Morgan Stanley International Limited Group

Pillar 3 Regulatory Disclosures Report

As at 31 December 2021

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1. Overview and Key Metrics

The principal activity of Morgan Stanley International Limited ("MSI") together with its subsidiaries (the "MSI Group") is the provision of financial services to corporations, governments and financial institutions. There have not been any significant changes in the MSI Group's principal activities during the 2021 and no significant change is expected.

As at 31 December 2021, Morgan Stanley & Co. International plc ("MSIP") and Morgan Stanley Europe Holding SE Group ("MSEHSE Group") are reported as large subsidiaries within the MSI Group. MSIP is authorised by the Prudential Regulation Authority ("PRA") and regulated by the PRA and Financial Conduct Authority ("FCA"). MSEHSE Group at a consolidated group level is under the direct supervision of the European Central Bank ("ECB") under the Single Supervisory Mechanism.

The Pillar 3 disclosures as at 31 December 2021 are prepared on the basis of the consolidated situation of the MSI Group. In addition, certain disclosures are provided for MSIP and MSEHSE Group.

Key Metrics

Table 1a: Key metrics – MSI Group and MSIP

$MM					
MSI Group[1]	**Q4'21**	**Q3'21**	**Q2'21**	**Q1'21**	**Q4'20**
Common Equity Tier 1 Capital	22,238	22,544	21,657	20,885	21,396
Additional Tier 1 Capital	3,500	3,500	3,500	3,500	3,500
Tier 1 Capital	**25,738**	**26,044**	**25,157**	**24,385**	**24,896**
Tier 2 Capital	**6,386**	**6,656**	**4,835**	**5,103**	**5,365**
Total Own Funds	**32,124**	**32,700**	**29,992**	**29,488**	**30,261**
Risk Weighted Assets	164,374	170,087	168,003	181,191	167,445
Common Equity Tier 1 Ratio	13.5%	13.3%	12.9%	11.5%	12.8%
Tier 1 Capital Ratio	15.7%	15.3%	15.0%	13.5%	14.9%
Total Capital Ratio	19.5%	19.2%	17.9%	16.3%	18.1%
Leverage Exposure	534,827	547,423	535,605	537,184	493,282
Leverage Ratio	4.8%	4.8%	4.7%	4.5%	5.0%
Liquidity buffer	50,367	49,416	48,780	47,018	45,310
Total net cash outflows	25,686	25,717	26,017	24,373	22,436
Liquidity Coverage Ratio	196%	192%	187%	193%	203%
MSIP[1]	**Q4'21**	**Q3'21**	**Q2'21**	**Q1'21**	**Q4'20**
Common Equity Tier 1 Capital	17,022	17,195	16,419	15,796	16,106
Additional Tier 1 Capital	3,500	3,500	3,500	3,500	3,500
Tier 1 Capital	**20,522**	**20,695**	**19,919**	**19,296**	**19,606**
Tier 2 Capital	**5,376**	**5,628**	**4,480**	**4,729**	**4,975**
Total Own Funds	**25,898**	**26,323**	**24,399**	**24,025**	**24,581**
Risk Weighted Assets	136,748	142,027	145,033	161,379	155,537
Common Equity Tier 1 Ratio	12.4%	12.1%	11.3%	9.8%	10.4%
Tier 1 Capital Ratio	15.0%	14.6%	13.7%	12.0%	12.6%
Total Capital Ratio	18.9%	18.5%	16.8%	14.9%	15.8%
Leverage Exposure	496,231	509,199	502,756	500,490	474,169
Leverage Ratio	4.1%	4.1%	4.0%	3.9%	4.1%

1. The MSI Group and MSIP are required to maintain a minimum ratio of Own Funds to Risk Weighted Assets ("RWAs"). As at 31 December 2021, the MSI Group and MSIP are in compliance with the PRA capital requirements.

Table 1b: Key metrics (EU KM1) – MSEHSE Group
$MM[2]

MSEHSE Group[3]	Q4'21	Q3'21	Q2'21	Q1'21	Q4'20
Available own funds (amounts)					
Common Equity Tier 1 ("CET1") capital	3,885	3,715	3,826	3,329	3,478
Tier 1 capital	4,568	4,410	4,537	4,033	4,212
Total capital	**5,707**	**5,569**	**5,722**	**5,205**	**5,434**
Risk-weighted exposure amounts					
Total risk exposure amount	24,163	24,433	22,336	23,136	14,521
Capital ratios (as a percentage of risk-weighted exposure amount)					
Common Equity Tier 1 Ratio (%)	16.1%	15.2%	17.1%	14.4%	24.0%
Tier 1 Ratio (%)	18.9%	18.0%	20.3%	17.4%	29.0%
Total Capital Ratio (%)	**23.6%**	**22.8%**	**25.6%**	**22.5%**	**37.4%**
Additional own funds requirements to address risks other than the risk of excessive leverage (as a percentage of risk-weighted exposure amount)					
Additional own funds requirements to address risks other than the risk of excessive leverage (%)	2.75%				
of which: to be made up of CET1 capital (percentage points)	1.55%				
of which: to be made up of Tier 1 capital (percentage points)	2.06%				
Total SREP own funds requirements (%)	10.75%				
Combined buffer and overall capital requirement (as a percentage of risk-weighted exposure amount)					
Capital conservation buffer (%)	2.50%				
Conservation buffer due to macro-prudential or systemic risk identified at the level of a Member State (%)	-				
Institution specific countercyclical capital buffer (%)	0.04%				
Systemic risk buffer (%)	-				
Global Systemically Important Institution buffer (%)	-				
Other Systemically Important Institution buffer (%)	-				
Combined buffer requirement (%)	2.54%				
Overall capital requirements (%)	13.29%				
CET1 available after meeting the total SREP own funds requirements (%)	10.03%				
Leverage Ratio					
Total exposure measure	65,339	69,695	66,358	78,772	56,301
Leverage ratio (%)	**7.0%**	**6.3%**	**6.8%**	**5.1%**	**7.5%**
Additional own funds requirements to address the risk of excessive leverage (as a percentage of total exposure measure)					
Additional own funds requirements to address the risk of excessive leverage (%)	-				
of which: to be made up of CET1 capital (percentage points)	-				
Total SREP leverage ratio requirements (%)	3.00%				
Leverage ratio buffer and overall leverage ratio requirement (as a percentage of total exposure measure)					
Leverage ratio buffer requirement (%)	-				
Overall leverage ratio requirement (%)	3.00%				
Liquidity Coverage Ratio					
Total high-quality liquid assets (HQLA) (Weighted value - average)	9,522	9,522	9,056	7,771	
Cash outflows - Total weighted value	12,696	9,812	7,863	6,174	
Cash inflows - Total weighted value	6,574	3,688	1,932	1,338	
Total net cash outflows (adjusted value)	6,475	6,237	5,931	4,836	
Liquidity coverage ratio (%)	**147%**	**153%**	**153%**	**161%**	
Net Stable Funding Ratio					
Total available stable funding	13,670	10,925	10,041		
Total required stable funding	6,587	7,284	7,038		
NSFR ratio (%)	**208%**	**150%**	**143%**		

2. MSEHSE Group quantitative data for 31 December 2021 has been converted from EUR to USD at a rate of 1.1386. The quarterly Liquidity Coverage Ratio ("LCR") balances reflects the average of the last 12-month period, which have been converted from EUR to USD at respective month-end FX rate.
3. MSEHSE Group is required to maintain a minimum ratio of Own Funds to Risk Weighted Assets ("RWAs"). As at 31 December 2021, MSEHSE Group is in compliance with the regulatory capital requirements.

Morgan Stanley Group

The 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.

The MSI Group is a wholly owned sub-group of the Morgan Stanley Group. Whilst the MSI Group is a material sub-group, 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 should consult the public disclosures of 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

MSIP, a London-based broker-dealer subsidiary is also conditionally registered with the SEC as a security-based swap dealer and provisionally registered with the Commodity Future Trading Commission ("CFTC") as a swap dealer. Currently MSIP is complying with home country capital requirements in lieu of SEC and CFTC capital requirements pursuant to applicable substituted compliance rules and interim no-action relief.

Within the MSEHSE Group, Morgan Stanley Europe SE ("MSESE") as a Germany-based broker dealer is also conditionally registered with the SEC as a security-based swap dealer and provisionally registered with the CFTC as a swap dealer. Currently MSESE is complying with home-country capital requirements in lieu of SEC and CFTC capital requirements pursuant to interim no-action relief.

2. Regulatory Frameworks

2.1 Regulatory Overview

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 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 a number of times, most recently through a series of reforms known collectively as Basel III. The Basel Accords are implemented in the UK via the Capital Requirements Directive ("CRD") and the Capital Requirements Regulation ("CRR"), both as amended.

The framework consists of three "Pillars":

- Pillar 1 – Minimum capital requirements: defines rules for the calculation of credit, market, operational and liquidity risk;
- Pillar 2 – Supervisory review process: including a requirement for firms 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 firms.

This document represents the annual public Pillar 3 qualitative and quantitative disclosures required by CRD in relation to the MSI Group, as at 31 December 2021. The remuneration disclosure is published separately and can be found at [https://www.morganstanley.com/about-us-ir/pillar-uk.html.](https://www.morganstanley.com/about-us-ir/pillar-uk.html)

Pillar 3 Disclosure

MSI Group Pillar 3 disclosures are prepared in accordance with the requirements of Part Eight of the CRR. For certain disclosures, these requirements are further detailed through the European Banking Authority ("EBA") Regulatory Technical Standards ("RTS") and Implementing Technical Standards ("ITS") which include a number of common templates. Where applicable, these templates are used within this disclosure.

Both MSIP and MSEHSE Group are considered large subsidiaries of the MSI Group for Pillar 3 disclosures. However, MSEHSE Group, as a non-listed large subsidiary is only required to be disclosed on an annual basis.

MSESE as a large subsidiary of the MSI Group is exempted from the application of Article 6(1) of the CRR, pursuant to Article 7 of the CRR and section 2a para. 2 of the German Banking Act (Kreditwesengesetz – KWG). As a result, for 'large subsidiary' disclosure purposes, the MSEHSE Group is disclosed instead.

2.2 Regulatory Development

Finalising Basel III reforms

Following the United Kingdom's ("UK") withdrawal from the European Union ("EU"), the PRA issued its final rules, effective 1 January 2022, to implement key components of the Basel III reforms that we previously finalised in the EU, effective 28 June 2021. This includes: Fundamental Review of the Trading Book ("FRTB"), Standardised Approach to Counterparty Credit Risk, Net Stable Funding Ratio, revised Leverage Ratio, revised Large Exposure Framework, and revised Pillar 3 disclosure requirements.

Following the impact of the COVID-19 pandemic and its impact on the global banking system, the BCBS has decided to defer the remaining standards of the Basel III reform package by one year to 1 January 2023. The key amendments provide updates to the standardised measures for calculating capital requirements and include an aggregate floor for RWA generated by the internal models, which will be set at 72.5% of total standardised RWA.

The output floor will be phased in over five years. Banks will also need to disclose their RWA based upon the standardised approaches. However, no draft rules have yet been proposed, so the final timing and impact remains uncertain. The same uncertainty on timing exists in the EU, where the European Commission published draft rules in October 2021.

Temporary Transitionary Period

Following the end of the transition period of the UK's withdrawal from the EU on 31 December 2020, Her Majesty's Treasury decided to retain the regulators' Temporary Transitional Power ("TTP") which was introduced through the Financial Services and Markets Act 2000 (Amendment) (EU Exit) Regulations 2019.

The TTP allowed the Bank of England ("BOE"), the PRA and the FCA to phase-in changes to UK regulatory requirements so that firms could adjust to the UK's post-Transition Period regime in an orderly way.

The TTP was effective from 1 January 2021 and expired on March 31, 2022. During this period, from a prudential regulatory rules perspective, requirements as implemented by the EU largely continued to apply in the UK in the same way as prior to 31 December 2020. From April 1, 2022, the Company is compliant with the UK onshored regulatory obligations.

Investment Firm Regulation / Directive

In December 2019, the European Commission published the Investment Firm Regulation (“IFR”) and Investment Firm Directive (“IFD”) that introduced a tailored capital adequacy and liquidity framework for EU investment firms based on their size and type of business activity and made changes to governance and remuneration requirements. Large systemic investment firms remain subject to existing requirements based on the CRR and CRD, whilst the new regime applies to other investment firms.

In the EU, final rules were effective 25 December 2019 with, implementation of the new requirements applicable from 26 June 2021.

Following the end of the transition period of the UK’s withdrawal from the EU, the UK introduced the Investment Firms Prudential Regime (“IFPR”) that is largely consistent with that of the EU’s IFR and IFD.

The MSI Group, as it includes a credit institution as a subsidiary, remains subject to existing requirements based on the CRR and CRD.

3. Risk Management

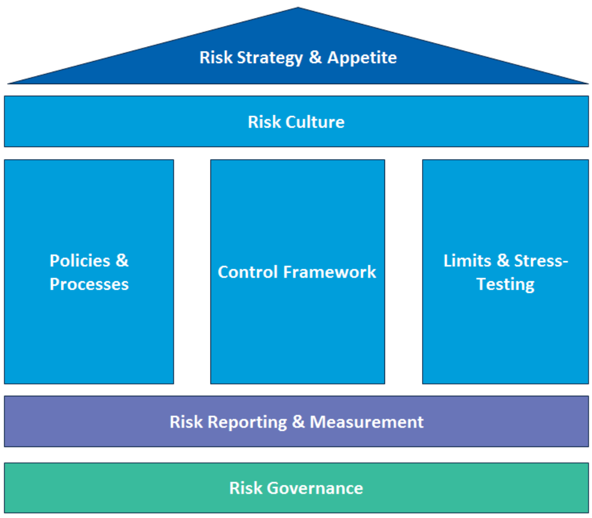
The quantitative disclosures in this document are calculated with reference to regulatory methodologies set out in CRD and are not necessarily the primary exposure measures used by management.

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

Risk Management Framework

Risk of loss is an inevitable consequence of the MSI Group’s businesses activities and effective risk management is vital to the MSI Group’s success. The MSI Group has a Risk Management Framework (“Framework”), which is embedded and operating appropriately. The Framework includes a well-defined, comprehensive risk governance structure with appropriate risk management expertise, including processes for periodically assessing its efficacy. The key elements of the Framework are outlined in Figure 1.

Figure 1: Risk Management Framework



Risk Strategy and Appetite

The MSI Group Risk Appetite Statement articulates the aggregate level and types of risk that the MSI Group is willing to accept in order to execute its business strategy and protect its capital and liquidity resources.

The Risk Appetite Statement includes risks that have both qualitative and quantitative elements such as market, credit, operational and liquidity risk, and risks that are qualitative across risk types including reputational, conduct and model risk, further details for which are set out in this document.

The combination of qualitative risk appetite and tolerance statements and quantitative limits aims to ensure that Morgan Stanley's businesses are carried out in line with the risk appetite approved by the MSI Board, and to protect Morgan Stanley's reputation in both normal and stressed environments.

The MSI Group Risk Appetite is set by the MSI Board in conjunction with MSI Group Business Strategy and in consideration of its capital & liquidity resource adequacy framework.

The cornerstone of the MSI Group's risk appetite is the execution of risk adjusted returns through prudent risk-taking that protects the MSI Group's capital base and franchise. Financial risks, such as market, credit, liquidity, valuation, leverage and earnings are inherent to its business and taken in order to generate appropriate positive risk adjusted returns for its shareholders. Financial risks could arise from changes in the market, and/or macroeconomic environment. Climate change is a driver of existing risks, including credit, operational, market and liquidity risks, and is managed within the Group's existing risk appetite. Non-financial risks, such as Operational, Compliance, Reputational, Conduct and Model Risks arise primarily from the provision of services and business processes. MSI Group does not have any appetite for transactions, business practices, clients or counterparties that could give rise to potentially significant franchise risk and jeopardise the Firm's reputation.

Where appropriate, Risk Appetite Statements are created for the legal entities within the MSI Group. These undergo review alongside the MSI Group Risk Appetite Statement and are approved by the MSI Risk Committee, as appropriate, and the individual entity boards, at least annually. The entity risk appetite statements are aligned to the MSI Group risk appetite statement taking into account the entity's business model and individual regulatory requirements.

The MSI Group Risk Appetite Framework requires a comprehensive approach to monitor, assess and report on the risk profiles of the MSI Group against the set risk limits and tolerances with regular reporting to the Risk Committees and escalation to the Boards, as appropriate. The reporting includes quantitative measurements and qualitative assessments that enable a comparison of the MSI Group's current risk profile against risk limits and risk tolerances where applicable.

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. The MSI Group sets valuation risk appetite to ensure sufficient capital to cover positions subject to valuation uncertainty. Valuation models are subject to annual recertification to reaffirm that the model is operating as intended and to determine whether the existing validation activities are sufficient.

Leverage risk is defined as the risk resulting from an institution's vulnerability due to leverage or contingent leverage that may require unintended corrective measures to its business plan, including distressed selling of assets which might result in losses or in valuation adjustments to its remaining assets. The MSI Group sets the Leverage Risk appetite to minimise the risk of excessive leverage under both normal and stressed conditions.

Earnings at Risk is defined as risks to baseline earnings stability that are generally manifested over a longer time horizon than an instantaneous market shock. Risk can arise from decline in key revenue generators, significant loss of customer base, reduced standing amongst competitors, macroeconomic stress conditions, idiosyncratic or industry-wide factors, significant changes to expected expenses and shifting of business/product mix. Includes risks to Pre-Provision Net Revenue, Net Interest Income, Non-Interest Income, Non-Interest Expense and Balance Sheet that are impacted by more than just Market Risks and Credit Risks.

In relation to Compliance risk, the MSI Group seeks to comply with applicable laws, rules and regulations, including those related to financial crime. The MSI Group has no appetite for transactions, business activities, or conduct by employees, contingents, customers or counterparties that give rise to a significant breach of the MSI Group's compliance obligations.

Conduct risk is defined as the risk of an adverse impact on clients, markets or the Firm's reputation as a consequence of the conduct of the Firm and/or its employees. Conduct risk includes both intentional and unintentional behaviours. The Conduct Risk Framework sets out a consistent and integrated approach for the identification, assessment and management of conduct risks, with oversight and escalation from the EMEA Conduct Risk Committee.

Reputational risk, is also referred to as franchise risk, describes the potential risks associated with the way in which the MSI Group conducts its business and the perception of the MSI Group by external parties including our shareholders, clients, regulators and the public. The MSI Group has policies in place to identify, escalate and report any situation which may pose potential franchise risk, which is overseen by the EMEA Franchise Committee. The MSI Group has no risk appetite for conduct risk or reputational risk. It acknowledges, however, that conduct risk and reputational risk remains inherent in doing business and thus cannot be entirely eliminated.

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 a firm's reputation. Model risk increases with greater model complexity, higher uncertainty about inputs and assumptions, broader use, and larger potential impact (financial, regulatory and reputational). The MSI Group sets its Model Risk appetite to a level of Model Risk that after considering the MSI Group's model governance and control processes does not pose a material risk to the MSI Group's capital adequacy, reputation and regulatory standing.

MSI Group manages the model risk through the embedded and effective Global Model Risk Management ("MRM") framework, which includes policy, procedures and controls. The MRM framework establishes standards for sound risk management of all models, covering roles and responsibilities related to development and independent review (validation) of the models, as well as governance, and oversight from senior management and the MSI Group Risk Committee.

Risk Culture

The MSI Group's risk management culture is rooted in five key principles: integrity, comprehensiveness, independence, accountability, and transparency.

The MSI Group has a risk culture that encourages open dialogue, effective challenge, escalation and appropriate reporting of risk to senior management, the MSI Risk Committee, the MSI Board and the MSI Group's regulators, as well as external disclosures of risk matters. Developing the MSI Group's risk culture is a continuous process and builds upon the Firm's commitment to "doing the right thing" and its values that make managing risk ~~is~~ each employee's responsibility.

The senior management practices of the MSI Group enable individuals to make appropriate risk decisions. The MSI Group's Risk Appetite Statement is embedded in the MSI Group's risk culture and linked to its short-term and long-term strategic, capital and financial plans, as well as compensation programs.

The EMEA Compliance Department maintains an enterprise-wide, independent Compliance risk management programme as detailed in the Global Compliance Policy. The EMEA Compliance Department is responsible for 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 MSI Group; providing management and staff with advice, guidance (including policies and, where appropriate, procedures) and training concerning the laws, regulations and policies associated with their responsibilities; managing a firmwide compliance risk reporting framework; reviewing new products and business initiatives; and supporting and facilitating the framework for managing significant communications with regulators and regulatory relationships maintained by the EMEA 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 EMEA Compliance Department is also responsible for the design and development of an EMEA 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.

Within EMEA Risk Management, each risk type has a procedure which sets out the notification levels and process for breaches to risk limits and thresholds, including any escalation processes.

Risk Policies and Processes

Morgan Stanley has a number of well-established policies and processes which set out the standards that govern the identification, assessment, monitoring, management and mitigation of the various types of risk involved in its business activities. The MSI Group has implemented specific risk management policies to address local business and regulatory requirements where appropriate. These policies are approved by the MSI Board and reviewed annually.

The MSI Group Large Transactions Approval Policy establishes the approval process that employees must adhere to, prior to booking a Large Transaction, and supports EMEA Senior Management oversight of Large Transactions. Large Transactions are defined as transactions that are anticipated to utilise resources in excess of defined thresholds. Thresholds relate to RWAs, leverage exposure, liquidity and funding. The policy also establishes the monitoring process for Large Transaction requests, approvals, policy and/or threshold violations, transaction executions and approval expiries. For each trade, or related trades, that meet defined thresholds, EMEA Senior Management must approve prior to trade execution; they will assess approval based on factors including resource capacity on the entity, return on capital and return on leveraged assets.

Control Framework

The MSI Group operates a control framework consistent with the "Three Lines of Defence" model, with clear delineation of responsibilities between the Business Units and Support Functions (First Line), Independent Risk Management (Second Line) and Internal Audit Department (Third Line).

Business Units are responsible for managing their strategy and business activities in accordance with the MSI Group's risk appetite and its principles. Business Units establish controls to comply with MSI Group's risk policies and procedures, establish monitoring and escalation processes and establish review processes for new business ventures and unique, complex or significant transactions. Support Functions (such as Operations, Technology, Treasury, Legal, etc.) are independent of the Business Units and, in whole or in part, support strategy execution of the MSI Group's revenue-generating activities. These functions are accountable for risks associated with their activities and are responsible for actively assessing and managing these risks.

The EMEA Legal Department reports to the EMEA General Counsel and provides legal and regulatory advice to protect the MSI Group's financial well-being and reputation, and to assist the businesses and operations of the MSI Group to understand legal risk and to comply with relevant financial services-related laws, regulations, firm policies and standards.

Independent Risk Management and Control Functions identify, measure, monitor and control risks. Independent Risk Management and Control Functions include, for example, functions performed by the EMEA Risk Division and EMEA Compliance Department.

The EMEA Head of Risk Management ("EMEA Chief Risk Officer") oversees the EMEA Risk Division and is a member of the MSI Board. The EMEA Risk Division is independent of the business units and support functions and assists senior management, the EMEA Risk Committee ("ERC"), which is chaired by the MSI Chief Executive Officer, and the relevant Boards in their oversight of risk through the control framework.

The EMEA Compliance Department is managed by the EMEA Head of Compliance, who ultimately reports to the Group Chief Legal Officer. The EMEA Compliance Department maintains an enterprise-wide, independent compliance risk management program, under which the EMEA Compliance Department is responsible for promoting a strong culture of compliance.

The EMEA Internal Audit Department are the third line of defence and are an independent source of assurance to the MSI Board on financial, operational, and compliance controls. The EMEA Internal Audit Department reports to the MSI Audit Committee and is independent of the Business Unit, Support Functions and Risk Management. Internal Audit provides independent assurance on the design quality and operating effectiveness of the MSI Group's internal control environment, risk management and governance systems and control processes using a risk-based audit coverage model and audit execution methodology developed in line with professional auditing standards.

During 2021, there were no changes to the EMEA Heads of Risk Management, Compliance, Legal and IAD.

There are no planned material changes to the internal control framework, or the risk management functions.

Limits & Tolerance Framework

The MSI Group's risk appetite is translated into a comprehensive suite of limits and tolerance frameworks across four primary areas: market risk, credit risk, operational risk and liquidity risk. Other risks that are monitored regularly include leverage risk, valuation risk, conduct risk, reputational risk, model risk and earnings at risk. The MSI Group maintains risk limits and tolerances at various levels of the governance structure, including for key MSI Group legal entities as appropriate, to support linkages between the MSI Group's overall risk appetite, which is determined by the MSI Board, and more granular risk-taking decisions and activities. These limits and tolerance frameworks include a cascade of quantitative Risk Limits which are approved and monitored by the Boards, the MSI Risk Committee, the EMEA Risk Committee, and the Independent Risk Management and Control Functions. Risk Limits, once established, are reviewed and updated on an annual basis at a minimum, with more frequent updates as necessary.

MSI Board-level risk limits address the most important aggregate level MSI Group-wide risk - primarily through stress limits. The MSI Group employs integrated risk stress tests that set the boundary for risk-taking activities relative to the MSI Group's Risk Capital Resource Capacity by defining a set of limits. Figure 2 outlines the MSI Group's Risk Limit Framework for specific risk areas.

Figure 2: MSI Group Limit Framework

	MARKET RISK	CREDIT RISK	OPERATIONAL RISK	LIQUIDITY AND FUNDING RISK
RISK METRICS AND LIMITS	• MSI Group-wide macroeconomic scenario loss limits • Legal entity and Division Value at Risk ("VaR") and exposure limits • Granular risk exposure limits are allocated by desk/products	• MSI Group-wide macroeconomic scenario loss limits • MSI Group single name, country and industry credit limits • Climate Risk Industry Limits	• Quantitative tolerances for each top operational risk and against an aggregate risk tolerance level	• MSI Board Liquidity Limits • Portfolio level liquidity and funding mix limits • Granular business area specific limits on liquidity and funding
	• MSI Board-level portfolio Climate Stress Loss Limit			

Stress Testing

Stress testing is one of the MSI Group's principal risk management tools, used to identify and assess the impact of severe stresses on its portfolios. It informs a number of processes and associated decisions. It complements other MSI Group risk metrics by providing a clear and flexible approach to assessing the MSI Group's resilience in the face of various scenarios over a range of severities, relevant to current market conditions and forward looking macroeconomic views. Most notably, stress testing is used for:

- Risk Management: Identifying areas of potential vulnerabilities in the portfolio, measuring portfolio losses and concentrations as a basis for senior management to review portfolio-level risk and determine risk mitigation actions and set exposure limits.
- Capital and Liquidity Planning: Informing the proposed stressed capital and liquidity forecasts through severe but plausible stress tests.
- Strategy Planning: Identifying business model vulnerabilities through reverse stress testing and identifying the potential mitigating actions available as part of recovery planning.

The MSI Group Stress Testing Framework utilises a range of stress testing methodologies to identify and assess the MSI Group's resilience to different scenarios. These include business area and product single and multifactor stress tests, holistic forward looking stress tests supported by a macroeconomic narrative and extreme stress tests designed to test business model failure. Stress tests are performed in line with internal policy and external regulatory requirements with results reported to senior management on a frequent basis.

Risk Reporting and Measurement

The MSI Group has a suite of risk reporting across the main risk types highlighted above. The reporting includes quantitative measurements and qualitative assessments that enable a comparison of the MSI Group's risk profile against risk limits and risk tolerance statements. The reporting identifies matters for escalation and highlights emerging risks. Material risk issues are investigated and escalated where appropriate, as per the specific escalation procedures set down by the MSI Group. Escalation triggers have been articulated, with separate triggers for notification and further escalation including to the MSI Board where relevant. The EMEA Risk Management Division has constituted specific committees which provide senior management review of the risk reporting including stress testing and data quality information.

The risk reporting capabilities are supported by a well-controlled infrastructure, including Front Office risk systems and the MSI Group Risk Management systems.

Various policies and procedures are in place to support the systematic and regular review of risk management strategies inclusive of the risk frameworks covering independent identification, analysis, monitoring, reporting, and escalation of risks across the risk types. Policies are subject to MSI Board annual review and approval.

Risk Governance

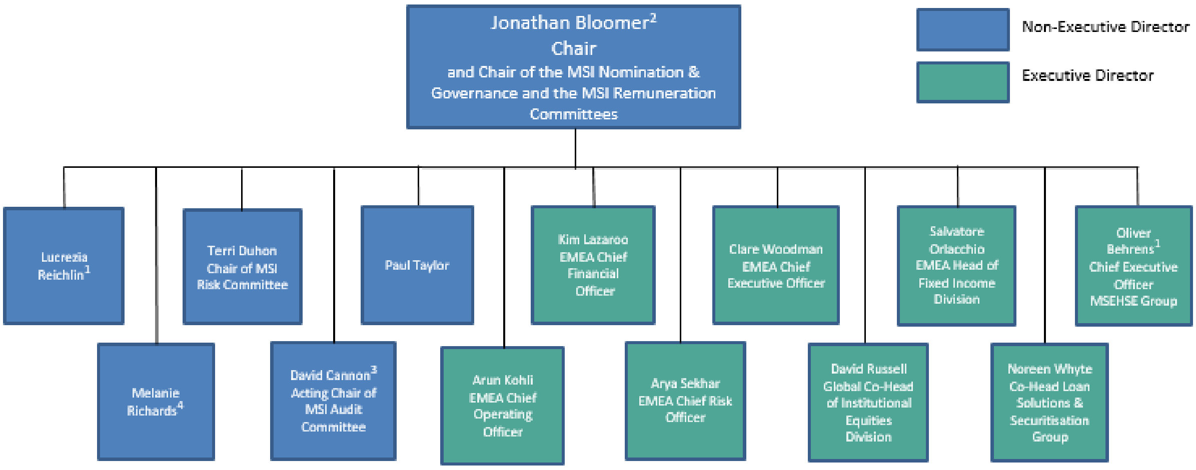
The MSI Group has a comprehensive risk management governance framework which includes Board approved policies and a defined senior management risk oversight and escalation process at various levels of the governance structure, including for key MSI Group legal entities as appropriate.

The MSI Board has overall responsibility for the business and affairs of the MSI Group and is ultimately responsible for MSI Group risk management. The MSI Risk Committee and EMEA Risk Committee assist and provide guidance to the MSI Board on the oversight of MSI Group risk management activities.

The MSI Board (and its committees) determines the strategy for the MSI Group and provides oversight of the key risk and control issues that the execution of the strategy presents or is likely to present. The MSI Board is assisted by the Audit, Risk, Remuneration and Nomination and Governance committees. Each of the committees is comprised solely of non-executive directors. The MSI Board, through the MSI Risk Committee and executive management, is regularly informed of the MSI Group's risk profile and relevant trends impacting its risk profile.

As at 31 December 2021, the MSI Board was comprised of 14 directors (8 executive directors and 6 non-executive directors). Figure 3 provides an overview of the MSI Board of Directors.

Figure 3: MSI Board of Directors as at 31 December 2021

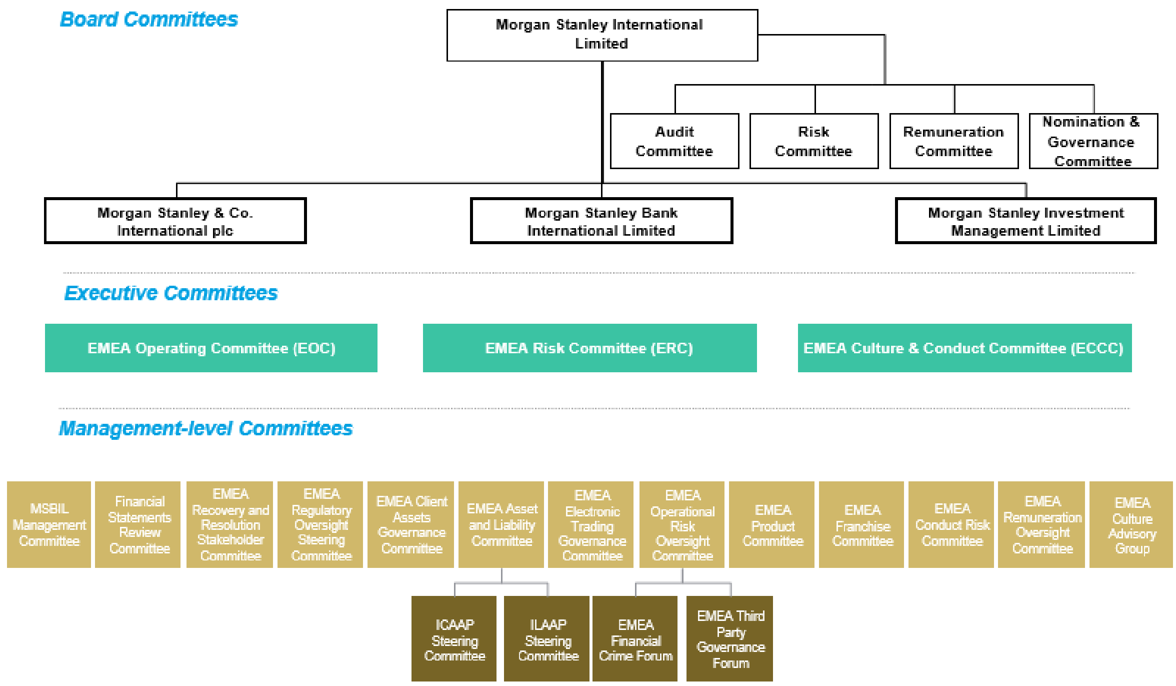


1. Lucrezia Reichlin was appointed as non-executive director and Oliver Behrens as an executive director on 28 January 2021.
2. Mary Phibbs resigned as a non-executive director on 31 March 2021 and was replaced as Chair of the MSI Remuneration Committee by Jonathan Bloomer.
3. Simon Ball resigned as a non-executive director on 30 April 2021 and was replaced as acting Chair of the MSI Audit Committee by David Cannon.
4. Melanie Richards was appointed as a non-executive director on 8 July 2021.

For further details on the MSI Board members including detailed biographies and other directorships refer to Appendix I.

Day to day management of the MSI Group's business is delegated to executive management. The Executive Committees are the most senior MSI Group executive management committees and have responsibility for overseeing business performance, operations and risks identified in relation to the MSI Group. The management level committees support the Executive Committees in their oversight of specific areas of the MSI Group's activities.

Figure 4: MSI Board Committee Structure and EMEA Executive Management Structure



MSI Board Committees

The MSI Risk Committee is appointed by the MSI Board to assist and provide guidance to the MSI Board on its oversight of the management of financial and non-financial risks, including: (i) risk strategy and appetite; (ii) risk identification and management; (iii) risk governance framework and policies; (iv) measurement of risk and risk tolerance levels and limits; (v) risk culture (save for conduct Risk, which is overseen by the MSI Audit Committee); (vi) financial resource management and capital; and (vii) recovery and resolution. The MSI Risk Committee met 13 times in 2021. The MSI Risk Committee reviews detailed risk reports on portfolio risk, market risk, credit risk, operational risk, e-trading risk, liquidity risk, conduct risk, franchise risk and product governance.

The Committee's focus during 2021 included:

- Oversight of material event risks including the ongoing impact of COVID-19;
- The MSI Group risk appetite statement, risk limit framework and top operational risks;
- Operational risks including information security risk;
- Areas of regulatory focus and corresponding risk projects (including CRR II Readiness and the LIBOR Transition Programme);

The MSI Audit Committee is appointed by the MSI Board to assist and provide guidance to the MSI Board in monitoring: (i) financial reporting; (ii) internal controls; (iii) legal and regulatory compliance; (iv) internal audit; and (v) external auditors.

The MSI Remuneration Committee is appointed by the MSI Board to (i) assist the Board in overseeing the implementation of remuneration policies and practices applicable to the MSI Group and (ii) oversee compliance by the MSI Group with applicable EU and UK remuneration rules, statements and guidance.

The MSI Nomination and Governance Committee is appointed by the MSI Board to assist and provide guidance in relation to (i) the recruitment of boards members; (ii) the assessment of the performance of the MSI Board and committees; and (iv) the corporate governance framework of the MSI Group.

EMEA Executive Committees

The EMEA Operating Committee is the principal forum for key decisions regarding matters affecting the operations and performance of the MSI Group in accordance with the strategy approved by the MSI Board. The committee provides oversight of: (i) strategy; (ii) financial and business performance; (iii) risk and control; (iv) operational, legal and regulatory matters; and (v) human resources.

The EMEA Risk Committee ("ERC") assists in the oversight of Morgan Stanley's management of risk (including financial and non-financial risks) within the MSI Group. The committee provides oversight of: (i) risk strategy and appetite; (ii) risk identification and measurement; (iii) risk framework and policies; (iv) risk culture; and (v) financial resource management and capital.

The EMEA Culture & Conduct Committee assists in the oversight of the culture and of conduct risk within the MSI Group. The Committee provides oversight of (i) material inherent or emerging conduct risks; (ii) material conduct incidents and issues; strategic employee matters or initiatives relevant to culture and conduct; and (iv) assists in the embedding of Morgan Stanley's core values and culture within the MSI Group.

Management Level Committees (associated with Risk Governance)

The EMEA Franchise Committee assists in the oversight of potentially significant franchise risks in connection with relevant transactions, activities, or clients, including by reviewing activities, transactions, and clients that pose potentially significant franchise risks.

The EMEA Operational Risk Oversight Committee assists and provides guidance to the ERC in relation to the oversight of the management of operational risk of the MSI Group.

The EMEA Conduct Risk Committee assists the ERC in the oversight and management of conduct risk within the MSI Group.

The EMEA Electronic Trading Governance Committee reviews and challenges controls applicable to the electronic trading business undertaken by the MSI Group and the wider EMEA managed business. Further, the committee monitors the risk appetite and limits set by the ERC which are applicable to electronic trading, provides a forum to oversee the resolution of identified control issues in an appropriate and timely manner.

The EMEA Asset and Liability Committee ("EMEA ALCO") assists the ERC to oversee the capital adequacy, funding and liquidity risk management of the MSI Group.

The EMEA Client Assets Governance Committee provides support for MSI Group's compliance with Client Assets Sourcebook ("CASS") requirements, and acts as the principal body for providing governance of CASS related issues and coordination of the approach to managing client money and client assets.

The EMEA Product Committee assists the ERC in discharging its responsibilities for the oversight of approvals of New Products and the oversight of product governance. In particular, the EMEA Product Committee considers all New Product Approval ("NPA") proposals identified as "heightened risk" proposals.

Adequacy of Risk Management Arrangements

The MSI 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 MSI Board has reviewed the adequacy of these risk management arrangements and systems, including Management's planned enhancements to strengthen these elements, and is satisfied these are appropriate given the strategy and risk profile of the Group.

4. Basis of Preparation and Linkage to Financial Accounts

Basis of Consolidation

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

This disclosure is prepared for the MSI Group, rather than on an individual basis for each regulated entity, as permissible under the CRD. The most significant subsidiaries of the MSI Group are MSIP and the MSEHSE Group, the results of which are material to the MSI Group. This disclosure comprehensively conveys the risk profile of the MSI Group.

Financial Statements

This document does not constitute a set of financial statements and does not represent any form of forward looking statement. Audited (statutory) financial statements are prepared for all subsidiaries where there is a legal requirement to do so. This includes financial statements prepared in accordance with applicable UK company law and UK accounting requirements under Financial Reporting Standard 101 ("FRS 101"). For the MSIP Group financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") as adopted by the UK and the EU; and for the MSEHSE Group IFRS as adopted by the EU with additional disclosure requirements from the German Commercial Code ("HGB").

With effect from 2014, the MSI Group applied the UK Companies Act 2006 exemption from producing statutory group accounts. The exemption applies to a UK parent company where certain conditions are met. Specifically this includes where the UK parent and all of its subsidiaries are included in group accounts of a larger non-European Economic Area ("EEA") group prepared in accordance with accounting standards which are equivalent to EU-adopted IFRS. The MSI Group is consolidated into the accounts of Morgan Stanley, therefore does not publish statutory group accounts.

However, audited, consolidated non-statutory financial information has been produced for the MSI Group, as approved by the MSI Board and MSI Audit Committee, in accordance with the recognition and measurement principles of IFRS issued by the International Accounting Standards Board as adopted by the UK. For further detail, refer to Appendix VII. All tables within the Pillar 3 disclosures for MSI Group which state their source to be financial statements are instead based on the audited, consolidated non-statutory financial information. MSIP financial statements can be found at https://www.morganstanley.com/about-us-ir/subsidiaries. MSEHSE Group financial statements can be found at https://www.bundesanzeiger.de.

Trading Book / Non-Trading Book

In determining its overall capital requirement, the MSI Group classifies its exposures as either "Trading Book" or "Non-Trading Book" (otherwise referred to as Banking Book). 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 MSI 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. Trading Book and Non-Trading Book definitions used in this document refer to the regulatory view and may differ from the accounting definitions.

Policies and Procedures

The MSI 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 management body level. The MSI Group's Pillar 3 disclosures are not required to be, and have not been, audited by the MSI Group's auditor. The MSI Group's Pillar 3 disclosure as at 31 December 2021 is based on its current understanding of CRD, CRR and related legislation.

Balance Sheet Under the Regulatory Scope of Consolidation

Table 2 shows MSI Group's balance sheet as at 31 December 2021 on both an accounting consolidation and regulatory consolidation basis. The carrying values under the scope of regulatory consolidation 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 accounting and regulatory scopes of consolidation and the mapping of financial statement categories with regulatory risk categories (EU LI1)

$MM			Carrying value of items				
MSI Group[1,2]	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation	Credit risk framework	Counterparty credit risk framework	Securitisation framework	Market risk framework	Not subject to capital requirements or subject to deduction from capital
Assets carrying amount	**619,951**	**619,951**	**118,463**	**392,593**	**295**	**484,496**	**11,518**
Cash and short-term deposits	38,363	38,363	27,489	-	-	-	10,874
Trading financial assets	360,182	360,182	-	268,367	295	360,182	-
Secured financing	124,226	124,226	-	124,226	-	123,102	-
Loans and advances	151	151	151	-	-	107	-
Investment securities	166	166	166	-	-	-	-
Trade and other receivables	94,244	94,244	88,548	-	-	1,105	134
Current tax assets	198	198	198	-	-	-	-
Deferred tax assets	395	395	395	-	-	-	-
Other assets	216	216	216	-	-	-	-
Property plant and equipment	1,076	1,076	1,076	-	-	-	-
Intangible assets	734	734	224	-	-	-	510
Liabilities carrying amount	**(591,383)**	**(591,383)**	**(86,054)**	**(406,322)**	**-**	**(477,252)**	**(7,388)**
Bank loans and overdrafts	(165)	(165)	-	-	-	-	(165)
Trading financial liabilities	(325,213)	(325,213)	-	(271,381)	-	(325,194)	-
Secured borrowing	(90,749)	(90,749)	-	(70,915)	-	(90,749)	-
Trade and other payables	(111,531)	(111,531)	(41,026)	(64,026)	-	(898)	(5,617)
Debt and other borrowings	(62,119)	(62,119)	(45,028)	-	-	(60,411)	-
Provisions	(134)	(134)	-	-	-	-	(134)
Current tax liabilities	(208)	(208)	-	-	-	-	(208)
Deferred tax liabilities	-	-	-	-	-	-	-
Accruals and deferred income	(1,177)	(1,177)	-	-	-	-	(1,177)
Post-employment benefit obligations	(87)	(87)	-	-	-	-	(87)

1. MSI Group does not publish financial statements. See Appendix VII for MSI Group non-statutory financial information.
2. 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 MSI 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)

$MM	Items subject to:		
MSI Group	Credit risk framework	Counterparty credit risk framework	Securitisation framework
Assets carrying amount (per LI1)	118,463	392,593	295
Liabilities carrying amount (per LI1)	(86,054)	(406,322)	-
Total net amount under the regulatory scope of consolidation	**32,409**	**(13,729)**	**295**
Off balance sheet amounts[1]	6,517	-	-
Difference due to netting rules[2]	(1,062)	(34,828)	(186)
Regulatory adjustments and credit risk mitigation[3]	7,331	186,354	369
Exposure amounts considered for regulatory purposes	**45,195**	**137,797**	**478**

1. Under the credit risk framework, off balance amounts principally consist of undrawn credit facilities after the use of a conversion factor. Under the counterparty credit risk framework, the off balance sheet items consist of the collateral given against cash received for Securities Financing Transactions ("SFT").
2. Under IFRS, netting is only permitted if legal right of set-off exists and the cash flows are intended to be settled on a net basis. Under the PRA's regulatory rules, however, netting is applied for capital calculations if there is legal certainty and the positions are managed on a net collateralised basis.
3. Differences due to the regulatory adjustments (ie impact of the Internal Models Method ("IMM") models) to transform the Balance Sheet value to an EAD along with differences due to consideration of collateral and haircuts to arrive at the net exposure value.

5. Capital Management

The MSI 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 local regulatory requirements. In line with Morgan Stanley Group capital management policies, the MSI 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 a legal entity level to safeguard that entity's ability to continue as a going concern and ensure that it meets all regulatory capital requirements. The key components of the capital management framework used by the MSI Group are set out in the MSI 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 MSI Group conducts an ICAAP at least annually in order to meet its obligations under Capital Requirements Directive.

The ICAAP is a key tool used to inform the MSI Board and the executive management on risk profile and capital adequacy. The MSI Group's ICAAP:

- Is designed to ensure that the risks to which the MSI Group is exposed are appropriately capitalised and risk managed, including those risks that are either not captured, or not fully captured under Pillar 1;
- Uses stress testing to size a capital buffer aimed at ensuring the MSI Group will continue to operate above regulatory requirements under a range of severe but plausible stress scenarios; and
- Assesses capital adequacy under normal and stressed operating environments over the three year capital planning horizon to ensure the MSI 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 MSI Group's day-to-day management processes and decision making culture.

The PRA reviews the MSI Group ICAAP through its Supervisory Review and Evaluation Process ("SREP") and sets a Total Capital Requirement ("TCR"), comprising Pillar 1 and Pillar 2A, which establishes the minimum level of regulatory capital for the MSI Group and MSIP. As of 31 December 2021, the MSI Group TCR was $17.7Bn, equivalent to 10.7% of RWAs. If required, the PRA also sets a buffer in addition to the Basel Combined Buffers, which is available to support the MSI Group in a stressed market environment.

The principles of the MSI Group's ICAAP are applied, in a manner consistent with local regulatory requirements, at the subsidiary legal entities.

MSEHSE Group ICAAP Approach

MSEHSE Group is a sub-group of MSI Group, covering the main business activities in the EU with its subsidiaries and branches. The MSEHSE Group is required to manage and monitor adequate capital in line with locally adopted policies and frameworks and in compliance with local regulatory requirements. MSEHSE Group is maintaining its capital position by considering and assessing risks, business opportunities and expectations, profitability, and available capital funding options. The MSEHSE Group conducts an ICAAP at least annually in accordance with the CRR, CRD and relevant national rules and the ECB ICAAP Guidelines. The MSEHSE Group ICAAP includes capital adequacy assessment on a point-in-time view and forward-looking basis under normal and stressed operating environments, while considering two complementary perspectives, the Economic Perspective, and the Normative Perspective. The ICAAP is a key information tool for the MSEHSE Group Management Boards to approve capital adequacy targets and limits, establish ongoing monitoring processes and internal thresholds, and review identified risks in line with the business strategy.

The ECB reviews the MSEHSE Group ICAAP annually through its SREP and sets a Pillar 2 Requirement ("P2R"), which applies in addition to the minimum capital requirement of Pillar 1. MSEHSE Group's applicable P2R in 2021 is 2.75% of which 1.55% must be met by Common Equity Tier 1 ("CET1") capital. See further detail on Combined buffer and overall capital requirement in Table 2: Key metrics template (EU KM1).

The Capital Conservation Buffer ("CCB") requires banks to build up a capital buffer that can be utilised to absorb losses during period of stress, whilst remaining compliant with minimum requirements, and must be met with CET1 capital. The CCB was fully phased in on 1 January 2019 at 2.5%.

The Countercyclical Capital Buffer ("CCyB") was introduced to ensure that excessive growth in specific countries is accounted for by increasing minimum capital ratios by between 0% and 2.5% and must be met with CET1 Capital. The CCyB for the MSI Group stood at 0.04% as of 31 December 2021.

Table 4 provides details of the notable CCyB rates as at 31 December 2021, with Appendix IV providing the geographical distribution of credit exposures relevant for the calculation of CCyB.

Table 4: Countercyclical Capital Buffer

	CCyB rate	Effective from	Impact on capital ratio		
			MSI Group	MSIP	MSEHSE Group
Hong Kong	1.00%	12-Oct-20	0.01%	0.01%	-
Luxembourg	0.50%	01-Jan-21	0.03%	0.02%	0.04%
Total			**0.04%**	**0.03%**	**0.04%**

MSI 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 MSI Board to ensure the MSI Group and its subsidiaries have sufficient capital to meet their regulatory requirements at all times.

The capital managed by the MSI Group broadly includes share capital, Additional Tier 1 ("AT1") capital instruments, subordinated debt and reserves. In order to maintain or adjust its capital structure, the MSI 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 MSI and its subsidiaries.

Escalation of War in Ukraine

Following Russia's invasion of Ukraine on 24 February 2022, the European and global financial markets have been and are expected to continue to be significantly impacted in 2022. However, the MSI Group has limited direct exposure to Russia and Ukraine. The MSI Group will continue to closely monitor events and their potential impact.

6. Capital Resources

The capital resources of the MSI Group, MSIP and MSEHSE Group are set out in Table 5. All capital resources included in Tier 1 and Tier 2 capital are of standard form and the main terms and conditions of the capital instruments are disclosed in Appendix II.

Table 5: Own funds

$MM	MSI Group	MSIP	MSEHSE Group
Capital instruments eligible as CET1 capital	2,417	12,977	228
Prior Year Retained earnings	14,110	3,392	(24)
Independently reviewed interim profits net of any foreseeable charge or dividend	1,147	854	-
Accumulated other comprehensive income	(878)	(324)	(25)
Other reserves	7,461	1,403	3,848
Adjustments to CET1 due to prudential filters	(1,232)	(1,090)	(102)
Other intangible assets	(489)	(2)	-
Internal Ratings Based shortfall of credit risk adjustments to expected losses	(278)	(188)	(25)
Defined-benefit pension fund assets	(20)	-	-
Deferred tax assets that rely on future profitability and do not arise from temporary differences net of associated tax liabilities	-	-	(15)
CET1 capital	**22,238**	**17,022**	**3,885**
Additional Tier 1 capital	3,500	3,500	683
Tier 1 capital	**25,738**	**20,522**	**4,568**
Capital instruments and subordinated loans eligible as Tier 2 capital	6,386	5,376	1,139
Instruments issued by subsidiaries that are given recognition in Tier 2 capital	-	-	-
Tier 2 capital	**6,386**	**5,376**	**1,139**
Total own funds	**32,124**	**25,898**	**5,707**

Over the second half of 2021, the MSI Group Own Funds have increased, due to issuance of Tier 2 capital instruments and recognition of interim verified profit.

The MSI Group relies on its policies, procedures and systems to determine the adequacy of valuation for financial assets and compliance with accounting standards. To comply with the requirements of the CRD, additional valuation adjustments are applied to capital over and above those that are taken in order to comply with the accounting requirements. The regulatory adjustments are referred to in the above table as prudential filters.

The capital resources of the MSI Group are based on audited consolidated non-statutory financial information and MSIP's and MSEHSE Group capital resources are based on audited financial statements.

Table 6 provides a reconciliation of audited shareholders' equity to regulatory capital.

Table 6: Reconciliation of balance sheet total equity to regulatory capital

$MM	MSI Group				MSIP				MSEHSE Group			
		CET1 capital	AT1 capital	Tier 2 capital		CET1 capital	AT1 capital	Tier 2 capital		CET1 capital	AT1 capital	Tier 2 capital
Equity instruments	5,878	2,378	3,500	-	15,965	12,465	3,500	-	911	228	683	-
Share premium	38	38	-	-	513	513	-	-	-	-	-	-
Other reserves	7,461	7,461	-	-	1,403	1,403	-	-	3,953	3,953	-	-
Other comprehensive income	(878)	(878)	-	-	(324)	(324)	-	-	(25)	(25)	-	-
Retained earnings	16,069	16,069	-	-	4,773	4,773	-	-	149	149	-	-
Non-controlling interest	0	0	-	-	-	-	-	-	-	-	-	-
Balance sheet total equity	**28,568**	**25,068**	**3,500**	**-**	**22,330**	**18,830**	**3,500**	**-**	**4,988**	**4,305**	**683**	**-**
Add:												
Tier 2 instruments classified as debt and other borrowings	**7,489**	**-**	**-**	**7,489**	**6,400**	**-**	**-**	**6,400**	**1,139**	**-**	**-**	**1,139**
Less:												
Qualifying own funds subordinated debt instruments not included in consolidated Tier 2 capital	-	-	-	-	-	-	-	-	-	-	-	-
Amortised portion of subordinated debt instruments not included in T2 capital	(1,103)	-	-	(1,103)	(1,024)	-	-	(1,024)	-	-	-	-
Part of interim or year-end profit not eligible	(813)	(813)	-	-	(528)	(528)	-	-	(173)	(173)	-	-
Minority interests (amount not allowed in consolidated CET1)	(0)	(0)	-	-	-	-	-	-	-	-	-	-
Additional value adjustments	(1,315)	(1,315)	-	-	(1,247)	(1,247)	-	-	(46)	(46)	-	-
Negative amounts resulting from the calculation of expected loss amounts	(278)	(278)	-	-	(188)	(188)	-	-	(25)	(25)	-	-
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	85	85	-	-	157	157	-	-	(56)	(56)	-	-
Intangible assets (net of related tax liability)	(489)	(489)	-	-	(2)	(2)	-	-	-	-	-	-
Defined-benefit pension fund assets	(20)	(20)	-	-	-	-	-	-	-	-	-	-
Deferred tax assets that rely on future profitability and do not arise from temporary differences net of associated tax liabilities	-	-	-	-	-	-	-	-	(15)	(15)	-	-
Unaudited Reserve not eligible									(105)	(105)		
Total own funds (transitional rules and fully loaded position)	**32,124**	**22,238**	**3,500**	**6,386**	**25,898**	**17,022**	**3,500**	**5,376**	**5,707**	**3,885**	**683**	**1,139**

7. Total Loss-Absorbing Capacity

The MSI and MSEHSE Groups are subject to internal TLAC requirements under the CRR. These requirements are designed to enhance the resilience of the financial system by ensuring firms have sufficient capital and eligible liabilities to absorb losses and recapitalise in resolution. As at 31 December 2021, the minimum capacity requirements were set at 16% of risk weighted assets and 6% of leverage exposure, scaled at 90% for both groups as material subsidiaries, on a consolidated basis, of a non-UK/non-EU Global Systemically Important Institution ("G-SII"). The MSEHSE Group will be subject to an internal MREL requirement 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 MSI Group TLAC key metrics are provided in Table 7.

Table 7: TLAC Key Metrics

$MM MSI Group[1]	Q4'21	Q3'21	Q2'21	Q1'21	Q4'20
Total loss absorbing capacity ("TLAC") available	**40,127**	**40,432**	**39,553**	**38,780**	**36,288**
Total RWA at the level of the resolution group	**164,374**	**170,087**	**168,003**	**181,191**	**167,445**
TLAC as a percentage of RWA (row 1/row2) (%)	24.4%	23.8%	23.5%	21.4%	21.7%
Leverage ratio exposure measure at the level of the resolution group	534,827	547,423	535,605	537,184	493,282
TLAC at a percentage of leverage ratio exposures measure (row1/row4) (%)	7.5%	7.4%	7.4%	7.2%	7.4%

1. As at 31 December 2021, the MSI Group is in compliance with the TLAC requirements.

Table 8a provides details of the composition of the MSI Group's TLAC.

Table 8a: TLAC composition – MSI Group

$MM MSI Group	Q4'21
Common Equity Tier 1 Capital (CET1)	22,238
Additional Tier 1 Capital (AT1) before TLAC adjustments	3,500
AT1 ineligible as TLAC as issued out of subsidiaries to third parties	-
Other adjustments	-
AT1 instruments eligible under the TLAC framework	3,500
Tier 2 Capital (T2) before TLAC adjustments	6,386
Amortised portion of T2 instruments where remaining maturity >1 year	1,103
T2 Capital ineligible as TLAC as issued out of subsidiaries to third parties	-
Other adjustments	-
T2 instruments eligible under the TLAC framework	7,489
TLAC arising from regulatory capital	**33,227**
TLAC instruments subordinated to excluded liabilities	6,900
TLAC arising from non-regulatory capital instruments before adjustments	**6,900**
TLAC before deductions	**40,127**
Deduction of investments in own other TLAC liabilities	-
Other adjustments to TLAC	-
TLAC after deductions	**40,127**
Total risk-weighted assets adjusted as permitted under the TLAC regime	164,374
Leverage exposure measure	534,827
TLAC (as a percentage of risk-weighted assets adjusted as permitted under the TLAC regime)	24.4%
TLAC (as a percentage of leverage exposure)	7.5%
CET1 capital (as a percentage of RWA) available after meeting the resolution group's MCR and TLAC requirement	6.8%
Institution-specific buffer requirement	**2.54%**
Of which: capital conservation buffer requirement	2.50%
Of which: bank specific countercyclical buffer requirement	0.04%

Table 8b provides details of the composition of the MSEHSE Group's iTLAC.

Table 8b: TLAC composition (EU iTLAC)– MSEHSE Group

$MM MSEHSE Group[1]	Non-EU G-SII requirement for own funds and eligible liabilities (internal TLAC)
Common Equity Tier 1 capital (CET1)	3,885
Eligible Additional Tier 1 instruments	-
Eligible Tier 2 instruments	-
Eligible own funds	**3,885**
Eligible liabilities	1,708
Own funds and eligible liabilities items after adjustments	**5,593**
Total risk exposure amount and total exposure measure	
Total risk exposure amount	24,163
Total exposure measure	65,339
Ratio of own funds and eligible liabilities	
Own funds and eligible liabilities (as a percentage of TREA)	23.15%
Own funds and eligible liabilities (as a percentage of leverage exposure)	8.56%
CET1 (as a percentage of TREA) available after meeting the entity's requirements	8.54%
Institution-specific combined buffer requirement	2.54%
Requirements	
Requirement expressed as a percentage of the total risk exposure amount	14.40%
Internal TLAC expressed as percentage of the total exposure measure	5.40%
Memorandum items	
Total amount of excluded liabilities referred to in Article 72a(2) CRR	56,072

1. As at 31 December 2021, the MSEHSE Group is in compliance with the iTLAC requirements

Table 9a provides a breakdown of eligible instruments in the creditor hierarchy of the MSI Group.

Table 9a: TLAC creditor ranking – MSI Group

$MM MSI Group	Creditor ranking 1	2	3	4	
	(most junior)			(most senior)	Total
Description of creditor ranking	Ordinary Shares[1]	AT1 instruments	Subordinated loans	Senior Subordinated loans	
Total capital and liabilities	**2,378**	**3,500**	**7,489**	**6,900**	**20,267**
Excluded liabilities [2]	-	-	-	-	-
Total capital and liabilities less excluded liabilities	2,378	3,500	7,489	6,900	20,267
Eligible as TLAC	2,378	3,500	7,489	6,900	20,267
with 1 year ≤ residual maturity < 2 years	-	-	-	6,900	6,900
with 2 years ≤ residual maturity < 5 years	-	-	5,389	-	5,389
with 5 years ≤ residual maturity < 10 years	-	-	2,100	-	2,100
with residual maturity ≥ 10 years	-	-	-	-	-
perpetual securities	2,378	3,500	-	-	5,878

1. Ordinary Shares excludes the value of share premium and reserves.
2. As at 31 December 2021 MSI Group has no excluded liabilities as defined in CRR II Article 72a (2).

Table 9b provides a breakdown of eligible instruments in the creditor hierarchy of the MSEHSE Group.

Table 9b: Creditor ranking - Entity that is not a resolution entity (EU TLAC2b) – MSEHSE Group

$MM MSEHSE Group	Insolvency ranking 1	2	3	4	
	(most junior)			(most senior)	Total
Description of insolvency ranking	Ordinary Shares	AT1 instruments	Subordinated loans	Senior Subordinated loans	
Own funds and eligible liabilities for the purpose of internal TLAC	228	-	-	1,708	1,936
of which residual maturity ≥ 1 year < 2 years	-	-	-	1,708	1,708
of which residual maturity ≥ 2 year < 5 years	-	-	-	-	-
of which residual maturity ≥ 5 years < 10 years	-	-	-	-	-
of which residual maturity ≥ 10 years, but excluding perpetual securities	-	-	-	-	-
of which perpetual securities	228	-	-	-	228

8. Leverage

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 MSI Group and MSIP leverage ratios as at 31 December 2021 exceed the proposed minimum requirement of 3.25% that will apply once new legislation comes into effect, expected to be from 1 January 2023. MSEHSE Group leverage ratio is also in excess of its 3% minimum requirement. MSI Group manages its risk of excessive leverage through the application of business unit leverage exposure limits and leverage ratio early warning trigger levels. Limits are calibrated in line with legal entity capacity and ensure that leverage exposure remains within the MSI Board's risk appetite. Leverage exposures for MSI Group as well as MSIP and MSEHSE Group are regularly calculated and reported to EMEA ALCO who monitor this, as well as maturity mismatches and asset encumbrance metrics, to ensure that any excessive risk is highlighted, assessed and mitigated appropriately.

The leverage ratios of MSI Group and MSIP remain materially unchanged from 30 September 2021 to 31 December 2021, the decrease in Tier 1 capital is offset by a decrease in exposure. Leverage ratio of MSEHSE Group has increased by 0.7%, due to a decrease in exposure and an increase in Tier 1 Capital.

Where applicable the disclosures in the tables below have been made in accordance with the EU Delegated Act ("DA") and are disclosed on a fully phased in basis. Tables 10a and 10b provide a reconciliation between total assets in the financial statements and the leverage exposure measure for MSI Group, MSIP and MSEHSE as at 31 December 2021.

Table 10a: Reconciliation of accounting assets and leverage ratio exposures – MSI Group and MSIP

$MM	MSI Group	MSIP
Total assets as per published financial statements[1]	619,951	566,659
Adjustments for derivative financial instruments	(105,593)	(87,826)
Adjustments for securities financing transactions	17,192	17,224
Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	5,378	2,189
(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (7) of Regulation (EU) No 575/2013)	-	(578)
Other adjustments	(2,101)	(1,437)
Total leverage ratio exposure	**534,827**	**496,231**

1. MSI Group does not publish financial statements. See Appendix VII for MSI Group non-statutory financial information.

Table 10b: Reconciliation of accounting assets and leverage ratio exposures (EU LR1) – MSEHSE Group

$MM	MSEHSE Group
Total assets as per published financial statements	79,031
Adjustment for entities which are consolidated for accounting purposes but are outside the scope of prudential consolidation	-
(Adjustment for securitised exposures that meet the operational requirements for the recognition of risk transference)	-
(Adjustment for temporary exemption of exposures to central banks (if applicable))	-
(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)	-
Adjustment for regular-way purchases and sales of financial assets subject to trade date accounting	-
Adjustment for eligible cash pooling transactions	-
Adjustment for derivative financial instruments	(6,288)
Adjustment for securities financing transactions (SFTs)	273
Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	3,807
(Adjustment for prudent valuation adjustments and specific and general provisions which have reduced Tier 1 capital)	(86)
(Adjustment for exposures excluded from the total exposure measure in accordance with point (c) of Article 429a(1) CRR)	-
(Adjustment for exposures excluded from the total exposure measure in accordance with point (j) of Article 429a(1) CRR)	-
Other adjustments	(11,398)
Total exposure measure	**65,339**

Tables 11a and 11b provide a detailed breakdown of the components of the leverage ratio exposure for MSI Group, MSIP and MSEHSE Group as at 31 December 2021.

Table 11a: Leverage ratio common disclosure – MSI Group and MSIP

$MM	MSI Group	MSIP
On-balance sheet exposures (excluding derivatives and SFTs)		
On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	237,232	208,396
(Asset amounts deducted in determining Tier 1 capital)	(2,102)	(1,438)
Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)	**235,130**	**206,958**
Derivative exposures		
Replacement cost associated with *all* derivatives transactions (ie net of eligible cash variation margin)	32,067	24,245
Add-on amounts for PFE associated with *all* derivatives transactions (mark-to-market method)	176,138	158,796
Gross-up for derivatives collateral provided where deducted from the balance sheet pursuant to the applicable accounting framework	6,377	7,388
(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(45,070)	(35,801)
(Exempted CCP leg of client-cleared trade exposures)	(15,674)	(8,186)
Adjusted effective notional amount of written credit derivatives	311,210	299,455
(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(302,274)	(291,278)
Total derivative exposures	**162,774**	**154,619**
Securities financing transaction exposures		
Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	169,708	171,173
(Netted amounts of cash payables and cash receivables of gross SFT assets)	(47,099)	(47,099)
Counterparty credit risk exposure for SFT assets	8,936	8,969
Total securities financing transaction exposures	**131,545**	**133,043**
Other off-balance sheet exposures		
Off-balance sheet exposures at gross notional amount	13,133	6,821
(Adjustments for conversion to credit equivalent amounts)	(7,755)	(4,632)
Total other off-balance sheet exposures	**5,378**	**2,189**
Exempted exposures in accordance with CRR Article 429 (7) and (14) (on and off-balance sheet)		
(Intragroup exposures (solo basis) exempted in accordance with Article 429(7) and (14) of Regulation (EU) No 575/2013 (on and off-balance sheet))	-	(578)
Capital and total exposure measure		
Tier 1 capital	**25,738**	**20,522**
Total leverage ratio exposures	**534,827**	**496,231**
Leverage ratio	**4.8%**	**4.1%**
Choice on transitional arrangements for the definition of the capital measure	**Fully phased in**	**Fully phased in**

Table 11b: Leverage ratio common disclosure (EU LR2) – MSEHSE Group

$MM	MSEHSE Group Q4'21	MSEHSE Group Q4'20
On-balance sheet exposures (excluding derivatives and SFTs)		
On-balance sheet items (excluding derivatives, SFTs, but including collateral)	29,773	26,104
Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	2,210	
(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(12,605)	
(Adjustment for securities received under securities financing transactions that are recognised as an asset)	-	
(General credit risk adjustments to on-balance sheet items)	-	
(Asset amounts deducted in determining Tier 1 capital)	(86)	(24)
Total on-balance sheet exposures (excluding derivatives and SFTs)	**19,292**	**26,080**
Derivative exposures[1]		
Replacement cost associated with SA-CCR derivatives transactions (ie net of eligible cash variation margin)	9,950	
Add-on amounts for potential future exposure associated with SA-CCR derivatives transactions	24,221	
(Exempted CCP leg of client-cleared trade exposures) (SA-CCR)	(5,842)	
Adjusted effective notional amount of written credit derivatives	23,919	
(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(23,016)	
Total derivatives exposures	**29,232**	**13,587**
Securities financing transaction (SFT) exposures		
Gross SFT assets (with no recognition of netting), after adjustment for sales accounting transactions	13,127	15,081
(Netted amounts of cash payables and cash receivables of gross SFT assets)	-	-
Counterparty credit risk exposure for SFT assets	273	240
Derogation for SFTs: Counterparty credit risk exposure in accordance with Articles 429e(5) and 222 CRR	-	-
Agent transaction exposures	-	-
(Exempted CCP leg of client-cleared SFT exposure)	-	-
Total securities financing transaction exposures	**13,400**	**15,321**
Other off-balance sheet exposures		
Off-balance sheet exposures at gross notional amount	6,704	2,757
(Adjustments for conversion to credit equivalent amounts)	(3,289)	(1,444)
(General provisions deducted in determining Tier 1 capital and specific provisions associated with off-balance sheet exposures)	-	-
Off-balance sheet exposures	**3,415**	**1,313**
Excluded exposures[2]		
(Total exempted exposures)	**-**	**-**
Capital and total exposure measure		
Tier 1 capital	**4,568**	**4,212**
Total exposure measure	**65,339**	**56,301**
Leverage ratio		
Leverage ratio (%)	6.99%	7.48%
Leverage ratio (without the adjustment due to excluded exposures of public development banks - Public sector investments) (%)	6.99%	
Leverage ratio (excluding the impact of any applicable temporary exemption of central bank reserves) (%)	6.99%	
Regulatory minimum leverage ratio requirement (%)	3.0%	
Additional own funds requirements to address the risk of excessive leverage (%)	0.0%	
of which: to be made up of CET1 capital	0.0%	
Leverage ratio buffer requirement (%)	0.0%	
Overall leverage ratio requirement (%)	3.0%	
Choice on transitional arrangements and relevant exposures		
Choice on transitional arrangements for the definition of the capital measure	Fully Phased-in	Fully Phased-in
Disclosure of mean values		
Mean of daily values of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivable	15,383	
Quarter-end value of gross SFT assets, after adjustment for sale accounting transactions and netted of amounts of associated cash payables and cash receivables	13,127	
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)	67,595	
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)	67,595	
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)	6.76%	
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)	6.76%	

1. MSEHSE does not calculate derivative exposures using the simplified standardised approach or Original Exposure Method.
2. There are no applicable exposures to be disclosed as excluded from the MSEHSE leverage exposure measure.

Tables 12a and 12b provide a breakdown of the on-balance sheet exposures into trading and non-trading (banking book) exposures for MSI Group, MSIP and MSEHSE Group as at 31 December 2021.

Table 12a: Split of on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures) – MSI Group and MSIP

$MM	MSI Group	MSIP
Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	**237,232**	**208,396**
Trading Book exposures	189,694	176,324
Non-Trading Book exposures, of which:	47,538	32,072
Regional governments, MDB, international organisations and PSE not treated as sovereigns	20,949	11,634
Exposures treated as sovereigns	11	11
Institutions	20,674	17,179
Corporate	2,771	2,095
Exposures in default	192	58
Other exposures (e.g., equity, securitisations, and other non-credit obligation assets)	2,941	1,095

Table 12b: Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures) (EU LR3) – MSEHSE Group

$MM	MSEHSE Group
Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	**19,378**
Trading Book exposures	6,938
Banking book exposures, of which:	12,440
Covered bonds	-
Exposures treated as sovereigns	9,237
Exposures to Regional governments, MDB, international organisations and PSE **not** treated as sovereigns	-
Institutions	2,841
Secured by mortgages of immovable properties	-
Retail exposures	-
Corporates	256
Exposures in default	0
Other exposures (e.g., equity, securitisations, and other non-credit obligation assets)	106

9. Capital Requirements and RWAs

RWAs 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 capital requirements are derived from RWAs, determined using approved internal modelling approaches – the Foundation Internal Ratings Based approach ("IRB") for credit risk and the Internal Model Method ("IMM") for counterparty risk – as well as the Standardised Approach ("SA") and Mark-to-Market Method ("MTMM") for exposures not covered by internal models.

Credit Valuation Adjustment ("CVA") is the capital requirement that covers the risk of mark-to-market losses on the counterparty risk of Over-the-Counter ("OTC") derivatives. It is calculated using a combination of advanced internal modelling and standardised approaches.

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

Securitisations exposures are a transaction or scheme, whereby the credit risk associated with an exposure or pool of exposures is tranched, having the following characteristics. Payments in the transaction or scheme are dependent upon the performance of the exposure or pool of exposures. Also, 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, rates, indices, implied volatilities (the price volatility of the underlying instrument imputed from option prices), correlations or other market factors, such as market liquidity, will result in losses for a position or portfolio. The Market Risk capital requirements comprise of capital associated with the Internal Modelling Approaches ("IMA") approved by the PRA and those associated with the Standardised Approach.

Large exposures refer to the capital requirement that covers the 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").

Amounts below the thresholds for deduction correspond to items not deducted from Own Funds, as they are below the applicable thresholds for deduction, in accordance with the CRR.

The MSI 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.

RWA Overview

Table 13a summarises RWAs and minimum capital requirements ("MCR") for MSI Group and MSIP by risk type. MSI Group and MSIP calculate Pillar 1 capital requirements as 8% of RWAs in accordance with CRD.

Table 13a: Overview of RWAs (EU OV1) – MSI Group and MSIP

	MSI Group			MSIP		
$MM	RWAs Q4'21	RWAs Q3'21	MCR Q4'21	RWAs Q4'21	RWAs Q3'21	MCR Q4'21
Credit risk (excluding CCR)	**14,224**	**15,833**	**1,138**	**8,856**	**9,695**	**708**
Of which standardised approach	3,678	4,128	294	1,831	2,503	146
Of which Foundation IRB (FIRB) approach	6,788	7,948	543	3,468	3,714	277
Of which: equities under the simple risk weighted approach	3,758	3,757	301	3,557	3,478	285
Of which Advanced IRB (AIRB) approach	-	-	-	-	-	-
Counterparty credit risk - CCR	**66,365**	**69,787**	**5,309**	**58,705**	**62,053**	**4,696**
Of which mark-to-market	9,671	11,400	774	8,839	10,499	707
Of which original exposure	-	-	-	-	-	-
Of which standardised approach	267	440	21	253	316	20
Of which internal model method (IMM)	29,328	32,777	2,346	24,876	28,737	1,990
Of which Financial collateral comprehensive method (for SFTs)	6,197	5,718	496	6,361	5,790	509
Of which risk exposure amount for contributions to the default fund of a CCP	422	521	34	266	337	21
Of which CVA	20,480	18,931	1,638	18,110	16,374	1,449
Settlement risk	**339**	**405**	**27**	**482**	**438**	**39**
Securitisation exposures in banking book (after cap)[1]	**2,162**	**1,832**	**173**	**2,162**	**1,832**	**173**
Of which IRB	-	-	-	-	-	-
Of which IRB supervisory formula approach (SFA)[1]	-	-	-	-	-	-
Of which internal assessment approach (IAA)	-	-	-	-	-	-
Of which standardised approach	-	-	-	-	-	-
Market risk	**62,327**	**66,199**	**4,986**	**49,412**	**53,470**	**3,953**
Of which standardised approach	12,409	13,575	993	6,580	7,544	526
Of which IMA	49,918	52,624	3,993	42,832	45,926	3,427
Large exposures	**3,619**	**2,326**	**290**	**6,209**	**4,578**	**497**
Operational risk	**14,352**	**12,760**	**1,148**	**10,067**	**9,083**	**806**
Of which basic indicator approach	14,352	12,760	1,148	10,067	9,083	806
Of which standardised approach	-	-	-	-	-	-
Of which advanced measurement approach	-	-	-	-	-	-
Amounts below the thresholds for deduction (subject to 250% risk weight)	**986**	**945**	**79**	**855**	**878**	**68**
Floor adjustment	-	-	-	-	-	-
Total	**164,374**	**170,087**	**13,150**	**136,748**	**142,027**	**10,940**

1. As of 1 Jan 2020, these positions were subject to the hierarchy of methods laid down in the revised securitisation framework.

Over the fourth quarter, overall RWAs decreased, primarily driven by Market Risk due to IMA on IRC, RNIV and decrease in Counterparty Credit Risk due to portfolio movements within OTC derivatives.

Tables 13b summarises RWAs and Total Own Funds Requirements ("TOFR") for MSEHSE Group by risk type. MSEHSE Group calculate Pillar 1 capital requirements as 8% of RWAs in accordance with CRD.

Table 13b: Overview of RWAs (EU OV1) – MSEHSE Group

	MSEHSE Group		
$MM	RWAs Q4'21	RWAs Q1'21	TOFR Q4'21
Credit risk (excluding CCR)	**3,715**	**3,157**	**297**
Of which the standardised approach	517	201	41
Of which the Foundation IRB (F-IRB) approach	3,045	2,893	244
Of which slotting approach	-	-	-
Of which equities under the simple risk weighted approach	153	63	12
Of which the Advanced IRB (A-IRB) approach	-	-	-
Counterparty credit risk – CCR	**12,193**	**11,306**	**975**
Of which the standardised approach	1,677	2,107	134
Of which internal model method (IMM)	5,296	4,948	424
Of which exposures to a CCP	369	82	30
Of which credit valuation adjustment – CVA	4,055	3,447	323
Of which other CCR	796	722	64
Settlement risk	**383**	**156**	**31**
Securitisation exposures in the non-trading book (after the cap)	-	-	-
Of which SEC-IRBA approach	-	-	-
Of which SEC-ERBA (including IAA)	-	-	-
Of which SEC-SA approach	-	-	-
Of which 1250% / deduction	-	-	-
Position, foreign exchange and commodities risks (Market risk)	**7,152**	**7,749**	**572**
Of which the standardised approach	48	39	4
Of which IMA	7,104	7,710	568
Large exposures	**-**	**-**	**-**
Operational risk	**720**	**664**	**58**
Of which basic indicator approach	720	664	58
Of which standardised approach	-	-	-
Of which advanced measurement approach	-	-	-
Amounts below the thresholds for deduction (subject to 250% risk weight)[1]	132	104	11
Total	**24,163**	**23,136**	**1,933**

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

10. Credit Risk

10.1 Credit and Counterparty Credit Risk Management

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

The MSI Group Credit Risk Management department is an independent risk oversight group headed by the Head of Credit who reports directly to the EMEA Chief Risk Officer. The MSI Group Credit Risk Management Department ("CRMD") is responsible for managing and overseeing the credit risk profile of the MSI 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. In order to help protect the MSI 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 ensure that the creditworthiness of the MSI 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 MSI 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 MSI Group Credit Limits Framework ("CLF") is one of the primary tools used to monitor, manage, and control credit risk exposures. The MSI Board approves limits that reflect the credit risk tolerance of the MSI 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 MSI Group credit limit restricts 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, and the Loss-Given Default ("LGD") and tenor profile of the specific credit exposure taking into account the effect of enforceable netting and eligible collateral.

Credit Evaluation

The MSI 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 Counterparty Credit Risk 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 MSI Group holds until maturity with no intention to trade. Counterparty credit exposure arises from the risk that counterparties are unable to meet their payment obligations under contracts for traded products including OTC derivatives and securities financing transactions. The distinction between Credit Risk and Counterparty Credit Risk exposures is due to the bilateral nature of the risk for Counterparty Credit Risk exposures, see Section 11 Counterparty Credit Risk.

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

For exposures not covered by the IRB approach, the standardised approach is applied, typically for certain business units which are non-significant and certain exposure classes or types of exposures which are immaterial in terms of size and perceived risk profile.

The standardised approach assigns fixed risk weights to the following exposures 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 exposures to European Central Governments denominated in local currency which are risk-weighted at 0%.

Table 14 shows Credit Risk and Counterparty Credit Risk for MSI Group, MSIP and MSEHSE Group as at 31 December 2021.

Table 14: Credit and counterparty credit risk RWA summary

$MM	MSI Group			MSIP			MSEHSE Group		
	RWAs Q4'21	RWAs Q2'21	MCR Q4'21	RWAs Q4'21	RWAs Q2'21	MCR Q4'21	RWAs Q4'21	RWAs Q4'20	TOFR Q4'21
Credit risk	14,224	14,339	1,138	8,856	9,521	708	3,715	1,823	297
Of which FIRB	6,788	6,759	543	3,468	3,856	277	3,045	1,639	244
Counterparty credit risk (excluding CVA)	45,885	51,258	3,671	40,595	47,186	3,247	8,138	5,366	652
Of which IMM	29,328	29,251	2,346	24,876	25,692	1,990	5,296	3,541	424
Securitisation[1]	2,162	1,665	173	2,162	1,665	173	-	-	-
Amounts below the thresholds for deduction	986	908	79	855	853	68	132	118	11
Total (excluding CVA)	**63,257**	**68,170**	**5,061**	**52,468**	**59,225**	**4,196**	**11,853**	**7,307**	**949**
CVA	20,480	17,353	1,638	18,110	15,351	1,449	4,055	1,034	323
Total	**83,737**	**85,523**	**6,699**	**70,578**	**74,576**	**5,645**	**15,908**	**8,341**	**1,272**

1. As of 1 Jan 2020, these positions were subject to the hierarchy of methods laid down in the revised securitisation framework.

Table 15 shows the Credit Risk and Counterparty Credit Risk for MSI Group, MSIP and MSEHSE Group as at 31 December 2021, for each exposure class as per the classification set out in the CRR.

Table 15: Credit and counterparty credit risk EAD and RWA summary

$MM	MSI Group			MSIP			MSEHSE Group		
	EAD[2]	RWAs	MCR	EAD[2]	RWAs	MCR	EAD[2]	RWAs	TOFR
IRB[1]									
Central governments or central banks	27,803	2,184	175	16,790	972	78	10,110	431	34
Corporates	57,359	32,159	2,572	44,072	25,561	2,045	14,638	7,382	591
Equity	1,243	3,758	301	1,304	3,882	311	53	153	12
Institutions	58,755	15,825	1,266	59,059	15,661	1,253	9,113	2,795	224
Total (IRB)	**145,160**	**53,926**	**4,314**	**121,225**	**46,076**	**3,687**	**33,914**	**10,761**	**861**
Standardised[1]									
Central governments or central banks	768	1,193	95	641	748	60	101	152	12
Corporates	2,031	2,177	174	1,473	1,681	134	200	219	18
High Risk	-	-	-	-	-	-	-	-	-
Institutions	32,041	1,823	146	28,046	1,468	117	3,261	256	21
Multilateral development banks	6	-	-	6	-	-	-	-	-
International organisations	1	-	-	1	-	-	-	-	-
Public sector entities	-	-	-	-	-	-	2	1	-
Exposures in default	1	2	-	1	1	-	-	-	-
Regional government or local authorities	5	3	-	5	3	-	-	-	-
Other items	1,549	1,549	125	63	63	4	122	122	10
Total (standardised)	**36,402**	**6,747**	**540**	**30,236**	**3,964**	**315**	**3,686**	**750**	**61**
Total (CCP default fund)[3]	**1,430**	**422**	**34**	**708**	**266**	**21**	**547**	**342**	**27**
Securitisation	**478**	**2,162**	**173**	**478**	**2,162**	**173**	**-**	**-**	**-**
Total[4]	**183,470**	**63,257**	**5,061**	**152,647**	**52,468**	**4,196**	**38,147**	**11,853**	**949**

1. Exposure classes which have no exposure are not shown in the table.
2. EAD figures are post Credit Risk Mitigation ("CRM") and post Credit Conversion Factor ("CCF")
3. CCP Default Fund requirements have been included in the table to reflect the full population of Credit and CCR. CCP Default Fund exposures are shown in Table CCR8.
4. Exposures calculated under the FIRB approach account for 80% and the Standardised Approach account for 20%.

Credit Risk RWA flow statements

Table 16 summarises the movements of RWAs for MSI Group, MSIP and MSEHSE Group's credit risk exposures under the IRB approach.

Table 16: RWA flow statements of credit risk exposures under the IRB approach (EU CR8)

$MM	MSI Group		MSIP		MSEHSE Group
	RWAs	MCR	RWAs	MCR	RWAs
RWAs at the end of the previous reporting period[1]	**7,948**	**636**	**3,714**	**297**	**2,893**
Asset size	(1,161)	(93)	(284)	(23)	462
Asset quality	1	-	38	3	(226)
Model updates	-	-	-	-	-
Methodology and policy	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-
Foreign exchange movements	-	-	-	-	(84)
Other	-	-	-	-	-
RWAs at the end of the reporting period	**6,788**	**543**	**3,468**	**277**	**3,045**

1. Previous reporting period was Q3'21.

Over the fourth quarter the decrease in RWAs was mainly driven by loans and cash.

External Credit Risk Assessments

External credit risk assessments are used within the MSI Group as part of the determination of risk weightings for exposure classes. MSI 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 17: 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 MSI Group has permission to use the FIRB approach for the calculation of credit and counterparty credit risk capital requirements. The permission covers all material portfolios and is applicable to exposures to Central Governments, Central Banks, Institutions and Corporates.

The MSI Group leverages the FIRB process for internal risk management processes. Internal ratings are used in the sizing of credit limits and also 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 MSI 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.

MSI 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. MSI Group has two key models for this exposure category.

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. MSI Group has one key model for this exposure category.

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. MSI Group has six key models for this exposure type.

Ratings for Special Purpose Vehicles ("SPV") reflect Credit Risk Management's assessment of the risk that the SPV will default. The rating therefore incorporates the MSI Group relative position in the counterparty's payment structure as well as the default risk associated with the underlying assets. Ratings are often "tranche specific" (e.g., the AAA rated senior tranche or the BBB subordinated tranche).

Rating Philosophy and PD Estimation

The MSI Group internal rating process and philosophy are similar to S&P's. For credit risk capital and risk management purposes, Credit Risk Management maps internal ratings to S&P ratings and then applies S&P's extensive default history to determine the PD. 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 MSI Group follows the PRA regulatory guidance and takes different approaches to estimate PDs for its low default portfolio ("LDP") and its non-LDP.

The MSI Group calculates PD for the non-LDP based on the long-run average of S&P's annual corporate default rates from 1981-2014. 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 MSI 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 100%.

The MSI 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 MSI Group uses supervisory-prescribed factors to calculate LGDs and conversion factors.

Table 18 summarises the IRB Geographical Breakdown of Exposure Weighted Average PD for the MSI Group.

Table 18: IRB geographical breakdown of exposure weighted average PD

MSI Group[1,2]	Americas	EMEA	Asia	Other
Central governments or central banks	0.11%	0.06%	0.09%	0.01%
Corporates	0.66%	1.39%	0.44%	0.85%
Institutions	0.06%	0.42%	0.11%	0.00%

1. The table does not include the IRB Equities and IRB Securitisation exposure classes, as these exposures are treated through the IRB simple risk weight approach (CRR Article 155.2), and the IRB ratings-based method (CRR Article 261) respectively.
2. Supranational exposures have been allocated to the region of the headquarters of the institution.

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. Model governance committees are in place to provide appropriate technical and business review and oversight. IAD serves as the third line of defence with regards to 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 MSI 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. A Specialised Lending Slotting methodology is used in capital calculation for loans secured by Income Producing Real Estate.

Tables 19a and 19b show the MSI Group, MSIP and MSEHSE Group's equity exposures using the simple risk-weighted approach and, where appropriate, specialised lending.

Table 19a: IRB (Specialised Lending and Equities) (EU CR10) – MSI Group and MSIP

	Equities under the simple risk-weight approach					
	On-balance sheet amount	Off-balance sheet amount	Risk weight	Exposure amount	RWAs	Capital requirements
MSI Group[1]	$MM	$MM	%	$MM	$MM	$MM
Private equity exposures	-	-	190%	-	-	-
Exchange-traded equity exposures	245	806	290%	1,051	3,048	244
Other equity exposures	192	-	370%	192	710	57
Total	**437**	**806**	**-**	**1,243**	**3,758**	**301**
MSIP[1]						
Private equity exposures	-	-	190%	-	-	-
Exchange-traded equity exposures	244	739	290%	983	2,851	229
Other equity exposures	191	-	370%	191	706	56
Total	**435**	**739**	**-**	**1,174**	**3,557**	**285**

1. MSI Group and MSIP have no specialised lending.

Over the second half of 2021 there have been no material movements.

Table 19b: IRB (Specialised lending and equity exposures under the simple risk weighted approach) (EU CR10.5) – MSEHSE Group

	Equity exposures under the simple risk-weighted approach					
	On-balance sheet exposure	Off-balance sheet exposure	Risk weight	Exposure value	Risk weighted exposure amount	Expected loss amount
MSEHSE Group[1]	$MM	$MM	%	$MM	$MM	$MM
Private equity exposures	-	-	190%	-	-	-
Exchange-traded equity exposures	-	52	290%	53	152	-
Other equity exposures	-	-	370%	-	1	-
Total	**-**	**52**	**-**	**53**	**153**	**-**

1. MSEHSE Group has no specialised lending.

Table 20 shows realised and unrealised gains and losses for equity exposures falling outside of the Trading Book for the MSI Group.

Table 20: Non-trading book equity gains and losses

MSI Group	**$MM**
Cumulative amount of realised gains or (losses) resulting from sales and liquidations in the period	(91)
Total unrealised gains or (losses)	(153)
Total latent revaluation gains or (losses)	-
Amount of unrealised gains or (losses) or latent revaluation gains or losses included in Tier 1 capital	-

Estimates Versus Actual Probability of Default and Losses

An analysis of estimated versus actual default rates by exposure class for the MSI Group is shown in Table 21. The estimated PDs are expressed as the simple average PD calculated on the number of obligors covered in each exposure class. These estimated PDs are a prediction, as at the end of prior year, of the 1-year forward looking default rate on a through-the-cycle basis and are compared with the actual (realised) defaults in the current year. The comparatively low percentage of actual defaults reflects the benign credit environment and the conservativeness of internal estimates.

Table 21: Estimated versus actual PD by exposure class

MSI Group[1]	Estimate at 2019	Actual at 2020	Estimate at 2020	Actual at 2021
Central governments or central banks	0.28%	0.00%	0.34%	0.00%
Corporates	2.04%	0.13%	2.35%	0.09%
Institutions	1.05%	0.00%	2.17%	0.17%
Corporates – specialised lending	0.42%	0.00%	-	-

1. The averaging approach for estimated PDs facilitates a meaningful comparison with actual defaults. The weighted average PDs by exposure class, are more reflective of the portfolio quality.

An analysis of credit risk adjustments and expected loss by IRB exposure class for the MSI Group is shown in Table 22 including additional information on charges to the profit and loss for loss events that occurred during the respective periods. The credit risk adjustments balances reflect impaired legacy loans entered into pre-2008 that were affected by the economic downturn and have not recovered. Charges to the profit and loss reflect continued write-downs of these positions.

Table 22: IRB credit risk adjustments, expected loss and charge to the profit and loss

$MM MSI Group	Specific risk adjustments 2021	Expected loss[1] 2021	Charge to the profit and loss[2] 2021	Specific risk adjustments 2020	Expected loss[1] 2020	Charge to the profit and loss[2] 2020
Central governments or central banks	-	13	-	-	5	-
Corporates	2	262	-	4	312	(1)
Institutions	6	51	1	5	37	2
Equity	-	13	-	-	10	-
Total	**8**	**339**	**1**	**9**	**364**	**1**

1. Expected Losses mainly arise from exposures on MSIP.
2. Charge to the Profit and Loss represents loss events that occurred during the period and does not include the effect of other movements in the Credit Risk Adjustments balance due to: currency translation; changes in estimates of losses arising on events which occurred in the preceding period.

The MSI Group does not establish credit reserves for traded products. Incurred credit valuation adjustments and debit valuation adjustments are taken through profit and loss.

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 MSI 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.

Table 23: Impaired and past due exposures, credit risk adjustments by industry type

$MM MSI Group	Past due	Impaired exposures	Specific credit risk adjustments	General credit risk adjustments	Charges for specific and general credit risk adjustments[1]
Sovereigns	14	2	-	-	-
Banks and securities firms	1,975	41	(6)	-	1
General industrials	-	-	-	-	-
Other corporates	168	2	(2)	-	(1)
Real estate	-	-	-	-	-
Total	**2,157**	**45**	**(8)**	**-**	**-**
MSIP	-	-	-	-	-
Sovereigns	13	2	-	-	-
Banks and securities firms	1,525	35	(4)	-	-
General industrials	-	-	-	-	-
Other corporates	139	1	(2)	-	-
Real estate	-	-	-	-	-
Total	**1,677**	**38**	**(6)**	**-**	**-**

1. Charges for Specific and General Credit Risk Adjustments represents the movement in the Credit Risk Adjustments balance for the year and may include: loss events that occurred during the period and changes in estimates of losses arising on events which occurred in the preceding period.

Table 24: Impaired and past due exposures, credit risk adjustments by geographic region

$MM MSI Group	America	EMEA	Asia	Other	Total
Impaired	19	24	1	-	44
Past due exposures	178	1,866	113	-	2,157
General credit risk adjustments	-	-	-	-	-
Specific credit risk adjustments	(4)	(5)	-	-	(9)
Total	**193**	**1,885**	**114**	**-**	**2,192**
MSIP					
Impaired	24	13	1	-	38
Past due exposures	173	1,390	113	-	1,676
General credit risk adjustments	-	-	-	-	-
Specific credit risk adjustments	(4)	(2)	-	-	(6)
Total	**193**	**1,401**	**114**	**-**	**1,708**

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 instrument asset is considered ‘impaired’ when an Expected Credit Loss (“ECL”) is recognised and presented as a ECL allowance (loss allowance).

- If, at the reporting date, the credit risk of the financial asset has not increased Significantly Since initial Recognition (“SICR”) 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, weighted by the probability of that default occurring. 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 in Stage 3 of the framework.

In assessing the impairment of financial instruments under the ECL model, the MSI 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 takes into account 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 MSI 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 MSI Group seeks to mitigate risk through management of key risk elements such as size, tenor, financial covenants, seniority and collateral. The MSI Group actively hedges its lending anxd derivatives exposure through various financial instruments that may include single-name and structured credit derivatives. Additionally, the MSI 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 MSI Group generally enters into master netting and collateral arrangements with counterparties. These agreements provide the MSI 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.

Netting

The MSI 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 counterparty, a qualifying master netting agreement must be in place between Morgan Stanley and the counterparty. The agreement must be valid and legally enforceable. Upon an event of default, including in 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 MSI 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 MSI Group depends on an assessment of the creditworthiness of the counterparty, and any relevant regulation. Collateral held is managed in accordance with the MSI Group's guidelines and the relevant underlying agreements.

The MSI 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 MSI 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, repo and prime brokerage, subject to haircuts based on assessments of collateral volatility and liquidity.

CRMD utilizes an established infrastructure to manage, maintain and value collateral on a daily basis. 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.

In the warehouse lending business loans secured on real estate can be used as eligible financial collateral. Commercial Real Estate loans can be secured by physical collateral including commercial property or land. Credit Risk Management review and analyse the value of the collateral posted by the obligor. Third party appraisals are updated periodically or as may be required in the context of asset specific conditions or market developments. These updated appraisals are reviewed and evaluated by Credit Risk Management. The MSI Group's collateral management policies include arrangements for maintaining the integrity of the margining process, including the capture of collateral terms and haircuts and the underlying legal rights, interest and ownership of collateral transferred. The policies also include arrangements for safeguarding collateral, rehypothecation, collateral concentrations and dispute resolution. Collateral concentration in OTC derivatives is assessed through considering concentration relative to the liquidity of the underlying assets.

Guarantees

A guarantee may reduce the MSI'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 of 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.)

MSI Group maintains policies and procedures which set out the process for determining the eligibility of the guarantee. Only 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 MSI Group also use 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 (ie the participant does not become lender of record on the agent's books and records).

11. Counterparty Credit Risk

11.1 Counterparty Credit exposures

The MSI Group leverages models under IMM and MTM method for calculation of Counterparty Credit Risk Exposures. The majority of OTC derivatives within the MSI 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 realizations 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. The MTMM is MTM plus add-on and is used for credit exposure and capital purposes.

Following CCR II went live in the EU in June 2021 Standardised Approach for Counterparty Credit Risk ("SA-CCR") is used to calculate non-IMM derivatives exposure and capital for MSEHSE Group. Under the SA-CCR, the EAD is given by the sum of two components, the replacement cost and the potential future exposure, multiplied by a supervisory multiplier, alpha (1.4).

Table 25 shows a comprehensive view of the methods used to calculate CCR regulatory requirements and the main parameters used within each method for the MSI Group as at 31 December 2021.

Table 25: Analysis of the CCR exposure by approach (EU CCR1)

$MM MSI Group	Notional	Replacement cost/current market value	Potential future exposure	Effective expected positive exposure	Multiplier[1]	EAD post CRM	RWAs
Mark-to-market		6,444	32,766			28,915	9,106
Original exposure	-					-	-
Standardised approach		2,401			-	448	267
IMM (for derivatives and SFTs)				47,351	1.4	65,442	29,328
Of which securities financing transactions				6,775	1.4	9,359	1,810
Of which derivatives & long settlement transactions				40,576	1.4	56,083	27,518
Of which from contractual cross product netting				-	-	-	-
Financial collateral simple method (for SFTs)						-	-
Financial collateral comprehensive method (for SFTs)						17,251	6,104
Value at Risk ("VaR") for SFTs						-	-
Total							**44,805**

1. Alpha factor is currently set to 1.4 for, with an exception of Wrong Way Risk exposures where an alpha factor of 1 is applied.

Over the second half of 2021, decrease in SFTs primarily due to expansion of PRA Internal Model permission.

Table 26 summarises movements of RWAs for MSI Group, MSIP and MSEHSE Group's CCR exposures under IMM.

Table 26: RWA flow statements of CCR exposures under IMM (EU CCR7)

$MM	MSI Group		MSIP		MSEHSE Group
	RWAs	MCR	RWAs	MCR	RWAs
RWAs at the end of the previous reporting period[1]	**32,777**	**2,622**	**28,737**	**2,299**	**4,948**
Asset size	(2,275)	(182)	(2,847)	(228)	905
Credit quality of counterparties	(1,174)	(94)	(1,014)	(81)	(414)
Model updates (IMM only)	-	-	-	-	-
Methodology and policy (IMM only)	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-
Foreign exchange movements	-	-	-	-	(143)
Other	-	-	-	-	-
RWAs at the end of the reporting period	**29,328**	**2,346**	**24,876**	**1,990**	**5,296**

1. Previous reporting period for MSI Group and MSIP was Q3'21 and for MSEHSE Group was Q1'21.

The RWA decrease is mainly due to portfolio movements within OTC derivatives.

11.2 Credit Valuation Adjustment

CVA is the capital requirement that covers the risk of mark-to-market losses on the counterparty risk of OTC derivatives. It is calculated using a combination of an advanced approach based on using internal modelling approaches and a standardised approach. Table 27 shows CVA by approach for the MSI Group as at 31 December 2021.

Table 27: CVA capital charge (EU CCR2)

$MM MSI Group	Exposure value	RWAs
Total portfolios subject to the advanced method	36,591	14,502
(i) VaR component (including the 3× multiplier)		1,513
(ii) Stressed VaR component (including the 3× multiplier)		12,989
All portfolios subject to the standardised method	24,795	5,978
Based on the original exposure method	-	-
Total subject to the CVA capital charge	**61,386**	**20,480**

Over the second half of 2021, Increase in CVA RWA primarily due to market movements.

11.3 Derivatives and SFTs credit exposure

Table 28 shows the impact of netting and collateral held on exposures on derivative and SFTs held as at 31 December 2021 for the MSI Group.

Table 28: Impact of netting and collateral held on exposure values (EU CCR5-A)

$MM MSI Group	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure
Derivatives[1]	371,905	311,637	60,267	42,157	18,110
SFTs[2]	630,217	-	630,217	530,962	99,255
Total	**1,002,122**	**311,637**	**690,484**	**573,119**	**117,365**

1. Increase in Collateral held are predominately driven by OTC and Listed derivatives.
2. SFTs carrying amount reflects netting benefit. MSI Group does not engage in any cross product netting.

Over the second half of 2021, increase in the collateral held for Derivatives.

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 29 shows the breakdown of all types of collateral posted or received by banks to support or reduce CCR exposures related to derivative transactions or to SFTs, including transactions cleared through a Central Counterparty ("CCP") as at 31 December 2021 for the MSI Group.

Table 29: Composition of collateral for exposures to CCR (EU CCR5-B)

$MM	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of collateral posted		Fair value of collateral received	Fair value of collateral posted
MSI Group	Segregated	Unsegregated	Segregated	Unsegregated		
Cash – domestic currency	16	4,737	-	8,028	52,302	42,932
Cash – other currencies	5,644	82,103	-	51,508	344,194	390,551
Corporate bonds	1,822	2,796	2,049	737	11,034	9,430
Equity securities	3,625	3,285	1,210	-	157,648	100,175
Government agency debt	3,422	2,651	-	333	44,102	12,759
Domestic Sovereign debt	408	4,333	4,154	1,665	-	-
Other Sovereign debt	4,109	5,060	3,983	1,707	131,940	110,962
Total	**19,046**	**104,965**	**11,396**	**63,978**	**741,220**	**666,809**

Over the second half of 2021, collateral used in Derivative transactions has increased, primarily due to increase in segregated cash and segregated sovereign debt. SFT collateral received has decreased primarily in Sovereign debt.

11.4 Exposures to CCPs

Table 30 shows the breakdown of the exposures by qualifying and non-qualifying CCPs as at 31 December 2021 for the MSI Group.

Table 30: Exposures to CCPs (EU CCR8)

$MM MSI Group	EAD post CRM	RWAs
Exposures to Qualifying CCPs ("QCCP") (total)		**1,307**
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	22,787	526
(i) OTC derivatives	7,922	158
(ii) Exchange-traded derivatives	10,203	275
(iii) SFTs	4,662	93
(iv) Netting sets where cross-product netting has been approved	-	-
Segregated initial margin	-	
Non-segregated initial margin	16,856	358
Prefunded default fund contributions	1,326	362
Alternative calculation of own funds requirements for exposures		61
Exposures to non-QCCPs (total)		**58**
Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions); of which	292	58
(i) OTC derivatives	-	-
(ii) Exchange-traded derivatives	292	58
(iii) SFTs	-	-
(iv) Netting sets where cross-product netting has been approved	-	-
Segregated initial margin	-	
Non-segregated initial margin	-	-
Pre-funded default fund contributions	-	-
Unfunded default fund contributions	-	-

Over the second half of 2021 there has been an increase in OTC derivatives exposure and associated non-segregated initial margin with certain QCCPs.

Credit Derivative Transactions

Table 31 shows the extent of an institution's exposures to credit derivative transactions broken down between derivatives bought or sold for the MSI Group.

Table 31: Credit derivatives exposures (EU CCR6)

$MM	Credit derivative hedges		
MSI Group[1]	Protection bought	Protection sold	Other credit derivatives
Notionals			
Credit Derivative Products used for own credit portfolio			
Single-name credit default swaps	-	-	438
Index credit default swaps	-	-	-
Total return swaps	-	-	2,601
Credit options	-	-	-
Other credit derivatives	-	-	391
Total Notionals used for own credit portfolio	-	-	**3,430**
Credit Derivative Products used for intermediation			
Single-name credit default swaps	-	-	282,359
Index credit default swaps	-	-	237,229
Total return swaps	-	-	21,479
Credit options	-	-	191,254
Other credit derivatives	-	-	30,243
Total Notionals used for intermediation	-	-	**762,564**
Total credit derivative notionals	-	-	**765,994**
Fair values			
Positive fair value (asset)	-	-	10,706
Negative fair value (liability)	-	-	(9,696)

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

Over the second half of 2021, Credit Derivative products used for intermediation increased primarily on Credit options and Single Name CDS.

11.5 Collateral Impact of a Downgrade

In connection with certain OTC trading agreements and certain other agreements where the MSI Group is a liquidity provider to certain financing vehicles, the MSI 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 MSI 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 at 31 December 2021, 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 scenarios, from the lowest of Moody's or S&P ratings, based on the relevant contractual downgrade triggers, were $41 million and an incremental $97 million, respectively.

11.6 Wrong Way Risk

Specific wrong way risk arises when a transaction is structured in such a way that the exposure to the counterparty 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 MSI Group considers these matters 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 MSI Group also acts as market maker for, and refinancer of securitised products in EMEA. The majority of the securitisation exposures result from this activity and are Trading Book as at 31 December 2021.

The MSI Group's strategy has been to use securitisations for customer facilitation. The MSI Group has engaged in securitisation activities related to commercial and residential mortgage loans, corporate bonds and loans, and other types of financial instruments. Derivative exposures to securitisations are generally interest rate swaps and usually with senior payment priority.

The MSI Group participated as a book runner or lead manager in a number of new securitisations during 2021, primarily refinancing activity. The MSI Group did not originate or sponsor any new securitisations in 2021.

12.2 Regulatory Capital Treatment

The MSI 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. MS does not apply the Securitisation IRB Approach ("SEC-IRBA"). The MSI Group uses ratings from three ECAIs: Moody's, S&P's and Fitch across all types of exposures.

12.3 Securitisation Exposures

Table 32 shows the securitisation exposures and MCR within the MSI Group as at 31 December 2021.

Table 32: Securitisation exposures summary

$MM MSI Group[1]	Trading book	Non-trading book
Exposures	718	478
MCR	252	173

1. Securitisation exposures decreased by $(217)MM and capital requirements decreased by $(59) MM, compared to YE 2020. The decrease in capital requirements was primarily driven by decreased exposure in Trading Book activity.

Table 33 and 34 provide a summary of the types of securitisation exposures within the MSI Group as at 31 December 2021.

Table 33: Trading book securitisation exposures by exposure type

$MM MSI Group[1]	Traditional	Of which: Originator	Of which: Investor
Residential mortgages	410	-	410
Commercial mortgages	65	-	65
Credit card receivables	-	-	-
Loans to corporates or SMEs[2]	181	-	181
Consumer loans	62	-	62
Other assets	-	-	-
Total	**718**	**-**	**718**

1. There were no off-balance sheet or synthetic exposures in the Trading Book as of 31 December 2021.
2. This table includes $12MM STS ("simple, transparent and standardised") exposure attributable to Consumer loans.

Table 34: Non-trading book securitisation exposures by exposure type

$MM MSI Group[1]	Traditional	Of which: Originator	Of which: Investor
Residential mortgages	218	12	206
Commercial mortgages	-	-	-
Loans to corporates or SMEs	163	15	148
Consumer Loans	85	-	85
Other assets	12	-	12
Total	**478**	**27**	**451**

1. There were no off-balance sheet or synthetic securitisation exposures in the Non-Trading Book as of 31 December 2021.

Table 35 shows the securitisation positions broken down by SEC-SA capital approach and risk weight band within the MSI Group as at 31 December 2021.

Table 35: Securitisation exposures and capital requirements by standardised approach (SEC-SA)

$MM MSI Group	Trading book exposure	Non-trading book exposure	Trading book MCR	Non-trading book MCR
Investor securitisations by risk weight				
>10% <=20%	62	-	1	-
>20%<=50%	2	-	0	-
Total	**64**	**-**	**1**	**-**

Table 36 shows the securitisation positions broken down by SEC-ERBA capital approach and risk weight band within the MSI Group as at 31 December 2021.

Table 36: Securitisation exposures and capital requirements by external ratings approach (SEC-ERBA)

$MM MSI Group[1]	Trading book exposure	Non-trading book exposure	Trading book MCR	Non-trading book MCR
Investor securitisations by risk weight				
<=10%	4	-	0	-
>10% <=20%	7	-	0	-
>20% <=50%	12	158	0	5
>50% <= 100%	21	30	1	2
>100% <=650%	160	102	30	52
>650% <1250%	123	-	73	-
1250%	0	16	0	16
Originator securitisations by risk weight				
<=10%	-	-	-	-
>10% <=20%	-	-	-	-
>20% <=50%	-	-	-	-
>50% <= 100%	-	18	-	1
>100% <=650%	-	9	-	1
>650% <1250%	-	-	-	-
1250%	-	-	-	-
Total	**327**	**333**	**104**	**77**

1. Includes $12MM trading book STS exposures ($3MM capital)

Table 37 shows the securitisation positions broken down by Default 1250% (Risk Weight) capital approach within the MSI Group as at 31 December 2021.

Table 37: Securitisation exposures and capital requirements by default approach (1250% Risk Weight)

$MM MSI Group	Trading book exposure	Non-trading book exposure	Trading book MCR	Non-trading book MCR
Investor securitisations	**319**	**133**	**139**	**84**
Originator securitisations	-	-	-	-
Investor re-securitisations	8	12	8	12
Originator re-securitisations	-	-	-	-
Total	**327**	**145**	**147**	**96**

12.4 Accounting

In the event that the MSI Group acts as the originator of a securitisation, transfers of financial assets in the transaction are generally accounted for as sales when the MSI 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.

For further information on the MSI Group's financial instruments and de-recognition accounting policies, please refer to notes 2(c) and 2(e) in Appendix VI.

12.5 Valuation

The MSI 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. For further information on the MSI Group's valuation techniques related to securitisation, please refer to note 2(d) in Appendix VI.

12.6 Risk Monitoring

The credit risk of the MSI Group's securitisations is controlled by actively monitoring and managing the associated credit exposures. The MSI 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.

The MSI Group follows a set of rigorous procedures for risk managing market risk on securitised products, evolving them with changes in market conditions:

- The MSI Group conducts an assessment of risk limits at least once a year, and more often if required. Market conditions, collateral quality, liquidity and downside risk are important factors for setting market risk limits.
- The MSI Group measures downside risk using various metrics, such as VaR and scenarios analysis, differentiating products based on collateral, seniority and liquidity.

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 (the price volatility of the underlying instrument imputed from option prices), correlations or other market factors, such as market liquidity, will result in losses for a position or portfolio.

The MSI 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 MSI Group is responsible for ensuring that market risk exposures are well-managed and monitored. The MSI 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 EMEA Head of Market Risk, who reports directly to both the EMEA Chief Risk Officer and the Global Head of Market Risk.

To execute these responsibilities, MRD monitors the market risk against limits on aggregate risk exposures and performs a variety of risk analyses. This includes monitoring 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.

An Internal Modelling Approach ("IMA") permission has been granted by the PRA to the MSIP and MSEHSE Group entities for use in the MSI consolidation. 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 Model Oversight Committee ("MOC"). 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 MSI Group are consistent with those of the Morgan Stanley Group and include escalation to the MSI Group's Board of Directors and appropriate management personnel.

Risk Mitigation Policies

The MSI 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 MSI Group manages and monitors its market risk exposures, including outright and basis risks, in such a way as to maintain a portfolio that the MSI Group believes is well-diversified in the aggregate with respect to market risk factors, and that reflects the MSI Group's aggregate risk tolerance as established by the MSI 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. Large moves 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 ("KPIs") for market risk metrics are reported to the senior management risk committees.

13.1 Value at Risk

The MSI 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 MSI 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 taking into account both systematic and specific risk components of the market factor moves. 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 MSI Group are included in VaR. The MSI 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.

Table 38 provides an analysis of the 99% Regulatory VaR over the year to 31 December 2021 for MSIP and MSEHSE Group.

Table 38: Daily average, maximum and minimum values for the 99% regulatory VaR

	MSIP				MSEHSE Group			
$MM	Period End VaR[1]	Average[2]	High[2]	Low[2]	Period End VaR[1]	Average[2]	High[2]	Low[2]
Total	39	47	117	31	3	5	11	3
Of which:								
Interest rate	22	29	70	16	2	3	11	1
Credit spread	13	21	48	13	1	2	6	1
Equity	26	32	64	22	0	0	2	0
Foreign exchange	7	9	34	3	1	2	3	1
Commodity	1	0	1	0	0	0	0	0
Diversification[3]	(30)	-	-	-	(1)	-	-	-

1. This is the 1 Day 99% VaR for the year ending 31 December 2021
2. Average / High / Low end-of-day 99% Regulatory VaR calculated over the one-year period to 31 December 2021, based on end-of day positions for all trading days during the one-year period.
3. The extent of diversification benefit depends on the correlation between the assets and risk factors in the portfolio at a point in time.

The MSI 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 MSI 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 analyses and extensive risk monitoring, analysis, quantification of risk not captured in VaR, and control at the trading desk, division and the MSI Group levels.

The MSI 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 more accurately estimate risks to 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 MSI Group's future revenues or financial performance or of its ability to manage risk. There can be no assurance that the MSI 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 firms because of differences in the firms' portfolios, modelling assumptions and methodologies. These differences can result in materially different VaR estimates across firms 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 a firm's risk profile rather than as an absolute measure of risk to be compared across firms.

13.2 Market Risk Capital Requirements

The market risk capital requirements of the MSI Group comprises of capital which is calculated using IMA in accordance with regulatory approved models, and of capital which is calculated under the Standardised Approach. Table 39 summarises the capital requirements under the respective approaches for the MSI Group, MSIP and MSEHSE Group. Ongoing assessment to ensure that the capital calculations meet the required soundness standard is carried out on a quarterly basis with the results reported to the PRA.

Table 39: Market risk RWA summary

	MSI Group			MSIP			MSEHSE Group		
$MM	RWAs Q4'21	RWAs Q2'21	MCR Q4'21	RWAs Q4'21	RWAs Q2'21	MCR Q4'21	RWAs Q4'21	RWAs Q4'20	TOFR Q4'21
Standardised approach	12,409	12,938	993	6,580	6,432	526	49	19	4
Internal models approach	49,918	48,383	3,993	42,832	41,577	3,427	7,085	5,370	567
Total	**62,327**	**61,321**	**4,986**	**49,412**	**48,009**	**3,953**	**7,134**	**5,389**	**571**

Standardised Approach

Table 40 shows the market risk capital requirements for the MSI Group as at 31 December 2021, calculated in accordance with the standardised approach and categorised by component type.

Table 40: Market risk under the standardised approach (EU MR1)

$MM

MSI Group	RWAs	MCR
Outright products		
Interest rate risk (general and specific)	2,232	179
Equity risk (general and specific)	2	0
Foreign exchange risk	5,127	411
Commodity risk	642	51
Securitisation (specific risk)	3,155	252
Options		
Simplified approach	-	-
Delta-plus method	1,251	100
Scenario approach	-	-
Total	**12,409**	**993**

Over the second half of 2021, capital requirements under the Standardised Approach decreased in Q4, driven by Foreign Exchange Risk primarily due to reduced EUR exposure.

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 as prescribed by the PRA, and the 10-day VaR/ 10-day SVaR for the relevant day. The Incremental Risk Charge ("IRC") and Comprehensive Risk Measure ("CRMe") charges are determined by the higher of the average of the latest 12 weeks IRC/CRMe and the IRC/CRMe charge for the relevant day.

Table 41 shows the VaR and SVaR, as well as the IRC and CRMe measures for the MSI Group, for the year ending 31 December 2021. The VaR and SVaR capital measures presented in Table 42 were based on the 60 day averages, as they were higher than the daily measures as at 31 December 2021.

Table 41: Market risk under internal models approach (EU MR2-A)

$MM

MSI Group		RWAs	MCR
VaR (higher of values a and b)		**5,135**	**411**
(a)	Previous day's VaR (Article 365(1) (VaRt-1))	1,678	134
(b)	Average of the daily VaR (Article 365(1)) of the CRR on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with Article 366 of the CRR	5,135	411
SVaR (higher of values a and b)		**14,391**	**1,151**
(a)	Latest SVaR (Article 365(2) (sVaRt-1))	3,909	313
(b)	Average of the SVaR (Article 365(2) of the CRR) during the preceding 60 business days (SVaRavg) x multiplication factor (ms) (Article 366 of the CRR)	14,391	1,151
IRC (higher of values a and b)		**6,085**	**487**
(a)	Most recent IRC value (incremental default and migration risks calculated in accordance with Article 370 and Article 371 of the CRR)	5,117	409
(b)	Average of the IRC number over the preceding 12 weeks	6,085	487
CRMe (higher of values a, b and c)		**0**	**0**
(a)	Most recent risk number for the correlation trading portfolio (Article 377 of the CRR)	0	0
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	0	0
(c)	8% of the own funds requirement in the standardised approach on the most recent risk number for the correlation trading portfolio (Article 338(4) of the CRR)	0	0
Other		**24,307**	**1,944**
Total		**49,918**	**3,993**

Tables 42a and 42b summarise the key drivers of RWAs/MCR for MSI Group, MSIP and MSEHSE Group's market risk exposures under the Internal Model Approach.

Table 42a: RWA flow statements of market risk exposures under the IMA (EU MR2-B) – MSI Group and MSIP

$MM MSI Group	VaR	SVaR	IRC	Comprehensive risk measure	Other[4]	RWAs	MCR
RWAs at previous quarter end[1]	**4,840**	**13,754**	**8,560**	**0**	**25,470**	**52,624**	**4,210**
Regulatory adjustment[2]	(3,176)	(8,032)	-	-	(12,593)	(23,801)	(1,903)
RWAs at end of day previous quarter end	1,664	5,722	8,560	-	12,877	28,823	2,307
Movement in risk levels	178	(1,948)	(3,389)	-	215	(4,944)	(397)
Model updates/changes	-	-	-	-	(267)	(267)	(21)
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign exchange movements	(3)	(13)	(8)	-	(36)	(60)	(5)
Other[3]	(161)	148	(46)	-	(501)	(560)	(45)
RWAs at end of day current quarter end	1,678	3,909	5,117	-	12,288	22,992	1,839
Regulatory adjustment[2]	3,457	10,482	968	-	12,019	26,926	2,154
RWAs at end of reporting period	**5,135**	**14,391**	**6,085**	**0**	**24,307**	**49,918**	**3,993**
MSIP							
RWAs at previous quarter end[1]	**4,413**	**11,218**	**8,221**	**0**	**22,074**	**45,926**	**3,674**
Regulatory adjustment[2]	(2,864)	(6,067)	-	-	(11,302)	(20,233)	(1,619)
RWAs at end of day previous quarter end	1,549	5,151	8,221	-	10,772	25,693	2,055
Movement in risk levels	138	(2,011)	(3,404)	-	236	(5,041)	(403)
Model updates/changes	-	-	-	-	(197)	(197)	(16)
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign exchange movements	-	-	-	-	-	-	-
Other[3]	(140)	143	(33)	-	(500)	(530)	(42)
RWAs at end of day current quarter end	1,547	3,283	4,784	-	10,311	19,925	1,594
Regulatory adjustment[2]	3,136	8,390	858	-	10,523	22,907	1,833
RWAs at end of reporting period	**4,683**	**11,673**	**5,642**	**0**	**20,834**	**42,832**	**3,427**

1. Previous reporting period was Q3'21.
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 CRMe. 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").

Table 42b: RWA flow statements of market risk exposures under the IMA (EU MR2-B) – MSEHSE Group

$MM MSEHSE Group	VaR	SVaR	IRC	Comprehensive risk measure	Other[4]	Total RWAs	TOFR
RWAs at previous period end[1]	**711**	**2,185**	**345**	**0**	**4,469**	**7,710**	**617**
Regulatory adjustment[2]	(495)	(1,530)	-	-	(1,764)	(3,789)	(303)
RWAs at the previous quarter-end (end of the day)	216	655	345	-	2,705	3,921	314
Movement in risk levels	63	96	105	-	(140)	124	10
Model updates/changes	-	(112)	(1)	-	(555)	(668)	(54)
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign exchange movements	(7)	(21)	(11)	-	(78)	(117)	(9)
Other[3]	(141)	7	5	-	45	(84)	(7)
RWAs at end of the disclosure period (end of the day)	131	625	443	-	1,977	3,176	254
Regulatory adjustment[2]	321	2,093	-	-	1,495	3,909	313
RWAs at end of the disclosure period	**452**	**2,718**	**443**	**0**	**3,472**	**7,085**	**567**

1. Previous reporting period was Q1'21.
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 CRMe. 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 the fourth quarter of 2021, Modelled Market Risk RWA for MSI Group decreased primarily driven by changes in the Fixed Income risk profile.

Table 43 provides a summary of the maximum, minimum, average and period-end values over the six months to 31 December 2021, for the MSI Group, resulting from the different types of models approved to be used for computing the regulatory capital charge.

Table 43: IMA values for trading portfolios (EU MR3)

MSI Group	$MM
VaR (10 day 99%)	
Maximum value	180
Average value	133
Minimum value	106
Period end	134
SVaR (10 day 99%)	
Maximum value	537
Average value	376
Minimum value	279
Period end	313
IRC (99.9%)	
Maximum value	860
Average value	476
Minimum value	328
Period end	409
Comprehensive Risk capital charge (99.9%)	
Maximum value	0
Average value	0
Minimum value	0
Period end	0

Over the second half of 2021, VaR remained relatively stable, while SVaR and IRC movements during the period were mainly attributable to trading activities.

13.3 Positions Included in the Trading Book

The MSI Group 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 the Firm'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 firm's 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 standardised approach.

The Firm methodology for determining Non-Trading Book versus Trading Book classification is documented within the Firm's 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. The firm carries out a CRR self-assessment of the articles governing Trading Book/Non-Trading Book classification.

A firm-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 MSIP and 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 the Firm's Backtesting Policy and Procedures. As of 31 December 2021, 80% of total MSI 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 Trading 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 (ie inclusive of intra-day trading/new activity). Both measures of the backtesting profit and loss exclude non risk based fees (ie service fees), commissions, and net interest income. For the purposes of the regulatory backtest, Actual profit and loss incorporates liquidity and model-driven fair value adjustments whist 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 MSIP or MSEHSE Group level, Actual or Hypothetical, losses exceed 99% VaR). These exceptions are reported to the regulator. Firms observing five or more exceptions within the measurement period are required to set aside additional Market Risk Capital based on a sliding scale.

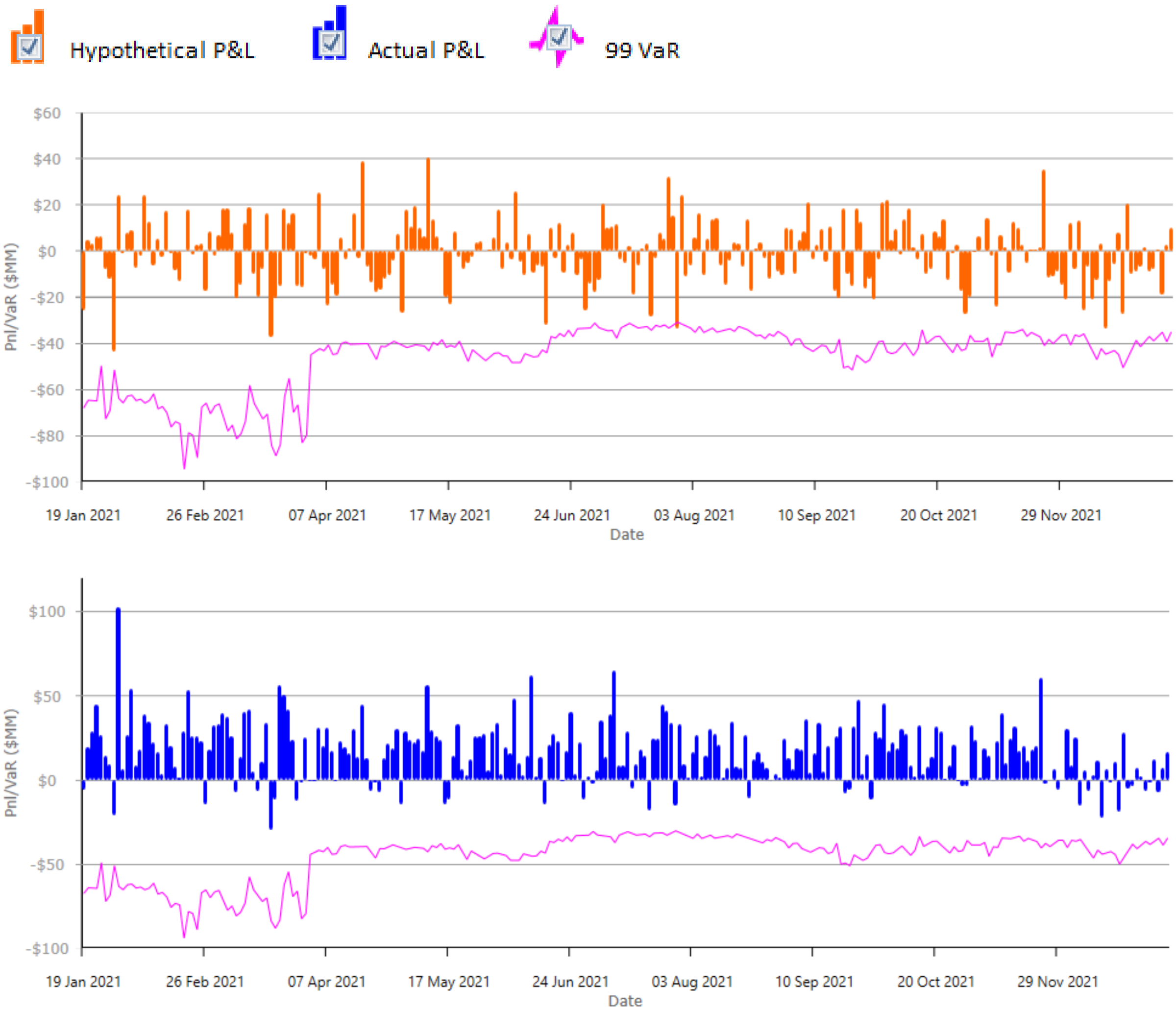
Backtesting results are reported, analysed, and discussed by the firm's MSI Group Market Risk Backtesting Review Forum. Findings or recommendations from this forum are escalated to Model Oversight and Risk Committees who are responsible for authorising any further model analysis or model remediation 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 2021, one Hypothetical and zero Actual profit and loss exceptions were observed for MSIP which equates to the Green zone for capital multiplier purposes (less than five exceptions). The Firm's analysis of this July 2022 exception concluded that it was primarily driven by significant directional market moves in risk factors that were captured in the VaR model with sufficient granularity.

The plots of Actual and Hypothetical profit and loss, covering 250 business days of MSIP backtesting monitoring to 31 December 2021 are displayed below:

Figure 5: Comparison of VaR Estimates with Gains/Losses – MSIP (EU MR4)

The graphs below show the 1 day Regulatory Trading VaR against Actual and Hypothetical profit and loss for MSIP, values in millions of dollars:



For the measurement period ended 31 December 2021, three Hypothetical and one Actual profit and loss exceptions were observed for MSEHSE Group. One exception on both a Hypothetical and Actual profit and loss basis, occurred in October 2021, and two Hypothetical only exceptions were reported in November 2021. The Firm's analysis of these exceptions concluded that they were largely driven by directional market moves in risk factors that were captured in the VaR model with sufficient granularity.

The plots of Actual and Hypothetical profit and loss, covering 250 business days of MSEHSE Group backtesting monitoring to 31 December 2021, are displayed below:

Figure 6: Comparison of VaR Estimates with Gains/Losses – MSEHSE Group (EU MR4)

The graphs below show the 1 day Regulatory Trading VaR against Actual and Hypothetical profit and loss for MSEHSE Group, values in millions of dollars:

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.

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 44: IRC liquidity horizon for material sub portfolios

MSI Group	Liquidity horizon (months)
Fixed income division	4.59
Institutional equity division	5.95
Bank resource management	4.28
Overall Portfolio	**4.82**

13.7 Comprehensive Risk Measure

The CRMe measures the profit and loss impact in the correlation trading portfolio ("CTP") of moves in credit spreads, base correlations, expected recovery, and basis risks including index versus single name, as well as defaults with stochastic recovery rates. The model is applied to correlation trading positions and their hedges, and assumes a constant level of risk and a fixed liquidity horizon of 6 months given underlying market liquidity and Morgan Stanley's inventory of CTP.

CRMe applies Monte Carlo simulations to a Merton style default modelling and separate but correlated multifactor processes for the modelled market risk factors. Market variables, including correlations, are calibrated to historical data, and parameters of the default process are the same as those used in the IRC model.

Morgan Stanley monitors the accuracy and consistency of the CRMe model via a review of the explanatory power and completeness of the core market risk factors set, and both supervisory and internally defined market stress scenarios.

13.8 Stress Testing

The MSI Group has a comprehensive and dynamic Stress testing framework incorporating deterministic group-wide Macroeconomic Stress tests, business area single and multi-factor scenarios, and reverse stress testing scenarios. Stress testing is one of the MSI 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 MSI Group's resilience under stress scenarios over a range of severities. Stress testing methodologies are applied consistently across all sub-portfolios according to the MSI Group Stress Testing Procedure, which applies to the MSI Group.

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

13.9 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 defined Banking Book population. The MSI Group is exposed to interest rate risk primarily through the Trading Book which is captured within VaR. The MSI Group has IRRBB, primarily arising from MSI Group's funding and liquidity management. The interest rate risk is measured on a daily basis through firmwide risk systems, except for the risks on internal funding positions which are measured on a quarterly basis. IRRBB risk was $301k gain per basis point as of 31st December 2021, ie gains or losses arising from increases in interest rate levels. Changes in the Economic Values of Equity ("EVE") are evaluated using a 200BP parallel shift in interest rates. Impacts to Net Interest Income ("NII") are measured using a 100BP parallel shift in interest rates. There is a limit on the impact to NII and on the total IRRBB rates delta exposure, as well as a Key Risk Indicator for NII under a 200 basis point shock, which includes incremental funding cost. EVE and NII risk is mitigated by Treasury executing financial products to manage liquidity, funding and capital, including: cash, repo and reverse repo and interest rate derivatives.

Table 45: Interest rate risk in the banking book

$MM MSI Group[1]	Profit or loss of a +200BP parallel shift in interest rates	Profit or loss of a -200BP parallel shift in interest rates
USD	48	(48)
EUR	15	(15)
GBP	(5)	5
JPY	4	(4)
Other	(2)	2
Total	**60**	**(60)**

1. Changes in economic value of equity only.

14. Operational Risk

Risk Management and Control

Operational risk refers to the risk of loss, or of damage to the MSI 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 MSI Group may incur operational risk across the full scope of its business activities. Legal and compliance risk is included in the scope of operational risk and is discussed below under "Legal, regulatory and compliance risk".

The MSI Group has established an operational risk framework to identify, measure, monitor and control risk across the MSI Group. This framework is consistent with the framework established by the Morgan Stanley Group and includes escalation to the MSI Group's Board of directors 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 Group and to respond to the changing regulatory and business environment.

The MSI 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 MSI 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 cyberattacks; 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 and Pathways ("TOR/Ps")

The MSI Group has a structured process in place to determine its TOR/Ps. The MSI 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 MSI 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 MSI Board. Currently there are two Top Operational Risk Pathways - Cyber Attack and Third Party.

The MSI Board approved TOR/Ps as at 31 December 2021 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

Management of Operational Risk

A variety of risk processes and mitigants are used to manage operational risk exposures. These include a strong governance framework, a comprehensive risk management program and insurance. Operational risks and associated risk exposures are assessed relative to the risk tolerance established by the MSI Board and are prioritised accordingly. The breadth and variety of operational risk are such that the types of mitigating activities are wide-ranging. Examples of such activities include 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.

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 MSI 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 MSI 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 MSI 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 MSI 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 MSI 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 Conduct Risk Management Policy. The policy sets out key roles and responsibilities and a framework identifying key functions and processes for the good management of conduct risk. The framework also sets out various key support and governance mechanisms, such as the production of key metrics and management information, and the establishment of a Conduct Risk Committee to oversee the management of conduct risk and the implementation of the framework.

The MSI 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 MSI Group's policies relating to business conduct, ethics and practices are followed globally.

In addition, the MSI 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 MSI Board, are clearly understood and followed throughout the MSI Group. The implementation and operation of the Operational Risk Framework is overseen by forums at different levels in the MSI 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 EMEA Operational Risk Oversight Committee
- The EMEA Risk Committee
- The MSI Board Risk Committee

Operational Risk Framework

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

- The MSI Group-specific 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 procedures; 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 MSI Group's senior management and the MSI Board to take action 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

Pillar 1: Capital requirements for Operational Risk are currently calculated under the Basic Indicator Approach ("BIA"). As of 31 December 2021, the MSI Group's Operational Risk Weighted Assets were $14,352MM.

Pillar 2: The MSI 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 MSI Group holds sufficient capital to cover the incremental capital requirement over and above the Pillar 1 requirement.

15. Climate Risk

15.1 Climate Risk Management

In line with Task Force on Climate-Related Financial Disclosures ("TCFD") recommendations, the MSI Group divides climate risk into two main categories: transition risks and physical risks.

- **Transition Risks**: Transitioning to a low-carbon economy will entail extensive regulatory, policy, legal, technology and market initiatives as society adapts to climate change and mitigates its causes. 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. 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 2021, for the MSI Group, climate risk was assessed as material for credit, market and operational risk. Liquidity/funding risk was assessed as non-material.

Climate risk is managed by integrating climate change considerations within the broader MSI Group and MSEHSE Group Risk Management Frameworks the requirements of which are incorporated in policies and procedures across credit, market, operational and liquidity/funding risk. The Climate Risk Framework brings together how climate risk has been incorporated into the existing MSI Group Risk Framework and covers Risk Identification and Materiality Assessment; Risk Appetite and Limit Framework; Scenario Analysis and Stress Testing; and Risk Reporting. The Climate Risk Framework continues to be assessed for compliance with new and evolving regulations.

Risk Identification and Materiality Assessment

As part of its established Risk Identification and Materiality Assessment process, the MSI Group introduced a granular risk identification and materiality assessment of climate risks in 2021.

Risk appetite and limit framework

Climate risk is incorporated in MSI Group and MSEHSE Group's Risk Appetite as a driver of existing risks. Board-level Climate Stress Loss Limits are set for MSI Group and MSEHSE Group across credit and market risk and reviewed on an annual basis. For operational risk, climate risk is managed as part of MSI Group's existing operational risk framework.

Climate risk is incorporated into the Credit Risk Management Framework industry sector limits as well as country and borrower ratings. Limits and ratings are monitored as per standards set by the Credit Risk Management policies and procedures.

Scenario analysis and stress testing

Scenario analysis and stress testing is central to the Climate Risk Management Framework. Short-term transition risk stress testing is run on a monthly basis for credit and market risk. Physical risk vulnerabilities have also been assessed with loss estimates for the highest impact scenario. Operational Risk Scenario Analysis workshops are held to assess the impact of a number of physical risk scenarios on the MSI Group, across a varying degree of severities.

MSI Group has 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 MSI Group strategy.

15.2 Limits and Exposures

Climate Stress Loss Limit: MSI Group and MSEHSE Group both remained within their respective Climate Stress Loss Limits throughout 2021.

Credit Exposures: MSI Group and MSEHSE Group exposures to industries identified as having high climate transition or physical risk is a small percentage of overall credit exposures. Exposures to these industries with high climate transition or physical risk comprise 5% and 1% of MSI Group's exposure, and 10% and 2% of the MSEHSE Group's exposure, respectively.

Climate risk concentration metrics are calculated based on deposits with central and agent banks, repurchase transactions, securities lending, OTC derivatives and corporate loan commitments after taking into consideration legally enforceable master netting agreements, collateral and credit risk mitigants. Trade and other receivables are excluded.

16. 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.

16.1 Fair Valuation

Valuation Control ("VC") within Finance is responsible for the MSI Group's fair value valuation policies, processes and procedures. VC implements valuation control processes designed to validate the fair value of the MSI 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:

- 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 MSI Group. VC ensures the valuation generated by the BUs is in compliance with 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 EMEA Head of VC together with the EMEA 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 3 trades is not recognised until all significant inputs to the trade become observable, which is also subject to STAR Committee approval.

16.2 Prudent Valuation

VC applies the Prudent Valuation regulatory standards as required by the Commission Delegated Regulation (EU) 2016/101. 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 firm'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 firm 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 Firm's Global Model Risk Management Policy.

17. Liquidity Coverage Ratio

17.1 LCR Disclosure Requirements

The MSI Group's LCR Disclosure is effective 31 December 2021 and is based on the prevailing understanding of the rules set out in the European Commission Delegated Regulation 2015/61 ("DA") adopted in October 2014 and related legislation at that date. As of 1 January 2022 new sections of the PRA Rulebook were introduced, including the Liquidity Coverage Ratio.

On 31 December 2021, the MSI Group was in excess of the fully phased-in LCR required minimum of 100% (Pillar I) as specified by the total net cash outflows amount included in Table 46a.

17.2 Risk Management Objectives and Policies for Liquidity Risk

Liquidity Risk Profile

Liquidity and funding risk refers to the risk that the MSI Group will be unable to finance its operations due to loss of access to the capital markets or difficulty in liquidating the Group's assets. Liquidity risk encompasses the ability (or perceived ability) of MSI Group to meet its financial obligations without experiencing significant business disruption or reputational damage that may threaten the Group's viability as a going concern. 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. Generally, the Group incurs liquidity and funding risk as a result 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 MSI Group must hold in both normal and stressed environments to ensure that the 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 MSI 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.

The MSI 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 MSI Group's liquidity and funding risk management policies and procedures are consistent with those of the Morgan Stanley Group. The MSI Board is ultimately responsible for establishing the liquidity risk tolerance and ensuring the MSI Group's liquidity risk is appropriately managed. In addition to the internal liquidity risk management framework, the MSI Group is locally subject to the liquidity regulations prescribed by the PRA. The Group has daily monitoring and reporting processes in place to ensure compliance with its regulatory requirements.

Liquidity Risk Management

The primary goal of the Liquidity Risk Management Framework is to ensure that the MSI Group has access to sufficient liquid assets across a wide range of market conditions and time horizons. The framework is designed to allow the MSI Group to fulfil financial obligations and support the execution of the 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;
- Source, 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.

Liquidity Risk Policies and Procedures

Senior management establishes and maintains liquidity policies. Through various risk and control committees, senior management reviews business performance relative to these policies, monitors the availability of alternative sources of financing, and oversees the liquidity, interest rate and currency sensitivity of asset and liability positions. Corporate Treasury, Liquidity Risk Department, EMEA Risk Committee, EMEA ALCO/MSEHSE ALCO and other committees and control groups assist in evaluating, monitoring and controlling the impact that business activities have on the balance sheets, liquidity and capital structure. Liquidity matters are reported regularly to the MSI Board/MSEHSE Management Board and the MSI Risk Committee/MSEHSE Risk Committee.

Pillar II regime

The firm is subject to Pillar II requirements, assessed by the PRA, for risks not covered in the LCR (Pillar I). These risks are identified by the firm and documented in the ILAAP that is then reviewed and assessed by the PRA as part of the Liquidity Supervisory Review Process ("L-SREP"). As a result the firm is required to hold sufficient liquidity in the form of High Quality Liquid Assets ("HQLA") to meet both Pillar I and Pillar II requirements. Pillar II amounts are not disclosed in Table 46a.

17.3 LCR Qualitative Disclosures

Main Drivers of the LCR

When discussing the main drivers of the LCR, the 12-month average values have been referred to. The most significant drivers of MSI Group and MSEHSE Group's cash outflow amounts this quarter were secured wholesale funding and outflows related to derivative exposures and other collateral requirements. These outflows constituted more than 70 percent of the LCR cash outflow amount. Secured wholesale funding transactions include repurchase transactions, loans of collateral to customers to effect short positions, and other secured loans received by the Group. Asset exchanges transactions, where the counterparties have previously exchanged non-cash assets and have agreed to return such assets to each other at a later date, are also included in the secured wholesale funding line. Net derivative cash outflows include contractual payments and collateral that the Group will make or deliver to a counterparty within 30 calendar days under derivative transactions, taking into account any qualifying master netting agreement. Other outflow drivers are also noted in the "Total Weighted Value" column in Table 46a.

These outflows reflect prescribed, industry-wide LCR rules related to liquidity risk in the Firm's business lines, activities and products, as measured for a projected 30-calendar day stress period.

MSI Group's cash inflow amounts this quarter were principally driven by secured lending and asset exchange cash inflows, which constituted more than 70 percent of the LCR cash inflow amount. Secured lending transactions include reverse repurchase transactions and securities borrowed transactions. Other inflow drivers are noted in the "Total Weighted Value" column in Table 46a.

MSEHSE Group's cash inflow amounts this quarter were principally driven by other cash inflows, capturing contractual 30 day cash inflows. Other inflow drivers are noted in the "Total Weighted Value" column in Table 46b.

Derivatives Exposures and Potential Collateral Calls

MSI Group and MSEHSE Group are participants in global derivatives markets. In some cases, the derivative counterparties have contractual rights that require the MSI Group to post collateral to them in the event that credit rating agencies downgrade the Group's credit rating. In measuring collateral call risks, all amounts of collateral 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.

The impact of potential collateral calls related to the derivative exposures is inherently uncertain and would depend on a number of interrelated factors, including, among others, 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 MSI Group manages the risk of potential collateral calls on the 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 MSI Group to meet unexpected collateral calls or other potentially adverse developments.

Currency mismatch in the LCR

A portion of MSI Group's business is conducted in currencies other than the U.S. dollar, and changes in foreign exchange rates relative to the U.S. dollar, therefore, can affect the value of non-U.S. dollar net assets, revenues and expenses. Potential exposures as a result 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-U.S. dollar 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.

A portion of MSEHSE Group's business is conducted in currencies other than the Euro, and changes in foreign exchange rates relative to the Euro, therefore, can affect the value of non-Euro net assets, revenues and expenses. Potential exposures as a result of these fluctuations in currencies are closely monitored, and strategies are adopted to reduce the impact of these fluctuations on financial performance.

Funding and Balance Sheet Management

The Group manages its funding in a manner that reduces the risk of disruption to its operations. The 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 Group funds itself through diverse sources. These sources may include equity capital, long-term debt, securities sold under agreements to repurchase, securities lending, deposits, commercial paper, letters of credit and lines of credit. The MSI Group and MSEHSE Group have active financing programs for both standard and structured products targeting global investors and currencies.

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

The Centralized Liquidity Management Function and its Interaction with other Functional Areas

The Morgan Stanley Group's Liquidity Risk Management Framework is critical to helping ensure that the 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. 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 Morgan Stanley 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 EMEA ALCO/MSEHSE ALCO, EMEA Risk Committee/MSEHSE Risk Committee and the MSI Risk Committee as appropriate.

The Treasury Department and applicable business units (collectively the Centralized Liquidity Management Function) have primary responsibility for evaluating, monitoring and controlling the liquidity and funding risks arising from the 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.

17.4 LCR Quantitative Disclosures

The LCR quantitative disclosures, shown in Tables 46a and 46b, reflect the monthly average value for the last 12-month period, for each quarter end period. The figures reported in the "Total Weighted Value" column reflect the prescribed, industry-wide rules and haircuts applicable to the LCR to determine the Firm's eligible HQLA and cash in/outflow amounts. The figures reported in the "Total Unweighted Value" columns reflect gross values that are not included in the calculation used to determine the Firm's compliance with LCR requirements.

Table 46a: Liquidity Coverage Ratio – MSI Group

$MM	Total unweighted value				Total weighted value			
MSI Group[1,2]	31-Mar-2021	30-Jun-2021	30-Sep-2021	31-Dec-2021	31-Mar-2021	30-Jun-2021	30-Sep-2021	31-Dec-2021
Number of data points used in the calculation of averages	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
High-Quality Liquid Assets								
Total high-quality liquid assets (HQLA)					47,018	48,780	49,416	50,367
Cash-Outflows								
Retail deposits and deposits from small business customers, of which:	-	-	-	-	-	-	-	-
Stable deposits	-	-	-	-	-	-	-	-
Less stable deposits	-	-	-	-	-	-	-	-
Unsecured wholesale funding	13,031	14,426	15,979	16,973	13,031	14,426	15,979	16,973
Operational deposits (all counterparties) and deposits in networks of cooperative banks	-	-	-	-	-	-	-	-
Non-operational deposits (all counterparties)	12,754	14,090	15,586	16,527	12,754	14,090	15,586	16,527
Unsecured debt	277	336	393	446	277	336	393	446
Secured wholesale funding					38,412	41,622	43,285	44,949
Additional requirements	26,456	27,536	28,707	29,802	19,549	19,757	19,826	20,225
Outflows related to derivative exposures and other collateral requirements	21,804	22,156	22,203	22,407	18,499	18,608	18,551	18,805
Outflows related to loss of funding on debt products	-	-	-	-	-	-	-	-
Credit and liquidity facilities	4,652	5,380	6,504	7,395	1,050	1,149	1,275	1,420
Other contractual funding obligations	47,318	47,127	47,402	46,549	1,181	1,248	1,222	1,189
Other contingent funding obligations	6,263	6,626	6,533	6,073	2,370	2,623	2,689	2,678
Total Cash Outflows					**74,543**	**79,676**	**83,001**	**86,014**
Cash Inflows								
Secured lending (e.g., reverse repos)	190,357	203,057	212,076	213,764	34,806	38,080	41,259	43,668
Inflows from fully performing exposures	12,479	12,683	12,949	12,980	11,004	10,967	11,185	11,322
Other cash inflows	5,337	5,666	6,000	6,588	5,337	5,666	6,000	6,588
(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)					976	1,053	1,162	1,250
(Excess inflows from a related specialised credit institution)					-	-	-	-
Total Cash Inflows	**208,173**	**221,406**	**231,025**	**233,332**	**50,171**	**53,660**	**57,282**	**60,328**
Fully exempt inflows	-	-	-	-	-	-	-	-
Inflows Subject to 90% Cap	-	-	-	-	-	-	-	-
Inflows Subject to 75% Cap	166,180	177,129	185,458	187,554	50,171	53,660	57,283	60,328
					Total Adjusted Value			
Liquidity Buffer					47,018	48,780	49,416	50,367
Total Net Cash Outflows					24,373	26,017	25,717	25,686
Liquidity Coverage Ratio (%)					**193%**	**187%**	**192%**	**196%**

1. All cash inflows and outflows shown are at the full unweighted/weighted value and do not reflect the phase in of LCR requirements.
2. As per the EBA guidance, Total HQLA amounts are before the application of the LCR HQLA caps. Total Cash Inflows are prior to the application of the inflow cap that is reflected in the Total Net Cash Outflows balance.

Total cash outflows increased during 2021 reflecting increased business activity, principally due to secured wholesale funding, unsecured wholesale funding and non-operational deposits (including client credits and intercompany loans).

Total cash inflows also increased during 2021, primarily due to secured lending.

HQLA increased during the year as the Pillar 1 requirement increased. HQLA comprises government bonds and cash balances with central banks.

Table 46b: Quantitative information of LCR (EU LIQ1) – MSEHSE Group

$MM	Total unweighted value				Total weighted value			
MSEHSE Group[1,2]	31-Mar-2021	30-Jun-2021	30-Sep-2021	31-Dec-2021	31-Mar-2021	30-Jun-2021	30-Sep-2021	31-Dec-2021
Number of data points used in the calculation of averages	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**
High-Quality Liquid Assets								
Total high-quality liquid assets (HQLA)					7,771	9,056	9,522	9,522
Cash – Outflows								
Retail deposits and deposits from small business customers, of which:	-	-	-	-	-	-	-	-
Stable deposits	-	-	-	-	-	-	-	-
Less stable deposits	-	-	-	-	-	-	-	-
Unsecured wholesale funding	1,577	2,459	2,615	2,460	1,577	2,459	2,615	2,460
Operational deposits (all counterparties) and deposits in networks of cooperative banks	-	-	-	-	-	-	-	-
Non-operational deposits (all counterparties)	1,577	2,459	2,615	2,460	1,577	2,459	2,615	2,460
Unsecured debt	-	-	-	-	-	-	-	-
Secured wholesale funding					848	1,143	1,454	1,685
Additional requirements	5,081	6,866	9,078	10,872	3,534	4,023	4,503	5,006
Outflows related to derivative exposures and other collateral requirements	3,220	3,355	3,455	3,613	3,184	3,321	3,427	3,593
Outflows related to loss of funding on debt products	-	-	-	-	-	-	-	-
Credit and liquidity facilities	1,861	3,511	5,623	7,259	350	702	1,076	1,413
Other contractual funding obligations	1,738	2,226	3,557	6,225	215	238	1,240	3,545
Other contingent funding obligations	-	-	-	-	-	-	-	-
Total Cash Outflows					**6,174**	**7,863**	**9,812**	**12,696**
Cash – Inflows								
Secured lending (e.g., reverse repos)	7,443	9,991	12,207	12,839	851	1,286	1,840	2,190
Inflows from fully performing exposures	329	429	636	823	329	429	636	823
Other cash inflows	166	227	1,224	3,573	167	227	1,223	3,572
(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)					9	10	11	11
(Excess inflows from a related specialised credit institution)					-	-	-	-
Total Cash Inflows	**7,938**	**10,647**	**14,067**	**17,235**	**1,338**	**1,932**	**3,688**	**6,574**
Fully exempt inflows	-	-	-	-	-	-	-	-
Inflows Subject to 90% Cap	-	-	-	-	-	-	-	-
Inflows Subject to 75% Cap	6,979	9,317	12,309	15,244	1,338	1,932	3,688	6,574
					Total Adjusted Value			
Liquidity Buffer					7,771	9,056	9,522	9,522
Total Net Cash Outflows					4,836	5,931	6,237	6,475
Liquidity Coverage Ratio					**161%**	**153%**	**153%**	**147%**

1. All cash inflows and outflows shown are at the full unweighted/weighted value and do not reflect the phase in of LCR requirements.
2. As per the EBA guidance, Total HQLA amounts are before the application of the LCR HQLA caps. Total Cash Inflows are prior to the application of the inflow cap that is reflected in the Total Net Cash Outflows balance.

Total cash outflows increased during 2021 reflecting increased business activity, principally due to secured wholesale funding, derivatives requirements, and the increased contractual 30 day outflows.

Total cash inflows also increased during 2021, primarily due to secured lending and the increased contractual 30 day inflows.

HQLA increased during the year as the Pillar 1 requirement increased. HQLA comprises government bonds and cash balances with central banks.

18. Net Stable Funding Ratio

The Net Stable Funding Ratio (“NSFR”) as defined by Regulation (EU) No 575/2013) in conjunction with Regulation (EU) 2019/876 is a funding liquidity ratio that took effect as at 28 June 2021 to ensure that the institution has 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 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.

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 Firm’s compliance with NSFR requirements. MSEHSE NSFR increased over the period as a result of an increase in term liabilities generating incremental ASF as seen in Table 47.

Table 47: Net Stable Funding Ratio (EU LIQ2) – MSEHSE Group

$MM	Q4'21					Q3'21				
	Unweighted value by residual maturity				Weighted value	Unweighted value by residual maturity				Weighted value
MSEHSE Group	No maturity	< 6 months	6 months to < 1 year	>= 1 year		No maturity	< 6 months	6 months to < 1 year	>= 1 year	
Available stable funding (ASF) items										
Capital items and instruments	4,695	-	-	1,139	5,834	4,536	-	-	1,159	5,695
Own funds	4,695	-	-	1,139	5,834	4,536	-	-	1,159	5,695
Other capital instruments		-	-	-	-		-	-	-	-
Retail deposits		-	-	-	-		-	-	-	-
Stable deposits		-	-	-	-		-	-	-	-
Less stable deposits		-	-	-	-		-	-	-	-
Wholesale funding:		7,865	2,371	6,651	7,836		12,789	1,604	4,360	5,220
Operational deposits		-	-	-	-		-	-	-	-
Other wholesale funding		7,865	2,371	6,651	7,836		12,789	1,604	4,360	5,220
Interdependent liabilities		1,957	-	-	-		2,425	-	-	-
Other liabilities:	415	4,881	-	-	-	452	3,463	-	10	10
NSFR derivative liabilities	415					452				
All other liabilities and capital instruments not included in the above categories		4,881	-	-	-		3,463	-	10	10
Total available stable funding (ASF)					**13,670**					**10,925**
Total high-quality liquid assets (HQLA)					1					-
Assets encumbered for a residual maturity of one year or more in a cover pool		-	-	-	-		-	-	-	-
Deposits held at other financial institutions for operational purposes		-	-	-	-		-	-	-	-
Performing loans and securities:		9,733	2,371	2,051	3,642		12,821	1,483	1,994	3,229
Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut		3,127	18	199	210		5,720	267	240	373
Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions		6,558	2,353	1,820	3,380		7,095	1,216	1,324	2,435
Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:		48	-	12	34		6	-	74	66
With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		48	-	-	24		6	-	-	3
Performing residential mortgages, of which:		-	-	-	-		-	-	-	-
With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		-	-	-	-		-	-	-	-
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		-	-	20	18		-	-	356	355
Interdependent assets		1,957	-	-	-		2,425	-	-	-
Other assets:		12,185	-	1,792	2,594		15,344	-	2,709	3,507
Physical traded commodities				-	-				-	-
Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs		549	-	1,388	1,646		574	-	2,438	2,560
NSFR derivative assets		-			-		-			-
NSFR derivative liabilities before deduction of variation margin posted		10,767			538		13,240			662
All other assets not included in the above categories		869	-	404	410		1,530	-	271	285
Off-balance sheet items		2,944	1,187	2,869	350		3,058	2,592	5,314	548
Total RSF					**6,587**					**7,284**
Net Stable Funding Ratio (%)					**208%**					**150%**

Table 47 (continued): Net Stable Funding Ratio (EU LIQ2)

$MM	Q2'21					Q1'21				
	Unweighted value by residual maturity				Weighted value	Unweighted value by residual maturity				Weighted value
MSEHSE Group	No maturity	< 6 months	6 months to < 1 year	>= 1 year		No maturity	< 6 months	6 months to < 1 year	>= 1 year	
Available stable funding (ASF) items										
Capital items and instruments	4,640	-	-	1,185	5,825					
Own funds	4,640	-	-	1,185	5,825					
Other capital instruments		-	-	-	-					
Retail deposits		-	-	-	-					
Stable deposits		-	-	-	-					
Less stable deposits		-	-	-	-					
Wholesale funding:		15,331	1,367	3,466	4,209					
Operational deposits		-	-	-	-					
Other wholesale funding		15,331	1,367	3,466	4,209					
Interdependent liabilities		2,146	-	-	-					
Other liabilities:	149	5,704	-	7	7					
NSFR derivative liabilities	149									
All other liabilities and capital instruments not included in the above categories		5,704	-	7	7					
Total available stable funding (ASF)					**10,041**					
Required stable funding (RSF) item										
Total high-quality liquid assets (HQLA)					-					
Assets encumbered for a residual maturity of one year or more in a cover pool		-	-	-	-					
Deposits held at other financial institutions for operational purposes		-	-	-	-					
Performing loans and securities:		14,457	498	2,516	3,547					
Performing securities financing transactions with financial customers collateralised by Level 1 HQLA subject to 0% haircut		7,418	36	131	163					
Performing securities financing transactions with financial customer collateralised by other assets and loans and advances to financial institutions		7,039	462	2,115	3,122					
Performing loans to non-financial corporate clients, loans to retail and small business customers, and loans to sovereigns, and PSEs, of which:		-	-	22	19					
With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		-	-	-						
Performing residential mortgages, of which:		-	-	-	-					
With a risk weight of less than or equal to 35% under the Basel II Standardised Approach for credit risk		-	-	-	-					
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		-	-	248	243					
Interdependent assets		2,146	-	-	-					
Other assets:	-	10,907	17	2,492	3,065					
Physical traded commodities				-	-					
Assets posted as initial margin for derivative contracts and contributions to default funds of CCPs		482	-	2,152	2,239					
NSFR derivative assets		-			-					
NSFR derivative liabilities before deduction of variation margin posted		9,145			457					
All other assets not included in the above categories		1,280	17	340	369					
Off-balance sheet items		3,178	58	5,293	426					
Total RSF					**7,038**					
Net Stable Funding Ratio (%)					**143%**					

19. 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 MSI Group. The following details the MSI 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. MSI Group primarily uses Industry standard collateral agreements (mostly Credit Support Annexes and Global Master Repurchase Agreements).

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 MSI Group also receives securities from the market, which are off-balance-sheet, reported as collateral received in Table 49 below. These may be pledged to the market and encumbered or held as part of the MSI Group's unencumbered pool of assets. For on balance sheet assets, the level of encumbrance over 2021 has decreased slightly from 2020. Collateral received has increased year on year with the encumbrance level remaining materially in line with 2020. In compliance with PRA guidelines, amounts are presented as a median of the twelve month ends over 2021. Note the rows in the tables below are not additive, with the median calculated individually across all cells. The respective carrying amounts of notionally eligible Extremely High Quality Liquid Assets ("EHQLA") and HQLA comply with the exposure class-specific requirement (before the application of any haircuts) of liquid the Delegated Regulation (EU) 2015/61.

Table 48 below reflects the MSI Group unencumbered and encumbered on-balance sheet assets. The values represent the median for the year.

Table 48: Encumbered and unencumbered assets

$MM MSI Group[1]	Carrying amount of encumbered assets	of which notionally eligible EHQLA and HQLA	Fair value of encumbered assets	of which notionally eligible EHQLA and HQLA	Carrying amount of unencumbered assets	of which EHQLA and HQLA	Fair value of unencumbered assets	of which EHQLA and HQLA
Assets of the reporting institution	132,037	33,169			475,173	1,468		
Equity instruments	41,232	11,732	41,232	11,732	27,366	493	27,366	493
Debt securities	26,671	20,710	26,671	20,710	8,982	1,349	8,982	1,349
of which: covered bonds	134	27	134	27	7	-	7	-
of which: asset-backed securities	189	-	189	-	506	-	506	-
of which: issued by general governments	21,613	20,043	21,613	20,043	3,361	1,349	3,361	1,349
of which: issued by financial corporations	2,352	60	2,352	60	1,700	-	1,700	-
of which: issued by non-financial corporations	3,221	556	3,221	556	2,309	-	2,309	-
Other assets[2,3]	64,456				444,969			

1. A significant portion of MSI Group's business is conducted in currencies other than US Dollar.
2. Encumbered Other Assets includes on-balance sheet cash that has been segregated under CASS and cash collateral pledged against derivatives
3. The majority of unencumbered Other Assets relate to derivative instruments

Table 49 below breaks down the off-balance sheet assets between those that have been encumbered and the amount available for encumbrance. As per table 48 the values represent the median for the year.

Table 49: Collateral received

$MM MSI Group	Fair value of encumbered collateral received or own debt securities issued	of which notionally eligible EHQLA and HQLA	Unencumbered Fair value of collateral received or own debt securities issued available for encumbrance	of which notionally eligible EHQLA and HQLA
Collateral received by the reporting institution	261,400	162,005	43,613	30,824
Equity instruments	109,772	29,298	8,318	-
Debt securities	144,629	133,148	34,515	30,824
of which: covered bonds	599	-	1	-
of which: asset-backed securities	241	17	4,209	4,147
of which: issued by general governments	136,255	132,074	32,119	30,824
of which: issued by financial corporations	3,269	93	1,373	-
of which: issued by non-financial corporations	4,964	883	610	-
Loans and advances other than loans on demand	-	-	-	-
Other collateral received	5,108	-	-	-

Table 50 below shows the extent to which liabilities have been matched to encumbered assets.

Table 50: Sources of encumbrance

$MM MSI Group	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities other than covered bonds and ABS's encumbered
Carrying Amount of selected financial liabilities	121,602	122,151
Other sources of encumbrance	267,307	269,605

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

Appointments to MSI Board

When identifying and recommending candidates to join the MSI Board, the MSI Nomination and Governance Committee will consider a broad range of qualities and characteristics, giving due regard to ensuring a broad range of backgrounds, skills and experience is present on the Board and its Committees. It will also take into account regulatory requirements and relevant policies of the MSI Group. When identifying and selecting non-executive directors, the Nomination and Governance Committee may also consult with executive search firms. New directors go through tailored induction programmes and all directors are provided with ongoing training.

Diversity and the Composition of the MSI Board

The MSI Board recognises the importance and benefits of diversity both within business operations and at a board level. All appointments to the MSI Board and its Committees are made on merit, in the context of the skills and experience that the MSI Board as a whole requires to be effective, with due regard given to the benefits of diversity. When assessing the composition of the MSI Board and recommending new directors; the MSI Nomination and Governance Committee considers the benefits of diversity, including gender and ethnic diversity.

The MSI Board aspires to continue to meet or exceed diversity targets, including a minimum (i) 33% female representation by the end of 2020, and (ii) one Board director from an ethnic minority background by the end of 2021. As at 31 December 2021, the MSI Board had exceeded its gender target with 43% female representation and met its ethnicity target. Selection of diverse candidates to join the MSI Board will be, in part, dependent on the pool of candidates with the necessary background, skills and experience. In order to promote the specific objective of diversity at Board level, the Nomination and Governance Committee expects short-lists of potential candidates prepared by external executive search firms to be diverse and balanced.

Non-Executive Directors

Jonathan Bloomer

Jonathan was appointed a non-executive director of the MSI Board in November 2016 and became Chair of the MSI Board and MSI Nomination & Governance Committee with effect from 31 March 2018 and Chair of the MSI Remuneration Committee in February 2021. He is also a member of the Audit and Risk Committees.

Jonathan has over 40 years' experience working in accounting and financial services firms. He was a Partner at Arthur Andersen from 1987 to 1994 before leaving to join the Prudential Group plc where he spent over 10 years including as Group Finance Director and Group CEO. Jonathan also spent six years at Cerberus Capital, a global private equity firm, as a European Partner and Senior Member of the Global Operations team.

Jonathan holds a number of non-executive directorships with other financial institutions.

He is a Chartered Accountant and holds a B.Sc. in Physics from Imperial College.

David Cannon

David was appointed a non-executive director of the MSI Board in June 2013. He is a member of the Risk and Nomination & Governance Committees and was Chair of the Audit Committee until January 2020, and remained a member of the Audit Committee until he was re-appointed as interim Audit Committee Chair, replacing Simon Ball, in April 2021.

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.

Terri Duhon

Terri was appointed a non-executive director of the MSI Board in April 2016. She is Chair of the MSI Risk Committee and member of the Audit, Nomination & Governance and Remuneration Committees.

Terri has over twenty five years' risk and financial markets experience. She worked for JPMorgan as a derivatives trader for eight years and was Global Head of Structured Credit at ABN AMRO. In 2004 she founded an expert advisory company and has been retained as a financial risk expert for major regulators.

Terri has held a number of non-executive director appointments and is currently a director of Rathbone Brothers plc. She is an Associate Fellow at Oxford University Said Business School. She graduated from MIT in Mathematics in 1994.

Melanie Richards

Melanie was appointed a non-executive director of the MSI Board in July 2021. She is also a member of the Risk, Audit and Remuneration Committees.

Melanie has nearly 40 years' experience working in banking and financial services with a particular focus on corporate finance and capital markets. Prior to retiring from her executive career in September 2020, Melanie had been a partner in the Debt Advisory practice of KPMG LLP for nearly twenty years where she co built the practice. Melanie served as a member of the KPMG LLP board from 2012 to 2020 including as Deputy Chair from 2017, and culminating in her role as acting chair during 2020. Before joining KPMG in 2001, Melanie held various roles in banks, latterly as the Head of Private Placements at the Royal Bank of Canada between 1997 and 2000.

Melanie received an honorary doctorate, Business Administration, from Oxford Brookes University in 2016.

Lucrezia Reichlin

Lucrezia was appointed a non-executive director of the MSI Board in January 2021.

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.

Paul Taylor

Paul was appointed a non-executive director of the MSI Board in August 2020. He is also a member of the Risk, Audit, Remuneration and the Nomination & Governance Committees.

Paul has over 35 years' experience working in a range of roles in the science and technology sector, predominantly within or connected with the Ministry of Defence or other central government departments. From 2014 to 2020 Paul led KPMG's Information Protection and Business Resilience practice in the UK. He is a member of the Technology Advisory Board for NatWest Group plc, a member of a number of Government Technical Committees and chairs the Advisory Board of Imperial College's Institute of Security Science and Technology.

Paul is a Fellow of the Royal Academy of Engineering and of the Weatherhead Centre for International Affairs at Harvard University.

Executive Directors

Oliver Behrens

Oliver is Country Head for Germany and Austria and Chair of the Morgan Stanley Europe SE, Morgan Stanley Bank AB and Morgan Stanley Europe Holding SE Management Boards and Country Head for Germany and Austria. He was appointed as an executive director on the MSI Board in January 2021.

Oliver has over 38 years banking experience. Prior to joining the Firm Oliver spent 9 years at DekaBank 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.

Oliver holds a degree in economics from Hagen and Tuebingen.

Arun Kohli

Arun is the Chief Operating Officer for Morgan Stanley EMEA and an executive director on the MSI Board (appointed August 2016).

Prior to this, he was the Chief Operating Officer for Morgan Stanley, Asia Pacific and a Managing Director in Morgan Stanley's Firm Strategy & Execution group in New York. Arun joined Morgan Stanley in 2007 from McKinsey's Financial Institutions group in New York. Prior to that Arun spent five years with CRISIL (the Indian subsidiary of S&P).

Arun attended the University of Delhi where he graduated with Honours in Engineering and received a Master of Business Administration with Honours from the Wharton School, graduating as a Palmer Scholar.

Kim Lazaroo

Kim is EMEA Chief Financial Officer and an executive director of the MSI Board (appointed February 2019). Prior to this she was EMEA Head of Global 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 and is a Member of the Institute of Chartered Accountants, Australia.

Salvatore Orlacchio

Salvatore is the Head of EMEA Fixed Income and an executive director of the MSI Board (appointed June 2020). Salvatore has held a number of roles at the Firm since joining in 1997 including EMEA Head of Fixed Income Sales and prior to that Head of interest Rates Distribution in EMEA and Sales Country Head for Italy Fixed Income and Institutional Equities division.

Salvatore has a BSC (Hons) in Economics from Naples University, and a M.Sc. in Economics and Finance from Warwick Business School.

David Russell

David is Global Co-Head of Morgan Stanley's Institutional Equities Division and an executive director of the MSI Board (appointed May 2011). He joined Morgan Stanley in 1990 as a European Equity trader and has held a number of other roles including Head of Institutional Equities Division in Europe, Head of Trading for Europe and Head of Institutional Equities Division in Asia before taking up his current role.

David graduated from the University of London in 1987 with a degree in History.

Arya Sekhar

Arya is the EMEA Chief Risk Officer for Morgan Stanley EMEA and an executive director on the MSI Board (appointed May 2020).

Arya joined the Firm in April 2008 in the Market Risk Department and has served in key roles across the Firm's Risk Management division including Global Head of Market Risk Analytics, and in 2015 assumed the position of the Global Head of Liquidity Risk Department. He began his career in Mortgage Research in 2003 and has previously worked at Countrywide Securities Corporation and RBS Greenwich Capital.

Arya holds a Bachelor's degree in Mechanical Engineering from Delhi University, MBA in Finance from S.P Jain Institute, Ph.D. in Finance from Oklahoma State University. He is also a CFA® Charter holder.

Noreen Whyte

Noreen is an executive director on the MSI Board (appointed May 2018) and is Chief Executive Officer of Morgan Stanley Bank International Ltd (appointed March 2016) Global Co-Head of the Loan Solutions & Securitisation Group within the Global Capital Markets Group. Noreen Co-Chairs the EMEA Diversity Action Counsel.

Noreen joined Morgan Stanley in 2005 from General Electric where she was Director of Originations at GE Home Lending. Noreen held operational and risk management roles in GE prior to joining the Structured Product Group in Fixed Income at Morgan Stanley.

Noreen graduated from the University of Westminster in 1995 with a BA (Hons) in International Business Studies.

Clare Woodman

Clare Woodman is Head of EMEA and CEO of MSIP and an executive director on the MSI Board (appointed September 2019). She is a member of both the global operating and management committees and Chair of Morgan Stanley Europe SE. Clare was previously Global Chief Operating Officer for Morgan Stanley's Institutional Securities Group. She joined Morgan Stanley in 2002 from Clifford Chance.

Clare is a Trustee of the Morgan Stanley International Foundation and is an active sponsor of the firm's Women's Business Alliance.

Clare holds a number of senior positions across industry organisations: she is a member of the FCA Markets Practitioner Panel and Chair of the U.S.-UK Business Council. She is a member of the British Museum Chairman's Advisory Board and a Trustee of the FT Financial Literacy and Inclusion Campaign.

Clare studied at the London Business School where she obtained her MBA.

Figure 7: MSI Directors: Number of Directorships

	Number of directorships held as at 31 December 2021	Directorships adjusted for SYSC4.3A.7(2)
Oliver Behrens	7	1
Jonathan Bloomer	6	4
David Cannon	6	1
Terri Duhon	7	2
Paul Taylor	4	2
Arun Kohli	4	1
Kim Lazaroo	5	1
Salvatore Orlacchio	2	1
Lucrezia Reichlin	8	4
Melanie Richards	7	1
David Russell	10	2
Arya Sekhar	3	1
Noreen Whyte	6	1
Clare Woodman	5	1

21. Appendix II: Capital Instruments & Eligible Liabilities

Table 51a: Capital instruments and eligible liabilities – MSI Group (EU CCA)

Description	Common Equity Tier 1		Additional Tier 1		Subordinated Debt				Senior Subordinated Debt
MSI Group[1]	A	B	C	D	E	F	G	H	I
Issuer	Morgan Stanley International Limited								
Unique Identifier (e.g., CUSIP, ISIN)	N/A								
Governing law(s) of the instrument	Companies Act 2006		English Law						
Transitional CRR rules	CET1		AT1		Tier 2				Eligible Liability
Post-transitional CRR rules	CET1		AT1		Tier 2				Eligible Liability
Eligible at solo/(sub-)consolidated/solo&(sub-) consolidated	(Sub-) Consolidated								
Instrument type	Ordinary Shares		Perpetual Unsecured Fixed Rate Securities		Long-term subordinated multicurrency loan facility				Subordinated non-T2 Loan
Amount recognised in regulatory capital ($MM)	USD 2,378MM	USD 0MM	USD 1,300MM	USD 2,200MM	USD 5,107MM	USD 269MM	USD 51MM	USD 2,100MM	USD 6,900MM
Currency of issuance and Nominal amount of instrument	$1 per ordinary share	£1 per ordinary share	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 250MM	USD 51MM	GBP 2,100MM	USD 6,900MM
Reporting Currency and Nominal amount of instrument	$1 per ordinary share	N/A	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 338MM	USD 51MM	USD 2,100MM	USD 6,900MM
Issue Price	N/A	N/A	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 250MM	USD 51MM	GBP 2,100MM	USD 6,900MM
Redemption Price	N/A		USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 250MM	USD 51MM	GBP 2,100MM	USD 6,900MM
Accounting Classification	Shareholders' Equity				Liability - amortised cost				
Original date of issuance	13/11/98	18/06/98	25/11/20	11/08/21	08/02/17	21/12/15	21/12/15	11/08/21	27/11/18
Perpetual or dated	Perpetual				Dated				
Original maturity date	No maturity				21/12/25	21/12/25	21/12/25	11/08/32	395 days from issuance[3]
Issuer call subject to prior supervisory approval	N/A		Yes		N/A			Yes	N/A
Option call date, contingent call dates and redemption amount	N/A		30/11/25	30/11/23	N/A			11/08/26 at 100% plus tax and regulatory calls at 100%	N/A
			at 100% plus tax and regulatory calls at 100%						
Subsequent call dates, if applicable	N/A		Daily thereafter		N/A			Daily thereafter	N/A
Fixed or floating dividend / coupon	Floating		Fixed		Floating				
Coupon rate and any related index	N/A		5.5%	0.0%	OBFR + 2.300%	SONIA + 2.121%	OBFR + 2.086%	SOFR + 1.44bps	Proxy[2]
Existence of a dividend stopper	No								
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully Discretionary				Mandatory				
Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully Discretionary				Mandatory				
Existence of step up or other incentive to redeem	No								
Noncumulative or cumulative	Noncumulative				Cumulative				
Convertible or non-convertible	Non-convertible								
If convertible, conversion trigger(s), fully or partially, conversion rate, mandatory or optional conversion, specify instrument type convertible into, specify issuer of instrument it converts into	N/A								
Write-down features	No		Yes		No	No	No	Yes	Yes
If write-down, write-down trigger(s)	N/A		BoE as the UK Resolution Authority has the authority to trigger the write down of the instrument upon the exercise of statutory powers						
			Contractual write down if CET1 Capital Ratio of MSI Group falls below 7%.					BoE as the UK Resolution Authority has the authority to trigger the write down of the instrument under the contractual terms if they deem the entity is failing or likely to fail, or if the MS resolution entity enters a resolution	
full or partial	N/A		Full		N/A	N/A	N/A	Partial	Partial
permanent or temporary	N/A		Permanent		N/A	N/A	N/A	Permanent	Permanent
If temporary write-down, description of write-up mechanism	N/A								
Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Perpetual Unsecured Fixed Rate Securities [column C, D]		Long-term subordinated loan facility [column E, F, G]		Senior Subordinated Facility [columns I]				Other Liabilities
Non-compliant transitioned features	No								
Specify non-compliant features	N/A								
TLAC Eligibility	Yes								

1. All capital instruments issued by the MSI 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.
3. The repayment date can be extended by 395 days on each business day but no later than 49 years from utilisation date, and unless a term-out notice is sent.

Table 51b: Capital instruments - MSIP (EU CCA)

Description	Common Equity Tier 1			Additional Tier 1		Subordinated Debt	
MSIP[1]	A	B	C	D	E	F	G
Issuer	Morgan Stanley & Co. International plc						
Unique Identifier	N/A						
Governing law(s) of the instrument	Companies Act 2006			English Law			
Transitional CRR rules	CET1			AT1		Tier 2	Tier 2
Post-transitional CRR rules	CET1			AT1		Tier 2	Tier 2
Eligible at solo/(sub-)consolidated/solo&(sub-) consolidated	Solo and (Sub-) Consolidated						
Instrument type	Ordinary Shares			Perpetual Unsecured Fixed Rate Securities		Long-term subordinated multicurrency loan facility	Long-term subordinated multicurrency loan
Amount recognised in regulatory capital ($MM)	USD 12,465MM	USD 30MM	USD 1,500MM	USD 1,300MM	USD 2,200MM	USD 3,276MM	USD 2,100MM
Currency of issuance and Nominal amount of instrument	$1 per ordinary share	£1 per ordinary share	$1 per ordinary share	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 2,100MM
Reporting Currency and Nominal amount of instrument	$1 per ordinary share	N/A	$1 per ordinary share	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 2,100MM
Issue Price	N/A	N/A	N/A	USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 2,100MM
Redemption Price	N/A			USD 1,300MM	USD 2,200MM	USD 5,000MM	USD 2,100MM
Accounting Classification	Shareholders' Equity					Liability - amortised cost	
Original date of issuance	01/02/94	28/10/86	22/12/11	25/11/20	23/08/18	08/02/17	11/08/21
Perpetual or dated	Perpetual					Dated	
Original maturity date	No maturity					21/12/25	11/08/32
Issuer call subject to prior supervisory approval	N/A			Yes		N/A	Yes
Option call date, contingent call dates and redemption amount	N/A			30/11/25 at 100% plus tax and regulatory calls at 100%	30/11/23	N/A	11/08/26 at 100% plus tax and regulatory calls at 100%
Subsequent call dates, if applicable	N/A			Daily thereafter		N/A	Daily thereafter
Fixed or floating dividend / coupon	Floating			Fixed		Floating	Floating
Coupon rate and any related index	N/A			5.5%	7.5%	OBFR + 2.300%	SOFR + 1.44bps
Existence of a dividend stopper	No						
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully Discretionary					Mandatory	
Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully Discretionary					Mandatory	
Existence of step up or other incentive to redeem	No						
Noncumulative or cumulative	Noncumulative					Cumulative	
Convertible or non-convertible	Non-convertible						
If convertible, conversion trigger(s), fully or partially, conversion rate, mandatory or optional conversion, specify instrument type convertible into, specify issuer of instrument it converts into	N/A						
Write-down features	No			Yes		No	Yes
If write-down, write-down trigger(s)	N/A			Contractual write down if CET1 Capital Ratio of MSIP or MSI Group falls below 7%. BoE as the UK Resolution Authority has the authority to trigger the write down of the instrument upon the exercise of statutory powers		BoE as the UK Resolution Authority has the authority to trigger the write down of the instrument upon the exercise of statutory powers	BoE as the UK Resolution Authority has the authority to trigger the write down of the instrument upon the exercise of statutory powers or under the contractual terms if they deem the entity is failing or likely to fail, or if the MS resolution entity enters a resolution
If write-down, full or partial	N/A			Full		N/A	Partial
If write-down, permanent or temporary	N/A			Permanent		N/A	Permanent
If temporary write-down, description of write-up mechanism	N/A						
Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Perpetual Unsecured Fixed Rate Securities [column D, E]			Long-term subordinated loan facility [column F]		Senior Subordinated Facility [columns H]	Senior Subordinated Facility [columns I]
Non-compliant transitioned features	No						
If yes, specify non-compliant features	N/A						

1. All capital instruments issued by the MSI Group are issued within Morgan Stanley and are not marketable instruments.

Table 51c: Capital instruments and eligible liabilities – MSEHSE Group (EU CCA)

Description	Common Equity Tier 1	Additional Tier 1	Subordinated Debt	Senior Subordinated Debt
MSEHSE Group[1]	**A**	**B**	**C**	**D**
Issuer	Morgan Stanley Europe Holding SE			
Unique Identifier	N/A			
Governing law(s) of the instrument	German Stock Corporation Act	German Law		
Transitional CRR rules	CET1	AT1	Tier 2	Eligible Liability
Post-transitional CRR rules	CET1	AT1	Tier 2	Eligible Liability
Eligible at solo/(sub-)consolidated/solo&(sub-)consolidated	(Sub-) Consolidated	Solo&(sub-)consolidated		
Instrument type	Ordinary Shares	Undated Subordinated AT1 Notes	Schuldschein Loan	Subordinated non-T2 Loan
Amount recognised in regulatory capital ($MM)	EUR 200MM	EUR 600MM	EUR 1,000MM	EUR 1,500MM
Currency of issuance and Nominal amount of instrument	€1 per ordinary share	EUR 600MM	EUR 1,000MM	EUR 1,500MM
Reporting Currency and Nominal amount of instrument	€1 per ordinary share	EUR 600MM	EUR 1,000MM	EUR 1,500MM
Issue Price	N/A	EUR 600MM	EUR 1,000MM	EUR 1,500MM
Redemption Price	N/A	EUR 600MM	EUR 1,000MM	EUR 1,500MM
Accounting Classification	Shareholders' Equity	Liability under German GAAP; shareholders' equity under IFRS	Liability - amortised cost	Liability - amortised cost
Original date of issuance	26/09/17	29/10/20	27/10/20	17/12/21
Perpetual or dated	Perpetual		Dated	Dated
Original maturity date	No maturity		27/10/31	395 days from issuance
Issuer call subject to prior supervisory approval	N/A	Yes		N/A
Option call date, contingent call dates and redemption amount	N/A	30/11/2025	27/10/2025	N/A
Subsequent call dates, if applicable	N/A	Daily thereafter	Each Interest Payment Date	N/A
Fixed or floating dividend / coupon	Floating	Fixed	Floating	Floating
Coupon rate and any related index	N/A	4.7%	3M EURIBOR + 1.6%	Proxy[2]
Existence of a dividend stopper	No			
Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully Discretionary		Mandatory	Mandatory
Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully Discretionary		Mandatory	Mandatory
Existence of step up or other incentive to redeem	No			
Noncumulative or cumulative	Noncumulative		Cumulative	Cumulative
Convertible or non-convertible	Nonconvertible			
If convertible, conversion trigger(s)	N/A			
If convertible, fully or partially	N/A			
If convertible, conversion rate	N/A			
If convertible, mandatory or optional conversion	N/A			
If convertible, specify instrument type convertible into	N/A			
If convertible, specify issuer of instrument it converts into	N/A			
Write-down features	No	Yes	No	No
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	
If write-down, full or partial	N/A	Full or Partial	N/A	N/A
If write-down, permanent or temporary	N/A	Temporary	N/A	N/A
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	N/A
Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	Perpetual Unsecured Fixed Rate Securities [column B]	Long-term subordinated loan facility [column C]	Senior Subordinated Facility [column D]	Other Liabilities
Non-compliant transitioned features	No			
If yes, specify non-compliant features	N/A			
TLAC Eligibility	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

22. Appendix III: MSI Group, MSIP and MSEHSE Group Own Funds Disclosure Template

Tables 52a and 52b show the composition of regulatory own funds for the MSI group, MSIP and MSEHSE Group as at 31 December 2021.

Table 52a: Composition of regulatory own funds – MSI Group and MSIP

$MM[1]	MSI Group	MSIP
Capital instruments and the related share premium accounts	2,417	12,977
Paid up capital instruments	2,378	12,465
Of which: Ordinary shares	2,378	10,965
Of which: Class A Ordinary shares (non-voting)	-	1,500
Share premium	38	513
Retained earnings	14,110	3,392
Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	6,582	1,078
Independently reviewed interim profits net of any foreseeable charge or dividend	1,147	854
Common Equity Tier 1 (CET1) capital before regulatory adjustments	**24,255**	**18,302**
Additional value adjustments (negative amount)	(1,315)	(1,247)
Intangible assets (net of related tax liability) (negative amount)	(489)	(2)
Negative amounts resulting from the calculation of expected loss amounts	(278)	(188)
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	85	157
Defined-benefit pension fund assets (negative amount)	(20)	-
Total regulatory adjustments to Common equity Tier 1 (CET1)	(2,017)	**(1,280)**
Common Equity Tier 1 (CET1) capital	**22,238**	**17,022**
Capital instruments and the related share premium accounts	3,500	3,500
Of which: classified as equity under applicable accounting standards	3,500	3,500
Additional Tier 1 (AT1) capital	**3,500**	**3,500**
Tier 1 capital (T1 = CET1 + AT1)	**25,738**	**20,522**
Capital instruments and the related share premium accounts	6,386	5,376
Qualifying own funds instruments included in consolidated Tier 2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	-	-
Of which: Instruments issued by subsidiaries subject to phase out	-	-
Tier 2 capital before regulatory adjustments	**6,386**	**5,376**
Tier 2 capital	**6,386**	**5,376**
Total capital (TC = T1 + T2)	**32,124**	**25,898**
Total risk weighted assets	**164,374**	**136,748**
Common Equity Tier 1 (as a percentage of risk exposure amount)	13.5%	12.4%
Tier 1 (as a percentage of risk exposure amount)	15.7%	15.0%
Total capital (as a percentage of risk exposure amount)	19.5%	18.9%
Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1) (a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk exposure amount)	7.04%	7.04%
Of which: Capital conservation buffer requirement	2.50%	2.50%
Of which: Countercyclical buffer requirement	0.04%	0.04%
Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	7.49%	6.27%
Direct and indirect holdings of the capital 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)	914	911
Direct and indirect holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	-	130
Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	395	212

Table 52b: Composition of regulatory own funds (EU CC1) – MSEHSE Group

$MM[1]	Amounts	Reference
Common Equity Tier 1 (CET1) capital: instruments and reserves		
Capital instruments and the related share premium accounts	228	
of which: Fully paid-up capital instruments	228	A
of which: Share premium	-	
Retained earnings	(24)	B
Accumulated other comprehensive income (and other reserves)	3,823	C
Funds for general banking risk	-	
Amount of qualifying items referred to in Art 484 (3) CRR and the related share premium accounts subject to phase out from CET1	-	
Minority interests (amount allowed in consolidated CET1)	-	
Independently reviewed interim profits net of any foreseeable charge or dividend	-	
Common Equity Tier 1 (CET1) capital before regulatory adjustments	**4,027**	
Common Equity Tier 1 (CET1) capital: regulatory adjustments		
Additional value adjustments (negative amount)	(46)	
Intangible assets (net of related tax liability) (negative amount)	-	
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)	(15)	D
Fair value reserves related to gains or losses on cash flow hedges of financial instruments that are not valued at fair value	-	
Negative amounts resulting from the calculation of expected loss amounts	(25)	
Any increase in equity that results from securitised assets (negative amount)	-	
Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	-	
Defined-benefit pension fund assets (negative amount)	-	
Direct, indirect and synthetic holdings by an institution of own CET1 instruments (negative amount)	-	
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)	-	
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)	-	
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)	-	
Exposure amount of the following items which qualify for a RW of 1250%, where the institution opts for the deduction alternative	-	
of which: qualifying holdings outside the financial sector (negative amount)	-	
of which: securitisation positions (negative amount)	-	
of which: free deliveries (negative amount)	-	
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)	-	
Amount exceeding the 17,65% threshold (negative amount)	-	
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	-	
of which: deferred tax assets arising from temporary differences	-	
Losses for the current financial year (negative amount)	-	
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)	-	
Qualifying AT1 deductions that exceed the AT1 items of the institution (negative amount)	-	
Other regulatory adjustments	(56)	
Total regulatory adjustments to Common Equity Tier 1 (CET1)	**(142)**	
Common Equity Tier 1 (CET1) capital	**3,885**	
Additional Tier 1 (AT1) capital: instruments		
Capital instruments and the related share premium accounts	683	
of which: classified as equity under applicable accounting standards	683	E
of which: classified as liabilities under applicable accounting standards	-	
Amount of qualifying items referred to in Article 484 (4) CRR and the related share premium accounts subject to phase out from AT1	-	
Amount of qualifying items referred to in Article 494a(1) CRR subject to phase out from AT1	-	
Amount of qualifying items referred to in Article 494b(1) CRR subject to phase out from AT1	-	
Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5) issued by subsidiaries and held by third parties	-	
of which: instruments issued by subsidiaries subject to phase out	-	
Additional Tier 1 (AT1) capital before regulatory adjustments	**683**	
Additional Tier 1 (AT1) capital: regulatory adjustments		
Direct, indirect and synthetic holdings by an institution of own AT1 instruments (negative amount)	-	
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)	-	
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)	-	
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)	-	

Qualifying T2 deductions that exceed the T2 items of the institution (negative amount)	-	
Other regulatory adjustments to AT1 capital	-	
Total regulatory adjustments to Additional Tier 1 (AT1) capital	**-**	
Additional Tier 1 (AT1) capital	**683**	
Tier 1 capital (T1 = CET1 + AT1)	**4,568**	
Tier 2 (T2) capital: instruments		
Capital instruments and the related share premium accounts	1,139	F
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	-	
Amount of qualifying items referred to in Article 494a (2) CRR subject to phase out from T2	-	
Amount of qualifying items referred to in Article 494b (2) CRR subject to phase out from T2	-	
Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	-	
of which: instruments issued by subsidiaries subject to phase out	-	
Credit risk adjustments	-	
Tier 2 (T2) capital before regulatory adjustments	**1,139**	
Tier 2 (T2) capital: regulatory adjustments		
Direct, indirect and synthetic holdings by an institution of own T2 instruments and subordinated loans (negative amount)	-	
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)	-	
Direct, indirect and synthetic 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)	-	
Direct, indirect and synthetic 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)	-	
Qualifying eligible liabilities deductions that exceed the eligible liabilities items of the institution (negative amount)	-	
Other regulatory adjustments to T2 capital	-	
Total regulatory adjustments to Tier 2 (T2) capital	-	
Tier 2 (T2) capital	**1,139**	
Total capital (TC = T1 + T2)	**5,707**	
Total Risk exposure amount	**24,163**	
Capital ratios and requirements including buffers		
Common Equity Tier 1 capital	16.08%	
Tier 1 capital	18.90%	
Total capital	23.61%	
Institution CET1 overall capital requirements	8.59%	
of which: capital conservation buffer requirement	2.50%	
of which: countercyclical capital buffer requirement	0.04%	
of which: systemic risk buffer requirement	-	
of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer requirement	-	
of which: additional own funds requirements to address the risks other than the risk of excessive leverage	1.55%	
Common Equity Tier 1 capital (as a percentage of risk exposure amount) available after meeting the minimum capital requirements	**10.03%**	
Amounts below the thresholds for deduction (before risk weighting)		
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)	91	
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)	-	
Deferred tax assets arising from temporary differences (amount below 17.65% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	53	G
Applicable caps on the inclusion of provisions in Tier 2		
Credit risk adjustments included in T2 in respect of exposures subject to standardised approach (prior to the application of the cap)	-	
Cap on inclusion of credit risk adjustments in T2 under standardised approach	-	
Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	-	
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 Jan 2014 and 1 Jan 2022)		
Current cap on CET1 instruments subject to phase out arrangements	-	
Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	-	
Current cap on AT1 instruments subject to phase out arrangements	-	
Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	-	
Current cap on T2 instruments subject to phase out arrangements	-	
Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	-	

Table 53 shows the reconciliation of regulatory own funds in Table 52b to balance sheet in the audited financial statements.

Table 53: Reconciliation of regulatory own funds to balance sheet in the audited financial statements (EU CC2) - MSEHSE Group

$MM	Balance sheet as in published financial statements As at 31 Dec 2021	Under regulatory scope of consolidation As at 31 Dec 2021	Reference
Assets - Breakdown by asset classes according to the balance sheet in the published financial statements			
Cash and short-term deposits	9,482	9,482	
Trading financial assets	36,867	36,867	
Secured financing	14,044	14,044	
Loans and advances	20	20	
Trade and other receivables	18,437	18,437	
Current tax assets	7	7	
Deferred tax assets	68	68	
of which: Deferred tax assets that rely on future profitability and do not arise from temporary differences	*15*	*15*	D
of which: Deferred tax assets that rely on future profitability and arise from temporary differences	*53*	*53*	G
Property plant and equipment	101	101	
Other assets	5	5	
Total Assets	**79,031**	**79,031**	
Liabilities - Breakdown by liability classes according to the balance sheet in the published financial statements			
Bank loans and overdrafts	116	116	
Trading financial liabilities	35,887	35,887	
Secured borrowing	11,100	11,100	
Trade and other payables	23,395	23,395	
Debt and other borrowings	3,271	3,271	
of which: Subordinated debt	*1,139*	*1,139*	F
of which: Senior subordinated debt	*1,708*	*1,708*	
of which: Other debts and borrowings	*425*	*425*	
Provisions	6	6	
Current tax liabilities	66	66	
Deferred tax liabilities	1	1	
Other liabilities	125	125	
Post-employment benefit obligations	75	75	
Total Liabilities	**74,043**	**74,043**	
Shareholders' equity			
Share Capital	911	911	
of which: amount eligible for CET1	*228*	*228*	A
of which: amount eligible for AT1	*683*	*683*	E
Capital contribution reserve	3,953	3,953	
of which: amount eligible for CET1	*3,848*	*3,848*	C
of which: other reserves	*105*	*105*	
Currency translation reserve	0	0	
Pension reserve	(25)	(25)	C
Debt valuation reserve	-	-	
Retained earnings	149	149	
of which: Previous years retained earnings	*(24)*	*(24)*	B
of which: Profit or loss attributable to owners of the parent	*173*	*173*	
Equity attributable to the owners of the Company	4,988	4,988	
Total shareholders' equity	**4,988**	**4,988**	

23. Appendix IV: Countercyclical Capital Buffer (CCyB)

Tables 54a and 54b show the geographical distribution of credit exposures relevant for the calculation of CCyB as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 54a: Geographical distribution of credit exposures for the CCyB – MSI Group and MSIP

	General credit exposures		Trading book exposures			Own funds requirements					
	Exposure value for SA	Exposure value for IRB	Sum of long and short positions of trading book exposures for SA	Value of trading book exposures for internal models	Securitisation Exposures	Of which: General credit exposures	Of which: Trading book exposures	Of which: Securitisation exposures	Total	Own funds requirement weights	CCyB rate
MSI Group	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	%	%
Bulgaria	-	-	-	15	-	-	2	-	2	0.04%	0.50%
Czech Republic	1	-	-	35	-	-	10	-	10	0.19%	0.50%
Hong Kong	26	1,254	280	125	-	39	38	-	77	1.38%	1.00%
Luxembourg	102	3,715	33	54	-	215	61	-	276	4.96%	0.50%
Norway	-	351	4	22	-	7	4	-	11	0.19%	1.00%
Slovakia	-	-	-	8	-	-	1	-	1	0.02%	1.00%
Other	39,050	83,854	1,679	5,763	360	3,647	1,543	106	5,296	93.22%	0.00%
TOTAL	**39,179**	**89,174**	**1,996**	**6,022**	**360**	**3,908**	**1,659**	**106**	**5,673**	**100.00%**	
MSIP											
Bulgaria	-	-	-	15	-	-	2	-	2	0.04%	0.50%
Czech Republic	1	-	-	35	-	-	10	-	10	0.22%	0.50%
Hong Kong	26	1,159	272	125	-	37	37	-	74	1.56%	1.00%
Luxembourg	90	2,611	-	54	-	176	57	-	233	4.91%	0.50%
Norway	-	72	-	22	-	3	4	-	7	0.14%	1.00%
Slovakia	-	-	-	8	-	-	1	-	1	0.02%	1.00%
Other	32,151	70,793	1,178	4,326	360	2,917	1,496	106	4,519	93.11%	0.00%
TOTAL	**32,268**	**74,635**	**1,450**	**4,585**	**360**	**3,133**	**1,607**	**106**	**4,846**	**100.00%**	

Table 54b: Geographical distribution of credit exposures for the CCyB (EU CCyB1) – MSEHSE Group

	General credit exposures		Relevant credit exposures – Market risk				Own fund requirements						
	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	Risk-weighted exposure amounts	Own fund requirements weights (%)	CCyB rate
MSEHSE Group	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	%	%
Bulgaria	-	-	-	-	-	-	-	-	-	-	-	0.00%	0.50%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	0.00%	0.50%
Hong Kong	-	11	-	-	-	11	-	-	-	-	7	0.07%	1.00%
Luxembourg	6	1,009	-	-	-	1,015	56	-	-	56	701	7.69%	0.50%
Norway	-	239	-	-	-	239	3	-	-	3	39	0.43%	1.00%
Slovakia	-	-	-	-	-	-	-	-	-	-	-	0.00%	1.00%
Other	1,114	14,711	-	1,436	-	17,261	633	37	-	670	8,372	91.81%	0.00%
TOTAL	**1,120**	**15,970**	**-**	**1,436**	**-**	**18,526**	**692**	**37**	**-**	**729**	**9,119**	**100.00%**	

Tables 55a and 55b show the amount of institution specific CCyB as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 55a: Amount of institution specific CCyB – MSI Group and MSIP

$MM	MSI Group	MSIP
Total risk exposure amount	**164,374**	**136,748**
Institution specific countercyclical buffer rate	0.04%	0.03%
Institution specific countercyclical buffer requirement	69	34

Table 55b: Amount of institution-specific CCyB (EU CCyB2) – MSEHSE Group

$MM	MSEHSE Group
Total risk exposure amount	**24,163**
Institution specific countercyclical capital buffer rate	0.04%
Institution specific countercyclical capital buffer requirement	10

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

Table 56 shows the total and average net amount of exposures as at 31 December 2021 for the MSI Group and MSIP.

Table 56: Total and average net amount of exposures (EU CRB-B)

$MM	MSI Group		MSIP	
	Net value of exposures at the end of the period	Average net exposures over the period	Net value of exposures at the end of the period	Average net exposures over the period
Central governments or central banks	20,173	20,873	10,966	12,049
Institutions	11,747	10,907	11,093	10,144
Corporates	8,881	11,077	1,297	1,663
Of Which: Specialised Lending	-	-	-	-
Equity	1,243	1,293	1,174	1,200
Total IRB approach	**42,044**	**44,150**	**24,530**	**25,056**
Central governments or central banks	712	727	626	608
Regional governments or local authorities	5	5	5	5
Public sector entities	-	-	-	-
Multilateral Development Banks	6	5	6	5
International Organisations	1	1	1	1
Institutions	546	677	551	696
Corporates	953	970	631	671
Retail	-	-	-	-
Secured by mortgages on immovable property	-	-	-	-
Exposures in default	1	3	1	-
Items associated with particularly high risk	-	-	-	-
Covered bonds	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-
Collective investments undertakings (CIU)	-	-	-	-
Equity exposures	-	-	-	-
Other exposures	1,549	1,530	63	133
Total standardised approach	**3,773**	**3,918**	**1,884**	**2,119**
Total	**45,817**	**48,068**	**26,414**	**27,175**

Over the course of 2021, MSI Group IRB exposures to Central Governments and institutions have increased due to holding more cash.

Table 57 shows the breakdown of exposures by geographical areas and exposure classes as at 31 December 2021 for the MSI Group and MSIP.

Table 57: Geographical breakdown of exposures (EU CRB-C)

$MM	EMEA								Asia					Americas			Other	Total
Country of Jurisdiction[1]	EMEA Total	France	Germany	United Kingdom	Netherlands	Luxembourg	Switzerland	Other	Asia Total	Japan	Hong Kong	Taiwan	Other	Americas Total	United States	Other		
MSI Group																		
Central governments or central banks	20,115	6,600	8,845	4,450	-	-	220	-	57	-	-	-	57	-	-	-	-	**20,172**
Institutions	3,141	1,261	45	904	-	62	87	782	3,818	2,223	1,375	8	212	4,786	4,733	53	-	**11,745**
Corporates	7,895	4,176	329	200	948	453	197	1,592	682	-	-	566	116	304	253	51	-	**8,881**
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Equity	372	10	3	89	10	144	12	104	13	5	1	2	5	857	851	6	-	**1,242**
Total IRB approach	**31,523**	**12,047**	**9,222**	**5,643**	**958**	**659**	**516**	**2,478**	**4,570**	**2,228**	**1,376**	**576**	**390**	**5,947**	**5,837**	**110**	**-**	**42,040**
Central governments or central banks	687	20	82	537	-	-	-	48	12	1	-	-	11	12	12	-	1	**712**
Regional governments or local authorities	1	-	-	-	-	-	-	1	-	-	-	-	-	4	3	1	-	**5**
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	**6**
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**
Institutions	502	373	42	48	1	2	3	33	9	1	2	-	6	34	33	1	-	**545**
Corporates	749	15	12	643	18	7	-	54	157	5	2	20	130	50	21	29	-	**956**
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Exposures in default	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Collective investments undertakings (CIU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other exposures	1,549	40	103	1,406	-	-	-	-	-	-	-	-	-	-	-	-	-	**1,549**
Total standardised approach	**3,488**	**448**	**239**	**2,634**	**19**	**9**	**3**	**136**	**178**	**7**	**4**	**20**	**147**	**100**	**69**	**31**	**8**	**3,774**
Total	**35,011**	**12,495**	**9,461**	**8,277**	**977**	**668**	**519**	**2,614**	**4,748**	**2,235**	**1,380**	**596**	**537**	**6,047**	**5,906**	**141**	**8**	**45,814**
MSIP																		
Central governments or central banks	10,966	6,516	-	4,450	-	-	-	-	-	-	-	-	-	-	-	-	-	**10,966**
Institutions	2,850	1,062	133	870	17	-	43	725	3,737	2,217	1,359	-	161	4,507	4,462	45	-	**11,094**
Corporates	658	52	15	81	-	127	157	226	355	-	-	248	107	283	206	77	-	**1,296**
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Equity	371	10	3	88	10	144	12	104	13	5	1	2	5	790	784	6	-	**1,174**
Total IRB approach	**14,845**	**7,640**	**151**	**5,489**	**27**	**271**	**212**	**1,055**	**4,105**	**2,222**	**1,360**	**250**	**273**	**5,580**	**5,452**	**128**	**-**	**24,530**
Central governments or central banks	603	10	5	546	-	-	-	42	10	1	-	-	9	12	12	-	1	**626**
Regional governments or local authorities	1	-	-	-	-	-	-	1	-	-	-	-	-	4	3	1	-	**5**
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	- -	-	-	-	-	-	6	**6**
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**
Institutions	514	366	50	61	1	2	3	31	5	1	2	-	2	32	31	1	-	**551**
Corporates	426	13	10	329	18	6	-	50	157	5	2	20	130	49	20	29	-	**632**
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Exposures in default	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Items associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Collective investments undertakings (CIU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Other exposures	63	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-	**63**
Total standardised approach	**1,607**	**389**	**65**	**999**	**19**	**8**	**3**	**124**	**172**	**7**	**4**	**20**	**141**	**97**	**66**	**31**	**8**	**1,884**
Total	**16,452**	**8,029**	**216**	**6,488**	**46**	**279**	**215**	**1,179**	**4,277**	**2,229**	**1,364**	**270**	**414**	**5,677**	**5,518**	**159**	**8**	**26,414**

1. Countries exceeding $500MM total gross carrying value for MSI Group are reported individually.

Over the course of 2021, IRB exposures to Central Governments or Central Banks in the EMEA region increased due to cash balances at Central Banks for liquidity management.

Table 58 shows a breakdown of exposures by industry or counterparty types and exposure classes as at 31 December 2021 for the MSI Group and MSIP.

Table 58: Concentration of exposures by industry or counterparty type (EU CRB-D)

$MM

MSI Group[1]	Public administration and defence	Financial and insurance activities	Manufacturing	Information and Communication	Electricity, Gas, Steam and Air Conditioning Supply	Professional, Scientific and Technical Activities	Transformation and Storage	Others	Total
Central governments or central banks	20,173	-	-	-	-	-	-	-	**20,173**
Institutions	-	11,747	-	-	-	-	-	-	**11,747**
Corporates	-	1,914	2,206	1,182	1,269	707	491	1,113	**8,882**
Retail	-	-	-	-	-	-	-	-	**-**
Equity	-	1,145	28	34	2	18	1	14	**1,242**
Total IRB approach	**20,173**	**14,806**	**2,234**	**1,216**	**1,271**	**725**	**492**	**1,127**	**42,044**
Central governments or central banks	203	-	-	-	-	-	-	508	**711**
Regional governments or local authorities	5	-	-	-	-	-	-	-	**5**
Public sector entities	-	-	-	-	-	-	-	-	**-**
Multilateral development banks	6	-	-	-	-	-	-	-	**6**
International organisations	1	-	-	-	-	-	-	-	**1**
Institutions	-	546	-	-	-	-	-	-	**546**
Corporates	-	263	103	60	16	7	13	492	**954**
Retail	-	-	-	-	-	-	-	-	**-**
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	**-**
Exposures in default	-	-	-	-	-	-	-	-	**-**
Items associated with particularly high risk	-	-	-	-	-	-	-	-	**-**
Covered bonds	-	-	-	-	-	-	-	-	**-**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	**-**
Collective investments undertakings	-	-	-	-	-	-	-	-	**-**
Equity exposures	-	-	-	-	-	-	-	-	**-**
Other exposures	-	195	-	-	-	-	-	1,354	**1,549**
Total standardised approach	**215**	**1,004**	**103**	**60**	**16**	**7**	**13**	**2,354**	**3,772**
Total	**20,388**	**15,810**	**2,337**	**1,276**	**1,287**	**732**	**505**	**3,481**	**45,816**
MSIP[1]									
Central governments or central banks	10,966	-	-	-	-	-	-	-	**10,966**
Institutions	-	11,086	-	-	-	-	-	7	**11,093**
Corporates	-	998	37	1	-	59	72	129	**1,296**
Retail	-	-	-	-	-	-	-	-	**-**
Equity	-	1,076	28	34	2	18	1	14	**1,173**
Total IRB approach	**10,966**	**13,160**	**65**	**35**	**2**	**77**	**73**	**150**	**24,528**
Central governments or central banks	109	-	-	-	-	-	-	517	**626**
Regional governments or local authorities	5	-	-	-	-	-	-	-	**5**
Public sector entities	-	-	-	-	-	-	-	-	**-**
Multilateral development banks	6	-	-	-	-	-	-	-	**6**
International organisations	1	-	-	-	-	-	-	-	**1**
Institutions	-	551	-	-	-	-	-	-	**551**
Corporates	-	161	101	58	15	7	13	277	**632**
Retail	-	-	-	-	-	-	-	-	**-**
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	**-**
Exposures in default	-	-	-	-	-	-	-	-	**-**
Items associated with particularly high risk	-	-	-	-	-	-	-	-	**-**
Covered bonds	-	-	-	-	-	-	-	-	**-**
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	**-**
Collective investments undertakings	-	-	-	-	-	-	-	-	**-**
Equity exposures	-	-	-	-	-	-	-	-	**-**
Other exposures	-	-	-	-	-	-	-	63	**63**
Total standardised approach	**121**	**712**	**101**	**58**	**15**	**7**	**13**	**857**	**1,884**
Total	**11,087**	**13,872**	**166**	**93**	**17**	**84**	**86**	**1,007**	**26,412**

1. Industries exceeding $500MM total gross carrying value for MSI Group are reported individually.

Over the course of 2021, IRB exposures to Central Governments or Central Banks increased due to cash holdings.

Tables 59a and 59b show a breakdown of net exposures by residual maturity and exposure classes as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 59a: Maturity of exposures (EU CRB-E) – MSI Group and MSIP

$MM MSI Group	On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
Central governments or central banks	20,173	-	-	-	-	20,173
Institutions	6,127	5,078	198	3	-	11,406
Corporates	930	175	588	190	-	1,883
Retail	-	-	-	-	-	-
Equity	-	-	190	247	-	437
Total IRB approach	**27,230**	**5,253**	**976**	**440**	**-**	**33,899**
Central governments or central banks	-	-	593	-	119	712
Regional governments or local authorities	-	-	-	-	5	5
Public sector entities	-	-	-	-	-	-
Multilateral development banks	-	-	-	-	6	6
International organisations	-	-	-	-	1	1
Institutions	-	79	-	-	52	131
Corporates	-	57	-	-	896	953
Retail	-	-	-	-	-	-
Secured by mortgages on immovable property	-	-	-	-	-	-
Exposures in default	-	-	-	-	1	1
Items associated with particularly high risk	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
Collective investments undertakings (CIU)	-	-	-	-	-	-
Equity exposures	-	-	-	-	-	-
Other exposures	-	-	1,438	111	-	1,549
Total standardised approach	**-**	**136**	**2,031**	**111**	**1,080**	**3,358**
Total	**27,230**	**5,389**	**3,007**	**551**	**1,080**	**37,257**
$MM MSIP	**On demand**	**<= 1 year**	**> 1 year <= 5 years**	**> 5 years**	**No stated maturity**	**Total**
Central governments or central banks	10,966	-	-	-	-	10,966
Institutions	5,707	5,070	151	-	-	10,928
Corporates	616	82	493	55	-	1,246
Retail	-	-	-	-	-	-
Equity	-	-	188	247	-	435
Total IRB approach	**17,289**	**5,152**	**832**	**302**	**-**	**23,575**
Central governments or central banks	-	-	517	-	109	626
Regional governments or local authorities	-	-	-	-	5	5
Public sector entities	-	-	-	-	-	-
Multilateral development banks	-	-	-	-	6	6
International organisations	-	-	-	-	1	1
Institutions	-	79	2	8	47	136
Corporates	-	55	-	-	576	631
Retail	-	-	-	-	-	-
Secured by mortgages on immovable property	-	-	-	-	-	-
Exposures in default	-	-	-	-	1	1
Items associated with particularly high risk	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-
Collective investments undertakings (CIU)	-	-	-	-	-	-
Equity exposures	-	-	-	-	-	-
Other exposures	-	-	63	-	-	63
Total standardised approach	**-**	**134**	**582**	**8**	**745**	**1,469**
Total	**17,289**	**5,286**	**1,414**	**310**	**745**	**25,044**

Over the course of 2021 IRB exposures to Central Banks increased. These cash deposits are on demand.

Table 59b: Maturity of exposures (EU CR1-A) – MSEHSE Group

	Net exposure value					
$MM	On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
Loans and advances	-	43	311	-	121	475
Debt securities	-	-	-	-	-	-
Total	-	43	311	-	121	475

Table 60 shows the credit quality of exposures by exposure class and instruments as at 31 December 2021 for the MSI Group and MSIP.

Table 60: Credit quality of exposures by exposure class and instrument (EU CR1-A) – MSI Group and MSIP

$MM	Gross carrying values of						
MSI Group	Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges	Net Values[1]
Central governments or central banks	-	20,173	-	-	-	-	20,173
Institutions	2	11,745	-	-	-	-	11,747
Corporates	194	8,687	-	-	-	-	8,881
Of which: Specialised lending	-	-	-	-	-	-	-
Equity	-	1,243	-	-	-	-	1,243
Total IRB approach	**196**	**41,848**	**-**	**-**	**-**	**-**	**42,044**
Central governments or central banks	-	712	-	-	-	-	712
Regional governments or local authorities	-	5	-	-	-	-	5
Public sector entities	-	-	-	-	-	-	-
Multilateral development banks	-	6	-	-	-	-	6
International organisations	-	1	-	-	-	-	1
Institutions	6	546	6	-	-	1	546
Corporates	2	953	2	-	-	-	953
Secured by mortgages on immovable property	-	-	-	-	-	-	-
Exposures in default	1	-	-	-	-	-	1
Items associated with particularly high risk	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-
Claims on institutions and corporates with a short- term credit assessment	-	-	-	-	-	-	-
Collective investments undertakings (CIU)	-	-	-	-	-	-	-
Equity exposures	-	-	-	-	-	-	-
Other exposures	-	1,549	-	-	-	-	1,549
Total standardised approach	**9**	**3,772**	**8**	**-**	**-**	**1**	**3,773**
Total	**205**	**45,620**	**8**	**-**	**-**	**1**	**45,817**
Of which: Loans and advances	199	36,412	8	-	-	1	36,603
Of which: Off-balance sheet	6	7,748	-	-	-	-	7,754
Of which: Equity	-	1,243	-	-	-	-	1,243
Of which: Debt securities	-	217	-	-	-	-	217
MSIP							
Central governments or central banks	-	10,966	-	-	-	-	10,966
Institutions	1	11,091	-	-	-	-	11,092
Corporates	56	1,241	-	-	-	-	1,297
Of which: Specialised lending	-	-	-	-	-	-	-
Equity	-	1,174	-	-	-	-	1,174
Total IRB approach	**57**	**24,472**	**-**	**-**	**-**	**-**	**24,529**
Central governments or central banks	-	626	-	-	-	-	626
Regional governments or local authorities	-	5	-	-	-	-	5
Public sector entities	-	-	-	-	-	-	-
Multilateral development banks	-	6	-	-	-	-	6
International organisations	-	1	-	-	-	-	1
Institutions	4	551	4	-	-	-	551
Corporates	2	631	2	-	-	-	631
Secured by mortgages on immovable property	-	-	-	-	-	-	-
Exposures in default	1	-	-	-	-	-	1
Items associated with particularly high risk	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-
Claims on institutions and corporates with a short- term credit assessment	-	-	-	-	-	-	-
Collective investments undertakings (CIU)	-	-	-	-	-	-	-
Equity exposures	-	-	-	-	-	-	-
Other exposures	-	63	-	-	-	-	63
Total standardised approach	**7**	**1,883**	**6**	**-**	**-**	**-**	**1,884**
Total	**64**	**26,355**	**6**	**-**	**-**	**-**	**26,413**
Of which: Loans and advances	64	24,322	6	-	-	-	24,380
Of which: Off-balance sheet	-	629	-	-	-	-	629
Of which: Equity	-	1,174	-	-	-	-	1,174
Of which: Debt securities	-	230	-	-	-	-	230

1. Net value is the total of defaulted, non-defaulted exposures, less specific credit risk adjustments.

Over the second half of 2021, IRB exposures to Corporates decreased due to Loans, partially offset by increase in exposures to institutions due to liquidity management.

Table 61 shows the credit quality of on-balance sheet and off-balance sheet by industry as at 31 December 2021 for MSI Group and MSIP.

Table 61: Credit quality of exposures by industry or counterparty types (EU CR1-B)

$MM	Gross carrying values of						
MSI Group[1]	**Defaulted exposures**	**Non-defaulted exposures**	**Specific credit risk adjustment**	**General credit risk adjustment**	**Accumulated write-Offs**	**Credit risk adjustment charge**	**Net Values[2]**
Public Administration and Defence; Compulsory Social Security	-	20,390	-	-	-	-	20,390
Financial and Insurance Activities	35	15,781	6	-	-	-	15,810
Manufacturing	6	2,333	1	-	-	1	2,338
Information and Communication	-	1,275	-	-	-	-	1,275
Electricity, Gas, Steam and Air Conditioning Supply	-	1,287	-	-	-	-	1,287
Professional, Scientific and Technical Activities	-	732	-	-	-	-	732
Transportation and Storage	30	475	-	-	-	-	505
Other	134	3,347	1	-	-	-	3,480
Total	**205**	**45,620**	**8**	**-**	**-**	**1**	**45,817**
MSIP[1]							
Public Administration and Defence; Compulsory Social Security	-	11,087	-	-	-	-	11,087
Financial and Insurance Activities	8	13,869	4	-	-	-	13,873
Manufacturing	5	162	2	-	-	-	165
Information and Communication	-	93	-	-	-	-	93
Electricity, Gas, Steam and Air Conditioning Supply	-	17	-	-	-	-	17
Professional, Scientific and Technical Activities	-	84	-	-	-	-	84
Transportation and Storage	20	66	-	-	-	-	86
Other	31	977	-	-	-	-	1,008
Total	**64**	**26,355**	**6**	**-**	**-**	**-**	**26,413**

1. Industries exceeding $500MM total gross carrying value for MSI Group are reported individually.
2. Net value is the total of defaulted, non-defaulted exposures, less specific credit risk adjustments.

Over the second half of 2021, exposures to real estate industry decreased due to Loans (within other industries) offset by increase in Financial and Insurance activities sector due to liquidity management.

Table 62 shows the credit quality of on-balance sheet and off-balance sheet by geography as at 31 December 2021 for the MSI Group and MSIP.

Table 62: Credit quality of exposures by geography (EU CR1-C)

$MM	Gross carrying values of		Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges	Net Values[2]
MSI Group[1]	Defaulted exposures	Non-defaulted exposures					
EMEA	**197**	**34,820**	**4**	**-**	**-**	**1**	**35,013**
France	7	12,491	2	-	-	1	12,496
Germany	57	9,405	-	-	-	-	9,462
United Kingdom	53	8,225	1	-	-	-	8,277
Netherlands	-	978	-	-	-	-	978
Luxembourg	-	668	-	-	-	-	668
Switzerland	-	520	-	-	-	-	520
Other countries	80	2,533	1	-	-	-	2,612
Asia	**1**	**4,748**	**-**	**-**	**-**	**-**	**4,749**
Japan	-	2,235	-	-	-	-	2,235
Hong Kong	-	1,380	-	-	-	-	1,380
Taiwan	-	596	-	-	-	-	596
Other Countries	1	537	-	-	-	-	538
Americas	**7**	**6,045**	**4**	**-**	**-**	**-**	**6,048**
United States	2	5,907	2	-	-	-	5,907
Other countries	5	138	2	-	-	-	141
Other geographical areas	**-**	**7**	**-**	**-**	**-**	**-**	**7**
Total	**205**	**45,620**	**8**	**-**	**-**	**1**	**45,817**
MSIP[1]							
EMEA	**57**	**16,400**	**2**	**-**	**-**	**-**	**16,455**
France	-	8,031	-	-	-	-	8,031
Germany	15	201	-	-	-	-	216
United Kingdom	20	6,470	1	-	-	-	6,489
Netherlands	-	46	-	-	-	-	46
Luxembourg	-	279	-	-	-	-	279
Switzerland	-	215	1	-	-	-	214
Other countries	22	1,158	-	-	-	-	1,180
Asia	**1**	**4,274**	**-**	**-**	**-**	**-**	**4,275**
Japan	-	2,228	-	-	-	-	2,228
Hong Kong	-	1,363	-	-	-	-	1,363
Taiwan	-	269	-	-	-	-	269
Other Countries	1	414	-	-	-	-	415
Americas	**6**	**5,674**	**4**	**-**	**-**	**-**	**5,676**
United States	1	5,520	2	-	-	-	5,519
Other countries	5	154	2	-	-	-	157
Other geographical areas	**-**	**7**	**-**	**-**	**-**	**-**	**7**
Total	**64**	**26,355**	**6**	**-**	**-**	**-**	**26,413**

1. Countries exceeding $500MM total gross carrying value for MSI Group are reported individually.
2. Net value is the total of defaulted, non-defaulted exposures, less specific credit risk adjustments.

Over the second half of 2021 there was a decrease in exposure on France and the United Kingdom due to a reduction in cash balances held with Central Banks.

Table 63 shows the changes in stock of general and specific credit risk adjustments held against loans and debt securities that are defaulted or impaired as at 31 December 2021 for the MSI Group and MSIP.

Table 63: Changes in stock of general and specific credit risk adjustments (EU CR2-A)

$MM	MSI Group		MSIP	
	Accumulated specific credit risk adjustment	Accumulated general credit risk adjustment	Accumulated specific credit risk adjustment	Accumulated general credit risk adjustment
Opening balance	**8**	**-**	**5**	**-**
Increases due to amounts set aside for estimated loan losses during the period	2	-	1	-
Decreases due to amounts reversed for estimated loan losses during the period	(2)	-	-	-
Decreases due to amounts taken against accumulated credit risk adjustments	-	-	-	-
Transfers between credit risk adjustments	-	-	-	-
Impact of exchange rate differences	-	-	-	-
Business combinations, including acquisitions and disposals of subsidiaries	-	-	-	-
Other adjustments	-	-	-	-
Closing balance	**8**	**-**	**6**	**-**
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	-	-	-	-
Specific credit risk adjustments recorded directly to the statement of profit or loss	-	-	-	-

Over the second half of 2021, there have been no material changes.

Table 64 shows the changes in stock of defaulted loans and debt securities as at 31 December 2021 for the MSI Group and MSIP.

Table 64: Changes in stock of defaulted and impaired loans and debt securities (EU CR2-B)

$MM	MSI Group	MSIP
	Gross carrying value defaulted exposures	Gross carrying value defaulted exposures
Opening balance	**62**	**52**
Loans and debt securities that have defaulted or impaired since the last reporting period	110	90
Returned to non-defaulted status	(84)	(64)
Amounts written off	-	-
Other changes	-	-
Closing balance	**88**	**78**

Over the second half of 2021, there have been no material changes.

Tables 65a and 65b provide a breakdown of performing and non-performing exposures by portfolio, exposure class and days past due as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 65a: Credit Quality of Performing and Non-Performing exposures – MSI Group and MSIP

	Gross carrying amount/nominal amount											
$MM	Performing exposures			Non-performing exposures								
MSI Group[1,2]		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 > 2 years ≤ 5 years	Past due > 5 years ≤ 7 years	Past due > 7 years	Of which defaulted
Loans and advances	**131,479**	**131,302**	**177**	**88**	**-**	**71**	**5**	**8**	**3**	**1**	**-**	**88**
Central banks	20,750	20,750	-	-	-	-	-	-	-	-	-	-
General governments	1,491	1,490	1	2	-	1	-	1	-	-	-	2
Credit institutions	28,821	28,768	53	21	-	17	1	2	1	-	-	21
Other financial corporations	79,460	79,385	75	35	-	27	2	4	2	-	-	35
Non-financial corporations	957	909	48	30	-	26	2	1	-	1	-	30
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	-	-	-	-	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**3,270**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	41	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	647	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	2,582	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Total	**134,749**	**131,302**	**177**	**88**	**-**	**71**	**5**	**8**	**3**	**1**	**-**	**88**
MSIP[1]												
Loans and advances	**106,867**	**106,728**	**139**	**78**	**-**	**68**	**1**	**5**	**3**	**1**	**-**	**78**
Central banks	11,529	11,529	-	-	-	-	-	-	-	-	-	-
General governments	1,061	1,060	1	2	-	1	-	1	-	-	-	2
Credit institutions	25,866	25,828	38	18	-	16	-	1	1	-	-	18
Other financial corporations	67,736	67,681	55	32	-	26	1	3	2	-	-	32
Non-financial corporations	675	630	45	26	-	25	-	-	-	1	-	26
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**12**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	12	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Total	**106,879**	**106,728**	**139**	**78**	**-**	**68**	**1**	**5**	**3**	**1**	**-**	**78**

1. The Gross Non-Performing Loan ("NPL") ratio as of 31 December 2021 was MSI Group 0.07% and MSIP 0.07%.
2. The MSI Group has no forborne exposures.

Table 65b: Credit Quality of Performing and Non-Performing exposures (EU CQ3) – MSEHSE Group

$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
Cash balances at central banks and other demand deposits	**9,481**	**9,481**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Loans and advances	**32,496**	**32,458**	**38**	**10**	**-**	**3**	**3**	**3**	**1**	**-**	**-**	**10**
Central banks	330	330	-	-	-	-	-	-	-	-	-	-
General governments	423	423	-	-	-	-	-	-	-	-	-	-
Credit institutions	3,830	3,815	15	3	-	1	1	1	-	-	-	3
Other financial corporations	27,644	27,625	19	3	-	1	1	1	-	-	-	3
Non-financial corporations	269	265	4	4	-	1	1	1	1	-	-	4
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**4,396**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	40	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	1,774	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	2,582	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-
Total	**46,373**	**41,939**	**38**	**10**	**-**	**3**	**3**	**3**	**1**	**-**	**-**	**10**

Over the second half of 2021, there have been no material movements.

Tables 66a and 66b show an overview of performing and non-performing exposures and the related provisions as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 66a: Performing and Non-performing exposures and related provisions – MSI Group and MSIP

$MM	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			Accumulated partial write-off	On performing exposures	On non-performing exposures
MSI Group[1]		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			
Loans and advances	**131,479**	**79,593**	**51,886**	**88**	**44**	**44**	**(1)**	**-**	**(1)**	**(8)**	**-**	**(8)**	-	-	-
Central banks	20,750	20,182	568	-	-	-	-	-	-	-	-	-	-	-	-
General governments	1,491	65	1,426	2	-	2	-	-	-	-	-	-	-	-	-
Credit institutions	28,820	18,088	10,732	21	5	16	-	-	-	(3)	-	(3)	-	-	-
Other financial corporations	79,460	41,248	38,212	35	11	24	-	-	-	(3)	-	(3)	-	-	-
Non-financial corporations	958	10	948	30	28	2	(1)	-	(1)	(2)	-	(2)	-	-	-
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**3,270**	**3,258**	-	-	-	-	-	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	41	41	-	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	647	635	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	2,582	2,582	-	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**134,749**	**82,851**	**51,886**	**88**	**44**	**44**	**(1)**	**-**	**(1)**	**(8)**	**-**	**(8)**	-	-	-
MSIP															
Loans and advances	**106,868**	**67,601**	**39,267**	**78**	**40**	**38**	**(1)**	**-**	**(1)**	**(5)**	**-**	**(5)**	-	-	-
Central banks	11,529	10,966	563	-	-	-	-	-	-	-	-	-	-	-	-
General governments	1,061	42	1,019	2	-	2	-	-	-	-	-	-	-	-	-
Credit institutions	25,867	17,623	8,244	18	5	13	-	-	-	(2)	-	(2)	-	-	-
Other financial corporations	67,736	38,968	28,768	32	10	22	-	-	-	(2)	-	(2)	-	-	-
Non-financial corporations	675	2	673	26	25	1	(1)	-	(1)	(1)	-	(1)	-	-	-
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**12**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**106,880**	**67,601**	**39,267**	**78**	**40**	**38**	**(1)**	**-**	**(1)**	**(5)**	**-**	**(5)**	-	-	-

1. The MSI Group has no foreclosed assets obtained from non-performing exposures.

Table 66b: Performing and Non-performing exposures and related provisions (EU CR1) – MSEHSE Group

$MM	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			Accumulated partial write-off	On performing exposures	On non-performing exposures
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			
Cash balances at central banks and other demand deposits	**9,481**	**9,481**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Loans and advances	**32,496**	**6,037**	**12,300**	**10**	**4**	**6**	**-**	**-**	**-**	**(3)**	**-**	**(3)**	**-**	**13,828**	**-**
Central banks	330	-	5	-	-	-	-	-	-	-	-	-	-	318	-
General governments	423	18	405	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	3,830	-	2,361	3	-	3	-	-	-	(1)	-	(1)	-	1,433	-
Other financial corporations	27,644	6,013	9,266	3	-	3	-	-	-	(1)	-	(1)	-	12,067	-
Non-financial corporations	269	6	263	4	4	-	-	-	-	(1)	-	(1)	-	-	-
Of which SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debt securities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Credit institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-financial corporations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Off-balance-sheet exposures	**4,396**	**4,396**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**	**-**
Central banks	-	-	-	-	-	-	-	-	-	-	-	-		-	-
General governments	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Credit institutions	40	40	-	-	-	-	-	-	-	-	-	-		-	-
Other financial corporations	1,774	1,774	-	-	-	-	-	-	-	-	-	-		-	-
Non-financial corporations	2,582	2,582	-	-	-	-	-	-	-	-	-	-		-	-
Households	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Total	**46,373**	**19,914**	**12,300**	**10**	**4**	**6**	**-**	**-**	**-**	**(3)**	**-**	**(3)**	**-**	**13,828**	**-**

Over the second half of 2021, there have been no material movements.

Table 67 shows the quality of non-performing exposures by geography as at 31 December 2021 for the MSEHSE Group.

Table 67: Quality of non-performing exposures by geography (EU CQ4)

$MM MSEHSE Group	Gross carrying/nominal amount	Of which non-performing	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
On-balance-sheet exposures[1]	**32,506**	**10**	**10**	**18,347**	**(3)**		**-**
United Kingdom	15,063	1	1	4,915	-		-
Netherlands	5,396	1	1	5,383	-		-
Germany	3,699	4	4	2,836	-		-
United States of America	3,454	-	-	2,511	-		-
France	2,052	2	2	692	(3)		-
Other countries	2,842	2	2	2,010	-		-
Off-balance-sheet exposures[2]	**4,396**	**-**	**-**			**-**	
France	1,972	-	-			-	
United Kingdom	1,172	-	-			-	
Netherlands	273	-	-			-	
Italy	263	-	-			-	
Norway	250	-	-			-	
Other countries	466	-	-			-	
Total	**36,902**	**10**	**10**	**18,347**	**(3)**	**-**	**-**

1. Countries exceeding $500MM total gross carrying amount for MSEHSE Group are reported individually.
2. Countries exceeding $250MM total gross carrying amount for MSEHSE Group are reported individually.

Table 68 shows the credit quality of loans and advances to non-financial corporations by industry as at 31 December 2021 for the MSEHSE Group.

Table 68: Credit quality of loans and advances to non-financial corporations by industry (EU CQ5)

$MM MSEHSE Group	Gross carrying amount	Of which non-performing	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
Agriculture, forestry, and fishing	-	-	-	-	-	-
Mining and quarrying	27	-	-	27	-	-
Manufacturing	15	-	-	15	-	-
Electricity, gas, steam, and air conditioning supply	38	2	2	38	-	-
Water supply	-	-	-	-	-	-
Construction	-	-	-	-	-	-
Wholesale and retail trade	2	1	1	2	-	-
Transport and storage	11	-	-	11	-	-
Accommodation and food service activities	2	-	-	2	-	-
Information and communication	167	-	-	167	-	-
Financial and insurance activities	-	-	-	-	-	-
Real estate activities	8	-	-	8	-	-
Professional, scientific, and technical activities	-	-	-	-	-	-
Administrative and support service activities	-	-	-	-	-	-
Public administration and defence, compulsory social security	-	-	-	-	-	-
Education	-	-	-	-	-	-
Human health services and social work activities	2	-	-	2	-	-
Arts, entertainment, and recreation	-	-	-	-	-	-
Other services	1	1	1	1	(1)	-
Total	**273**	**4**	**4**	**273**	**(1)**	**-**

Table 69 shows the changes in the stock of non-performing loans and advances as at 31 December 2021 for the MSEHSE Group.

Table 69: Changes in the stock of non-performing loans and advances (EU CR2)

$MM MSEHSE Group	Gross carrying amount
Initial stock of non-performing loans and advances	**3**
Inflows to non-performing portfolios	32
Outflows from non-performing portfolios	(25)
Outflows due to write-offs	0
Outflow due to other situations	(25)
Final stock of non-performing loans and advances	**10**

Tables 70a and 70b show the extent of the use of CRM techniques as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 70a: Credit risk mitigation techniques – overview (EU CR3) – MSI Group and MSIP

$MM MSI Group	Exposures unsecured: carrying amount	Exposures secured: carrying amount	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total loans	36,406	196	196	-	-
Total debt securities	217	-	-	-	-
Equity exposures	437	-	-	-	-
Total exposures	**37,060**	**196**	**196**	**-**	**-**
Of which defaulted	199	-	-	-	-
MSIP					
Total loans	24,182	198	198	-	-
Total debt securities	230	-	-	-	-
Equity exposures	435	-	-	-	-
Total exposures	**24,847**	**198**	**198**	**-**	**-**
Of which defaulted	64	-	-	-	-

Over the second half of 2021, increase in unsecured Loans and Advances driven by Cash balances at Central Banks.

Table 70b: Credit risk mitigation techniques – overview (EU CR3) – MSEHSE Group

$MM 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
Loans and advances[1]	28,155	13,828	13,828	-	-
Debt securities	-	-	-	-	-
Total exposures	**28,155**	**13,828**	**13,828**	**-**	**-**
Of which non-performing exposures	7	-	-	-	-
Of which defaulted	7	-	-	-	-

1. Loans and advances includes reverse repurchase agreements.

Tables 71a and 71b show the effect of all CRM techniques as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group.

Table 71a: Standardised approach: Credit risk exposure and CRM effects (EU CR4) – MSI Group and MSIP

$MM	Exposures before CCF[1] and CRM		Exposures post CCF and CRM		RWAs and RWA density	
MSI Group	On-balance sheet amount $MM	Off-balance sheet amount $MM	On-balance sheet amount $MM	Off-balance sheet amount $MM	RWAs $MM	RWA density %
Central governments or central banks	712	-	712	-	1,141	160%
Regional government or local authorities	5	-	5	-	2	50%
Public sector entities	-	-	-	-	-	50%
Multilateral development banks	6	-	6	-	-	0%
International organisations	1	-	1	-	-	0%
Institutions	131	415	131	83	604	282%
Corporates	953	-	953	-	1,366	143%
Retail	-	-	-	-	-	0%
Secured by mortgages on immovable property	-	-	-	-	-	0%
Exposures in default	1	-	1	-	2	150%
Higher-risk categories	-	-	-	-	-	0%
Covered bonds	-	-	-	-	-	0%
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	0%
Collective investment undertakings	-	-	-	-	-	0%
Equity	-	-	-	-	-	0%
Other items	1,549	-	1,549	-	1,549	100%
Total	**3,358**	**415**	**3,358**	**83**	**4,664**	**136%**
MSIP						
Central governments or central banks	626	-	626	-	737	118%
Regional government or local authorities	5	-	5	-	2	50%
Public sector entities	-	-	-	-	-	0%
Multilateral development banks	6	-	6	-	-	0%
International organisations	1	-	1	-	-	0%
Institutions	136	415	136	83	536	245%
Corporates	631	-	631	-	1,020	162%
Retail	-	-	-	-	-	0%
Secured by mortgages on immovable property	-	-	-	-	-	0%
Exposures in default	1	-	1	-	1	150%
Higher-risk categories	-	-	-	-	-	0%
Covered bonds	-	-	-	-	-	0%
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	0%
Collective investment undertakings	-	-	-	-	-	0%
Equity	-	-	-	-	-	0%
Other items	63	-	63	-	63	100%
Total	**1,469**	**415**	**1,469**	**83**	**2,359**	**152%**

Over the second half of 2021, increase in RWA driven by Settlement Risk and intangible assets which are not subject to Credit Risk Mitigation.

Table 71b: Standardised approach: Credit risk exposure and CRM effects (EU CR4) – MSEHSE Group

	Exposures before CCF and before CRM		Exposures post CCF and post CRM		RWAs and RWA density	
MSEHSE Group	On-balance sheet exposures $MM	Off-balance sheet exposures $MM	On-balance sheet exposures $MM	Off-balance sheet exposures $MM	RWEAs $MM	RWEA density %
Central governments or central banks	70	-	70	-	139	201%
Regional government or local authorities	-	-	-	-	-	0%
Public sector entities	-	-	-	-	-	0%
Multilateral development banks	-	-	-	-	-	0%
International organisations	-	-	-	-	-	0%
Institutions	12	-	12	-	119	959%
Corporates	114	-	114	-	136	119%
Retail	-	-	-	-	-	0%
Secured by mortgages on immovable property	-	-	-	-	-	0%
Exposures in default	-	-	-	-	-	150%
Exposures associated with particularly high risk	-	-	-	-	-	0%
Covered bonds	-	-	-	-	-	0%
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	0%
Collective investment undertakings	-	-	-	-	-	0%
Equity	-	-	-	-	-	0%
Other items	122	-	122	-	122	100%
Total	**318**	**-**	**318**	**-**	**516**	**162%**

Over the second half of 2021, increase in RWA majorly driven by settlement risk and intangible assets.

Table 72 shows the breakdown of exposures under the standardised approach by asset class and risk weight as at 31 December 2021 for the MSI Group.

Table 72: Standardised approach (EU CR5)

$MM

	Risk Weight																	
MSI Group	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted	Total	Of which unrated
Central governments or central banks	8	-	-	-	2	-	307	-	-	-	-	395	-	-	-	-	**712**	4
Regional government or local authorities	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	**5**	4
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Multilateral development banks	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6**	-
International organisations	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**	-
Institutions	-	83	-	-	33	-	14	-	-	41	1	-	-	44	-	-	**216**	18
Corporates	-	-	-	-	1	-	58	-	-	814	43	-	-	37	-	-	**953**	669
Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Exposures in default	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**1**	-
Higher-risk categories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Collective investment undertakings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Other items	-	-	-	-	-	-	-	-	-	1,549	-	-	-	-	-	-	**1,549**	-
Total	**15**	**83**	**-**	**-**	**36**	**-**	**384**	**-**	**-**	**2,404**	**45**	**395**	**-**	**81**	**-**	**-**	**3,443**	**695**

Over the second half of 2021, decrease in RWA majorly driven by settlement risk.

Table 73 shows the exposures for the MSI Group, calculated using the Standardised approach for each exposure class and broken down by CQS.

Table 73: Standardised approach EAD by credit quality step

$MM MSI Group[1]		CQS1	CQS2	CQS3	CQS4	CQS5	CQS6	Other[2]	Unrated	Total
Central Governments or Central Banks	GROSS EAD	150	4	37	5	3	-	-	568	767
	EAD	150	4	37	5	3	-	-	568	767
Corporates	GROSS EAD	32	145	162	29	60	13	-	1,590	**2,031**
	EAD	32	145	162	29	60	13	-	1,590	**2,031**
High risk	GROSS EAD	-	-	-	-	-	-	-	-	**-**
	EAD	-	-	-	-	-	-	-	-	**-**
Institutions	GROSS EAD	11,410	5,664	50	4	27	7	15,956	815	**33,933**
	EAD	10,744	5,664	50	4	27	7	14,731	815	**32,042**
Multilateral developments banks	GROSS EAD	6	-	-	-	-	-	-	-	**6**
	EAD	6	-	-	-	-	-	-	-	**6**
Public sector entities	GROSS EAD	-	-	-	-	-	-	-	-	**-**
	EAD	-	-	-	-	-	-	-	-	**-**
Regional governments or Local Authorities	GROSS EAD	1	1	-	-	-	-	-	3	**5**
	EAD	1	1	-	-	-	-	-	3	**5**
International Organisations	GROSS EAD	1	-	-	-	-	-	-	-	**1**
	EAD	1	-	-	-	-	-	-	-	**1**
Securitisation	GROSS EAD	-	-	158	-	18	-	302	-	**478**
	EAD	-	-	158	-	18	-	302	-	**478**
Other Items	GROSS EAD	44	-	-	-	-	-	-	1,505	1,549
	EAD	44	-	-	-	-	-	-	1,505	1,549
Total	**GROSS EAD**	**11,644**	**5,814**	**407**	**38**	**108**	**20**	**16,258**	**4,481**	**38,770**
	EAD	**10,978**	**5,814**	**407**	**38**	**108**	**20**	**15,033**	**4,481**	**36,879**

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 counterparties to which a fixed risk weight is applied.

Tables 74a and 74b show the breakdown of exposures under the standardised approach by asset class and risk weight as at 31 December 2021 for the MSI Group, MSIP and MSEHSE Group. Credit Derivatives are not used as a CRM technique for RWA benefits.

Table 74a: IRB approach: RWA effect of credit derivative CRM techniques (EU CR7) – MSI Group and MSIP

$MM	MSI Group		MSIP	
	Pre-credit derivatives RWAs	Actual RWAs	Pre-credit derivatives RWAs	Actual RWAs
Exposures under Foundation IRB	**6,788**	**6,788**	**3,468**	**3,468**
Central governments and central banks	596	596	359	359
Institutions	2,401	2,401	2,125	2,125
Corporates – SME	-	-	-	-
Corporates - specialised lending	-	-	-	-
Corporates – other	3,791	3,791	984	984
Exposures under Advanced IRB	-	-	-	-
Total	**6,788**	**6,788**	**3,468**	**3,468**

Morgan Stanley continues to not use credit derivatives to mitigate risk weighted assets.

Table 74b: IRB approach: RWA effect of credit derivative CRM techniques (EU CR7) – MSEHSE Group

$MM	MSEHSE Group	
	Pre-credit derivatives risk weighted exposure amount	Actual risk weighted exposure amount
Exposures under F-IRB	**3,045**	**3,045**
Central governments and central banks	233	233
Institutions	206	206
Corporates	2,606	2,606
Of which Corporates – SMEs	-	-
Of which Corporates - Specialised lending	-	-
Exposures under A-IRB	-	-
Central governments and central banks	-	-
Institutions	-	-
Corporates	-	-
of which Corporates – SMEs	-	-
of which Corporates - Specialised lending	-	-
Retail	-	-
Of which Retail – SMEs – Secured by immovable property collateral	-	-
Of which Retail – non-SMEs – Secured by immovable property collateral	-	-
of which Retail – Qualifying revolving	-	-
of which Retail – SMEs – Other	-	-
of which Retail – Non-SMEs- Other	-	-
TOTAL (including F-IRB exposures and A-IRB exposures)	**3,045**	**3,045**

Table 75 shows the parameters used for the calculation of capital requirements for IRB models as at 31 December 2021 for the MSI Group.

Table 75: IRB approach: Credit risk exposures by exposure class and PD range (EU CR6)

MSI Group	Original on-balance sheet gross exposure	Off-balance sheet exposures pre-CCF	Average CCF	EAD post-CRM and post-CCF	Average PD	Number of obligors	Average LGD	Average maturity	RWAs	RWA density	EL	Value adjustments and provisions
	$MM	$MM	%	$MM	%	#	%	Years	$MM	%	$MM	$MM
0.00 to <0.15	20,173	-	0.00%	20,173	0.01%	7	45%	-	596	3%	1	
0.15 to <0.25	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
0.25 to <0.50	-	-	0.00%	-	0.00%	-	0.00%	-	-	50%	-	
0.50 to <0.75	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
0.75 to <2.50	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
2.50 to <10.00	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
10.00 to <100.00	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
100.00 (Default)	-	-	0.00%	-	0.00%	-	-	-	-	-	-	
Central governments or central banks	**20,173**	**-**	**0.00%**	**20,173**	**0.01%**	**7**	**45%**	**-**	**596**	**3%**	**1**	**-**
0.00 to <0.15	10,821	331	241.67%	11,611	0.05%	76	45%	1	1,926	17%	3	
0.15 to <0.25	121	-	75.00%	121	0.22%	9	45%	1	55	45%	-	
0.25 to <0.50	321	-	75.00%	321	0.35%	4	45%	1	191	59%	1	
0.50 to <0.75	-	-	75.00%	-	0.55%	1	45%	-	-	76%	-	
0.75 to <2.50	94	9	75.00%	101	0.95%	8	45%	1	104	103%	-	
2.50 to <10.00	3	-	0.00%	3	5.18%	2	45%	-	5	169%	-	
10.00 to <100.00	44	-	129.75%	44	11.13%	48	45%	4	120	273%	2	
100.00 (Default)	2	-	0.00%	2	100.00%	3	45%	4	-	-	1	
Institutions	**11,406**	**340**	**237.08%**	**12,203**	**0.13%**	**151**	**45%**	**1**	**2,401**	**20%**	**7**	**-**
0.00 to <0.15	1,258	3,333	106.80%	4,794	0.07%	56	45%	2	1,358	30%	1	
0.15 to <0.25	12	1,588	29.94%	488	0.22%	20	45%	3	296	61%	-	
0.25 to <0.50	7	474	32.39%	160	0.35%	7	45%	3	115	72%	-	
0.50 to <0.75	40	90	75.00%	107	0.55%	10	45%	1	85	79%	-	
0.75 to <2.50	30	283	60.27%	201	1.55%	24	45%	3	272	135%	1	
2.50 to <10.00	64	1,160	35.91%	481	4.95%	42	44%	4	912	190%	11	
10.00 to <100.00	284	65	2.72%	285	18.53%	125	45%	3	753	264%	24	
100.00 (Default)	188	6	0.00%	188	100.00%	31	45%	3	-	-	85	
Corporates	**1,883**	**6,999**	**67.30%**	**6,704**	**4.30%**	**315**	**45%**	**2**	**3,791**	**60%**	**122**	**-**
Total	**33,462**	**7,339**	**75.56%**	**39,080**	**0.75%**	**473**	**45%**	**1**	**6,788**	**18%**	**130**	**-**

Over the second half of 2021, increase in RWA driven by corporates due to loans under PD scale 2.50 to <10.00 and 10.00 to <100.00.

Table 76 provides details of backtesting data to validate PD calculations for the MSI Group as at 31 December 2021.

Table 76: IRB approach: Backtesting of PD per exposure class (EU CR9)

MSI Group	External rating equivalent Moody's	External rating equivalent S&P	External rating equivalent Fitch	Weighted average PD	Arithmetic average PD by obligors	Number of obligors: End of previous year	Number of obligors: End of the year	Defaulted obligors in the year	Of which new obligors	Average historic annual default rate
				%	%	#	#	#	#	%
0.0 to <0.15	Aaa	AAA to AA	AAA	0.01%	0.01%	6	7	-	-	0.00%
0.15 to <0.25				0.00%	0.00%	-	-	-	-	0.00%
0.25 to <0.50				0.00%	0.00%	2	-	-	-	0.00%
0.50 to <0.75				0.00%	0.00%	-	-	-	-	0.00%
0.75 to <2.50				0.00%	0.00%	-	-	-	-	0.00%
2.50 to <10.00				0.00%	0.00%	-	-	-	-	0.00%
10.00 to<100.00				0.00%	0.00%	-	-	-	-	0.00%
100.00				0.00%	0.00%	-	-	-	-	0.00%
Central governments or central banks	**Aaa**	**AAA to AA**	**AAA**	**0.01%**	**0.01%**	**8**	**7**	**-**	**-**	**0.00%**
0.0 to <0.15	Aa2	AA+ to BBB+	AA	0.07%	0.09%	50	56	-	-	0.00%
0.15 to <0.25	Baa1	BBB+ to BBB	A-	0.22%	0.22%	29	20	-	-	0.00%
0.25 to <0.50	A3	BBB to BBB	A	0.35%	0.35%	38	7	-	-	0.00%
0.50 to <0.75	Baa3	BBB- to BB+	BBB	0.55%	0.55%	7	10	-	-	0.00%
0.75 to <2.50	Ba2	BB to B+	BB	1.55%	1.52%	18	24	-	-	0.00%
2.50 to <10.00	B1	B+ to CCC+	B+	4.95%	4.95%	90	42	-	-	0.00%
10.00 to <100.00	B3	A to CCC	A+	18.53%	13.35%	19	125	-	-	0.00%
100.00	Ca		BB-	100.00%	100.00%	22	31	31	15	0.00%
Corporates	**Aa2**	**AA+ to CCC**	**AA**	**4.30%**	**15.97%**	**273**	**315**	**31**	**15**	**0.00%**
0.0 to <0.15	Aa1	AA to BBB-	AA+	0.05%	0.08%	72	76	-	-	0.00%
0.15 to <0.25	A2	A- to BBB	BBB+	0.22%	0.22%	9	9	-	-	0.00%
0.25 to <0.50	A2	BBB+ to BBB+		0.35%	0.35%	19	4	-	-	0.00%
0.50 to <0.75				0.55%	0.55%	6	1	-	-	0.00%
0.75 to <2.50		BBB- to BB-	BBB	0.95%	0.94%	2	8	-	-	0.00%
2.50 to <10.00				5.18%	6.57%	48	2	-	-	0.00%
10.00 to <100.00	B3	BB- to BB-		11.13%	11.13%	-	48	-	-	0.00%
100.00				100.00%	100.00%	-	3	-	-	0.00%
Institutions	**Aa1**	**AA to BB-**	**AA+**	**0.13%**	**5.73%**	**156**	**151**	**-**	**-**	**0.00%**

Over the course of 2021, the composition of corporate obligors changed, resulting in a decrease in the credit quality of the population.

Table 77 provides disclosure of the extent of the use of CRM techniques for the MSEHSE Group as at 31 December 2021.

Table 77: IRB approach: Disclosure of the extent of the use of CRM techniques (EU CR7-A) – MSEHSE Group

	FIRB	Credit risk Mitigation techniques											Credit risk Mitigation methods in the calculation of RWEAs	
	Total exposures	Funded credit Protection (FCP) Part of exposures covered by:-									Unfunded credit Protection (UFCP) Part of exposures covered by:-		RWEA without substitution effects (reduction effects only)	RWEA with substitution effects (both reduction and substitution effects)
MSEHSE Group		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		
$MM	$MM	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	$MM	$MM
Central governments and central banks	9,149	-	-	-	-	-	-	-	-	-	-	-	233	233
Institutions	888	-	-	-	-	-	-	-	-	-	-	-	206	206
Corporates	4,904	6.96%	-	-	-	-	-	-	-	-	53.02%	-	3,654	2,606
Of which:-														
SMEs	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specialised lending	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	4,904	6.96%	-	-	-	-	-	-	-	-	53.02%	-	3,654	2,606
Total	**14,941**	**2.29%**	**-**	**-**	**-**	**-**	-	**-**	**-**	**-**	**17.40%**	**-**	**4,093**	**3,045**

Table 78 shows all the relevant parameters used for the calculation of CCR capital requirements for IRB models as at 31 December 2021 for the MSI Group.

Table 78: Standardised approach: CCR exposures by regulatory portfolio and risk weight (EU CCR3)

$MM	Risk weight													
MSI Group	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	1250%	Others	Total	Of which unrated
Central governments or central banks	4	-	-	-	-	-	-	-	52	-	-	-	**56**	52
Regional governments or local authorities	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Institutions	-	25,350	5,677	-	394	6	-	-	395	5	-	-	**31,827**	321
Corporates	-	-	-	-	300	100	-	-	630	47	-	-	**1,077**	243
Retail	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Other Items	-	-	-	-	-	-	-	-	-	-	-	-	**-**	-
Total standardised approach	**4**	**25,350**	**5,677**	**-**	**694**	**106**	**-**	**-**	**1,077**	**52**	**-**	**-**	**32,960**	**616**

Over second half of 2021, institutional exposures under 4% risk weight have decreased.

Table 79 shows all the relevant parameters used for the calculation of CCR capital requirements for IRB models as at 31 December 2021 for the MSI Group.

Table 79: IRB approach: CCR exposures by portfolio and PD scale (EU CCR4)

	EAD post-CRM	Average PD	Number of obligors	Average LGD	Average maturity	RWAs	RWA density
MSI Group	$MM	%	#	%	Years	$MM	%
Central governments and central banks	**7,630**	**0.21%**	**215**	**46.44%**	**2**	**1,588**	**21%**
0.00 to <0.15	6,985	0.02%	177	45.00%	2	665	10%
0.15 to <0.25	235	0.22%	16	45.00%	3	141	60%
0.25 to <0.50	160	0.35%	5	45.00%	-	59	37%
0.50 to <0.75	-	0.55%	1	45.00%	-	-	58%
0.75 to <2.50	5	0.99%	5	45.00%	-	4	76%
2.50 to <10.00	229	4.95%	4	93.05%	1	685	299%
10.00 to <100.00	16	13.88%	7	45.00%	3	34	218%
100.00 (Default)	-	-	-	-	-	-	-
Corporates	**50,654**	**0.60%**	**10,898**	**45.64%**	**2**	**28,369**	**56%**
0.00 to <0.15	27,452	0.07%	5,094	45.45%	2	8,984	33%
0.15 to <0.25	7,092	0.22%	657	47.79%	2	4,011	57%
0.25 to <0.50	5,665	0.35%	2,267	45.00%	2	4,064	72%
0.50 to <0.75	3,697	0.55%	327	45.02%	-	2,730	74%
0.75 to <2.50	5,124	1.32%	975	45.00%	1	5,288	103%
2.50 to <10.00	629	4.95%	603	45.00%	1	972	154%
10.00 to <100.00	995	13.21%	973	45.21%	1	2,320	233%
100.00 (Default)	-	100.00%	2	45.00%	2	-	-
Institutions	**46,551**	**0.18%**	**570**	**45.47%**	**1**	**13,424**	**29%**
0.00 to <0.15	42,620	0.06%	261	45.36%	1	9,334	22%
0.15 to <0.25	1,438	0.22%	62	45.00%	2	938	65%
0.25 to <0.50	940	0.35%	60	45.13%	1	648	69%
0.50 to <0.75	351	0.55%	30	45.00%	1	279	79%
0.75 to <2.50	884	1.30%	77	45.68%	1	1,062	120%
2.50 to <10.00	16	4.95%	13	45.00%	1	28	170%
10.00 to <100.00	302	11.82%	67	64.41%	2	1,135	376%
100.00 (Default	-	-	-	-	-	-	-
Total (all portfolios)	**104,835**	**0.39%**	**11,683**	**45.62%**	**1**	**43,381**	**41%**

Over the second half of 2021, decrease in RWA primarily due to decrease in exposure on Repo and Stock Loans against Corporates in PD scale 0.00 to <0.15 and 0.25 to <0.50 and Institutions in PD scale 0.00 to <0.15 due to expansion of PRA Internal Model permission.

25. Appendix VI: MSI Group Non-Statutory Financial Information

MORGAN STANLEY INTERNATIONAL LIMITED

Consolidated non-statutory financial information

31 December 2021

MORGAN STANLEY INTERNATIONAL LIMITED

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MORGAN STANLEY INTERNATIONAL LIMITED

DIRECTORS' RESPONSIBILITIES STATEMENT

The Directors, the names of whom are set out below, confirm that to the best of their knowledge:

i) the accounting policies are appropriate to the circumstances of the Morgan Stanley International Group which comprises Morgan Stanley International Limited ("the Company") and its subsidiaries (together "the Group") and the policies have been consistently applied and adequately disclosed;
ii) significant accounting estimates applied are reasonable; and
iii) the consolidated non-statutory financial information is free from material misstatement.

Approved by the Board and signed on its behalf by:

DocuSigned by:
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A Kohli
Director
26 April 2022

Board of Directors:

S Ball	(resigned 30 April 2021)
J Bloomer	(Chair)
D O Cannon	
T Duhon	
A Kohli	
K Lazaroo	
S Orlacchio	
M C Phibbs	(resigned 31 March 2021)
M Richards	(appointed 8 July 2021)
O M Behrens	(appointed 28 January 2021)
L Reichlin	(appointed 28 January 2021)
D A Russell	
A V Sekhar	
P D Taylor	
N P Whyte	
C Woodman	

INDEPENDENT AUDITOR'S REPORT TO THE DIRECTORS OF MORGAN STANLEY INTERNATIONAL LIMITED

Report on the audit of the consolidated non-statutory financial information

Opinion

In our opinion the consolidated non-statutory financial information of Morgan Stanley International Limited (the 'company') for the year ended 31 December 2021 have been properly prepared in accordance with the accounting policies stated in note 1 and 2.

We have audited the consolidated non-statutory financial information which comprise:

- the consolidated income statement;
- the consolidated statement of comprehensive income;
- the consolidated statement of changes in equity;
- the consolidated statement of financial position
- the related notes 1 to 2.

The financial reporting framework that has been applied in their preparation is the accounting policies stated in note 1 and 2.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)), including ISA (UK) 800. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the consolidated non-statutory financial information section of our report.

We are independent of the company in accordance with the ethical requirements that are relevant to our audit of the consolidated non-statutory financial information in the UK, including the Financial Reporting Council's (the 'FRC's') Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of matter – basis of accounting

We draw attention to Note 1 and 2 to the consolidated non-statutory financial information, which describes the basis of accounting and is a special purpose framework. The consolidated non-statutory financial information are prepared to provide financial reporting at the same level as the annual public Pillar 3 qualitative and quantitative disclosures required by CRD in relation to the Morgan Stanley International Group. As a result, the consolidated non-statutory financial information may not be suitable for another purpose. Our opinion is not modified in respect of this matter.

Conclusions relating to going concern

In auditing the consolidated non-statutory financial information, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the consolidated non-statutory financial information is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the company's ability to continue as a going concern for a period of at least twelve months from when the consolidated non-statutory financial information is authorised for issue.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Other information

The directors are responsible for the other information. The other information comprises the information included in the Director's Responsibilities Statement, other than the consolidated non-statutory financial information and our auditor's report thereon. Our opinion on the consolidated non-statutory financial information does not cover the other information and we do not express any form of assurance conclusion thereon.

INDEPENDENT AUDITOR'S REPORT TO THE DIRECTORS OF MORGAN STANLEY INTERNATIONAL LIMITED (CONTINUED)

In connection with our audit of the consolidated non-statutory financial information, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated non-statutory financial information or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the consolidated non-statutory financial information themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Responsibilities of Directors

As explained more fully in the directors' responsibilities statement, the directors are responsible for the preparation of the consolidated non-statutory financial information in accordance with the financial reporting provisions of laid out in notes 1 and 2 to consolidated non-statutory financial information, and for such internal control as the directors determine is necessary to enable the preparation of consolidated non-statutory financial information that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated non-statutory financial information, the directors are responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the non-statutory financial information

Our objectives are to obtain reasonable assurance about whether the consolidated non-statutory financial information as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated non-statutory financial information.

A further description of our responsibilities for the audit of the consolidated non-statutory financial information is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Extent to which the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

We considered the nature of the company's industry and its control environment and reviewed the company's documentation of their policies and procedures relating to fraud and compliance with laws and regulations. We also enquired of management, internal audit, in-house legal counsel and those charged with governance about their own identification and assessment of the risks of irregularities.

We obtained an understanding of the legal and regulatory frameworks that the group operates in, and identified the key laws and regulations that:

- had a direct effect on the determination of material amounts and disclosures in the consolidated non-statutory financial information. The key laws and regulations we considered in this context included the UK Companies Act, Luxembourg Transparency Law, UK Listing Rules, pensions legislation and tax legislation; and
- do not have a direct effect on the consolidated non-statutory financial information but compliance with which may be fundamental to the company's ability to operate or to avoid a material penalty. These included the regulation and supervisory requirements of the Prudential Regulation Authority, Financial Reporting Council and Financial Conduct Authority.

INDEPENDENT AUDITOR'S REPORT TO THE DIRECTORS OF MORGAN STANLEY INTERNATIONAL LIMITED (CONTINUED)

We discussed among the audit engagement team, including relevant internal specialists such as tax, IT and industry specialists regarding the opportunities and incentives that may exist within the organisation for fraud and how and where fraud might occur in the consolidated non-statutory financial information.

In common with all audits under ISAs (UK), we are also required to perform specific procedures to respond to the risk of management override. In addressing the risk of fraud through management override of controls, we tested the appropriateness of journal entries and other adjustments; assessed whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluated the business rationale of any significant transactions that are unusual or outside the normal course of business.

In addition to the above, our procedures to respond to the risks identified included the following:

- reviewing consolidated non-statutory financial information disclosures by testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described as having a direct effect on the consolidated non-statutory financial information;
- performing analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud;
- enquiring of management, internal audit and in-house legal counsel concerning actual and potential litigation and claims, and instances of non-compliance with laws and regulations;
- reading minutes of meetings of those charged with governance, reviewing internal audit reports and reviewing correspondence with HMRC and other regulatory authorities including the FCA; and
- in addressing the risk of fraud through management override of controls, testing the appropriateness of journal entries and other adjustments; assessing whether the judgements made in making accounting estimates are indicative of a potential bias; and evaluating the business rationale of any significant transactions that are unusual or outside the normal course of business.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

Matters on which we are required to report by exception

Under the ISA (UK) we are required to report in respect of the following matters if, in our opinion:

- adequate accounting records have not been kept; or
- we have not received all the information and explanations we require for our audit.

We have nothing to report in respect of these matters.

Use of our report

This report is made solely to the company's directors, as a body, in accordance with our engagement letter dated 17 February 2022 and solely for the purpose of providing an opinion over the consolidated non-statutory financial information contained within this document titled 'consolidated non-statutory financial information'. Our report is not to be used for any other purpose, recited or referred to in any document, copied or made available (in whole or in part) to any other person without prior written express consent. We accept no duty, responsibility or liability to any other party in connection with the report or this engagement.

The engagement partner on the audit resulting in this independent auditor's report is Fiona Walker.

Fiona Walker, FCA
For and on behalf of Deloitte LLP
London, United Kingdom
26 April 2022

MORGAN STANLEY INTERNATIONAL LIMITED

CONSOLIDATED INCOME STATEMENT
Year ended 31 December 2021

in $ millions	2021	2020
Net trading income	5,116	4,750
Net loss from other financial instruments held at fair value	(165)	(110)
Fee and commission income	6,362	4,878
Other revenue	95	(15)
Interest income	(346)	295
Interest expense	(198)	(832)
Net interest expense (including the impact of negative interest rates)	(544)	(537)
Net revenues	**10,864**	**8,966**
Non-interest expenses:		
Operating expense	(8,178)	(6,968)
Net impairment reversal/(loss) on financial assets	2	(2)
PROFIT BEFORE TAXATION	**2,688**	**1,996**
Income tax	(728)	(670)
PROFIT FOR THE YEAR	**1,960**	**1,326**
Attributable to:		
Owners of the Company	1,960	1,326
PROFIT FOR THE YEAR	**1,960**	**1,326**

The notes on pages 9 to 24 form an integral part of the consolidated non-statutory financial information.

MORGAN STANLEY INTERNATIONAL LIMITED

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
Year ended 31 December 2021

in $ millions	2021	2020
PROFIT FOR THE YEAR	**1,960**	**1,326**
Items that will not be reclassified subsequently to profit or loss:		
Remeasurement of net defined benefit liability	(1)	(12)
Changes in fair value attributable to own credit risk on financial liabilities designated at fair value	74	(199)
Items that may be reclassified subsequently to profit or loss:		
Currency translation reserve:		
Foreign currency translation differences arising on foreign operations	(453)	461
OTHER COMPREHENSIVE INCOME, AFTER INCOME TAX	**(380)**	**250**
TOTAL COMPREHENSIVE INCOME FOR THE YEAR	**1,580**	**1,576**
Attributable to:		
Owners of the Company	1,580	1,573
Non-controlling interest	-	3
TOTAL COMPREHENSIVE INCOME FOR THE YEAR	**1,580**	**1,576**

The notes on pages 9 to 24 form an integral part of the consolidated non-statutory financial information.

MORGAN STANLEY INTERNATIONAL LIMITED

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
Year ended 31 December 2021

in $ millions	2021	2020
Share capital and Other equity instruments - at 1 January	**5,866**	**5,796**
Issue of ordinary share capital	12	70
Share capital and Other equity instruments - at 31 December	**5,878**	**5,866**
Share premium - at 1 January	**37**	**17**
Issue of ordinary share capital	1	20
Share premium - at 31 December	**38**	**37**
Pension reserve - at 1 January	**(114)**	**(102)**
Remeasurement of defined benefit liability	(1)	(12)
Pension reserve - at 31 December	**(115)**	**(114)**
Currency translation reserve - at 1 January	**(51)**	**(509)**
Foreign currency translation differences arising during the year	(453)	458
Currency translation reserve - at 31 December	**(504)**	**(51)**
Capital contribution reserve - at 1 January and 31 December	**6,061**	**6,061**
Capital redemption reserve - at 1 January and 31 December	**1,400**	**1,400**
Debt valuation adjustment reserve - at 1 January	**(339)**	**(141)**
Changes in fair value attributable to own credit risk on financial liabilities designated at fair value	74	(199)
Realised debt valuation losses	6	1
Debt valuation adjustment - at 31 December	**(259)**	**(339)**
Retained earnings - at 1 January	**14,355**	**13,372**
Profit for the year	1,960	1,326
Realised debt valuation losses	(6)	(1)
Dividends	(237)	(342)
Share based payments	2	-
Transfer of business to MSIM Fund Management (Ireland) Limited Paris Branch	(5)	-
Retained earnings - at 31 December	**16,069**	**14,355**
Equity attributable to the owners of the parent at 31 December	**28,568**	**27,215**
Non-controlling interest - at 1 January	**21**	**104**
Foreign currency translation differences arising during the year	-	3
Acquisition of minority interest	-	(59)
Disposal of Non-controlling interest	(21)	(27)
Non-controlling interest - at 31 December	**-**	**21**
Total equity at 31 December	**28,568**	**27,236**

The notes on pages 9 to 24 form an integral part of the consolidated non-statutory financial information.

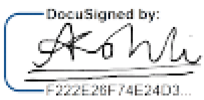
MORGAN STANLEY INTERNATIONAL LIMITED

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
As at 31 December 2021

in $ millions	**2021**	**2020**
ASSETS		
Cash and short term deposits	38,363	34,617
Trading financial assets (of which $41,687 million (2020: $36,063 million) were pledged to various parties)	360,182	398,993
Secured financing	124,226	100,458
Loans and advances	151	193
Investment securities	166	158
Trade and other receivables	94,244	89,254
Current tax assets	198	383
Deferred tax assets	395	314
Other assets	216	210
Property, plant and equipment	1,076	1,195
Intangible assets	734	695
TOTAL ASSETS	**619,951**	**626,470**
LIABILITIES AND EQUITY		
Bank loans and overdrafts	165	275
Trading financial liabilities	325,213	354,115
Secured borrowing	90,749	77,371
Trade and other payables	111,531	103,258
Debt and other borrowings	62,119	62,686
Provisions	134	90
Current tax liabilities	208	175
Deferred tax liabilities	-	2
Accruals and deferred income	1,177	1,166
Post-employment benefit obligations	87	96
TOTAL LIABILITIES	**591,383**	**599,234**
EQUITY		
Share capital	2,378	2,366
Other equity instruments	3,500	3,500
Share premium	38	37
Currency translation reserve	(504)	(51)
Capital contribution reserve	6,061	6,061
Capital redemption reserve	1,400	1,400
Pension reserve	(115)	(114)
Debt valuation reserve	(259)	(339)
Retained earnings	16,069	14,355
Equity attributable to the owners of the Company	**28,568**	**27,215**
Non-controlling interests	**-**	**21**
TOTAL EQUITY	**28,568**	**27,236**
TOTAL LIABILITIES AND EQUITY	**619,951**	**626,470**

The consolidated non-statutory financial information was approved by the Board and authorised for issue on 25 April 2022.

Signed on behalf of the Board



A Kohli
Director

The notes on pages 9 to 24 form an integral part of the consolidated non-statutory financial information.

MORGAN STANLEY INTERNATIONAL LIMITED

NOTES TO THE CONSOLIDATED NON-STATUTORY FINANCIAL INFORMATION

Year ended 31 December 2021

1. BASIS OF PREPARATION

a. Statement of compliance

The Company has prepared consolidated non-statutory financial information comprising information about the Group as at 31 December 2021. The Company confirms, in accordance with section 435 of the Companies Act 2006, that:

i) the consolidated non-statutory financial information does not constitute its statutory accounts;
ii) a copy of the Company's statutory accounts for the year ended 31 December 2021 will be filed with the Registrar of Companies for England and Wales, Companies House, Cardiff CF14 3UZ; and
iii) the Company's independent auditor has issued an unqualified report on the Company's statutory accounts for the year ended 31 December 2021.

The Group has prepared the consolidated non-statutory financial information in accordance with the recognition and measurement principles of IFRS issued by the International Accounting Standards Board as adopted by the European Union ("EU") and the United Kingdom ("UK") as well as the basis of consolidation set out below. A summary of significant accounting policies applied to the Group is detailed in note 2.

b. Basis of consolidation

The consolidated non-statutory financial information of the Group comprises information about the Company and its subsidiaries as at 31 December 2021. Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The information for the subsidiaries is prepared for the same reporting year as the Group, using consistent accounting policies. The financial information of subsidiaries which have a non-US dollar reporting currency is translated into US dollars as described in note 2(b). Subsidiaries are consolidated from the date that the Group gains control until the date that control ceases.

In certain cases, the Group may exercise control over another entity on behalf of investors or other parties. In such cases it is necessary, as part of the assessment of whether it should consolidate the entity, for the Group to determine whether it exercises such control primarily as an agent for the other investors or whether it does so primarily as principal on its own behalf. In making such a determination, management of the Group will consider all relevant factors, including in particular:

- the scope of the Group's decision-making authority over the investee;
- the rights, including removal rights, held by other parties;
- the remuneration to which the Group is entitled; and
- the significance of the Group's exposure to variability of returns from its interests in the entity.

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

Non-controlling interests represent the portion of profit or loss and total equity not owned, directly or indirectly, by the Group and are presented separately in the consolidated income statement, consolidated statement of comprehensive income and within equity in the consolidated statement of financial position, separately from equity attributable to owners of the parent. The amount of non-controlling interest is measured at the non-controlling interest's proportionate share of the identifiable net assets.

c. New standards and interpretations adopted during the year

The following amendments to standards relevant to the Group's operations were adopted during the year. These did not have a material impact on the Group's consolidated non-statutory information.

MORGAN STANLEY INTERNATIONAL LIMITED

NOTES TO THE CONSOLIDATED NON-STATUTORY FINANCIAL INFORMATION

Year ended 31 December 2021

Amendments to IFRS 9 'Financial Instruments' ("IFRS 9"), IFRS 7 'Financial Instruments: Disclosures', and IFRS 16 'Leases' were issued by the IASB in August 2020. The amendments outline the accounting and disclosure requirements for the financial instruments which are transitioned to alternative benchmark rates. The amendments are applicable retrospectively and are effective from and have been applied for annual periods beginning on or after 1 January 2021. The amendments were endorsed by the EU and the UK in January 2021.

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

d. New standards and interpretations not yet adopted

At the date of authorisation of these consolidated non-statutory information, the following amendments to standards relevant to the Group's operations were issued by the IASB but not mandatory for accounting periods beginning 1 January 2021. The Group does not expect that the adoption of the following amendments to standards will have a material impact on the Group's consolidated non-statutory financial information.

Amendments to IAS 1 '*Presentation of Financial Statements' ("IAS 1"):* Classification of Liabilities as Current or Non-current were issued by the IASB in January 2020 and revised in July 2020, for retrospective application in accounting periods beginning on or after 1 January 2023.

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

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

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

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

Amendments to IAS 12 '*Income Taxes'*: Deferred Tax related to Assets and Liabilities arising from a Single Transaction were issued by the IASB in May 2021, for retrospective application in accounting periods beginning on or after 1 January 2023. Early application is permitted.

e. Basis of measurement

The consolidated non-statutory financial information of the Group is prepared under the historical cost basis, except for certain financial instruments that have been measured at fair value as explained in the accounting policies below.

MORGAN STANLEY INTERNATIONAL LIMITED

NOTES TO THE CONSOLIDATED NON-STATUTORY FINANCIAL INFORMATION

Year ended 31 December 2021

f. The going concern assumption

The Group has considered its business activities, together with the factors likely to affect its future development, performance and position, such as the Group's objectives, policies and processes for managing its capital; its financial risk management objectives; and its exposures to credit risk and liquidity risk. Retaining sufficient liquidity and capital to withstand market pressures remains central to the Morgan Stanley Group's and the Group's strategy.

Specifically, the current and potential stresses of the war in Ukraine and the Coronavirus ("COVID-19") pandemic on the operational capacity of the business, access to liquidity and capital, contractual obligations, asset valuations and other critical accounting judgements and key sources of estimation uncertainty have been considered.

Taking the above factors into consideration, the Directors believe it is reasonable to assume that the Group will have access to adequate resources to continue in operational existence for the foreseeable future. Accordingly, they continue to adopt the going concern basis in preparing the non-statutory financial information.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

a. Functional currency

Items included within the consolidated non-statutory financial information are measured and presented in US dollars, the currency of the primary economic environment in which the Group operates.

All currency amounts in the consolidated non-statutory financial information are rounded to the nearest million US dollars.

b. Foreign currencies

All monetary assets and liabilities denominated in currencies other than US dollars are translated into US dollars at the rates ruling at the reporting date. Transactions and non-monetary assets and liabilities denominated in currencies other than US dollars are recorded at the rates prevailing at the dates of the transactions. Assets and liabilities of foreign operations are translated into US dollars using the closing rate method. Translation differences arising from the net investments in the foreign operations are taken to the 'Currency translation reserve'.

The amount of change in the fair value of financial liabilities designated at fair value through profit and loss ("FVPL") that is attributable to changes in the credit risk of these liabilities ("DVA") includes foreign exchange differences thereon. All other translation differences are taken through the consolidated income statement. Exchange differences recognised in the consolidated income statement are presented in 'Other income' or 'Operating expense', except where noted in 2(c) below.

On disposal of a foreign operation, the related cumulative gain or loss in the 'Currency translation reserve' attributable to the owners of the Company is reclassified to the consolidated income statement and recorded within 'Net loss on investments in subsidiaries, associates and joint ventures'.

MORGAN STANLEY INTERNATIONAL LIMITED

NOTES TO THE CONSOLIDATED NON-STATUTORY FINANCIAL INFORMATION

Year ended 31 December 2021

c. Financial instruments

i) Financial instruments mandatorily at fair value through profit and loss

Trading financial instruments

Trading financial instruments include government debt securities, corporate and other debt, traded loans, and corporate equities where the Group acquires the financial asset or financial liability for the purpose of selling or repurchasing in the near term or is part of a portfolio for which there is evidence of short term profit taking, and all derivative contracts.

Purchases and sales of non-derivative financial instruments classified as trading are initially recognised on settlement date at fair value, including regular way securities transactions. For purchases of non-derivative financial instruments classified as trading, from the date that the terms are agreed (trade date) until the settlement date, the Group recognises any unrealised fair value in the consolidated statement of financial position as 'Trading financial instruments' with corresponding profit or loss recognised within the consolidated income statement in 'Net trading income'. For sales of non-derivative financial instruments unrealised fair value changes are no longer recognised in the consolidated income statement from trade date. Upon settlement date the resulting financial instrument is recognised or de-recognised from the consolidated statement of financial position.

Derivatives, are initially recorded on trade date at fair value (see note 2(d) below). All subsequent changes in fair value are reflected in the consolidated income statement in 'Net trading income'.

All changes in fair value, foreign exchange differences, interest and dividends are reflected in the consolidated income statement in 'Net trading income'. When interest is included as a component of an instrument's fair value, interest is also reflected in the consolidated income statement in 'Net trading income', otherwise, it is included within 'Interest income' or 'Interest expense'.

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

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

Non-trading financial assets at FVPL include secured financing transactions such as cash collateral on securities borrowed and securities purchased under agreements to resell, prepaid OTC contracts and financial assets arising upon consolidation of certain special purpose entities, and certain investment securities (unlisted equities).

Non-trading financial assets at FVPL are principally financial assets where the Group makes decisions based upon the assets' fair values. These assets are generally recognised on settlement date at fair value (see note 2(d) below), since they are neither regular way nor are they derivatives. From the date the terms are agreed (trade date), until the financial asset is funded (settlement date), the Group recognises any unrealised fair value changes in the financial asset as non-trading financial assets at FVPL. On settlement date, the fair value of consideration given is recognised as a non-trading financial asset at FVPL.

MORGAN STANLEY INTERNATIONAL LIMITED

NOTES TO THE CONSOLIDATED NON-STATUTORY FINANCIAL INFORMATION

Year ended 31 December 2021

All subsequent changes in fair value, foreign exchange differences and unrealised interest are reflected in the consolidated income statement in 'Net income from other financial instruments held at fair value'. Realised interest is included within 'Interest income' or 'Interest expense'. All subsequent changes in fair value and foreign exchange differences are reflected in the consolidated income statement in 'Net income from other financial instruments held at fair value'. When interest in included as a component of an instrument's fair value, interest is also reflected in the consolidated income statement in 'Net income from other financial instruments held at fair value', otherwise it is included within 'Interest income' or 'Interest expense'.

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

ii) Financial instruments designated at fair value through profit or loss

Financial instruments designated at FVPL include corporate loans, unfunded loan commitments, prepaid OTC contracts, cash collateral on securities loaned and securities sold under agreements to repurchase, issued structured notes and other financial assets and liabilities.

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

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

From the date the transaction in a financial instrument designated at FVPL is entered into (trade date) until settlement date, the Group recognises any unrealised fair value changes in the contract as financial instruments designated at FVPL in the statement of financial position. On settlement date, the fair value of consideration given or received is recognised as a financial instrument designated at FVPL (see note 2(d) below).

All subsequent changes in fair value, foreign exchange differences, and dividends are reflected in the consolidated income statement in 'Net income from other financial instruments held at fair value', other than DVA on financial liabilities designated at FVPL which is recognised in the 'Debt valuation adjustment' reserve where those changes do not create or enlarge an accounting mismatch. When interest is included as a component of an instrument's fair value, interest is also reflected in the consolidated income statement in 'Net income from other financial instruments held at fair value', otherwise it is included within 'Interest income' or 'Interest expense'. DVA presented within other comprehensive income is not subject to reclassification to the consolidated income statement, but is transferred to 'Retained earnings' when realised.

All other subsequent changes in fair value, foreign exchange differences not relating to changes in the credit risk of those liabilities, interest and dividends are reflected in the income statement.

Transaction costs are excluded from the initial fair value measurement of the financial instrument. These costs are recognised as incurred in the consolidated income statement in 'Operating expense'.

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iii) Financial assets and financial liabilities at amortised cost

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

Financial assets are recognised at amortised cost when the Group's business model objective is to collect the contractual cash flows of the assets and where these cash flows are Solely Payments of Principal and Interest ("SPPI") on the principal amount outstanding until maturity. Such assets are recognised when the Group becomes a party to the contractual provisions of the instrument. The instruments are initially measured at fair value (see note 2(d) below) and subsequently measured at amortised cost less expected credit loss ("ECL") allowance. Interest is recognised in the consolidated income statement in 'Interest income', using the effective interest rate ("EIR") method as described below. Transaction costs that are directly attributable to the acquisition of the financial asset are added to the fair value on initial recognition. ECL and reversals thereof are recognised in the consolidated income statement in 'Net impairment gain/(loss) on financial instruments'.

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

Financial liabilities are classified as being subsequently measured at amortised cost, except where they are held for trading or are designated as measured at FVPL. They are recognised when the Group becomes a party to the contractual provisions of the instrument and are initially measured at fair value (see note 2(d) below) and subsequently measured at amortised cost. Interest is recognised in the consolidated income statement in 'Interest expense' using the EIR method as described below. Transaction costs that are directly attributable to the issue of a financial liability are deducted from the fair value on initial recognition.

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

iv) Secured financing and secured borrowings

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

Securities received by the Group under resale arrangements and securities borrowing arrangements are generally not recognised on the consolidated statement of financial position, and securities pledged or sold by the Group under sale and repurchase agreements and securities lending arrangements are generally not derecognised from the consolidated statement of financial position.

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

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d. Fair value

Fair value measurement

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

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

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

In determining fair value, the Group uses various valuation approaches and establishes a hierarchy for inputs used in measuring fair value that requires the most observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing the asset or liability that were developed based on market data obtained from sources independent of the Group. Unobservable inputs are inputs that reflect assumptions the Group believes other market participants would use in pricing the asset or liability, that are developed based on the best information available in the circumstances.

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

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

  Valuations based on quoted prices in active markets that the Morgan Stanley Group has the ability to access for identical assets or liabilities. Valuation adjustments, block discounts and discounts for equity specific restrictions that would not transfer to market participants are not applied to Level 1 instruments. Since valuations are based on quoted prices that are readily and regularly available in an active market, valuation of these products does not entail a significant degree of judgement.

- Level 2 - Valuation techniques using observable inputs

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

- Level 3 - Valuation techniques with significant unobservable inputs

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

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

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

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

The Group incorporates Funding Valuation Adjustment ("FVA") into the fair value measurements of over-the-counter ("OTC") uncollateralised or partially collateralised derivatives and in collateralised derivatives where the terms of the agreement do not permit the re-use of the collateral received. In general, the FVA reflects a market funding risk premium inherent in the noted derivative instruments. The methodology for measuring FVA leverages the Group's existing credit-related valuation adjustment calculation methodologies, which apply to both assets and liabilities.

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

Valuation techniques

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

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

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

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

The Group applies credit-related valuation adjustments ("CVA") to its Borrowings (primarily structured notes) which are designated at FVPL and to OTC derivatives. The Group considers the impact of changes in own credit spreads based upon observations of the secondary bond market spreads when measuring the fair value for Borrowings. For OTC derivatives, the impact of changes in both the Group's and the counterparty's credit rating is considered when measuring fair value. In determining the expected exposure the Group simulates the distribution of the future exposure to a counterparty, then applies market-based default probabilities to the future exposure, leveraging external third-party credit default swap ("CDS") spread data.

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Where CDS spread data are unavailable for a specific counterparty, bond market spreads, CDS spread data based on the counterparty's credit rating or CDS spread data that reference a comparable counterparty may be utilised. The Group also considers collateral held and legally enforceable master netting agreements that mitigate exposure to each counterparty.

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

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

Valuation process

Valuation Control ("VC") within Finance is responsible for the Group's fair value valuation policies, processes and procedures. VC is independent of the business units and reports to the Chief Financial Officer of the Morgan Stanley Group ("CFO"), who has final authority over the valuation of the Group's financial instruments. VC implements valuation control processes designed to validate the fair value of the Group's financial instruments measured at fair value including those derived from pricing models.

Model Review. VC, in conjunction with the Model Risk Management Department ("MRM"), which reports to the Chief Risk Officer of the Morgan Stanley Group ("CRO"), independently reviews valuation models' theoretical soundness, the appropriateness of the valuation methodology and calibration techniques developed by the business units using observable inputs. Where inputs are not observable, VC reviews the appropriateness of the proposed valuation methodology to determine that it is consistent with how a market participant would arrive at the unobservable input. The valuation methodologies utilised in the absence of observable inputs may include extrapolation techniques and the use of comparable observable inputs. As part of the review, VC develops a methodology to independently verify the fair value generated by the business unit's valuation models. The Group generally subjects valuations and models to a review process initially and on a periodic basis thereafter.

Independent Price Verification. The business units are responsible for determining the fair value of financial instruments using approved valuation models and valuation methodologies. Generally, on a monthly basis, VC independently validates the fair values of financial instruments determined using valuation models by determining the appropriateness of the inputs used by the business units and by testing compliance with the documented valuation methodologies approved in the model review process described above.

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

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VC uses recently executed transactions, other observable market data such as exchange data, broker/ dealer quotes, third-party pricing vendors and aggregation services for validating the fair values of financial instruments generated using valuation models. VC assesses the external sources and their valuation methodologies to determine if the external providers meet the minimum standards expected of a third-party pricing source.

Pricing data provided by approved external sources are evaluated using a number of approaches; for example, by corroborating the external sources' prices to executed trades, by analysing the methodology and assumptions used by the external source to generate a price and/ or by evaluating how active the third-party pricing source (or originating sources used by the third-party pricing source) is in the market. Based on this analysis, VC generates a ranking of the observable market data designed to ensure that the highest-ranked market data source is used to validate the business unit's fair value of financial instruments.

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

Level 3 Transactions. VC reviews the business unit's valuation techniques to assess whether these are consistent with market participant assumptions.

Gains and losses on inception

In the normal course of business, the fair value of a financial instrument on initial recognition is the transaction price (i.e. the fair value of the consideration given or received). In certain circumstances, however, the fair value will be based on other observable current market transactions in the same instrument, without modification or repackaging, or on a valuation technique whose variables include only data from observable markets. When such evidence exists, the Group recognises a gain or loss on inception of the transaction.

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

Assets and liabilities measured at fair value on a non-recurring basis

Certain of the Group's assets and liabilities are measured at fair value on a non-recurring basis. The Group incurs losses or gains for any adjustments of these assets or liabilities to fair value.

For assets and liabilities measured at fair value on a non-recurring basis, fair value is determined by using various valuation approaches. The same hierarchy for inputs as described above, which requires that the observable inputs be used when available, is used in measuring fair value for these items.

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e. Modification and derecognition of financial assets and liabilities

The Group derecognises a financial asset when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risk and rewards of ownership of the asset.

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

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

The renegotiation or modification of the contractual cash flows of a financial instrument can lead to derecognition where the modification is "substantial", determined by qualitative assessment of whether the revised contractual terms of a financial instrument, such as a loan, are significantly different from those of the original financial instrument. In the event that the qualitative assessment is unclear, a quantitative 10% cash flow test is performed.

Where modifications do not result in derecognition of the financial instrument, the gross carrying amount of the financial instrument is recalculated and a modification gain/(loss) is recognised in the income statement.

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

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

f. Impairment of financial instruments

The Group recognises ECL for the following financial instruments that are not measured at 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.

Measurement of ECL

For financial assets, ECLs are the present value of cash shortfalls (i.e. the difference between contractual and expected cash flows) over the expected life of the financial instrument, discounted at the asset's EIR.

Where a financial asset is credit-impaired at the reporting date, the ECL is measured as the difference between the asset's gross carrying amount and the present value of future cash flows, discounted at the original EIR.

For in-scope loan commitments, ECLs are the present value of the cash shortfalls (i.e. the difference between contractual and expected cash flows), assuming that the loan is drawn down.

For a financial guarantee contract, the ECLs are the present value of the cash shortfalls based on the expected payments to reimburse the holder for a credit loss that it may incur when a debtor fails to make payment when due.

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The Group applies a three stage approach to measuring ECL based on the change in credit risk since initial recognition:

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

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

Assessment of SICR

When assessing SICR, the Group considers both quantitative and qualitative information and analysis based on the Group's historical experience and expert credit risk assessment, including forward-looking information.

The probability of default ("PD") is derived from internal credit rating grades (based on available information about the borrower) and multiple forward-looking macroeconomic scenarios which are probability weighted. Credit risk is considered to have increased significantly if the PD has significantly increased at the reporting date relative to the PD of the facility, at the date of initial recognition. The assessment of whether a change in PD is "significant" is based both on a consideration of the relative change in PD and on qualitative indicators of the credit risk of the facility, which indicate whether a loan is performing or in difficulty. In addition, as a backstop, the Group considers that SICR has occurred in all cases when an asset is more than 30 days past due.

The Group does not use the 'low' credit risk practical expedient. As a result, the Group monitors all financial instruments subject to impairment for SICR, with the exception of trade receivables, as noted.

In general, ECLs are measured so that they reflect:

- A probability-weighted range of possible outcomes;
- The time value of money; and
- Relevant information relating to past, current and future economic conditions.

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Calculation of ECL

ECL is calculated using three main components:

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

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

The 12 month ECL is equal to the sum over the next 12 months of quarterly PD multiplied by LGD and EAD, with such expected losses being discounted at the effective interest rate. Lifetime ECL is calculated using the discounted present value of total quarterly PDs multiplied by LGD and EAD, over the full remaining life of the facility.

When measuring ECLs, the Group considers multiple scenarios, except where practical expedients are used to determine ECL. Practical expedients are used where they are consistent with the principles described above.

ECL on certain trade receivables are calculated using a 'matrix' approach which reflects the previous history of credit losses on these financial assets, applying different provision levels based on the age of the receivable. Alternatively where there is a history of no credit losses, and where this is expected to persist into the future for structural or other reasons, such as collateral or other credit enhancement, it may be determined that the ECL for a financial instrument is *de minimis* (highly immaterial) and it may not be necessary to recognise the ECL.

The Group measures ECL on an individual asset basis and has no purchased or originated credit-impaired financial assets.

Presentation of ECL

ECL is recognised in the consolidated income statement within Net impairment (loss)/gain on financial instruments'. ECL on financial assets measured at amortised cost and lease receivables are presented as an ECL allowance. The allowance reduces the net carrying amount on the face of the consolidated statement of financial position. ECLs on loan commitments and financial guarantee contracts are presented as a provision in the consolidated statement of financial position, i.e. as a liability.

Credit-impaired financial instruments

In assessing the impairment of financial instruments under the ECL model, the Group defines credit-impaired financial instruments in accordance with Credit Risk Management Department's policies and procedures. A financial instrument is credit-impaired when, based on current information and events, it is probable that the Group will be unable to collect all scheduled payments of principal or interest when due according to the contractual terms of the agreement.

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Definition of Default

In assessing the impairment of financial instruments under the ECL model, the 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 Group in full and takes into account 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.

Write-offs

Loans and debt securities are written off (either partially or in full) when they are deemed uncollectible which generally occurs when all commercially-reasonable means of recovering the loan balance have been exhausted. Such determination is based on an indication that the borrower can no longer pay the obligation, or that the proceeds from collateral will not be sufficient to pay the loan. Partial write-offs are made when a portion of the loan is uncollectable. Financial assets that are written off could still be subject to enforcement activities for recoveries of amounts due. If the amount to be written off is greater than the accumulated loss allowance, the difference is reflected directly in the consolidated income statement within 'Net impairment (loss)/reversal on financial instruments' and is not recognised in the loss allowance account. Any subsequent recoveries are credited to 'Net impairment (loss)/gain on financial instruments' within the consolidated income statement.

g. Revenue recognition

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

Investment banking

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

Underwriting revenues are generally recognised on trade date, if there is no uncertainty or contingency related to the amount to be paid. Underwriting costs are deferred and recognised when the related underwriting revenues are recorded.

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

Asset management fees

Asset management, distribution and administration fees are generally based on related asset levels being managed, such as the assets under management of a customer's account, or the net asset value of a fund. These fees are generally recognised when services are performed and the fees become known. Management fees are reduced by estimated fee waivers and expense caps, if any, provided to the customer. Distribution fees contingent upon an investor exiting a fund are recognised when the investor exits the fund.

Sales commissions paid by the Group in connection with the sale of certain classes of shares of its open-end mutual fund products are accounted for as deferred commission assets and amortised to expense over the expected life of the contract. The Group periodically tests deferred commission assets for recoverability based on cash flows expected to be received in future periods. Other asset management and distribution costs are recognised as incurred.

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Fee and commission income

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

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

Other items

Receivables from contracts with customers are recognised within 'Trade and other receivables' in the statement of financial position when the underlying performance obligations have been satisfied and the Group has the right per the contract to bill the customer. Contract assets are recognised when the Group has satisfied its performance obligations, however, customer payment is conditional, and are presented within 'Other assets'. Contract liabilities are recognised when the Group has collected payment from a customer based on the terms of the contract, but the underlying performance obligations are not yet satisfied, and are presented within 'Other liabilities'.

Incremental costs to obtain the contract are expensed as incurred if the contract duration is one year or less. Revenues are not discounted when payment is expected within one year.

h. Fees and commission expense

Fees and commission expense in the consolidated income statement includes transaction and service fees. Amounts are recognised as the related services are received.

i. Property, plant and equipment

Property, plant and equipment are stated at cost net of depreciation and any provision for impairment in value (see note 2(k) below), which are included within 'Operating expense' in the consolidated income statement.

For premises held under leases (see note 2(n) below), a reinstatement provision is recognised for the estimated cost to reinstate the premises at the end of the lease period. When the reinstatement provision is established and included within 'Provisions' in the consolidated statement of financial position, an equivalent asset is recognised and included in the cost of leasehold improvements at the initial present value of the reinstatement obligations. The discount effect included in the reinstatement provision is reversed over time using a constant effective yield method and included within 'Interest expense' in the consolidated income statement. The reinstatement asset is depreciated over the useful economic life of the relevant leasehold improvement asset and the depreciation charge is included within 'Other expense' in the consolidated income statement.

Depreciation is provided on property, plant and equipment at rates calculated to write off the cost of the assets on a straight-line basis over their expected useful lives as follows:

Leasehold improvements, including reinstatement assets	- shorter of remaining lease term and 25 years
Fixtures, fittings and equipment	- 1 to 8 years
Right-of-use assets – Property	- 4 to 11 years
Right-of-use – Other	- 5 years

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j. Combination of businesses under common control

Business combinations involving entities under common control, where all combining entities are ultimately controlled by the same entity before and after the business combination, are accounted for using the predecessor values method of accounting. This involves recognising assets and liabilities of the acquired business at the predecessors' book value, without any change to reflect fair value of those assets and liabilities. Any difference between the cost of acquisition and the aggregate book value of the assets and liabilities as of the date of the transfer of the acquired entity is recorded as an adjustment to equity within 'Retained earnings'. No additional goodwill is created by the business combination.

Post-acquisition, income received and expenses incurred by the entity or entities acquired are included in the consolidated income statement.

A non-controlling interest is recognised by the Group in respect of any portion of the total assets less total liabilities of an acquired entity or entities that is not owned by the Group.

When subsidiaries are sold or transferred to another entity under common control, any difference between the consideration received and the aggregate book value of the assets and liabilities of the disposed of business is recorded as an adjustment to equity within 'Retained earnings'. Where the consideration for the transfer is received in the form of shares, these are recorded at the aggregate book value of the assets and liabilities disposed of.

Where the disposal or loss of control over an entity includes a foreign operation, all foreign exchange differences accumulated in the 'Currency translation reserve' attributable to the equity holders of the Company are reclassified to the consolidated income statement within 'Net gains/(losses) on subsidiaries'.

k. Impairment of non-financial assets

Non-financial assets that are subject to depreciation or amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and its value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating cash flows ("CGU")). Such impairment losses are recognised in the consolidated income statement within 'Other expense' and are recognised against the carrying amount of the impaired asset on the consolidated statement of financial position. Non-financial assets, other than goodwill, that have suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

l. Intangible assets

Internally-generated intangible assets – research and development expenditure

Expenditure on research activities is recognised as an expense in the period in which it is incurred.

Expenditure on internally developed software is recognised as an asset when the Company is able to demonstrate its intention and ability to complete the development, to use the software in a manner that will generate future economic benefits, and to reliably measure the costs to complete the development. Internally developed software is stated at capitalised cost less accumulated amortisation and any impairment (see note 2(k)). Amortisation is recognised in 'Other expense' in the income statement on a straight line basis over the useful economic life of the software, from the date that it is available for use. The estimated useful life of internally developed software is [one to three] years.

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m. Income tax

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

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

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

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

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

Deferred tax is calculated at the tax rates that are expected to apply in the period when the liability is settled or the asset is realised. Deferred tax is charged or credited in the consolidated income statement, except when it relates to items charged or credited directly to other comprehensive income or equity, in which case the deferred tax is reflected within other comprehensive income or equity, respectively.

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

The income tax effect of distributions are recognised in profit or loss, other comprehensive income or equity dependant on where those past transactions that generated the distributable profits were recognised. The income tax effect of coupons of Additional Tier 1 instruments accounted for as distributions must be recognised in profit or loss.

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n. Leases

For leases whose original lease term exceeds one year, right-of-use ("ROU") assets and lease liabilities are initially recognised based on the present value of the future minimum lease payments over the lease term. The discount rate used in determining the present value is the Group's borrowing rate. The ROU asset also includes any prepaid lease payments and initial direct costs incurred and is reduced to reflect lease incentives received. The lease liabilities are subsequently accounted for at amortised cost, using the effective interest rate method.

The liability is remeasured when there is a change in future lease payments arising from a change in an index or rate or from a market rent review. Additionally, the lease liability is remeasured if the Group changes its assessment of whether it will exercise an extension or termination option or undertakes certain modifications of the lease. The ROU asset is depreciated on a straight line basis from the lease commencement date to the earlier of the end of its useful life or the end of the lease term. Depreciation of ROU assets is presented within 'Operating expense'. In addition, the ROU asset is tested for impairment losses where there is an impairment event.

The Group evaluates contracts greater than one year to determine whether they contain lease components at inception. Where contracts contain both lease and non-lease components, they are accounted for as a single lease.

The Group presents ROU assets within the 'Property, plant and equipment' line and lease liabilities within the 'Trade and other payables' line of the statement of financial position.

o. Provisions, contingent liabilities and commitments

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

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

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

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

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

p. Employee compensation plans

i) Equity-settled share-based compensation plans

Morgan Stanley issues awards in the form of restricted stock units ("RSUs") to employees of the Morgan Stanley Group for services rendered to the Group. Awards are equity-settled and the cost of the equity-based transactions with employees is measured based on the fair value of the equity instruments at grant date. The fair value of RSUs is based on the market price of Morgan Stanley common stock, measured as the volume-weighted average price on the grant date ("VWAP"). The fair value of RSUs not entitled to dividends until conversion is measured at VWAP reduced by the present value of dividends expected to be paid on the underlying shares prior to the scheduled conversion date.

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

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

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

Share based compensation expense is recorded in 'Direct staff costs' within 'Operating expense' in the consolidated income statement.

ii) Deferred cash-based compensation plans

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

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

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

The Group and Company enter into a variety of derivative contracts with other Morgan Stanley Group undertakings to economically hedge the exposure created by these deferred compensation plans. The derivatives are recognised at fair value within 'Trading financial instruments' in the statement of financial position and the related gains and losses are recorded within 'Net trading income' in the consolidated income statement.

Although changes in compensation expense resulting from changes in the fair value of the referenced investments will generally be offset by changes in the fair value of derivative transactions entered into by the Group and Company, there is typically a timing difference between the immediate recognition of gains and losses on the derivatives and the deferred recognition of the related compensation expense over the vesting period.

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q. Post-employment benefits

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

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

For the Group's defined benefit post-employment plans, the plan obligations are measured on an actuarial basis in accordance with the advice of an independent qualified actuary using the projected unit credit method and discounted at a rate that reflects the current rate of return on a high quality corporate bond of equivalent term and currency to the plan liabilities. Plan assets are measured at their fair value at the reporting date. For each defined benefit plan, a surplus or deficit of plan assets over liabilities is recognised in the statement of financial position as an asset or a liability respectively. If the fair value of the plan assets is higher than the present value of the defined benefit obligation, the measurement of the resulting defined benefit asset is limited to the present value of economic benefits available in the form of refunds from the plan or reductions in future contributions to the plan.

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

The Group participate in a defined benefit plan operated by another Morgan Stanley affiliate. The Group and Company recognise recharges for the net defined benefit cost of the plan as a whole under inter-affiliate contractual agreements.

r. Offsetting of financial assets and financial liabilities

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

26. Appendix VII: CRR and CRR II Reference Mapping

CRR Ref	High Level Summary	Compliance Reference
MSI Group & MSIP		
Article 431 Scope of disclosure requirements		
431 (1)	Requirement to publish Pillar 3 disclosures.	The MSI Group publishes Pillar 3 disclosures on a quarterly basis.
431 (2)	Firms with permission to use specific operational risk methodologies must disclose operational risk information.	Section 14 provides a description of the Operational Risk framework.
431 (3)	Institution must have a policy covering frequency of disclosures. Their verification, comprehensiveness and appropriateness.	The MSI Group has a dedicated Pillar 3 policy, reviewed on an annual basis.
431 (4)	Explanation of ratings decision upon request.	Not Applicable
Article 432 Non-Material, proprietary or confidential information		
432 (1)	Institutions may omit information that is not material if certain conditions are met.	Compliance with this provision is covered by the MSI Group's policy.
432 (2)	Institutions may omit information that is proprietary or confidential if certain conditions are met.	Compliance with this provision is covered by the MSI Group's policy.
432 (3)	Where 432 (1) and (2) apply this must be stated in the disclosures, and more general information must be disclosed.	Not applicable
432 (4)	Use of 432 (1) or (2) is without prejudice to scope of liability for failure to disclose material information.	Not Applicable
Article 433: Frequency of disclosure		
433	Disclosures must be published at least on an annual basis and more frequently as necessary.	The MSI Group publishes Pillar 3 disclosures on a quarterly basis.
Article 434: Means of disclosure		
434 (1)	All disclosures shall be provided in one medium, or provide clear cross references.	The disclosures are published to the Morgan Stanley Investor Relations website. Signposting within the disclosure directs the reader to other publications as relevant.
434 (2)	Disclosures made under other requirements (e.g., accounting) can be used to satisfy Pillar 3 if appropriate.	Signposting within the disclosure directs the reader to other publications as relevant.
Article 435: Risk Management Objectives and Policies		
435 (1)	Disclose information on:	
435 (1) (a)	The strategies and processes to manage risks.	Section 3: Risk Management "Risk Policies and Processes" "Stress Testing" "Risk Strategy and Appetite"
435 (1) (b)	The structure and organisation of the risk management function.	Section 3: Risk Management "Control Framework" "Risk Governance"
435 (1) (c)	The scope and nature of risk reporting and measurement systems.	Section 3: Risk Management "Risk Strategy and Appetite" "Risk Reporting and Measurement"
435 (1) (d)	The policies for hedging and mitigating risk	Section 3: Risk Management "Risk Policies and Processes" "Risk Governance"
435 (1) (e)	Declaration approved by the management body on the adequacy of risk management arrangements.	Section 3: Risk Management - "Adequacy of Risk Management Arrangements"
435 (1) (f)	Concise risk statement approved by the management body.	Section 3: Risk Management - "Risk Strategy and Appetite"
435 (2) (a)	Number of directorships held by members of the management body.	Appendix I: Board of Directors Knowledge, Skill and Expertise - "Figure 7: MSI Directors: Number of Directorships"
435 (2) (b)	Recruitment policy for members of the management body, along with their knowledge, skills and expertise.	Appendix I: Board of Directors Knowledge, Skill and Expertise - "Appointments to MSI Board"
435 (2) (c)	Policy on diversity of the management body and results against targets.	Appendix I: Board of Directors Knowledge, Skill and Expertise - "Diversity and Composition of MSI Board"
435 (2) (d)	Disclosure of whether there is a separate Risk Committee and the number of times the committee has met during the year.	Section 3: Risk Management - "MSI Board Committees"
435 (2) (e)	Description of the information flow to the management body.	Section 3: Risk Management - "Risk Governance"

Article 436: Scope of Application		
436 (a)	Name of institution.	Section 1: Overview and Key Metrics
436 (b)	Difference in the basis of consolidation for accounting and prudential purposes, with a brief description of the entities, explaining whether:	Section 4: Basis of Preparation and Linkage to Financial Accounts Pages
436(b) (i)	Fully consolidated.	
436(b) (ii)	Proportionally consolidated.	
436(b) (iii)	Deducted from Own Funds.	
436(b) (iv)	Neither consolidated nor deducted.	
436 (c)	Impediments to transfer of own funds or repayment of liabilities between parent and subsidiaries.	Section 5: Capital Management
436 (d)	Capital shortfalls in any subsidiaries not included in the consolidation.	Not Applicable
436 (e)	If applicable, making use of the provisions laid out in Article 7 (waiving solo requirements) & Article 9 (solo consolidation).	Not Applicable
Article 437: Own Funds		
437 (1)(a)	Full reconciliation of CET1, AT1, Tier 2.	Section 6: Capital Resources - Table 6: Reconciliation of balance sheet total equity to regulatory capital
437 (1)(b)	Description of the main features of CET1, AT1, Tier 2.	Appendix II: Table 51 - Capital instruments and eligible liabilities (EU CCA)
437 (1)(c)	Full terms of all CET1, AT1, Tier 2 instruments.	
437 (1)(d)(i)	Each prudential filter applied pursuant to Articles 32 to 35.	Section 6: Capital Resources - Table 6: Reconciliation of balance sheet total equity to regulatory capital
437(1)(d)(ii)	Each deduction applied pursuant to Articles 36, 56 and 66.	
437(1)(d)(iii)	Items not deducted in accordance with Articles 47, 48, 56, 66, 79.	
437 (1)(e)	A description of all restrictions applied to the calculation of own funds.	Not Applicable
437 (1)(f)	Where institutions disclose capital ratios calculated using elements of own funds determined on a different basis.	
Article 437a: Disclosure of Own Funds and Eligible Liabilities (CRR II)		
437a	Composition of own funds and eligible liabilities and ranking in the creditor hierarchy	Section 7: Total Loss-Absorbing Capacity
Article 438: Capital Requirements		
438 (a)	Summary of institution's approach to assessing capital adequacy.	Section 5: Capital Management
438 (b)	Result of ICAAP on demand from authorities.	Not Applicable
438 (c)	Capital requirement amounts for credit risk for each Standardised Approach exposure class.	Section 9: Capital Requirements and RWAs - Table 13a: Overview of RWAs (EU OV1) - MSI Group and MSIP Section 10: Credit Risk - Table 15: Credit and counterparty credit risk EAD and RWA summary Section 11: Counterparty Credit Risk - Table 26: RWA flow statements of CCR exposures under IMM (EU CCR7)
438 (d)	Capital requirement amounts for credit risk for each Internal Ratings Based Approach exposure class.	
438 (d) (i)		
438 (d) (ii)		
438 (d)(iii)		
438 (d)(iv)		
438 (e)	Capital requirement amounts for Market Risk or Settlement Risk, or Large Exposures where they exceed limits.	Section 9: Capital Requirements and RWAs - Table 13a: Overview of RWAs (EU OV1) - MSI Group and MSIP Section 13: Market Risk - Table 39: Market Risk RWA summary
438 (f)	Capital requirement amounts for Operational Risk, separately for the Basic Indicator Approach, Standardised Approach and Advanced Measurement Approach, as applicable.	Section 9: Capital Requirements and RWAs - Table 13a: Overview of RWAs (EU OV1) - MSI Group and MSIP Section 14: Operational Risk
438	Requirement to disclose specialised lending exposures and equity exposures in the banking book, falling under the simple risk weight approach.	Section 10: Credit Risk - Table 19a: IRB (specialised lending and equities) (EU CR10) - MSI Group and MSIP

Article 439: Exposure to Counterparty Credit Risk (CCR)		
439 (a)	Discussion of the methodology used to assign internal capital and credit limits for CCR.	Section 10: Credit Risk - "10.1 Credit and Counterparty Credit Risk Management " - "Credit Risk Limits" and "Credit Evaluation"
439 (b)	Discussion of policies for securing collateral and establishing credit reserves.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" Section 11: Counterparty Credit Risk "Derivatives and SFTs Credit Exposure"
439 (c)	Discussion of policies with respect to wrong-way risk exposures.	Section 11: Counterparty Credit Risk - "11.6 Wrong Way Risk"
439 (d)	Discussion of the impact of the amount of collateral to be provided in the event of a ratings downgrade.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" Section 11: Counterparty Credit Risk - "11.5 Collateral Impact of a Downgrade"
439 (e)	Derivation of net derivative credit exposure.	Section 11: Counterparty Credit Risk - Table 28: Impact of netting and collateral held on exposure values (EU CCR5-A)
439 (f)	Exposure values for mark-to-market, standardised and internal model methods.	Section 11: Counterparty Credit Risk - Table 25: Analysis of the CCR exposure by approach (EU CCR1)
439 (g)	Notional value of credit derivative hedges and distribution of current credit exposure by type of exposure.	Section 11: Counterparty Credit Risk - Table 25: Analysis of the CCR exposure by approach (EU CCR1), Table 29: Composition of collateral for exposures to CCR (EU CCR5-B), Table 31: Credit derivatives exposure (EU CCR6)
439 (h)	Notional amounts of credit derivative transactions for own credit, intermediation, bought and sold, by product type.	
439 (i)	Estimate of alpha, if applicable.	Not Applicable
Article 440: Capital Buffers		
440 (1) (a)	The geographical distribution of its credit exposures relevant for the calculation of its countercyclical capital buffer.	Section 5: Capital Management Appendix IV: Countercyclical Capital Buffer
440 (1) (b)	The amount of its institution specific countercyclical capital buffer.	
Article 441: Indicators of Global Systemic Importance		
441 (1)	Disclosure of the indicators of global systemic importance.	Not Applicable
Article 442: Credit Risk Adjustments		
442 (a)	Definitions for accounting purposes of "past due" and "impaired".	Section 10: Credit Risk - 10.4 Credit Risk Adjustments
442 (b)	Description of the approaches and methods adopted for determining specific and general credit risk adjustments.	Section 10: Credit Risk - 10.4 Credit Risk Adjustments Table 22: IRB credit risk adjustments, expected loss and charge to the profit and loss Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 63: Changes in stock of general and specific credit risk adjustments (EU CR2-A)
442 (c)	Disclosure of pre credit risk mitigation by exposure class.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 56: Total and average net amount of exposures (EU CRB-B) Table 60: Credit quality of exposures by exposure class and instrument (EU CR1-A)
442 (d)	Geographic distribution of the exposures broken down by exposure classes.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 57: Geographical breakdown of exposures (EU CRB-C)
442 (e)	Distribution of exposures by industry or counterparty type, broken down by exposure classes.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 58: Concentration of exposures by industry or counterparty type (EU CRB-D)
442 (f)	Residual maturity breakdown of all the exposures, broken down by exposure classes.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 59a: Maturity of exposures (EU CRB-E) - MSI Group and MSIP
442 (g) (i)	By significant industry or counterparty type the amount of: Impaired exposures and past due exposures, provided separately.	Section 10: Credit Risk - Table 23: Impaired and past due exposures, credit risk adjustments by industry type Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 58: Credit quality of exposures by exposure class and instrument (EU CR1-A) Table 61: Credit quality of exposures by industry or counterparty types (EU CR1-B) Table 61: Credit Quality of Performing and Non-Performing exposures by past due days Table 62: Performing and Non-performing exposures and related provisions
442(g) (ii)	By significant industry or counterparty type the amount of: Specific and general credit risk adjustments.	
442(g) (iii)	By significant industry or counterparty type the amount of: Charges for specific and general credit risk adjustments during the reporting period.	

442 (h)	Amount of the impaired exposures and past due exposures, broken down by significant geographical areas and the amounts of specific and general impairment for each geography.	Section 10: Credit Risk - Table 24: Impaired and past due exposures, credit risk adjustments by geographic region Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 62: Credit quality of exposures by geography (EU CR1-C)
442 (i)	Reconciliation of changes in the specific and general credit risk adjustments for impaired exposures.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 63: Changes in stock of general and specific credit risk adjustments (EU CR2-A) Table 64: Changes in stock of defaulted and impaired loans and debt securities (EU CR2-B)
442(i) (i)	A description of the type of specific and general credit risk adjustments.	
442(i) (ii)	The opening balances.	
442(i) (iii)	The amounts taken against the credit risk adjustments during the reporting period.	
442(i) (iv)	The amounts set aside for estimated probable losses on exposures	
442(i) (v)	The closing balances.	
Article 443: Unencumbered Assets		
443	Disclosures on Unencumbered Assets.	Section 19: Asset Encumbrance
Article 444: Use of ECAIs		
444 (a)	Names of the nominated ECAIs used in the calculation of Standardised Approach RWAs and the reasons for any change.	Section 10: Credit Risk - "10.2 Counterparty and Credit Risk Capital Requirements"
444 (b)	Exposure class for which each ECAI is used.	
444 (c)	Description of the process used to transfer the issuer and issue credit assessments onto items not included in the Trading Book.	Section 10: Credit Risk - "10.2 Counterparty and Credit Risk Capital Requirements"
444 (d)	Mapping of the external rating of each ECAI to credit quality steps.	Section 10: Credit Risk - Table 17: External Credit Assessment Institutions ("ECAI")
444 (e)	Exposure value post-credit risk mitigation associated with each credit quality step.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 67: Standardised Approach (EU CR5) Table 72: Standardised Approach - CCR Exposures by Regulatory Portfolio and Risk Weight (EU CCR3)
Article 445: Exposure to Market Risk		
445	Disclosure of position risk, large exposures exceeding limits, FX, settlement and commodities risk.	Section 13: Market Risk - "13.2 Market Risk Capital Requirements" Table 40: Market risk under the standardised approach (EU MR1)
Article 446: Operational Risk		
446	Disclosure of scope of approaches used to calculate operational risk, discussion of the advanced methodology approach and the relevant internal and external factors considered in the firms measurement approach.	Section 14: Operational Risk
Article 447: Exposures in Equities not included in the Trading Book		
447 (a)	Differentiation between exposures based on their objectives.	Section 10: Credit Risk - "10.3 Internal Ratings Based Approach" - "Non-Trading Book Equity Exposure and Specialised Lending"
447 (b)	Balance sheet value, the fair value and actual prices of exchange traded equity where it differs from the fair value.	Section 10: Credit Risk - Table 19a: IRB (specialised lending and equities) (EU CR10) - MSI Group and MSIP
447 (c)	Types, nature and amounts of the relevant classes of equity exposures.	
447 (d)	Cumulative realised gains and losses arising from sales over the period.	Section 10: Credit Risk - Table 20: Non-trading book equity gains and losses
447 (e)	Total unrealised gains or losses, the total latent revaluation gains and losses and amounts included in CET1 capital.	
447h: Disclosure of Key Metrics (CRR II)		
447h	Disclose key metrics – own funds and eligible liability ratios and their components, numerator and denominator	Section 7: Total Loss-Absorbing Capacity
Article 448: Exposure to Interest Rate Risk on positions not included in the Trading Book		
448 (a)	Nature of the interest rate risk and key assumptions.	Section 13: Market Risk - "13.9 Interest Rate Risk in the Banking Book" Table 45: Interest rate risk in the banking book
448 (b)	Variation in earnings or economic value, or other methods used by the firm for upward and downward rate shocks to interest rates, by currency.	

Article 449: Exposure to Securitisation Positions		
449 (a)	Objectives in relation to securitisation activity.	Section 12: Securitisation - "12.1 Securitisation Activities"
449 (b)	Nature of other risks including liquidity risk inherent in securitised assets.	Section 12: Securitisation - "12.6 Risk Monitoring"
449 (c)	Risks in terms of seniority of underlying securitisation positions and underlying assets.	Section 12: Securitisation - Table 35: Securitisation exposures and capital requirements by standardised approach (SEC-SA) Table 36: Securitisation exposures and capital requirements by external ratings approach (SEC-ERBA) Table 37: Securitisation exposures and capital requirements by default approach (1250% Risk Weight)
449 (d)	Different roles played by the institution in the securitisation process.	Section 12: Securitisation - "12.1 Securitisation Activities"
449 (e)	Indication of the extent in the firms involvement in the roles referred to in point (d).	Section 12: Securitisation - "12.1 Securitisation Activities"
449 (f)	Process in place to monitor changes in the credit and market risk of securitisation exposures and how the processes differ for re-securitisation exposures.	Section 12: Securitisation - "12.6 Risk Monitoring"
449 (g)	Description of the firms policy governing the use of hedging and unfunded protection to mitigate the risk of retained securitisation and re-securitisation exposures, including identification of material hedge counterparties.	Not Applicable
449 (h)	Approaches to calculating RWA for securitisation mapped to types of exposures.	Section 12: Securitisation - "12.2 Regulatory Capital Treatment"
449 (i)	Types of SSPE the firm, as sponsor, uses to securitise third party exposures, and list of SSPE's.	Not Applicable: The MSI Group did not originate or sponsor any securitisations.
449 (j)	Summary of firms accounting policies for securitisation activities.	Section 12: Securitisation - "12.4 Accounting"
449 (j) (i)	Whether transactions are treated as sales or financings.	
449 (j) (ii)	The recognition of gains on sales.	
449 (j) (iii)	Approach to valuing securitisation positions.	Section 12: Securitisation - "12.5 Valuation"
449 (j) (iv)	Treatment of synthetic securitisations.	Not Applicable
449 (j) (v)	Valuation of assets awaiting securitisations.	Section 12: Securitisation - "12.5 Valuation"
449 (j) (vi)	Recognition of arrangements that could require the bank to provide support to securitised assets.	Not Applicable
449 (k)	Names of ECAIs used for securitisations.	Section 12: Securitisation - "12.2 Regulatory Capital Treatment"
449 (l)	Full description of Internal Assessment Approach.	Not Applicable
449 (m)	Explanation of changes in quantitative disclosures.	Section 12: Securitisation - "12.1 Securitisation Activities"
449 (n) (i)	Amount of outstanding exposures securitised.	Section 12: Securitisation - Table 32: Securitisation exposures
449 (n) (ii)	On balance sheet securitisation retained or purchased, and off-balance sheet exposures;	Section 12: Securitisation - Table 33: Trading book securitisation exposures by exposure type Table 34: Non-trading book securitisation exposures by exposure type
449 (n) (iii)	Amount of assets awaiting securitisation.	Not Applicable
449 (n) (iv)	Early amortisation treatment; aggregate drawn exposures capital requirements.	Not Applicable
449 (n) (v)	Deducted or 1250% risk weighted securitisation positions.	Section 12: Securitisation - Table 35: Securitisation exposures and capital requirements by standardised approach (SEC-SA) Table 36: Securitisation exposures and capital requirements by external ratings approach (SEC-ERBA) Table 37: Securitisation exposures and capital requirements by default approach (1250% Risk Weight)
449 (n) (vi)	Amount of exposures securitised and recognised gains or losses on sales.	
449 (o) (i)	Retained and purchased exposure and associated capital requirements, broken down by risk-weight bands.	
449 (o) (ii)	Retained and purchased re-securitisation exposures before and after hedging and insurance; exposure to financial guarantors broken down by guarantor credit worthiness.	Not Applicable
449 (p)	Impaired assets and recognised losses related to banking book securitisations, by exposure type.	Not Applicable

449 (q)	Exposure and capital requirements for Trading Book securitisations, separately into traditional and by exposure type.	Section 12: Securitisation - Table 33: Trading book securitisation exposures by exposure type
449 (r)	Whether the institution has provided financial support to securitisation vehicles.	Not Applicable
Article 450: Remuneration Disclosures		
450	Remuneration Disclosure.	Remuneration Policy is disclosed separately
Article 451: Leverage		
451 (1) (a)	The leverage ratio and how the institution applies Article 499(2) and (3).	Section 8: Leverage - Table 11a: Leverage ratio common disclosure - MSI Group and MSIP
451 (1) (b)	A breakdown of the total exposure measure as well as a reconciliation of the total exposure measure with the relevant information disclosed in published financial statements.	Section 8: Leverage - Table 10a: Reconciliation of accounting assets and leverage ratio exposures - MSI Group and MSIP Table 12a: Split of on-balance sheet exposures - MSI Group and MSIP
451 (1) (c)	Where applicable, the amount of derecognised fiduciary items in accordance with Article 429(11).	Not Applicable
451 (1) (d)	A description of the processes used to manage the risk of excessive leverage.	Section 8: Leverage
451 (1) (e)	A description of the factors that had an impact on the leverage ratio during the period to which the disclosed leverage ratio refers.	Section 8: Leverage
Article 452: Use of the IRB Approach to Credit Risk		
452 (a)	Permission for the use of the IRB approach from the competent authority.	Section 10: Credit Risk - "10.3 Internal Ratings Based Approach"
452 (b)(i)	The structure of internal rating systems and relation between internal and external ratings.	Section 10: Credit Risk "10.3 Internal Ratings Based Approach" "Control Mechanisms for the Rating System"
452 (b)(ii)	The use of internal estimates other than for the purposes of calculating capital requirements under the IRB approach.	
452(b)(iii)	The process for managing and recognising credit risk mitigation.	
452(b)(iv)	The control mechanisms for rating systems including a description of independence, accountability, and rating systems review.	
452 (c)(i)	Description of the internal ratings process: for central governments and central banks.	Section 10: Credit Risk - "10.3 Internal Ratings Based Approach" "Rating Process" "Rating Philosophy and PD Estimation"
452 (c)(ii)	Description of the internal ratings process: for institutions.	
452(c)(iii)	Description of the internal ratings process: for corporates, including SMEs, specialised lending and purchased corporate receivables.	
452(c)(iv)	Description of the internal ratings process: for retail, for each of the categories of exposures to which the different correlations in Article 154(1) to (4) correspond.	
452 (c)(v)	Description of the internal ratings process: for equities.	
452 (d)	The exposure values for each IRB exposure class. Exposures to central governments and central banks, institutions and corporates where institutions use own estimates of LGDs or conversion factors for the calculation of risk-weighted exposure amounts, shall be disclosed separately from exposures for which the institutions do not use such estimates.	Section 10: Credit Risk: Table 15: Credit and Counterparty Credit Risk Summary Appendix V: Additional Credit and Counterparty Credit Risk Tables Table 70: IRB - Credit Risk Exposures by Exposure Class and PD Range (EU CR6) Table 79: IRB - CCR Exposures by Portfolio and PD Scale (EU CCR4)
452 (e)(i)	For wholesale exposure classes, disclosed separately by obligor grade: Total exposure, separating loans and undrawn exposures where applicable.	
452(e)(ii)	For wholesale exposure classes, disclosed separately by obligor grade: Exposure-weighted average risk weight.	

452(e)(iii)	For wholesale exposure classes, disclosed separately by obligor grade: Undrawn commitments and average exposure values by asset class.	
452 (f)	For retail exposure classes, same disclosures as under 452 (e), by risk grade or EL grade.	Not Applicable
452 (g)	Actual specific risk adjustments for the period and explanation of changes.	Section 10: Credit Risk - Table 22: IRB Credit Risk adjustments, expected loss and charge to the profit and loss
452 (h)	Commentary on drivers of losses in preceding period.	Section 10: Credit Risk - "Estimates Versus Actual Probability of Default": Table 21: Estimated versus actual PD by exposure class Table 22: IRB credit risk adjustments, expected loss and charge to the profit and loss
452 (i)	Disclosure of predicted against actual losses for sufficient period, and historical analysis to help assess the performance of the rating system over a sufficient period.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 76: IRB approach - Backtesting of PD per exposure class (EU CR9)
452 (j) (i) 452 (j) (ii)	Where applicable, PD and LGD by each country where the firm operates	Section 10: Credit Risk -Table 18: IRB geographical breakdown of exposure weighted average PD
Article 453: Use of Credit Risk Mitigation Techniques		
453 (a)	The policies and processes for, and an indication of the extent to which the entity makes use of, on- and off-balance sheet netting.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation"
453 (b)	The policies and processes for collateral valuation and management.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" "Collateral"
453 (c)	A description of the main types of collateral taken by the institution.	
453 (d)	The main types of guarantor and credit derivative counterparty and their creditworthiness.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation"
453 (e)	Information about market or credit risk concentrations within the credit mitigation taken.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation"
453 (f)	Standardised or IRB approach, exposure value covered by eligible collateral.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 65: Credit risk mitigation techniques - overview (EU CR3) Table 66: Standardised Approach -Credit risk exposure and credit risk mitigation (CRM) Effects (EU CR4) Table 69: IRB Approach - Effect on the RWAs of credit derivatives used as CRM techniques (EU CR7)
453 (g)	Exposures covered by guarantees or credit derivatives.	
Article 454: Use of the Advanced Measurement Approach to Operational Risk		
454	For institutions using the Advanced Measurement Approaches set out in Articles 321 to 324 for calculating operational risk capital requirements, a description of the use of insurances and other risk transfer mechanisms to mitigate operational risk.	Not Applicable
Article 455: Use of Internal Market Risk Models		
455(a)(i)	Disclosure of the characteristics of the market risk models.	Section 13: Market Risk - "13.1 VaR Methodology, Assumptions and Limitations"
455(a)(ii)	Disclosure of the methodologies used to measure incremental default and migration risk.	Section 13: Market Risk - "13.6 Incremental Risk Charge" 13.7 Comprehensive Risk Measure
455(a)(iii)	Descriptions of stress tests applied to the portfolios.	Section 13: Market Risk - "13.8 Stress Testing"
455(a)(iv)	Methodology for backtesting and validating the models.	Section 13: Market Risk - "13.4 Backtesting" "Incremental Risk Charge""13.7 Comprehensive Risk Measure"
455(b)	Scope of permission for use of the models.	Section 13: Market Risk
455(c)	Policies and processes to determine which exposures are to be included in the Trading Book, and to comply with prudential valuation requirements.	Section 13: Market Risk - "13.3 Positions included in the Trading Book" Section 16: Valuation Risk
455(d)(i)	The highest, the lowest and the mean of: The daily value-at-risk measures over the reporting period and as per the period end.	Section 13: Market Risk - "13.2 Market Risk Capital Requirements" Table 43: IMA values for trading portfolios (EU MR3)

455(d)(ii)	The highest, the lowest and the mean of: The stressed value-at-risk measures over the reporting period and as per the period end.	
455(d)(iii)	The highest, the lowest and the mean of: The risk numbers for incremental default and migration risk and for the specific risk of the correlation trading portfolio over the reporting period and as per the period-end.	
455(e)	The elements of the own funds requirement.	Section 13: Market Risk - "13.2 Market Risk Capital Requirements" Table 41: Market risk under the internal models approach (EU MR2-A)
455(f)	Weighted average liquidity horizons of portfolios covered by models.	Section 13: Market Risk - "13.6 Incremental Risk Charge" Table 44: IRC liquidity horizon for material sub portfolios
455(g)	Comparison of end-of-day VaR measures compared with one-day changes in portfolio's value.	Section 13: Market Risk - Figure 5 / 6: Comparison of VaR estimates with gains/losses

CRR II Ref	High Level Summary	Compliance Reference
MSEHSE Group		
Article 437: Own Funds		
437 (1)(a)	Full reconciliation of CET1, AT1, Tier 2.	Section 6: Capital Resources - Table 6: Reconciliation of balance sheet total equity to regulatory capital
437 (1)(b)	Description of the main features of CET1, AT1, Tier 2.	Appendix II: Table 51 - Capital instruments and eligible liabilities (EU CCA)
437 (1)(c)	Full terms of all CET1, AT1, Tier 2 instruments.	
437 (1)(d)(i)	Each prudential filter applied pursuant to Articles 32 to 35.	Section 6: Capital Resources - Table 6: Reconciliation of balance sheet total equity to regulatory capital
437(1)(d)(ii)	Each deduction applied pursuant to Articles 36, 56 and 66.	
437(1)(d)(iii)	Items not deducted in accordance with Articles 47, 48, 56, 66, 79.	
437 (1)(e)	A description of all restrictions applied to the calculation of own funds.	Not Applicable
437 (1)(f)	Where institutions disclose capital ratios calculated using elements of own funds determined on a different basis.	
Article 437a: Disclosure of Own Funds and Eligible Liabilities (CRR II)		
437a	Composition of own funds and eligible liabilities and ranking in the creditor hierarchy	Section 7: Total Loss-Absorbing Capacity - Table 8b TLAC composition (EU iTLAC) - MSEHSE Group Table 9b Creditor ranking - Entity that is not a resolution entity (EU TLAC2b) - MSEHSE Group
Article 438: Capital Requirements		
438(a)	Summary of institution's approach to assessing capital adequacy.	Section 5: Capital Management - "MSEHSE Group ICAAP approach"
438(b)	Amount and composition of additional own funds based on supervisory review process	Section 1: Overview and Key Metrics - Table 1b Key metrics (EU KM1) - MSEHSE Group
438(c)	Result of ICAAP on demand from authorities.	Not Applicable
438(d)	Total risk-weighted exposure and capital requirement thereon broken down by risk categories.	Section 9: Capital Requirements and RWAs - Table 13b: Overview of RWAs (EU OV1) - MSEHSE Group
438(e)	Requirement to disclose specialised lending exposures and equity exposures in the banking book, falling under the simple risk weight approach.	Section 10: Credit Risk - Table 19b: IRB (specialised lending and equities) (EU CR10.5) - MSEHSE Group
438(f)	Exposure value and risk-weighted exposure amount of own funds instruments held in any insurance undertaking	Not Applicable
438(g)	Supplementary own funds requirement and the capital adequacy ratio of the financial conglomerate	Not Applicable
438(h)	Variations in risk weighted exposure amounts using internal models between current disclosure period and immediately preceding disclosure period	Section 10: Credit Risk - Table 16: RWA flow statements of credit risk exposures under the IRB approach (EU CR8) Section 11: Counterparty Credit Risk - Table 26: RWA flow statements of CCR exposures under IMM (EU CCR7) Section 13: Market Risk - Table 42b: RWA flow statements of market risk exposures under the IMA (EU MR2-B) – MSEHSE Group
Article 440: Capital Buffers		
440(a)	The geographical distribution of its credit exposures relevant for the calculation of its countercyclical capital buffer.	Section 5: Capital Management Appendix IV: Countercyclical Capital Buffer
440(b)	The amount of its institution specific countercyclical capital buffer.	

Article 442: Credit Risk Adjustments		
442(a)	Definitions for accounting purposes of "past due" and "impaired".	Section 10: Credit Risk - 10.4 Credit Risk Adjustments
442(b)	Description of the approaches and methods adopted for determining specific and general credit risk adjustments.	Section 10: Credit Risk - 10.4 Credit Risk Adjustments
442(c)	Amount and quality of performing, non-performing and forborne exposures.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 66b: Performing and Non-performing exposures and related provisions (EU CR1) – MSEHSE Group Table 67: Quality of non-performing exposures by geography (EU CQ4) Table 68: Credit quality of loans and advances to non-financial corporations by industry (EU CQ5)
442(d)	Ageing analysis of accounting past due exposures.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 65b: Credit Quality of Performing and Non-Performing exposures (EU CQ3) – MSEHSE Group
442(e)	Detailed information on both defaulted and non-defaulted exposures.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 66b: Performing and Non-performing exposures and related provisions (EU CR1) – MSEHSE Group Table 67: Quality of non-performing exposures by geography (EU CQ4) Table 68: Credit quality of loans and advances to non-financial corporations by industry (EU CQ5)
442(f)	Changes in gross amount of defaulted on-balance sheet and off-balance sheet exposures.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 69: Changes in the stock of non-performing loans and advances (EU CR2)
442(g)	Residual maturity breakdown of all the exposures, broken down by exposure classes.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 59b: Maturity of exposures (EU CR1-A) - MSEHSE Group
Article 450 Disclosure of remuneration policy		
450	Remuneration Disclosure.	Remuneration Policy is disclosed separately
Article 451: Leverage		
451 (1) (a)	The leverage ratio and how the institution applies Article 499(2).	Section 8: Leverage - Table 11b: Leverage ratio common disclosure - MSEHSE Group
451 (1) (b)	A breakdown of the total exposure measure as well as a reconciliation of the total exposure measure with the relevant information disclosed in published financial statements.	Section 8: Leverage - Table 10b: Reconciliation of accounting assets and leverage ratio exposures - MSEHSE Group Table 12b: Split of on-balance sheet exposures - MSEHSE Group
451 (1) (c)	Where applicable, the amount of exposures calculated in accordance with Articles 429(8) and 429a(1) and the adjusted leverage ratio calculated in accordance with Article 429a(7).	Not Applicable for 429a(7) and 429a(8) 429a(1) - Section 8: Leverage - Table 11b: Leverage ratio common disclosure (EU LR2) – MSEHSE Group
451 (1) (d)	A description of the processes used to manage the risk of excessive leverage.	Section 8: Leverage
451 (1) (e)	A description of the factors that had an impact on the leverage ratio during the period to which the disclosed leverage ratio refers.	Section 8: Leverage
451 (2)	Public credit institutions shall disclose the leverage ratio without the adjustment to the exposure as per Article 429a(1)(d).	Not Applicable
451 (3)	Leverage ratio and breakdown of total exposure measure based on average calculation.	Section 8: Leverage - Table 11b: Leverage ratio common disclosure (EU LR2) – MSEHSE Group
Article 451a: Liquidity requirements		
451a (1)	Disclose information on liquidity coverage ratio, net stable funding ratio and liquidity risk management.	Section 17: Liquidity Coverage Ratio and Section 18: Net Stable Funding Ratio
451a (2)(a)	Average or averages, as applicable, of liquidity coverage ratio based on month-end exposures over preceding 12 months for each of the relevant disclosure quarter.	Section 17: Liquidity Coverage Ratio - Table 46b: Quantitative information of LCR (EU LIQ1) – MSEHSE Group
451a (2)(b)	Average or averages, as applicable, of total liquid assets net of haircuts based on month-end exposures over preceding 12 months for each of the relevant disclosure quarter and a description of composition of the liquidity buffer.	Section 17: Liquidity Coverage Ratio - Table 46b: Quantitative information of LCR (EU LIQ1) – MSEHSE Group
451a (2)(c)	Averages and composition of the liquidity outflows, inflows and net liquidity outflows based on month-end exposures over preceding 12 months for each of the relevant disclosure quarter.	Section 17: Liquidity Coverage Ratio - Table 46b: Quantitative information of LCR (EU LIQ1) – MSEHSE Group
451a (3)(a)	Quarter-end figures of the net stable ratio calculation for each of the relevant disclosure quarter.	Section 18: Net Stable Funding Ratio - Table 47: Net Stable Funding Ratio (EU LIQ2) – MSEHSE Group
451a (3)(b)	Overview of amount of available stable funding	Section 18: Net Stable Funding Ratio - Table 47: Net Stable Funding Ratio (EU LIQ2) – MSEHSE Group

451a (3)(c)	Overview of amount of required stable funding	Section 18: Net Stable Funding Ratio - Table 47: Net Stable Funding Ratio (EU LIQ2) – MSEHSE Group
451a (4)	Disclose the arrangements, systems, processes and strategies put in place to identify, measure, manage and monitor the liquidity risk	Section 17: Liquidity Coverage Ratio
Article 453: Use of Credit Risk Mitigation Techniques		
453(a)	The policies and processes for, and an indication of the extent to which the entity makes use of, on- and off-balance sheet netting.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" "Netting"
453(b)	The policies and processes for collateral valuation and management.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" "Collateral"
453(c)	A description of the main types of collateral taken by the institution.	
453(d)	The main types of guarantor and credit derivative counterparty and their creditworthiness.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" "Guarantees"
453(e)	Information about market or credit risk concentrations within the credit mitigation taken.	Section 10: Credit Risk - "10.5 Credit Risk Mitigation" "Collateral"
453(f)	Standardised or IRB approach, exposure value covered by eligible collateral.	Appendix V: Additional Credit and Counterparty Credit Risk Tables - Table 70b: Credit risk mitigation techniques – overview (EU CR3) – MSEHSE Group
453(g)	Corresponding conversion factor and the credit risk mitigation	
453(h)	Exposures covered by guarantees or credit derivatives.	
453(i)	Details around standardized approach using credit risk mitigation techniques	
453(j)	Details around IRB approach using credit risk mitigation techniques	

27. Appendix VIII: Abbreviations

Term	Definition
AIRB	Advanced IRB
AT1	Additional Tier 1 Capital
ASF	Available Stable Funding
AVAs	Additional Valuation Adjustments
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht
BCBS	Basel Committee on Banking Supervision
BIA	Basic Indicator Approach
BOE	Bank of England
CASS	Client Assets Sourcebook
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
CQS	Credit Quality Step
CRD	Capital Requirements Directive
CRM	Credit Risk Mitigation
CRMD	Credit Risk Management Department
CRMe	Comprehensive Risk Measure
CRR	Capital Requirements Regulation
CTP	Correlation Trading Portfolio
CVA	Credit Valuation Adjustment
DA	Delegated Act
EAD	Exposure at Default
EBA	European Banking Authority
ECAI	External Credit Assessment Institutions
ECB	European Central Bank
ECL	Expected Credit Losses
EEA	European Economic Area
EHQLA	Extremely High-Quality Liquid Assets
EMEA	Europe, the Middle East and Africa
EMEA ALCO	EMEA Asset and Liability Committee
ERC	EMEA Risk Committee
EU	European Union
EVE	Economic Values of Equity
FCA	Financial Conduct Authority
FIRB	Foundation Internal Ratings Based
FRS	Financial Reporting Standards
FRTB	Fundamental Review of the Trading Book
G-SIIs	Global Systematically Important Institutions
HGB	German Commercial Code
HQLA	High Quality Liquid Assets
IAA	Internal Assessment Approach
ICAAP	Internal Capital Adequacy Assessment Process
IFD	Investment Firm Directive
IFPR	Investment Firms Prudential Regime
IFR	Investment Firm Regulation
IFRS	International Financial Reporting Standards
ILAAP	Internal Liquidity Adequacy Assessment Process
IMA	Internal Modelling Approach
IMM	Internal Models Method
IRB	Internal Ratings Based
IRC	Incremental Risk Charge
IRRBB	Interest Rate Risk in the Banking Book
ITS	Implementing Technical Standards
KPI	Key Performance Indicator
LCR	Liquidity Coverage Ratio
LDP	Low Default Portfolio
LGD	Loss-Given Default
LRD	Liquidity Risk Department
L-SREP	Liquidity Supervisory Review Process
MCR	Minimum Capital Requirements
MM	Millions
MOC	Model Oversight Committee

Term	Definition
MRD	Market Risk Department
MRM	Model Risk Management
MSEHSE Group	Morgan Stanley Europe Holding SE Group
MSESE	Morgan Stanley Europe SE
MSI	Morgan Stanley International Limited
MSI Group	Morgan Stanley International Limited (and its subsidiaries)
MSIP	Morgan Stanley & Co. International plc
MSIP Group	Morgan Stanley & Co. International plc and its subsidiaries
MTMM	Mark-to-Market Method
NII	Net Interest Income
NPA	New Product Approval
NPL	Non-Performing Loan
NSFR	Net Stable Funding Ratio
ORD	Operational Risk Department
OTC	Over-the-counter
P2R	Pillar 2 Requirement
PD	Probability of Default
PFE	Potential Future Exposure
PRA	Prudential Regulation Authority
QCCP	Qualifying Central Counterparty
RC	Replacement Cost
RCSA	Risk Control Self-Assessment
RNIV	Risks Not In VaR
RSF	Required Stable Funding
RTS	Regulatory Technical Standards
RWAs	Risk Weighted Assets
SA	Standardised Approach
SA-CCR	Standardised Approach for Counterparty Credit Risk
SEC	US Securities and Exchange Commission
SEC-ERBA	Securitisation External Ratings Based Approach
SEC-IRBA	Securitisation IRB Approach
SEC-SA	Securitisation Standardised Approach
SFA	Supervisory Formula Approach
SFTs	Securities Financing Transactions
SICR	Significantly Since Initial Recognition
SPOE	Single Point of Entry
SPV	Special Purpose Vehicles
SREP	Supervisory Review and Evaluation Process
S&P	Standard and Poor's
STAR	Significant Transaction Analytical Review
STS	Simple, Transparent and Standardised
SVaR	Stressed Value at Risk
T1	Tier 1
TCFD	Task Force on Climate-Related Financial Disclosures
TCR	Total Capital Requirement
TLAC	Total Loss-Absorbing Capacity
TOFR	Total Own Funds Requirements
TOR/Ps	Top Operational Risks and Pathways
TTP	Temporary Transitional Power
UK	United Kingdom
VaR	Value at Risk
VC	Valuation Control