THE GOLDMAN SACHS GROUP, INC.
2021 RESOLUTION PLAN

Public Section

June 30, 2021

Goldman Sachs

Table of Contents

Taxonomy of Goldman Sachs in our Resolution Plan 3
Cautionary Note on Forward-Looking Statements 4
1. Introduction 5
2. Overview of Goldman Sachs 7
3. Preferred Resolution Strategy 12
4. Resolution-Critical Capabilities 15
5. Resolution Plan Governance and Challenge 36
Supporting Information 40
SI.1. Description of Core Business Lines 40
SI.2. Material Entities and their Operational and Financial Interconnectedness 44
SI.3. Summary Financial Information: Assets, Liabilities, Capital and Funding 67
SI.4. Description of Derivatives and Hedging Activities 89
SI.5. Memberships in Material Payment, Clearing and Settlement Systems 90
SI.6. Description of Foreign Operations 91
SI.7. Material Supervisory Authorities 93
SI.8. Principal Officers 99
SI.9. Description of Material Management Information Systems 100
Appendix I: Definition of Key Terms 103
Appendix II: Acronym definitions 104

When we use the terms ‘’Goldman Sachs,’’ ‘’GS Group,’’ ‘’the firm,’’ ‘’we,’’ ‘’us’’ and ‘’our’’ in this document, we mean The Goldman Sachs Group, Inc. ("Group Inc." or "parent company") and its consolidated subsidiaries. When we use the term “the Agencies,” we mean the Board of Governors of the Federal Reserve System ("FRB") and the Federal Deposit Insurance Corporation ("FDIC"). Please see Appendix I for a list of definitions of key terms and Appendix II for list of acronyms used in this document.

Unless otherwise specified, all financial information is as of, or for the year ended, December 31, 2020.

Taxonomy of Goldman Sachs in our Resolution Plan

Material Entities		Participating Material Entity[1]	Acronym or Abbreviation	Country or State of Incorporation
Covered Company	The Goldman Sachs Group, Inc.	No	Group Inc.	Delaware
Material Operating Entities	Goldman Sachs & Co. LLC	Yes	GSCO	New York
	Goldman Sachs International	Yes	GSI	England
	Goldman Sachs Bank USA	Yes	GS Bank USA	New York
	J. Aron & Company LLC	No	JANY	New York
	Goldman Sachs Japan Co., Ltd	Yes	GSJCL	Japan
	Goldman Sachs International Bank	Yes	GSIB	England
	Goldman Sachs Bank Europe SE	Yes	GSBE	Germany
	Goldman Sachs Asset Management, L.P.	Yes	GSAM	Delaware
	Goldman Sachs Asset Management International	Yes	GSAMI	England
Material Service Entities	Goldman Sachs Funding LLC	No	Funding IHC	Delaware
	Goldman Sachs Services Private Limited	Yes	GSSE	India
	Goldman Sachs Services LLC	Yes	GSPW	Delaware
	Goldman Sachs Property Management	Yes	GSPM	England
	Goldman Sachs Property Management USA LLC	Yes	GPMU	Delaware
	Goldman Sachs Services (Asia) Limited	Yes	GHKL	Hong Kong
	Goldman Sachs Services (Singapore) Pte. Ltd.	Yes	GPMS	Singapore
	Goldman Sachs (UK) Svc. Limited	Yes	GSUL	England
	Goldman Sachs Japan Services Co., Ltd	Yes	GSJS	Japan

Core and Non-Core Business Lines

Core Business Lines

- Investment Banking

- Global Markets

Non-Core Business Lines

- Asset Management

- Consumer & Wealth Management

[1] *See Appendix I for a definition of Participating Material Entity*

Cautionary Note on Forward-Looking Statements

The Resolution Plan is based on a series of hypothetical scenarios and assumptions about future events and circumstances. Accordingly, many of the statements and assessments in the Resolution Plan constitute “forward-looking statements” within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements include statements, other than historical information or statements of current conditions, that relate to, among other things, our future plans, objectives and resolution strategies (including our expectations and projections regarding the implementation of those strategies), to the objectives and effectiveness of our risk management policies and practices, and to our resolution capabilities (including those regarding capital, liquidity, operational matters, legal entity rationalization and separability, and our governance mechanisms, derivatives and trading activities and Management Information Systems ("MIS")). The Resolution Plan is based on many significant assumptions, including assumptions about the actions of regulators, creditors, depositors and counterparties, the ability of Group Inc. and Funding IHC to perform their obligations under the Capital and Liquidity Support Agreement in connection with the provision of liquidity to and the recapitalization of the participating material entities, the state of the capital markets and the economy and the impact of a significant loss event on Goldman Sachs. None of these assumptions may prove to be correct in an actual resolution situation. The Resolution Plan is not binding on a bankruptcy court, the Agencies or any other resolution authority, and the scenarios that we describe and the assumptions that we make in the Resolution Plan are hypothetical and do not necessarily reflect events to which we are or may become subject. In the event of the resolution of Goldman Sachs, the strategies implemented by Goldman Sachs, the Agencies or any other resolution authority could differ, possibly materially, from the strategies we have described. As a result, our actual resolution strategies, or the outcomes of our resolution strategies, could differ, possibly materially, from those we have described.

1. Introduction

As required under §165(d) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, we have prepared our 2021 Targeted Resolution Plan ("2021 Plan" and, together with our 2019 Resolution Plan, "the Plan"). The 2021 Plan contains the targeted information required to be included, as communicated to us by the Agencies, as well as key changes identified by us in line with our strategic evolution[2] and ongoing assessments of our recovery and resolution capabilities.

Our preferred resolution strategy remains consistent with a “single point of entry” strategy, under which our parent company enters bankruptcy proceedings, and most of our material entities survive because they have (or have access to) sufficient capital and liquidity to remain solvent and wind down their activities in an orderly manner over an extended period. At the conclusion of this process, a small number of discrete businesses would have been sold to third parties, and all of our other assets would have been sold or wound down. Our group structure lends itself to this strategy because our parent company issues the vast majority of our external debt, and because our core business lines are highly concentrated in a small number of material entities that already hold substantial financial resources in their own right.

As key changes:

- On January 7, 2020, we announced certain changes to our business segments. Beginning with the fourth quarter of 2019, we reported results in the following four business segments: Investment Banking, Global Markets, Asset Management, and Consumer & Wealth Management. These changes have been reflected in the 2021 Plan, and our core business lines are Investment Banking and Global Markets, which are substantively consistent with prior years.
- As a result of the United Kingdom's withdrawal from the European Union, we transferred certain businesses into Goldman Sachs Bank Europe SE ("GSBE"), our Frankfurt-based bank, and this entity has been designated as a material operating entity.
- Operationalization of the capabilities within our plan is a high-priority area of focus for us, and we therefore formalized an assurance framework which is designed to test and evidence our capabilities, including by conducting simulations and training with our Boards of Directors and senior management.

---

[2] *For more information on the firm's strategic evolution, please refer to www.goldmansachs.com/investor-relations/investor-day-2020/*

Beginning in 2020, the spread of the COVID-19 pandemic across the globe had a significant impact on financial markets. Our response to the pandemic leveraged a number of recovery and resolution capabilities that we have built over a period of many years. Following the initial market stress, in the latter half of the year we conducted an assessment of the effectiveness of those capabilities during the pandemic. Our analysis showed that our recovery and resolution capabilities, such as reporting, triggers and alerts, liquidity and capital, and collateral management processes, aided us in managing through the initial stress period and beyond. Nevertheless, we identified certain opportunities to enhance our resolution framework by further building out our capabilities; much of this has already been implemented, and future actions will be tracked under our governance framework.

Having built, enhanced, and tested our plan and capabilities for nearly a decade, we are confident that our resolution strategy could be executed successfully and our firm could be wound down in an orderly manner without jeopardizing global financial markets, requiring taxpayer support, or causing losses to the FDIC's Deposit Insurance Fund.

2. Overview of Goldman Sachs

Goldman Sachs is a leading global financial institution that delivers a broad range of financial services across investment banking, securities, investment management and consumer banking to a large and diversified client base that includes corporations, financial institutions, governments and individuals. As of December 2020, we had headcount of 40,500 and offices in over 35 countries; 53% of our headcount was based in the Americas, 19% in EMEA and 28% in Asia. During 2020, we generated 38% of our net revenues outside the Americas.

We have a significant presence in global securities and derivatives markets, and a primary objective of our resolution planning efforts has been to ensure that we could exit these businesses without serious adverse consequences to the broader markets.

We also have a growing consumer banking franchise, and in June 2020, we launched a transaction banking platform which offers transaction banking, payment, and deposit solutions to a range of corporate clients. These activities are still relatively small in comparison to our other activities and in comparison with the scope of the marketplace. We monitor their growth and continue to evaluate impacts to resolution planning.

Our parent company, The Goldman Sachs Group, Inc. ("Group Inc."), is a bank holding company ("BHC") and a financial holding company ("FHC") regulated by the FRB. Our U.S. depository institution subsidiary, Goldman Sachs Bank USA ("GS Bank USA"), is a New York State-chartered bank.

We report our activities in four business segments:

Investment Banking: We provide a broad range of investment banking services to a diverse group of corporations, financial institutions, investment funds and governments. Services include strategic advisory assignments with respect to mergers and acquisitions, divestitures, corporate defense activities, restructurings and spin-offs, and equity and debt underwriting of public offerings and private placements. We also provide lending to corporate clients, including relationship lending, middle-market lending and acquisition financing. We also provide transaction banking services to certain corporate clients.

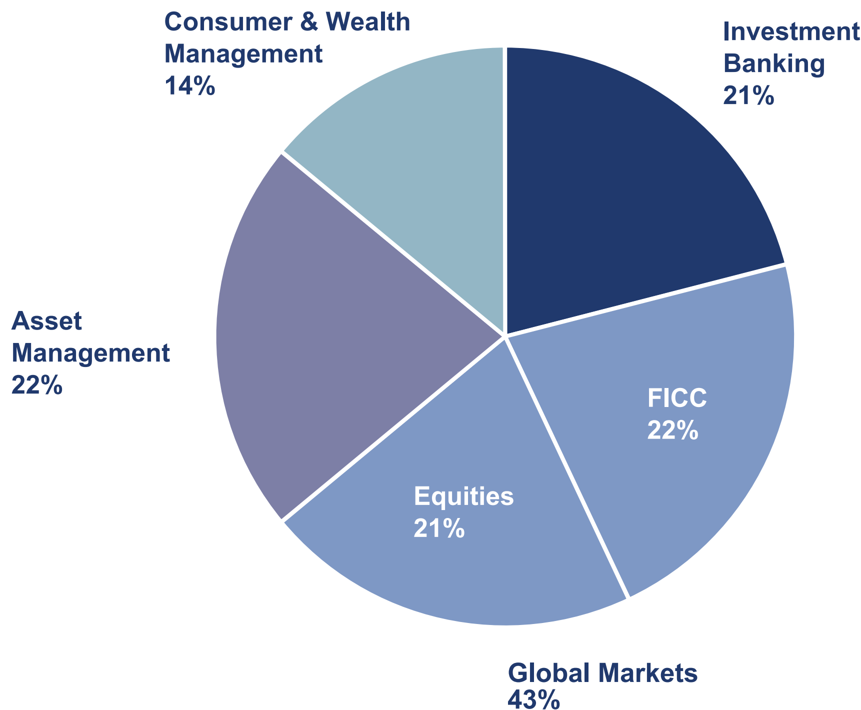
Global Markets: We facilitate client transactions and make markets in fixed income, equity, currency and commodity products with institutional clients, such as corporations, financial institutions, investment funds and governments. We also make markets in and clear institutional client transactions on major stock, options and futures exchanges worldwide and provide prime brokerage and other equities financing activities, including securities lending, margin lending and swaps. We also provide financing to clients through securities purchased under agreements to resell (resale agreements), and through structured credit, warehouse and asset-backed lending.

Asset Management: We manage assets and offer investment products (primarily through separately managed accounts and commingled vehicles, such as mutual funds and private investment funds) across all major asset classes to a diverse set of institutional clients and a network of third-party distributors around the world. We make equity investments, which include alternative investing activities related to public and private equity investments in corporate, real estate and infrastructure assets, as well as investments through consolidated investment entities, substantially all of which are engaged in real estate investment activities. We also invest in corporate debt and provide financing for real estate and other assets.

Consumer & Wealth Management: We provide investing and wealth advisory solutions, including financial planning and counseling, executing brokerage transactions and managing assets for individuals in our wealth management business. We also provide loans, accept deposits and provide investing services through our consumer banking digital platform, *Marcus by Goldman Sachs*, and through our private bank, as well as issue credit cards to consumers.

Financial Profile

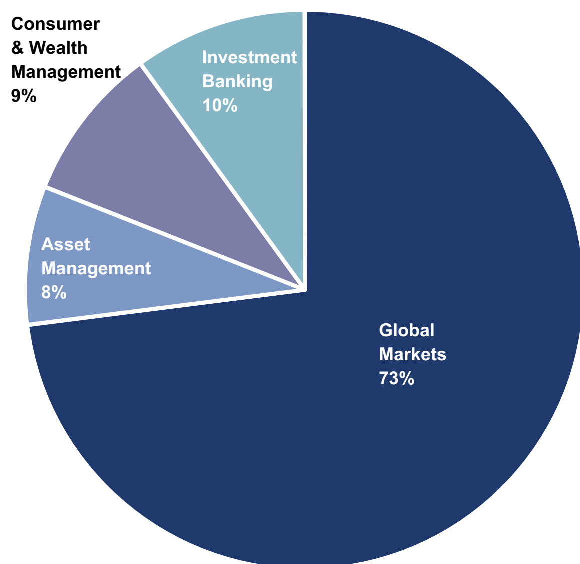
The chart below presents the split by segment of our average Net Revenues for the years 2018 to 2020:



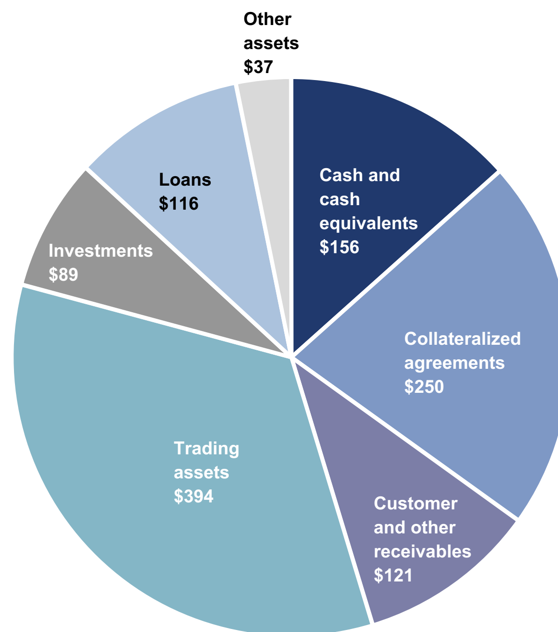
Goldman Sachs

The charts below present our balance sheet by segment and by line item:

4Q20 Balance Sheet by Segment



4Q20 Balance Sheet Mix ($bn)

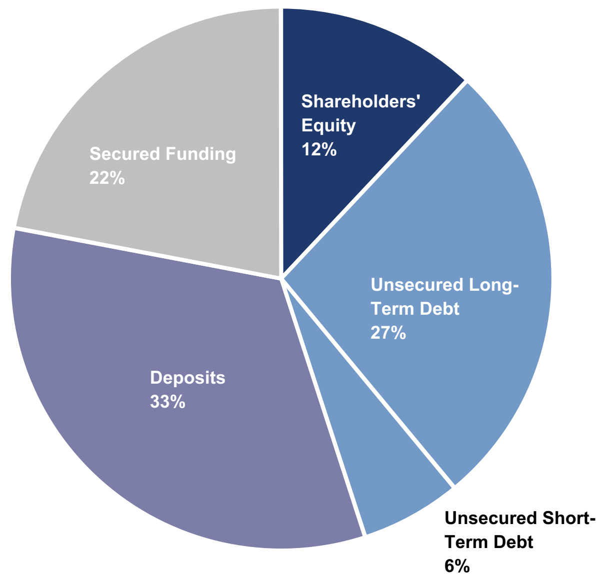


- As of 4Q20, 90% of the balance sheet was comprised of more liquid assets[3] (e.g., cash, reverses/borrows, U.S. government/agency and other financial instruments)
- Loans represent a small portion of our balance sheet at ~10% as of 4Q20
- Businesses are subject to conservative balance sheet limits that are reviewed and monitored. In addition, aged inventory limits are set for certain financial instruments

[3] Excludes Level 3, other assets, investments in funds at NAV, certain loans accounted for at amortized cost and held for sale loans that would have been classified as Level 3 if carried at fair value

Goldman Sachs

The chart below shows that we also maintain diversification of our funding sources:



- Our **secured funding* ($174bn)** book is diversified across:
  - Counterparties
  - Tenor
  - Geography
- Term is dictated by the composition of our fundable assets with longer maturities executed for less liquid assets

** Comprised of collateralized financings in the Consolidated Balance Sheets*

- **Deposits ($260bn)** have become a larger source of funding given our focus on growing deposits across strategic channels including Consumer and Transaction Banking
- Our time deposits had a WAM of ~1.3 years as of December 2020

- **Shareholders' equity ($96bn)** is a significant, stable and perpetual source of funding

- **Unsecured long-term debt ($213bn)** is well diversified across the tenor spectrum, currency, investors and geography
- WAM of ~7 years

- **Unsecured short-term debt ($53bn)** including $25.9bn of the current portion of our unsecured long-term debt

Core Business Lines

Consistent with prior resolution plans, we performed an analysis to identify the businesses that should be considered “core business lines," which are defined as those businesses (including their associated operations, services and support functions) that would result in a material loss to the firm of revenue, profit or franchise value in the event of their failure and would be difficult to separate from the franchise to sell.

Using the same measurement criteria and thresholds as in prior years, our analysis considered each of our business segments' average contribution over the last three years to our net revenues and pre-tax earnings. This quantitative analysis was augmented by qualitative analyses, including an assessment of the franchise and synergy value of each business, and the ease of separability.

As a result of this analysis, we concluded that our core business lines are Investment Banking (including our Transaction Banking business) and Global Markets, which correspond to two of the four business segments under which we report our activities. As noted above, we introduced certain modifications to our reporting segments in late 2019[4]; however, the Global Markets business segment is substantially aligned to the former Institutional Client Services segment, which was a core business line in our 2019 Resolution Plan. Consequently, our core business lines are substantially unchanged from our 2019 Resolution Plan.

It was determined that businesses within the Asset Management and Consumer & Wealth Management segments were not core business lines. Our consumer businesses, including our deposit raising and lending activities using the “Marcus” digital platform, were a particular focus area because these activities have continued to grow; nevertheless, we found that these businesses are not yet of sufficient size to be considered core business lines. While our resolution strategy envisions most of these businesses being wound down, we have also developed separation playbooks detailing how these non-core businesses could be sold in the event of our financial distress.

Material Entities

After we had identified our core business lines, we performed an analysis to identify the operating and service entities that are significant to the maintenance of such activities and should therefore be designated as either material operating entities or material service entities.

As a result of our analysis, we concluded that we have nine material operating entities and nine material service entities; in addition, our “covered company” is the parent company of the firm, Group Inc. The only change in our material entities since our 2019 submission is the inclusion of GSBE as a material operating entity, following the transfer of certain businesses into the entity. For a full list of our material entities, please see the taxonomy at the front of this document.

[4] *Full details of the realignment of our business segments can be found in the January 6, 2020 form 8-K (https://www.goldmansachs.com/investor-relations/financials/current/8k/8k-01-06-20.pdf)*

3. Preferred Resolution Strategy

Our preferred resolution strategy is consistent with a "single point of entry" strategy:

- We assume a period of financial difficulties, followed by an extremely large financial loss and significant outflows of liquidity.
- This causes our parent company and one smaller material operating entity, J. Aron & Company LLC ("JANY"), to enter bankruptcy proceedings.
- The remaining material operating entities and all material service entities are expected to survive for long enough to be wound down in an orderly manner over an extended period, or be sold. This is because they have significant pre-positioned capital and liquidity at their disposal, and because they are parties to the Capital and Liquidity Support Agreement ("CLSA")[5] and, as such, are contractually entitled to receive financial resources, as needed, from Goldman Sachs Funding LLC ("Funding IHC").
- Our material service entities continue to provide operational services to the participating material operating entities because they are contractually obligated to do so, have six months of pre-funding, and would continue to be paid for providing those services.
- By keeping the participating material operating and service entities out of proceedings, we can facilitate the gradual and orderly wind-down of our balance sheet, and thereby avoid the disruption that could be caused by a sudden cessation of activities. This strategy avoids the fire-sale of assets, minimizes unnecessary losses and permits the orderly transfer of client accounts to alternative service providers.

[5] The CLSA is a binding agreement between Funding IHC, Group Inc. and participating material entities, that contractually obliges Funding IHC to provide capital and liquidity support to the participating material entities in a resolution scenario.

The tables below summarize the anticipated resolution approach for Group Inc. and each of our material operating entities, and for each business segment:

Resolution Approach By Entity

	Sale	Orderly Wind-down Outside of Bankruptcy Proceedings	Supervised Orderly Wind-down in Bankruptcy Proceedings
Covered Company			
The Goldman Sachs Group, Inc.	✗	✗	✓
Material Operating Entities			
Goldman Sachs & Co. LLC	✗	✓	✗
Goldman Sachs International	✗	✓	✗
Goldman Sachs Bank USA	✗	✓	✗
J. Aron & Company LLC	✗	✗	✓
Goldman Sachs Japan Co., Ltd	✗	✓	✗
Goldman Sachs International Bank	✗	✓	✗
Goldman Sachs Bank Europe SE	✗	✓	✗
Goldman Sachs Asset Management, L.P.	✓	✗	✗
Goldman Sachs Asset Management Int'l	✓	✗	✗

Resolution Approach For Business Segments

Business Segment	Core Business Line	Orderly Wind Down Outside of Bankruptcy Proceedings	Optional Business Line Sale	Optional Asset Sale
Investment Banking	✓	✓	✗	✓
Global Markets[1]	✓	✓	✗	✗
Asset Management[2]	✗	✓	✓	✓
Consumer and Wealth Management	✗	✓	✓	✗

Notes:

1. *Global Markets businesses conducted from JANY will cease when JANY enters bankruptcy proceedings.*
2. *Our preferred strategy for GSAM and GSAMI is a sale.*

We have prepared detailed projections of our capital and liquidity positions over an 18-month wind-down period under our preferred resolution strategy. Our forecasts show that, with their pre-positioned capital and liquidity resources, together with any further infusions of capital or liquidity from Funding IHC, our participating material operating entities have sufficient resources to repay all their creditors and wind down in an orderly manner over the forecast period. After wind-down, all residual value is returned to Group Inc. and is distributed to Group Inc.'s stakeholders. At the conclusion of the resolution process, most of our assets would have been sold or wound down, and remaining assets would primarily comprise loans and cash or cash-equivalents.

We recognize that actual events rarely unfold exactly as expected. Throughout the preparation of our Resolution Plans, we have emphasized the need for flexibility to deal with a wide variety of real-world situations, and have focused as much on the planning process as on the creation of a plan to address a specific situation. Since it is likely that the distribution of capital and liquidity needed to support a wind-down would be different manner from that envisioned in our preferred resolution strategy, our financial models are designed to be sufficiently flexible to adapt to actual stressed conditions, so as to enable filing decisions at the appropriate time and allow us to be resolved in an orderly manner under those circumstances.

4. Resolution-Critical Capabilities

Introduction To Our Resolution Capabilities

We have built all of the underlying capabilities that we believe are required to support the successful execution of our preferred resolution strategy, and to support flexibility in that strategy, in line with the prevailing 2019 guidance. These capabilities are now well embedded in our business-as-usual practices, including our governance practices and our operational policies and procedures. Since the submission of our 2019 Resolution Plan, we have continued to test, develop and refine our capabilities.

In this section we provide an overview of the following capabilities:

A. Resolution Mechanics
B. Capital
C. Liquidity
D. Governance Mechanisms
E. Operational
   - Payment, Clearing, and Settlement Activities
   - Managing, Identifying, and Valuing Collateral
   - Management Information Systems
   - Shared and Outsourced Services
   - Legal Obstacles Associated With Emergency Motions
   - Communication Strategy
F. Legal Entity Rationalization and Separability
G. Derivatives and Trading Activities

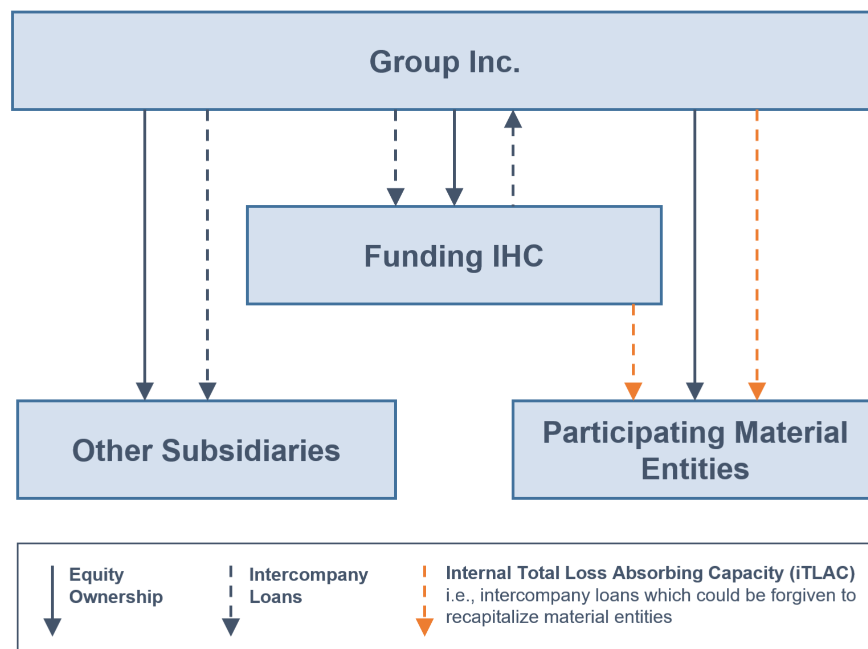
A. Resolution Mechanics

In this section we describe our Funding IHC structure and our CLSA, which are designed to ensure that our participating material entities are provided with sufficient capital and liquidity in a resolution scenario to execute an orderly wind-down in accordance with our preferred resolution strategy. These mechanisms also act as mitigants to a potential creditor challenge in bankruptcy, because they were established and have functioned in business as usual conditions when Group Inc. was solvent and had not entered the preference period that precedes a bankruptcy filing.

Our Funding IHC

Our Funding IHC is a wholly-owned, direct subsidiary of Group Inc. This entity is fundamental to our pre-positioning strategy, and has been designated as a material service entity. In business-as-usual conditions, it provides most of the overnight and term loans required by our participating material entities and our parent company, and holds most of our excess liquidity that is not already pre-positioned at participating material entities.

The chart below illustrates the role of Funding IHC:



Capital and Liquidity Support Agreement ("CLSA")

The CLSA is a contractually binding mechanism to which Group Inc., Funding IHC, our participating material operating entities and our material service entities are parties. If certain pre-determined capital or liquidity triggers are breached, the CLSA requires Group Inc. to transfer additional resources to Funding IHC, and also requires Funding IHC to provide financial support to participating material entities. This support begins during the runway, the period during which Group Inc. prepares for a possible bankruptcy filing, and continues for an indefinite time after Group Inc.'s bankruptcy filing, until the resolution liquidity and capital needs of the participating material entities are satisfied. Group Inc. and Funding IHC have granted a security interest in substantially all of their assets (other than Group Inc.'s equity interests in subsidiaries) to secure their obligations under the CLSA.

The CLSA and Funding IHC bring two main benefits to our resolution strategy. First, they provide greater assurance that capital and liquidity will be dispensed as needed to the participating material entities. Second, they introduce a higher degree of flexibility because Funding IHC does not enter resolution proceedings in our preferred resolution strategy, and the exact amount and location of capital and liquidity therefore does not need to be pre-determined.

The CLSA operates as follows:

- during the runway, the CLSA requires Funding IHC to provide liquidity and recapitalize participating material entities as and when needed, including by forgiving or converting intercompany debt or injecting capital, so that they meet their applicable regulatory capital requirements plus an operating buffer;
- if the resolution trigger under the CLSA is breached, it requires Group Inc. to make a final contribution to Funding IHC of almost all remaining GCLA held by Group Inc.[6], as well as intercompany receivables held by Group Inc.;
- following Group Inc.'s bankruptcy filing, the CLSA requires Funding IHC to continue providing liquidity and recapitalizing participating material entities as before.

B. Capital

In order to execute our preferred resolution strategy, our parent company must have enough loss-absorbing capacity, i.e., external Total Loss Absorbing Capacity ("TLAC"), to recapitalize our participating material entities so they could continue to operate while the parent company is in bankruptcy. In deciding how to allocate loss-absorbing capacity among participating material entities (i.e., internal TLAC), it is also important to balance the certainty associated with pre-positioning against the flexibility of holding recapitalization resources centrally, either at the parent company or at our Funding IHC, to meet losses or liquidity outflows wherever they are incurred.

[6] Under the terms of the CLSA, the final contribution of remaining GCLA excludes an amount held back to fund the projected administrative expenses of Group Inc.'s bankruptcy proceeding and the projected amount of Group Inc.'s cash disbursements through the next business day.

TLAC

GS Group is subject to the FRB's TLAC rules, which went into effect in January 2019. The table below demonstrates that our TLAC ratios are well in excess of these requirements:

External TLAC Ratios at December 31, 2020

	Actual ($ in billions)	Requirement	Excess ($ in billions)
Components:			
TLAC	**242.7**		
External Long-Term Debt	**139.2**		
Risk-Weighted Assets (RWAs)	**609.8**		
Leverage Exposure	**1,332.9**		
Ratios:			
TLAC / RWAs	**39.8 %**	22.0 %	108.6
TLAC / Leverage Exposure	**18.2 %**	9.5 %	116.1
External Long-Term Debt / RWAs	**22.8 %**	8.5 %	87.4
External Long-Term Debt / Leverage Exposure	**10.4 %**	4.5 %	79.2

Group Inc. is also in compliance with the "clean HoldCo" elements of the FRB's TLAC rules, which prohibit it from engaging in certain practices, including:

- Issuing short-term debt (i.e., debt with an initial maturity of less than one year);
- Entering into "qualified financial contracts"[7] with third parties[8];
- Entering into contracts that give a third party a right to offset the debt it owes to a GS Group affiliate against an amount owed to it by Group Inc.;
- Guaranteeing the liabilities of subsidiaries if such a guarantee would permit the exercise of default rights against the subsidiary in the event of Group Inc.'s insolvency;
- Benefiting from "upstream" guarantees of Group Inc.'s liabilities by affiliates; and
- Incurring unsecured liabilities to third parties that do not count as TLAC in excess of 5% of total liabilities.

[7] *As defined in 12 U.S.C. 5390(c)(8)(D).*
[8] *Other than a credit enhancement, such as a parent guarantee of a subsidiary's qualified financial contract, and other limited exceptions*

Internal TLAC

Internal TLAC is subject to local requirements in certain jurisdictions. For example, the Bank of England's internal MREL[9] requirements began to phase in from January 2019, and the Japan Financial Services Agency's ("JFSA") internal TLAC requirements became applicable from March 2020. The Bank of England's MREL requirements apply to GSI (our U.K. broker-dealer) and to the holding company of the U.K. regulated group, and the JFSA's internal TLAC requirements apply to GSJCL (our Japan broker-dealer). We are in full compliance with the requirements in both jurisdictions.

The amount of internal TLAC that is pre-positioned at each material entity is the higher of the local jurisdictional requirement and our internal pre-positioning target, based on a proportion of each entity's Resolution Capital Execution Need ("RCEN"). An entity's RCEN is the cumulative amount of capital it would need in order to wind itself down in an orderly manner over time, following our parent company's bankruptcy.

RCEN Calculations

We calculate and monitor RCEN on a regular basis for each of our participating material operating entities. In order to calculate a material entity's RCEN, it is first necessary to project its capital requirements over the wind-down period, taking into account its projected expenses[10] and the gradual wind-down of its balance sheet. At each projection point, we measure a capital "excess" or "shortfall" (i.e., the difference between the projected regulatory capital levels and the amount required to meet the entity's applicable regulatory requirements).

For each participating material entity, RCEN is:

- the amount of capital it held at the start of the projection period
- plus the largest projected shortfall (or *less* the smallest projected excess)

Our calculations are based on a series of financial models that have been fully documented in accordance with our internal model governance framework and validated by our Model Risk Management group. These models assume a highly stressed environment for the projected liquidation of inventory.

[9] *MREL stands for Minimum Requirements for own funds and Eligible Liabilities.*
[10] *Projected expenses include operating expenses, bid / offer costs on the sale of cash inventory and derivative exit costs*

Resolution Capital Adequacy and Positioning ("RCAP")

RCAP is the framework designed to ensure that each of our material entities has access to the capital it needs in a resolution scenario to execute an orderly wind-down in accordance with our preferred resolution strategy.

Our RCAP framework specifically ensures that:

- Group Inc. maintains enough external TLAC to allow Funding IHC to recapitalize participating material entities so that they continue to meet their regulatory and operational needs while they wind down outside of proceedings over an extended period.
- Internal TLAC is positioned in a manner that appropriately balances the certainty associated with pre-positioning directly at participating material entities with the flexibility of holding recapitalization resources centrally to meet unanticipated losses wherever they may occur.

The key components of our RCEN framework are our Funding IHC and CLSA, our RCEN calculations, and our triggers and alerts framework.

A material entity's RCAP requirement is the sum of its RCEN, its share of the initial loss, and its runway losses. If an entity has pre-positioned internal TLAC in excess of its RCAP requirement, it does not require additional loss-absorbing resources in order to execute an orderly wind-down in line with our preferred strategy.

C. Liquidity

Overview of Liquidity Risk Management

Our liquidity risk management framework is designed to ensure that we maintain sufficient liquidity to fund our business activity and meet our contractual and contingent obligations in both normal times and during periods of stress. We manage our liquidity levels to several internal and regulatory stress requirements, including:

- Modeled Liquidity Outflow ("MLO"): A measure of contractual and contingent outflows over a severely adverse 30-day period, based on multiple scenarios that include combinations of market-wide and firm-specific stress events.
- Intraday Liquidity Model ("ILM"): A measure of intraday liquidity requirements during a scenario in which access to sources of intraday liquidity become constrained.
- Long-term Stress Test ("LTST"): A forward view on liquidity through a prolonged period during which we experience a severe liquidity stress and recover in an environment that continues to be challenging.
- Liquidity Coverage Ratio ("LCR"): A regulatory rule that requires firms, such as Goldman Sachs, to maintain an adequate ratio of eligible high-quality liquid assets ("HQLA") to net cash outflows using prescribed assumptions reflecting an acute, short-term liquidity stress scenario.

These liquidity risk management capabilities are supplemented by our Resolution Liquidity Adequacy and Positioning ("RLAP") and Resolution Liquidity Execution Need ("RLEN") frameworks (described below), which we developed as part of our resolution planning efforts.

We seek to hold GCLA, which is unencumbered, highly liquid securities and cash, in sufficient quantity to meet all of the liquidity risk requirements described above inclusive of RLAP and RLEN, taking into account constraints that apply at both the consolidated and subsidiary levels.

RLAP Framework

Our RLAP framework is designed to ensure that we hold sufficient liquidity at the parent company and Funding IHC to cover projected liquidity deficits at material entities over a 30-day stress period.

On a daily basis, we estimate the projected stand-alone liquidity position of each of our material operating entities over such a stress period (RLAP requirement). This estimate is largely based on the same assumptions as our MLO and ILM liquidity stress tests, but treats intercompany exposures in the same manner as third-party exposures. It takes into account factors such as mismatches between contractual inflows and outflows, intraday liquidity needs, intercompany frictions, and the effect of actions that might be taken by clients, counterparties, Financial Market Utilities ("FMU") or regulatory authorities.

In order to balance the flexibility of holding resources at the parent company or Funding IHC against the certainty of pre-positioning, our participating material operating entities hold GCLA in an amount equal to a portion of their RLAP requirements, and the remainder is held by Group Inc. and Funding IHC. The amount held by each entity varies according to its size and complexity.

In determining whether we have sufficient liquidity at the parent company or Funding IHC, we make the assumption that a projected liquidity surplus at one material operating entity cannot be used to meet a liquidity deficit at another material operating entity, or to augment the resources of either our parent company or Funding IHC. We hold a buffer above the minimum requirements that can be deployed to meet unanticipated events. RLAP is incorporated into our triggers and alerts framework as a signal of stress or entry into the recovery period.

RLEN Framework

RLEN is an estimate of the liquidity that each participating material operating entity requires in order to stabilize itself and operate post the Group Inc. filing in support of our preferred resolution strategy. It is comprised of:

- Minimum operating liquidity, a measure of the liquidity needed at each entity to continue operating post-filing, taking account of intraday requirements, operating expenses and working capital needs, and
- Peak funding need, the peak level of cumulative net outflows during the stabilization period, based on daily cash flow forecasts by entity, taking into account the effect of intercompany transactions. These outflows include contractual outflows, contingent outflows from adverse client and counterparty actions, and the impact of unwinding our businesses.

Goldman Sachs

D. Governance Mechanisms

Board and Management Playbooks

We believe that advance preparation is necessary to ensure that our processes and people are able to respond quickly and appropriately to a deteriorating financial situation. To that end, we have prepared a series of playbooks to enable our Board, the boards of our other material entities, and senior management to make well-considered decisions and take appropriate actions across functional departments and legal entities, especially during the runway period.

We have also prepared an employee retention plan to enable us to move swiftly to retain those employees who are critical to our resolution strategy. In addition, we have prepared a communication strategy to facilitate the timely provision of information to regulators, staff, clients and other stakeholders in a resolution scenario; and we have prepared playbooks that outline how cross-jurisdictional intercompany shared services could be maintained in a resolution scenario.

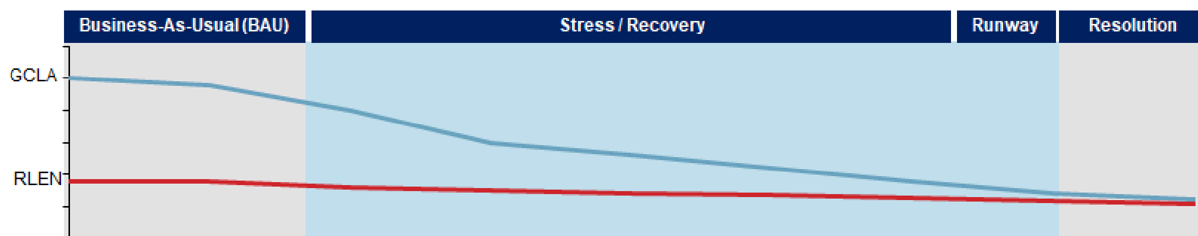
Where appropriate, our playbooks incorporate recovery and resolution triggers (discussed below), based on capital and liquidity metrics, that are linked to specific actions as our transitions from business-as-usual conditions to a stress or recovery period, then to a runway period, and finally to a resolution period.

Triggers and Alerts Framework

We have established a series of quantitative “triggers and alerts” that are based on our most important capital and liquidity metrics, most of which we calculate on a daily basis. These triggers and alerts serve as indicators of our financial health. Alerts are less severe than triggers and are intended to signal that we may need to take action to avoid further financial stress that would breach a trigger. Triggers, on the other hand, may cause us to take recovery actions or in the extreme case, enter the runway and begin preparations for a bankruptcy filing.

RLAP, RLEN and RCEN are incorporated into our triggers and alerts framework. Our triggers are calibrated at levels designed to ensure that the board considers filing for bankruptcy at a time when we still has sufficient liquidity to conduct an orderly wind-down.

The chart below uses liquidity metrics to illustrate how, based on these triggers, decreasing levels of Global Core Liquid Assets ("GCLA") would cause us to enter a recovery period, then the runway, and finally resolution:



E. Operational

Payment, Clearing, and Settlement ("PCS") Activities

In order to avoid jeopardizing the stability of the financial markets during a resolution event, it is essential for our clients and material operating entities to have ongoing access to critical PCS activities. Accordingly, subject matter experts within our firm performed a quantitative and qualitative evaluation to identify which FMUs (i.e., clearing counterparties, central securities depositories, agent banks, and payment messaging systems) are critical to the successful execution of our preferred resolution strategy. As a result of this process, we identified 22 critical FMUs, which are listed in Supporting Information Section 5. Since submission of our 2019 Resolution Plan, two FMUs (Canadian Depository for Securities and Canadian Derivatives Clearing Corp.) have been downgraded to non-critical status, and two new critical FMUs have been identified (FedWire/FedACH and Bank of Japan); FMU playbooks have been developed for both.

We also established a methodology for identifying key clients using criteria such as the value and volume of transactions, and the size of lines of credit, as well as other qualitative criteria. Our methodology and mapping to FMUs and core business lines have been documented and presented in our “Key Client Playbook,” which also documents the range of contingency arrangements that we would consider, including the viability of transferring client transactions and assets to third parties or of making alternative arrangements to allow key clients continued access to critical PCS services.

We understand the importance of communicating with clients, and we have developed, documented and implemented a communication strategy for notifying clients about relevant aspects of our resolution planning efforts and educating them on the potential impact of our resolution strategy on their businesses in various ways and at different points in time.

Managing, Identifying, and Valuing Collateral

Our systems and processes for managing securities collateral are fully compliant with the supervisory expectations in the applicable regulatory guidance. Each of our material entities has the capability to identify and value the specific securities that it has pledged and received as collateral, and to identify for each such security:

- the counterparty (including affiliated entities and central counterparties);
- the institution that holds the collateral;
- the jurisdiction in which collateral is located; and
- the jurisdiction in which the security interest in the collateral is enforceable.

Based on this information, our systems are able to assess the enforceability, segregation and rehypothecation status of each piece of pledged and received collateral. They are able to do so in

a timely manner (generally on the day after trade-date), even against the backdrop of significant spikes in volume during a period of stress. During the period of market volatility associated with the COVID-19 pandemic, our collateral and margin processes and controls continued to operate as expected despite elevated margin call volumes.

We have a comprehensive collateral management policy that outlines our approach to collateral management and serves as a source for governance. We have also invested in a technology platform that contains all of our qualified financial contracts and required metadata, for all of our legal entities, in a searchable format and on a single platform. This platform gives us the ability to query and produce aggregate statistics on collateral-related contract terms, such as cross-default clauses and downgrade triggers, for all qualified financial contracts across contract types, business lines, legal entities and jurisdictions.

Management Information Systems

Our firm has a long history of investing significantly in technology, and our management information systems are designed to provide complete, timely and accurate information across our firm. Our commitment to technology platforms has enabled an agile and innovative approach to our recovery and resolution planning initiatives.

We have carefully analyzed the data, information, systems and reporting required to support the Plan and are confident we have the capability to produce the material information required to support the operational execution of our resolution strategies across material entities and core business lines.

We use a single platform (SecDB) for risk management across the majority of our assets, which can compute risks driven by changes in market factors, counterparty risk, liquidity risk and operational risk.

Our Critical Report Catalog details approximately 190 resolution-critical reports that we have identified as necessary in a resolution scenario, including the data required for a bankruptcy filing. The reports are housed in our Regulatory Obligation Database, which serves as a central repository for our regulatory reporting obligations.

Our core resolution MIS capabilities include our data visualization platform (Recovery and Resolution Visualizer), which navigates several of our production data stores and leverages intelligent matching and modeling techniques to visualize key interdependencies and relationships. This dynamic technology tool would be invaluable in a resolution scenario because it provides the ability to analyze and explore legal entities, entity owners, inter-entity relationships, and other dimensions of operational continuity. The Recovery and Resolution Visualizer links to many of our key data sources, including Pickwick, our strategic “document lake” which houses our key legal agreements, including qualified financial contracts, critical leases, and third-party vendor agreements.

Shared and Outsourced Services

Our shared services strategy plays a key role in the orderly execution of our recovery and resolution plans and is designed to ensure operational continuity of critical shared and outsourced services. Our strategy leverages a detailed service catalog that identifies and maps the critical shared services (including critical services and staff) to our material entities, core business lines and critical operations.

We have categorized shared services into the following four areas, each documented in a dedicated playbook:

- Personnel
- Technology Assets and Intellectual Property
- Third Party Vendors (excluding FMUs)
- Facilities

Operational continuity of our shared and outsourced services is supported by six key pillars across all capabilities:

- Legal Agreements: Shared and outsourced services agreements include, where necessary, resolution resilient terms preventing termination of the agreement in the event of a resolution or bankruptcy scenario.
- Identification and Mapping of Resolution Critical Services: We have the capability to identify the consumption of shared and outsourced services by our core business lines, critical operations and our material and object-of-sale entities, as evidenced by:
    - Identification of recovery- and resolution-critical employees that support our core business lines, critical operations, and objects of sale
    - Identification and mapping of third-party and intercompany services that support core business lines and critical operations
- Playbooks: Each shared services capability has a playbook to support operational continuity in recovery and resolution.
- Criteria & Metrics: The supervision and control environment includes reporting, metrics and exception tracking that evidences our adherence to the shared services criteria.
- Service Entities: We utilize service entities to (i) employ shared staff that provide shared and outsourced services, (ii) own the data servers on which our joint IP is stored, and (iii) provide equal access to material operating and object of sale entities. The service entities are designed to provide a flexible operational continuity capability, and are established with short, clean, entity ownership lines. They are operationally and financially resilient because they

have their own operational and governance infrastructure, and they maintain six months' worth of working capital on hand as a buffer in case payments for services are not timely received.

- MIS and Document Repositories: We have technologies which store and provide ready access to our legal agreements related to critical shared and outsourced services. Critical intercompany services are recorded in a data repository and workflow management application (SLATE). We also leverage a central repository for vendor-related data (KY3P). In addition, we also have a dynamic technology tool which provides the ability to visually analyze these critical services and other dimensions of shared services.

To ensure coordination and to manage the interactions between shared and outsourced services, we have a governance framework that is comprised of various oversight and implementation groups. Shared services governance is aligned with directives and guidance from our Recovery and Resolution Planning Steering Group, which has overall responsibility for our recovery and resolution plans. The Shared Services Working Group ("SSWG"), with accountability to the Recovery and Resolution Steering Group, manages and oversees the Shared Services resolution plan submissions, the lifecycle of ongoing plan responsibilities and relevant local filings.

Legal Obstacles Associated with Financial Support and Emergency Motions

Creditor Challenge: The provision of financial support to participating material operating entities is a critical component of our preferred resolution strategy because it allows these entities to avoid potential bankruptcy, insolvency or similar proceedings themselves. However, we recognize the risk that a legal challenge by the creditors of Group Inc. could potentially hinder the provision of such financial support, and we have taken a number of steps to reduce the likelihood that such a challenge would be successful:

- With the help of external counsel, we have prepared an analysis that identifies potential obstacles under state and bankruptcy law to the provision of financial support. This analysis includes a consideration of potential creditor challenges based on claims of fraudulent transfer, preference, breach of fiduciary duty, breach of indenture covenants and equitable claims to enjoin the provision of financial support. The analysis considers potential obstacles to each element of the planned financial support, the timing considerations implicated by potential claims, and the extent to which any adjudication could affect the execution of our preferred resolution strategy.

- We established a Funding IHC as a direct subsidiary of Group Inc. In business-as-usual conditions, it provides most of the overnight and term loans required by our participating material entities and the parent company, and holds much of our excess liquidity that is not pre-positioned at participating material entities. Importantly, Funding IHC has no external creditors and it does not enter proceedings under our preferred resolution strategy. Funding IHC reduces the need for Group Inc. to contribute significant assets to material entities during the preference period that would precede its bankruptcy filing.

- We have put in place a CLSA to which Group Inc., Funding IHC, participating material operating entities, all of our material service entities and certain intermediate holding companies are parties. If certain pre-determined capital or liquidity triggers are breached, the CLSA requires Group Inc. to transfer additional resources to Funding IHC, and Funding IHC to provide financial support, as needed, to participating material operating entities. Group Inc. and Funding IHC have granted a security interest in substantially all of their assets (except Group Inc.'s equity interests in subsidiaries) to secure their obligations under the CLSA.

The CLSA provides additional protection against creditor challenge because the decisions to contribute Group Inc. assets, tie Funding IHC's support of participating material entities to specific metrics, and secure those obligations of Group Inc. and Funding IHC with collateral, were each taken when Group Inc. was solvent and had not entered the preference period that precedes a bankruptcy filing.

First-Day Issues: We have prepared an analysis of issues that are likely to be raised at the hearing on the first-day emergency relief motion[11] and the best arguments in support of the motion. Issues that we have considered include, among others, possible assertions by creditors that they had insufficient opportunity to respond to the emergency motion, given that a creditors' committee is unlikely to have been appointed by this time. Because our preferred resolution strategy assumes that the parent company would seek to remain obligated on its guarantees, our analysis considers the legal basis upon which it would do so, the ability of the bankruptcy court to prevent third parties from interfering with the parent company or its subsidiaries in bankruptcy, and the interplay of public policy concerns (such as the need to preserve financial stability) with the bankruptcy court's decisions. Our analysis also considers the alternative request to transfer assets and certain credit enhancements to a trust-owned, newly-formed entity.

Regulatory Implications: We have discussed our preferred resolution strategy with key regulatory authorities globally, and have worked with outside counsel to consider the steps we could take to provide key domestic and foreign authorities with the necessary assurances to avoid objection to the emergency motion.

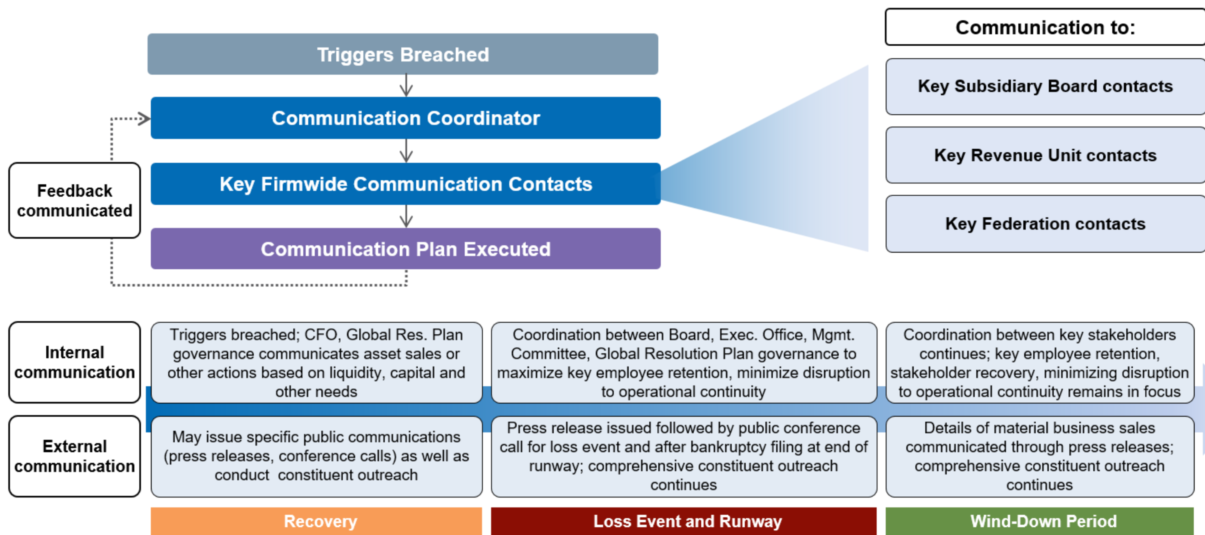
Format: Our "Bankruptcy Playbook" that we have prepared includes a sample emergency motion and first day motions substantially in the form they would be presented to the bankruptcy court.

Communication Strategy

Timely communication, both internally and externally, is vital for a successful resolution plan. We have a comprehensive and carefully crafted communication strategy in place as part of plans which considers a variety of scenarios and factors across the stress continuum and in resolution.

[11] This is the hearing at which an entity in Chapter 11 proceedings seeks court approval of an order to stay all contracts under the ISDA Resolution Stay Protocols or a bilateral agreement, subject to the condition either that the claims are elevated to administrative priority status or that the contracts are transferred to a bankruptcy bridge company.

Please refer to the diagram below for a summary of our communication flow:



F. Legal Entity Rationalization

Our corporate structure has been fundamentally transformed over a period of years under the oversight of the Legal Entity and Booking Model working group ("LEWG") as we brought our corporate structure into line with our Legal Entity Rationalization ("LER") criteria for a more rational, less complex organization. This resulted in a simple ownership structure for all of our material operating and service entities, and logical groupings of other entities under holding companies that enhance our ability to sell discrete businesses such as our Asset Management business.

Our legal entity rationalization criteria are now fully embedded in our business-as-usual processes and all new legal entities, significant entity restructurings, and booking model changes must be approved by the LEWG. Proposals that are inconsistent with our criteria are identified at an early point in the process and, if significant to our resolution strategy, are rectified before implementation; if they are not deemed significant to our resolution strategy, they are nevertheless documented, approved and tracked by the LEWG so they can be managed appropriately.

The LEWG also performs periodic reviews, such as a benchmark review of operating entities to the LER criteria for a more rational, less complex organization, or a review of “In-the-Box” structures, with the goal of ensuring that consistency with the criteria is maintained. The governance framework is supported by the firmwide Legal Entity and Booking Model Policy, which covers all aspects of an entity’s lifecycle and incorporates requirements in respect of transaction booking models.

On an ongoing basis we:

- Continue to review our LER criteria to ensure that they remain fit for purpose.
- Continue to maintain and optimize our legal entity structure to ensure ongoing compliance with the LER criteria.

Separability

On an annual basis we complete a full and detailed analysis of all of our businesses with the aim of identifying divestiture options capable of being executed as an alternative to our preferred wind-down strategy. This provides optionality for us in resolution and potentially enables capital or liquidity benefits to be realized.

We recognize the importance of identifying and preparing for potential exercise of these separability options:

- We employ a repeatable process for the identification and selection of divestiture options.
- We closely analyze the separability attributes of each divestiture option to identify: potential buyers, strategies to effect transfer, potential impediments to those strategies and effective mitigating capabilities or actions.
- We value each divestiture option under assumed stress conditions to determine the range of potential capital and/or liquidity benefits that can be expected from execution of the option.
- We determine information that would be needed by prospective buyers in connection with the disposition and have designed virtual data rooms that can be swiftly populated to facilitate due diligence.

Our separability analysis and divestiture planning results are documented in individual Object of Sale Playbooks for each option which is selected for potential sale.

In 2020, we re-evaluated the entirety of the firm for potential asset, portfolio, line of business, and legal entity divestitures, taking into account the restructuring of business segments noted earlier. We considered each potential Object of Sale distinctly, with due recognition that the scope, format and execution timeline for a given divestiture option to be effective in recovery could differ from what would correspondingly apply in resolution. As a result of this analysis, we have selected seven divestiture options, two of which are new for the 2021 Plan. We have in place Object of Sale playbooks for each of our divestiture options.

We also enhanced our valuation procedures for Objects of Sale to ensure there is a robust review and challenge to the assumptions and execution of the valuation methodology across our objects of sale.

G. Derivatives and Trading Activities

Introduction

Consistent with our role as a global investment banking and securities firm, Goldman Sachs has a large portfolio of derivatives. Our ability to wind the derivatives portfolio down in a resolution scenario is greatly aided by the fact that most of our derivatives positions are held in just three subsidiaries, all of which are material operating entities. In a resolution scenario, these entities would receive financial support from Funding IHC, if needed, and would therefore be wound down in an orderly manner over an extended period of time.

Booking Practices

Derivatives Booking Framework

We have a derivatives booking framework comprised of the policies, principles, rationale and approach to implementing our derivative booking practices. The purpose of the framework is to ensure that transactions are booked in a manner that facilitates business-as-usual practices without impairing our resolvability. Our framework is underpinned by methodical booking practices that are consistently applied to external and intercompany transactions across legal entities, trading desks and products.

Derivative entity analysis and reporting

We have the ability to provide highly granular reporting for each of our entities with derivatives portfolios. This allows us to evaluate the significance of each material derivatives entity with respect to our current activity and preferred wind-down strategy.

A significant portion of intercompany transactions arise because of our business-as-usual practice of centralizing market risk by product or inventory category in a small number of material operating entities: when the client-facing entity is not also the market risk-managing entity, each transaction with a client generates an additional intercompany transaction to transfer the risk to the risk management entity. This practice has numerous benefits from a business-as-usual risk management perspective; in particular, it maximizes the internal netting of market risk exposures, which results in fewer external hedging transactions with the market.

We have taken several steps to mitigate the increased interconnectivity resulting from intercompany derivative transactions:

- Because all affiliates that engage in external derivatives activity under ISDA Master Agreements have signed the 2015 and 2018 ISDA Resolution Stay Protocols ("ISDA Resolution Stay Protocols"), their derivatives with adhering counterparties (including all intercompany derivatives) are subject to a stay on certain cross-default and early termination rights in standard ISDA derivative, repo and securities lending contracts in the event of resolution.

- We have taken steps to move counterparties to face the risk management entity, where possible.
- By establishing central clearing arrangements between material operating entities, a large percentage of our intercompany derivative transactions are now centrally cleared and no longer present “interconnectedness risk.”
- Where possible, we continue to compress derivative contracts, including intercompany contracts, for example through mutually agreed “tear-ups,” coupon blending and risk free netting.

Inter-affiliate Risk Monitoring and Controls

Our systems for the monitoring and control of inter-affiliate risk have been designed and built to offer all of the measurement, monitoring, analysis, and reporting capabilities available for the management of counterparty risk. We recognize that inter-affiliate risk differs from counterparty risk in that the financial distress of an affiliate, particularly of a material entity, poses distinct risk management challenges because it is likely to be accompanied by financial and operational challenges for us as a whole. We supplement our usual counterparty risk management practices by monitoring and reporting metrics, such as the cost and effectiveness of our re-hedging strategy for material entities, that are of specific importance to inter-affiliate risk management.

Derivative Stabilization and De-Risking Strategy

The ability to wind down our derivative inventory in an orderly manner is a critical component of our efforts to ensure that we can be resolved without significant risk to the financial system. The preferred resolution strategy for our derivative inventory is an orderly and active wind-down of all positions over an 18-month period. This strategy is consistent with the actions of market participants who have exited derivatives businesses in the past.

Our analysis is based on the segmentation of our derivative inventory that is used for both business-as-usual risk-management and “Volcker Rule” reporting, because these segments represent groupings of transactions with broadly homogenous risk and asset types.

Our analysis assumes the following constraints specified by the Agencies for our preferred strategy:

- Our derivatives entities are sub-investment grade and do not re-establish investment grade status at any point in the wind-down. As a result, we have no access to the bilateral OTC market and we therefore use exchange-traded and cleared instruments for hedging purposes.
- To the extent it would be economically justified, counterparties (external or affiliates) exercise their contractual termination rights consistent with any rights stayed by the ISDA Resolution Stay Protocols or other applicable protocols.

During the 18-month wind-down period, intercompany derivative trades will continue to be supported and our practice of centralizing market risk management will continue as before. As portfolios of third party derivatives are sold, the corresponding intercompany transactions are terminated at arm's-length, mid-market prices. Consequently, all participating material operating entities are able to exit their intercompany derivative transactions at the same time as the corresponding portfolios are sold.

We deployed substantial resources across the firm to ensure that our analyses are sufficiently granular and reflect all the important characteristics of our derivative inventory. We developed our analyses using historical data, market information and expert management judgment.

We use the same technology platform to model the wind-down of our derivative inventory as to generate our liquidity (RLEN) and capital (RCEN) metrics. Consequently, any action that is modeled in the derivative wind-down strategy is simultaneously reflected in the RLEN and RCEN estimates. Furthermore, our business-as-usual IT systems have the functionality required to produce data at a sufficiently granular level of detail to facilitate timely decision-making.

In the event that our derivative inventory needs to be wound down in practice, we believe that we have the resources and the technical know-how to do so. We used business-as-usual systems to perform our analyses, and these would continue to function in a resolution scenario. In addition, we expect that our employee retention plan would ensure that the technical know-how would remain at the firm, and that our governance framework would continue to support and guide the risk management and wind down decisions.

Portfolio Segmentation and Forecasting

We have the capability to produce a spectrum of derivatives portfolio analyses across a wide range of dimensions, such as by legal entity, trading desk, product, cleared vs. clearable vs. non-clearable trades, counterparty type, currency, maturity, level of collateralization, and netting set. We also have the capability to segment and analyze the full contractual maturity (run-off) profile of our external and intercompany derivatives portfolios.

Ease of Exit Position Analysis

We describe the categorization of our derivative positions within each business area and at an overall firm level, highlighting those that we consider more difficult to exit. This segmentation reflects the characteristics that we believe could affect the cost and operational effort required to exit our derivative portfolios, and the results have been factored into our cost analysis.

Application of Exit Cost Methodology

Our exit cost methodology, which is applied primarily at a portfolio level, forecasts the range of costs and liquidity required to exit our derivative positions. The main drivers of these costs are:

- Risk management costs: We enter into hedges to replace derivatives that terminate or contractually mature.
- Portfolio exit costs: We use a methodology based on the return on equity capital to estimate portfolio exit costs.
- Basis risk: Basis risk arises because material entities would not be able to access the bilateral OTC market after Group Inc. has entered bankruptcy proceedings, and would therefore only be able to hedge using listed or cleared instruments. We assess and quantify this risk.
- Operating expenses: We have calculated the operating expenses required to support our preferred wind-down strategy.

Analysis of operational capacity

We performed an assessment of the operational resources required to execute our preferred resolution strategy; this includes an analysis of our ability to segment, package and novate derivatives portfolios, taking account of the systems capabilities needed to generate the information packages that potential step-in counterparties would require. We conclude that we have the operational capacity to support our preferred strategy for the wind-down of our derivatives portfolios.

Capabilities - Prime Brokerage Customer Account Transfers

We have taken steps to help ensure that the clients of our prime brokerage business are ready and able to transfer their business to alternative service providers in a manner that neither disrupts their business nor exacerbates our liquidity position. Specifically:

- Most clients now maintain multiple prime brokerage relationships;
- We have built automated tools to enable streamlined transfers of assets across legal entities and custody platforms; and
- We have developed plans to help ensure that all prime brokerage clients' cash can be transferred to third parties during the wind-down phase.

5. Resolution Plan Governance and Challenge

Introduction

Our resolution planning process is extensive and complex, involving hundreds of members of staff across numerous different disciplines and geographic locations, to best leverage the required expertise. For such a process to be successful, a robust governance structure is essential. This helps ensure that our Board and senior management are in a position to exert oversight, challenge assumptions and give direction; it also helps ensure that the various strands of work are appropriately connected and organized so that the final plan does not contain gaps or inconsistencies.

Oversight Bodies

The following groups oversee our resolution planning process:

- Board of Directors: Our Board is responsible for overseeing the business and affairs of GS Group, including oversight of management's formulation and implementation of our strategic plans and our performance and management. To this end, the Board, working with and through its Committees, meets at regularly held or special meetings throughout the year to receive updates, including, without limitation, on our strategy, performance and risk management, as well as on any significant developments that may occur during the year. The Board, working with and through its Committees, provides general oversight of the process for developing the Plan, and reviews, challenges (if and as may be appropriate) and approves the Plan before each submission to the Agencies.

- Senior Management: In 2020 we formed a Senior Management Steering Group to strengthen engagement with senior management on key resolution topics. The group meets quarterly to discuss and provide challenge and oversight of key resolution topics.

- Firmwide Enterprise Risk Committee: This committee is responsible for overseeing all of our financial and non-financial risks. As part of such oversight, the committee is responsible for the ongoing review, approval and monitoring of our enterprise risk management framework, as well as our risk limits framework. It reviews and approves the Plan before it is submitted to our Board.

- Firmwide Asset Liability Committee ("FALCO"): This committee reviews and approves the strategic direction for our financial resources, including capital, liquidity, funding and balance sheet. This Committee approves our Recovery and Resolution Policy and is consulted on the Plan before it is submitted to our Board.

- Recovery and Resolution Steering Group: The Recovery and Resolution Steering Group is co-chaired by our International Controller and International Treasurer. Members of the Recovery and Resolution Steering Group include the Steering Group Operating Officer (described below) and representatives of a wide range of departments. The Recovery and Resolution Steering Group develops and maintains the Plan, is responsible for ensuring that it contains information required by the relevant rules, provides direction and strategy, helps to resolve issues, makes policy decisions, approves scope changes and sets deliverables. The Recovery and Resolution Steering Group also acts as a liaison with senior executives and the Agencies. The full Steering Group meets on a bi-weekly cycle and in the intervening weeks, a subset of the group meets to focus specifically on matters pertaining to capital and liquidity.

- Steering Group Operating Officer: This is the senior management official primarily responsible for overseeing the development, maintenance, implementation and filing of the Plan in compliance with the Agencies' resolution planning regulations and guidance. The Steering Group Operating Officer is the content expert who is responsible for the day-to-day management of activities related to the Plan, including coordination of the activities of various capability leads (see below).

- Recovery and Resolution Capability Leads: The Capability Leads are the subject matter experts in relation to their respective aspects of the Plan. The Leads initiate development and have ownership of their individual capability's Plan. The Leads are responsible for setting goals and objectives, keeping abreast of major Plan activities, and for ensuring the execution of necessary actions and are the decision-makers for their capabilities. The Leads are also active in maintaining the capabilities plans' scope and sign-off on major deliverables to proceed to the Steering Group Operating Officer and Steering Group.

- Other governance bodies: Other committees, working groups, and functional groups complement our governance mechanisms through their work on specific aspects of resolution planning. They include the Firmwide Model Risk Control Committee, the Liquidity Risk group, the Legal Entity and Booking Model Working Group, and the Regulatory Capital and Reporting Review Group. Furthermore, the Boards of Directors for several of our Material Operating Entities receive a posting on the resolution plan. Internal Audit performs an independent review of various aspects of our resolution planning processes.

Assurance

Our resolution capabilities have been developed and enhanced over a period of many years, and to remain fully operationalized, an assurance program is essential to ensure capabilities remain fit for purpose. We have a structured assurance program that provides comprehensive coverage aligned with plan filing cycles, resulting in all areas being covered over a four year period (or more often, as appropriate). The framework covers training and simulations with the Group Inc., Funding IHC and material operating entity boards and management; capability testing; and commitments evidencing.

Under this framework, during 2020, we conducted two simulation exercises to test and challenge key elements of our contingency funding plan, contingency capital plan, recovery plan, and resolution plan.

The first exercise involved the board of the Funding IHC, which consists of our senior decision-makers, including our Chief Risk Officer, Controller and Global Treasurer, and also included co-chairs of the Recovery and Resolution Steering Group, as well as senior representatives from certain material operating entities. The second exercise involved the boards of GSI and GSIB, our UK-based broker dealer and bank, which are two of our material operating entities.

The primary objectives of the simulation exercises were to:

- Ensure timely and reliable metrics and financial projections can be made available to the respective boards, as and when needed in the stress continuum
- Test operationalization of the CLSA throughout the stress continuum
- Assess potential conflicts of interest of board members throughout the stress continuum
- Ensure effective internal communication throughout the stress continuum

The exercises took the form of an educational session covering key concepts such as the Funding IHC structure and the mechanisms of the CLSA, followed by discussion of a series of simulated scenarios ranging across the stress continuum.

Overall, the simulation exercises showed that the parts of the Plan we tested are robust, and highlighted no significant impediments. The simulation further demonstrated familiarity, both functionally and jurisdictionally across the firm, with both the Plan itself and the various responsibilities under the Plan. Nevertheless, we did identify certain “lessons learned,” and have put project plans in place to more fully consider and, where appropriate, implement enhancements.

Similarly, we have completed capability tests related to governance, reporting capabilities and sensitivity analysis of our resolution metrics. The testing included, but was not limited to, alternative scenarios for both our liquidity and capital resolution metrics; Prime Brokerage segmentation reporting capabilities; and a review of the retention plan for Prime Brokerage.

We also monitor periodic commitments which are stated in our Plan, such as annual or quarterly analyses required to maintain and update aspects of the Plan. The identified owners validate that the commitments continue to operate as expected, and provide evidence of completion of those required analyses. Examples include the annual assessment of material entities, and the annual refresh of related policies and procedures, such as the Recovery and Resolution Policy.

We additionally conducted an assessment of the impacts of the COVID-19 pandemic. Our analysis showed that the resolution capabilities in which we have invested over a period of many years, including our MIS, collateral management processes, triggers and alerts, liquidity, and capital, aided us in managing through the initial stress period and beyond. Nevertheless, we identified certain opportunities to enhance our resolution framework by further building out our capabilities; much of this has already been implemented, and future actions will be tracked under our governance framework.

Supporting Information

The following pages contain background information about Goldman Sachs as support and context for our resolution strategy.

SI.1. Description of Core Business Lines

Introduction

Goldman Sachs is a leading global financial institution that delivers a broad range of financial services across investment banking, securities, investment management and consumer banking to a large and diversified client base that includes corporations, financial institutions, governments and individuals.

Details about our businesses are included in our Annual Report on Form 10-K for the year ended December 31, 2020 (our “2020 Form 10-K”). All references to 2020, 2019 and 2018 refer to our years ended, or the dates, as the context requires, December 31, 2020, December 31, 2019 and December 31, 2018, respectively.

Group Inc. is a BHC and an FHC regulated by the FRB. Our U.S. depository institution subsidiary, GS Bank USA, is a New York State-chartered bank.

Resolution planning requires a definition of “core business lines” because certain businesses may need to be singled out for specific actions as part of a resolution exercise (i.e., those business lines and associated support operations, services and functions that, upon failure, would result in a material loss of revenue, profit or franchise value). We have identified these business lines and they are part of our Investment Banking and Global Markets segments.

The remainder of this Section describes our core business lines.

Investment Banking

Investment Banking serves public and private sector clients around the world. We provide financial advisory services, help companies raise capital to strengthen and grow their businesses and provide financing to corporate clients. We seek to develop and maintain long-term relationships with a diverse global group of institutional clients, including corporations, governments, states and municipalities. Our goal is to deliver to our institutional clients all of our resources in a seamless fashion, with investment banking serving as the main initial point of contact.

Investment Banking generates revenues from the following:

- **Financial advisory.** We are a leader in providing financial advisory services, including strategic advisory assignments with respect to mergers and acquisitions, divestitures, corporate defense activities, restructurings and spin-offs. In particular, we help clients execute large, complex transactions for which we provide multiple services, including cross-border structuring expertise. We also assist our clients in managing their asset and liability exposures and their capital.

- **Underwriting.** We help companies raise capital to fund their businesses. As a financial intermediary, our job is to match the capital of our investing clients, who aim to grow the savings of millions of people, with the needs of our public and private sector clients, who need financing to generate growth, create jobs and deliver products and services. Our underwriting activities include public offerings and private placements, including local and cross-border transactions and acquisition financing, of a wide range of securities and other financial instruments, including loans. Underwriting consists of the following:

  Equity underwriting. We underwrite common and preferred stock and convertible and exchangeable securities. We regularly receive mandates for large, complex transactions and have held a leading position in worldwide public common stock offerings and worldwide initial public offerings for many years.

  Debt underwriting. We underwrite and originate various types of debt instruments, including investment-grade and high-yield debt, bank and bridge loans, including in connection with acquisition financing, and emerging- and growth-market debt, which may be issued by, among others, corporate, sovereign, municipal and agency issuers. In addition, we underwrite and originate structured securities, which include mortgage-related securities and other asset-backed securities.

- **Corporate lending.** We lend to corporate clients, including through relationship lending, middle-market lending and acquisition financing. The hedges related to this lending and financing activity are reported as part of our corporate lending activity. We also provide transaction banking services to certain of our corporate clients.

Global Markets

Global Markets serves our clients who buy and sell financial products, raise funding and manage risk. We do this by acting as a market maker and offering market expertise on a global basis. Global Markets makes markets and facilitates client transactions in fixed income, equity, currency and commodity products. In addition, we make markets in, and clear client transactions on, major stock, options and futures exchanges worldwide.

As a market maker, we provide prices to clients globally across thousands of products in all major asset classes and markets. At times, we take the other side of transactions ourselves if a buyer or seller is not readily available, and at other times we connect our clients to other parties who want to transact. Our willingness to make markets, commit capital and take risk in a broad range of products is crucial to our client relationships. Market makers provide liquidity and play a critical role in price discovery, which contributes to the overall efficiency of the capital markets. In connection with our market-making activities, we maintain (i) market-making positions, typically for a short period of time, in response to, or in anticipation of, client demand, and (ii) positions to actively manage our risk exposures that arise from these market-making activities (collectively, inventory).

Our clients are institutions that are primarily professional market participants, including investment entities whose ultimate clients include individual investors investing for their retirement, buying insurance or saving surplus cash.

We execute a high volume of transactions for our clients in large, highly liquid markets (such as markets for U.S. Treasury securities, stocks and certain agency mortgage pass-through securities). We also execute transactions for our clients in less liquid markets (such as mid-cap corporate bonds, emerging market currencies and certain non-agency mortgage-backed securities) for spreads and fees that are generally somewhat larger than those charged in more liquid markets. Additionally, we structure and execute transactions involving customized or tailor-made products that address our clients' risk exposures, investment objectives or other complex needs (such as a jet fuel hedge for an airline), as well as derivative transactions related to client advisory and underwriting activities.

Through our global sales force, we maintain relationships with our clients, receiving orders and distributing investment research, trading ideas, market information and analysis. Much of this connectivity between us and our clients is maintained on technology platforms, including *Marquee*, and operates globally where markets are open for trading. *Marquee* provides institutional investors with market intelligence, risk analytics, proprietary datasets and trade execution across multiple asset classes.

Global Markets activities are organized by asset class and include both "cash" and "derivative" instruments. "Cash" refers to trading the underlying instrument (such as a stock, bond or barrel of oil). "Derivative" refers to instruments that derive their value from underlying asset prices, indices, reference rates and other inputs, or a combination of these factors (such as an option, which is the right or obligation to buy or sell a certain bond, stock or other asset on a specified date in the future at a certain price, or an interest rate swap, which is the agreement to convert a fixed rate of interest into a floating rate or vice versa).

Global Markets consists of FICC and Equities.

FICC. FICC generates revenues from intermediation and financing activities.

- **FICC intermediation.** Includes client execution activities related to making markets in both cash and derivative instruments, as detailed below.

  Interest Rate Products. Government bonds (including inflation-linked securities) across maturities, other government-backed securities, and interest rate swaps, options and other derivatives.

  Credit Products. Investment-grade and high-yield corporate securities, credit derivatives, exchange-traded funds (ETFs), bank and bridge loans, municipal securities, emerging market and distressed debt, and trade claims.

  Mortgages. Commercial mortgage-related securities, loans and derivatives, residential mortgage-related securities, loans and derivatives (including U.S. government agency-issued collateralized mortgage obligations and other securities and loans), and other asset-backed securities, loans and derivatives.

  Currencies. Currency options, spot/forwards and other derivatives on G-10 currencies and emerging-market products.

  Commodities. Commodity derivatives and, to a lesser extent, physical commodities, involving crude oil and petroleum products, natural gas, base, precious and other metals, electricity, coal, agricultural and other commodity products.

- **FICC financing.** Includes providing financing to our clients through securities purchased under agreements to resell (resale agreements), as well as through structured credit, warehouse lending (including residential and commercial mortgage lending) and asset-backed lending, which are typically longer term in nature.

Equities. Equities generates revenues from intermediation and financing activities.

- **Equities intermediation.** We make markets in equity securities and equity-related products, including exchange-traded funds ("ETFs"), convertible securities, options, futures and over-the-counter ("OTC") derivative instruments. As a principal, we facilitate client transactions by providing liquidity to our clients, including by transacting in large blocks of stocks or derivatives, requiring the commitment of our capital.

We also structure and make markets in derivatives on indices, industry sectors, financial measures and individual company stocks. We develop strategies and provide information about portfolio hedging and restructuring and asset allocation transactions for our clients. We also work with our clients to create specially tailored instruments to enable sophisticated investors to establish or liquidate investment positions or undertake hedging strategies. We are one of the leading participants in the trading and development of equity derivative instruments.

Our exchange-based market-making activities include making markets in stocks and ETFs, futures and options on major exchanges worldwide.

We generate commissions and fees from executing and clearing institutional client transactions on major stock, options and futures exchanges worldwide, as well as OTC transactions. We provide our clients with access to a broad spectrum of equity execution services, including electronic "low-touch" access and more complex "high-touch" execution through both traditional and electronic platforms, including *Marquee*.

- **Equities financing.** Includes prime brokerage and other equities financing activities, including securities lending, margin lending and swaps.

  We earn fees by providing clearing, settlement and custody services globally. In addition, we provide our hedge fund and other clients with a technology platform and reporting that enables them to monitor their security portfolios and manage risk exposures.

  We provide services that principally involve borrowing and lending securities to cover institutional clients' short sales and borrowing securities to cover our short sales and to make deliveries into the market. In addition, we are an active participant in broker-to-broker securities lending and third-party agency lending activities.

  We provide financing to our clients for their securities trading activities through margin loans that are collateralized by securities, cash or other acceptable collateral. We earn a spread equal to the difference between the amount we pay for funds and the amount we receive from our client.

  We execute swap transactions to provide our clients with exposure to securities and indices.

Goldman Sachs

SI.2. Material Entities and their Operational and Financial Interconnectedness

We have designated those subsidiaries of the firm that are significant to the activities of a critical operation or core business line as "material entities." We distinguish between material operating entities (those that are engaged in an operating business) and material service entities (those that provide services to other material entities).

The following list summarizes the principal activities of our material entities:

Material Entities		**Principal Activities**	**Country or State of Incorporation**
Covered Company	The Goldman Sachs Group, Inc.	Parent Holding Company	Delaware
Material Operating Entities	Goldman Sachs & Co. LLC	Broker-Dealer	New York
	Goldman Sachs International	Broker-Dealer	England
	Goldman Sachs Bank USA	Insured Depository Institution	New York
	J. Aron & Company LLC	Commodity Market Maker	New York
	Goldman Sachs Japan Co., Ltd	Broker-Dealer	Japan
	Goldman Sachs International Bank	Bank	England
	Goldman Sachs Bank Europe SE[12]	Bank	Germany
	Goldman Sachs Asset Management, L.P.	Investment Advisor	Delaware
	Goldman Sachs Asset Management International	Investment Advisor	England
Material Service Entities	Goldman Sachs Funding LLC	Funding IHC	Delaware
	Goldman Sachs Services Private Limited	Staffing Service Entity	India
	Goldman Sachs Services LLC	Staffing Service Entity	Delaware
	Goldman Sachs Property Management	Physical Asset Service Entity	England
	Goldman Sachs Property Management USA LLC	Physical Asset Service Entity	Delaware
	Goldman Sachs Services (Asia) Limited	Staffing/Physical Asset Service Entity	Hong Kong
	Goldman Sachs Services (Singapore) Pte. Ltd.	Staffing/Physical Asset Service Entity	Singapore
	Goldman Sachs (UK) Svc. Limited	Staffing Service Entity	England
	Goldman Sachs Japan Services Co., Ltd.	Staffing/Physical Asset Service Entity	Japan

[12] GSBE was designated a Material Operating Entity effective December 31, 2020.

Financial Information by Material Entity as of December 31, 2020

We consider that a subsidiary is significant to the activities of a critical operation or core business line if it accounts for more than 10% of a core business line's revenues, houses a significant portion of a critical operation, or holds more than a "de minimis" percentage[13] of our support staff or technology assets.

The following is a summary of key financial metrics for our material entities for the year ended December 31, 2020:

$ in billions	Total Assets	Total Liabilities Excluding Capital and Unsecured Intercompany Debt	Capital and Unsecured Intercompany Debt[14]	Net Revenues[15]	Pre-Tax Earnings[14]
	$	$	$	$	$
The Goldman Sachs Group, Inc.	369.6	233.9	95.9	(1.1)	(4.8)
Goldman Sachs & Co. LLC	507.6	450.4	57.2	17.6	7.8
Goldman Sachs International	430.3	313.3	117.0	8.6	2.7
Goldman Sachs Bank USA	271.7	226.2	45.5	5.6	1.1
J. Aron & Company LLC	22.2	14.3	7.9	1.1	0.6
Goldman Sachs Japan Co., Ltd.	73.7	68.4	5.3	0.9	0.4
Goldman Sachs International Bank	59.1	52.8	6.3	0.5	0.2
Goldman Sachs Bank Europe SE	24.8	19.2	5.5	0.4	0.2
Goldman Sachs Asset Management L.P.	1.1	0.3	0.8	2.5	0.5
Goldman Sachs Asset Management Int'l	0.5	0.1	0.4	0.9	0.2
Goldman Sachs Funding LLC	136.2	0.2	136.0	1.2	1.2
Material service entities	5.4	2.8	2.6	3.1	0.3

Information in the table above has been prepared in accordance with U.S. Generally Accepted Accounting Principles on a stand-alone entity basis.

Interconnectedness among Material Entities

Both the nature of our businesses and our corporate legal entity structure give rise to financial and operational interconnectedness among subsidiaries within our group, and between our parent company and subsidiaries. We have identified the following areas of interconnectedness:

Intercompany Derivative Transactions. Group Inc. and its subsidiaries enter into transactions with each other for risk management, client facilitation and other reasons. Such transactions are based on agreed terms in intercompany agreements, entered into on an arms' length basis and appropriately collateralized on a next day basis. In order to facilitate transactions with clients in other countries, our material operating entities offer introducing arrangements for other affiliates; this practice would cease in resolution when we stop entering into new transactions with clients.

[13] For these purposes, we consider more than 3% of support staff, 5% of technology assets, or 2% of both in the same entity to be greater than "de minimis"

[14] The amount quoted for The Goldman Sachs Group, Inc. does not include unsecured intercompany debt; the amount quoted for Goldman Sachs Bank USA includes deposits from affiliates

[15] The amount quoted for The Goldman Sachs Group, Inc. does not include dividends or equity in the earnings of subsidiaries

The principal intercompany derivatives and hedging relationships between our material operating entities as at December 2020 are set out below:

Transactional or Hedging Relationships between Material Operating Entities										
Entity	GSI	GS Bank USA	GSCO	GSJCL	JANY	Group Inc	GSBE	GSIB	GSAM	GSAMI
GSI										
GS Bank USA	x									
GSCO	x	x								
GSJCL	x	x								
JANY	x	x	x	x						
Group Inc	x	x	x		x					
GSBE	x	x	x		x					
GSIB	x	x								
GSAM										
GSAMI										

We have devoted substantial resources to reducing this aspect of interconnectedness, primarily through trade compressions (whereby offsetting and near-offsetting OTC derivative transactions are matched and bi-laterally terminated at mutually agreed prices), clearing of intercompany transactions, collateralization of exposures and better alignment of client transactions and risk-management entities. Other steps we have taken are discussed in more detail below (see "Actions we have taken to mitigate the effect of interconnectedness and ensure a more rational, less complex legal entity structure").

Subsidiary Capital and Funding Policies. Equity capital is raised by Group Inc., which downstreams capital to its subsidiaries to meet their capital needs. The majority of our unsecured funding is also raised by Group Inc., which lends a portion of it to Funding IHC pursuant to a subordinated funding note (Funding Note). Funding IHC lends some of these funds to certain material entities to meet their funding and liquidity needs, and extends loans to Group Inc. via a revolving loan facility (Revolver)[16] to meet the funding and liquidity requirements of Group Inc. and Group Inc.'s subsidiaries. The benefits of a centralized approach to subsidiary capitalization and funding include enhanced control and greater flexibility to meet our subsidiaries' changing requirements. Funding is also raised at the subsidiary level through a variety of products, including secured funding, unsecured borrowings and deposits.

[16] *Both the Funding Note and the Revolver are part of the CLSA*

The table below reflects the material[17] unsecured funding relationships among Group Inc., Funding IHC and material operating entities.

Funding Relationships between Material Operating Entities			
Material Entity	**Borrows from Parent or Funding IHC**	**Borrows from Material Entities**	**Lends to Material Entities**
Group Inc.	✓	✓	✓
GSCO	✓	×	×
GSI	✓	✓	×
GS Bank USA	✓	×	×
JANY	✓	×	✓
GSJCL	✓	×	×
GSIB	✓	×	✓
GSBE	✓	×	×
GSAM	✓	×	×
GSAMI	✓	×	×

To mitigate the risk of disruption to our inter-company funding, we have pre-positioned liquidity and intercompany debt at key material entities; we also hold substantial liquidity at our parent company and Funding IHC, which gives us the flexibility to place additional liquidity at affiliates in the event that it is required.

Secured Funding. Many of our material operating entities lend to and borrow from each other on a secured basis, generally as a mechanism for collateral realignment, cash reinvestment, or sourcing securities for an entity's GCLA. The majority of these transactions are collateralized by GCLA-eligible securities, which are highly liquid. A significant portion of the remainder relates to the covering of short positions, which allows the lending entity to manage risk, or is used for collateral and funding optimization.

Cross-default Provisions. Historically, documents that govern our OTC derivative transactions usually contained "cross-default" provisions; these give counterparties the right to terminate their transactions with one Goldman Sachs legal entity, even if it is solvent and performing its obligations under the transaction, because of certain credit-related events at certain other Goldman Sachs legal entities. However, we have mitigated the effect of cross-default provisions; all of our affiliates that engage in external derivatives activity under ISDA Master Agreements have signed the ISDA Resolution Stay Protocols. In the event of resolution, these impose a stay on certain cross-default and early termination rights in standard ISDA derivative, repo and securities lending contracts with other adhering counterparties. Consequently, our intercompany derivatives are afforded the protection of the ISDA Resolution Stay Protocols.

[17] *Balances of more than $500 million as of December 2020 are considered material.*

Guarantees of Subsidiaries. Group Inc. has guaranteed the payment obligations of GSCO and GS Bank USA, subject to certain exceptions. Group Inc. also provides guarantees to clients in respect of certain transactions entered into by subsidiary companies. In addition, Group Inc. has provided guarantees to GSI and GSBE related to agreements that each entity has entered into with certain of its counterparties.

GS Group subsidiaries only provide guarantees to other subsidiary companies on a very limited basis. We do not have and do not permit upstream guarantees of the parent company by its subsidiaries. Group Inc. guarantees do not contain cross-default provisions, and do not on their own trigger early termination rights.

In order to mitigate this aspect of interconnectedness, we have obtained at least one stand-alone rating from a major credit rating agency for each of our six largest material operating entities. The resolution-related benefit of this is to reduce the number of transactional guarantees that Group Inc. is required to issue.

Access to Market Infrastructure. Certain GS Group subsidiaries provide other affiliates with access to various FMUs such as exchanges, clearing houses, custodians and agent banks. Such transactions are governed by intercompany agreements and charged at arms' length pricing.

Although our preferred strategy does not assume that the material operating entities which provide access to FMUs to affiliates will enter bankruptcy, insolvency or similar proceedings, we have nevertheless prepared contingency plans as a backup. Depending on the FMU, these plans include options for multiple entity access, alternative contingency arrangements, or the use of a third-party service provider.

For a full list of our critical FMUs, see section SI.5. Memberships in Material Payment, Clearing and Settlement Systems below.

Operational Services. GS Group subsidiaries regularly provide services to each other based on intercompany agreements, for which services arms' length fees are paid. Such services may relate to: employee services; technology or intellectual property; facilities and other fixed assets; and vendor services.

Goldman Sachs

The table below illustrates the services provided and received by material entities:

Material Entity Shared Services Relationships

PROVIDES \ RECEIVES	All Entities	Group Inc	GSCO	GSI	GS Bank	JANY	GSJCL	GSIB	GSBE	GSAM	GSAMI	Funding IHC	GSSE	GSPW	GSPM	GPMU	GHKL	GPMS	GSUL	GSJS
Group Inc	IP, V		F		F	F								F		F				
GSCO	IP, V	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
GSI	IP, V	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
GS Bank	IP																			
JANY	IP																			
GSJCL	IP	P	P	P	P	P		P		P	P	P	P	P	P	P	P	P	P	P
GSIB	IP																			
GSBE	IP	P	P	P	P		P	P			P									
GSAM	IP																			
GSAMI	IP																			
Funding IHC																				
GSSE		P	P	P		P	P	P	P	P	P	P		P	P	P	P	P	P	P
GSPW		P	P	P		P	P	P	P	P	P	P	P		P	P	P	P	P	P
GSPM		T	T	T	T	T	T	T	T	T	T	T	T	T		T	T	T	T	T
GPMU		T	T	T	T	T	T	T	T	T	T	T	T	T	T		T	T	T	T
GHKL	T	P	P	P		P	P	P	P	P	P	P	P	P	P	P		P	P	P
GPMS	T	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P		P	P
GSUL		P	P	P, F		P	P	P, F	P	P	P	P	P	P	P, F	P	P	P		P
GSJS	V,T	P	P	P		P	P,F	P	P	P	P	P	P	P	P	P	P	P	P	

P = PERSONNEL, IP = INTELLECTUAL PROPERTY, T = TECHNOLOGY ASSETS, F = FACILITIES, V= VENDORS

We have reduced the risks relating to affiliates' dependency on other affiliates for the provision of shared services by documenting such services in legal agreements that provide for continuity of service, even if a contracting entity enters some form of bankruptcy proceeding.

Actions we have taken to mitigate the effect of interconnectedness and ensure a more rational, less complex legal entity structure:

We have established the following LER criteria to mitigate interconnectedness and ensure a more rational and less complex legal entity structure:

1. Separation of Core from Non-Core Businesses:

- Core business activities and critical operations should be conducted in a small number of large, well-capitalized and well-funded entities (i.e. material operating entities)
- Market risk of core business activities should be centrally managed within a limited number of material operating entities
- Non-core business activities that are likely to be spun off in a resolution scenario should be conducted in separate legal entity groups that facilitate separability in resolution
- Entities with common roles should be grouped into separate ownership chains under common holding companies (e.g., operating entity groups, service entity groups and investing entity groups)

- The domicile of legal entities should be aligned with their principal place of business.

In resolution, the separation of core from non-core businesses allows us to concentrate its financial resources where they would have the greatest impact (i.e. on the core business lines and critical operations), and simplifies the spin-off of non-core businesses because they do not need to be “unraveled” from the rest of the business.

2. As Few Entities as Possible:

- Our core businesses and critical operations should be conducted in the smallest number of operating entities that legal, regulatory, risk and resolvability considerations will allow;
- Unless specific circumstances warrant, there should not be more than one of the following category of operating entity in any jurisdiction:
    - i. a bank;
    - ii. a broker-dealer;
    - iii. an asset manager.
- Our investing businesses should be conducted in as few legal entities as legal, regulatory, co-investing and other business efficiency considerations will allow;
- Redundant and dormant entities should be wound down.

A smaller number of legal entities reduces the complexity of resolution and decreases the likelihood of conflicting resolution regimes or of part of a business activity going into insolvency proceedings and part remaining out of proceedings.

3. Short, Clean Entity Ownership Lines and Guarantee Flows:

- Operating entities should not have cross-holdings in each other;
- Material operating and material service entities outside the IDI ownership group should not be owned by another material operating or material service entity;
    - Material entities that are part of the IDI ownership group are subject to the provisions described in criterion 7.
- There should be as few intermediate holding companies as regulatory or other considerations permit;
- Fractional or split ownership of material entities should be avoided.

Short, simple lines of ownership not only reduce the complexity of resolution, but also reduce the likelihood that the provision of financial support to material entities will be impeded at an intermediate step in the ownership chain.

4. Clean Funding Pathways:

- External TLAC should only be issued by the parent company;
- Internal TLAC should be provided in a manner that preserves flexibility and efficiency of deployment;
- Mechanisms should be in place to make capital and liquidity available to surviving material entities in a resolution scenario:

    i. in sufficient quantity and in a sufficiently timely manner that these entities can be wound down in an orderly fashion;

    ii. in a manner that mitigates potential conflicts of interest arising as a result of the forgiveness or conversion of debt;

    iii. in a manner that mitigates uncertainty related to potential creditor challenge.

The resolution benefit of these criteria is that they reduce the likelihood that creditor challenge will impede the process of providing financial support to material entities and afford additional flexibility to provide additional resources during the wind-down period.

5. Intercompany Arrangements that Mitigate Interconnectedness:

- Intercompany guarantees should emanate only from the parent company and flow downstream to subsidiaries;
- Derivative and secured funding contracts with external third parties should avoid cross-default provisions when practicable;
- The number of intercompany derivative transactions should be reduced to the extent practicable:

    i. Where possible, clients should transact with the legal entity that manages the related market risk;

    ii. Where such alignment of clients with risk-management entities is not possible, intercompany transactions should be minimized using intercompany clearing or internal compression techniques, where available;

    iii. Intercompany transactions should be booked and risk managed in a manner consistent with external derivative transactions, they should be collateralized on a daily basis and, in the event of default by one affiliate party, they should close out at mid-market prices.

- Intercompany receivables of any nature should be settled regularly.

Intercompany arrangements that mitigate interconnectedness reduce the likelihood that the failure of one legal entity will bring about the failure of its affiliates.

6. Alignment of Resources with the Entities they Serve:

- Staff should normally be employed by the entity that benefits from their services or by an operationally and financially resilient service entity;
- If staff are not employed by (or formally seconded to) the entity to which they provide services (for example, because they are employed by a service entity, because they work for several legal entities, because they live in a different country, or because of local registration requirements), the service they provide should be documented in a service-level agreement that allows for the continued provision of services in a resolution scenario;
- Technology assets should normally be held on the balance sheet of a financially resilient service entity unless they benefit only one entity, in which case they should be held on its balance sheet;
- The use of technology assets or facilities by an entity that does not own them should be documented in an agreement that allows for the continued provision of services in a resolution scenario;
- Legal entities should have properly documented ownership interests in, or access rights to, the intellectual property from which they benefit;
- Entities that have a critical dependency on another group entity for access to an FMU should have contingency arrangements in place for alternative access;
- Resolution-critical third-party vendors should be readily identifiable, and legal agreements with them should contain resolution-resilient clauses that prevent termination due to a bankruptcy or insolvency filing by the service receiver, allow for assignability to other GS Group entities, and promote the provision of transition services in resolution.

These criteria are designed to ensure that our major operating entities are not forced into premature liquidation because of inadequate non-financial resources such as staff, technology, intellectual property, physical assets or access to critical FMUs.

7. Protection of the Insured Depository Institution ("IDI"):

- Our parent company, whether acting directly or through our Funding IHC, should act as a source of strength for our IDI and its branches and subsidiaries (IDI group);
- Our IDI group should hold sufficient capital and liquidity to meet its regulatory and internal requirements in a business-as-usual context;

- Our parent company and Funding IHC should provide the IDI group with additional capital or liquidity required to meet its RCEN and RLEN requirements;
- The parent company and Funding IHC should ensure that there is sufficient internal TLAC to meet the IDI group's RCAP requirements;
- The parent company and Funding IHC should ensure that there is sufficient excess liquidity to meet the IDI group's RLAP requirements;
- The provisions of Regulation W must be met in all respects, as determined by the IDI itself;
- The number of intercompany derivative transactions involving the IDI group should be reduced to the extent practicable:
    - i. Where possible, clients should transact directly with the IDI when it manages the related market risk, thereby minimizing the volume of intercompany derivative transactions;
    - ii. Where such alignment of clients with the IDI is not possible, intercompany transactions should be minimized or reduced using intercompany clearing or internal compression techniques, where available; and
    - iii. Intercompany transactions should be booked and risk managed in a manner consistent with external derivative transactions.
- Shared services of which the IDI is a beneficiary should be documented in service level agreements.

These criteria are designed to help ensure that our insured depository institution would remain operational in the event that our parent company were to enter bankruptcy.

We acknowledge that there is inherent subjectivity in identifying whether or not an entity structure or transaction flow is complex, and recognize the need for senior and knowledgeable stakeholders to apply judgment in considering all factors that influence our corporate structure.

Resolution Strategy by Material Entity

The Goldman Sachs Group, Inc.

Description of Entity

As the parent company of the consolidated firm, Group Inc. is GS Group's "covered company[18]." It is a Delaware corporation, and it is a BHC and an FHC regulated by the Federal Reserve. Its common stock is traded on the New York Stock Exchange under the symbol GS.

Our equity capital is raised by Group Inc., which sends capital downstream to our subsidiaries to support their business activities and meet their regulatory requirements, where applicable. The majority of our unsecured funding is also raised by Group Inc., which primarily lends it to Funding IHC pursuant to the Funding Note. Funding IHC lends funds to Group Inc. via the revolving facility under the CLSA to meet the funding and liquidity requirements of Group Inc.

As a holding company, Group Inc. depends on dividends, distributions and other payments (e.g., payments on intercompany loans) from its subsidiaries to fund dividend payments and payments on its obligations, including debt obligations. Group Inc. has entered into derivative contracts, all of which are with affiliates, to hedge interest rate, currency, and other market risks related to its third-party borrowings and its equity investments in foreign subsidiaries. It does not enter into third-party OTC derivative transactions. Group Inc. operates in the United States with its principal office in New York, at our global headquarters, which is located at 200 West Street, New York, NY.

Summary of Group Inc.'s Resolution Strategy

We believe that the most effective resolution strategy is one that meets the combined goals of facilitating an orderly wind-down of our material operating entities while being minimally disruptive to financial markets. Our strategy is a variant on the "single point of entry" strategy, under which the parent company of a failing institution is resolved in proceedings, while leaving other key entities of the institution to continue their activities outside of bankruptcy proceedings. The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide the participating material operating and service entities with the capital and liquidity they need to support their ongoing operations and facilitate their orderly wind-down outside of proceedings. We believe this strategy would ensure the continuity of critical operations at our subsidiaries, and would result in losses being incurred by our equity holders and creditors, not by taxpayers.

[18] *As defined under Section 165 of the Dodd-Frank Act.*

Goldman Sachs

Goldman Sachs & Co. LLC

Regulatory Status	• Registered broker-dealer and futures commission merchant • Swap dealer
Incorporation	• Limited liability company organized in New York
Primary Regulators	• Securities and Exchange Commission (SEC) • Financial Industry Regulatory Authority, Inc. (FINRA) • Commodity Futures Trading Commission (CFTC)
Ownership	• Direct, wholly-owned subsidiary of Group Inc.[19]
Office Location	• New York, NY
Activities	• Investment banking • Securities trading and market making • Investment management
Funding Sources	• Unsecured funding from Group Inc. or Funding IHC • No material unsecured borrowing from other material entities • Secured borrowings from affiliates (mainly GSI)
Other Matters	• Client assets are protected under the rules of the SEC and CFTC

Summary of GSCO's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSCO with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. This allows GSCO, under our preferred resolution strategy, to remain out of proceedings while it winds itself down in an orderly manner over time. After Group Inc. enters bankruptcy proceedings, GSCO ceases to solicit new business, but retains the operational functionality needed to dispose of its assets and hedge its remaining risk positions. It continues to have access to shared services and FMUs throughout the resolution process; this prevents significant disruptions to clients holding cash or securities at GSCO, and gives GSCO the flexibility to execute asset sales and derivative unwinds at a pace that avoids fire-sales or recourse to emergency government facilities.

We expect prime brokerage and other clients of GSCO to transfer their positions to other third-party providers. All securities inventory would be sold, and derivatives unwound through early terminations, contractual maturities, portfolio sales, novations or bilateral terminations. Once this process is complete, GSCO's residual balance sheet would largely be cash, financed by a combination of debt and equity. Our strategy is designed with the goal of having sufficient liquidity and capital to pay GSCO's third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company.

[19] *Except for de minimis non-voting, non-participating interests.*

Goldman Sachs International

Regulatory Status	• Designated Investment Firm • Swap dealer
Incorporation	• Unlimited company incorporated in England and Wales
Primary Regulators	• Prudential Regulation Authority (PRA) • Financial Conduct Authority (FCA)
Ownership	• Indirect, wholly-owned subsidiary of Group Inc.
Office Location	• London, England
Activities	• Investment banking • Securities trading and market making • Investment management
Funding Sources	• Unsecured funding primarily from its parent, Goldman Sachs Group UK Limited, and Funding IHC • Unsecured funding from third parties and other material entities • Secured borrowings from affiliates (primarily other material entities)
Other Matters	• Client assets are protected under Financial Conduct Authority rules

Summary of GSI's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSI with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. Accordingly, under our preferred resolution strategy, GSI remains out of proceedings while it winds itself down in an orderly manner over time. After Group Inc. enters bankruptcy proceedings, GSI ceases to solicit new business, but it retains the operational functionality needed to dispose of its assets and hedge its remaining risk positions. Because of the steps we have taken, it continues to have access to both shared services and FMUs throughout the resolution process. This strategy prevents significant disruptions to clients holding cash or securities in accounts at GSI, and gives it the flexibility to execute asset sales and derivative unwinds at a pace that avoids fire-sales or recourse to emergency government facilities.

We expect that prime brokerage and other clients of GSI would transfer their positions to alternate third-party providers. All securities inventory would be sold, and derivatives would be unwound either through early terminations, contractual maturities, portfolio sales, novations or bilateral terminations.

After the market-making and client positions have been wound down, GSI's residual balance sheet would largely be cash, financed by a combination of debt and equity. Our strategy is designed with the goal of having sufficient liquidity and capital to pay GSI's third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company.

Goldman Sachs Bank USA

Regulatory Status	• Insured Depository Institution • New York State-chartered bank • Member of Federal Reserve System • Swap dealer
Incorporation	• GS Bank USA is chartered in New York
Primary Regulators	• Federal Reserve • FDIC • New York State Department of Financial Services • Consumer Financial Protection Bureau
Ownership	• Direct, wholly-owned subsidiary of Group Inc.
Office Location	• New York; branches elsewhere
Activities	• Deposit taking • Private bank, corporate lending and other lending • Transaction banking services • Market-making in derivative products and other related products • Extension of consumer loans and credit cards through an online platform
Funding Sources	• Deposits from third parties • Deposits from Group Inc. and Funding IHC • Unsecured funding from Group Inc. and/or Funding IHC • No material unsecured borrowing from other material entities • Secured borrowings from affiliates (primarily GSCO) • Unsecured third-party debt

Summary of GS Bank USA's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GS Bank USA with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. Accordingly, under our preferred resolution strategy, GS Bank USA remains out of proceedings while it winds itself down in an orderly manner over time. After Group Inc. enters bankruptcy proceedings, GS Bank USA ceases to solicit new business, but it retains the operational functionality needed to dispose of its assets and hedge its remaining risk positions, and it continues to have access to both shared services and FMUs throughout the resolution process. This strategy gives it the flexibility to execute asset sales and derivative unwinds at a pace that avoids fire-sales or the use of emergency government facilities.

Our projections indicate that, given the support provided by Funding IHC pursuant to the CLSA, GS Bank USA will have sufficient liquidity to give depositors access to their deposits. Certain deposits are assumed to be repaid at contractual maturity dates. Loan inventory would be sold and all uninsured deposits are assumed to be withdrawn. Derivatives would be unwound either through early terminations, contractual maturities, portfolio sales, novations or bilateral

terminations. Our strategy is designed with the goal of having sufficient capital and liquidity to pay GS Bank USA's depositors and other third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company. Accordingly, our strategy is designed with the goal of having no impact to the FDIC's Deposit Insurance Fund.

On January 19, 2021, the FDIC lifted the moratorium on Resolution Plan submissions by insured depository institutions with $100 billion or more in assets. The next submission is expected to be due in 2023 and guidance on the content requirements for the submission is expected in advance from the FDIC.

J. Aron & Company LLC

Regulatory Status	• Swap dealer
Incorporation	• Limited liability company organized in New York
Primary Regulators	• CFTC • Federal Energy Regulatory Commission
Ownership	• Direct, wholly-owned subsidiary of Group Inc.
Office Location	• New York, NY
Activities	• Currencies and commodities trading and market-making
Funding Sources	• Unsecured funding from Group Inc. • No material borrowing relationships with other material entities

Summary of JANY's Resolution Strategy

We have considered a range of options for the orderly resolution of JANY and have assessed the implications of an orderly wind-down of this entity both in and out of proceedings.

Under our preferred resolution strategy, we assume that JANY enters bankruptcy proceedings along with Group Inc. In this scenario, we assume that JANY's derivatives close out immediately following the commencement of proceedings, and that losses are incurred upon the unwind of these derivatives. At this time, JANY would also enter the orderly wind-down phase in which the entity would begin selling assets. If losses incurred on the unwinding of derivatives and disposition of assets are greater than the capital held in the entity, third-party creditors would either be made whole, or they would likely have a claim against Group Inc. pursuant to parent company transactional guarantees. We believe JANY entering proceedings would not have a systemic impact on the marketplace. Alternative options could be pursued, including a wind-down outside of proceedings.

Goldman Sachs Japan Co., Ltd.

Regulatory Status	• Regulated broker-dealer • Swap dealer
Incorporation	• Kabushiki Kaisha (Joint Stock Company) incorporated in Japan
Primary Regulators	• Japan Financial Services Agency (JFSA)
Ownership	• Indirect, wholly-owned subsidiary of Group Inc.
Office Location	• Tokyo, Japan
Activities	• Investment banking • Securities and currencies trading and market making • Client base includes corporations, financial institutions and governments
Funding Sources	• Unsecured funding primarily from Group Inc. or Funding IHC • Secured borrowing from affiliates (primarily GSI and GSCO)
Other Matters	• Client assets are protected under the rules of the JFSA

Summary of GSJCL's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSJCL with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. Accordingly, under our preferred resolution strategy, GSJCL remains out of proceedings while it winds itself down in an orderly manner over time. After Group Inc. enters bankruptcy proceedings, GSJCL ceases to solicit new business, but it retains the operational functionality needed to dispose of its assets and hedge its remaining risk positions. Because of the steps we have taken, it continues to have access to both shared services and FMUs throughout the resolution process. This strategy prevents significant disruptions to clients holding cash or securities in accounts at GSJCL, and gives it the flexibility to execute asset sales and derivative unwinds at a pace that avoids fire-sales or the use of emergency government facilities.

We expect that clients of GSJCL would transfer their positions to alternate third-party providers. All securities inventory would be sold, and derivatives would be unwound either through early terminations, contractual maturities, portfolio sales, novations or bilateral terminations.

After the market-making and client positions are wound down, GSJCL's balance sheet would largely be cash, financed by a combination of debt and equity.

Our strategy is designed with the goal of having sufficient liquidity and capital to pay GSJCL's third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company.

Goldman Sachs International Bank

Regulatory Status	• U.K. registered bank
Incorporation	• Unlimited company incorporated in England and Wales
Primary Regulators	• Prudential Regulation Authority (PRA) • Financial Conduct Authority (FCA)
Ownership	• Indirect, wholly-owned subsidiary of Group Inc.
Office Location	• London, England
Activities	• Primary dealer for U.K. government bonds • Lending and deposit taking
Funding Sources	• Deposits from third parties • Unsecured funding primarily from Funding IHC
Other Matters	• Client assets are protected under Financial Conduct Authority rules

Summary of GSIB's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSIB with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. Accordingly, under our preferred resolution strategy, GSIB remains out of proceedings while it winds itself down in an orderly manner over time. This will result in a better systemic outcome because GSIB will have flexibility to determine the optimal pace of asset sales and derivative unwinds, thereby avoiding fire-sales, disruptions for clients, and the use of emergency government facilities.

GSIB would sell all loans and securities inventory, and the limited derivatives held in the entity could be unwound either through early terminations, contractual maturities, portfolio sales, novations or bilateral terminations. Deposits would be repaid.

After the lending activities are wound down and deposits repaid, GSIB's balance sheet would largely be cash, financed by a combination of debt and equity.

Our strategy is designed with the goal of having sufficient liquidity and capital to pay GSIB's third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company.

Goldman Sachs

Goldman Sachs Bank Europe

Regulatory Status	• German registered bank • Swap dealer
Incorporation	• Societas Europaea, a public company registered in accordance with the corporate law of the European Union
Primary Regulators	• European Central Bank (ECB) • Deutsche Bundesbank • Federal Financial Supervisory Authority (BaFin)
Ownership	• Indirect, wholly-owned subsidiary of Group Inc.
Office Location	• Frankfurt, Germany; branches elsewhere
Activities	• Investment banking • Securities trading and market making • Investment management • Primary dealer for European government bonds • Lending and deposit taking
Funding Sources	• Deposits from third parties • Unsecured funding primarily from Group Inc. and Funding IHC • Unsecured funding from third parties • Secured borrowing from affiliates (primarily other material entities)

Summary of GSBE's Resolution Strategy

The CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSBE with sufficient capital to meet its applicable capital requirements plus an operating buffer, and sufficient liquidity to meet its intraday liquidity requirements and prevent a payment default. Accordingly, under our preferred resolution strategy, GSBE remains out of proceedings while it winds itself down in an orderly manner over time. After Group Inc. enters bankruptcy proceedings, GSBE ceases to solicit new business, but it retains the operational functionality needed to dispose of its assets and hedge its remaining risk positions. Because of the steps we have taken, it continues to have access to both shared services and FMUs throughout the resolution process. This strategy gives it the flexibility to execute asset sales and derivative unwinds at a pace that avoids fire-sales or recourse to emergency government facilities.

We expect that prime brokerage and other clients of GSBE would transfer their positions to alternate third-party providers. All securities inventory would be sold, and derivatives would be unwound either through early terminations, contractual maturities, portfolio sales, novations or bilateral terminations. Deposits would be repaid.

After the market-making and client positions have been wound down, GSBE's residual balance sheet would largely be cash, financed by a combination of debt and equity.

Our strategy is designed with the goal of having sufficient liquidity and capital to pay GSBE's third-party creditors in full, with any remaining amounts ultimately returned to the bankruptcy estate of the parent company.

Goldman Sachs

Goldman Sachs Asset Management, L.P.; Goldman Sachs Asset Management International

	GSAM	GSAMI
Regulatory Status	• Registered as investment advisor with SEC[20]	• Authorized and regulated by Financial Conduct Authority (FCA)
Incorporation	• Limited partnership established in Delaware	• Unlimited company incorporated in England
Ownership	• Indirect, wholly-owned subsidiary of Group Inc.	• Indirect, wholly-owned subsidiary of Group Inc.
Office Location	• New York, NY	• London, England
Activities	• Asset management and investment advisor	• Asset management and investment advisor
Funding Sources	• Unsecured funding from Funding IHC	• No material borrowing relationships with other material entities
Other Matters	• Assets under management of $977 billion	• Assets under management of $299 billion

Summary of GSAM's and GSAMI's Resolution Strategy

Our asset management business, including GSAM and GSAMI, would be prepared for sale as part of our resolution strategy. These entities, which provide asset management services and offer investment products, have limited connectivity with other affiliates and limited obstacles that would hinder a sale in whole or in part.

We would not expect these entities to require additional capital or liquidity from the parent company or Funding IHC. However, the CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide GSAM and GSAMI with sufficient capital to meet their applicable capital requirements plus an operating buffer and sufficient liquidity to prevent a payment default.

An alternative resolution approach would be to transfer the management of GSAM and GSAMI funds to other fund managers and wind these entities down in an orderly manner.

[20] *GSAM is also registered as a Commodity Pool Operator and Commodity Trading Advisor with the CFTC; in addition, it is registered with various Canadian regulators including the Ontario Securities Commission as a Non-Canadian Adviser (Investment Counsel and Portfolio Manager)*

Goldman Sachs Funding LLC (Funding IHC)

Regulatory Status	• Not prudentially regulated
Incorporation	• Limited liability company incorporated in Delaware
Ownership	• Direct, wholly-owned subsidiary of Group Inc.
Office Location	• New York, NY
Activities	• Primary funding vehicle for Group Inc., certain material operating entities and the material service entities
Funding Sources	• Pursuant to the CLSA, Funding IHC receives unsecured funding from Group Inc. via the Funding Note

Summary of Funding IHC's Resolution Strategy

Funding IHC was established in order to facilitate our preferred resolution strategy and has a role in funding our material entities in business as usual operations. We transferred to Funding IHC two types of assets that could be used to support material entities leading up to and following a Group Inc. bankruptcy filing: (i) Group Inc. GCLA and (ii) unsecured receivables that could be forgiven to recapitalize material entities (also referred to as internal TLAC). Forming Funding IHC and pre-funding it with these assets has two main benefits to our preferred resolution strategy. First, it provides incremental protection against potential creditor challenge to the provision of support of material entities leading up to a Group Inc. bankruptcy filing. Second, because Funding IHC would not enter resolution proceedings, it would have the flexibility to provide capital and liquidity support to material entities as and when needed following a Group Inc. bankruptcy filing.

Funding IHC is a party to the CLSA, which governs the relationship between Group Inc. and Funding IHC, and Funding IHC's obligation to provide capital and liquidity support to participating material entities during the runway leading up to and following Group Inc.'s bankruptcy filing. During business as usual and through a runway period, Funding IHC is required to provide liquidity to Group Inc. via the Revolver. During the runway, Funding IHC is also required to provide participating material entities with any capital required to meet their applicable regulatory requirements plus an operating buffer, and any liquidity required to maintain intraday liquidity requirements and prevent a payment failure. Upon the occurrence of a Resolution Trigger Event under the CLSA, (i) the Revolver automatically terminates, Group Inc. is obligated to use its available liquidity to repay outstanding amounts and, to the extent not repaid, outstanding amounts are automatically forgiven, (ii) Group Inc. is required to make a final contribution of GCLA and intercompany receivables to Funding IHC, and (iii) the Funding Note is automatically forgiven. In addition, Funding IHC remains contractually obligated to provide the same level of support to participating material entities as during the runway.

Our runway and resolution triggers are designed to ensure that Funding IHC maintains sufficient capital and liquidity resources to support the orderly wind-down of our participating material entities in accordance with our preferred resolution strategy.

Other Material Service Entities

In addition to Funding IHC, we have designated the following eight entities as material service entities:

Goldman Sachs Services Private Ltd: GSSE is a Private Limited Company domiciled in India and wholly owned indirectly by Group Inc. The entity operates from its office location in Bengaluru, India. GSSE is a staffing service entity employing predominantly technology and operational support employees, and it also owns facilities assets. It provides operational support services to material operating entities under a master services agreement. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Services LLC: GSPW is a Limited Liability Company domiciled in Delaware and wholly owned indirectly by Group Inc. It operates primarily from its offices in New Jersey, New York and Utah. GSPW is a staffing service entity employing primarily technology and operational support employees and providing operational support services to material operating entities under a master services agreement. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Property Management: GSPM is a Private Unlimited Company domiciled in England and wholly owned indirectly by Group Inc. It operates from its office location in London. GSPM is a property management company that provides operating entities with access to the technology (e.g. data servers, computer equipment, etc.) and facilities assets that it owns. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Property Management USA LLC: GPMU is a Limited Liability Company, domiciled in Delaware and wholly owned indirectly by Group Inc. It operates from its office location in New Jersey. GPMU is a property management company that provides operating entities with access to the technology assets (e.g. data servers, computer equipment, etc.) that it owns. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Services (Asia) Limited: GHKL is a Private Limited Company domiciled in Hong Kong and wholly owned indirectly by Group Inc. It operates from its office location in Hong Kong. GHKL is a staffing service entity that employs primarily technology and operational support employees and provides operational support services to material operating entities under a master services agreement; it is also a property management company that provides operating entities with access to the technology (e.g. data servers, computer equipment, etc.) and facilities assets that it owns. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Services (Singapore) Pte. Ltd.: GPMS is a Private Limited Company domiciled in Singapore and wholly owned indirectly by Group Inc. It operates from its office location in Singapore. GPMS is a staffing service entity that employs primarily technology and operational support employees and provides operational support services to material operating entities under a master services agreement; it is also a property management company that provides operating entities with access to the technology assets (e.g. data servers, computer equipment, etc.) that it owns. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs (UK) Svc. Limited: GSUL is a Private Limited Company domiciled in England and wholly owned indirectly by Group Inc. It operates from its office location in London. GSUL is a staffing service entity employing primarily technology and operational support employees and provides operational support services to material operating entities under a master services agreement; the entity also provides operating entities with access to office space it has leased. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Goldman Sachs Japan Services Co., Ltd.: GSJS is a Kabushiki Kaisha Company domiciled in Japan and wholly owned indirectly by Group Inc. The entity operates from its office location in Tokyo. GSJS is a staffing service entity that employs primarily technology support employees, and provides operational support services to material operating entities under a master services agreement; it is also a property management company that provides operating entities with access to the office space it has leased and technology assets (e.g. data servers, computer equipment, etc.) that it owns. The entity earns revenue by charging its operating costs to operating entities with a mark-up, as applicable.

Summary of Resolution Strategy for our Material Service Entities

We would not expect any of these eight material service entities to require additional capital or liquidity from either the parent company or Funding IHC, because we maintain six months' working capital at each of them, and because the Service Level Agreements "SLAs" require these entities to be paid in a timely manner for services they provide to material operating entities. Nevertheless, the CLSA requires Funding IHC, both before and after a Group Inc. bankruptcy filing, to provide these material service entities with sufficient capital or liquidity to maintain positive equity and prevent a payment default. As the material operating entities gradually unwind their positions, the material service entities will reduce their corresponding level of support. Under our preferred resolution strategy, our material service entities remain in operation during the wind-down period, and they have sufficient liquidity to pay their creditors in full. Once their services are no longer required, they are wound down and any cash that remains on their balance sheet is returned to the parent company's bankruptcy estate.

SI.3. Summary Financial Information: Assets, Liabilities, Capital and Funding

Set out on the following pages is financial information extracted from our 2020 Form 10-K[21].

Please see Part II, Items 7 and 8 of our 2020 Form 10-K for management's discussion and analysis of financial condition and results of operations, and the notes to these consolidated financial statements, respectively.

- Set forth below are the consolidated statements of earnings from our 2020 Form 10-K[22]:

	Year Ended December		
in millions, except per share amounts	**2020**	2019	2018
Revenues			
Investment banking	**$ 9,141**	$ 6,798	$ 7,430
Investment management	**6,923**	6,189	6,590
Commissions and fees	**3,548**	2,988	3,199
Market making	**15,546**	10,157	9,724
Other principal transactions	**4,651**	6,052	5,906
Total non-interest revenues	**39,809**	32,184	32,849
Interest income	**13,689**	21,738	19,679
Interest expense	**8,938**	17,376	15,912
Net interest income	**4,751**	4,362	3,767
Total net revenues	**44,560**	36,546	36,616
Provision for credit losses	**3,098**	1,065	674
Operating expenses			
Compensation and benefits	**13,309**	12,353	12,328
Transaction based	**4,141**	3,513	3,492
Market development	**401**	739	740
Communications and technology	**1,347**	1,167	1,023
Depreciation and amortization	**1,902**	1,704	1,328
Occupancy	**960**	1,029	809
Professional fees	**1,306**	1,316	1,214
Other expenses	**5,617**	3,077	2,527
Total operating expenses	**28,983**	24,898	23,461
Pre-tax earnings	**12,479**	10,583	12,481
Provision for taxes	**3,020**	2,117	2,022
Net earnings	**9,459**	8,466	10,459
Preferred stock dividends	**544**	569	599
Net earnings applicable to common shareholders	**$ 8,915**	$ 7,897	$ 9,860
Earnings per common share			
Basic	**$ 24.94**	$ 21.18	$ 25.53
Diluted	**$ 24.74**	$ 21.03	$ 25.27
Average common shares			
Basic	**356.4**	371.6	385.4
Diluted	**360.3**	375.5	390.2

[21] As this section is an extract from our 2020 Form 10-K, definitions used in this section may differ from those used elsewhere in this document.
[22] The notes accompanying our consolidated financial statements in our 2020 Form 10-K are an integral part of our consolidated financial statements.

- Set forth below are the consolidated balance sheets from our 2020 Form 10-K[23]:

	As of December	
$ in millions	**2020**	2019
Assets		
Cash and cash equivalents	**$ 155,842**	$ 133,546
Collateralized agreements:		
Securities purchased under agreements to resell (at fair value)	**108,060**	85,691
Securities borrowed (includes **$28,898** and $26,279 at fair value)	**142,160**	136,071
Customer and other receivables (includes **$82** and $53 at fair value)	**121,331**	74,605
Trading assets (at fair value and includes **$69,031** and $66,605 pledged as collateral)	**393,630**	355,332
Investments (includes **$82,778** and $57,827 at fair value, and **$13,375** and $10,968 pledged as collateral)	**88,445**	63,937
Loans (net of allowance of **$3,874** and $1,441, and includes **$13,625** and $14,386 at fair value)	**116,115**	108,904
Other assets	**37,445**	34,882
Total assets	**$ 1,163,028**	$ 992,968
Liabilities and shareholders' equity		
Deposits (includes **$16,176** and $17,765 at fair value)	**$ 259,962**	$ 190,019
Collateralized financings:		
Securities sold under agreements to repurchase (at fair value)	**126,571**	117,756
Securities loaned (includes **$1,053** and $714 at fair value)	**21,621**	14,985
Other secured financings (includes **$24,126** and $18,071 at fair value)	**25,755**	19,277
Customer and other payables	**190,658**	174,817
Trading liabilities (at fair value)	**153,727**	108,835
Unsecured short-term borrowings (includes **$26,750** and $26,007 at fair value)	**52,870**	48,287
Unsecured long-term borrowings (includes **$40,911** and $43,661 at fair value)	**213,481**	207,076
Other liabilities (includes **$263** and $150 at fair value)	**22,451**	21,651
Total liabilities	**1,067,096**	902,703
Commitments, contingencies and guarantees		
Shareholders' equity		
Preferred stock; aggregate liquidation preference of **$11,203** and $11,203	**11,203**	11,203
Common stock; **901,692,039** and 896,782,650 shares issued, and **344,088,725** and 347,343,184 shares outstanding	**9**	9
Share-based awards	**3,468**	3,195
Nonvoting common stock; no shares issued and outstanding	**–**	–
Additional paid-in capital	**55,679**	54,883
Retained earnings	**112,947**	106,465
Accumulated other comprehensive loss	**(1,434)**	(1,484)
Stock held in treasury, at cost; **557,603,316** and 549,439,468 shares	**(85,940)**	(84,006)
Total shareholders' equity	**95,932**	90,265
Total liabilities and shareholders' equity	**$ 1,163,028**	$ 992,968

[23] The notes accompanying our consolidated financial statements in our 2020 Form 10-K are an integral part of our consolidated financial statements.

Equity Capital Management

We determine the appropriate amount and composition of our equity capital by considering multiple factors, including our current and future regulatory capital requirements, the results of our capital planning and stress testing process, the results of resolution capital models and other factors, such as rating agency guidelines, subsidiary capital requirements, the business environment and conditions in the financial markets.

We manage our capital requirements and the levels of our capital usage principally by setting limits on the balance sheet and/or limits on risk, in each case at both the firmwide and business levels.

We principally manage the level and composition of our equity capital through issuances and repurchases of our common stock.

We may issue, redeem or repurchase our preferred stock, junior subordinated debt issued to trusts, and other subordinated debt or other forms of capital as business conditions warrant. Prior to such redemptions or repurchases, we must receive approval from the FRB.

Consolidated Regulatory Capital

The FRB is the primary regulator of Group Inc., a BHC under the U.S. Bank Holding Company Act of 1956 and a financial holding company under amendments to this Act. We are subject to consolidated regulatory capital requirements which are calculated in accordance with the regulations of the FRB (Capital Framework).

The capital requirements are expressed as risk-based capital and leverage ratios that compare measures of regulatory capital to risk-weighted assets ("RWAs"), average assets and off-balance sheet exposures. Failure to comply with these capital requirements could result in restrictions being imposed by our regulators and could limit our ability to repurchase shares, pay dividends and make certain discretionary compensation payments. Our capital levels are also subject to qualitative judgments by the regulators about components of capital, risk weightings and other factors. Furthermore, certain of our subsidiaries are subject to separate regulations and capital requirements.

Capital Framework

The regulations under the Capital Framework are largely based on the Basel Committee on Banking Supervision’s (Basel Committee) capital framework for strengthening international capital standards (Basel III) and also implement certain provisions of the Dodd-Frank Act. Under the Capital Framework, we are an “Advanced approach” banking organization and has been designated as a global systemically important bank ("G-SIB").

The Capital Framework includes the minimum risk-based capital and the capital conservation buffer requirements. The buffer must consist entirely of capital that qualifies as Common Equity Tier 1 ("CET1") capital.

Prior to October 1, 2020, the capital conservation buffer requirements under both the Standardized and Advanced Capital Rules were comprised of (i) a 2.5% buffer, (ii) the countercyclical capital buffer and (iii) the G-SIB surcharge. Beginning on October 1, 2020, the 2.5% buffer was replaced with the stress capital buffer under the Standardized Capital Rules. The components of the capital conservation buffer requirements under the Advanced Capital Rules remain unchanged.

We calculate our CET1 capital, Tier 1 capital and Total capital ratios in accordance with the Standardized and Advanced Capital Rules. Beginning on October 1, 2020, each of the ratios calculated under the Standardized and Advanced Capital Rules must meet the respective capital requirements. Prior to October 1, 2020, the lower of each risk-based capital ratio calculated under the Standardized and Advanced Capital Rules was the ratio against which our compliance with our risk-based capital requirements was assessed. Under the Capital Framework, we are also subject to leverage requirements which consist of a minimum Tier 1 leverage ratio and a minimum supplementary leverage ratio ("SLR"), as well as the SLR buffer.

Consolidated Regulatory Capital Requirements

Risk-Based Capital Ratios. The table below presents the risk-based capital requirements.

	Standardized	Advanced
As of December 2020		
CET1 capital ratio	**13.6 %**	**9.5 %**
Tier 1 capital ratio	**15.1 %**	**11.0 %**
Total capital ratio	**17.1 %**	**13.0 %**
As of December 2019		
CET1 capital ratio	9.5 %	9.5 %
Tier 1 capital ratio	11.0 %	11.0 %
Total capital ratio	13.0 %	13.0 %

In the table above:

- As of December 2020, under both the Standardized and Advanced Capital Rules, the CET1 capital ratio requirement includes a minimum of 4.5%, the Tier 1 capital ratio requirement includes a minimum of 6.0% and the Total capital ratio requirement includes a minimum of 8.0%. These requirements also include the capital conservation buffer requirements, consisting of the G-SIB surcharge of 2.5% (Method 2) and the countercyclical capital buffer, which the FRB has set to zero percent. In addition, the capital conservation buffer requirements include the stress capital buffer of 6.6% under the Standardized Capital Rules and a buffer of 2.5% under the Advanced Capital Rules.

Goldman Sachs

- As of December 2019, under both the Standardized and Advanced Capital Rules, the CET1 capital ratio requirement includes a minimum of 4.5%, the Tier 1 capital ratio requirement includes a minimum of 6.0% and the Total capital ratio requirement includes a minimum of 8.0%. These requirements also include the capital conservation buffer requirements, consisting of a buffer of 2.5%, the G-SIB surcharge of 2.5% (Method 2) and the countercyclical capital buffer, which the FRB has set to zero percent.

- The G-SIB surcharge is updated annually based on financial data from the prior year and is generally applicable for the following year. The G-SIB surcharge is calculated using two methodologies, the higher of which is reflected in our risk-based capital requirements. The first calculation (Method 1) is based on the Basel Committee's methodology which, among other factors, relies upon measures of the size, activity and complexity of each G-SIB. The second calculation (Method 2) uses similar inputs but includes a measure of reliance on short-term wholesale funding.

The table below presents information about risk-based capital ratios.

$ in millions	Standardized	Advanced
As of December 2020		
CET1 capital	**$ 81,641**	**$ 81,641**
Tier 1 capital	**$ 92,730**	**$ 92,730**
Tier 2 capital	**$ 15,424**	**$ 13,279**
Total capital	**$ 108,154**	**$ 106,009**
RWAs	**$ 554,162**	**$ 609,750**
CET1 capital ratio	**14.7 %**	**13.4 %**
Tier 1 capital ratio	**16.7 %**	**15.2 %**
Total capital ratio	**19.5 %**	**17.4 %**
As of December 2019		
CET1 capital	$ 74,850	$ 74,850
Tier 1 capital	$ 85,440	$ 85,440
Tier 2 capital	$ 14,925	$ 13,473
Total capital	$ 100,365	$ 98,913
RWAs	$ 563,575	$ 544,653
CET1 capital ratio	13.3 %	13.7 %
Tier 1 capital ratio	15.2 %	15.7 %
Total capital ratio	17.8 %	18.2 %

In the table above:

- As of December 2019, the lower of the Standardized or Advanced ratios were the ratios against which our compliance with the capital requirements was assessed under the risk-based Capital Rules, and therefore, the Standardized ratios applied to us.

- As permitted by the FRB, we have elected to temporarily delay the estimated effects of adopting the Current Expected Credit Losses ("CECL") accounting standard on regulatory capital until January 2022 and to subsequently phase-in the effects through January 2025. In addition, during 2020 and 2021, we have elected to increase regulatory capital by 25% of the increase in the allowance for credit losses since January 1, 2020, as permitted by the rules issued by the FRB. The impact of this increase will also be phased in over the three-year transition period. Reflecting the full impact of CECL as of December 2020 would not have had a material impact on our capital ratios.

Leverage Ratios. The table below presents the leverage requirements.

	Requirements
Tier 1 leverage ratio	**4.0 %**
SLR	**5.0 %**

In the table above, the SLR requirement of 5% includes a minimum of 3% and a 2% buffer applicable to G-SIBs.

The table below presents information about leverage ratios.

	For the Three Months Ended or as of December	
$ in millions	**2020**	2019
Tier 1 capital	**$ 92,730**	$ 85,440
Average total assets	**$ 1,152,785**	$ 983,909
Deductions from Tier 1 capital	**(4,948)**	(5,275)
Average adjusted total assets	**1,147,837**	978,634
Impact of SLR temporary amendment	**(202,748)**	–
Average off-balance sheet exposures	**387,848**	396,833
Total leverage exposure	**$ 1,332,937**	$ 1,375,467
Tier 1 leverage ratio	**8.1 %**	8.7 %
SLR	**7.0 %**	6.2 %

In the table above:

- Average total assets represents the average daily assets for the quarter and, for the three months ended December 2020, reflected the impact of CECL transition.
- Impact of SLR temporary amendment represents the exclusion of average holdings of U.S. Treasury securities and average deposits at the Federal Reserve as permitted by the FRB. The impact of this temporary amendment was an increase in our SLR by approximately 1.0 percentage points for the three months ended December 2020. This temporary amendment was effective through March 31, 2021.
- Average off-balance sheet exposures represents the monthly average and consists of derivatives, securities financing transactions, commitments and guarantees.
- Tier 1 leverage ratio is calculated as Tier 1 capital divided by average adjusted total assets.
- SLR is calculated as Tier 1 capital divided by total leverage exposure.

Goldman Sachs

Risk-Based Capital. The table below presents information about risk-based capital.

	As of December	
$ in millions	**2020**	2019
Common shareholders' equity	**$ 84,729**	$ 79,062
Impact of CECL transition	**1,126**	–
Deduction for goodwill	**(3,652)**	(3,529)
Deduction for identifiable intangible assets	**(601)**	(604)
Other adjustments	**39**	(79)
CET1 capital	**81,641**	74,850
Preferred stock	**11,203**	11,203
Deduction for investments in covered funds	**(106)**	(610)
Other adjustments	**(8)**	(3)
Tier 1 capital	**$ 92,730**	$ 85,440
Standardized Tier 2 and Total capital		
Tier 1 capital	**$ 92,730**	$ 85,440
Qualifying subordinated debt	**12,196**	12,847
Junior subordinated debt	**188**	284
Allowance for credit losses	**3,095**	1,802
Other adjustments	**(55)**	(8)
Standardized Tier 2 capital	**15,424**	14,925
Standardized Total capital	**$ 108,154**	$ 100,365
Advanced Tier 2 and Total capital		
Tier 1 capital	**$ 92,730**	$ 85,440
Standardized Tier 2 capital	**15,424**	14,925
Allowance for credit losses	**(3,095)**	(1,802)
Other adjustments	**950**	350
Advanced Tier 2 capital	**13,279**	13,473
Advanced Total capital	**$ 106,009**	$ 98,913

In the table above:

- Impact of CECL transition represents the impact of adoption as of January 1, 2020 and the impact of increasing regulatory capital by 25% of the increase in allowance for credit losses since January 1, 2020. The allowance for credit losses within Standardized and Advanced Tier 2 capital also reflects the impact of these adjustments.

- Deduction for goodwill was net of deferred tax liabilities of $680 million as of December 2020 and $667 million as of December 2019.

- Deduction for identifiable intangible assets was net of deferred tax liabilities of $29 million as of December 2020 and $37 million as of December 2019.

- Deduction for investments in covered funds represents our aggregate investments in applicable covered funds, excluding investments that are subject to an extended conformance period.

- Other adjustments within CET1 capital and Tier 1 capital primarily include credit valuation adjustments on derivative liabilities, the overfunded portion of our defined benefit pension plan obligation net of associated deferred tax liabilities, disallowed deferred tax assets, debt valuation adjustments and other required credit risk-based deductions. Other adjustments within Advanced Tier 2 capital include eligible credit reserves.

- Qualifying subordinated debt is subordinated debt issued by Group Inc. with an original maturity of five years or greater. The outstanding amount of subordinated debt qualifying for Tier 2 capital is reduced upon reaching a remaining maturity of five years.

- Junior subordinated debt is debt issued to a Trust. As of December 2020, 20% of this debt was included in Tier 2 capital and 80% was phased out of regulatory capital. As of December 2019, 30% of this debt was included in Tier 2 capital and 70% was phased out of regulatory capital. Junior subordinated debt is reduced by the amount of Trust Preferred securities purchased by us and will be fully phased out of Tier 2 capital by 2022 at a rate of 10% per year.

The table below presents changes in CET1 capital, Tier 1 capital and Tier 2 capital.

$ in millions	Standardized	Advanced
Year Ended December 2020		
CET1 capital		
Beginning balance	**$ 74,850**	**$ 74,850**
Change in:		
Common shareholders' equity	**5,667**	**5,667**
Impact of CECL transition	**1,126**	**1,126**
Deduction for goodwill	**(123)**	**(123)**
Deduction for identifiable intangible assets	**3**	**3**
Other adjustments	**118**	**118**
Ending balance	**$ 81,641**	**$ 81,641**
Tier 1 capital		
Beginning balance	**$ 85,440**	**$ 85,440**
Change in:		
CET1 capital	**6,791**	**6,791**
Deduction for investments in covered funds	**504**	**504**
Other adjustments	**(5)**	**(5)**
Ending balance	**$ 92,730**	**$ 92,730**
Tier 2 capital		
Beginning balance	**14,925**	**13,473**
Change in:		
Qualifying subordinated debt	**(651)**	**(651)**
Junior subordinated debt	**(96)**	**(96)**
Allowance for credit losses	**1,293**	**–**
Other adjustments	**(47)**	**553**
Ending balance	**15,424**	**13,279**
Total capital	**$ 108,154**	**$ 106,009**
Year Ended December 2019		
CET1 capital		
Beginning balance	$ 73,116	$ 73,116
Change in:		
Common shareholders' equity	80	80
Deduction for goodwill	(432)	(432)
Deduction for identifiable intangible assets	(307)	(307)
Other adjustments	2,393	2,393
Ending balance	$ 74,850	$ 74,850
Tier 1 capital		
Beginning balance	$ 83,702	$ 83,702
Change in:		
CET1 capital	1,734	1,734
Deduction for investments in covered funds	5	5
Other adjustments	(1)	(1)
Ending balance	$ 85,440	$ 85,440
Tier 2 capital		
Beginning balance	14,926	13,743
Change in:		
Qualifying subordinated debt	(300)	(300)
Junior subordinated debt	(158)	(158)
Allowance for credit losses	449	–
Other adjustments	8	188
Ending balance	14,925	13,473
Total capital	$ 100,365	$ 98,913

RWAs. RWAs are calculated in accordance with both the Standardized and Advanced Capital Rules.

Credit Risk

Credit RWAs are calculated based on measures of exposure, which are then risk weighted under the Standardized and Advanced Capital Rules:

- The Standardized Capital Rules apply prescribed risk-weights, which depend largely on the type of counterparty. The exposure measure for derivatives and securities financing transactions are based on specific formulas which take certain factors into consideration.
- Under the Advanced Capital Rules, we compute risk-weights for wholesale and retail credit exposures in accordance with the Advanced Internal Ratings-Based approach. The exposure measures for derivatives and securities financing transactions are computed utilizing internal models.
- For both Standardized and Advanced credit RWAs, the risk-weights for securitizations and equities are based on specific required formulaic approaches.

Market Risk

RWAs for market risk in accordance with the Standardized and Advanced Capital Rules are generally consistent. Market RWAs are calculated based on measures of exposure which include the following:

- Value-at-Risk ("VaR") is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, due to adverse market movements over a defined time horizon with a specified confidence level.

  For both risk management purposes and regulatory capital calculations, we use a single VaR model which captures risks, including those related to interest rates, equity prices, currency rates and commodity prices. However, VaR used for risk management purposes differs from VaR used for regulatory capital requirements (regulatory VaR) due to differences in time horizons, confidence levels and the scope of positions on which VaR is calculated. For risk management purposes, a 95% one-day VaR is used, whereas for regulatory capital requirements, a 99% 10-day VaR is used to determine Market RWAs and a 99% one-day VaR is used to determine regulatory VaR exceptions. In addition, the daily net revenues used to determine risk management VaR exceptions (i.e., comparing the daily net revenues to the VaR measure calculated as of the end of the prior business day) include intraday activity, whereas the Capital Framework requires that intraday activity be excluded from daily net revenues when calculating regulatory VaR exceptions. Intraday activity includes bid/offer net revenues, which are more likely than not to be positive by their nature. As a result, there may be

differences in the number of VaR exceptions and the amount of daily net revenues calculated for regulatory VaR compared to the amounts calculated for risk management VaR.

Our positional losses observed on a single day exceeded its 99% one-day regulatory VaR on six occasions during 2020 (all of which occurred during March 2020) and exceeded its 99% one-day regulatory VaR on one occasion during 2019. As permitted by the FRB, we have permanently excluded the six exceptions that occurred in March 2020 in determining our VaR multiplier used to calculate Market RWAs;

- Stressed VaR is the potential loss in value of trading assets and liabilities, as well as certain investments, loans, and other financial assets and liabilities accounted for at fair value, during a period of significant market stress;
- Incremental risk is the potential loss in value of non-securitized positions due to the default or credit migration of issuers of financial instruments over a one-year time horizon;
- Comprehensive risk is the potential loss in value, due to price risk and defaults, within our credit correlation positions; and
- Specific risk is the risk of loss on a position that could result from factors other than broad market movements, including event risk, default risk and idiosyncratic risk. The standardized measurement method is used to determine specific risk RWAs, by applying supervisory defined risk-weighting factors after applicable netting is performed.

Operational Risk

Operational RWAs are only required to be included under the Advanced Capital Rules. We utilize an internal risk-based model to quantify Operational RWAs.

Liquidity Risk Management

Overview

Liquidity risk is the risk that we will be unable to fund ourselves or meet our liquidity needs in the event of firm-specific, broader industry or market liquidity stress events. We have in place a comprehensive and conservative set of liquidity and funding policies. Our principal objective is to be able to fund ourselves and to enable our core businesses to continue to serve clients and generate revenues, even under adverse circumstances.

Treasury, which reports to our chief financial officer, has primary responsibility for developing, managing and executing our liquidity and funding strategy within our risk appetite.

Liquidity Risk, which is independent of our revenue-producing units and Treasury, and reports to our chief risk officer, has primary responsibility for assessing, monitoring and managing our liquidity risk through firmwide oversight across our global businesses and the establishment of stress testing and limits frameworks.

Liquidity Risk Management Principles

We manage liquidity risk according to three principles: (i) hold sufficient excess liquidity in the form of GCLA to cover outflows during a stressed period, (ii) maintain appropriate Asset-Liability Management and (iii) maintain a viable Contingency Funding Plan.

GCLA. GCLA is liquidity that we maintain to meet a broad range of potential cash outflows and collateral needs in a stressed environment. A primary liquidity principle is to pre-fund our estimated potential cash and collateral needs during a liquidity crisis and hold this liquidity in the form of unencumbered, highly liquid securities and cash. We believe that the securities held in our GCLA would be readily convertible to cash in a matter of days, through liquidation, by entering into repurchase agreements or from maturities of resale agreements, and that this cash would allow us to meet immediate obligations without needing to sell other assets or depend on additional funding from credit-sensitive markets.

Our GCLA reflects the following principles:

- The first days or weeks of a liquidity crisis are the most critical to a company's survival;
- Focus must be maintained on all potential cash and collateral outflows, not just disruptions to financing flows. Our businesses are diverse, and our liquidity needs are determined by many factors, including market movements, collateral requirements and client commitments, all of which can change dramatically in a difficult funding environment;
- During a liquidity crisis, credit-sensitive funding, including unsecured debt, certain deposits and some types of secured financing agreements, may be unavailable, and the terms (e.g., interest rates, collateral provisions and tenor) or availability of other types of secured financing may change and certain deposits may be withdrawn; and
- As a result of our policy to pre-fund liquidity that we estimate may be needed in a crisis, we hold more unencumbered securities and have larger funding balances than our businesses would otherwise require. We believe that our liquidity is stronger with greater balances of highly liquid unencumbered securities, even though it increases our total assets and our funding costs.

We maintain our GCLA across Group Inc., Funding IHC and material operating entities, asset types and FMUs to provide us with sufficient operating liquidity to ensure timely settlement in all major markets, even in a difficult funding environment. In addition to the GCLA, we maintain cash balances and securities in several of our other entities, primarily for use in specific currencies, entities or jurisdictions where we do not have immediate access to parent company liquidity.

Asset-Liability Management. Our liquidity risk management policies are designed to ensure we have a sufficient amount of financing, even when funding markets experience persistent stress. We manage the maturities and diversity of our funding across markets, products and counterparties, and seek to maintain a diversified funding profile with an appropriate tenor, taking into consideration the characteristics and liquidity profile of our assets.

Our approach to asset-liability management includes:

- Conservatively managing the overall characteristics of our funding book, with a focus on maintaining long-term, diversified sources of funding in excess of our current requirements;
- Actively managing and monitoring our asset base, with particular focus on the liquidity, holding period and ability to fund assets on a secured basis. We assess our funding requirements and our ability to liquidate assets in a stressed environment while appropriately managing risk. This enables us to determine the most appropriate funding products and tenors; and
- Raising secured and unsecured financing that has a long tenor relative to the liquidity profile of our assets. This reduces the risk that our liabilities will come due in advance of our ability to generate liquidity from the sale of our assets. Because we maintain a highly liquid balance sheet, the holding period of certain of our assets may be materially shorter than their contractual maturity dates.

Our goal is to ensure that we maintain sufficient liquidity to fund our assets and meet our contractual and contingent obligations in normal times, as well as during periods of market stress. Through our dynamic balance sheet management process, we use actual and projected asset balances to determine secured and unsecured funding requirements. Funding plans are reviewed and approved by the Firmwide Asset Liability Committee. In addition, our independent risk oversight and control functions analyze, and the Firmwide Asset Liability Committee reviews, our consolidated total capital position (unsecured long-term borrowings plus total shareholders' equity) so that we maintain a level of long-term funding that is sufficient to meet our long-term financing requirements. In a liquidity crisis, we would first use our GCLA in order to avoid reliance on asset sales (other than our GCLA). However, we recognize that orderly asset sales may be prudent or necessary in a severe or persistent liquidity crisis.

Subsidiary Funding Policies

The majority of our unsecured funding is raised by Group Inc., which provides the necessary funds to Funding IHC and other subsidiaries, some of which are regulated, to meet their asset financing, liquidity and capital requirements. In addition, Group Inc. provides its regulated subsidiaries with the necessary capital to meet their regulatory requirements. The benefits of this approach to subsidiary funding are enhanced control and greater flexibility to meet the funding requirements of our subsidiaries. Funding is also raised at the subsidiary level through a variety of products, including deposits, secured funding and unsecured borrowings.

Our intercompany funding policies assume that a subsidiary's funds or securities are not freely available to its parent, Funding IHC or other subsidiaries unless (i) legally provided for and (ii) there are no additional regulatory, tax or other restrictions. In particular, many of our subsidiaries are subject to laws that authorize regulatory bodies to block or reduce the flow of funds from those subsidiaries to Group Inc. or Funding IHC. Regulatory action of that kind could impede access to funds that Group Inc. needs to make payments on its obligations. Accordingly, we assume that the capital provided to our regulated subsidiaries is not available to Group Inc. or other subsidiaries and any other financing provided to our regulated subsidiaries is not available to Group Inc. or Funding IHC until the maturity of such financing.

Group Inc. has provided substantial amounts of equity and subordinated indebtedness, directly or indirectly, to its regulated subsidiaries.

Contingency Funding Plan. We maintain a contingency funding plan to provide a framework for analyzing and responding to a liquidity crisis situation or periods of market stress. Our contingency funding plan outlines a list of potential risk factors, key reports and metrics that are reviewed on an ongoing basis to assist in assessing the severity of, and managing through, a liquidity crisis and/or market dislocation. The contingency funding plan also describes in detail our potential responses if our assessments indicate that we have entered a liquidity crisis, which include pre-funding for what we estimate will be our potential cash and collateral needs, as well as utilizing secondary sources of liquidity. Mitigants and action items to address specific risks which may arise are also described and assigned to individuals responsible for execution.

The contingency funding plan identifies key groups of individuals and their responsibilities, which include fostering effective coordination, control and distribution of information, implementing liquidity maintenance activities and managing internal and external communication, all of which are critical in the management of a crisis or period of market stress.

Stress Tests

In order to determine the appropriate size of our GCLA, we model liquidity outflows over a range of scenarios and time horizons. One of our primary internal liquidity risk models, referred to as the Modeled Liquidity Outflow, quantifies our liquidity risks over a 30-day stress scenario. We also consider other factors, including, but not limited to, an assessment of our potential intraday liquidity needs through an additional internal liquidity risk model, referred to as the Intraday Liquidity Model, the results of our long-term stress testing models, our resolution liquidity models and other applicable regulatory requirements and a qualitative assessment of our condition, as well as the financial markets. The results of the Modeled Liquidity Outflow, the Intraday Liquidity Model, the long-term stress testing models and the resolution liquidity models are reported to senior management on a regular basis. We also perform firmwide stress tests.

Modeled Liquidity Outflow. Our Modeled Liquidity Outflow is based on conducting multiple scenarios that include combinations of market-wide and firm-specific stress. These scenarios are characterized by the following qualitative elements:

- Severely challenged market environments, which includes low consumer and corporate confidence, financial and political instability, and adverse changes in market values, including potential declines in equity markets and widening of credit spreads; and

- A firm-specific crisis potentially triggered by material losses, reputational damage, litigation and/or a ratings downgrade.

The following are key modeling elements of our Modeled Liquidity Outflow:

- Liquidity needs over a 30-day scenario;

- A two-notch downgrade of our long-term senior unsecured credit ratings;

- Changing conditions in funding markets, which limit our access to unsecured and secured funding;

- No support from additional government funding facilities. Although we have access to various central bank funding programs, we do not assume reliance on additional sources of funding in a liquidity crisis; and

- A combination of contractual outflows, such as upcoming maturities of unsecured debt, and contingent outflows, including, but not limited to, the withdrawal of customer credit balances in our prime brokerage business, increase in variation margin requirements due to adverse changes in the value of our exchange-traded and OTC-cleared derivatives, and withdrawals of deposits that have no contractual maturity.

Intraday Liquidity Model. Our Intraday Liquidity Model measures our intraday liquidity needs using a scenario analysis characterized by the same qualitative elements as our Modeled Liquidity Outflow. The model assesses the risk of increased intraday liquidity requirements during a scenario where access to sources of intraday liquidity may become constrained.

Long-Term Stress Testing. We utilize longer-term stress tests to take a forward view on our liquidity position through prolonged stress periods in which we experience a severe liquidity stress and recover in an environment that continues to be challenging. We are focused on ensuring conservative asset-liability management to prepare for a prolonged period of potential stress, seeking to maintain a diversified funding profile with an appropriate tenor, taking into consideration the characteristics and liquidity profile of our assets.

Resolution Liquidity Models. In connection with our resolution planning efforts, we have established our Resolution Liquidity Adequacy and Positioning framework, which estimates liquidity needs of our major subsidiaries in a stressed environment. The liquidity needs are measured using our Modeled Liquidity Outflow assumptions and include certain additional inter-affiliate exposures. We have also established our Resolution Liquidity Execution Need framework, which measures the liquidity needs of our major subsidiaries to stabilize and wind-down following a Group Inc. bankruptcy filing in accordance with our preferred resolution strategy.

In addition, we have established a triggers and alerts framework, which is designed to provide the Board with information needed to make an informed decision on whether and when to commence bankruptcy proceedings for Group Inc.

Limits

We use liquidity risk limits at various levels and across liquidity risk types to manage the size of our liquidity exposures. Limits are measured relative to acceptable levels of risk given our liquidity risk tolerance.

Limits are monitored by Treasury and Liquidity Risk. Liquidity Risk is responsible for identifying and escalating to senior management and/or the appropriate risk committee, on a timely basis, instances where limits have been exceeded.

GCLA and Unencumbered Metrics

GCLA. We strictly limit our GCLA to a narrowly defined list of securities and cash because they are highly liquid, even in a difficult funding environment. We do not include other potential sources of excess liquidity in our GCLA, such as less liquid unencumbered securities or committed credit facilities.

The table below presents information about our GCLA.

	Average for the			
	Three Months Ended December		Year Ended December	
$ in millions	**2020**	2019	**2020**	2019
Denomination				
U.S. dollar	**$ 190,735**	$ 150,455	**$ 181,949**	$ 146,751
Non-U.S. dollar	**107,106**	86,661	**101,182**	86,899
Total	**$ 297,841**	$ 237,116	**$ 283,131**	$ 233,650
Asset Class				
Overnight cash deposits	**$ 108,345**	$ 66,327	**$ 100,489**	$ 68,733
U.S. government obligations	**125,060**	99,798	**113,531**	94,500
U.S. agency obligations	**7,059**	14,081	**12,017**	14,005
Non-U.S. government obligations	**57,377**	56,910	**57,094**	56,412
Total	**$ 297,841**	$ 237,116	**$ 283,131**	$ 233,650
Entity Type				
Group Inc. and Funding IHC	**$ 36,737**	$ 39,104	**$ 41,705**	$ 40,043
Major broker-dealer subsidiaries	**100,891**	92,835	**99,798**	95,281
Major bank subsidiaries	**160,213**	105,177	**141,628**	98,326
Total	**$ 297,841**	$ 237,116	**$ 283,131**	$ 233,650

In the table above:

- The U.S. dollar-denominated GCLA consists of (i) unencumbered U.S. government and agency obligations (including highly liquid U.S. agency mortgage-backed obligations), all of which are eligible as collateral in Federal Reserve open market operations and (ii) certain overnight U.S. dollar cash deposits.

- The non-U.S. dollar-denominated GCLA consists of non-U.S. government obligations (only unencumbered German, French, Japanese and U.K. government obligations) and certain overnight cash deposits in highly liquid currencies.

We maintain our GCLA to enable us to meet current and potential liquidity requirements of our parent company, Group Inc., and its subsidiaries. Our Modeled Liquidity Outflow and Intraday Liquidity Model incorporate a requirement for Group Inc., as well as a standalone requirement for each material operating entity. Funding IHC is required to provide the necessary liquidity to Group Inc. during the ordinary course of business, and is also obligated to provide capital and liquidity support to material operating entities in the event of our material financial distress or failure. Liquidity held directly in each of our material operating entities is intended for use only by that entity to meet its liquidity requirements and is assumed not to be available to Group Inc. or Funding IHC unless (i) legally provided for and (ii) there are no additional regulatory, tax or other restrictions. In addition, the Modeled Liquidity Outflow and Intraday Liquidity Model also incorporate a broader assessment of standalone liquidity requirements for other subsidiaries and we hold a portion of our GCLA directly at Group Inc. or Funding IHC to support such requirements.

Note that a large portion of the GCLA previously held at Group Inc. is now held at Funding IHC.

Other Unencumbered Assets. In addition to our GCLA, we have a significant amount of other unencumbered cash and financial instruments, including other government obligations, high-grade money market securities, corporate obligations, marginable equities, loans and cash deposits not included in our GCLA. The fair value of our unencumbered assets averaged $214.06 billion for the three months ended December 2020, $206.01 billion for the three months ended December 2019, $207.60 billion for the year ended December 2020 and $202.03 billion for the year ended December 2019. We do not consider these assets liquid enough to be eligible for our GCLA.

Liquidity Regulatory Framework

As a BHC, we are subject to a minimum LCR under the LCR rule approved by the U.S. federal bank regulatory agencies. The LCR rule requires organizations to maintain an adequate ratio of eligible HQLA to expected net cash outflows under an acute, short-term liquidity stress scenario. Eligible HQLA excludes HQLA held by subsidiaries that is in excess of their minimum requirement and is subject to transfer restrictions. We are required to maintain a minimum LCR of 100%. We expect that fluctuations in client activity, business mix and the market environment will impact our LCR.

The table below presents information about our average daily LCR.

	Average for the Three Months Ended		
$ in millions	**December 2020**	September 2020	December 2019
Total HQLA	**$ 291,393**	$ 299,050	$ 229,029
Eligible HQLA	**$ 212,614**	$ 213,689	$ 170,371
Net cash outflows	**$ 166,551**	$ 165,109	$ 134,436
LCR	**128%**	130%	127%

In October 2020, the U.S. federal bank regulatory agencies issued a final rule that establishes a net stable funding ratio ("NSFR") requirement for large U.S. banking organizations. This rule will become effective on July 1, 2021 and requires banking organizations to ensure they have access to stable funding over a one-year time horizon. The rule also requires disclosure of the ratio on a semi-annual basis and a description of the banking organization's stable funding sources beginning in 2023.

The following provides information about our subsidiary liquidity regulatory requirements:

- **GS Bank USA.** GS Bank USA is subject to a minimum LCR of 100% under the LCR rule approved by the U.S. federal bank regulatory agencies. As of December 2020, GS Bank USA's LCR exceeded the minimum requirement. The NSFR requirement described above will also apply to GS Bank USA.

- **GSI.** GSI is subject to a minimum LCR of 100% under the LCR rule approved by the U.K. regulatory authorities. GSI's average monthly LCR for the trailing twelve-month period ended December 2020 exceeded the minimum requirement. GSI is subject to the NSFR requirement implemented in the U.K., which is expected to become effective in January 2022.

- **Other Subsidiaries.** We monitor local regulatory liquidity requirements of our subsidiaries to ensure compliance. For many of our subsidiaries, these requirements either have changed or are likely to change in the future due to the implementation of the Basel Committee's framework for liquidity risk measurement, standards and monitoring, as well as other regulatory developments.

The implementation of these rules and any amendments adopted by the regulatory authorities could impact our liquidity and funding requirements and practices in the future.

Funding Sources

Our primary sources of funding are deposits, collateralized financings, unsecured short- and long-term borrowings, and shareholders' equity. We seek to maintain broad and diversified funding sources globally across products, programs, markets, currencies and creditors to avoid funding concentrations.

The table below presents information about our funding sources.

	As of December			
$ in millions	**2020**		2019	
Deposits	**$ 259,962**	**33 %**	$ 190,019	28 %
Collateralized financings	**173,947**	**22 %**	152,018	22 %
Unsecured short-term borrowings	**52,870**	**6 %**	48,287	7 %
Unsecured long-term borrowings	**213,481**	**27 %**	207,076	30 %
Total shareholders' equity	**95,932**	**12 %**	90,265	13 %
Total	**$ 796,192**	**100 %**	$ 687,665	100 %

Our funding is primarily raised in U.S. dollar, Euro, British pound and Japanese yen. We generally distribute our funding products through our own sales force and third-party distributors to a large, diverse creditor base in a variety of markets in the Americas, Europe and Asia. We believe that our relationships with our creditors are critical to our liquidity. Our creditors include banks, governments, securities lenders, corporations, pension funds, insurance companies, mutual funds and individuals. We have imposed various internal guidelines to monitor creditor concentration across our funding programs.

Deposits. Our deposits provide us with a diversified source of funding and reduce our reliance on wholesale funding. We raise deposits, including savings, demand and time deposits, from private bank clients, consumers, transaction banking clients, other institutional clients, and through internal and third-party broker-dealers. Substantially all of our deposits are raised through GS Bank USA and GSIB.

Secured Funding. We fund a significant amount of inventory and a portion of investments on a secured basis. Secured funding includes collateralized financings in the consolidated balance sheets. We may also pledge our inventory and investments as collateral for securities borrowed under a securities lending agreement. We also use our own inventory and investments to cover transactions in which we or our clients have sold securities that have not yet been purchased. Secured funding is less sensitive to changes in our credit quality than unsecured funding, due to our posting of collateral to our lenders. Nonetheless, we analyze the refinancing risk of our secured funding activities, taking into account trade tenors, maturity profiles, counterparty

concentrations, collateral eligibility and counterparty rollover probabilities. We seek to mitigate our refinancing risk by executing term trades with staggered maturities, diversifying counterparties, raising excess secured funding and pre-funding residual risk through our GCLA.

We seek to raise secured funding with a term appropriate for the liquidity of the assets that are being financed, and we seek longer maturities for secured funding collateralized by asset classes that may be harder to fund on a secured basis, especially during times of market stress. Our secured funding, excluding funding collateralized by liquid government and agency obligations, is primarily executed for tenors of one month or greater and is primarily executed through term repurchase agreements and securities loaned contracts.

The weighted average maturity of our secured funding included in collateralized financings in the consolidated balance sheets, excluding funding that can only be collateralized by liquid government and agency obligations, exceeded 120 days as of December 2020.

Assets that may be harder to fund on a secured basis during times of market stress include certain financial instruments in the following categories: mortgage and other asset-backed loans and securities, non-investment-grade corporate debt securities, equity securities and emerging market securities. Assets that are classified in level 3 of the fair value hierarchy are generally funded on an unsecured basis.

We also raise financing through other types of collateralized financings, such as secured loans and notes. GS Bank USA has access to funding from the Federal Home Loan Bank. We had no outstanding borrowings against the Federal Home Loan Bank as of December 2020 and $527 million as of December 2019. Additionally, we have access to funding through the Federal Reserve discount window. However, we do not rely on this funding in our liquidity planning and stress testing.

Unsecured Short-Term Borrowings. A significant portion of our unsecured short-term borrowings was originally long-term debt that is scheduled to mature within one year of the reporting date. We use unsecured short-term borrowings, including U.S. and non-U.S. hybrid financial instruments and commercial paper, to finance liquid assets and for other cash management purposes. In accordance with regulatory requirements, Group Inc. does not issue debt with an original maturity of less than one year, other than to its subsidiaries.

Unsecured Long-Term Borrowings. Unsecured long-term borrowings, including structured notes, are raised through syndicated U.S. registered offerings, U.S. registered and Rule 144A medium-term note programs, offshore medium-term note offerings and other debt offerings. We issue in different tenors, currencies and products to maximize the diversification of our investor base.

The table below presents our quarterly unsecured long-term borrowings maturity profile:

$ in millions	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
As of December 2020					
2022	**$ 8,839**	**$ 6,762**	**$ 6,965**	**$ 6,403**	**$ 28,969**
2023	**$ 10,344**	**$ 6,860**	**$ 8,638**	**$ 7,451**	**33,293**
2024	**$ 6,200**	**$ 4,735**	**$ 6,094**	**$ 3,302**	**20,331**
2025	**$ 7,469**	**$ 8,890**	**$ 5,892**	**$ 4,925**	**27,176**
2026 - thereafter					**103,712**
Total					**$ 213,481**

The weighted average maturity of our unsecured long-term borrowings as of December 2020 was approximately seven years. To mitigate refinancing risk, we seek to limit the principal amount of debt maturing over the course of any monthly, quarterly or annual time horizon. We enter into interest rate swaps to convert a portion of our unsecured long-term borrowings into floating-rate obligations to manage our exposure to interest rates.

Shareholders' Equity. Shareholders' equity is a stable and perpetual source of funding.

SI.4. Description of Derivatives and Hedging Activities

Derivatives are instruments that derive their value from underlying asset prices, indices, reference rates and other inputs, or a combination of these factors. Derivatives may be traded on an exchange (exchange-traded) or they may be privately negotiated contracts, which are usually referred to as OTC derivatives. Certain of our OTC derivatives are cleared and settled through central clearing counterparties, while others are bilateral contracts between two counterparties (bilateral OTC).

Market Making. As a market maker, we enter into derivative transactions to provide liquidity to clients and to facilitate the transfer and hedging of their risks. In this role, we typically act as principal and are required to commit capital to provide execution, and maintain market-making positions in response to, or in anticipation of, client demand.

Risk Management. We also enter into derivatives to actively manage risk exposures that arise from our market-making and investing and financing activities. Our holdings and exposures are hedged, in many cases, on either a portfolio or risk-specific basis, as opposed to an instrument-by-instrument basis. The offsetting impact of this economic hedging is reflected in the same business segment as the related revenues. In addition, we may enter into derivatives designated as hedges under U.S. GAAP. These derivatives are used to manage interest rate exposure of certain fixed-rate unsecured borrowings and deposits, as well as to manage foreign exchange risk of certain available-for-sale securities and the net investment in certain non-U.S. operations.

We enter into various types of derivatives, including:

- **Futures and Forwards.** Contracts that commit counterparties to purchase or sell financial instruments, commodities or currencies in the future.
- **Swaps.** Contracts that require counterparties to exchange cash flows, such as currency or interest payment streams. The amounts exchanged are based on the specific terms of the contract with reference to specified rates, financial instruments, commodities, currencies or indices.
- **Options.** Contracts in which the option purchaser has the right, but not the obligation, to purchase from or sell to the option writer financial instruments, commodities or currencies within a defined time period for a specified price.

Derivatives are reported on a net-by-counterparty basis (i.e., the net payable or receivable for derivative assets and liabilities for a given counterparty) when a legal right of set-off exists under an enforceable netting agreement (counterparty netting). Derivatives are accounted for at fair value, net of cash collateral received or posted under enforceable credit support agreements (cash collateral netting).

SI.5. Memberships in Material Payment, Clearing and Settlement Systems

Set forth below is a list of our memberships and contractual relationships with the most material payment, clearing and settlement systems to our activities:

PCS System	Description of Services
Bank of Japan	Agent bank providing settlement and custody services in Japan and the primary custodian for Japanese Government Bonds
Bank of New York Mellon	Agent bank whose services include tri-party, custody, and US government security clearing services
Chicago Mercantile Exchange	Service provider for clearing and settlement of futures, options and OTC derivatives
Citibank, N.A.	Agent bank providing payment, settlement and custody services across multiple global markets
CLS Bank Limited	Multi-currency cash settlement system
Depository Trust Company	Central depository providing depository and book-entry services for eligible securities
Eurex Clearing AG	Central counterparty for derivatives, equities, bonds and other instruments
Euroclear Group	Central securities depository and provider of settlement and custody services
FedWire/FedACH	Real-time gross settlement funds transfer system operated by the United States Federal Reserve Banks
Fixed Income Clearing Corporation	Central counterparty for clearing and settlement of U.S. government and mortgage-backed securities
HSBC	Agent bank providing settlement and custody services across multiple global markets
ICE Clear Credit	Clearing house for North American credit default swaps
ICE Clear Europe	Clearing house for interest rate, equity index and energy derivatives, and credit default swaps
ICE Clear U.S.	Clearing house for futures, options and OTC derivatives
Japan Securities Clearing Corporation	Clearing service provider for Japanese equities, bonds and derivatives
Japan Securities Depository Center, Inc.	Central depository for Japanese securities and foreign securities listed on Japanese exchanges
LCH Clearnet Ltd.	Central counterparty for securities, exchange-traded derivatives and other instruments
LCH Clearnet SA	Clearing house for instruments including equities, bonds, futures, options and credit default swaps
National Securities Clearing Corp. Ltd.	Central clearing counterparty for equities, corporate bonds, municipal securities and other instruments
Options Clearing Corporation	Central clearing and settlement services provider for options
Standard Chartered Bank	Agent bank providing settlement and custody services across multiple global markets
SWIFT	Secure messaging platform for the exchange of instructions and messages about financial transactions

SI.6. Description of Foreign Operations

Our overseas material operating entities are:

- Goldman Sachs International (U.K. Broker-Dealer)
- Goldman Sachs International Bank (U.K. Bank)
- Goldman Sachs Japan Co., Ltd (Japanese Broker-Dealer)
- Goldman Sachs Bank Europe SE (German Bank)
- Goldman Sachs Asset Management International (U.K. Asset Manager)

In total, we have a physical presence in over 35 countries, but our business activities are highly concentrated in just four: the United States, the United Kingdom, Germany and Japan.

Due to the highly integrated nature of international financial markets, we manage our businesses based on the profitability of the enterprise as a whole. The methodology for allocating profitability to geographic regions is dependent on estimates and management judgment because a significant portion of our activities require cross-border coordination in order to facilitate the needs of our clients.

Our geographic results (not just the core business lines identified in Supporting Information Section SI 1 above) are generally allocated as follows:

- Investment Banking: location of the client and investment banking team.
- Global Markets: FICC and Equities intermediation: location of the market-making desk; FICC and Equities financing (excluding prime brokerage financing): location of the desk; prime brokerage financing: location of the primary market for the underlying security.
- Asset Management (excluding Equity investments and Lending and debt investments): location of the sales team; Equity investments: location of the investment; Lending and debt investments: location of the client.
- Consumer & Wealth Management: Wealth management: location of the sales team; Consumer banking: location of the client.

The table below presents total net revenues, pre-tax earnings and net earnings by geographic region.

$ in millions	**2020**		2019		2018	
Year Ended December						
Americas	**$ 27,508**	**62 %**	$ 22,148	60 %	$ 22,339	61 %
EMEA	**10,868**	**24 %**	9,745	27 %	9,244	25 %
Asia	**6,184**	**14 %**	4,653	13 %	5,033	14 %
Total net revenues	**$ 44,560**	**100 %**	$ 36,546	100 %	$ 36,616	100 %
Americas	**$ 9,019**	**72 %**	$ 6,623	62 %	$ 8,125	65 %
EMEA	**3,041**	**25 %**	3,349	32 %	3,244	26 %
Asia	**419**	**3 %**	611	6 %	1,112	9 %
Total pre-tax earnings	**$ 12,479**	**100 %**	$ 10,583	100 %	$ 12,481	100 %
Americas	**$ 7,468**	**79 %**	$ 5,514	65 %	$ 7,092	68 %
EMEA	**2,090**	**22 %**	2,600	31 %	2,522	24 %
Asia	**(99)**	**(1)%**	352	4 %	845	8 %
Total net earnings	**$ 9,459**	**100 %**	$ 8,466	100 %	$ 10,459	100 %

In the table above:

- Americas net earnings included an income tax benefit of $487 million in 2018 related to tax legislation.
- Asia pre-tax earnings and net earnings for 2020 and 2019 were impacted by net provisions for litigation and regulatory proceedings.
- Substantially all of the amounts in Americas were attributable to the U.S.
- Asia includes Australia and New Zealand.

SI.7. Material Supervisory Authorities

As a participant in the global financial services industry, we are subject to extensive regulation worldwide. Regulatory bodies around the world are generally charged with safeguarding the integrity of the securities and other financial markets and with protecting the interests of the customers of market participants, including depositors in banking entities and the customers of banks, broker-dealers, investment advisers, swap dealers and security-based swap dealers. The following section refers to the firm (i.e., not only the material entities or the core business lines).

Banking Supervision and Regulation

Group Inc. is a BHC under the U.S. Bank Holding Company Act of 1956 (BHC Act) and a financial holding company under amendments to the BHC Act effected by the U.S. Gramm-Leach-Bliley Act of 1999, and is subject to supervision and examination by the FRB, which is our primary regulator.

The FRB has a rating system for large financial institutions that is intended to align with its supervisory program. It consists of component ratings for capital planning and positions, liquidity risk management and positions, and governance and controls. The FRB has proposed guidance for the governance and controls component.

Under the system of “functional regulation” established under the BHC Act, the primary regulators of our U.S. non-bank subsidiaries directly regulate the activities of those subsidiaries, with the Federal Reserve exercising a supervisory role. Such “functionally regulated” subsidiaries include broker-dealers registered with the SEC, such as our principal U.S. broker-dealer, GSCO, entities registered with or regulated by the CFTC with respect to futures-related and swaps-related activities and investment advisers registered with the SEC with respect to their investment advisory activities.

Our principal U.S. bank subsidiary, GS Bank USA, is supervised and regulated by the FRB, the FDIC, the New York State Department of Financial Services ("NYDFS") and the Consumer Financial Protection Bureau ("CFPB"). A number of our activities are conducted partially or entirely through GS Bank USA and its subsidiaries, including: corporate loans (including leveraged lending); consumer loans (including installment and credit card loans) and wealth management loans (including mortgages); interest rate, credit, currency and other derivatives; deposit-taking; and agency lending.

Certain of our subsidiaries are regulated by the banking and securities regulatory authorities of the countries in which they operate. GSI, our U.K. broker-dealer subsidiary and a designated investment firm, and GSIB, our U.K. bank subsidiary, are regulated by the PRA and the FCA. GSI provides broker-dealer services in and from the U.K., and GSIB acts as a primary dealer for U.K. government bonds and is involved in lending (including securities lending) and deposit-taking activities. As described below, our E.U. subsidiaries are subject to various E.U. regulations, as well as national laws, including those implementing European directives. GSBE is directly supervised by the European Central Bank ("ECB") and additionally by BaFin and Deutsche Bundesbank in the context of the E.U. Single Supervisory Mechanism ("SSM").

Broker-Dealer and Securities Regulation

Our broker-dealer subsidiaries are subject to regulations that cover all aspects of the securities business, including sales methods, trade practices, use and safekeeping of clients' funds and securities, capital structure, record-keeping, the financing of clients' purchases, and the conduct of directors, officers and employees. In the U.S., the SEC is the federal agency responsible for the administration of the federal securities laws. GSCO is registered as a broker-dealer, a municipal advisor and an investment adviser with the SEC and as a broker-dealer in all 50 states and the District of Columbia. U.S. self-regulatory organizations, such as FINRA and the NYSE, adopt rules that apply to, and examine, broker-dealers, such as GSCO.

U.S. state securities and other U.S. regulators also have regulatory or oversight authority over GSCO. Similarly, our businesses are also subject to regulation by various non-U.S. governmental and regulatory bodies and self-regulatory authorities in virtually all countries where we have offices.

In Europe, we provide broker-dealer services, including through GSI and GSBE, that are subject to oversight by national regulators. These services are regulated in accordance with U.K., E.U. and national laws and regulations. These laws require, among other things, compliance with certain capital adequacy and liquidity standards, customer protection requirements and market conduct and trade reporting rules. Certain of our European subsidiaries are also regulated by the securities, derivatives and commodities exchanges of which they are members.

GSJCL, our regulated Japanese broker-dealer, is subject to capital requirements imposed by Japan's Financial Services Agency. GSJCL is also regulated by the Tokyo Stock Exchange, the Osaka Exchange, the Tokyo Financial Exchange, the Japan Securities Dealers Association, the Tokyo Commodity Exchange, the Securities and Exchange Surveillance Commission, the Bank of Japan and the Ministry of Finance, among others.

The Securities and Futures Commission in Hong Kong, the Monetary Authority of Singapore, the China Securities Regulatory Commission, the Korean Financial Supervisory Service, the Reserve Bank of India, the Securities and Exchange Board of India, the Australian Securities and Investments Commission and the Australian Securities Exchange, among others, regulate various of our subsidiaries and also have capital standards and other requirements comparable to the rules of the SEC.

Our exchange-based market-making activities are subject to extensive regulation by a number of securities exchanges. As a market maker on exchanges, we are required to maintain orderly markets in the securities to which we are assigned.

In the E.U. and the U.K., MiFID II includes extensive market structure reforms, such as the establishment of new trading venue categories for the purposes of discharging the obligation to trade OTC derivatives on a trading platform and enhanced pre- and post-trade transparency covering a wider range of financial instruments. In equities, MiFID II introduced volume caps on non-transparent liquidity trading for trading venues, limited the use of broker-dealer crossing networks and created a new regime for systematic internalizers, which are investment firms that execute client transactions outside a trading venue. Additional control requirements were introduced for algorithmic trading, high frequency trading and direct electronic access. Commodities trading firms are required to calculate their positions and adhere to specific position limits. Other reforms introduced enhanced transaction reporting, the publication of best execution data by investment firms and trading venues, transparency on costs and charges of service to investors, changes to the way investment managers can pay for the receipt of investment research, rules limiting the payment and receipt of soft commissions and other forms of inducements, and mandatory unbundling for broker-dealers between execution and other major services.

The SEC requires broker-dealers to act in the best interest of their customers, and also issued an interpretation clarifying the SEC’s views of the existing fiduciary duty owed by investment advisers to their clients. Additionally, the SEC adopted a rule that requires broker-dealers and investment advisers to provide a standardized, short-form disclosure highlighting services offered, applicable standards of conduct, fees and costs, the differences between brokerage and advisory services, and any conflicts of interest. Requirements under these rules became effective in June 2020. Several states have adopted or proposed adopting uniform fiduciary duty standards applicable to broker-dealers and advisers.

The SEC, FINRA and regulators in various non-U.S. jurisdictions have imposed both conduct-based and disclosure-based requirements with respect to research reports and research analysts and may impose additional regulations.

GSCO, GS Bank USA and other U.S. subsidiaries are also subject to rules adopted by U.S. federal agencies pursuant to the Dodd-Frank Act that require any person who organizes or initiates certain asset-backed securities transactions to retain a portion (generally, at least five percent) of any credit risk that the person conveys to a third party. For certain securitization transactions, retention by third-party purchasers may satisfy this requirement. Certain of our non-U.S. subsidiaries, including GSI, are subject to risk retention requirements in connection with securitization activities.

Swaps, Derivatives and Commodities Regulation

The commodity futures, commodity options and swaps industry in the U.S. is subject to regulation under the U.S. Commodity Exchange Act (CEA). The CFTC is the U.S. federal agency charged with the administration of the CEA. In addition, the SEC is the U.S. federal agency charged with the regulation of security-based swaps. The rules and regulations of various self-regulatory organizations, such as the Chicago Mercantile Exchange, other futures exchanges and the National Futures Association, also govern commodity futures, commodity options and swaps activities.

The terms “swaps” and “security-based swaps” include a wide variety of derivative instruments in addition to those conventionally referred to as swaps (including certain forward contracts and options), and relate to a wide variety of underlying assets or obligations, including currencies, commodities, interest or other monetary rates, yields, indices, securities, credit events, loans and other financial obligations.

CFTC rules require registration of swap dealers, mandatory clearing and execution of interest rate and credit default swaps and real-time public reporting and adherence to business conduct standards for all in-scope swaps. GSCO and other subsidiaries, including GS Bank USA, GSI, GSBE and J. Aron & Company LLC (J. Aron), are registered with the CFTC as swap dealers. In July 2020, the CFTC adopted final rules establishing capital requirements for swap dealers that are not subject to the capital rules of a prudential regulator, such as the FRB. The CFTC also adopted financial reporting requirements for covered swap entities and amended existing capital rules for CFTC-registered futures commission merchants to provide explicit capital requirements for proprietary positions in swaps and security-based swaps that are not cleared by a clearing organization. Compliance with the final rules is required by October 6, 2021. Certain of our registered swap dealers, including J. Aron, will be subject to the CFTC’s capital requirements.

Our affiliates registered as swap dealers are subject to the margin rules issued by the CFTC (in the case of our non-bank swap dealers) and the FRB (in the case of GS Bank USA and GSBE). The rules for variation margin have become effective, and those for initial margin will phase in through September 2022 depending on certain activity levels of the swap dealer and the relevant counterparty. Intercompany transactions under the CFTC margin rules are generally exempt from initial margin requirements. In June 2020, the FRB adopted a final rule that exempts intercompany swaps from its initial margin requirements subject to certain thresholds.

The CFTC has adopted rules relating to cross-border regulation of swaps, business conduct and registration requirements. The CFTC has entered into agreements with certain non-U.S. regulators, including in the E.U., regarding the cross-border regulation of derivatives and the mutual recognition of cross-border clearing houses, and has approved substituted compliance with certain non-U.S. regulations, including E.U. regulations, related to certain business conduct requirements and margin rules. The U.S. prudential regulators have not yet made a determination with respect to substituted compliance for transactions subject to non-U.S. margin rules.

Similar types of swap regulation have been proposed or adopted in jurisdictions outside the U.S., including in the E.U. and Japan. For example, the E.U. and the U.K. have established regulatory requirements relating to portfolio reconciliation and reporting, clearing certain OTC derivatives and margining for uncleared derivatives activities under the European Market Infrastructure Regulation (EMIR).

SEC rules govern the registration and regulation of security-based swap dealers. The SEC adopted a number of rules and rule amendments for security-based swap dealers in 2019, including (i) capital, margin and segregation requirements, (ii) record-keeping, reporting and notification requirements, and (iii) the application of risk mitigation techniques to uncleared portfolios of security-based swaps and the cross-border application of certain security-based swap requirements. The compliance date for these SEC rules, as well as SEC rules addressing registration requirements and business conduct standards, is generally October 2021. We anticipate that certain of our subsidiaries will register with the SEC as security-based swap dealers and become subject to the SEC's regulations regarding security-based swaps.

The CFTC has adopted position limit rules that will limit the size of positions in physical commodity derivatives that can be held by any entity, or any group of affiliates or other parties trading under common control, subject to certain exemptions, such as for bona fide hedging positions. However, effective in 2023, the new rules will eliminate the risk management exemption, which allowed swap dealers to claim an exemption for the hedging of swap-related risks. The new CFTC position limits will apply to certain positions in swaps, as well as futures and options on futures, on physical commodities, and limits will apply to both physically and cash settled positions. Currently, position limits on futures on physical commodities are administered by the relevant exchanges, with the exception of futures on certain agricultural commodities, which are administered by the CFTC. Under the CFTC's position limit rules, all futures and options on futures on an enumerated list of physical commodities, including certain agricultural, energy and metals commodities, as well as related swaps, will be subject to the CFTC's position limits. The new position limit rules impose limits in the spot month only (i.e., during the delivery period for the physical commodities, which is typically a period of several days), although the CFTC may in the future impose limits in non-spot months as well. CFTC spot and non-spot month limits will continue to apply to futures on certain legacy agricultural commodities.

J. Aron is authorized by the U.S. Federal Energy Regulatory Commission ("FERC") to sell wholesale physical power at market-based rates. As a FERC-authorized power marketer, J. Aron is subject to regulation under the U.S. Federal Power Act and FERC regulations and to the oversight of FERC. As a result of our investing activities, Group Inc. is also an “exempt holding company” under the U.S. Public Utility Holding Company Act of 2005 and applicable FERC rules.

In addition, as a result of our power-related and commodities activities, we are subject to energy, environmental and other governmental laws and regulations.

GSCO is registered with the CFTC as a futures commission merchant, and several of our subsidiaries, including GSCO, are registered with the CFTC and act as commodity pool operators and commodity trading advisors. Goldman Sachs Financial Markets, L.P. is registered with the SEC as an OTC derivatives dealer.

Asset Management and Wealth Management Regulation

Our asset management and wealth management businesses are subject to extensive oversight by regulators around the world relating to, among other things, the fair treatment of clients, safeguarding of client assets, offerings of funds, marketing activities, transactions among affiliates and our management of client funds.

Certain of our European subsidiaries, including GSAMI in the U.K. and GSBE in the E.U., are subject to MiFID II and/or related regulations (including the U.K. legislation making such regulations part of U.K. law), which govern the approval, organizational, marketing and reporting requirements of U.K. or E.U.-based investment managers and the ability of investment fund managers located outside the E.U. or the U.K. to access those markets. Our asset management business in the U.K. and the E.U. significantly depends on our ability to delegate parts of our activities to other affiliates.

Consumer Regulation

Our U.S. consumer-oriented activities are subject to extensive oversight by federal and state regulators. These businesses are subject to supervision and regulation by the CFPB with respect to federal consumer protection laws, including laws relating to fair lending and the prohibition of unfair, deceptive or abusive acts or practices in connection with the offer, sale or provision of consumer financial products and services. Our consumer-oriented businesses are also subject to various state and local consumer protection laws. These laws, rules and regulations, among other things, impose obligations relating to our marketing, origination, servicing and collections activity in our consumer businesses. Many of these laws, rules and regulations also apply to our small business lending activities which are subject to supervision and regulation by federal and state regulators as well. Our U.K. consumer deposit-taking activities are also subject to consumer protection regulations.

SI.8. Principal Officers

Set forth below are the name, present title, principal occupation and certain biographical information for our executive officers, as of December 31, 2020. Our executive officers have been appointed by, and serve at the pleasure of, our Board.

- **Sheara Fredman.** Ms. Fredman has been Controller and Chief Accounting Officer since November 2019. She had previously served as Head of Regulatory Controllers from September 2017 and, prior to that, she had served as Global Product Controller.
- **Elizabeth M. Hammack.** Ms. Hammack has been Global Treasurer since January 2018. She had previously served as Global Head of Short Term Macro Trading and Global Repo Trading from August 2015 to January 2018. Prior to that, she was Co-Head of U.S. Interest Rate Products Cash Trading from January 2011 to August 2015.
- **Brian J. Lee.** Mr. Lee has been Chief Risk Officer since November 2019. He had previously served as Controller and Chief Accounting Officer from March 2017 and, prior to that, he had served as Deputy Controller from 2014.
- **John F.W. Rogers.** Mr. Rogers has been an Executive Vice President since April 2011 and Chief of Staff and Secretary to the Board since December 2001.
- **Stephen M. Scherr.** Mr. Scherr has been Chief Financial Officer since November 2018. He had previously served as Chief Executive Officer of Goldman Sachs Bank USA from May 2016, and Head of the Consumer & Commercial Banking Division from 2016 to 2018. From June 2014 to November 2017, he was Chief Strategy Officer, and from 2011 to 2016 he was Head of the Latin America business. He was also Global Head of the Financing Group from 2008 to 2014.
- **Karen P. Seymour.** Ms. Seymour has been an Executive Vice President, General Counsel and Secretary since January 2018. Since January 2019, she has been Head of the Legal Division and was previously Co-Head of the Legal Division from January 2018 to January 2019. From 2000 through January 2002 and 2005 through 2017, she was a partner at Sullivan & Cromwell LLP, a global law firm, including serving as a member of its management committee from April 2015 to December 2017, and as the co-managing partner of its litigation group from December 2012 to April 2015.[24]
- **David M. Solomon.** Mr. Solomon has been Chairman of the Board since January 2019 and Chief Executive Officer and a director since October 2018. He had previously served as President and Chief or Co-Chief Operating Officer from January 2017 and Co-Head of the Investment Banking Division from July 2006 to December 2016.

[24] In March 2021, Kathryn H. Ruemmler was named Chief Legal Officer and replaced Karen P. Seymour as General Counsel of the firm.

- **Laurence Stein.** Mr. Stein has been Chief Administrative Officer since January 2018. He had previously served as Global Head of the Operations Division from October 2015 to December 2017. From August 2009 to October 2015, he was Chief Operating Officer of the Securities Division.

- **John E. Waldron.** Mr. Waldron has been President and Chief Operating Officer since October 2018. He had previously served as Co-Head of the Investment Banking Division from December 2014. Prior to that he was Global Head of Investment Banking Services/Client Coverage for the Investment Banking Division and had oversight of the Investment Banking Services Leadership Group, and from 2007 to 2009 was Global Co-Head of the Financial Sponsors Group.

SI.9. Description of Material Management Information Systems

Goldman Sachs has a long-standing history of investing in technology. Our management information systems are designed to support and enable our core functions across all service and business units. As an integral component of the Plan, our systems serve to manage risk and provide complete, timely and accurate information.

Over recent years, we have invested in the broad adoption of technology platforms to support our enterprise architecture. In most cases, a single technology platform supports a given function across all geographies and entities. For example, our broker-dealer subsidiary in Tokyo books its secured funding transactions (such as repos) into the same technology platform as our broker-dealer subsidiaries in London, New York or elsewhere. This results in a high degree of consistency in both functionality and reporting to enable key decision making at all levels.

As a firm, we place a strong focus on developing software applications internally, although we also make use of third-party vendor software. Our system architecture supports data, modeling, user interface and workflow capabilities, which our MIS systems leverage to provide a rich feature set for our businesses. To ensure the rigor and effectiveness of our systems, we have focused on promoting standardization and reusability.

Our data aggregation capabilities and risk reporting practices are overseen by a governance framework which is supported by documented policies, standards and procedures. We recognize that, in a resolution scenario, the effectiveness of our systems is driven by adhering to an appropriate governance framework which is supported by the relevant controls. For example, our business resiliency program is intended to ensure that all critical applications, including our data aggregation capabilities and risk reports, are available not only in normal times, but also during times of stress or crisis scenarios.

Our MIS have extensive ad hoc reporting capabilities, and have been used extensively to prepare financial and other information used in the preparation of the Plan. We have performed a detailed assessment of our ability to satisfy MIS reporting requirements in resolution, and we have determined that there are no material gaps or weaknesses in our ability to provide relevant data in a crisis scenario.

Recovery and Resolution Systems

As part of our resolution planning, we recognize the benefits of being able to identify, aggregate, visualize and easily navigate key interdependencies and relationships across our legal entities and critical services. We therefore developed and continue to invest in a platform that leverages existing, authoritative sources of data, and links them in a flexible and adaptable way to provide a holistic understanding and visualization of our legal entities, services, functions, systems, people, vendors and facilities. The tool is integrated with several of our other platforms, including the global framework for the documentation and management of the intercompany SLAs, our “document lake” which stores resolution-critical legal agreements and associated metadata, and our “data lake” which is a central data warehousing solution.

Appendix I: Definition of Key Terms

Definition of key terms:	
2019 Resolution Plan	Plan for the rapid and orderly resolution of Goldman Sachs under the Bankruptcy Code that we submitted to the Agencies on June 30, 2019
2021 Plan	The Targeted Resolution Plan submitted to the Agencies on June 30, 2021
The Plan	The Targeted Resolution Plan submitted to the Agencies on June 30, 2021 together with the plan for the rapid and orderly resolution of Goldman Sachs under the Bankruptcy Code that we submitted to the Agencies on June 30, 2019
2019 Guidance	Final guidance for the 2019 and subsequent resolution plan submissions by the eight largest, complex U.S. banking organizations, published in the Federal Register on February 4, 2019
Capabilities	The resolution-critical capabilities described in the 2019 Guidance that the Agencies expect us to have developed in order to demonstrate that we are able to mitigate any obstacles to the successful implementation of our preferred resolution strategy
Core Business Lines	Those businesses, including their associated operations, services, functions and support, the failure of which would, in the firm's view, result in a material loss of revenue, profit or franchise value
Critical Operations	Those operations, including their associated services functions and support, the failure or discontinuation of which would pose a threat to the financial stability of the United States, in the view of the firm or as jointly directed by the Agencies
ISDA Resolution Stay Protocols	International Swaps and Derivatives Association Universal Resolution Stay Protocol ("ISDA Universal Protocol") and the International Swaps and Derivatives Association 2018 U.S. Resolution Stay Protocol ("U.S. ISDA Protocol")
Material Entity	An entity that is significant to the maintenance of a critical operation or core business line.
Material Operating Entity	A material entity that is an operating entity
Material Service Entity	A material entity that is a service entity
Our Board	The Board of Directors of The Goldman Sachs Group, Inc.
Participating Material Entity	A material entity, other than Group Inc. or Funding IHC, that is a party to the Capital and Liquidity Support Agreement
Participating Material Operating Entity	A participating material entity that is an operating entity
Participating Material Service Entity	A participating material entity that is a service entity
Preferred Resolution Strategy	The strategy by which, at the end of the runway, Group Inc. and J. Aron & Company LLC enter Chapter 11 bankruptcy proceedings while other material entities continue outside proceedings and wind down over time
Qualified Financial Contract	A financial contract that is exempt from the automatic bankruptcy stay that would otherwise prohibit creditors and counterparties from terminating, offsetting against collateral, or taking other mitigating action with respect to their contracts with a company that has entered bankruptcy, insolvency or similar proceedings
Runway	The ten-day period immediately preceding Group Inc.'s bankruptcy filing
Volcker Rule	The rules and regulations promulgated pursuant to Section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act

Appendix II: Acronym definitions

Acronym definitions:	
BHC	Bank Holding Company
CLSA	Capital and Liquidity Support Agreement
FHC	Financial Holding Company
FMU	Financial Market Utility
GCLA	Global Core Liquid Assets
IDI	Insured Depository Institution
ISDA	International Swaps and Derivatives Association
HQLA	High Quality Liquid Assets
LCR	Liquidity Coverage Ratio
LER	Legal Entity Rationalization
LTST	Long Term Stress Test
MiFID	Markets in Financial Instruments Directive
MLOi	Modeled Liquidity Outflow, incorporating the Intraday Liquidity Model
PCS	Payments, Clearing and Settlement
RCAP	Resolution Capital Adequacy and Positioning
RCEN	Resolution Capital Execution Need
RLAP	Resolution Liquidity Adequacy and Positioning
RLEN	Resolution Liquidity Execution Need
RWAs	Risk-Weighted Assets
SLA	Service Level Agreement
SLR	Supplementary Leverage Ratio
TLAC	Total Loss-Absorbing Capacity
WAM	Weighted Average Maturity