Group compliance with NSFR requirements. MSEHSE Group NSFR increased over 2022 due to a combination of declining RSF requirements and increasing ASF.

The NSFR ratio declined in Q2 due to lower other wholesale funding ASF, driven primarily by the repayment of a collateral guarantee to affiliates, combined with higher RSF primarily from Initial Margin posted and contributions to default funds of CCPs.

After remaining stable as of 30 September 2022, the ratio increased significantly as of 31 December 2022. RSF decreased mainly due to the lower derivative assets, driven by a reduction of uncollateralised exposures, followed by a reduction in performing securities financing transactions with financial customers collateralised by other assets. ASF increased primarily due to capital issuances.

The NSFR quantitative disclosures, shown in Table 34 reflect the quarterly average over the last four quarters.

Table 34: Net Stable Funding Ratio (EU LIQ2)

	€MM	a	b	c	d	e	a	b	c	d	e
		Unweighted value by residual maturity				Weighted value	Unweighted value by residual maturity				Weighted value
		No maturity	< 6 months	6 months to < 1 year	>= 1 year		No maturity	< 6 months	6 months to < 1 year	>= 1 year	
	MSEHSE Group	**31 Dec 2022**					**30 Sep 2022**				
	Available stable funding (ASF) items										
1	Capital items and instruments	6,337	-	-	997	7,333	5,380	-	-	1,000	6,380
2	*Own funds*	6,337	-	-	997	7,333	5,380	-	-	1,000	6,380
3	*Other capital instruments*		-	-	-	-		-	-	-	-
4	Retail deposits		-	-	-	-		-	-	-	-
5	*Stable deposits*		-	-	-	-		-	-	-	-
6	*Less stable deposits*		-	-	-	-		-	-	-	-
7	Wholesale funding:		24,354	2,894	5,650	7,097		31,394	2,039	5,659	6,678
8	*Operational deposits*		-	-	-	-		-	-	-	-
9	*Other wholesale funding*		24,354	2,894	5,650	7,097		31,394	2,039	5,659	6,678
10	Interdependent liabilities		888	-	-	-		1,110	-	-	-
11	Other liabilities:	114	2,706	-	-	-	-	3,842	-	-	-
12	*NSFR derivative liabilities*	114					-				
13	*All other liabilities and capital instruments not included in the above categories*		2,706	-	-	-		3,842	-	-	-
14	**Total available stable funding (ASF)**					**14,430**					**13,058**
	Required stable funding (RSF) Items										
15	Total high-quality liquid assets (HQLA)										2
EU-15a	Assets encumbered for a residual maturity of one year or more in a cover pool		-	-	-	-		-	-	-	-
16	Deposits held at other financial institutions for operational purposes		-	-	-	-		-	-	-	-
17	Performing loans and securities:		14,889	2,894	1,282	3,132		13,023	2,040	2,305	3,775
18	*Performing securities financing transactions with financial customers collateralised by Level one HQLA subject to 0% haircut*		8,471	60	130	159		6,559	37		19
19	*Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		6,375	2,834	1,032	2,848		6,381	2,003	2,171	3,598
20	*Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		42	-	97	104		83	-	67	98
21	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		42	-	-	21		83	-	-	41
22	*Performing residential mortgages, of which:*		-	-	-	-		-	-	-	-
23	*With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		-	-	-	-		-	-	-	-
24	*Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		1	-	23	21				67	60
25	Interdependent assets		888	-	-	-		1,110	-	-	-
26	Other assets:		22,641	-	2,837	3,992		24,649	-	3,139	6,011
27	*Physical traded commodities*				-	-				-	-
28	*Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		550	-	2,473	2,570		392	-	2,804	2,717
29	*NSFR derivative assets*		-			-		1,945			1,945
30	*NSFR derivative liabilities before deduction of variation margin posted*		20,681			1,034		19,947			997
31	*All other assets not included in the above categories*		1,410	-	364	388		2,365	-	335	352
32	Off-balance sheet items		2,442	215	2,298	248		2,295	-	2,588	244
33	**Total RSF**					**7,372**					**10,032**
34	**Net Stable Funding Ratio (%)**					**195.74%**					**130.16%**

Table 34 (continued): Net Stable Funding Ratio (EU LIQ2)

€MM	a	b	c	d	e	a	b	c	d	e
	Unweighted value by residual maturity				Weighted value	Unweighted value by residual maturity				Weighted value
	No maturity	< 6 months	6 months to < 1 year	>= 1 year		No maturity	< 6 months	6 months to < 1 year	>= 1 year	
MSEHSE Group	**30 Jun 2022**					**31 Mar 2022**				
Available stable funding (ASF) items										
1 Capital items and instruments	5,359	-	-	1,000	6,359	4,363	-	-	1,000	5,363
2 *Own funds*	5,359	-	-	1,000	6,359	4,363	-	-	1,000	5,363
3 *Other capital instruments*		-	-	-	-		-	-	-	-
4 Retail deposits		-	-	-	-		-	-	-	-
5 *Stable deposits*		-	-	-	-		-	-	-	-
6 *Less stable deposits*		-	-	-	-		-	-	-	-
7 Wholesale funding:		24,355	2,289	4,362	5,507		16,170	1,809	6,583	7,487
8 *Operational deposits*		-	-	-	-		-	-	-	-
9 *Other wholesale funding*		24,355	2,289	4,362	5,507		16,170	1,809	6,583	7,487
10 Interdependent liabilities		1,115	-	-	-		1,610	-	-	-
11 Other liabilities:	-	4,816	-	-	-	-	7,657	-	-	-
12 *NSFR derivative liabilities*	-					-				
13 *All other liabilities and capital instruments not included in the above categories*		4,816	-	-	-		7,657	-	-	-
14 Total available stable funding (ASF)					**11,866**					**12,850**
Required stable funding (RSF) Items										
15 Total high-quality liquid assets (HQLA)										1
EU-15a Assets encumbered for a residual maturity of one year or more in a cover pool		-	-	-	-		-	-	-	-
16 Deposits held at other financial institutions for operational purposes		-	-	-	-		-	-	-	-
17 Performing loans and securities:		12,569	2,605	2,631	4,324		11,329	2,022	1,820	3,338
18 *Performing securities financing transactions with financial customers collateralised by Level one HQLA subject to 0% haircut*		6,448	62	134	168		4,026	106	238	362
19 *Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions*		6,061	2,542	2,345	3,985		7,260	1,916	1,419	2,801
20 *Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:*		60	-	56	77		43	-	57	69
21 *With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		60	-	-	30		43	-	-	21
22 *Performing residential mortgages, of which:*		-	-	-	-		-	-	-	-
23 *With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk*		-	-	-	-		-	-	-	-
24 *Other loans and securities that are not in default and do not qualify as HQLA, including exchange-traded equities and trade finance on-balance sheet products*		-	1	96	94			-	106	106
25 Interdependent assets		1,115	-	-	-		1,610	-	-	-
26 Other assets:		19,824	-	3,628	4,637		17,295	-	2,298	3,375
27 *Physical traded commodities*				-	-				-	-
28 *Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs*		452	-	3,343	3,226		432	-	2,018	2,082
29 *NSFR derivative assets*		274			274		356			356
30 *NSFR derivative liabilities before deduction of variation margin posted*		16,740			837		13,042			652
31 *All other assets not included in the above categories*		2,358	-	285	300		3,465	-	280	285
32 Off-balance sheet items		2,949	-	2,289	262		2,628	509	2,115	263
33 Total RSF					**9,223**					**6,977**
34 Net Stable Funding Ratio (%)					**128.66%**					**184.18%**

18.4 Asset Encumbrance

The borrowing and lending of securities and hence the encumbrance of assets, is a fundamental part of Morgan Stanley's business within the MSEHSE Group. The following details the MSEHSE Group's encumbered and unencumbered assets, along with the matching liabilities. An asset is considered encumbered if it has been pledged or if it is subject to any form of arrangement to secure, collateralise or credit enhance any transaction from which it cannot be freely withdrawn. The key sources of encumbrance include secured funding repo, securities lending, as well as derivatives trading. A portion of the encumbered assets are intercompany transactions with other Morgan Stanley Group entities. The MSEHSE Group primarily uses Industry standard collateral agreements (mostly Credit Support Annexes ("CSA") and Global Master Repurchase Agreements ("GMRAs").

The majority of the on-balance-sheet assets are not subject to any form of encumbrance, given they are mostly cash or receivable assets. The MSEHSE Group also receives securities from the market, which are off-balance-sheet, reported as collateral received in Table 36 (EU AE2) below. These may be pledged to the market and encumbered or held as part of the MSEHSE Group's unencumbered pool of assets. For on-balance sheet assets, the level of encumbrance over 2022 has decreased by 2.9% from 2021. Collateral received has increased year on year with the encumbrance increasing 1.7% from 2021. In compliance with guidelines, amounts are presented as a median of the twelve month ends over 2022.

As disclosed in table 35 and 36 encumbered assets primarily comprise those on- and off-balance sheet assets that are pledged as collateral against secured funding, collateral swaps, and other collateralised obligations. According to the EBA ITS on regulatory asset encumbrance reporting default funds and initial margins are considered as encumbered.

Table 35 reflects the MSEHSE Group unencumbered and encumbered on-balance sheet assets. The values represent the median for the year (*the rows in the tables below are not additive, with the median calculated individually across all cells*).

Table 35: Encumbered and unencumbered assets (EU AE1)

		Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
	€MM		of which notionally eligible EHQLA and HQLA		of which notionally eligible EHQLA and HQLA		of which EHQLA and HQLA		of which EHQLA and HQLA
	MSEHSE Group	010	030	040	050	060	080	090	10
010	**Assets of the disclosing institution**	**22,858**	**1,712**			**85,790**	**-**		
030	Equity instruments	4	-	4	-	11	-	11	-
040	Debt securities	1,994	1,712	1,994	1,712	20	-	20	-
050	of which: covered bonds	-	-	-	-	-	-	-	-
060	of which: securitisations	-	-	-	-	-	-	-	-
070	of which: issued by general governments	1,993	1,712	1,993	1,712	18	-	18	-
080	of which: issued by financial corporations	-	-	-	-	-	-	-	-
090	of which: issued by non-financial corporations	20,858	-	20,858	-	-	-	-	-
120	Other assets[1]	21,087	-			83,800	-		

1. The majority of unencumbered Other Assets relate to derivative instruments.

Table 36 breaks down the off-balance sheet assets between those that have been encumbered and the amount available for encumbrance. As per table 35 the values represent the median for the year.

Table 36: Collateral received, and own debt securities issued (EU AE2)

				Unencumbered	
		Fair value of encumbered collateral received, or own debt securities issued		Fair value of collateral received, or own debt securities issued available for encumbrance	
€MM			of which notionally eligible EHQLA and HQLA		of which EHQLA and HQLA
MSEHSE Group		010	030	040	060
130	**Collateral received by the disclosing institution**	**28,294**	**17,996**	**1,760**	**1,509**
140	Loans on demand	-	-	-	-
150	Equity instruments	6,683	1,783	169	-
160	Debt securities	20,979	16,348	1,671	1,509
170	of which: covered bonds	180	6	1	-
180	of which: securitisations	807	-	1	-
190	of which: issued by general governments	18,500	16,154	1,663	1,509
200	of which: issued by financial corporations	1,338	29	3	-
210	of which: issued by non-financial corporations	799	152	3	-
220	Loans and advances other than loans on demand	-	-	-	-
230	Other collateral received	1,114	-	-	-
240	**Own debt securities issued other than own covered bonds or securitisations**	-	-	-	-
241	**Own covered bonds and securitisation issued and not yet pledged**			-	-
250	**TOTAL COLLATERAL RECEIVED AND OWN DEBT SECURITIES ISSUED**	51,644	19,438		

Table 37 shows the extent to which liabilities have been matched to encumbered assets.

Table 37: Sources of encumbrance (EU AE3)

		Matching liabilities, contingent liabilities or securities lent	Assets, collateral received, and own debt securities issued other than covered bonds and securitisations encumbered
€MM MSEHSE Group		010	030
010	Carrying Amount of selected financial liabilities	35,714	35,553

19. Appendix I: Board of Directors Knowledge, Skills, and Expertise

Appointments to the MSEHSE Group Management Boards and Supervisory Boards

When identifying and recommending candidates to join the MSEHSE Group Managements Boards or Supervisory Boards, the MSEHSE Group Nomination Committees will consider a broad range of qualities and characteristics, giving due regard to ensuring a diverse range capabilities, backgrounds, skills, experience, opinions and views are present on the respective Management Board or Supervisory Board and its Committees. It will also consider regulatory requirements and relevant policies of the MSEHSE Group. New Supervisory Board and Management Board members go through tailored induction programmes and all Supervisory Board and Management Board members are provided with ongoing training.

Diversity and the Composition of the MSEHSE Group Management Boards and Supervisory Boards

The MSEHSE Group Supervisory Boards and Management Boards recognise the importance and benefits of diversity both within business operations and at a board level. All appointments to the Management Boards or the Supervisory Boards and its Committees are made on merit, in the context of the skills and experience that the MSEHSE Group Management Boards and/or Supervisory Boards, requires to be effective, with due regard given to the benefits of diversity. When assessing the composition of the MSEHSE Group Managements Boards or Supervisory Boards and recommending new directors; the MSEHSE Group Nomination and Governance Committee considers the benefits of diversity, including gender and ethnic diversity.

The MSEHSE Group Supervisory Boards aspire to continue to meet or exceed diversity targets, including a minimum (i) 33% female representation, and (ii) one Supervisory Board member from an ethnic minority background. As of 31 December 2022, the MSEHSE Group Supervisory Boards had exceeded their gender target with 50% female representation and met their ethnicity target. Selection of diverse candidates to join the MSEHSE Group Supervisory Boards will be, in part, dependent on the pool of candidates with the necessary background, skills and experience.

MSEHSE Group Management Board Members

Oliver Behrens

Oliver Behrens is Chair of the MSBAG Management Board (since 2015) and also the MSEHSE and MSESE Management Boards (both since 2017). Oliver has over 39 years banking experience. Prior to joining Morgan Stanley Oliver spent nine years at Deka Bank where he was responsible for the Asset Management business and later the Institutional Sales and Trading business. He also served as Deputy Chair and Chair. He began his career at Deutsche Bank AG where he spent 24 years mainly in the Asset Management business.

David Best

David Best is the Chief Operating Officer and a member of the Management Boards of MSEHSE, MSESE and MSBAG since 1 April 2022. Furthermore, he was appointed a member of the Board of Directors and Chair of the Risk Committee of MS France and a member of the Board of Directors of Morgan Stanley France Holdings I S.A.S on 15 December 2022. He is also a member of the Board of Directors of Morgan Stanley Investment Management Limited and of Morgan Stanley Menkul Degerler A.S (Deputy Chairman). David joined Morgan Stanley in 1997 in London, serving across a number of roles in Finance supporting the Institutional Securities Group. In 2014, he became the Deputy Chief Operating Officer for EMEA delivering the Morgan Stanley's strategy in the region.

David is an Alumnus of the Victoria University of Manchester, a qualified Chartered Accountant and a Freeman of the City of London.

Martin Borghetto

Martin Borghetto is a member of the Management Board of MSESE since January 2020. He is the Head of MSESE's Institutional Equity Division and is a member of the EMEA Equities Operating Committee. Martin started his career at Morgan Stanley in Equity Research London in 1995. He initially worked in the Pan-European Insurance team and, from

1997 onwards, as a Research Analyst in the European Transport team. In 2005 he joined IED Sales & Trading at Morgan Stanley Bank AG in Frankfurt am Main. Over the years, he held several different senior positions within Morgan Stanley. Martin was Team Leader of the Pan-European Transport Team, Member of the Pan-Euro Sales Team, Head of Distribution Institutional Equity Division Germany/Austria. He is currently Head of Continental Europe Equities in Frankfurt.

Martin studied in Reutlingen, Milan and London and holds a B.A. Hons of European Business Administration and Diplom-Betriebswirt (FH).

Oliver Kehren

Oliver Kehren is a member of the Management Board of MSBAG since November 2020. He is the Head of the Lending and Loan Trading business of MSBAG. He is also member of the Global FID Credit Committee for primary lending opportunities in Special Situations. Oliver started at Morgan Stanley as Head of Distressed Credit Analytics for Austria, Germany, and Switzerland in 2004. Over the years, he has held several different positions in London, including Head of EMEA Credit Analytics. Oliver started his career at ABB as Trainee in the Finance Division in 1995, followed by positions in Asset Management and Equity Capital Markets at J.P. Morgan and as Senior Project Manager Export-and Project Finance at KFW.

Oliver studied in Passau, Manila and Sweden and holds a Master’s Degree (Diploma-Kaufmann) in business administration.

Philipp Lingnau

Philipp Lingnau is a member of the Management Board of MSESE since August 2017 and is the Head of MSESE’s Fixed Income Division and Bank Resource Management. He also heads the Continental Fixed Income Sales. Previously Philipp headed the European Financial Institutions Group in the Global Capital Markets Division. Prior to this Philipp co-headed the European Corporate Debt & derivatives group. Philipp relocated to Frankfurt am Main in 2008 after working for 10 years in London.

Philipp graduated from University of St. Gallen, Switzerland, with a Master’s Degree (lic.oec.) in Business Economics in April 1997.

André Munkelt

André Munkelt is the Chief Risk Officer (“CRO”) and a member of the Management Boards of MSEHSE, MSESE and MSBAG since March 2019.

Prior to his appointment as CRO, André held the role of EMEA Head of Counterparty Credit Risk and Deputy EMEA Head of Credit Risk Management in London, reporting to the EMEA Head of Credit Risk Management. He has been a member of the EMEA Risk Operating Committee since 2017. André joined Morgan Stanley in London in 2006 in Credit Risk Management responsible for the credit analysis and management of credit risk to Financial Institutions. Before taking up his role at Morgan Stanley, André worked in the Financial Services division of PricewaterhouseCoopers AG WPG in Germany.

He graduated from the University for Cooperative Education Dresden with a Bachelor’s degree in Business Administration (Diplom-Betriebswirt (BA)) with a specialisation in Banking and Finance. Since 2008, André is also a Chartered Financial Analyst (CFA).

Dr. Jana Waehrisch

Dr Jana Waehrisch is the Chief Financial Officer (“CFO”) and a member of the Management Boards of MSEHSE, MSESE and MSBAG since February 2019. Jana joined Morgan Stanley in 2018.

Prior to joining Morgan Stanley Jana was a Partner at Ernst & Young in the financial services advisory practice. She also held roles at the International Accounting Standards Board and Goldman Sachs in London.

Jana holds a Master of Business Administration from Goethe-University Frankfurt am Main and a PhD from Ruhr University Bochum.

MSEHSE Group Supervisory Board Members

Clare Woodman

Clare Woodman is a member of the MSEHSE Group Supervisory Boards since August 2019 and was their Chair until 31 December 2022. She is the Chair of the MSEHSE Group Nomination Committees and a member of the MSEHSE Group Remuneration Committees and was their Chair until May 2022. Clare is Head of EMEA and CEO of Morgan Stanley & Co. International. Previously Clare served as Global Chief Operating Officer for Morgan Stanley's Institutional Securities Group. She is also a member of the Morgan Stanley's Global Operating and Management Committees. She joined Morgan Stanley in 2002 from Clifford Chance.

Clare holds a number of senior positions across industry organisations: she is a member of the UK Investment Council, Chair of the US-UK Business Council and Deputy Chair of the FCA Markets Practitioner Panel. Clare is a Trustee of the Morgan Stanley International Foundation and is also an active sponsor of the Morgan Stanley's Women's Business Alliance and a Trustee of the FT Financial Literacy and Inclusion Campaign. Clare studied at the London Business School where she obtained her MBA and in 2020 was awarded a CE for Services to Finance.

Frank Mattern

Frank Mattern is a member of the MSEHSE Group Supervisory Boards since August 2019 and was their Deputy Chair until 31 December 2022. Frank is the Chair of the Remuneration Committee and a member of the Risk Committee, the Audit Committee, and the Nomination Committee of MSEHSE Group.

Frank is an independent Advisor and was previously a Senior Partner at McKinsey & Company and serving global financial institutions and capital market infrastructure providers, corporations, and the public sector for 30 years. At McKinsey & Company he led the Business Technology Office and held a number of roles, including Managing Partner of the German office, a member of the Global Operating Committee and the global Board of Directors and Chair of the McKinsey Global Institute.

Frank is a Senior Advisor to Centerbridge Partners Europe, Chairman of the Strategic Advisory Board of Digitalplus Partners, a member of the Supervisory Board of IABG GmbH and a member of the Board of Trustees of the Hertie Foundation.

Frank studied Business Administration and Economics at Westfälische Wilhelm Universität Münster/Germany, and the London School of Economics. He holds an MBA from the Wharton School, University of Pennsylvania.

Maria Luís Albuquerque

Maria Luís Albuquerque is a member of the Supervisory Boards of MSEHSE, MSESE and MSBAG since September 2022. She is a member of the Audit, Risk and Nomination Committees.

She is a member of the Advisory Board of INDEG-ISCTE Executive Education, and a member of the Strategic Advisory Board for the Faculty of Economics and Business Sciences of Universidade Lusíada Lisbon.

In her political career, Maria Luís was Minister of Finance and Deputy Minister of Finance in Portugal, a Member of the Portuguese Parliament, a full member of the European Affairs Committee, a member of the European Commission High-Level Forum on Capital Markets Union and an elected member of the Municipal Council of Almada. Prior to that, Maria Luís held senior roles as Head of Issuing and Markets at the Portuguese Debt Management Office, as Finance Director at Rede Ferroviária Nacional (REFER) as well as in the Ministry of Economics and the Ministry of Finance in Portugal. She was also a lecturer at Universidade Lusíada Lisbon, teaching macroeconomics and financial markets mathematics.

Maria Luís graduated in Economics (5 years) from Universidade Lusíada Lisbon and holds a Master's Degree in Monetary and Financial Economics from ISEG – Lisbon School of Economics and Management.

Raja Akram

Raja Akram is a member of the Supervisory Boards of MSEHSE, MSESE and MSBAG since January 2021 and is the Chair of the MSEHSE Group Audit Committee.

Raja is the Deputy Chief Financial Officer for Morgan Stanley with responsibility for several Finance functions of the Morgan Stanley, including Global Corporate Controllers, Regional Chief Financial Officers, Financial Planning & Analysis, Infrastructure Finance and Valuation Review. He is a member of the Morgan Stanley's Management Committee and Risk Committee.

Prior to joining Morgan Stanley, Raja was the Controller and Chief Accounting Officer at Citigroup ("Citi"). Throughout his 14 years at Citi, Raja held several leadership roles, including Lead Finance Officer of Treasury & Trade Solutions, Brazil Country Officer and Head of Corporate Accounting Policy team supporting M&A activities. Prior to joining Citi, Raja worked in the credit policy group at Fitch Ratings in New York as a Senior Director and Head of Accounting Policy and Research. He started his career at KPMG LLP, where he also worked as Senior Manager.

Raja holds a Bachelor of Business Administration and a Master's degree from Texas A&M University. He is a Certified Public Accountant (CPA) in Texas.

David Cannon

David Cannon was appointed a member of each of the MSEHSE Group Supervisory Boards in August 2019. He is Chair of the MSEHSE Group Risk Committee and a member of the Audit, Remuneration and Nomination Committees.

David has over thirty years' experience in the financial sector, with a particular focus on accounting and investment banking. He was a Partner at Ernst & Young from 1986 to 1995, leading the audit of a number of large financial services groups and being responsible for one of Ernst & Young's audit divisions before leaving in 1995 to become Chief Financial Officer of BZW/Barclays Capital. He returned to Ernst & Young in 1998 as Managing Partner of the London Financial Services Office. Between 2003 and 2012, David held a number of positions at Deutsche Bank including Deputy Group CFO and Chief Finance Officer for the Investment Bank.

From 2015 to 2019, David was a member of the Conduct Committee of the Financial Reporting Council and Chair of its Audit Quality Review Committee. He has an M.A. in PPE from the University of Oxford and is a qualified Chartered Accountant.

Lee Guy

Lee Guy is a member of the MSEHSE Group Supervisory Boards since August 2019. He is a member of the MSEHSE Group Risk Committee. Lee is a Managing Director in Firm Management focusing on executing business solutions across the 1st and 2nd lines of defence including resolving key challenged projects, critical global governance and driving key business process strategy. Prior to moving to this role in June 2020 Lee was EMEA Chief Risk Officer and a member of the EMEA Operating Committees, Deputy Chair of the EMEA Risk Committee and a member of the Board of Directors of Morgan Stanley International. Lee joined Morgan Stanley in July 2014.

Lee began his career at Kleinwort Benson in 1986 trading FX derivatives. In 1994, Lee helped to establish a Strategic Risk function after which he held a number of senior in-business Risk roles until leaving in 2004, at which time he was Head of In Business Risk at Dresdner Kleinwort Wasserstein. Before joining Morgan Stanley, Lee worked at Barclays Capital initially as Head of Market Risk and ultimately as Co-chief Risk Officer, based in New York.

Lee holds a BSc Honours in Mathematics from Warwick University and is a Chartered Financial Analyst.

Kim Lazaroo

Kim Lazaroo is a member of the Supervisory Boards of MSEHSE, MSESE and MSBAG since 2022 and is the EMEA Chief Administration Officer. Prior to this she was the EMEA Chief Financial Officer and has also previously held the role of EMEA Head of Corporate Controllers and Global Head of Legal Entity Controllers. Kim joined Morgan Stanley in October 2015 from Goldman Sachs Group where she was Global Legal Entity Controller (2011 to 2015) and prior to this Kim held

Financial and Legal Entity Controller roles. Kim joined Goldman Sachs in 1994 from Coopers & Lybrand where she worked for three years.

Kim has a Bachelor of Commerce in Accounting from the University of New South Wales.

Lucrezia Reichlin

Lucrezia Reichlin was appointed a Supervisory Board member of each of the Supervisory Boards of MSEHSE, MSESE and MSBAG in 2021 and is a member of the MSEHSE Group Risk, Audit and Nomination Committees. Lucrezia is Professor of Economics at London Business School and her prior roles have included Director General of Research at the European Central Bank. She is trustee of the International Financial Reporting Standards Foundation and has held a number of executive and non-executive directorships in a range of institutions including as non-executive director at UniCredit Banking Group. She is an elected Fellow of the British Academy, the Econometric Society and honorary Fellow of the American Economic Association.

Lucrezia has a PH.D. in Economics from New York University and a Laurea Economics with distinction from the University of Modena.

Figure 5: MSEHSE Group Board Members: Number of Directorships

Management Boards

	Number of directorships held as of 31 December 2022	Directorships adjusted for SYSC4.3A.7(2)
Oliver Behrens	6	1
David Best	11	2
Martin Borghetto	1	1
Oliver Kehren	2	1
Philipp Lingnau	1	1
André Munkelt	3	1
Dr. Jana Waehrisch	4	1

Supervisory Boards

	Number of directorships held as of 31 December 2022	Directorships adjusted for SYSC4.3A.7(2)
Clare Woodman	5	1
Frank Mattern	6	3
Raja Akram	3	1
Maria Luís Albuquerque	4	2
David Cannon	7	1
Lee Guy	3	1
Kim Lazaroo	8	1
Lucrezia Reichlin	11	4

20. Appendix II: Capital Instruments & Eligible Liabilities

Table 38: Capital instruments and eligible liabilities (EU CCA)

	MSEHSE Group[1] Description	a COMMON EQUITY TIER 1	b ADDITIONAL TIER 1		c SUBORDINATED DEBT	d SENIOR SUBORDINATED DEBT
1	Issuer	Morgan Stanley Europe Holding SE				
2	Unique Identifier	N/A				
2a	Public or private placement	Private				
3	Governing law(s) of the instrument	German Stock Corporation Act	German Law			
3a	Contractual recognition of write down and conversion powers of resolution authorities	No	Yes			
	Regulatory treatment					
4	Current treatment considering, where applicable, transitional CRR rules	Common Equity Tier 1	Additional Tier 1		Tier 2	Eligible Liability
5	Post-transitional CRR rules	Common Equity Tier 1	Additional Tier 1		Tier 2	Eligible Liability
6	Eligible at solo/(sub-)consolidated/ solo&(sub-)consolidated	Solo & (sub-) consolidated				
7	Instrument type (types to be specified by each jurisdiction)	Ordinary Shares	Undated Subordinated AT1 Notes		Schuldschein Loan	Subordinated non-T2 Loan
8	Amount recognised in regulatory capital or eligible liabilities (Currency in million, as of most recent reporting date)	€ 4,650MM	€ 400MM	€ 600MM	€ 1,000MM	€ 2,500MM
9	Nominal amount of instrument	€1 per ordinary share	€ 400MM	€ 600MM	€ 1,000MM	€ 2,500MM
EU-9a	Issue Price	N/A	€ 400MM	€ 600MM	€ 1,000MM	€ 2,500MM
EU-9b	Redemption Price	N/A	€ 400MM	€ 600MM	€ 1,000MM	€ 2,500MM
10	Accounting Classification	Shareholders' Equity	Liability under German GAAP; shareholders' equity under IFRS	Liability under German GAAP; shareholders' equity under IFRS	Liability - amortised cost	Liability - amortised cost
11	Original date of issuance	26/09/17	12/04/22	29/10/20	27/10/20	17/12/21
12	Perpetual or dated	Perpetual			Dated	
13	Original maturity date	No maturity	No maturity	No maturity	27/10/31	395 days from issuance
14	Issuer call subject to prior supervisory approval	N/A	Yes	Yes	Yes	N/A
15	Option call date, contingent call dates and redemption amount	N/A	30/11/27	30/11/25	27/10/25	N/A
16	Subsequent call dates, if applicable	N/A	Daily thereafter	Daily thereafter	Each Interest Payment Date	N/A
	Coupons / dividends					
17	Fixed or floating dividend / coupon	Floating	Fixed		Floating	
18	Coupon rate and any related index	N/A	5.0%	4.7%	3M EURIBOR + 1.6%	Proxy[2]
19	Existence of a dividend stopper	No	No	No	No	No
EU-20a	Fully discretionary, partially discretionary, or mandatory (in terms of timing)	Fully Discretionary			Mandatory	
EU-20b	Fully discretionary, partially discretionary, or mandatory (in terms of amount)	Fully Discretionary			Mandatory	
21	Existence of step up or other incentive to redeem	No				
22	Noncumulative or cumulative	Noncumulative			Cumulative	
23	Convertible or non-convertible	Nonconvertible			Nonconvertible	
24	If convertible, conversion trigger(s)	N/A				
25	If convertible, fully or partially	N/A				
26	If convertible, conversion rate	N/A				
27	If convertible, mandatory, or optional conversion	N/A				
28	If convertible, specify instrument type convertible into	N/A				
29	If convertible, specify issuer of instrument it converts into	N/A				
30	Write-down features	No	Yes		No	
31	If write-down, write-down trigger(s)	N/A	Contractual write down if CET1 capital ratio of MSEHSE Group falls below 5.125%. Competent Authority will trigger the write down of the instrument upon the exercise of statutory powers.		BaFin as the German Resolution Authority has the authority to write down or convert into shares the instrument prior to any insolvency or liquidation of the Company, under the applicable Resolution Legislation	
32	If write-down, full or partial	N/A	Full or Partial		N/A	
33	If write-down, permanent or temporary	N/A	Temporary		N/A	
34	If temporary write-down, description of write-up mechanism	N/A	The Current Principal Amount, unless previously redeemed or repurchased and cancelled, may be written up in each of the financial years until the full Initial Principal Amount has been reached, to the extent that a corresponding Annual Profit is recorded, and the write-up will not give rise to or increase an annual net loss.		N/A	

34a	Type of subordination (only for eligible liabilities)	N/A				Contractual
EU-34b	Ranking of the instrument in normal insolvency proceedings	Rank 1	Rank 2	Rank 2	Rank 3	Rank 4
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Perpetual Unsecured Fixed Rate Securities	Long-term subordinated loan facility		Senior Subordinated Facility	Other Liabilities
36	Non-compliant transitioned features	No				
37	If yes, specify non-compliant features	N/A				
37a	Link to the full term and conditions of the instrument (signposting)	Morgan Stanley Homepage				
	TLAC Eligibility	Yes	Yes	No	No	Yes

1. All capital instruments issued by the MSEHSE Group are issued within Morgan Stanley and are not marketable instruments.
2. Interest rate at which Morgan Stanley is offering loans, in the relevant currency, to members of the Morgan Stanley Group on such day, which counterparties have acknowledged and agreed to apply to any loan, acting on an arm's length basis.

The full terms and conditions in connection with all common equity tier 1 capital instruments, additional tier 1 capital and supplementary capital can be accessed at https://www.morganstanley.com/about-us-ir/pillar-eu.html.

21. Appendix III: Own Funds Disclosure Template

Table 39 shows the composition of regulatory own funds for the MSEHSE Group as of 31 December 2022.

Table 39: Composition of regulatory own funds (EU CC1)

€MM[1]		Amounts	Reference
Common Equity Tier 1 (CET1) capital: instruments and reserves			
1	Capital instruments and the related share premium accounts	4,650	
	of which: Instrument type one	4,650	A
	of which: Instrument type two	-	
	of which: Instrument type three	-	
2	Retained earnings	232	B
3	Accumulated other comprehensive income (and other reserves)	481	C
EU-3a	Funds for general banking risk	-	
4	Amount of qualifying items referred to in Article 484 (3) CRR and the related share premium accounts subject to phase out from CET1	-	
5	Minority interests (amount allowed in consolidated CET1)	-	
EU-5a	Independently reviewed interim profits net of any foreseeable charge or dividend	-	
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	**5,363**	
Common Equity Tier 1 (CET1) capital: regulatory adjustments			
7	Additional value adjustments (negative amount)	(54)	
8	Intangible assets (net of related tax liability) (negative amount)	-	
10	Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) CRR are met) (negative amount)	(24)	D
11	Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	-	
12	Negative amounts resulting from the calculation of expected loss amounts	(3)	
13	Any increase in equity that results from securitised assets (negative amount)	-	
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	-	
15	Defined-benefit pension fund assets (negative amount)	-	
16	Direct, indirect, and synthetic holdings by an institution of own CET1 instruments (negative amount)	-	
17	Direct, indirect, and synthetic holdings of the CET 1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	
18	Direct, indirect, and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	-	
19	Direct, indirect, and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	-	
EU-20a	Exposure amount of the following items which qualify for a RW of 1250%, where the institution opts for the deduction alternative	-	
EU-20b	of which: qualifying holdings outside the financial sector (negative amount)	-	
EU-20c	of which: securitisation positions (negative amount)	-	
EU-20d	of which: free deliveries (negative amount)	-	
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in Article 38 (3) CRR are met) (negative amount)	-	
22	Amount exceeding the 17,65% threshold (negative amount)	-	
23	of which: direct, indirect, and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	-	
25	of which: deferred tax assets arising from temporary differences	-	
EU-25a	Losses for the current financial year (negative amount)	-	
EU-25b	Foreseeable tax charges relating to CET1 items except where the institution suitably adjusts the amount of CET1 items insofar as such tax charges reduce the amount up to which those items may be used to cover risks or losses (negative amount)	-	
27	Qualifying AT1 deductions that exceed the AT1 items of the institution (negative amount)	-	
27a	Other regulatory adjustments	(91)	
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	**(171)**	
29	**Common Equity Tier 1 (CET1) capital**	**5,191**	
Additional Tier 1 (AT1) capital: instruments			
30	Capital instruments and the related share premium accounts	1,000	
31	of which: classified as equity under applicable accounting standards	1,000	E
32	of which: classified as liabilities under applicable accounting standards	-	
33	Amount of qualifying items referred to in Article 484 (4) CRR and the related share premium accounts subject to phase out from AT1	-	
EU-33a	Amount of qualifying items referred to in Article 494a (1) CRR subject to phase out from AT1	-	
EU-33b	Number of qualifying items referred to in Article 494b (1) CRR subject to phase out from AT1	-	
34	Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row five) issued by subsidiaries and held by third parties	-	
35	of which: instruments issued by subsidiaries subject to phase out	-	
36	**Additional Tier 1 (AT1) capital before regulatory adjustments**	**1,000**	
Additional Tier 1 (AT1) capital: regulatory adjustments			
37	Direct and indirect holdings by an institution of own AT1 instruments (negative amount)	-	
38	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	
39	Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	-	

40	Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	-	
42	Qualifying T2 deductions that exceed the T2 items of the institution (negative amount)	-	
42a	Other regulatory adjustments to AT1 capital	-	
43	**Total regulatory adjustments to Additional Tier 1 (AT1) capital**	**-**	
44	**Additional Tier 1 (AT1) capital**	**1,000**	
45	**Tier 1 capital (T1 = CET1 + AT1)**	**6,191**	
Tier 2 (T2) capital: instruments			
46	Capital instruments and the related share premium accounts	1,000	F
47	Amount of qualifying items referred to in Article 484 (5) CRR and the related share premium accounts subject to phase out from T2 as described in Article 486 (4) CRR	-	
EU-47a	Amount of qualifying items referred to in Article 494a (2) CRR subject to phase out from T2	-	
EU-47b	Amount of qualifying items referred to in Article 494b (2) CRR subject to phase out from T2	-	
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows five or 34) issued by subsidiaries and held by third parties	-	
49	of which: instruments issued by subsidiaries subject to phase out	-	
50	Credit risk adjustments	-	
51	**Tier 2 (T2) capital before regulatory adjustments**	**1,000**	
Tier 2 (T2) capital: regulatory adjustments			
52	Direct and indirect holdings by an institution of own T2 instruments and subordinated loans (negative amount)	-	
53	Direct, indirect and synthetic holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	
54	Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (amount above 10% threshold and net of eligible short positions) (negative amount)	-	
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	-	
EU-56a	Qualifying eligible liabilities deductions that exceed the eligible liabilities items of the institution (negative amount)	-	
EU-56b	Other regulatory adjustments to T2 capital	-	
57	**Total regulatory adjustments to Tier 2 (T2) capital**	**-**	
58	**Tier 2 (T2) capital**	**1,000**	
59	**Total capital (TC = T1 + T2)**	**7,191**	
60	**Total Risk exposure amount**	**27,965**	
Capital ratios and requirements including buffers			
61	Common Equity Tier 1	18.56%	
62	Tier 1	22.14%	
63	Total capital	25.71%	
64	Institution CET1 overall capital requirements	8.90%	
65	of which: capital conservation buffer requirement	2.50%	
66	of which: countercyclical capital buffer requirement	0.35%	
67	of which: systemic risk buffer requirement	0.00%	
EU-67a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer requirement	0.00%	
EU-67b	of which: additional own funds requirements to address the risks other than the risk of excessive leverage	1.55%	
68	**Common Equity Tier 1 capital (as a percentage of risk exposure amount) available after meeting the minimum capital requirements**	**12.52%**	
Amounts below the thresholds for deduction (before risk weighting)			
72	Direct and indirect holdings of own funds and eligible liabilities of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	2	
73	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 17.65% thresholds and net of eligible short positions)	-	
75	Deferred tax assets arising from temporary differences (amount below 17,65% threshold, net of related tax liability where the conditions in Article 38 (3) CRR are met)	16	G
Applicable caps on the inclusion of provisions in Tier 2			
76	Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	-	
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	-	
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	-	
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	-	
Capital instruments subject to phase-out arrangements (only applicable between 1 January 2014 and 1 January 2022)			
80	Current cap on CET1 instruments subject to phase out arrangements	-	
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	-	
82	Current cap on AT1 instruments subject to phase out arrangements	-	
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	-	
84	Current cap on T2 instruments subject to phase out arrangements	-	
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	-	

In 2022, the MSEHSE Group received the following capital contributions in the course of the year: The increase in CET1 capital refers to two equity issuances by Morgan Stanley in the amount of €600 million (April) and €850 million (November). The increase in Tier 1 capital from €600 million to €1,000 million is driven by an issuance of €400 million in April 2022.

The MSEHSE 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 MREL and TLAC requirements, bringing the total amount outstanding to €2,500 million.

Additionally, the MSEHSE 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 MSEHSE Group.

In April 2022 MSEHSE Group received CET1 capital from MSI in the amount of €1,000 million.

Table 40 shows the reconciliation of regulatory own funds in Table 39 to balance sheet in the audited financial statements.

Table 40: Reconciliation of regulatory own funds to balance sheet in the audited financial statements (EU CC2)

€MM MSEHSE Group	Balance sheet as in published financial statements As of 31 December 2022	Under regulatory scope of consolidation As of 31 December 2022	Reference
Assets - Breakdown by asset classes according to the balance sheet in the published financial statements			
Cash and short-term deposits	16,125	16,125	
Trading financial assets	58,821	58,821	
Secured financing	18,267	18,267	
Loans and advances	107	107	
Trade and other receivables	25,474	25,474	
Current tax assets	44	44	
Deferred tax assets	40	40	
of which: Deferred tax assets that rely on future profitability and do not arise from temporary differences	24	24	D
of which: Deferred tax assets that rely on future profitability and arise from temporary differences	16	16	G
Property plant and equipment	98	98	
Other assets	1	1	
Total Assets	**118,977**	**118,977**	
Liabilities - Breakdown by liability classes according to the balance sheet in the published financial statements			
Bank loans and overdrafts	7,632	7,632	
Trading financial liabilities	61,051	61,051	
Secured borrowing	18,446	18,446	
Trade and other payables	21,166	21,166	
Debt and other borrowings	4,125	4,125	
of which: Subordinated debt	1,000	1,000	F
of which: Senior subordinated debt	2,500	2,500	
of which: Other debts and borrowings	625	625	
Provisions	9	9	
Current tax liabilities	51	51	
Deferred tax liabilities	1	1	
Other liabilities	115	115	
Post-employment benefit obligations	20	20	
Total Liabilities	**112,616**	**112,616**	
Shareholders' equity			
Share Capital	**5,650**	**5,650**	
of which: amount eligible for CET1	4,650	4,650	A
of which: amount eligible for AT1	1,000	1,000	E
Capital contribution reserve	472	472	
of which: amount eligible for CET1	472	472	C
of which: other reserves	-	-	
Currency translation reserve	(1)	(1)	C
Pension reserve	9	9	C
Debt valuation reserve	-	-	
Retained earnings	232	232	B
of which: Previous years retained earnings	90	90	
of which: Profit or loss attributable to owners of the parent	142	142	
Equity attributable to the owners of the Company	6,362	6,362	
Total shareholders' equity	**6,362**	**6,362**	

22. Appendix IV: Countercyclical Capital Buffer

Table 41 shows the geographical distribution of credit exposures relevant for the calculation of CCyB as of 31 December 2022 for the MSEHSE Group.

Table 41: Geographical distribution of credit exposures for the CCyB (EU CCYB1)

		a	b	c	d	e	f	g	h	i	j	k	l	m
		General credit exposures		Relevant credit exposures – Market risk				Own funds requirements				Risk-weighted exposure amounts		
		Exposure value under the SA	Exposure value under the IRB	Sum of long and short positions of trading book exposures for SA	Value of trading book exposures for internal models	Securitisation Exposures Exposure value for non-trading book	Total exposure value	Relevant credit risk exposures – Credit risk	Relevant credit risk exposures – Market risk	Relevant credit exposures – securitisation positions in the non-trading book	Total		Own funds requirement weights	CCyB rate
	MSEHSE Group	€MM	€MM	€MM	€MM	€MM	€MM	€MM	€MM	€MM	€MM	€MM	%	%
010	Not Applicable/ All Geographical Areas	2,995	8,533	-	2,220	6	13,752	633	44	-	677	8,478	67.82%	0.00%
	Bulgaria	-	-	-	-	-	-	-	-	-	-	-	0.00%	1.00%
	Czech Republic	-	-	-	-	-	-	-	-	-	-	-	0.00%	1.50%
	Denmark	1,680	527	-	-	-	2,208	55	-	-	55	686	5.48%	2.00%
	Estonia	-	-	-	-	-	-	-	-	-	-	-	0.00%	1.00%
	Hong Kong	36	1	-	-	-	37	3	-	-	3	36	0.29%	1.00%
	Iceland	-	-	-	-	-	-	-	-	-	-	-	0.00%	2.00%
	Luxembourg	35	745	-	-	-	780	61	-	-	61	758	6.06%	0.50%
	Norway	10	148	-	-	-	158	3	-	-	3	36	0.29%	2.00%
	Romania	-	-	-	-	-	-	-	-	-	-	-	0.00%	0.50%
	Slovakia	-	1	-	-	-	1	-	-	-	-	1	0.01%	1.00%
	Sweden	53	371	-	-	-	424	32	-	-	32	397	3.17%	1.00%
	United Kingdom	1,467	3,820	-	-	-	5,288	169	-	-	169	2,109	16.87%	1.00%
020	**TOTAL**	**6,276**	**14,146**	**-**	**2,220**	**6**	**22,648**	**956**	**44**	**-**	**1,000**	**12,501**	**100.00%**	**-**

The MSEHSE Group's CCyB is set to increase driven in 2023 by announced increases in domestic and other European country CCyB rates. These changes are incorporated as part of the MSEHSE Group's capital planning and target setting processes. Forecast capital resources are sufficient to meet these increased requirements.

Table 42 shows the amount of institution specific CCyB as of 31 December 2022 for the MSEHSE Group.

Table 42: Amount of institution-specific countercyclical capital buffer (EU CCYB2)

		a
€MM		MSEHSE Group
1	**Total risk exposure amount**	**27,965**
2	Institution specific countercyclical capital buffer rate	0.35%
3	Institution specific countercyclical capital buffer requirement	98

23. Appendix V: Additional Credit and Counterparty Credit Risk Tables

Table 43 shows a breakdown of net loans and advances and debt securities by residual maturity as of 31 December 2022 for the MSEHSE Group.

Table 43: Maturity of exposures (EU CR1-A)

€MM	a	b	c	d	e	f
	Net exposure value					
MSEHSE Group	On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
1 Loans and advances	-	28	405	-	53	486
2 Debt securities	-	-	-	-	-	-
3 Total	**-**	**28**	**405**	**-**	**53**	**486**

Table 44 shows changes in the stock of non-performing loans and advances as of 31 December 2022 for the MSEHSE Group.

Table 44: Changes in the stock of non-performing loans and advances (EU CR2)

€MM		a
MSEHSE Group		Gross carrying amount
010	**Initial stock of non-performing loans and advances**	**8**
020	Inflows to non-performing portfolios	20
030	Outflows from non-performing portfolios	(10)
040	Outflows due to write-offs	-
050	Outflow due to other situations	(10)
060	**Final stock of non-performing loans and advances**	**18**

The increase in non-performing loans and advances is mainly driven by trade and other receivables.

The amounts of non-performing exposures are compliant with Financial Reporting ("FinRep") requirements which also refer to Article 178 CRR of default definition. No difference is foreseen in default amount.

The FinRep reporting approach adopted for deriving the respective changes is based on a simplified approach considering the respective aging bucket and is not based at an individual counterparty level. Consequently, the values reported in loans and advances "Inflow from non-performing portfolios" and "Outflows from non-performing portfolios" since the last reporting period may include gross movement for a counterparty during the relevant reporting period.

Table 45 shows an overview of performing and non-performing exposures and the related provisions as of 31 December 2022 for the MSEHSE Group.

Table 45: Performing and Non-performing exposures and related provisions (EU CR1)

€MM	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
	Gross carrying amount/nominal amount						Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions							Collateral and financial guarantees received	
	Performing exposures			Non-performing exposures			Performing exposures – accumulated impairment and provisions			Non-performing exposures – accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions					
MSEHSE Group		Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3		Of which stage 1	Of which stage 2		Of which stage 2	Of which stage 3	Accumulated partial write-off	On performing exposures	On non-performing exposures
005 Cash balances at central banks and other demand deposits	**16,121**	**16,121**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
010 Loans and advances	**43,839**	**9,478**	**14,757**	**18**	**-**	**18**	**(1)**	**-**	**(1)**	**(4)**	**-**	**(4)**	**-**	**18,924**	**-**
020 Central banks	1,845	-	54	-	-	-	-	-	-	-	-	-	-	1,719	-
030 General governments	734	-	734	-	-	-	-	-	-	-	-	-	-	-	-
040 Credit institutions	9,047	-	5,685	10	-	10	-	-	-	(2)	-	(2)	-	3,043	-
050 Other financial corporations	31,817	9,421	7,946	7	-	7	-	-	-	(1)	-	(1)	-	14,162	-
060 Non-financial corporations	396	57	338	1	-	1	(1)	-	(1)	(1)	-	(1)	-	-	-
070 Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
080 Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
090 Debt securities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
100 Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110 General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120 Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130 Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140 Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150 Off-balance-sheet exposures	**7,830**	**7,468**	**362**	**-**	**-**	**-**	**(3)**	**(1)**	**(2)**	**-**	**-**	**-**		**14**	**-**
160 Central banks	-	-	-	-	-	-	-	-	-	-	-	-		-	-
170 General governments	-	-	-	-	-	-	-	-	-	-	-	-		-	-
180 Credit institutions	81	81	-	-	-	-	-	-	-	-	-	-		-	-
190 Other financial corporations	5,530	5,451	79	-	-	-	-	-	-	-	-	-		14	-
200 Non-financial corporations	2,219	1,935	283	-	-	-	(3)	(1)	(2)	-	-	-		-	-
210 Households	-	-	-	-	-	-	-	-	-	-	-	-		-	-
220 Total	**67,790**	**33,067**	**15,119**	**18**	**-**	**18**	**(4)**	**(1)**	**(3)**	**(4)**	**-**	**(4)**	**-**	**18,938**	**-**

Increase in Stage 3 non-performing loans and advances is mainly driven by trade and other receivables.

Table 46 shows the quality of non-performing exposures by geography as of 31 December 2022 for the MSEHSE Group.

Table 46: Quality of non-performing exposures by geography (EU CQ4)

	a	b	c	d	e	f	g
	Gross carrying/nominal amount						
		Of which non-performing					
€MM MSEHSE Group			Of which defaulted	Of which subject to impairment	Accumulated impairment	Provisions on off-balance-sheet commitments and financial guarantees given	Accumulated negative changes in fair value due to credit risk on non-performing exposures
010 On-balance-sheet exposures[1]	**43,857**	**18**	**18**	**24,252**	**(5)**		
020 United Kingdom	15,101	4	4	7,104	(1)		
030 France	7,643	2	2	1,194	(2)		
040 Germany	5,345	4	4	2,653	(1)		
050 United States of America	4,816	2	2	3,824	-		
060 Netherlands	4,033	2	2	4,033	-		
070 Other countries	6,919	4	4	5,444	(1)		
080 Off-balance-sheet exposures[2]	**7,830**	**-**	**-**			**(3)**	
090 United Kingdom	5,029	-	-			-	
100 France	1,582	-	-			-	
110 Other countries	1,219	-	-			(3)	
130 Total	**51,687**	**18**	**18**	**24,252**	**(5)**	**(3)**	

1.Countries exceeding 5% of total gross carrying amount (BS) for MSEHSE Group are reported individually.
2.Countries exceeding 5% of total gross carrying amount (OBS) for MSEHSE Group are reported individually.

The following list provides the composition of “other countries” as shown in Table 46:

On-balance Sheet	Off-balance Sheet
Hong Kong	Italy
Italy	Netherlands
Belgium	Norway
Luxembourg	Luxembourg
Spain	Denmark
Sweden	Austria
Finland	Germany
Ireland	Jersey island
Denmark	Sweden
Japan	Spain
Austria	
Australia	
Norway	
Hungary	
Korea, Republic of	
Cayman Islands	
Greece	
Poland	
Singapore	
Switzerland	
Liechtenstein	
Malta	
Czech Republic	
Estonia	
Portugal	
Taiwan	

Table 47 shows the credit quality of loans and advances to non-financial corporations by industry as of 31 December 2022 for the MSEHSE Group.

Table 47: Credit quality of loans and advances to non-financial corporations by industry (EU CQ5)

€MM	a	b	c	d	e	f
	Gross carrying amount					
		Of which non-performing				
MSEHSE Group			Of which defaulted	Of which loans and advances subject to impairment	Accumulated impairment	Accumulated negative changes in fair value due to credit risk on non-performing exposures
010 Agriculture, forestry, and fishing	-	-	-	-	-	-
020 Mining and quarrying	6	-	-	6	-	-
030 Manufacturing	22	-	-	22	-	-
040 Electricity, gas, steam, and air conditioning supply	218	-	-	218	-	-
050 Water supply	30	-	-	30	-	-
060 Construction	-	-	-	-	-	-
070 Wholesale and retail trade	1	-	-	1	-	-
080 Transport and storage	39	-	-	39	-	-
090 Accommodation and food service activities	1	-	-	1	-	-
100 Information and communication	74	-	-	74	(1)	-
110 Financial and insurance activities	-	-	-	-	-	-
120 Real estate activities	2	-	-	2	-	-
130 Professional, scientific, and technical activities	-	-	-	-	-	-
140 Administrative and support service activities	-	-	-	-	-	-
150 Public administration and defence, compulsory social security	-	-	-	-	-	-
160 Education	-	-	-	-	-	-
170 Human health services and social work activities	2	-	-	2	-	-
180 Arts, entertainment, and recreation	-	-	-	-	-	-
190 Other services	2	1	1	2	(1)	-
200 Total	**397**	**1**	**1**	**397**	**(2)**	**-**

Table 48 shows the extent of the use of CRM techniques as of 31 December 2022 for the MSEHSE Group.

Table 48: CRM techniques overview: Disclosure of the use of credit risk mitigation techniques (EU CR3)

€MM		a	b	c	d	e
MSEHSE Group		Unsecured carrying amount	Secured carrying amount	Of which secured by collateral	Of which secured by financial guarantees	Of which secured by credit derivatives
1	Loans and advances[1]	41,049	18,924	18,924	-	-
2	Debt securities	-	-	-	-	
3	Total exposures	41,049	18,924	18,924	-	-
4	Of which non-performing exposures	14	-	-	-	-
EU- 5	Of which defaulted	14	-			

1. Loans and advances includes reverse repurchase agreements.

The increase in loans and advances is mainly driven by an overall increase in the cash balance with the central bank and trade and other receivables.

Table 49 shows the credit risk exposures by SA before and post CRM effects on 31 December 2022 for the MSEHSE Group.

Table 49: Standardised approach: Credit risk exposure and CRM effects (EU CR4)

€MM		a	b	c	d	e	f
		Exposures before CCF[1] and CRM		Exposures post CCF and post CRM		RWAs and RWAs density	
		On-balance sheet exposures	Off-balance sheet exposures	On-balance sheet exposures	Off-balance sheet amount	RWAs	RWAs density
MSEHSE Group		€MM	€MM	€MM	€MM	€MM	%
1	Central governments or central banks	15,589	13	15,589	3	42	1%
2	Regional government or local authorities	-	-	-	-	-	-
3	Public sector entities	-	-	-	-	-	-
4	Multilateral development banks	-	-	-	-	-	-
5	International organisations	-	-	-	-	-	-
6	Institutions	77	11	77	3	42	52%
7	Corporates	1,303	402	86	212	283	94%
8	Retail	-	-	-	-	-	-
9	Secured by mortgages on immovable property	-	-	-	-	-	-
10	Exposures in default	-	-	-	-	-	-
11	Exposures associated with particularly high risk	-	-	-	-	-	-
12	Covered bonds	-	-	-	-	-	-
13	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
14	Collective investment undertakings	-	-	-	-	-	-
15	Equity	-	-	-	-	-	-
16	Other items	98	-	98	-	98	100%
17	**Total**	**17,067**	**426**	**15,849**	**218**	**465**	**3%**

The increase in RWA in 2022 is driven by unfunded loan commitments with corporates.

Table 50 shows the breakdown of exposures under SA by asset class and risk weight as of 31 December 2022 for the MSEHSE Group.

Table 50: Standardised approach (EU CR5)

€MM		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
		Risk Weight																
MSEHSE Group		0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Total	Of which: unrated
1	Central governments or central banks	15,571	-	-	-	-	-	4	-	-	-	-	16	-	-	-	**15,591**	-
2	Regional government or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
3	Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
5	International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
6	Institutions	-	2	-	-	73	-	1	-	-	1	1	-	-	2	-	**80**	2
7	Corporates	-	-	-	-	18	-	210	-	-	61	-	-	-	9	-	**298**	39
8	Retail Exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
9	Exposures secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
10	Exposures in default	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
11	Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
12	Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
13	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
14	Units or shares in collective investment undertakings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
15	Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
16	Other items	-	-	-	-	-	-	-	-	-	98	-	-	-	-	-	**98**	96
17	**Total**	**15,571**	**2**	**-**	**-**	**91**	**-**	**215**	**-**	**-**	**160**	**1**	**16**	**-**	**11**	**-**	**16,067**	**137**

The table shows the breakdown of exposure values for the standardised approach exposure class. The most significant exposure relates to cash deposits with the Deutsche Bundesbank, which are risk weighted at 0% and reported within the central governments or central banks exposure class.

Table 51 shows the exposures for the MSEHSE Group, calculated using SA for each exposure class and broken down by Credit Quality Step ("CQS") as of 31 December 2022.

Table 51: Standardised approach EAD by credit quality step

€MM

MSEHSE Group[1]		CQS1	CQS2	CQS3	CQS4	CQS5	CQS6	Other[2]	Unrated	Total
Central Governments or Central Banks	GROSS EAD	3,803	-	168	35	-	-	15,555	-	**19,561**
	EAD	733	-	140	22	-	-	15,530	-	**16,425**
Corporates	GROSS EAD	122	1,947	155	5	-	-	3,090	-	**5,319**
	EAD	109	331	53	2	-	-	773	-	**1,268**
High risk	GROSS EAD	-	-	-	-	-	-	-	-	**-**
	EAD	-	-	-	-	-	-	-	-	**-**
Institutions	GROSS EAD	1,013	1,355	3	-	-	-	723	-	**3,094**
	EAD	1,005	1,355	3	-	-	-	463	-	**2,826**
Multilateral development banks	GROSS EAD	-	-	-	-	-	-	-	-	**-**
	EAD	-	-	-	-	-	-	-	-	**-**
Public sector entities	GROSS EAD	1	-	-	-	-	-	-	-	**1**
	EAD	1	-	-	-	-	-	-	-	**1**
Regional governments or Local Authorities	GROSS EAD	-	-	-	-	-	-	6	-	**6**
	EAD	-	-	-	-	-	-	6	-	**6**
International Organisations	GROSS EAD	-	-	-	-	-	-	-	-	**-**
	EAD	-	-	-	-	-	-	-	-	**-**
Securitisation	GROSS EAD	-	-	-	-	-	-	6	-	**6**
	EAD	-	-	-	-	-	-	6	-	**6**
Other Items	GROSS EAD	-	-	-	-	-	-	98	-	**98**
	EAD	-	-	-	-	-	-	98	-	**98**
Total	**GROSS EAD**	**4,939**	**3,302**	**326**	**40**	**-**	**-**	**19,478**	**-**	**28,085**
	EAD	**1,848**	**1,686**	**196**	**24**	**-**	**-**	**16,876**	**-**	**20,630**

1.Under the Standardised Approach, risk weights are generally applied according to the relevant exposure class and the associated credit quality (CRR Article 113). Credit quality may be determined by reference to the credit assessments of an ECAI, which are then mapped to a CQS. The unrated segment represents exposure for which no ECAI credit assessment is available.

2.The Other segment represents exposures where alternative rules to the CQS treatment described in the note above apply. The majority of exposures in this segment are exposures to central governments and central banks to which a fixed risk weight is applied.

Table 52 shows the breakdown of exposures under the F-IRB approach by exposure class as of 31 December 2022 for the MSEHSE Group. Credit Derivatives are not applied as CRM technique for RWA benefits. There are no exposures calculated according to A-IRB.

Table 52: IRB approach: Effect on the RWAs of credit derivatives used as CRM techniques (EU CR7)

		MSEHSE Group	
€MM		a Pre-credit derivatives risk weighted exposure amount	b Actual risk weighted exposure amount
1	**Exposures under F-IRB**	**2,028**	**2,028**
2	Central governments and central banks	-	-
3	Institutions	95	95
4	Corporates	1,933	1,933
4.1	*of which Corporates - SMEs*	-	-
4.2	*of which Corporates - Specialised lending*	-	-
5	**Exposures under A-IRB**	-	-
6	Central governments and central banks	-	-
7	Institutions	-	-
8	Corporates	-	-
8.1	*of which Corporates - SMEs*	-	-
8.2	*of which Corporates - Specialised lending*	-	-
9	Retail	-	-
9.1	*of which Retail – SMEs - Secured by immovable property collateral*	-	-
9.2	*of which Retail – non-SMEs - Secured by immovable property collateral*	-	-
9.3	*of which Retail – Qualifying revolving*	-	-
9.4	*of which Retail – SMEs - Other*	-	-
9.5	*of which Retail – Non-SMEs- Other*	-	-
10	**Total (including F-IRB exposures and A-IRB exposures)**	**2,028**	**2,028**

Table 53 shows the parameters used for the calculation of capital requirements for IRB models as of 31 December 2022 for the MSEHSE Group.

Table 53: IRB approach: Credit risk exposures by exposure class and PD range (EU CR6)

a	b	c	d	e	f	g	h	i	j	k	l	m
PD Range	**On-balance sheet exposures**	**Off-balance sheet exposures pre-CCF**	**Exposure weighted average CCF**	**Exposure post CCF and post CRM**	**Exposure weighted average PD**	**Number of obligors**	**Exposure weighted average LGD**	**Exposure weighted average maturity**	**Risk weighted exposure amount after supporting factors**	**Density of risk weighted exposure amount**	**Expected loss amount**	**Value adjustments and provisions**
MSEHSE Group	**€MM**	**€MM**	**%**	**€MM**	**%**	**#**	**%**	**Years**	**€MM**	**%**	**€MM**	**€MM**
0.00 to <0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.00 to <0.10	-	-	-	-	-	-	-	-	-	-	-	-
0.10 to <0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to <0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to <0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to <2.50	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to <1.75	-	-	-	-	-	-	-	-	-	-	-	-
1.75 to <2.5	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to <10.00	-	-	-	-	-	-	-	-	-	-	-	-
2.5 to <5	-	-	-	-	-	-	-	-	-	-	-	-
5 to <10	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-	-
10 to <20	-	-	-	-	-	-	-	-	-	-	-	-
20 to <30	-	-	-	-	-	-	-	-	-	-	-	-
30.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	-
Central governments or central banks	-	-		-		-		-	-		-	-
0.00 to <0.15	199	180	50%	289	0.05%	35	45%	-	72	25%	-	-
0.00 to <0.10	176	180	50%	266	0.04%	26	45%	-	67	25%	-	-
0.10 to <0.15	23	-	-	23	0.14%	9	45%	-	5	20%	-	-
0.15 to <0.25	3	-	75%	3	0.22%	5	45%	-	1	20%	-	-
0.25 to <0.50	-	-	75%	-	-	-	-	-	-	-	-	-
0.50 to <0.75	-	-	75%	-	-	-	-	-	-	-	-	-
0.75 to <2.50	17	16	50%	25	0.88%	2	45%	-	22	90%	-	-
0.75 to <1.75	17	16	50%	25	0.88%	2	45%	-	22	90%	-	-
1.75 to <2.5	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to <10.00	-	-	-	-	-	-	-	-	-	-	-	-
2.5 to <5	-	-	-	-	-	-	-	-	-	-	-	-
5 to <10	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to <100.00	-	-	-	-	11.13%	2	45%	-	-	20%	-	-
10 to <20	-	-	-	-	11.13%	2	45%	-	-	20%	-	-
20 to <30	-	-	-	-	-	-	-	-	-	-	-	-
30.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	**219**	**196**		**317**		**44**		**-**	**95**		**-**	**-**
0.00 to <0.15	141	8,745	49%	1,979	0.07%	27	45%	-	1,419	72%	1	-
0.00 to <0.10	139	8,211	49%	1,709	0.06%	17	45%	-	1,175	69%	-	-
0.10 to <0.15	3	534	50%	270	0.14%	10	45%	-	244	90%	-	-
0.15 to <0.25	-	298	50%	149	0.22%	8	45%	-	149	100%	-	-
0.25 to <0.50	59	274	50%	196	0.35%	5	45%	-	196	100%	-	-
0.50 to <0.75	30	30	50%	44	0.55%	2	45%	-	44	100%	-	-
0.75 to <2.50	11	179	50%	100	1.72%	13	45%	-	111	111%	1	(1)
0.75 to <1.75	-	119	50%	59	1.39%	8	45%	-	64	108%	-	-
1.75 to <2.5	11	60	50%	41	2.20%	5	45%	-	48	117%	-	(1)
2.50 to <10.00	5	1	50%	5	4.95%	32	45%	-	6	105%	-	-
2.5 to <5	5	1	50%	5	4.95%	32	45%	-	6	105%	-	-
5 to <10	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to <100.00	1	6	75%	6	13.58%	10	32%	-	8	139%	-	-
10 to <20	-	6	75%	5	11.13%	9	29%	-	7	148%	-	-
20 to <30	1	-	-	1	25.02%	1	45%	-	1	100%	-	-
30.00 to <100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (Default)	-	-	-	-	-	-	-	-	-	-	-	-
Corporates	**247**	**9,533**		**2,480**		**97**		**-**	**1,933**		**2**	**(1)**
Total (all exposure classes)	**466**	**9,729**		**2,797**		**141**		**-**	**2,028**		**2**	**(1)**

The table represents exposure breakdown based on PD range and exposure class. The MSEHSE Group has Permanent Partial Use ("PPU") permissions to use the SA approach for certain exposure classes, including central governments and central banks.

Table 54: provides disclosure of the extent of the use of CRM techniques for the MSEHSE Group as of 31 December 2022.

Table 54: IRB approach: Disclosure of the extent of the use of CRM techniques (EU CR7-A)

		a	b	c	d	e	f	g	h	i	j	k	l	m	n
			Credit risk Mitigation techniques											Credit risk Mitigation methods in the calculation of RWEAs	
			Funded credit Protection (FCP) Part of exposures covered by -									Unfunded credit Protection (UFCP) Part of exposures covered by -			
		FIRB Total exposures	Financial Collaterals	Other eligible collaterals	Immovable property Collaterals	Receivables	Other physical collateral	Other funded credit protection	Cash on deposit	Life insurance policies	Instruments held by a third party	Guarantees	Credit Derivatives	RWEA without substitution effects (reduction effects only)	RWEA with substitution effects
MSEHSE Group		€MM	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	€MM	€MM
1	Central governments and central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Institutions	317	-	-	-	-	-	-	-	-	-	4.92%	-	92	95
3	Corporates	2,480	13.17%	-	-	-	-	-	-	-	-	68.36%	-	2,157	1,933
3.1	Of which Corporates – SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2	Of which Corporates – Specialised lending	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.3	Of which Corporates – Other	2,480	13.17%	-	-	-	-	-	-	-	-	68.36%	-	2,157	1,933
4	**Total**	**2,797**	**10.78%**	-	-	-	-	-	-	-	-	**61.16%**	-	**2,249**	**2,028**

The MSEHSE Group has used sub-participations (reported as guarantees) as a technique to mitigate risk weighted assets.

Table 55 categorises CCR exposures under SA into exposure classes and risk weight ranges as of 31 December 2022 for the MSEHSE Group. RWAs derived from own funds requirements for CVA are excluded whereas exposures to qualifying CCPs are included.

Table 55: Standardised approach: CCR exposures by regulatory exposure class and risk weight (EU CCR3)

€MM		a	b	c	d	e	f	g	h	i	j	k	l
						Risk Weight							
MSEHSE Group		0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others	Total exposure value
1	Central governments or central banks	567	-	-	-	-	135	-	-	107	-	-	**809**
2	Regional government or local authorities	-	-	-	-	6	-	-	-	-	-	-	**6**
3	Public sector entities	-	-	-	-	1	-	-	-	-	-	-	**1**
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	**-**
5	International organisations	-	-	-	-	-	-	-	-	-	-	-	**-**
6	Institutions	-	1,289	1,338	-	106	9	-	-	4	-	-	**2,747**
7	Corporates	-	-	-	-	90	122	-	-	757	-	-	**969**
8	Retail	-	-	-	-	-	-	-	-	-	-	-	**-**
9	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	**-**
10	Other Items	-	-	-	-	-	-	-	-	-	-	-	**-**
11	**Total exposure value**	**567**	**1,289**	**1,338**	**-**	**204**	**266**	**-**	**-**	**868**	**-**	**-**	**4,532**

Table 56 presents all relevant parameters used for the calculation of CCR capital requirements of the IRB approach categorized into exposure classes and PD ranges as of 31 December 2022 for the MSEHSE Group.

Table 56: IRB approach: CCR exposures by portfolio and PD scale (EU CCR4)

		a	b	c	d	e	f	g
		Exposure Value	Exposure weighted average PD	Number of obligors	Exposure weighted average LGD	Exposure weighted average maturity	RWEA	Density of risk weighted exposure amounts
MSEHSE Group		€MM	%	#	%	Years	€MM	%
1	**Central governments and central banks**							
1	0.00 to <0.15	-	-	-	-	-	-	-
2	0.15 to <0.25	-	-	-	-	-	-	-
3	0.25 to <0.50	-	-	-	-	-	-	-
4	0.50 to <0.75	-	-	-	-	-	-	-
5	0.75 to <2.50	-	-	-	-	-	-	-
6	2.50 to <10.00	-	-	-	-	-	-	-
7	10.00 to <100.00	-	-	-	-	-	-	-
8	100.00 (Default)	-	-	-	-	-	-	-
		-	-	-	-	-	-	-
2	**Corporates**							
1	0.00 to <0.15	10,118	0.07%	1,385	45.01%	2	6,975	69%
2	0.15 to <0.25	1,062	0.22%	587	45.00%	2	1,050	99%
3	0.25 to <0.50	751	0.35%	154	45.00%	2	748	100%
4	0.50 to <0.75	99	0.55%	88	45.00%	2	99	100%
5	0.75 to <2.50	737	1.38%	361	45.00%	2	826	112%
6	2.50 to <10.00	68	4.95%	20	45.00%	2	86	127%
7	10.00 to <100.00	19	11.15%	34	45.00%	2	21	111%
8	100.00 (Default)	-	-	-	-	-	-	-
		12,853	**0.22%**	**2,629**	**45.01%**	**2**	**9,805**	**76%**
3	**Institutions**							
1	0.00 to <0.15	2,964	0.08%	73	45.49%	2	1,087	37%
2	0.15 to <0.25	210	0.22%	21	45.00%	1	92	44%
3	0.25 to <0.50	125	0.35%	27	48.83%	2	70	56%
4	0.50 to <0.75	42	0.55%	11	45.00%	1	19	45%
5	0.75 to <2.50	22	1.55%	16	45.00%	2	16	73%
6	2.50 to <10.00	6	4.95%	5	45.00%	2	6	100%
7	10.00 to <100.00	7	16.48%	12	45.00%	2	2	24%
8	100.00 (Default	-	-	-	-	-	-	-
		3,376	**0.16%**	**165**	**45.57%**	**2**	**1,292**	**38%**
	Total (all CCR relevant exposure classes)	**16,229**	**0.20%**	**2,794**	**45.12%**	**2**	**11,097**	**68%**

This table represents value based on IRB Exposure and RWEA as per PD Banding. Entity further holds PPU permissions and hence there is no IRB exposure under Central Government.

Table 57 categories performing and non-performing exposures into exposure classes and, if applicable, past due ranges.

Table 57: Credit Quality of Performing and Non-Performing exposures (EU CQ3)

		a	b	c	d	e	f	g	h	i	j	k	l
€MM		Gross carrying amount/nominal amount											
		Performing exposures			Non-performing exposures								
MSEHSE Group			Not past due or past due ≤ 30 days	Past due > 30 days ≤ 90 days		Unlikely to pay that are not past due or are past due ≤ 90 days	Past due > 90 days ≤ 180 days	Past due > 180 days ≤ 1 year	Past due > 1 year ≤ 2 years	Past due > 2years ≤ 5 years	Past due > 5 years ≤ 7 years	Past due > 7 years	Of which defaulted
005	**Cash balances at central banks and other demand deposits**	**16,121**	**16,121**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
010	**Loans and advances**	**43,839**	**43,796**	**43**	**18**	**-**	**11**	**3**	**2**	**2**	**-**	**-**	**18**
020	Central banks	1,845	1,845	-	-	-	-	-	-	-	-	-	-
030	General governments	734	734	-	-	-	-	-	-	-	-	-	-
040	Credit institutions	9,047	9,033	14	10	-	7	1	1	1	-	-	10
050	Other financial corporations	31,817	31,791	26	7	-	4	2	1	-	-	-	7
060	Non-financial corporations	396	393	3	1	-	-	-	-	1	-	-	1
070	Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
080	Households	-	-	-	-	-	-	-	-	-	-	-	-
090	**Debt securities**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
100	Central banks	-	-	-	-	-	-	-	-	-	-	-	-
110	General governments	-	-	-	-	-	-	-	-	-	-	-	-
120	Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
130	Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
140	Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
150	**Off-balance-sheet exposures**	**7,830**			**-**								**-**
160	Central banks	-			-								-
170	General governments	-			-								-
180	Credit institutions	81			-								-
190	Other financial corporations	5,530			-								-
200	Non-financial corporations	2,219			-								-
210	Households	-			-								-
220	**Total**	**67,790**	**59,917**	**43**	**18**	**-**	**11**	**3**	**2**	**2**	**-**	**-**	**18**

Table 58 presents the scope of SA and IRBA application to the respective exposure classes.

Table 58: Scope of the use of IRB and SA approaches (EU CR6-A)

		a	b	c	d	e
		Exposure value as defined in Article 166 CRR for exposures subject to IRB approach	Total exposure value for exposures subject to the Standardised approach and to the IRB approach	Percentage of total exposure value subject to the permanent partial use of the SA	Percentage of total exposure value subject to a roll-out plan	Percentage of total exposure value subject to IRB Approach
MSEHSE Group		€MM	€MM	%	%	%
1	Central governments or central banks	-	15,633	100.00%	-	-
1.1	*Of which regional governments or local authorities*	-	-	-	-	-
1.2	*Of which public sector entities*	-	-	-	-	-
2	Institutions	317	414	19.49%	-	80.51%
3	Corporates	2,480	3,745	2.18%	5.08%	92.74%
3.1	*Of which Corporates - Specialised lending, excluding slotting approach*	-	-	-	-	-
3.2	*Of which Corporates - Specialised lending under slotting approach*	-	-	-	-	-
4	Retail	-	-	-	-	-
4.1	*of which Retail – Secured by real estate SMEs*	-	-	-	-	-
4.2	*of which Retail – Secured by real estate non-SMEs*	-	-	-	-	-
4.3	*of which Retail – Qualifying revolving*	-	-	-	-	-
4.4	*of which Retail – Other SMEs*	-	-	-	-	-
4.5	*of which Retail – Other non-SMEs*	-	-	-	-	-
5	Equity	23	45	48.87%	-	51.13%
6	Other non-credit obligation assets	-	100	100.00%	-	-
7	**Total**	2,821	19,938	79.84%	0.95%	19.20%

Table 59 represents the breakdown of exposure value based on Standardised and IRB approaches. Central government exposure was fully under standardised approach.

Table 59: IRB approach – Back-testing of PD per exposure class (fixed PD scale) (EU CR9)

a	b	c	d	e	f	g	h
Exposure class	PD Range	Number of obligors in the end of previous year	Of which number of obligors who defaulted in the year	Observed average default rate	Exposure weighted average PD	Average PD	Average historical annual default rate
		€MM	€MM	%	%	%	%
Central Government							
	0.00 to <0.15	3	-	-	-	0.01%	-
	0.00 to <0.10	3	-	-	-	0.01%	-
	0.10 to <0.15	-	-	-	-	-	-
	0.15 to <0.25	-	-	-	-	-	-
	0.25 to <0.50	-	-	-	-	-	-
	0.50 to <0.75	-	-	-	-	-	-
	0.75 to <2.50	-	-	-	-	-	-
	0.75 to <1.75	-	-	-	-	-	-
	1.75 to <2.5	-	-	-	-	-	-
	2.50 to <10.00	-	-	-	-	-	-
	2.5 to <5	-	-	-	-	-	-
	5 to <10	-	-	-	-	-	-
	10.00 to <100.00	-	-	-	-	-	-
	10 to <20	-	-	-	-	-	-
	20 to <30	-	-	-	-	-	-
	30.00 to <100.00	-	-	-	-	-	-
	100.00 (Default)	0	-	0.00%	0.00%	0.00%	0.00%
Institution							
	0.00 to <0.15	41	-	-	0.07%	0.07%	-
	0.00 to <0.10	34	-	-	0.06%	0.06%	-
	0.10 to <0.15	7	-	-	0.14%	0.14%	-
	0.15 to <0.25	4	-	-	0.22%	0.22%	-
	0.25 to <0.50	1	-	-	0.35%	0.35%	-
	0.50 to <0.75	-	-	-	0.55%	-	-
	0.75 to <2.50	2	-	-	1.72%	0.88%	-
	0.75 to <1.75	2	-	-	1.39%	0.88%	-
	1.75 to <2.5	-	-	-	2.20%	-	-
	2.50 to <10.00	1	-	-	4.95%	4.95%	-
	2.5 to <5	1	-	-	4.95%	4.95%	-
	5 to <10	-	-	-	-	-	-
	10.00 to <100.00	7	-	-	13.58%	11.13%	-
	10 to <20	7	-	-	11.13%	11.13%	-
	20 to <30	-	-	-	25.02%	-	-
	30.00 to <100.00	-	-	-	-	-	-
	100.00 (Default)	0	-	0.00%	0.00%	0.00%	0.00%
Corporates							
	0.00 to <0.15	28	-	-	0.05%	0.08%	-
	0.00 to <0.10	22	-	-	0.04%	0.06%	-
	0.10 to <0.15	6	-	-	0.14%	0.14%	-
	0.15 to <0.25	12	-	-	0.22%	0.22%	-
	0.25 to <0.50	3	-	-	-	0.35%	-
	0.50 to <0.75	4	-	-	-	0.55%	-
	0.75 to <2.50	15	-	-	0.88%	1.61%	-
	0.75 to <1.75	9	-	-	0.88%	1.22%	-
	1.75 to <2.5	6	-	-	-	2.20%	-
	2.50 to <10.00	31	-	-	-	4.95%	-
	2.5 to <5	31	-	-	-	4.95%	-
	5 to <10	-	-	-	-	-	-
	10.00 to <100.00	14	1	7.14%	11.13%	13.11%	8.33%
	10 to <20	12	1	8.33%	11.13%	11.13%	-
	20 to <30	2	-	-	-	25.02%	8.33%
	30.00 to <100.00	-	-	-	-	-	-
	100.00 (Default)	1	-	0.00%	0.00%	100.00%	0.00%

For the MSEHSE Group there are no exposures which are subject to A-IRB. Only F-IRB is applied to IRBA exposures classes, as revealed in CR9 and CR9.1. Most of the total number of obligors do not refer to short-term contracts at the disclosure date for F-IRB. Obligors with short-term contracts tend to relate to cash deposits with exposure class of Institutions.

Table 60: IRB approach – Backtesting of PD per exposure class (only for PD estimates according to point (f) of Article 180 (1) CRR) (EU CR9.1)

a	b	c	d	e	f	g	h
Exposure class	PD Range	External rating equivalent	Number of obligors in the end of previous year	Of which number of obligors which defaulted in the year	Observed average default rate	Average PD	Average historical annual default rate
			€MM	€MM	%	%	%
Central Government							
	0.0072 to <0.0114	AAA	3	-	-	0.01%	-
	0.0114 to <0.0138	AA+	-	-	-	0.01%	-
	0.0138 to <0.0219	AA	-	-	-	0.01%	-
	0.0219 to <0.03	AA-	-	-	-	0.02%	-
	0.0347 to <0.055	A+	-	-	-	0.03%	-
	0.055 to <0.0873	A	-	-	-	0.06%	-
	0.0873 to <0.1384	A-	-	-	-	0.09%	-
	0.1384 to <0.2194	BBB+	-	-	-	0.14%	-
	0.2194 to <0.348	BBB	-	-	-	0.22%	-
	0.348 to <0.5518	BBB-	-	-	-	0.35%	-
	0.5518 to <0.875	BB+	-	-	-	0.55%	-
	0.875 to <1.3875	BB	-	-	-	0.88%	-
	1.3875 to <2.2002	BB-	-	-	-	1.39%	-
	2.2002 to <4.9479	B+	-	-	-	2.20%	-
	4.9479 to <11.1269	B	-	-	-	4.95%	-
	11.1269 to <25.0223	B-	-	-	-	11.13%	-
	25.0223 to <100 (Default)	CCC	-	-	-	25.02%	-
	100 (Default)	D	-	-	-	100.00%	-
Institution							
	0.03 to <0.0347[1]	AAA to AA-	6	-	-	0.03%	-
	0.0347 to <0.055	A+	7	-	-	0.03%	-
	0.055 to <0.0873	A	12	-	-	0.06%	-
	0.0873 to <0.1384	A-	9	-	-	0.09%	-
	0.1384 to <0.2194	BBB+	7	-	-	0.14%	-
	0.2194 to <0.348	BBB	4	-	-	0.22%	-
	0.348 to <0.5518	BBB-	1	-	-	0.35%	-
	0.5518 to <0.875	BB+	-	-	-	0.55%	-
	0.875 to <1.3875	BB	2	-	-	0.88%	-
	1.3875 to <2.2002	BB-	-	-	-	1.39%	-
	2.2002 to <4.9479	B+	-	-	-	2.20%	-
	4.9479 to <11.1269	B	1	-	-	4.95%	-
	11.1269 to <25.0223	B-	7	-	-	11.13%	-
	25.0223 to <100 (Default)	CCC	-	-	-	25.02%	-
	100 (Default)	D	-	-	-	100.00%	-
Corporates							
	0.03 to <0.0347[1]	AAA to AA-	4	-	-	0.03%	-
	0.0347 to <0.055	A+	3	-	-	0.03%	-
	0.055 to <0.0873	A	5	-	-	0.06%	-
	0.0873 to <0.1384	A-	10	-	-	0.09%	-
	0.1384 to <0.2194	BBB+	6	-	-	0.14%	-
	0.2194 to <0.348	BBB	12	-	-	0.22%	-
	0.348 to <0.5518	BBB-	3	-	-	0.35%	-
	0.5518 to <0.875	BB+	4	-	-	0.55%	-
	0.875 to <1.3875	BB	3	-	-	0.88%	-
	1.3875 to <2.2002	BB-	6	-	-	1.39%	-
	2.2002 to <4.9479	B+	6	-	-	2.20%	-
	4.9479 to <11.1269	B	31	-	-	4.95%	-
	11.1269 to <25.0223	B-	12	1	8.33%	11.13%	-
	25.0223 to <100 (Default)	CCC	2	-	-	25.02%	8.33%
	100 (Default)	D	1	-	-	100.00%	-

1. PD Range 0.03 to < 0.0347 refers to those exposures to a corporate or an institution where the PD shall be at least 0.03% in line with Article 160 CRR.

24. Appendix VI: Abbreviations

Term	Definition
AIRB	Advanced Internal Ratings Based
ASA	Alternative Standardised Approach
ASF	Available Stable Funding
AT1	Additional Tier 1 Capital
AVA	Additional Valuation Adjustment
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht
BCBS	Basel Committee on Banking Supervision
BIA	Basic Indicator Approach
BRM	Bank Resource Management
CCB	Capital Conservation Buffer
CCF	Credit Conversion Factor
CCP	Central Counterparty
CCR	Counterparty Credit Risk
CCyB	Countercyclical Capital Buffer
CET1	Common Equity Tier 1 Capital
CFTC	Commodity Future Trading Commission
CLF	Credit Limits Framework
COCO	Central Outsourcing Control Office
CQS	Credit Quality Step
CRD	Capital Requirements Directive
CFO	Chief Financial Officer
CRM	Credit Risk Mitigation
CRMD	Credit Risk Management Department
CRMe	Comprehensive Risk Measure
CRO	Chief Risk Officer
CRR	Capital Requirements Regulation
CSA	Credit Support Annex
CSRBB	Credit Spread Risk of non-trading Book
CVA	Credit Valuation Adjustment
DQ	Data Quality
EAD	Exposure at Default
EBA	European Banking Authority
ECAI	External Credit Assessment Institutions
ECB	European Central Bank
ECL	Expected Credit Loss
EIR	Effective Interest Rate
EMEA	Europe, the Middle East, and Africa
EMEA ALCO	EMEA Asset and Liability Committee
EOD	End-of-day
ESG	Environmental, Social and Governance
EU	European Union
EVE	Economic Values of Equity
FCA	Financial Conduct Authority
F-IRB	Foundation Internal Ratings Based
FinRep	Financial Reporting
FRTB	Fundamental Review of the Trading Book
FVPL	Fair Value Through Profit and Loss
GMRA	Global Master Repurchase Agreement
G-SIIs	Global Systemically Important Institutions
HGB	German Commercial Code
HQLA	High Quality Liquid Assets
IAA	Internal Assessment Approach
IAD	Internal Audit Division
ICAAP	Internal Capital Adequacy Assessment Process
IDA	Internal Audit Department
IFD	Investment Firm Directive

IFR	Investment Firm Regulation
IFRS	International Financial Reporting Standards
ILAAP	Internal Liquidity Adequacy Assessment Process
ILST	Internal Liquidity Stress Test
IMA	Internal Modelling Approach
IMM	Internal Models Method
IPU	Intermediate Parent Undertaking
IRB	Internal Ratings Based
IRRBB	Interest Rate Risk in the Banking Book
IRC	Incremental Risk Charge
ITS	Implementing Technical Standards
JST	Joint Supervisory Teams
KPI	Key Performance Index
KWG	Kreditwesengesetz
LCR	Liquidity Coverage Ratio
LDP	Low Default Portfolio
LGD	Loss-Given Default
LREQ	Leverage Ratio Requirements
LRD	Liquidity Risk Department
MaRisk	Mindestanforderungen an das Risikomanagement
MCR	Minimum Capital Requirements
MDB	Multilateral Development Bank
MM	Millions
MSBAG	Morgan Stanley Bank AG
MSEHSE Group	Morgan Stanley Europe Holding SE Group
MSESE	Morgan Stanley Europe SE
MSESE Consol	Morgen Stanley Europe SE Sub Consolidation Group (including MSESE solo and MSBAG)
MSI	Morgan Stanley International Limited
MSI Group	Morgan Stanley International Limited (and its subsidiaries)
MSIP	Morgan Stanley & Co. International plc
MSLL	Macroeconomic Stress Loss Limit
MRD	Market Risk Department
MREL	Minimum Required Eligible Liabilities
NII	Net Interest Income
NSFR	Net Stable Funding Ratio
NPP	New Product Process
ORD	Operational Risk Department
O-SII	Other Systemically Important Institutions
OTC	Over the Counter
P2G	Pillar 2 Guidance
P2R	Pillar 2 Requirement
PD	Probability of Default
PFE	Potential Future Exposure
PPU	Partial Permanent Usage
PRA	Prudential Regulation Authority
PSE	Public Sector Entity
PVRM	Position Valuation and Risk Models
QCCP	Qualifying Central Counterparty
QRM	Quantitative Risk Management
RAS	Risk Appetite Statement
RC	Replacement Cost
RCSA	Risk Control Self-Assessment
Repo	Repurchase Agreement
RNIV	Risks Not in VaR
RSF	Required Stable Funding
RST	Reverse Stress Tests
RTS	Regulatory Technical Standards
RWAs/RWEAs	Risk Weighted Exposure Amounts
SA	Standardised Approach
SA-CCR	Standardised Approach for Counterparty Credit Risk
SEC	US Securities and Exchange Commission

SEC-SA	Securitisation Standardised Approach
SEC-ERBA	Securitisation External Ratings Based Approach
SEC-IRBA	Securitisation IRB Approach
SFT	Securities Financing Transactions
SICR	Significant Increase in Credit Risk
S&P	Standard and Poor’s rating agency
SPOE	Single Point of Entry
SREP	Supervisory Review and Evaluation Process
STAR	Significant Transaction Analytical Review
SVaR	Stressed Value at Risk
T1	Tier 1
T2	Tier 2
TCR	Total Capital Requirement
TLAC	Total Loss-Absorbing Capacity
TOFR	Total Own Funds Requirements
TREA	Total Risk Exposure Amount
TTP	Temporal Transition Power
UK	United Kingdom
US	United States of America
VaR	Value at Risk
VC	Valuation Control
xVA	Derivative Valuations Adjustments

25. Appendix VII: List of References

CRR reference	Table header	Table Code	Applicable? Yes/No	Reason for non-applicability
1. Overview and Key Metrics				
Article 447, points (a) to (g), and Article 438, point (b) of CRR	Key metrics	EU KM1	Yes	
§ 26a (1) sentence 1 KWG	Principle of Proper Management	§ 26a (1) sentence 1 KWG	Yes	
Article 441 of CRR	Disclosure of indicators of global systemic relevance	Disclosure of indicators of global systemic relevance	No	G-SII requirement
2. Regulatory Frameworks				
Article 436 point (h) of CRR	Other qualitative information on the scope of application	EU LIB	Yes	
3. Risk Management				
Article 435 (1) points (a) to (f) of CRR	Institution risk management approach	EU OVA	Yes	
Article 435 (2) points (a), (d), (e) of CRR	Disclosure on governance arrangements	EU OVB	Yes	
4. Basis of Preparation und Linkage to Financial Accounts				
Article 436 point (b) and (d) of CRR	Explanations of differences between accounting and regulatory exposure amounts	EU LIA	Yes	
Article 436 point (c) of CRR	Differences between the accounting scope and the scope of prudential consolidation and mapping of financial statement categories with regulatory risk categories	EU LI1	Yes	
Article 436 point (d) of CRR	Main sources of differences between regulatory exposure amounts and carrying values in financial statements	EU LI2	Yes	
Article 436 point (b) of CRR	Outline of the differences in the scopes of consolidation (entity by entity)	EU LI3	No	There are no consolidated SPV booked for financial year 2022
5. Capital Management				
Article 438 point (a), (c) of CRR	ICAAP information	EU OVC	Yes	
Article 436 point (g) of CRR	Other qualitative information on the scope of application	EU LIB	Yes	
Article 436 point (f) of CRR	Other qualitative information on the scope of application	EU LIB	Yes	
Article 438 point (f) of CRR	Insurance participations	EU INS1	No	MSEHSE has no insurance entities
Article 438 point (g) of CRR	Financial conglomerates information on own funds and capital adequacy ratio	EU INS2	No	MSEHSE is not part of any financial conglomerate
6. Capital Resources				
Information to be found in Appendix III				
7. Total Loss-Absorbing Capacity				
Article 447-point (h) of CRR and Article 45i (3) points (a) and (c) of Directive 2014/59/EU	Key metrics - MREL and, where applicable, G-SII requirement for own funds and eligible liabilities	EU KM2	No	G-SII requirement (for own funds and eligible liabilities)
Article 437a points (a), (c) and (d) Article 447 point (h) of CRR. Article 45i (3) points (a) and (c) and Article 45i (3)	TLAC composition	EU iTLAC	Yes	

point (b) of Directive 2014/59/EU				
Article 437a points (a), (c) and (d) of CRR and Article 45i (3) point (b) of Directive 2014/59/EU	Composition - MREL and, where applicable, G-SII requirement for own funds and eligible liabilities	EU TLAC1	No	G-SII requirement (for own funds and eligible liabilities)
Article 437a points (a) and (b) of CRR and Article 45i (3) point (b) of Directive 2014/59/EU	Creditor ranking - Entity that is not a resolution entity	EU TLAC2a	Yes	
Article 437a points (a) and (b) of CRR and Article 45i (3) point (b) of Directive 2014/59/EU	Creditor ranking - Entity that is not a resolution entity	EU TLAC2b	No	MSEHSE is a material subsidiary of a non-EU G-SII
Article 437a points (a) and (b) of CRR and Article 45i (3) point (b) of Directive 2014/59/EU	Creditor ranking - resolution entity	EU TLAC3	No	MSEHSE is not a resolution entity
8. Leverage				
Article 451(1) points (d) and (e) of CRR	Disclosure of LR qualitative information	EU LRA	Yes	
Article 451(1) point (b) of CRR	Summary reconciliation of accounting assets and leverage ratio exposures	EU LR1	Yes	
Article 451(1) points (a) to (c), 451(2), 451(3) of CRR	Leverage ratio common disclosure	EU LR2	Yes	
Article 451(1) point (b) of CRR	Split of on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures)	EU LR3	Yes	
9. Capital Requirements and Risk Weighted Assets				
Article 438 point (d) of CRR	Overview of risk weighted exposure amounts	EU OV1	Yes	
10. Credit Risk				
Article 435 (1) point (a), (b), (d), (f) of CRR	General qualitative information about credit risk	EU CRA	Yes	
Article 442 points (a) and (b) of CRR	Additional disclosure related to the credit quality of assets	EU CRB	Yes	
Article 453 points (a), (b), (c), (e) of CRR	Qualitative disclosure requirements related to CRM techniques	EU CRC	Yes	
Article 444 points (a) to (d) of CRR	Qualitative disclosure requirements related to standardised approach	EU CRD	Yes	
Article 452 points (a), (c), (d), (e), (f) of CRR	Qualitative disclosure requirements related to IRB Approach	EU CRE	Yes	
Article 439 points (a), and (b) of CRR	Qualitative disclosure related to counterparty credit risk	EU CCRA	Yes	
Article 438 point (h) of CRR	RWA flow statements of credit risk exposures under the IRB approach	EU CR8	Yes	
Article 438 point (e) of CRR	Specialised lending and equity exposures under the simple risk weighted approach	EU CR10.1-4	No	MSEHSE does not have specialised lending
Article 155(2) of CRR	IRB (Specialised Lending and Equities) (EU CR10.5)	EU CR10.5	Yes	
11. Counterparty Credit Risk				
Article 439 points (c) and (d) of CRR	Qualitative disclosure related to counterparty credit risk	EU CCRA	Yes	
Article 431 (3) and (4) of CRR	Qualitative disclosure related to counterparty credit risk	EU CCRA	Yes	
Article 439 points (f), (g), (k) and (m) of CRR	Analysis of CCR exposure by approach	EU CCR1	Yes	
Article 438 point (h) of CRR	RWA flow statements of CCR exposures under IMM	EU CCR7	Yes	
Article 439 point (h) of CRR	Transactions subject to own funds requirements for CVA risk	EU CCR2	Yes	
Article 439 point (e) of CRR	Composition of collateral for CRR exposures	EU CCR5	Yes	

Article 439, point (i) of CRR	Exposures to CCPs	EU CCR8	Yes	
Article 439 point (j) of CRR	Credit derivatives exposures (EU CCR6)	EU CCR6	Yes	
12. Securitisation				
Article 449 point (a) to (i) of CRR	Qualitative disclosure requirements related to securitisation exposures	EU-SECA	Yes	
Article 449 point (j) of CRR	Securitisation exposures in the non-trading book	EU-SEC1	Yes	
Article 449 point (j) of CRR	Securitisation exposures in the trading book	EU-SEC2	No	MSEHSE has no securitisation exposures in the trading book
Article 449 point (k) of CRR	Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as originator or as sponsor	EU-SEC3	No	MSEHSE has no securitisation exposures in the non-trading book acting as originator or a sponsor
Article 449 point (k) of CRR	Securitisation exposures in the non-trading book and associated regulatory capital requirements - institution acting as investor	EU-SEC4	Yes	
Article 449 point (l) of CRR	Exposures securitised by the institution - Exposures in default and specific credit risk adjustments	EU-SEC5	No	MSEHSE has no securitisation exposures acting as originator or a sponsor
13. Market Risk				
Article 435 (1) points (a) to (d) of CRR	Qualitative disclosure requirements related to market risk	EU MRA	Yes	
Article 455 (a) to (c), (f) of CRR	Qualitative disclosure requirements for institutions using the internal Market Risk Models	EU MRB	Yes	
Article 445 of CRR	Market risk under the standardised approach	EU MR1	Yes	
Article 455 point (e) of CRR	Market risk under Internal Model Approach	EU MR2-A	Yes	
Article 438 point (h) of CRR	RWEA flow statements of market risk exposures under the IMA – MSEHSE Group	EU MR2-B	Yes	
Article 455 point (d) of CRR	IMA values for trading portfolios - MSEHSE Group	EU MR3	Yes	
Article 455 point (g) of CRR	Comparison of VaR Estimates with Gains/Losses – MSEHSE Group (EU MR4)	EU MR4	Yes	
14. Interest Rate Risk in the Banking Book (IRRBB)				
Article 448 CCR	Table EU IRRBBA	EU IRRBBA	Yes	
Article 448 (1) points (a) and (b) of CRR	EVE and NII stress P&L under interest rate stress scenarios	EU IRRBB1	Yes	
15. Operational Risk				
Article 435 (1) points (a) to (d), Article 446 point (a) and (b), Article 454 of CRR	Qualitative information on operational risk	EU ORA	Yes	
Article 446 and 454 of CRR	Operational risk own funds requirements and risk-weighted exposure amounts	EU OR1	Yes	
16. Climate and Environmental Risk				
Article 449 point (a) of CRR	Environmental, Social and Governance risks	ESG disclosure requirements	No	Which have issued securities and are admitted to trading on a regulated market of any Member State – this did not apply to the MSEHSE Group in 2022
17. Valuation Risk				
Article 436 point (e) of CRR	Prudent Valuation Adjustments (PVA)	EU PV1	Yes	
18. Liquidity Risk				
Article 451 (4) point (a) of CRR	Liquidity risk management	EU LIQA	Yes	
Article 451 (2) point (a) of CRR	Qualitative Information of LCR	EU LIQB	Yes	

Article 451 (2) point (a) of CRR	Quantitative Information of LCR	EU LIQ1	Yes	
Article 451(3) point (a) of CRR	Net Stable Funding Ratio	EU LIQ2	Yes	
Article 443 of CRR	Accompanying narrative information	EU AE4	Yes	
Article 443 of CRR	Encumbered and unencumbered assets	EU AE1	Yes	
Article 443 of CRR	Collateral received and own debt securities issued	EU AE2	Yes	
Article 443 of CRR	Sources of encumbrance	EU AE3	Yes	
19. Appendix I: Board of Directors Knowledge, Skills, and Expertise				
Article 435 (2) points (a)-(c) of CRR	Disclosure on governance arrangements	EU OVB	Yes	
20. Appendix II: Capital Instruments & Eligible Liabilities				
Article 437 points (b) and (c) of CRR	Capital instruments and eligible liabilities	EU CCA	Yes	
21. Appendix III: Own Funds Disclosure Template				
Article 437 points (a), (d), (e) and (f) of CRR	Composition of regulatory own funds	EU CC1	Yes	
Article 437 points (a), (d), (e) and (f) of CRR	Reconciliation of regulatory own funds to balance sheet in the audited financial statements	EU CC2	Yes	
22. Appendix IV: Countercyclical Capital Buffer				
Article 440 point (a) of CRR	Geographical distribution of credit exposures for the CCyB	EU CCYB1	Yes	
Article 440 point (b) of CRR	Amount of institution-specific countercyclical capital buffer	EU CCYB2	Yes	
23. Appendix V: Additional Credit and Counterparty Credit Risk Tables				
Article 453 points (d) of CRR	Qualitative disclosure requirements related to CRM techniques	EU CRC	Yes	
Article 442 point (g) of CRR	Maturity of exposures	EU CR1-A	Yes	
Article 442 point (f) of CRR	Changes in the stock of non-performing loans and advances	EU CR2	Yes	
Article 442 points (c) and (e) of CRR	Performing and Non-performing exposures and related provisions	EU CR1	Yes	
Article 442 points (c) and (e) of CRR	Quality of non-performing exposures by geography	EU CQ4	Yes	
Article 442 points (c) and (e) of CRR	Credit quality of loans and advances to non-financial corporations by industry	EU CQ5	Yes	
Article 453 point (f), of CRR	CRM techniques overview: Disclosure of the use of credit risk mitigation techniques	EU CR3	Yes	
Article 453 points (g) to (i) and Article 444 point (e) of CRR	Standardised approach: Credit risk exposure and CRM effects	EU CR4	Yes	
Article 444 point (e) of CRR	Standardised approach	EU CR5	Yes	
Article 453 point (j) of CRR	IRB approach: Effect on the RWAs of credit derivatives used as CRM techniques	EU CR7	Yes	
Article 452 point (g) of CRR	IRB approach: Credit risk exposures by exposure class and PD range	EU CR6	Yes	
Article 453 point (g) of CRR	IRB approach: Disclosure of the extent of the use of CRM techniques	EU CR7-A	Yes	
Article 444 point (e) of CRR	Standardised approach: CCR exposures by regulatory exposure class and risk weight	EU CCR3	Yes	
Article 452 point (g) of CRR	IRB approach: CCR exposures by portfolio and PD scale	EU CCR4	Yes	
Article 442 point (c) of CRR	Credit quality of forborne exposures – MSEHSE Group	EU CQ1	No	MSEHSE has no forborne exposures
Article 442 point (c) of CRR	Quality of forbearance – MSEHSE Group	EU CQ2	No	Template applies when NPL ratio ≥ 5%
Article 442 point (c) of CRR	Collateral valuation - loans and advances – MSEHSE Group	EU CQ6	No	Template applies when NPL ratio ≥ 5%

Article 442 point (c) of CRR	Collateral obtained by taking possession and execution processes – MSEHSE Group	EU CQ7	No	MSEHSE has no Collateral obtained by taking possession and execution processes
Article 442, point (c) of CRR	Collateral obtained by taking possession and execution processes – vintage breakdown – MSEHSE Group	EU CQ8	No	Template applies when NPL ratio ≥ 5%
Article 442 points (c) and (f) of CRR	Changes in the stock of non-performing loans and advances and related net accumulated recoveries – MSEHSE Group	EU CR2a	No	Template applies when NPL ratio ≥ 5%
Article 442 point (d) of CRR	Credit Quality of Performing and Non-Performing exposures – MSEHSE Group	EU CQ3	Yes	
Article 452 point (b) of CRR	Scope of the use of IRB and SA approaches – MSEHSE Group	EU CR6-A	Yes	
Article 452 point (h) of CRR	IRB approach – Back-testing of PD per exposure class (fixed PD scale) – MSEHSE Group	EU CR9	Yes	
only for PD estimates according to point (f) of Article 180(1) CRR	IRB approach – Back-testing of PD per exposure class – MSEHSE Group	EU CR9.1	Yes	
24. Appendix VI: Abbreviations				