



The Bank of New York Mellon Corporation

# Pillar 3 Disclosure

December 31, 2019

# THE BANK OF NEW YORK MELLON CORPORATION

## Pillar 3 Disclosure

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## Disclosure Road Map

The table below shows where disclosures relating to topics addressed in this Pillar 3 Disclosure can be found in The Bank of New York Mellon Corporation's Annual Report on Form 10-K for the year ended Dec. 31, 2019 (the "2019 Annual Report").

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## Introduction

In this Pillar 3 Disclosure (this “Disclosure”), references to “our,” “we,” “us,” “BNY Mellon,” the “Company” and similar terms refer to The Bank of New York Mellon Corporation and its consolidated subsidiaries. References in this Disclosure to “Parent” or the “Holding Company” refer to The Bank of New York Mellon Corporation on a standalone basis.

Certain business terms and commonly used acronyms used in this Disclosure are defined in the Glossary and Acronyms sections of this Disclosure.

Investors should also read the section titled “Forward-looking Statements.”

Established in 1784 by Alexander Hamilton, we were the first company listed on the New York Stock Exchange (NYSE: BK). With a 235-year history, BNY Mellon is a global company that manages and services assets for financial institutions, corporations and individual investors in 35 countries.

### *Basis of Presentation*

The accounting and financial reporting policies of BNY Mellon, a global financial services company, conform to U.S. generally accepted accounting principles (“GAAP”) and prevailing industry practices.

There are no differences in the basis of consolidation between BNY Mellon’s Annual Report on Form 10-K and Quarterly Report on Form 10-Q (“SEC Reports”) as filed with the Securities and Exchange Commission (the “SEC”) and this Disclosure.

This Disclosure illustrates BNY Mellon’s assets both in terms of credit exposure and risk-weighted assets (“RWA”). For the purposes of this Disclosure, credit exposure is defined as the estimate of the amount at risk in the event of a default (before any recoveries). This estimate takes into account certain contractual commitments related to undrawn lines of credit, and is referred to as Exposure at Default (“EAD”). In contrast, the assets on BNY Mellon’s balance sheet, as published in our SEC Reports, are reported as the carrying value only. Therefore, exposure values in this Disclosure can differ from asset values as reported in our SEC Reports.

## Capital Guidelines

### *Capital Requirements*

As a bank holding company (“BHC”), we are subject to consolidated regulatory capital rules administered by the Board of Governors of the Federal Reserve System (the “Federal Reserve”). Our bank subsidiaries are subject to similar capital requirements administered by the Federal Reserve in the case of The Bank of New York Mellon and by the Office of the Comptroller of the Currency (“OCC”) in the case of our largest national bank subsidiaries, BNY Mellon, N.A. and The Bank of New York Mellon Trust Company, National Association. These requirements (the “U.S. capital rules”) are intended to ensure that banking organizations have adequate capital given the risk levels of their assets and off-balance sheet financial exposures.

For further discussion of the regulatory capital framework and additional regulatory matters relevant to the Company, see “Supervision and Regulation” in our 2019 Annual Report.

### *Pillar 3 Disclosure*

The U.S. federal banking agencies have included within the U.S. capital rules public disclosure requirements, with an express objective of improving market discipline and encouraging sound risk-management practices.

The U.S. banking agencies require Pillar 3 disclosures at the holding company level for each calendar quarter. Separate and complete Pillar 3 disclosures are not required for consolidated subsidiaries of Advanced Approaches banking organizations, even if those subsidiaries themselves are Advanced Approaches banking organizations. A separate Pillar 3 disclosure therefore has not been prepared for any of our consolidated subsidiaries. Nevertheless, this Disclosure describes risk management policies and procedures, risk weighting methodologies, accounting policies and financial results, among other items, that apply to or encompass our consolidated subsidiaries. In addition, the U.S. banking agencies permit certain Pillar 3 Disclosure requirements to be satisfied by reference to the SEC Reports. Therefore, in certain cases, BNY Mellon makes reference to the SEC Reports in this Disclosure.

This Disclosure is presented in accordance with the U.S. capital rules for Pillar 3 disclosure requirements.

## Scope of Application

The Bank of New York Mellon Corporation is the top-tier parent company to all members of its consolidated group and is subject to consolidated supervision by the Federal Reserve. The information in this Disclosure is presented on a consolidated basis that includes BNY Mellon and its subsidiaries. A list of our primary subsidiaries can be found in Exhibit 21.1 of our 2019 Form 10-K.

### *Consolidation and Variable Interest Entities (“VIEs”)*

We have variable interests in VIEs, which include investments in retail, institutional and alternative investment funds, including collateralized loan obligation (“CLO”) structures in which we provide asset management services, some of which are consolidated.

Additionally, we invest in qualified affordable housing and renewable energy projects, which are designed to generate a return primarily through the realization of tax credits. The projects, which are structured as limited partnerships and limited liability companies, are also VIEs, but are not consolidated.

For more information on the consolidation of VIEs see Note 1 - Summary of significant accounting and reporting policies and Note 14 - Variable interest entities and securitization of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

The underlying investments in these investment management funds are risk-weighted in accordance with the U.S. capital rules’ requirements.

BNY Mellon has noncontrolling equity interests in various venture capital investments, strategic joint ventures and trade or clearing associations which are risk-weighted according to the U.S. capital rules’ requirements. Investments where our percentage of voting stock or equity ownership ranges between 20% to 50% are accounted for under the equity method of accounting. For a listing of our most significant equity method investments see Note 1 - Summary of significant accounting and reporting policies of the Notes to Consolidated Financial Statements in our 2019 Annual Report. Those

equities where our share in the voting stock or equity of the investee is less than 20% are accounted for under the cost method of accounting. See the “Equities Not Subject to Market Risk Rule” section of this Disclosure for a further discussion of these accounting treatments.

BNY Mellon does not have any non-consolidated entities that are deducted from regulatory capital. The minimum regulatory capital requirements of our insurance subsidiaries are deducted for regulatory purposes with 50% deducted from each of Other Tier 1 Capital and Tier 2 Capital.

### *Restrictions on Transfer of Capital*

The Parent is a legal entity separate and distinct from its bank subsidiaries and other subsidiaries. Dividends and interest from its subsidiaries are the Parent’s principal sources of funds to make capital contributions or loans to its subsidiaries, to service its own debt, to honor its guarantees of debt issued by its subsidiaries or of trust preferred securities issued by a trust or to make its own capital distributions. Various federal and state statutes and regulations limit the amount of dividends that may be paid to the Parent by our bank subsidiaries without regulatory consent. If, in the opinion of the applicable federal regulatory agency, a depository institution under its jurisdiction is engaged in or is about to engage in an unsafe or unsound practice (which, depending on the financial condition of the bank, could include the payment of dividends), the regulator may require, after notice and hearing, that the bank cease and desist from such practice. The OCC, the Federal Reserve and the Federal Deposit Insurance Corporation (“FDIC”) have indicated that the payment of dividends would constitute an unsafe and unsound practice if the payment would reduce a depository institution’s capital to an inadequate level. Moreover, under the Federal Deposit Insurance Act, an insured depository institution may not pay any dividends if the institution is undercapitalized or if the payment of the dividend would cause the institution to become undercapitalized. Finally, the U.S. federal bank regulatory agencies have issued policy statements which provide that FDIC-insured depository institutions and their holding companies should generally pay dividends only out of their current operating earnings.

Subsequent to Dec. 31, 2019, our U.S. bank subsidiaries could declare dividends to the Parent of

approximately \$1.1 billion, without the need for a regulatory waiver. In addition, at Dec. 31, 2019, non-bank subsidiaries of the Parent had liquid assets of approximately \$1.8 billion.

The Federal Reserve and the OCC have issued additional guidelines that require BHCs and national banks to continually evaluate the level of cash dividends in relation to their respective operating income, capital needs, asset quality and overall financial condition.

The Federal Reserve Act limits and generally requires collateral for extensions of credit by our insured subsidiary banks to BNY Mellon and its non-bank affiliates. Also, there are restrictions on the amounts of investments by such banks in stock and other securities of BNY Mellon and non-bank affiliates, and restrictions on the acceptance of their securities as collateral for loans by such banks. Extensions of credit by the banks to each of our non-bank affiliates are limited to 10% of such bank's regulatory capital, and in the aggregate for BNY Mellon and all such non-bank affiliates to 20%, and collateral must be between 100% and 130% of the amount of the credit, depending on the type of collateral.

In the event of impairment of the capital stock of one of the Parent's national banks or The Bank of New York Mellon, the Parent, as the banks' stockholder, could be required to pay such deficiency.

#### *Surplus of Insurance Subsidiaries and Subsidiary Regulatory Capital*

BNY Mellon and each of its subsidiary banks are subject to capital adequacy requirements promulgated by federal regulatory agencies. Certain non-bank subsidiaries of the Company are required to maintain minimum levels of shareholders' equity as specified by various U.S. and foreign regulatory agencies, including the SEC, the Financial Conduct Authority, the Prudential Regulation Authority and other foreign regulators.

BNY Mellon also has insurance subsidiaries that are regulated by various national and state regulatory agencies. Most of these insurance subsidiaries are required to meet minimum capital levels. We have insurance subsidiaries that offer life, accident, health and annuity products. Additionally, we have captive insurance subsidiaries that provide property and casualty insurance coverage for the primary benefit of

BNY Mellon and its subsidiaries. As captive insurance subsidiaries, they primarily insure the risks of those BNY Mellon entities related to it through common ownership. The insured businesses pay premiums to the captive insurance subsidiaries in exchange for insurance. Our two insurance subsidiaries are underwriters and currently only underwrite the risks associated with BNY Mellon and its subsidiaries. As of Dec. 31, 2019, these insurance subsidiaries had \$1.3 billion of aggregate capital surplus in excess of their statutory minimum requirements which is included in the total capital of BNY Mellon.

We have not identified any BNY Mellon subsidiaries that failed to meet minimum regulatory capital requirements.

## Capital Structure

The following table presents BNY Mellon's capital components described in the U.S. capital rules.

Basel III capital components - Advanced Approaches		Dec. 31, 2019
<i>(in millions)</i>		
<b>CET1:</b>		
Common stock (par value)	\$	14
Additional paid-in capital		27,515
Retained earnings		31,894
Accumulated other comprehensive income (loss), net of tax		(2,638)
Less: Treasury stock		(18,844)
Common shareholders' equity		37,941
Goodwill and intangible assets		(19,036)
Net pension fund assets		(272)
Deferred tax assets		(46)
Other <i>(a)</i>		(47)
Total CET1		18,540
<b>Other Tier 1 capital:</b>		
Preferred stock		3,542
Other <i>(b)</i>		(86)
Total Tier 1 capital		21,996
<b>Tier 2 capital:</b>		
Subordinated debt		1,248
Excess of eligible credit reserve over total expected credit losses (up to 0.60% of credit RWA)		—
Other <i>(c)</i>		(11)
Total Tier 2 capital		1,237
Total capital - Advanced Approaches	\$	23,233

*(a)* Includes an adjustment related to gains on cash flow hedges as well as the debit valuation adjustment ("DVA") at Dec. 31, 2019.

*(b)* Includes 50% of the deduction for the regulatory capital requirements of insurance underwriting subsidiaries and Volcker capital deduction at Dec. 31, 2019.

*(c)* Includes 50% of the deduction for the regulatory capital requirements of insurance underwriting subsidiaries at Dec. 31, 2019.

### Preferred Stock

BNY Mellon has authorized shares of preferred stock. For details of BNY Mellon's preferred stock issued and outstanding at Dec. 31, 2019, see Note 15 - Shareholders' equity of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

### Qualifying Subordinated Debt

All of BNY Mellon's subordinated debt is included as Tier 2 regulatory capital. Regulatory capital treatment requires capital to be discounted on a straight-line basis over the final five years of maturity. For accounting purposes, the capital instruments below are included in long-term debt.

The following table details the primary terms and conditions of the qualifying subordinated debt included in Tier 2 regulatory capital. The balances disclosed are determined in accordance with GAAP balance sheet carrying amounts and the U.S. capital rules.

Terms and conditions of qualifying subordinated debt - Dec. 31, 2019 <i>(dollars in millions)</i>	Tier 2 regulatory capital	Carrying value	Rate	Issue	Maturity	Callable
BNY Mellon Corporation	499	499	3.00	SD	Oct-2028	No
BNY Mellon Corporation	749	749	3.30	SD	Aug-2029	No
Total qualifying subordinated debt	\$ 1,248	\$ 1,248				

SD – Subordinated debt.

## Capital Adequacy

### Capital Management

The Bank of New York Mellon Corporation is committed to maintaining a well capitalized position. Corporate Treasury has joint responsibility with our Enterprise Capital Adequacy group within Finance for the development of the annual capital plan (the “Capital Plan”) submitted to the Federal Reserve. It is the Company’s policy to maintain a commitment to strong capital levels and establish sufficient capital while considering asset size, quality and duration, off-balance sheet commitments, risk characteristics, growth and economic conditions. Capital management is one of senior management’s most important ongoing responsibilities.

Our Capital Management Policy sets forth our principles with respect to capital planning, capital usage and capital actions based on a continual assessment of risk and business factors. It also sets forth the governance process used to make such decisions and the factors that we consider when developing our Capital Plan and determining when capital actions are appropriate. Any updates to this policy must be approved by both our Asset Liability Committee (“ALCO”) and the Board of Directors or a designated committee of the Board of Directors.

Corporate Treasury coordinates with our Enterprise Capital Adequacy, Management Reporting, and Regulatory Reporting groups to project capital levels and ratios and develop a base Capital Plan for the forthcoming calendar year. The Capital Plan is reviewed and approved by the Chief Financial Officer (“CFO”) and Chief Risk Officer (“CRO”), the Stress Testing Oversight Group (“STOG”), ALCO and the Board of Directors. We then submit the plan to the Federal Reserve as part of the Comprehensive Capital Analysis and Review (“CCAR”) process.

When developing its Capital Plan, BNY Mellon considers, among other factors, the requirements of the U.S. capital rules, including the minimum capital and leverage ratio requirements to which BNY Mellon is subject. BNY Mellon continually monitors our capital and leverage positions and ensures that any contemplated capital actions would not limit our ability to meet capital requirements. Management monitors progress under the Capital Plan on a monthly basis, and reports progress to the Federal Reserve through quarterly Capital Assessments and

Stress Testing data submissions. Updates to the projections of capital levels and ratios are presented to senior management at least once a month at ALCO and Balance Sheet Review meetings.

### Capital Planning and Stress Testing

BNY Mellon's capital distributions are subject to supervision and regulation by the Federal Reserve.

The CCAR and the Dodd-Frank Act Stress Tests (“DFAST”) are a major component of the Federal Reserve's oversight. BHCs with \$100 billion or more in total consolidated assets, including BNY Mellon, are required to submit annual capital plans to the Federal Reserve. See “Supervision and Regulation – Capital Planning and Stress Testing” in our 2019 Annual Report for full details regarding the CCAR and DFAST requirements applicable to us.

### Risk-weighted Assets

The following table presents our RWA by exposure type calculated using the U.S. capital rules’ risk-weightings.

<b>Basel III RWA – Advanced Approaches</b>	
<i>(in millions)</i>	<b>Dec. 31, 2019</b>
Wholesale exposures	\$ 61,498
Retail exposures	240
Securitization exposures	5,126
Cleared transactions	714
Equity exposures (a)	7,972
Other assets	11,343
<b>Total credit RWA</b>	<b>86,893</b>
<b>Total credit RWA x 1.06 (b)</b>	<b>92,106</b>
Credit valuation adjustment (“CVA”)	3,384
Market risk:	
Non specific	2,134
Standardized approach for specific risk	1,886
<b>Total market risk</b>	<b>4,020</b>
Operational risk	61,388
<b>Total RWA</b>	<b>\$ 160,898</b>

(a) All direct equity exposures for BNY Mellon are subject to the simple risk weight approach; equity exposures to investment funds are currently weighted using various look-through approaches as appropriate.

(b) Gross-up of 6% applies to credit RWA under the advanced approach.



As of Dec. 31, 2019, BNY Mellon and our U.S. bank subsidiaries were “well capitalized.” The “well capitalized” and other capital categories (where applicable), as established by applicable regulations for BHCs and depository institutions, have been established by those regulations solely for purposes of implementing their respective requirements (for example, eligibility for FHC status in the case of BHCs and prompt corrective action measures in the case of depository institutions). A BHC’s or depository institution’s qualification for a capital category may not constitute an accurate representation of the entity’s overall financial condition or prospects.

The following table provides the Standardized Approach (“SA”) and Advanced Approaches (“AA”) RWA and risk-based capital ratios for the Holding Company and for our two largest depository institution subsidiaries. At Dec. 31, 2019, our Holding Company CET1 ratio calculated under the U.S. capital rules’ Standardized Approach was 12.5% and under the Advanced Approaches was 11.5%. Based on the Collins Amendment Floor, the risk-based capital ratios are determined by calculating each capital ratio under the Advanced Approaches and the Standardized Approach and then setting the relevant capital ratio equal to the lower of the two ratios.

Basel III RWA and risk-based capital ratios - Standardized and Advanced Approaches <i>(dollar amounts in millions)</i>	Dec. 31, 2019								
	RWA		CET1		Tier 1		Total Capital		
	SA	AA	SA	AA	SA	AA	SA	AA	
<b>BHC:</b>									
The Bank of New York Mellon Corporation	\$148,695	\$160,898	12.5%	11.5%	14.8%	13.7%	15.8%	14.4%	
<b>Depository institution subsidiaries:</b>									
The Bank of New York Mellon	113,081	127,731	17.1	15.1	17.1	15.1	17.3	15.2	
BNY Mellon, N.A.	18,759	10,637	11.3	19.9	11.3	19.9	12.5	21.9	

## Capital Conservation and Countercyclical Capital Buffers

The U.S. capital rules introduced a capital conservation buffer and countercyclical capital buffer that add to the minimum regulatory capital ratios. The capital conservation buffer, which increased from 1.875% in 2018 to 2.5% when fully phased-in on Jan. 1, 2019, is designed to absorb losses during periods of economic stress and applies to all banking organizations. During periods of excessive growth, the capital conservation buffer may be expanded through the imposition of a countercyclical capital buffer that may be as high as an additional 2.5%. As of Dec. 31, 2019, BNY Mellon’s excess total capital over the minimums with the buffers was 2.4%. Accordingly, as of Dec. 31, 2019, BNY Mellon does not have any limitations on distributions and discretionary bonus payments resulting from the capital buffer and surcharge framework.

The countercyclical capital buffer, when applicable, applies only to Advanced Approaches banking organizations. The countercyclical capital buffer is currently set to zero with respect to U.S. exposures, but it could increase if the banking agencies determine that systemic vulnerabilities are meaningfully above normal.

The following table presents the capital ratios at Dec. 31, 2019, the minimum ratio requirements plus the minimum ratio requirements with the buffers and surcharge and finally, the excess over the minimums with the buffers.

Capital Ratio Minimums and Buffers	Dec. 31, 2019		
	CET1	Tier 1	Total Capital
Consolidated capital ratios	11.5%	13.7%	14.4%
Minimum ratio requirements	4.5%	6.0%	8.0%
Capital conservation buffer	2.5%	2.5%	2.5%
U.S. G-SIB surcharge	1.5%	1.5%	1.5%
Minimum ratios with buffers and surcharge	<b>8.5%</b>	<b>10.0%</b>	<b>12.0%</b>
Excess over minimum ratios with buffers and surcharge	<b>3.0%</b>	<b>3.7%</b>	<b>2.4%</b>

## Credit Risk: General Disclosures

### General Risk Management

BNY Mellon’s management is responsible for execution of the Company’s risk appetite and the risk management and compliance framework and the governance structure that supports it, with oversight provided by BNY Mellon’s board of directors and

two key board committees: the Risk Committee and the Audit Committee. For details on our risk management governance and structure, see “Risk Management - Risk management overview” in our 2019 Annual Report.

#### Primary Risk Types

The understanding, identification and management of risk are essential elements for the successful management of BNY Mellon. For details on our primary risk categories, see “Risk Management - Primary risk types” in our 2019 Annual Report.

#### Credit Risk Management

For information on our credit risk management, see “Risk Management - Credit risk” in our 2019 Annual Report.

#### Risk Measurement and Reporting Systems

The Company’s risk measurement and reporting systems are designed to ensure that all relevant risks and exposures are comprehensively captured, with all of the attributes necessary to support robust decision making by senior management and risk mitigation within approved risk appetite levels.

#### Credit Risk Exposure

The following tables set forth total credit exposure before the effect of credit risk mitigation (such as collateral and netting) and break down the exposure by geographic region, counterparty and remaining

contractual maturity. In order to remove the effects of credit risk mitigants, exposures were grossed up for the following product types: Securities lending, OTC derivatives, margin loans, and repurchase agreements (“repo”)/reverse repurchase agreement (“reverse repo”) transactions. The cumulative effect of credit risk mitigation was \$687 billion as of Dec. 31, 2019. Credit exposure is presented using EAD for all tables below.

<b>Credit risk exposure before effect of credit risk mitigation – quarter end and average (a)</b>			
	<b>Dec. 31, 2019</b>		<b>4Q19 Average (b)</b>
<i>(in millions)</i>			
Cash and due from, and interest-bearing deposits with, banks	\$	112,585	\$ 103,075
Investment securities - wholesale		114,307	113,940
Loans		40,940	42,285
Unused commitments (c)		30,559	30,926
OTC derivatives (d)		29,496	29,604
Securities lending - agency & CIBC agency indemnified		470,886	468,778
Repo-style transactions and margin lending (d)		219,475	191,764
<b>Total credit risk exposure (e)</b>	<b>\$</b>	<b>1,018,248</b>	<b>\$ 980,372</b>

- (a) Credit risk exposure represents exposure before the effect of credit risk mitigation such as collateral, guarantees and netting.
- (b) Calculated using a simple average based on the current and prior quarter balances.
- (c) Includes unused commitments, commercial L/Cs and standby L/Cs.
- (d) Includes transactions cleared through qualifying central counterparties.
- (e) Excludes equities, securitizations, and other assets.

The following table provides a breakdown of credit exposure by geographic region based on the counterparty’s country of risk.

<b>Credit risk exposure before effect of credit risk mitigation by geographic region (a) at Dec. 31, 2019</b>						
<i>(in millions)</i>	<b>Americas</b>		<b>EMEA</b>		<b>APAC</b>	<b>Total</b>
Cash and due from, and interest-bearing deposits with, banks	\$	48,538	\$	36,516	\$ 27,531	\$ 112,585
Investment securities - wholesale		94,712		17,541	2,054	114,307
Loans		33,370		3,088	4,482	40,940
Unused commitments (c)		29,021		1,386	152	30,559
OTC derivatives (d)		18,847		8,930	1,719	29,496
Securities lending - agency & CIBC agency indemnified		289,598		175,118	6,170	470,886
Repo-style transactions and margin lending (d)		208,575		2,175	8,725	219,475
<b>Total credit risk exposure (e)</b>	<b>\$</b>	<b>722,661</b>	<b>\$</b>	<b>244,754</b>	<b>\$ 50,833</b>	<b>\$ 1,018,248</b>

Note: See the table titled “Credit risk exposure before effect of credit risk mitigation - quarter end and average” above for footnotes.

The following table provides a breakdown of credit exposure by counterparty type.

<b>Credit risk exposure before effect of credit risk mitigation by counterparty type (a)</b>						
<b>at Dec. 31, 2019</b>						
<i>(in millions)</i>	<b>Corporate</b>	<b>Sovereign</b>	<b>Bank</b>	<b>Real Estate (f)</b>	<b>Retail</b>	<b>Total</b>
Cash and due from, and interest-bearing deposits with, banks	\$ 350	\$ 95,296	\$ 16,939	\$ —	\$ —	\$ 112,585
Investment securities - wholesale	63,229	44,022	7,056	—	—	114,307
Loans	29,419	309	8,250	2,410	552	40,940
Unused commitments (c)	29,418	4	833	265	39	30,559
OTC derivatives (d)	18,777	404	10,315	—	—	29,496
Securities lending - agency & CIBC agency indemnified	293,853	160	176,873	—	—	470,886
Repo-style transactions and margin lending (d)	210,925	401	8,149	—	—	219,475
<b>Total credit risk exposure (e)</b>	<b>\$ 645,971</b>	<b>\$ 140,596</b>	<b>\$ 228,415</b>	<b>\$ 2,675</b>	<b>\$ 591</b>	<b>\$ 1,018,248</b>

Note: See the table titled "Credit risk exposure before effect of credit risk mitigation - quarter end and average" above for footnotes.

(f) Real estate includes high-volatility commercial real estate ("HVCRE") and income producing real estate ("IPRE").

The following table provides a breakdown of credit exposure by remaining contractual maturity.

<b>Credit risk exposure before effect of risk mitigation by remaining contractual maturity (a)</b>				
<b>at Dec. 31, 2019</b>				
<i>(in millions)</i>	<b>Within 1 year</b>	<b>Between 1-5 years</b>	<b>After 5 years</b>	<b>Total</b>
Cash and due from, and interest-bearing deposits with, banks	\$ 112,585	\$ —	\$ —	\$ 112,585
Investment securities - wholesale	11,731	29,036	73,540	114,307
Loans	21,032	5,634	14,274	40,940
Unused commitments (c)	19,118	11,133	308	30,559
OTC derivatives (d)	24,328	1,345	3,823	29,496
Securities lending - agency & CIBC agency indemnified	470,886	—	—	470,886
Repo-style transactions and margin lending (d)	213,375	6,100	—	219,475
<b>Total credit risk exposure (e)</b>	<b>\$ 873,055</b>	<b>\$ 53,248</b>	<b>\$ 91,945</b>	<b>\$ 1,018,248</b>

Note: See the table titled "Credit risk exposure before effect of credit risk mitigation - quarter end and average" above for footnotes.

### *Past Due/Nonaccrual/Impaired Loans*

Commercial loans are placed on nonaccrual status when principal or interest is past due 90 days or more, or when there is reasonable doubt that interest or principal will be collected. Exceptions require approval of the Company's Chief Credit Officer ("CCO") or the CRO.

When a first lien residential mortgage loan reaches 90 days delinquent, it is subject to an impairment test and will be placed on nonaccrual status unless there is significant evidence to indicate the borrower will make payment in the next 60-90 days and the loan's collateral value exceeds the unpaid principal balance plus accrued interest. Second lien mortgages are automatically placed on nonaccrual status when they reach 90 days delinquent.

When a loan is placed on nonaccrual status, previously accrued and uncollected interest is

reversed against current period interest revenue. When doubt exists as to the collectability of the remaining investment in a nonaccrual asset, any interest payments received must be applied to reduce the recorded investment in the asset to the extent necessary to eliminate such doubt. However, as long as the remaining recorded investment in the asset is deemed fully collectable, some or all of the cash interest received may be treated as interest income. Placement of a loan on "interest-to-principal" basis or recognition of interest on a cash basis requires the approval of the Company's CCO or the CRO.

As a general rule, a nonaccrual asset may be restored to accrual status when none of its principal and interest is due and unpaid, and the Company expects repayment of the remaining contractual principal and interest. These criteria may be met when (1) all principal and interest are reasonably assured of repayment within a reasonable period and (2) after a sustained period of repayment performance (which is

generally a minimum of 6 months). However, such assets should continue to be reported as past due until they are brought completely current. A nonaccrual loan secured by residential real estate may be restored to accrual status only when none of its principal and interest is due and unpaid, and the Company expects repayment of the remaining contractual principal and interest.

A loan is considered to be impaired when it is probable that we will be unable to collect all principal and interest amounts due according to the contractual terms of the loan agreement. An impairment allowance on loans \$1 million or greater is required to be measured based upon the loan's market price, the present value of expected future cash flows, discounted at the loan's initial effective interest rate, or at fair value of the collateral if the loan is collateral dependent. If the loan valuation is less than the recorded value of the loan, an impairment allowance is established by a provision for credit loss. Impairment allowances are not needed when the recorded investment in an impaired loan is less than the loan valuation.

All residential mortgage loans (unpaid principal balance) are subject to impairment testing and resulting charge-off at 180 days delinquency. Any unpaid principal balance in excess of the value of the property, less cost to sell, is classified as loss. Fraudulent loans should be classified as loss and charged off no later than 90 days of discovery or within the time frames specified within this classification policy, whichever is sooner.

The principal of commercial loans is charged off, either in whole or in part, when based on facts and circumstances a serious doubt arises as to the collectability of all or a portion of the principal. A charge-off memo is prepared by the account officer and must be approved by the CCO.

Consumer loans that are not secured by residential real estate are charged off when they become 120 days past due. Residential mortgage loans delinquent 180 days or more are charged off to the extent unpaid

principal balance plus superior liens (such as taxes and co-op fees) exceed the appraised value less 10%. In addition, charge-offs may be taken at the discretion of management which in some cases may represent the full balance of the loan.

For details on our domestic impaired, past due, and nonaccrual loans at Dec. 31, 2019, see Note 5 - Loans and asset quality of the Notes to Consolidated Financial Statements in our 2019 Annual Report. As of Dec. 31, 2019, there are no foreign impaired, past due, or nonaccrual loans.

#### *Allowance for Loan Losses and Allowance for Lending-Related Commitments*

The allowance for loan losses, shown as a valuation allowance to loans, and the allowance for lending-related commitments recorded in other liabilities are referred to as BNY Mellon's allowance for credit losses. The accounting policy for the determination of the adequacy of the allowances has been identified as a "critical accounting estimate" as it requires us to make numerous complex and subjective estimates and assumptions relating to amounts which are inherently uncertain.

The allowance for loan losses is maintained to absorb losses inherent in the loan portfolio as of the balance sheet date based on our judgment. The allowance determination methodology is designed to provide procedural discipline in assessing the appropriateness of the allowance. Credit losses are charged against the allowance. Recoveries are added to the allowance.

The methodology for determining the allowance for lending-related commitments considers the same factors as the allowance for loan losses, as well as an estimate of the probability of drawdown. For additional information, see "Results of Operations - Critical accounting estimates" and "Results of Operations - Consolidated balance sheet review" in our 2019 Annual Report.

The following table sets forth information on our allowance for credit losses activity.

Allowance for credit losses activity for the quarter ended Dec. 31, 2019										
(in millions)	Commercial	Commercial real estate	Financial institutions	Lease financings	Wealth management loans and mortgages	Other residential mortgages	All Other	Foreign	Total	
Beginning balance	\$ 61	\$ 77	\$ 21	\$ 3	\$ 20	\$ 14	\$ —	\$ 28	\$ 224	
Net (charge-offs) recoveries	—	—	—	—	—	—	—	—	—	
Provision	(1)	(1)	(1)	—	—	(1)	—	(4)	(8)	
Ending balance	\$ 60	\$ 76	\$ 20	\$ 3	\$ 20	\$ 13	\$ —	\$ 24	\$ 216	
Allowance for:										
Loans losses	\$ 11	\$ 57	\$ 5	\$ 3	\$ 18	\$ 13	\$ —	\$ 15	\$ 122	
Lending-related commitments	49	19	15	—	2	—	—	9	94	
Individually evaluated for impairment:										
Loan balance	\$ —	\$ —	\$ —	\$ —	\$ 15	\$ —	\$ —	\$ —	\$ 15	
Allowance for loan losses	—	—	—	—	—	—	—	—	—	
Collectively evaluated for impairment:										
Loan balance	\$ 1,442	\$ 5,575	\$ 4,852	\$ 537	\$ 16,035	\$ 494	\$ 13,598	(a) \$ 12,405	\$ 54,938	
Allowance for loan losses	11	57	5	3	18	13	—	15	122	

(a) Includes \$524 million of domestic overdrafts, \$11,907 million of margin loans and \$1,167 million of other loans at Dec. 31, 2019.

### Credit Risk: Disclosures for Portfolios Subject to IRB Risk-based Capital Formulas

Under the Advanced Approaches risk-based capital rules, BNY Mellon uses the IRB advanced approach for quantifying risk in its credit portfolios. The IRB advanced approach is a method of calculating credit risk capital requirements using internal probability of default (“PD”), loss given default (“LGD”), and EAD models.

#### Overview of Wholesale Internal Rating System

Our internal rating system includes two types of ratings – a borrower rating and a facility rating. A borrower rating is assigned to each customer; a facility rating is assigned to each exposure. A borrower rating is intended to reflect the statistical probability that a customer will default on its debt obligations during the next year. The PD associated with each borrower is calculated annually by the Risk Modeling and Analytics Group. The PDs represent long-run default rates from both internal and external empirical data. The annually updated PD and LGD parameters are used in RWA and capital calculations after receiving approval from the Federal Reserve.

The facility rating reflects the percentage loss we would incur for that facility if the customer were to default on payment of a particular facility. A facility rating is determined by assessing the type of credit exposure, the borrower’s corporate and capital structure, the nature of the borrower’s assets, and

other aspects of the facility to arrive at an estimate of loss in the event of default. The LGD associated with each facility rating is calculated annually by the Risk Modeling and Analytics Group. The LGDs are informed by historic loss rates from both internal and external empirical data.

#### Ratings Assignment Process

BNY Mellon employs an internal system to facilitate the assignment of ratings, document the factors considered in the rating process and archive this data for historic analysis. A borrower rating is assigned when any new credit relationship is established; a facility rating is assigned when a new facility is approved.

Credit underwriters propose ratings on each deal, after which credit risk management reviews and approves the final ratings. Ratings are continually monitored for accuracy in the ordinary course of business as prescribed in the Company’s Risk Policy. All borrowers with credit exposure must be re-rated annually.

#### Borrower Rating Process

We rely on a variety of inputs to assign wholesale borrower ratings. External ratings, internally-developed scorecards and expert judgment are all employed to assign appropriate ratings to customers.

### *Facility Rating Process*

Facility ratings derive from an internal model which considers facility type, structure, and collateral as the principal drivers of recovery, with expert judgment also allowed where these factors do not address all the potential facility risk.

### *Ratings Migration*

Our rating scales incorporate longer-term fundamentals into the rating determination, while proactively downgrading during deteriorating conditions. Downgrades occur on a proactive basis, especially during credit downturns, while upgrades tend to lag credit conditions due to conservatism. Migration of ratings within the credit portfolio is tracked regularly and subject to annual auditing.

### *Credit Risk Governance*

The Company manages its wholesale credit risk at both the individual exposure level and at the portfolio level. Credit risk at the individual exposure level is managed via the credit approval process, with risk management executives responsible for approving the size, terms, and maturity of all credit exposures, as well as assigning and maintaining borrower and facility ratings.

Credit risk at the portfolio level is managed by a centralized group, which calculates our economic capital for credit risk and loan loss reserves. Committees meet within risk management to review risk policies, modeling and quantitative approaches. They also meet to discuss each sub-portfolio to set exposure limits, review concentrations, set portfolio strategy, and discuss improvements to the credit risk management framework.

### *Quantification of Wholesale Risk Parameters, Summary of Advanced Approaches Requirements and Company Implementation*

Quantification is the process of translating observed risk characteristics into meaningful measurements based on observed data. Simply put, it is the process to derive the numerical components of the credit risk rating system for use in risk management. The quantification process is subject to the governance processes described above.

The results of the quantification process are essential to the risk management function at the Company and are applied in risk quantification under regulatory capital standards. As these risk parameters are used to evaluate individual credits and the overall portfolio and will ultimately determine regulatory capital, they must be determined with a high degree of accuracy.

BNY Mellon has historically had a low default portfolio for wholesale exposures and consequently, has been forced to rely upon supplemental external data in order to calibrate the quantification system. BNY Mellon obtains the data from numerous external sources to augment its internal historic data. Internal systems have been improved to track all data relevant for quantification, but external data will likely continue to be necessary indefinitely, to address the size and low default profile of the portfolio.

### *Quantification of PD*

Our PD quantification model uses information of credit ratings and observed default rates in Standard and Poor's ("S&P") measure of rating bands in order to estimate PD of given BNY Mellon internal borrower ratings. The PD estimates are long-run averages of default rates for S&P rating categories and then converted to the Company's internal rating scale. The Company relies upon external data from S&P in the absence of sufficient internal default data by rating.

Every borrower is assigned a borrower rating that maps to one-year PDs for use in credit risk management. The PD estimates are long-run averages of observed default rates based on obligors within a one-year window. The following paragraphs detail the process by which borrower ratings and PDs are generated.

### *Borrower Ratings Basis Groups*

BNY Mellon has created rating groups in which borrowers with similar risk characteristics (and therefore similar default characteristics) are grouped together. Within each rating basis group, particular benchmarks are available as starting points for the internal rating assignment workflow. Available benchmarks include a range of publicly-available ratings, as well as the output of internal scorecard models.

Once a borrower's benchmark is chosen, the rater may adjust the rating up or down based on certain factors. Adjustments address factors not appropriately considered by the chosen benchmark, such as credit enhancements (e.g. guarantees). Ratings are monitored and reviewed for continued accuracy in the ordinary course of business. All borrowers with credit exposure must be re-rated annually with few exceptions.

#### *PD Assignment*

Once a borrower has a final rating, PD rates are applied based on an annual quantification analysis. This analysis incorporates internal and external data to determine the most appropriate PD for each rating.

#### *Quantification of LGD*

The Company assigns a rating representing the predicted loss severity to each credit facility. The model incorporates the factors named above, and allows expert adjustment by the user, as in the case of borrower ratings, which addresses factors not appropriately considered by the model.

Once final facility ratings are assigned, each rating receives an LGD percentage for use in quantitative analysis. Internal and external data as well as

industry studies all contribute to the annual quantification process that sets the LGD percent for each facility rating.

#### *Quantification of EAD*

EAD reflects the entire portion of drawn amounts plus a percentage of undrawn availability. The rate of undrawn availability included in the final EAD is the usage given default ("UGD").

UGD is defined as the expected percent of the commitment that will be used in the event of default. The drawn portions of every facility carry an implicit UGD of 100%. Undrawn portions of facilities carry a UGD between 0% and 100% depending on the prospect for additional draws prior to default. The Company performs an annual quantification to determine the factors that affect facility usage leading up to default and to set UGD percentages based on those factors.

#### *Uses of Parameter Quantification*

We use the results of the quantification process for regulatory capital, economic capital and expected loss ("EL") analyses. The EL, in turn, drives the loan loss reserve calculation.

The following tables provide details of BNY Mellon's IRB advanced approach risk parameters used to calculate RWA and capital under the Advanced Approaches risk-based capital rules and set out the distribution of exposures by PD bands.

<b>Wholesale exposures at Dec. 31, 2019</b>						
<i>(dollar amounts in millions)</i>	<b>EAD</b>	<b>Weighted Average PD (a)</b>	<b>Weighted Average LGD (a)</b>	<b>Weighted Average RW (a)</b>	<b>Undrawn Amount (b)</b>	<b>Weighted Average CCF (c)</b>
<b>General Wholesale</b>						
0.00 to < 0.15%	\$ 279,547	0.05 %	36.01 %	14.01 %	\$ 46,915	57.76 %
0.50 to < 0.75%	9,841	0.56	3.37	64.34	2,534	59.11
0.75 to < 1.35%	4,519	0.90	34.69	70.77	1,904	90.17
2.50 to < 5.50%	3,234	2.69	46.96	125.54	220	73.03
5.50 to < 10.00%	479	7.30	48.83	175.35	14	99.15
20.00 to < 100.00%	160	39.29	36.62	188.57	17	52.91
100.00% (default)	18	100.00	39.71	100.00	1	—
General Wholesale Subtotal	297,798	0.14	36.21	18.10	51,605	59.10
<b>OTC Derivatives, Repo-style Transactions and Margin Loans</b>						
0.00 to < 0.03%	\$ 154	0.03 %	54.00 %	6.85 %	\$ —	— %
0.03 to < 0.10%	17,709	0.05	53.35	12.98	—	—
0.10 to < 0.15%	6,772	0.13	53.12	21.06	—	—
0.50 to < 0.75%	1,171	0.56	52.60	62.17	—	—
0.75 to < 1.35%	1,579	0.90	52.71	81.10	—	—
2.50 to < 5.50%	608	2.87	52.76	121.38	—	—
5.50 to < 10.00%	379	7.68	53.92	174.44	—	—
10.00 to < 100.00%	167	39.29	54.00	268.75	—	—
100.00%	—	100.00	38.00	100.00	—	—
Eligible Margin Loans - 300% RW	—	—	—	—	—	—
OTC Derivatives, Repo-style Transactions and Margin Loans Subtotal	28,539	0.53	53.23	26.60	—	—
<b>Total</b>	<b>\$ 326,337</b>	<b>0.18%</b>	<b>37.70%</b>	<b>18.84%</b>	<b>\$ 51,605</b>	<b>59.10%</b>

(a) Weighted averages have been weighted by the sum of EAD within each of the PD bands.

(b) Undrawn amount is defined as the difference between the drawn balance and the limit.

(c) Weighted average credit conversion factor ("CCF") has been weighted by the sum of undrawn amount within each of the PD bands.

## Retail quantification

by the Company, with total exposure less than \$100,000.

### Retail Segmentation Process

The retail segmentation process uses various factors relevant to the credit risk of retail borrowers to group those borrowers into pools for risk quantification purposes. Quantification of each parameter (PD, LGD and EAD) then occurs at the pool level.

In the first phase of segmentation, the Company assigns each retail exposure to one of three retail subcategories:

- Exposures Secured by Residential Mortgages** – include primarily mortgages (first and subsequent) on one-to-four-family residential properties.
- Qualifying Revolving Exposures** – include revolving exposures unconditionally cancelable

- Other Retail Exposures** – include exposures where the Company provides consumer and non-consumer lines of credit to certain unaffiliated third-party borrowers that are secured by securities owned by the borrowers or certain unaffiliated-third party guarantors.

Within each of these broader segments, we delineate additional pools based on relevant risk criteria. The pooling methodology aims to provide meaningful differentiation so that there are no material differences in the EL severity of individual exposures within each pool. Every retail exposure must be categorized in this way.



*Retail Parameters*

PD, LGD and EAD parameter calculations are performed on non-defaulted retail exposures. For defaulted exposures we do not need these parameters because they are automatically risk weighted at 100%. The calculations are done at both the pool and sub pool level and mapped to each retail exposure within these pools. Historical data retention is a critical component of calculation and validation of retail parameters. External data augments our internal data where doing so provides more robust risk estimates.

The following table presents BNY Mellon's retail exposures.

*Defaulted Retail Exposures*

Retail exposures are considered defaulted if certain past due criteria are met. These criteria vary depending on segment and product type.

<b>Retail exposures by PD at Dec. 31, 2019</b>						
<i>(dollar amounts in millions)</i>						
	<b>EAD</b>	<b>Weighted Average PD (a)</b>	<b>Weighted Average LGD (a)</b>	<b>Weighted Average RW (a)</b>	<b>Undrawn Amount (b)</b>	
<b>Residential mortgage</b>						
0.10 to < 0.15%	\$ 234	0.12%	29.65%	8.10%	\$	—
0.25 to < 0.35%	8	0.26	49.38	24.05		—
0.50 to < 0.75%	136	0.62	36.68	33.23		—
1.35 to < 2.50%	—	1.56	100.00	167.33		—
2.50 to < 5.50%	83	3.94	40.98	118.89		—
10.00 to < 20.00%	9	14.22	35.00	179.43		—
20.00 to < 100.00%	11	48.16	36.19	178.54		—
100.00% (default)	16	100.00	38.80	100.00		—
<b>Revolving</b>						
0.10 to < 0.15%	91	0.10	100.00	24.53		70
100.00% (default)	2	100.00	100.00	100.00		—
<b>Other Retail</b>						
1.00 to < 1.50%	—	1.00	10.00	10.17		—
7.00 to < 8.00%	—	7.16	100.00	154.51		—
<b>Total retail exposure</b>	<b>\$ 590</b>	<b>4.86%</b>	<b>44.68%</b>	<b>40.83%</b>	<b>\$</b>	<b>70</b>

(a) Weighted averages have been weighted by the sum of EAD within each of the PD bands.

(b) Undrawn amount is defined as the difference between the drawn balance and the limit.

*Net Recoveries (Charge-offs)*

There were no net recoveries or charge-offs in the fourth quarter of 2019.

### Counterparty Credit Risk for Derivative Contracts, Repo-style Transactions and Eligible Margin Loans

BNY Mellon engages in trading activities on behalf of its customers in the FX cash and derivatives markets. As a result BNY Mellon regularly enters into forward-settling financial contracts with customers ("counterparties"), the market values of which contracts will fluctuate day-to-day based on prevailing market conditions. Whenever the market

value of such positions is positive, it represents an effective extension of credit by the Company to the customer. If the customer were not to perform on its obligations, BNY Mellon would be at risk of suffering an economic loss on the value of those contracts and may need to resort to recovering the lost value in bankruptcy proceedings. This risk is known as "counterparty default risk."

Types of counterparty default-risk include pre-settlement and settlement risk. Pre-settlement risk is the risk that a counterparty defaults before it has fulfilled all its contractual obligations causing a loss of any positive net market value to BNY Mellon. Settlement risk — sometimes called pay-away risk — is the risk that on the settlement of an FX contract,

BNY Mellon pays its currency obligation to the counterparty, but the counterparty never pays in its currency obligation to BNY Mellon causing a loss of the entire contract principal.

Additionally, BNY Mellon can suffer market losses due to the deterioration of the credit quality of a counterparty short of its non-performance or default. Because the counterparty's credit quality is factored into the market valuation of the portfolio held with that counterparty, falling credit quality can reduce this value and require a negative adjustment in our income statement. A significant and broad-based deterioration in credit quality across BNY Mellon's trading counterparties can result in a material loss of market value. This risk is known as CVA risk.

Counterparty default risk and CVA risk together represent two components of overall counterparty risk assumed by BNY Mellon in its FX and derivative trading activities.

BNY Mellon's counterparty risk is heavily concentrated in our largest bank subsidiary, The Bank of New York Mellon, resulting from activities of its Markets business which operates in FX cash markets and also in interest rate and FX derivative markets.

BNY Mellon engages in a variety of risk management activities to control and limit the degree of counterparty risk assumed by its businesses including managing credit risk at the counterparty, portfolio and country level. These risk management activities include:

- Limit management of various counterparty-level exposure metrics;
- Centrally cleared trades;
- Netting agreements and collateral exchange terms with counterparties;
- Approval and monitoring of collateral exchanges;
- Calculation and review of stress and sensitivity metrics;
- Monitoring of wrong-way risk reports;
- Review of country-level risk concentrations;
- Monitoring of settlement failures;
- Special review of "large-exposure" counterparties;
- Economic capital analyses;
- Active hedging of CVA risk by the business; and
- Other ad hoc analyses.

Additionally, we have executed legal agreements with many of our counterparties that help to reduce counterparty risk inherent in FX and derivative trading activity.

The most common legal agreement used by market participants is a master netting agreement that can significantly reduce exposure by permitting effective offsets to "negatively valued" trades existing with the counterparty.

Master netting agreements used in connection with our FX and derivative trading activity are usually based on two legal templates — the ISDA Master Agreement developed by the International Swaps and Derivatives Association ("ISDA") or the Foreign Exchange and Currency Option Master Agreement. Additionally, within a master netting agreement, collateral exchange terms can be defined in a Credit Support Annex ("CSA") to establish rules by which the trading counterparties are required to post variation margin collateral against the market value of open trades covered by the agreement, and in some CSAs, post initial margin collateral based on the size, type and tenor of the transaction.

In certain cases, BNY Mellon will establish collateral exchange terms outside a CSA on a contract by contract basis. This is known as trade-specific collateral, and can take the form of an initial cash or security posting to cover the potential future exposure of a particular trade.

Additionally, optional termination triggers can be defined within a master agreement (known as Additional Termination Events) that permit BNY Mellon to force the counterparty to immediately cash-settle the current market value of all open contracts if the counterparty's credit rating falls below a certain trigger level. These termination events protect us from having to hold on to open contracts with a counterparty experiencing credit difficulties.

When both netting and collateral terms are actively implemented, counterparty risk can be reduced to a small fraction of what it would be otherwise. These arrangements never completely eliminate counterparty risk, but they are effective in significantly reducing that risk. There were no counterparty default losses in the fourth quarter of 2019.

*Economic Capital*

BNY Mellon has implemented a methodology to estimate Company-wide economic capital needs to support the safe operation of its various businesses including the FX and derivative businesses, repo-style transactions and eligible margin loans. The computation and review of economic capital is a part of BNY Mellon's ICAAP and, along with regulatory capital, represents a key risk management activity. This ensures that the actual level of capital held by the Company is commensurate with its risk profile and that it is sufficient to provide the financial flexibility to undertake future strategic business initiatives.

*Credit Limits*

We assess credit risk of our counterparties through regular examination of their financial statements, confidential communication with the management of those counterparties and regular monitoring of publicly available credit rating information. This and other information is used to develop proprietary credit rating metrics used to assess credit quality.

For FX and derivative businesses, Credit Underwriting teams set and monitor counterparty limits to control the pre-settlement and settlement risk of trades. For FX trading, daily settlement limits are established to control the aggregate size of FX notional amounts permitted to settle with a counterparty on any given settlement date.

Pre-settlement risk for the FX and derivative businesses is managed through limits established on a stressed exposure and the maximum tenor of contracts. The stressed exposure calculation — internally called Cross-Product Potential Risk (“CPPR”) — captures the 99th percentile peak exposure that could be produced by a counterparty's portfolio over its lifetime. It is based on a Monte Carlo simulation of market factors that impact the pricing of the contracts and considers diversification of exposures across product categories and any netting and collateral arrangements that may be in place. A tenor limit works in conjunction with the CPPR limit to control pre-settlement exposures and defines the longest trade maturity BNY Mellon is willing to accept with a counterparty. CPPR limits are actively monitored using intraday reports and desktop monitoring tools.

We also measure the risk of potential credit loss in Securities Financing Transactions (“SFT”), where we may assume credit exposure risk to counterparties under certain market conditions. The internal risk metric used to measure this risk for most SFTs is Counterparty Potential Future Exposure (“CPFE”). CPFE estimates potential realized peak credit exposure to a counterparty under simulated market conditions and is calculated using an historical simulation methodology at a 99% confidence level.

CPFE is calculated for SFT counterparties with whom BNY Mellon has a direct principal transactional relationship and also for SFT clients whose losses BNY Mellon indemnifies as agent. CPFE exposure estimates and takes into account the time to liquidate collateral upon a counterparty's default and represents net unsecured exposure that may be realized after the default of the counterparty and after collateral has been liquidated, taking netting sets and legal enforceability into account.

We manage SFT exposure using a combination of both CPFE and notional limits for each individual counterparty. Usage against CPFE and the notional limit is monitored at the individual counterparty level as well as at the level of the counterparty's ultimate parent. CPFE and notional exposure is provided daily through standard reporting. Reporting includes detailed information, such as CPFE and notional usage, the transaction type, collateral type and market value. CPFE and notional exposures are monitored daily.

Detailed policies and procedures govern the overall limit management process (including CPPR and CPFE) and cover activities such as:

- Formal acknowledgment procedures for limit excesses;
- On-site credit officers to exercise approval authorities and escalation procedures when those limits are exceeded;
- Approval and monitoring of collateral;
- Monitoring of settlement fails; and
- Periodic portfolio and documentation reviews.

We manage credit risk at the individual exposure, portfolio and country level. Credit risk at the individual exposure level is managed through the credit approval system involving Operational Credit Managers (“OCMs”), Credit Portfolio Managers (“CPM”), Credit Division Heads, the CCO and the

CRO. This group, collectively, “Credit Risk Management,” is responsible for approving the size, terms and maturity of all credit exposures as well as the ongoing monitoring of the exposures. BNY Mellon employs a “Signature System” for all credit approvals. A minimum requirement of the “Signature System” is that a proposal must have the signature approval of an OCM or CPM, or higher (unless delegated per policy). In addition, OCMs and CPMs are responsible for assigning and maintaining the risk ratings on each exposure.

#### *Risk Tolerance*

BNY Mellon will assume credit risk to the extent that it can maintain Tier 1 capital in excess of economic capital at a 99.9% confidence interval. Credit risk is also managed by annually setting guideline limits on economic capital. The Risk Policy Manual, changes to which are reviewed annually by the Risk Committee of the Board of Directors, contains these guideline limits. In effect, internal credit guidelines are set and monitored for those activities that generate credit risk typically based on the size of the exposure and the maximum tenor of the extended credit.

#### *Disclosure of contingent features in OTC derivative instruments*

Certain OTC derivative contracts and/or collateral agreements contain credit-risk contingent features triggered upon a rating downgrade in which the counterparty has the right to request additional collateral or the right to terminate the contracts in a net liability position.

The following table shows the aggregate fair value of OTC derivative contracts in net liability positions that contained credit-risk contingent features and the value of collateral that has been posted.

<i>(in millions)</i>	<b>Dec. 31, 2019</b>
Aggregate fair value of OTC derivatives in net liability positions (a)	<b>\$ 3,442</b>
Collateral posted	<b>3,671</b>

(a) *Before consideration of cash collateral.*

The aggregate fair value of OTC derivative contracts containing credit-risk contingent features can fluctuate from quarter to quarter due to changes in market conditions, composition of counterparty

trades, new business or changes to the contingent features.

The Bank of New York Mellon, our largest banking subsidiary, enters into the substantial majority of our OTC derivative contracts and/or collateral agreements. As such, the contingent features may be triggered if The Bank of New York Mellon’s long-term issuer rating was downgraded.

The following table shows the fair value of contracts falling under early termination provisions that were in net liability positions for three key ratings triggers.

<b>Potential close-out exposures (fair value) (a)</b>	<b>Dec. 31, 2019</b>
<i>(in millions)</i>	
If The Bank of New York Mellon’s rating was changed to: (b)	
A3/A-	<b>\$ 56</b>
Baa2/BBB	<b>\$ 608</b>
Ba1/BB+	<b>\$ 2,084</b>

(a) *The amounts represent potential total close-out values if The Bank of New York Mellon’s long-term issuer rating were to immediately drop to the indicated levels, and do not reflect collateral posted.*

(b) *Represents ratings by Moody’s/S&P.*

If The Bank of New York Mellon’s debt rating had fallen below investment grade on Dec. 31, 2019, existing collateral arrangements would have required us to post an additional \$63 million of collateral.

#### *Derivatives*

The U.S. capital rules allow banks to use the Current Exposure Method (“CEM”) or the Internal Models Method, after receiving prior written approval from the regulators, for estimating EAD associated with counterparty trades. BNY Mellon currently uses the CEM approach for estimating EAD which utilizes the Positive Fair Value in combination with a regulatory defined Potential Future Exposure (“PFE”).

The table below presents BNY Mellon's derivative exposure.

Derivatives (in millions)	Dec. 31, 2019						
	OTC Derivatives			Cleared Derivatives			
	Positive Fair Value	PFE	EAD	Positive Fair Value	PFE	EAD	Total EAD
Interest rate contracts	\$ 3,530	\$ 710	\$ 4,240	\$ 3,447	\$ 1,091	\$ 4,538	\$ 8,778
Foreign exchange contracts	5,382	8,245	13,627	—	—	—	13,627
Equity derivative contracts	735	1,697	2,432	1,493	4	1,497	3,929
Default fund contributions	—	—	—	3,162	—	3,162	3,162
Total exposure	\$ 9,647	\$ 10,652	\$ 20,299	\$ 8,102	\$ 1,095	\$ 9,197	\$ 29,496
Netting							(12,922)
Netted EAD pre-collateral							\$ 16,574
Collateral applied (a)							(2,518)
Total exposure after netting and collateral							\$ 14,056

(a) Collateral applied consists primarily of cash.

Periodically, we purchase single name credit default swaps, credit default swap index ("CDX") and commercial mortgage-backed securities ("CMBS") index protection or other forms of credit protection to reduce our exposure to certain institutions or industries. The table below shows the notional amount of credit derivatives which BNY Mellon used for its own credit portfolio. As of Dec. 31, 2019, BNY Mellon had purchased \$165 million of CDX protection. The exposure categories presented below represent those of the protection provider rather than the underlying borrower.

Credit derivatives (in millions)	Dec. 31, 2019	
	Purchased	Sold
CDX	\$ 165	\$ —
Total credit derivatives	\$ 165	\$ —

#### Repo-style/SFT Transactions

A securities lending transaction is a fully collateralized transaction in which the owner of a security agrees to lend the security (typically through an agent, in our case, The Bank of New York Mellon), to a borrower, usually a broker-dealer or bank, on an open, overnight or term basis, under the terms of a prearranged contract.

We typically lend securities with indemnification against borrower default. We generally require the borrower to provide collateral with a minimum value of 102% of the fair value of the securities borrowed, which is monitored on a daily basis, thus reducing credit risk. Market risk can also arise in securities

lending transactions. These risks are controlled through policies limiting the level of risk that can be undertaken. Securities lending transactions are generally entered into only with highly rated counterparties. BNY Mellon has indemnified activity of \$408 billion as of Dec. 31, 2019. Securities lending indemnifications were secured by collateral of \$428 billion at Dec. 31, 2019.

CIBC Mellon, a joint venture between BNY Mellon and the Canadian Imperial Bank of Commerce ("CIBC"), engages in securities lending activities. CIBC Mellon, BNY Mellon and CIBC jointly and severally indemnify securities lenders against specific types of borrower default. At Dec. 31, 2019, \$57 billion of borrowings at CIBC Mellon, for which BNY Mellon acts as agent on behalf of CIBC Mellon clients, were secured by collateral of \$61 billion. If, upon a default, a borrower's collateral was not sufficient to cover its related obligations, certain losses related to the indemnification could be covered by the indemnitors.

Under the U.S. capital rules, all indemnified securities lending activities, including securities lent with cash collateral received and all indemnified cash reinvestments into reverse repos are included in our RWA calculation.

For the above mentioned repo-style transactions, the U.S. capital rules allow banks to calculate EAD by using the collateral haircut approach or, after receiving prior written approval from the regulators, the Simple Value-at-Risk ("Simple VaR") or Internal Models Method ("IMM"). As an alternative to mitigating credit risk through these EAD calculation

options, banks can apply the LGD adjustment approach used in calculating the risk weight and expected credit loss. During the fourth quarter of 2019, BNY Mellon received written approval from the regulators to use the Simple VaR approach to calculate EAD on our Agency Securities Lending portfolio. As a result, BNY Mellon is currently applying the Simple VaR approach for its Agency Securities Lending business and the collateral haircut approach or adjusted LGD approach for all other repo-style transactions.

The following table provides EAD for all counterparty credit risk of repo-style transactions, by credit risk mitigation method and product type.

<i>(in millions)</i>	EAD Adjustment Method	LGD Adjustment Method	Total
Securities Lending	\$ 6,893	\$ —	\$ 6,893
Repo/Reverse Repo and Securities Borrowing	11,908	—	11,908
Broker/Dealer and Margin Lending	915	378	1,293
Cleared Repo/Reverse Repo	1,423	—	1,423
<b>Total</b>	<b>\$ 21,139</b>	<b>\$ 378</b>	<b>\$ 21,517</b>

## Credit Risk Mitigation

BNY Mellon manages credit risk through a variety of credit risk mitigation strategies including the following (each of which is discussed in additional detail below):

- Asset sales (for traditional loan products);
- Active collateralization (for repo-style transactions, foreign exchange and derivative transactions);
- Master agreements/netting arrangements (for foreign exchange, derivatives and SFTs); and
- Credit derivatives.

Credit risk arises from several sources, including traditional lending activities and credit products, operational credit exposures, Securities Lending activities and Markets exposures. Each of these items is discussed below.

Traditional lending activities and credit products, include:

- Loans, lease commitments, advised and committed lines of credit (used or unused) and guidance lines for commercial transactions, whether secured or unsecured;
- Facilities to issue or confirm L/Cs;
- Acceptances;
- Overnight overdraft lines;
- Interbank money market/placement and federal funds;
- Federal funds swaps and segregated offset finance products;
- Receivables purchases without recourse to the seller;
- Swingline loans;
- Due from “Nostros” accounts;
- Secured overnight exposure to broker/dealers; and
- Repurchase agreements/reverse repurchase agreements.

Operational credit exposure consists of extensions of intraday credit provided as part of our investment services businesses, which include principally asset servicing, cash management, corporate trust, treasury services, broker-dealer services and collateral services. This type of credit exposure is associated with products with low historical credit losses. Operational credit exposures are also short-term in nature and normally require the occurrence of two separate events to generate a loss (e.g. the transaction fails causing an extension of credit and then the counterparty defaults).

Examples of operational credit exposures include:

- Daylight and overnight lending facilities, including daylight overdrafts, day loans to broker/dealers; and
- Securities-related facilities, including tri-party target limits, custody and clearing facilities, margin deposit limits, guidance lines for corporate trust and government securities clearance.

Securities lending activities consist of the temporary exchange of lendable securities for acceptable collateral between a lender and an approved borrower. The transaction is facilitated by a lending agent, as either agent or principal that stands between the lender and the ultimate borrower. Credit risk arises for Securities Lending activities when:

- The borrower fails to return the securities on loan and BNY Mellon is forced to replace them, either by purchasing or borrowing the securities which may have appreciated or depreciated, in value. The credit risk is limited to the difference between the market value of the collateral held and the cost of the replacement securities.
- BNY Mellon, acting as an agent, indemnifies its institutional lenders against loss on the cash or other collateral received.
- BNY Mellon, acting as a principal to the trades, in the event of a counterparty default, assumes the risk of both any difference between the market value of collateral held and the cost of replacement of securities, and the need to post an additional amount for margin posted when borrowing the securities.

Markets exposure consists of FX and derivative exposure used for trading and interest rate management purposes. In providing FX and derivative products to our clients, we are assuming counterparty credit risk. BNY Mellon would incur a loss on a derivative contract if rates move in our favor vis-à-vis the transaction and if the counterparty defaults. Certain derivatives are centrally cleared whereby BNY Mellon does not face the original counterparty, but instead the central counterparty (“CCP”). As a clearing member of a CCP, we have the potential for loss if one of the CCP’s counterparties were to default and the loss experienced by the CCP is larger than the collateral posted to the CCP by the defaulting counterparty and the reserve fund.

Examples of Markets exposure include:

- Foreign currency contracts;
- Foreign currency option contracts;
- Interest rate swaps, options, caps and floors;
- Futures and forward contracts;
- Equity options;
- Total return swaps; and
- Credit default swaps.

#### *Asset Sales*

In certain instances, we may also decide to sell part of our credit exposure. This type of mitigation is used primarily for traditional lending exposure. The decision to sell or hedge an asset is based on relative cost as well as the potential impact to the client.

Under the terms of credit agreements, we are typically required to seek the client’s approval before selling part of our exposure.

#### *Active Collateralization*

The acceptance of collateral with at least daily margining is used for various exposure types. In Securities Lending, for example, the borrower is required to post collateral for lending activity with additional margins that can range from 102% to 110%. The collateral received from the borrower falls within the acceptable collateral types defined under the U.S. capital rules, including cash collateral and other types of security collateral including sovereign bonds, both U.S. and non-U.S., and equity security collateral. The collateral amounts with the borrowers are adjusted at the beginning of every day to reflect the prior days’ market activity and the collateral amounts are adjusted throughout the day for loan activity with the borrower.

Collateral is also used to mitigate the counterparty credit risk associated with FX and derivative transactions. Some collateral agreements may feature downgrade provisions that reduce the unsecured threshold if a counterparty were to be downgraded by a major rating agency such as S&P’s, Moody’s or Fitch.

Acceptable collateral for derivatives includes cash, U.S. Treasury securities, U.S. government agency securities and/or international equivalents and any other collateral that Risk Management may approve from time to time. The collateral is generally marked-to-market daily, and any haircuts applied to these securities to determine the effective total amount posted must follow both regulations and our internal policies. These haircuts are intended to protect BNY Mellon in case the value of the collateral suddenly falls under changing market conditions.

#### *Wrong-way Risk*

Credit Risk Management takes particular care to avoid wrong-way risk between collateral and exposures. Wrong-way risk results when the exposure to the counterparty increases when the counterparty’s credit quality deteriorates. That is, it arises when default risk and credit exposure increase together.

There are two types of wrong-way risk. Specific wrong-way risk arises when the relationship between credit quality and exposure is explicit and direct. For example, if exposure is collateralized by a counterparty's own equity, it produces an obvious specific wrong-way risk situation. General wrong-way risk arises where the relationship is not explicit, but statistically material. For instance, if exposure is collateralized by a security that is strongly correlated with the counterparty's credit quality (i.e., security value tends to fall when credit quality falls), a general wrong-way risk situation may exist.

#### *Master Agreements and Netting*

Master agreements and netting are used to mitigate counterparty credit risk as a result of markets exposure. All counterparties that trade term exposures are expected to sign a master agreement containing netting provisions and clauses that seek to minimize credit exposures. The principal Master Agreements used are based on the following form agreements: the Master Repurchase Agreement, the Global Master Repurchase Agreement, the Master Securities Loan Agreement, the Global Master Securities Lending Agreement, ISDA Master Agreement and the International Foreign Exchange and Currency Option Master Agreement.

Netting provisions are contained in the Master Agreements described above. Netting may take two different forms: close-out netting and settlement netting. Close-out netting refers to an agreement between BNY Mellon and a counterparty so that upon specified events of default, the non-defaulting party can require that:

- All open transactions be marked-to-market (present valued) and summed;
- A single net payment be made as final settlement to whichever party holds the overall profit from those transactions; and
- Collateral be liquidated (if held).

Settlement netting (also called payment netting) requires that all payment obligations between us and a counterparty, that are payable on the same settlement date, be netted to produce a single payment obligation for each currency pair traded.

#### *Credit Derivatives*

Credit Derivatives may be used with traditional lending and extensions of credit under four

circumstances: (1) to hedge large individual name concentrations (2) to hedge large industry concentrations (3) to hedge idiosyncratic risk, in unique situations where such risk is present and (4) to manage CVA risk. For more information on our Credit Derivatives, see the "Counterparty Credit Risk for Derivative Contracts, Repo-style Transactions and Eligible Margin Loans" section of this Disclosure.

#### *Concentration Risk*

While traditionally concentration risk is associated with credit risk, we have taken a broader view of concentration risk. We define concentration risk as the risk of loss not only associated with outsized credit granted to individual or interrelated borrowers but also to any significant interrelated risk exposures that may produce large losses or may threaten the safety and soundness of BNY Mellon. Concentration risk may arise from connected factors which are not readily apparent and identifiable. It can take the form of intra-risk concentrations and cross-risk concentrations. Intra-risk credit concentrations may arise from out-sized credit (default) risk exposures to one or more exposure characteristics, such as a single obligor or interconnected obligors, economic sector, geographic location and/or financial instrument/product type. Cross-risk concentrations arise from out-sized exposures to one or more common exposure characteristics when viewed across multiple risk types.

We have well-established policies and procedures to identify, manage and measure credit risk concentrations through the use of the following specific limits and underwriting guidelines:

- Target portfolio values should not exceed industry or country notional exposure portfolio limits;
- Target portfolio values should not exceed industry economic capital portfolio limits; and
- Prior to the credit underwriting approval process, requests for committed credit facilities and advised lines of credit are reviewed to confirm that total relationship revenue relative to aggregate customer risk exposure is adequate. Global Client Management, Lines of Business and Credit Risk Management functions present transactions in a weekly meeting chaired by the Chief Corporate Lending Officer or an authorized delegate. Exceptions to this process are bilateral



letters of credit of less than: (i) \$5 million per transaction or (ii) \$10 million in the aggregate per customer.

Additionally, BNY Mellon's Portfolio Management Committees identify and manage credit risk concentrations by periodically reviewing exposures to identify "Pools of Risk." Pools of Risk are delineated by:

- An entity where BNY Mellon is deemed to have an ownership interest having exposure to BNY Mellon that exceeds \$500 million;
- Exposures administered under a special industries lending group;
- Individual country exposures administered by the Global Banks and Broker Dealers Credit Group;
- Any industry which has an industry lending guideline; and
- Any group of exposures or customers within an industry which, as a group, pose significant credit or operational risks to the Company due to the nature of our business in that industry or due to the financial condition of the industry.

Each Portfolio Management Committee recommends specific Pools of Risk that warrant a more comprehensive review. The reviews are conducted by the appropriate Credit Division Head, one or more Credit Risk Managers, one or more representatives from Enterprise Capital Adequacy group and may include one or more representatives from the appropriate Global Client Management or Business Division. This group produces a report identifying the quantity, quality, and liquidity of the credit exposure to the Pools of Risk by calculating the total exposure, exposure composition and the weighted-average borrower and facility ratings. The report and its conclusions are presented to the appropriate Portfolio Management Committee.

BNY Mellon also accounts for credit risk concentrations in its capital estimates through its credit risk economic capital model.

Additionally, we use enterprise-wide stress testing to evaluate cross-risk concentrations. One of the goals of enterprise-wide stress testing is to assess the worst impact resulting from a stressed scenario on one or more interrelated exposure characteristics across all risk types so that potentially significant cross-risk concentrations can be understood.

For more detail regarding our credit risk management practices, see the "Credit Risk: General Disclosures" and "Credit Risk: Disclosures for Portfolios Subject to IRB Risk-based Capital Formulas" sections of this Disclosure.

## Securitization Exposures

### *Overview*

We are exposed to securitization products as a result of either purchasing securitizations originated by others into our investment portfolio, as a derivative counterparty to securitization transactions, or through extending credit to special purpose vehicles or non-operating companies defined as securitization exposures under the U.S. capital rules. The exposure amount and RWA for securitization exposures found in the banking book, and non-covered positions from the trading book are calculated in accordance with the U.S. capital rules hierarchy of approaches. At Dec. 31, 2019, BNY Mellon was primarily utilizing the Simplified Supervisory Formula Approach ("SSFA"). Currently, we do not hedge our securitization portfolio.

### *Risk Governance*

Our ALCO, which reports to the Senior Risk Management Committee ("SRMC"), has several responsibilities related to balance sheet management, including providing oversight of the investment portfolio, monitoring interest rate sensitivity, monitoring balance sheet and capital ratios and ensuring adequate liquidity. The SRMC is the most senior management body responsible for evaluating emerging risks and for reviewing any material breaches to our risk appetite and approves action plans required to remediate any issues. The SRMC provides oversight for the risk management, compliance and ethics framework.

### *Objectives of the Company's Securitization Activity*

BNY Mellon is exposed to securitization exposures primarily from three activities: investment portfolio exposures, as a derivative counterparty to securitization transactions and a liquidity provider to securitization special purpose vehicles ("SPVs"). These securitization activities are described in more detail in the following paragraphs.

## Investment Portfolio Exposures

BNY Mellon is an investor in securities that qualify as securitization exposures under Basel III. These are composed mostly of highly rated, investment grade securities and include, among other types, investments in residential mortgage-backed securities (“RMBS”), CMBS, CLO and other asset-backed securities (“ABS”). BNY Mellon’s investment portfolio also includes \$6 million of resecuritization exposures with an RWA of \$19 million. These exposures relate to legacy RMBS investments. The investment portfolio in its entirety is managed by our Corporate Treasury function and the portfolio’s direction, composition, and riskiness is monitored on a daily basis.

As discussed in additional detail below, RWA for securitization exposures are calculated using either the Supervisory Formula Approach (“SFA”), SSFA, a 100% risk weight (for OTC derivatives that meet the criteria) or the 1250% risk weighting approach depending on the appropriate treatment for the exposure.

## Derivative Counterparty to Securitization Transactions

BNY Mellon has Interest Rate and Foreign Exchange derivative exposures that support securitization transactions and are considered securitization exposures under the U.S. capital rules. These exposures generally receive a 100% risk-weight.

## Liquidity Provider

BNY Mellon extends a limited number of liquidity facilities to SPVs. Typically, these exposures are subject to the SSFA treatment if the SFA cannot be applied.

## Accounting Policies

For a discussion of the Company’s accounting policies for securitization activities, see Note 1 - Summary of significant accounting and reporting policies, Note 4 - Securities, Note 13 - Variable interest entities and securitization, Note 20 - Fair value measurement and Note 21 - Fair value option of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

## Calculation of RWA for Securitization Exposures

Consistent with section 939A of the Dodd-Frank Act, the Final Capital Rules remove the Advanced Approaches risk-based capital rule’s ratings-based approach and internal assessment approach for securitization exposures. Under the U.S. capital rules, the hierarchy for securitization exposures is as follows:

- Banking organizations are required to deduct from CET1 any after-tax gain-on-sale resulting from a securitization and apply a 1250% risk weight to the portion of credit-enhancing interest-only strip (“CEIO”) that does not constitute an after-tax gain-on-sale. If the after-tax gain-on-sale results from a securitization transaction that meets the operational criteria for recognizing the transfer of risk, the deduction of any after-tax gain-on-sale is not required. BNY Mellon currently does not have any securitization exposures that are subject to this deduction or CEIOs that would require a 1250% risk weight.
- For those securitization exposures not subject to capital deduction, a banking organization is required to assign a risk weight to the securitization exposure using the SFA where data to calculate the SFA is available. As of the third quarter of 2017, BNY Mellon adopted the SFA treatment for its securitization exposures that are CLOs and Variable funding notes (“VFNs”). Prior to the third quarter of 2017, BNY Mellon used the SFA treatment only for its securitization exposures that were VFNs.
- Banking organizations not adopting the SFA are permitted to apply the SSFA under certain situations. The SSFA does not rely on credit ratings when determining the amount of risk that securitization exposures represent.
- Banking organizations may assign a risk weight of 100% to certain derivatives that have a first priority claim on cash flows from the underlying exposures of a securitization exposure under the U.S. capital rules.
- Securitization exposures that do not fall under any of the foregoing categories are assigned a 1250% risk weight. In addition, a banking organization must assign a 1250% risk weight to any securitization exposures with respect to which it fails to satisfy applicable due diligence requirements.

The following table presents securitization exposures determined under the U.S. capital rules segmented by the risk weight methodology. The RWA for most securitization exposures is calculated using the SSFA. For exposures, such as CLOs, for which BNY Mellon has sufficient data, RWA is computed using the SFA treatment. OTC derivatives that support securitization exposures, with the exception of those

that do not have first priority on the cash flow waterfall from the underlying exposure, receive a 100% risk weighting. All other securitization exposures without available treatment, or with respect to which a banking organization failed to satisfy applicable due diligence requirements receive a 1250% risk weight.

#### Outstanding traditional securitization exposures by exposure type at Dec. 31, 2019

(in millions)

Exposure Category	Securitization exposure amount			Securitization RWA		
	On-balance	Off-balance	Total	On-balance	Off-balance	Total
RMBS	\$ 1,317	\$ —	\$ 1,317	\$ 1,977	\$ —	\$ 1,977
ABS	2,146	—	2,146	908	—	908
CMBS	2,183	—	2,183	510	—	510
CLO	4,198	—	4,198	1,586	—	1,586
Other (a)	16	88	104	58	87	145
<b>Total outstanding securitization exposures (b)</b>	<b>\$ 9,860</b>	<b>\$ 88</b>	<b>\$ 9,948</b>	<b>\$ 5,039</b>	<b>\$ 87</b>	<b>\$ 5,126</b>

(a) Includes facilities to SPV's and securitization exposure that support derivative transactions.

(b) BNY Mellon did not have any synthetic securitization exposures as of Dec. 31, 2019.

The following table presents securitization exposures by risk weight bands.

#### Securitization EAD and RWA by risk-weight bands at Dec. 31, 2019

(in millions)

	SFA		SSFA		Other (a)		Total	
	EAD	RWA	EAD	RWA	EAD	RWA	EAD	RWA
Securitization:								
<= 25%	\$ 4,077	\$ 815	\$ 4,018	\$ 806	\$ —	\$ —	\$ 8,095	\$ 1,621
>25% to <= 100%	6	4	745	395	87	87	838	486
>100% to <= 250%	8	10	656	1,233	—	—	664	1,243
>250% to <= 650%	12	51	250	720	—	—	262	771
>650% to <= 1250%	56	682	23	249	4	55	83	986
Resecuritization (b):								
>100% to <= 250%	—	—	1	1	—	—	1	1
>250% to <= 650%	—	—	5	18	—	—	5	18
<b>Total securitization positions retained or purchased</b>	<b>\$ 4,159</b>	<b>\$ 1,562</b>	<b>\$ 5,698</b>	<b>\$ 3,422</b>	<b>\$ 91</b>	<b>\$ 142</b>	<b>\$ 9,948</b>	<b>\$ 5,126</b>

(a) Includes securitization exposures that support derivative transactions that are included in the SSFA line item in the FFIEC 101 schedule.

(b) Resecuritization exposures relate to structured products. The credit mitigation and guarantees related to resecuritization positions are not material.

## Operational Risk

In providing a comprehensive array of products and services, we may be exposed to operational risks. To address these risks, we maintain comprehensive policies and procedures and an internal control framework designed to provide a sound operational environment. For information on our various risk activities and groups, including operational risks,

board oversight and governance, operational risk management, and accountability of businesses, see “Risk Management - Risk management overview” in our 2019 Annual Report.

### Operational Risk Tools

We have developed several enterprise-wide tools to aid in understanding and monitoring operational risk. The business environment and internal control factors

tools include a detailed and high level self-assessment program, key risk indicators and operational loss capture and notification.

Operational losses are captured in the general ledger accounts that are mapped to the seven operational risk event categories specified in the U.S. capital rules. Information on operational losses that exceed \$10,000 must be maintained in a central database. We have established policies that require business managers to escalate to senior management within seven calendar days operational risk events where the most likely outcome based on available information is a financial impact of \$50,000 or greater. This notification is sent to Business/Corporate Staff, the Business Chief Risk Officer, the Chief Operational Risk Officer, and for higher threshold amounts, the CRO, the CFO and General Counsel are also notified. The event information from the central database is input to the operational risk capital model along with external loss data.

Operational losses are reviewed and reported monthly. The reporting provides commentary on trends or drivers of losses, total losses by sector and losses expressed as a percentage of revenue.

#### *Business Continuity*

We regularly assess and monitor operational risk in our business and provide for disaster and business recovery planning, including geographical diversification of our facilities. For information on our business continuity strategies, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Business Continuity” in our 2019 Annual Report.

#### *Advanced Measurement Approach (“AMA”) Methodology*

BNY Mellon’s AMA methodology for calculating the capital requirement for operational risk is based on a Loss Distribution Approach (“LDA”). Under the LDA, loss frequency distribution and loss severity distribution are separately estimated from historical loss data, and then combined using Monte Carlo simulations to generate a loss distribution. The loss distribution is used to derive the EL, unexpected loss (“UL”) and capital.

BNY Mellon’s LDA model uses internal and external loss data as inputs and estimates an annual loss

distribution for each unit of measure, and an aggregate annual loss distribution for the corporation with a bottom-up approach. External losses, including fines and penalties levied against institutions in the financial services industry, particularly those that relate to businesses in which we operate, could impact the amount of capital that we are required to hold. The model calculates capital without dependence assumption (i.e., without diversification benefit) and required capital with assumption of dependence across units of measure (i.e., with diversification benefit). The dependence is modeled with a copula method using the correlations of annual losses between units of measure, with the correlations being estimated from historical internal loss data. The required regulatory capital over a one-year time horizon is the required capital without dependence assumption, and is derived from the annual loss distribution with a confidence level of 99.9%. The capital includes UL and EL without any offsets to the EL.

The Model Risk Management Group (“MRMG”) is responsible for reviewing and challenging the operational risk model or changes to the model. The model is run quarterly based on updated parameters. Independent validation of the model is performed annually by the MRMG. The Head of MRMG is responsible for approving the model for use.

The majority of operational risk at BNY Mellon is in our Asset Servicing, Global Collateral Services and Corporate Trust business lines.

#### *Use of Insurance for the Purpose of Mitigating Operational Risk*

BNY Mellon mitigates operational risk with a broad range of insurance policies that cover operational events. The insurance policies that BNY Mellon holds include Financial Institutions Bond, Bankers Professional Liability, Directors’ and Officers’ Liability, All Risk Property policies, and Enterprise Cyber/Privacy Liability. Operational loss data are provided to our Corporate Insurance Group in order to raise awareness of significant operational risk issues to ensure appropriate insurance coverage is in place or to enhance existing insurance policies. An operational risk management policy is in place that describes the process for reporting operational loss data to the Corporate Insurance Group. Although we maintain insurance policies to mitigate operational events, insurance recoveries are not included in the

loss information used in our operational risk capital model.

### Equities Not Subject to Market Risk Rule

The principal functions of the securities portfolios are to generate net interest revenue or capital gains over time, to adjust the interest rate sensitivity gapping position of the Company, to support the liquidity management and funding of the Company, to satisfy deposit pledging requirements, and membership requirements of certain organizations. In recognition of these different functions, the Company's securities portfolio is divided into three portfolios: trading securities (market risk), available-for-sale securities, and held-to-maturity securities.

#### *Accounting and Valuation Methodologies*

For information on the Accounting and Valuation Methodologies of equity investments, see Note 1 - Summary of significant accounting and reporting policies and Note 20 - Fair value measurement of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

#### *Risk-Weighting Approaches*

As described below, we use three approaches to risk weight our equity exposures that are not subject to the Market Risk Capital Rules: Simple Risk-Weight Approach ("SRWA"), Simple Modified Look-Through Approach ("SMLT"), and Full Look-Through Approach ("FLTA").

#### SRWA

BNY Mellon determines the RWA amount for equity exposures, except for equity exposures to investment funds, by multiplying the adjusted carrying value of the equity exposure by the lowest applicable risk weight. Under SRWA:

- Equity investments in sovereigns, certain political subdivisions, renewable energy, the Federal Home Loan Bank or Farmer Mac may be risk-weighted below 100%.
- A "non-significant equity exposure," equity exposures (excluding significant investments in the capital of an unconsolidated financial

institution in the form of common stock and exposures to certain investment firms) with an aggregate adjusted carrying value of 10% or less of a bank's total capital, is risk weighted at 100%.

- An investment in the same equity instrument that exceeds 10% of total capital will be risk weighted at 300% (publicly traded equities) or 400% (non-publicly traded).
- Equity exposures to qualified community development investments are risk-weighted at 100%.
- Significant investments in unconsolidated financial institutions in the form of common stock that are not deducted from regulatory capital are weighted at 250%, while investments in certain firms with securitization features are risk weighted at 600%.

#### SMLT

The SMLT approach is used to calculate the RWA amount of equity exposure to investment funds. Under the SMLT approach, the RWA amount for this type of equity exposure is equal to the adjusted carrying value of the equity exposure multiplied by the highest risk weight that applies to any exposure within the fund allowed by the prospectus to be held.

#### FLTA

The FLTA is used to calculate the RWA amount of the equity exposure to investment funds for which we are able to compute an RWA for each of the exposures held by the investment fund. Under the U.S. capital rules, a bank is required to calculate the RWA for each of the exposures held by the investment fund as if the exposures were held directly by us based on our proportional interest. Depending on whether the exposures were wholesale, retail, securitization, or equity exposures, a bank would apply the appropriate IRB risk-based capital treatment.

#### *Carrying Value and Fair Market Value*

At Dec. 31, 2019, the carrying value and the fair market value of the equity investments were \$5.04 billion and \$5.07 billion, respectively.

The table below details BNY Mellon's equity exposures.

<b>Equity exposures at Dec. 31, 2019</b> <i>(in millions)</i>	<b>EAD</b>	<b>RW %</b>	<b>RWA</b>	<b>Capital Required</b>
Simple Risk Weight Approach:				
Federal Reserve Bank stock	\$ 465	—% \$	— \$	—
Federal Home Loan Bank	23	20%	5	—
Community development	1,186	100%	1,186	95
Renewable energy investments	1,144	100%	1,144	92
Publicly traded	552	100%	552	42
Non-publicly traded	574	100%	574	39
Significant investment in unconsolidated subs and covered funds	581	250%	1,452	116
Funds with greater than material leverage	24	600%	145	12
Subtotal- Simple Risk Weight Approach	<b>4,549</b>		<b>5,058</b>	<b>396</b>
Simple Modified Look-through Approach	<b>1,356</b>	131%	<b>1,783</b>	<b>152</b>
Full Look-through Approach (a)	<b>3,594</b>	31%	<b>1,131</b>	<b>90</b>
Total	<b>\$ 9,499</b>		<b>\$ 7,972</b>	<b>\$ 638</b>

(a) Full Look-through Approach consists primarily of Company-Owned Life Insurance.

### Equity Exposures Gains and Losses

There were net realized gains of \$818 million and no net unrealized losses for the fourth quarter of 2019. The net realized gains were through sales or liquidations. The net realized gains and unrealized losses amounts are included in CET1, Tier 1 and Total Capital.

### Market Risk

The U.S. capital rules' market risk capital rules section (the "Market Risk Capital Rule") requires us to make publicly available quantitative disclosures at least quarterly. Specifically, we are required to disclose, among other items, certain quantitative information on the following measures as applicable to the Company, including for example:

- Value-at-Risk ("VaR") based measures
- Stressed VaR based measures
- Incremental risk capital ("IRC") requirements
- Comprehensive risk measure ("CRM") capital requirements

The quantitative and qualitative information included in this quarterly disclosure is provided at the consolidated Company level.

### Covered Positions

The Market Risk Capital Rule requires us to calculate the market risk regulatory capital based on the

population of covered positions. Covered positions generally include all foreign exchange and commodity positions as well as assets and liabilities in our trading book that meet minimum regulatory requirements making them subject to market risk regulatory capital requirements in the Market Risk Capital Rule.

Due to the regulatory requirements for covered positions, the population of positions included in our regulatory VaR is different from the population of positions in management VaR we disclose in our Form 10-Q and Annual Reports. Management VaR includes positions subject to internal management VaR limits. The population of covered positions in our regulatory VaR is a subset of the population of positions included in our management VaR.

### Securitizations

As of the end of the fourth quarter of 2019, the Company's population of covered positions does not include any positions that meet the definition of a securitization position in the Market Risk Capital Rule.

### Correlation Trading Positions

During the fourth quarter of 2019, the Company's population of covered positions did not include any correlation trading positions.

*Measurement and Monitoring*

The following table summarizes the minimum capital requirement and RWA for market risk calculated in accordance with the Market Risk Capital Rule.

Component <i>(dollars in millions)</i>	Dec. 31, 2019	
	Capital	RWA
VaR (a)	\$ 33.8	\$ 422.5
Stressed VaR (b)	136.9	1,711.7
Specific Risk Standard Charge	150.9	1,885.7
<b>Total Market Risk Capital and RWA</b>	<b>\$ 321.6</b>	<b>\$ 4,019.9</b>

- (a) Represents the daily average of the previous 60 business days from the period end-date times a multiplication factor determined in accordance with the Market Risk Capital Rule.
- (b) Represents the weekly average of the previous 12 weeks from the period end-date times a multiplication factor determined in accordance with the Market Risk Capital Rule.

*VaR-Based Measures*

VaR is a measure of the dollar amount of potential loss at a specified confidence level from adverse market movements in an ordinary market environment. Our VaR methodology is based on a historical simulation. BNY Mellon uses the same modeling methodology and base market data inputs for its shareholder reporting, internal risk management and regulatory VaR calculations, relying on a four year look-back with a weighting scheme and incorporating non-linear pricing behavior of products. Regulatory VaR captures a 99% confidence level loss on a ten-day holding period. However, for shareholder reporting and internal risk management VaR, BNY Mellon captures a 99% confidence level loss based on a one-day holding period.

The following table indicates the calculated regulatory VaR amounts for the overall portfolio of covered positions as well as separate measures for interest rate, foreign exchange, equity and credit components of VaR for the fourth quarter of 2019 and at Dec. 31, 2019.

VaR (a) <i>(dollars in millions)</i>	4Q19			Dec. 31, 2019 (b)
	Mean	Low	High	
Interest rate	\$ 8.0	\$ 6.0	\$ 11.4	\$ 8.0
FX	8.6	5.0	16.9	9.5
Equity	2.2	1.2	4.1	3.5
Credit	2.7	1.7	3.9	3.2
Diversification	(10.2)	N/M	N/M	(10.4)
<b>Total portfolio</b>	<b>\$ 11.3</b>	<b>\$ 8.9</b>	<b>\$ 14.7</b>	<b>\$ 13.8</b>

(a) The ten-day, 99% confidence regulatory VaR metrics in this table are calculated over the previous 60 business days from the period end-date.

(b) VaR is calculated on the previous business day from the period end-date, last day of the calendar quarter

N/M - Because the minimum and maximum may occur on different days for different risk components, it is not meaningful to compute a portfolio diversification effect.

The following section provides additional information regarding the specific components of VaR set forth in the table above.

*Composition of material portfolios of covered positions*

The interest rate component of VaR represents instruments whose values are predominantly driven by U.S. Treasuries interest rate levels. These instruments include, but are not limited to, U.S. Treasuries, swaps, swaptions, forward rate agreements, exchange-traded futures and options, and other interest rate derivative products.

The foreign exchange component of VaR represents instruments whose values predominantly vary with the level or volatility of currency exchange rates or interest rates. These instruments include, but are not limited to, currency balances, spot and forward transactions, currency options, and other currency derivative products.

The equity component of VaR consists of instruments that represent an ownership interest in the form of domestic and foreign common stock or other equity-linked instruments. These instruments include, but are not limited to, common stock, exchange-traded funds, preferred stock, listed equity options (puts and calls), OTC equity options, equity total return swaps, equity index futures and other equity derivative products.

The credit component of VaR represents instruments whose values are predominantly driven by credit spread levels, i.e., idiosyncratic default risk. These instruments include, but are not limited to, securities

with exposures from corporate and municipal credit spreads.

The diversification component of VaR is the risk reduction benefit that occurs when combining portfolios and offsetting positions, and from the correlated behavior of risk factor movements. During the fourth quarter of 2019, interest rate risk (“IRR”) generated 37% of average gross VaR, foreign exchange risk accounted for 40% of average gross VaR, equity risk generated 10% of average gross VaR and credit risk generated 13% of average gross VaR.

#### *Stressed VaR Based Measures*

Stressed VaR is a measure of the dollar amount of potential loss at a specified confidence level from adverse market movements in an environment of significant market stress. Stressed VaR uses the same model as our regulatory VaR, but incorporating inputs calibrated to historical data from a continuous one year stress period selected based on empirical studies. The calculation of our regulatory Stressed VaR assumes a ten-day holding period, utilizes a 99% confidence level, a 250 day look-back with a weighting scheme, and incorporates non-linear product characteristics. The ten-day regulatory Stressed VaR is derived by scaling one-day Stressed VaR to a ten-day holding period.

The following table indicates the calculated regulatory Stressed VaR amounts for the overall portfolio of covered positions as well as separate measures for interest rate, foreign exchange, equity and credit components of Stressed VaR for the fourth quarter of 2019 and at Dec. 31, 2019.

Stressed VaR (a) (dollars in millions)	4Q19			Dec. 31, 2019
	Mean	Low	High	
Interest rate	\$ 35.3	\$ 20.8	\$ 50.1	\$ 49.4
FX	37.9	29.4	53.2	34.3
Equity	10.1	5.0	16.7	16.4
Credit	9.8	5.8	17.8	17.7
Diversification	(47.5)	N/M	N/M	(70.0)
Total portfolio	\$ 45.6	\$ 27.5	\$ 58.8	\$ 47.8

(a) The ten-day, 99% confidence, regulatory Stressed VaR metrics in this table are calculated over the previous 12 weeks from the period end-date

N/M - Because the minimum and maximum may occur on different days for different risk components, it is not meaningful to compute a portfolio diversification effect.

During the fourth quarter of 2019, IRR generated 38% of average gross Stressed VaR, foreign exchange risk accounted for 41% of average gross Stressed VaR, equity risk generated 11% of average gross Stressed VaR and credit risk generated 10% of average gross Stressed VaR.

#### *Specific Risk Measures*

Specific risk means the risk of loss on a position that could result from factors other than broad market movements and includes event risk, default risk, and idiosyncratic risk. The Market Risk Capital Rule requires us to measure the specific risk for debt, equity and securitization positions using either our internal models (e.g., VaR, IRC and CRM) provided our regulators approve the use of these models to measure specific risk, or the standardized measurement method. The following three sections describe our specific risk measures.

#### *Specific Risk Standard Charge*

We calculate the specific risk standard charge on a quarterly basis under the standardized measurement method. It measures specific risk pursuant to fixed risk weights, which are prescribed by the Market Risk Capital Rule.

#### *IRC Requirements*

IRC is a measure of the dollar amount of potential loss from the exposure to default and migration risks for fixed income positions in trading books. We do not use an IRC model for the calculation of our market risk regulatory capital.

#### *CRM Requirements*

CRM is a measure of the dollar amount of potential loss from the exposure to all price risks in correlation trading portfolios. The CRM model is not applicable because we do not have correlation trading positions in our population of covered positions.

#### *Regulatory VaR Backtesting*

On a daily basis, we compare one-day 99% regulatory VaR to trading profits and losses excluding fees, commissions, reserves, net interest income, and intraday trading to determine the backtest multiplier for VaR and Stressed VaR for purposes of calculating the market risk regulatory capital. This daily



backtesting is also done at a sub-portfolio level and facilitates the assessment of the performance of our VaR model.

During the fourth quarter of 2019, for the Company, there were no occurrences where daily trading loss excluding fees, commissions, reserves, net interest income and intraday trading exceeded the calculated regulatory VaR of the overall portfolio of covered positions. For the one-year period ending at the end of the fourth quarter of 2019, there were no occurrences where daily trading loss excluding fees, commissions, reserves, net interest income and intraday trading exceeded the calculated regulatory VaR of the overall portfolio of covered positions, resulting in a regulatory backtest multiplier of 3 (the minimum backtest multiplier).

For further information on market risk governance, see “Risk management” in our 2019 Annual Report.

#### *Valuation Process*

Business line trading units are responsible for estimating fair value pricing for trading assets and liabilities, including covered positions, on the Company’s balance sheet. An independent valuation control function, which is part of the Company’s Finance team, is responsible for verifying these estimates and making valuation adjustments, if necessary, to ensure that these assets and liabilities are recorded at fair value. For full details on the Company’s fair value measurement policies and valuation hierarchy, see Note 20 - Fair value measurement of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

#### *Stress Testing*

The Company performs a suite of market risk stress tests as an integral part of its risk management process, complementary to the Company’s other risk measures such as VaR and Stressed VaR. The market risk stress scenarios include low probability yet plausible events that could create extraordinary losses and gains, with reduced liquidity conditions, and significantly altered correlation relationships. The scenarios target specific portfolio risk characteristics and concentrations.

Market Risk Management runs stress tests on a periodic basis as part of routine risk management, and when appropriate will perform ad-hoc stress analysis

to address specific events or concerns. Market Risk Management works with business line management to design historical and hypothetical stress scenarios. These include both comprehensive scenarios, which stress all major risk factors (equity, foreign exchange and interest rates) across the Company’s entire portfolio of covered positions, and scenarios that target specific risk factors, or to address specific market events or concerns.

The stress testing results are computed using a full revaluation of the portfolio. These results are reviewed and discussed with trading management on a regular basis. Stress tests may incorporate risk factors not included in the VaR model so these risks can be better understood and managed.

#### *Model Risk Management*

The Model Risk Management Group maintains a comprehensive inventory of models used in the Company and monitors the firm’s exposure to modeling errors. For every model relied upon, we aim to understand its conceptual soundness, performance and strength of compliance with the Company’s model risk management policies and procedures. To do so, we perform methodological reviews, backtesting analysis, and similar tests, gaining continuous insight into how models could fail or be misused. Based on this, Model Risk establishes risk controls governing model use. For additional information, see “Risk management” in our 2019 Annual Report.

#### *Soundness Standard*

The Company’s soundness standard is implemented through CCAR and ICAAP, which address the following three fundamental objectives:

- Identifying and measuring material risks
- Setting and assessing internal capital adequacy goals that relate directly to risk
- Ensuring the integrity of internal capital adequacy assessments

The Company has established a robust governance framework for CCAR and ICAAP to ensure that all aspects of the methodology and capital adequacy assessment receive appropriate review by the designated management committees and the Board of Directors. The governance framework leverages established roles and responsibilities and committee

charters for the global management of risk and incorporates enhancements based on additional requirements established by CCAR and ICAAP.

For additional information, see “Risk management overview” in our 2019 Annual Report.

### Interest Rate Risk for Non-trading Activities

BNY Mellon is committed to implementing and maintaining sound practices for managing IRR. Our IRR management structure ensures that we meet and maintain this objective.

IRR is inherent in the business of banking. BNY Mellon’s policy is to manage IRR exposures using processes and systems commensurate with our earnings and capital levels, complexity, business model, risk profile and scope of operations.

The Board of Directors and its designees oversee risk management processes, including policy oversight and annual approval. The Board of Directors also sets the overall tolerance for IRR, and delegates to the ALCO a mandate to oversee the management of these risks. It also delegates to the ALCO responsibility for devising and executing IRR strategies and policies consistent with BNY Mellon’s defined risk appetite. The Corporate Treasurer is required to report to the Board of Directors or its delegated committee at least quarterly regarding BNY Mellon’s IRR exposure, along with a review of any significant strategies undertaken to monitor and control such risks.

For additional information on IRR and the estimated changes in net interest revenue, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Asset/liability management.” in our 2019 Annual Report.

### Supplementary Leverage Ratio

Advanced Approaches banking organizations are required to disclose their SLR. BNY Mellon is required to comply with a minimum SLR requirement plus enhanced SLR buffer.

The following table presents BNY Mellon’s summary comparison of accounting assets and total leverage exposure at Dec. 31, 2019.

<b>Part 1: Summary comparison of accounting assets and total leverage exposure</b>	<b>Dec. 31, 2019</b>
<i>(dollars in millions)</i>	
Total consolidated assets as reported in published financial statements	\$ 381,508
PFE adjustment for derivative exposures	7,319
Counterparty credit risk adjustment for repo-style transactions	2,005
Adjustment for off-balance sheet exposures <i>(a)</i>	18,259
Adjustment for deductions from Tier 1 capital	(19,472)
Adjustment for frequency of calculations	(27,167)
<b>Total leverage exposure</b>	<b>\$ 362,452</b>

*(a) Conversion to credit equivalent amounts of off-balance sheet exposures.*

The following table presents the details of BNY Mellon's SLR using Basel III capital components at Dec. 31, 2019.

<b>Part 2: Supplementary Leverage Ratio</b> <i>(dollars in millions)</i>	<b>Dec. 31, 2019</b>
<b>On-balance sheet exposure:</b>	
On-balance sheet assets <i>(a)</i>	\$ 312,380
Amounts deducted from Tier 1 capital	(19,472)
Total on-balance sheet exposures <i>(a)</i>	292,908
<b>Derivative exposures:</b>	
Replacement cost for derivative exposures, net of cash variation margin	3,122
Add-on amounts for PFE for derivative exposures	7,319
Total derivative exposures	10,441
<b>Repo-style transactions:</b>	
On-balance sheet assets for repo-style transactions <i>(b)</i>	98,591
Reduction of the gross value of receivables in reverse repurchase transactions	(59,752)
Counterparty credit risk for all repo-style transactions	2,005
Total exposures for repo-style transactions	40,844
<b>Other off-balance sheet exposures:</b>	
Off-balance sheet exposures at gross notional amounts	51,677
Adjustments for conversion to credit equivalent amounts	(33,418)
Total off-balance sheet exposures	18,259
<b>Capital and total leverage exposure:</b>	
Tier 1 capital	\$ 21,996
Total leverage exposure	\$ 362,452
<b>Supplementary Leverage Ratio</b>	<b>6.07%</b>

- (a) Excluding on-balance sheet assets for repo-style transactions and derivative exposures, but including cash collateral received.*
- (b) Including the gross value of receivables for reverse repurchase transactions and the value of securities that qualified for sales treatment that must be reversed, but excluding the value of securities received in a security-for-security repo-style transaction where the securities lender has not sold or re-hypothecated the securities received.*

## Forward-looking Statements

Additional information related to the Company is contained in the Company's reports filed with the SEC, including the Annual Report on Form 10-K for the year ended Dec. 31, 2019 (the "2019 Annual Report"), Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K (each, a "'34 Act Report"). These periodic '34 Act Reports can be viewed, as they become available, on the SEC's website at [www.sec.gov](http://www.sec.gov) and at [www.bnymellon.com](http://www.bnymellon.com). Information contained in '34 Act Reports that the Company makes with the SEC subsequent to the date of this Disclosure may modify, update and supersede the information contained in this Disclosure.

This Disclosure and the Company's '34 Act Reports referred to above contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements, which may be expressed in a variety of ways, including the use of future or present tense language, relate to, among other things: all statements about the future results of BNY Mellon, statements with respect to the expected outcome and impact of regulatory and legislative actions, the implementation of regulations, the goals and effectiveness of our risk management practices and policies and any projections or estimates, including those related to capital, leverage, revenue, losses, default rates or recovery rates. In addition, these statements are based on the Company's current beliefs and expectations and are subject to significant risks and uncertainties that are subject to change based on various important factors (some of which are beyond the Company's control), including those factors described in our 2019 Annual Report under "Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") - Risk Factors" and risk factors included in any subsequent '34 Act Report. Actual results may differ materially from those expressed or implied as a result of a number of factors, including those discussed in the "Risk Factors" section of our 2019 Annual Report, such as extensive government rulemaking, regulation and supervision, which have, and in the future may, compel us to change how we manage our businesses, which could have a material adverse effect on our business, financial condition and results of operations; the application of our Title I preferred resolution strategy or resolution under the Title II orderly liquidation authority, which could adversely affect our liquidity, financial condition and security

holders; regulatory or enforcement actions or litigation, which could materially adversely affect our results of operations or harm our businesses or reputation; failure to satisfy regulatory standards, including "well capitalized" and "well managed" status or capital adequacy and liquidity rules more generally, which could result in limitations on our activities, or adversely affect our business and financial condition; operational risk, which may materially adversely affect our business; transition away from and the anticipated replacement of LIBOR and other Interbank Offered Rates ("IBORs"), which could adversely impact our business and results of operations; failure or perceived weakness of any of our significant clients or counterparties, and our assumption of credit and counterparty risk, which could expose us to loss and adversely affect our business; failure of our risk management framework to be effective in mitigating risk and reducing the potential for losses; changes in accounting standards governing the preparation of our financial statements and future events, which could have a material impact on our reported financial condition, results of operations, cash flows and other financial data; and the failure or circumvention of our controls and procedures, which could have a material adverse effect on our business, reputation, results of operations and financial condition.

In this Disclosure and the '34 Act Reports, words such as "estimate," "forecast," "project," "anticipate," "likely," "target," "expect," "intend," "continue," "seek," "believe," "plan," "goal," "could," "should," "would," "may," "might," "will," "strategy," "synergies," "opportunities," "trends," "future" and words of similar meaning, may signify forward-looking statements.

All forward-looking statements speak only as of the date on which such statements are made, and BNY Mellon undertakes no obligation to update any statement to reflect events or circumstances after the date on which such forward-looking statement is made or to reflect the occurrence of unanticipated events. The contents of BNY Mellon's website or any other websites referenced herein are not part of this Disclosure.

## Acronyms

<b>ABS</b>	Asset-backed security	<b>IPRE</b>	Income producing real estate
<b>ALCO</b>	Asset liability committee	<b>IRB</b>	Internal ratings-based
<b>AMA</b>	Advanced measurement approach	<b>IRC</b>	Incremental risk capital
<b>APAC</b>	Asia-Pacific region	<b>IRR</b>	Interest rate risk
<b>BHC</b>	Bank holding company	<b>ISDA</b>	International Swaps and Derivatives Association
<b>CCAR</b>	Comprehensive Capital Analysis and Review	<b>L/C</b>	Letters of credit
<b>CCO</b>	Chief Credit Officer	<b>LDA</b>	Loss distribution approach
<b>CDX</b>	Credit default swap index	<b>LGD</b>	Loss given default
<b>CEM</b>	Current Exposure Method	<b>LIBOR</b>	London Interbank Offered Rate
<b>CET1</b>	Common Equity Tier 1 capital	<b>MBS</b>	Mortgage-backed security
<b>CFO</b>	Chief Financial Officer	<b>MRMG</b>	Model Risk Management Group
<b>CLO</b>	Collateralized loan obligation	<b>OCC</b>	Office of the Comptroller of the Currency
<b>CMBS</b>	Commercial mortgage-backed security	<b>OCM</b>	Operational Credit Manager
<b>CPFE</b>	Counterparty Potential Future Exposure	<b>OTC</b>	Over-the-counter
<b>CPM</b>	Credit portfolio manager	<b>PD</b>	Probability of default
<b>CPPR</b>	Cross-Product Potential Risk	<b>PFE</b>	Potential Future Exposure
<b>CRM</b>	Comprehensive risk measure	<b>RMBS</b>	Residential mortgage-backed security
<b>CRO</b>	Chief Risk Officer	<b>RWA</b>	Risk-weighted assets
<b>CSA</b>	Credit Support Annex	<b>S&amp;P</b>	Standard & Poor's
<b>CVA</b>	Credit valuation adjustment	<b>SEC</b>	Securities and Exchange Commission
<b>DFAST</b>	Dodd-Frank Act Stress Test	<b>SFA</b>	Supervisory Formula Approach
<b>DVA</b>	Debit valuation adjustment	<b>SFT</b>	Securities Financing Transactions
<b>EAD</b>	Exposure at Default	<b>SLR</b>	Supplementary Leverage Ratio
<b>EL</b>	Expected loss	<b>SPV</b>	Special Purpose Vehicle
<b>EMEA</b>	Europe, the Middle East and Africa	<b>SMLT</b>	Simple Modified Look-Through Approach
<b>FDIC</b>	Federal Deposit Insurance Corporation	<b>SRMC</b>	Senior Risk Management Committee
<b>FLTA</b>	Full Look-Through Approach	<b>SRWA</b>	Simple Risk-Weight Approach
<b>FX</b>	Foreign exchange	<b>SSFA</b>	Simplified Supervisory Formula Approach
<b>GAAP</b>	Generally accepted accounting principles	<b>UGD</b>	Usage given default
<b>G-SIB</b>	Global systemically important bank	<b>UL</b>	Unexpected loss
<b>HVCRE</b>	High-volatility commercial real estate	<b>VaR</b>	Value-at-risk
<b>ICAAP</b>	Internal Capital Adequacy Assessment Process	<b>VIE</b>	Variable interest entity

## Glossary

**Americas**—Includes locations in North and South America.

**Asset-backed security (“ABS”)**—A financial security backed by a loan, lease or receivables against assets other than real estate and MBS.

**Asset liability committee (“ALCO”)**—A risk-management committee in a bank or other lending institution that generally comprises the senior-management levels of the institution. The ALCO’s primary goal is to evaluate, monitor and approve practices relating to risk due to imbalances in the capital structure.

**Bank exposure**—An exposure to the following entities: (1) “Banks, U.S. and Foreign” and “Depository Institutions in the U.S.” as those terms are defined in the Glossary of the Federal Financial Institutions Examination Council’s Consolidated Reports of Condition and Income; (2) securities firms; and (3) multi-lateral development banks that do not have full faith and credit backing of sovereign entities.

**Cleared transaction**—An exposure associated with an outstanding derivative contract or repo-style transaction that a banking organization or clearing member has entered into with a central counterparty (that is, a transaction that a central counterparty has accepted).

**Collateral haircut approach**—An approach used to recognize the credit risk mitigation benefits of financial collateral that secures an eligible margin loan, repo-style transaction, collateralized derivative contract or single-product netting of such transactions. Generally a banking organization determines the exposure amount by applying standard supervisory haircuts or, with regulatory approval, its own estimates of haircuts, and multiplies the exposure amount by the risk weight associated with the counterparty or guarantor.

**Collateralized loan obligation (“CLO”)**—A debt security backed by a pool of commercial loans.

**Collins Amendment of the Dodd-Frank Act**—A U.S. depository institution or bank holding company (each, a “banking organization”) operating under the U.S. capital rules Advanced Approaches must

calculate its risk-based capital ratios under both the Standardized Approach and the Advanced Approaches. The banking organization must then use the lower of the two Tier 1 risk-based capital ratios and the lower of the two Total risk-based capital ratios to determine whether it meets its minimum risk-based capital requirements. The lower of each ratio is considered the banking organization’s binding capital constraint.

**Commercial mortgage-backed security (“CMBS”)**—An asset-backed security whose cash flows are backed by principal and interest payments of a set of commercial mortgage loans.

**Common Equity Tier 1 capital (“CET1”)**—The sum of surplus (net of treasury stock), retained earnings, accumulated other comprehensive income (loss), and CET1 minority interest subject to certain limitations, minus certain regulatory adjustments and deductions.

**Copula**—A probability and statistical technique used to model dependence between random variables. It is a common technique used in operational risk modeling to model the dependence of operational losses in different units of measure (i.e., loss event categories) to derive a diversification benefit.

**Corporate exposure**—An exposure to a company that is not: (1) an exposure to a sovereign, the Bank for International Settlements, the European Central Bank, the European Commission, the International Monetary Fund, a multi-lateral development bank, a depository institution, a foreign bank, a credit union or a public sector entity; (2) an exposure to a government sponsored entity; (3) a residential mortgage exposure; (4) a pre-sold construction loan; (5) a statutory multifamily mortgage; (6) a high-volatility commercial real estate exposure; (7) a cleared transaction; (8) a default fund contribution; (9) a securitization exposure; (10) an equity exposure; or (11) an unsettled transaction.

**Counterparty risk (default risk)**—The risk that a counterparty will not pay as obligated on a contract, trade or transaction.

**Covered funds**—Generally, any issuer that would be, among other entities, an investment company as defined in the Investment Company Act of 1940 but for section 3(c)(1) or 3(c)(7) of that Act with a

number of express exclusions and additions as determined by the agencies.

**Credit conversion factor (“CCF”)**—Converts the amount of a free credit line and other off-balance sheet transactions (with the exception of derivatives) to an EAD amount.

**Credit default swaps (“CDS”)**—A financial contract executed under standard industry documentation that allows one party (the protection purchaser) to transfer the credit risk of one or more exposures (reference exposure(s)) to another party (the protection provider) for a certain period of time.

**Credit derivatives**—Contractual agreements that provide insurance against a credit event of one or more referenced credits. Such events include bankruptcy, insolvency and failure to meet payment obligations when due.

**Credit-enhancing interest-only strip (“CEIO”)**—An on-balance sheet asset that, in form or substance, (i) represents the contractual right to receive some or all of the interest and no more than a minimal amount of the principal due on the underlying exposure; and (ii) exposes the banking organization to credit risk directly or indirectly associated with the underlying exposures that exceeds the pro rata share of its claim on the underlying assets whether through subordination provisions or other credit enhancing techniques.

**Credit exposure**—The total amount of credit extended to a borrower by a lender. The magnitude of credit exposure indicates the extent to which the lender is exposed to the risk of loss in the event of the borrower’s default.

**Credit risk**—The risk of loss due to borrower or counterparty default.

**Credit risk mitigation**—A technique to reduce the credit risk associated with an exposure by application of credit risk mitigants such as collateral, guarantees and credit protection.

**Credit Support Annex (“CSA”)**—A legal document which regulates credit support (collateral) for derivative transactions. The trade is documented under a standard contract called a master agreement, developed by the ISDA. The two parties must sign

the ISDA master agreement and execute a CSA before they trade derivatives with each other.

**Credit valuation adjustment (“CVA”)**—The market value of counterparty credit risk on OTC derivative transactions.

**Current exposure method (“CEM”)**—A system used by financial institutions to measure the credit risk of losing anticipated cash flows from forwards, swaps, options and other derivatives contracts they are party to, in the event the counterparty to the contract should default. An investor's total exposure, under the CEM, is equal to the replacement cost of all marked-to-market contracts currently in the money, plus the credit exposure risk of potential changes in future prices or volatility of the underlying asset.

**Debit valuation adjustment (“DVA”)**—The market value of our credit risk on OTC derivative transactions.

**Derivative**—A contract or agreement whose value is derived from changes in interest rates, foreign exchange rates, prices of securities or commodities, credit worthiness for CDS or financial or commodity indices.

**Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”)**—Regulatory reform legislation signed into law on July 21, 2010. This new law broadly affects the financial services industry and contains numerous provisions aimed at strengthening the sound operation of financial services sector.

**Economic capital**—The amount of capital required to absorb potential losses and reflects the probability of remaining solvent over a one-year time horizon.

**Eligible margin loans**—An extension of credit that is collateralized exclusively by liquid and readily marketable debt or equity securities, or conforming residential mortgages. The collateral is marked to fair value daily, and the transaction is subject to daily margin maintenance requirements.

**Expected loss (“EL”)**—A regulatory calculation of the amount expected to be lost on an exposure using a 12-month time horizon and downturn loss estimates. EL is calculated by multiplying the PD (a percentage) by the EAD (an amount) and LGD (a percentage).

**Exposure**—A claim, contingent claim or position which carries a risk of financial loss.

**Exposure at default (“EAD”)**—The amount expected to be outstanding after any credit risk mitigation, if and when a counterparty defaults. EAD reflects drawn balances as well as the expected future draws on undrawn amounts of commitments and contingent exposures over a one-year horizon.

**External Credit Assessment Institution (“ECAI”)**—Institutions such as Moody’s Investors Service, Standard & Poor’s Ratings Group or Fitch Group.

**Foreign currency options**—Similar to interest rate options except they are based on foreign exchange rates. Also, see interest rate options in this glossary.

**Foreign exchange contracts**—Contracts that provide for the future receipt or delivery of foreign currency at previously agreed-upon terms.

**Generally accepted accounting principles (“GAAP”)**—Accounting rules and conventions defining acceptable practices in preparing financial statements in the U.S. The Financial Accounting Standards Board is the primary source of accounting rules.

**High-volatility commercial real estate (“HVCRE”)**—A credit facility that finances or has financed the acquisition, development or construction of real property, prior to conversion to permanent financing.

**Impairment**—When an asset’s market value is less than its carrying value.

**Income producing real estate (“IPRE”)**—A method of providing funding to real estate (such as, office buildings to let, retail space, multifamily residential buildings, industrial or warehouse space, and hotels) where the prospects for repayment and recovery on the exposure depend primarily on the cash flows generated by the asset.

**Interest rate options, including caps and floors**—Contracts to modify IRR in exchange for the payment of a premium when the contract is initiated. As a writer of interest rate options, we receive a premium in exchange for bearing the risk of unfavorable changes in interest rates. Conversely, as a purchaser

of an option, we pay a premium for the right, but not the obligation, to buy or sell a financial instrument or currency at predetermined terms in the future.

**Interest rate risk (“IRR”)**—Exposure of a bank’s financial condition to adverse movements in interest rates.

**Interest rate sensitivity**—The exposure of net interest income to interest rate movements.

**Interest rate swaps**—Contracts in which a series of interest rate flows in a single currency are exchanged over a prescribed period. Interest rate swaps are the most common type of derivative contract that we use in our asset/liability management activities.

**Internal Capital Adequacy Assessment Process (“ICAAP”)**—The Company’s own assessment of the levels of capital that it needs to hold through an examination of its risk profile from regulatory and economic capital viewpoints and related processes.

**Internal Models Method (“IMM”)**—One of three approaches defined by Basel III to determine exposure values for counterparty credit risk.

**Internal ratings-based (“IRB”) advanced approach**—A method of calculating credit risk capital requirements using internal PD, LGD and EAD models.

**ISDA master agreement**—A standard agreement used in OTC derivatives transactions. The ISDA master agreement is a document that outlines the terms applied to a derivatives transaction between two parties. Once the two parties agree to the standard terms, they do not have to renegotiate each time a new transaction is entered into.

**Joint venture**—A company or entity owned and operated by a group of companies for a specific business purpose, no one of which has a majority interest.

**Leverage ratio**—Tier 1 capital divided by quarterly average total assets, as defined by the regulators.

**Loss given default (“LGD”)**—The estimated percentage of the loss on an exposure to the amount outstanding at default (i.e., EAD) upon default of a counterparty.



**Master netting agreement**—An agreement between two counterparties that have multiple contracts with each other that provides for the net settlement of all contracts through a single payment in the event of default or termination of any one contract.

**Monte Carlo simulation**—A problem solving technique used to approximate the probability of certain outcomes by running multiple trial runs, called simulations, using random variables.

**Mortgage-backed security (“MBS”)**—An asset-backed security whose cash flows are backed by the principal and interest payments of a set of mortgage loans.

**Netting**—The ability of a bank to reduce its credit risk exposures, by offsetting the value of any company exposure to counterparty exposure to the same counterparty, or under ISDA master netting agreement for derivative contracts.

**Over-the-counter (“OTC”) derivative**—A derivative contract that is not a cleared transaction. An OTC derivative includes a transaction: (1) between a bank that is a clearing member and a counterparty where the bank is acting as a financial intermediary and enters into a cleared transaction with a central counter party (“CCP”) that offsets the transaction with the counterparty; or (2) in which a bank that is a clearing member provides a CCP a guarantee on the performance of the counterparty to the transaction.

**Potential future exposure (“PFE”)**—An estimate of the bank’s maximum expected credit exposure over a fixed time horizon with a high level of confidence.

**Probability of default (“PD”)**—The probability that an obligor will default within a one-year time horizon.

**Qualifying revolving exposure**—An exposure (other than a securitization exposure or equity exposure) to an individual that is managed as part of a segment of exposures with homogeneous risk characteristics, not on an individual-exposure basis, and is (1) revolving, (2) unsecured and unconditionally cancelable by the bank to the fullest extent permitted by Federal law and (3) has a maximum exposure amount (drawn plus undrawn) of up to \$100,000.

**Ratings-Based Approach**—One of three calculation methods defined under the IRB approach to securitizations. The approach uses risk weightings based on ECAI ratings, the granularity of the underlying pool and the seniority of the position.

**Regulatory capital**—The minimum capital that a financial institution is expected to hold against the risk it faces. This minimum is determined by the financial institutions calculations for credit, market and operational risk, plus any additional capital deemed appropriate under applicable regulatory capital rules.

**Repo-style transactions**—includes securities lending, securities borrowing, repurchase or reverse-repurchase transactions that are based solely on liquid securities and are marked-to-market daily.

**Repurchase agreement (“Repo”)**—An instrument used to raise short term funds whereby securities are sold with an agreement for the seller to buy back the securities at a later date.

**Resecuritization**—A securitization that has more than one underlying exposure and in which one or more of the underlying exposures is a securitization exposure.

**Residential mortgage-backed security (“RMBS”)**—An asset-backed security whose cash flows are backed by principal and interest payments of a set of residential mortgage loans.

**Reverse repurchase agreement (“Reverse repo”)**—A purchase of securities with an agreement to resell them at a higher price at a specific future date. This is essentially a loan of the security at a specific rate.

**Risk-weighted assets (“RWA”)**—Calculated by assigning a degree of risk expressed as a percentage (risk weight) to an exposure in accordance with the applicable standardized or IRB approach rules.

**Securities lending transaction**—A fully collateralized transaction in which the owner of a security agrees to lend the security through an agent (such as The Bank of New York Mellon) to a borrower, usually a broker/dealer or bank, on an open, overnight or term basis, under the terms of a prearranged contract, which generally matures in less than 90 days.

**Securitization**—Includes transactions whereby the credit risk associated with an exposure, or pool of exposures, is tranching and where payments to investors in the transaction are dependent upon the performance of the underlying exposures.

A traditional securitization involves the transfer of the exposures being securitized to a special purpose entity which issues securities. In a synthetic securitization, the tranching is achieved by the use of credit derivatives and the exposures are not removed from the balance sheet of the originator.

**Simplified Supervisory Formula Approach (“SSFA”)**—A formula that starts with a baseline derived from the capital requirements that apply to all exposures underlying a securitization and then assigns risk weights based on the subordination level of an exposure. SSFA was designed to apply relatively higher capital requirements to the more risky junior tranches of a securitization that are the first to absorb losses, and relatively lower requirements to the most senior exposures.

**Sovereign**—A central government (including the U.S. government) or an agency, department, ministry, or central bank of a central government. A sovereign exposure is a direct exposure to a sovereign; or an exposure directly and unconditionally backed by the full faith and credit of a sovereign.

**Special purpose vehicle (“SPV”)**—A corporation, trust or other non-bank entity, established for a narrowly defined purpose, including for carrying on securitization activities. The structure of the entity and activities are intended to isolate the obligations of the SPV from those of the originator and the holders of the beneficial interests in the securitization.

**Standardized Approach (“SA”)**—In relation to credit risk, a method for calculating credit risk capital requirements using supervisory risk weights.

**Subordinated debt**—Debt which, in the event of insolvency or liquidation of the issuer, is subordinated to the claims of depositors and other creditors of the issuer.

**Supervisory formula approach (“SFA”)**—SFA is one of several approaches available to a banking organization when calculating RWA for securitization exposures. To implement the SFA for a given securitization exposure, a banking organization must calculate several input parameters: the exposure’s

credit enhancement level and thickness; the exposure-weighted average LGD for the underlying exposures to the securitization transaction; and the effective number of underlying exposures.

**Supplementary Leverage Ratio (“SLR”)**—An Advanced Approaches banking organization’s Basel III SLR is the simple arithmetic mean of the ratio of its Tier 1 capital to total leverage exposure (which is broadly defined to capture both on- and off-balance sheet exposures).

**Total return swaps**—A swap agreement in which one party makes payments based on a set rate, either fixed or variable, while the other party makes payments based on the return of the underlying asset, which includes both the income it generates and any capital gains. In total return swaps, the underlying asset, also referred to as the reference asset, is usually an equity index, loans or bonds. This is owned by the party receiving the set rate payment.

**Usage given default (“UGD”)**—The expected percent of the commitment that is likely to be drawn in the event of default.

**Value-at-Risk (“VaR”)**—A measure of the dollar amount of potential loss at a specified confidence level from adverse market movements in an ordinary market environment.

**Variable funding notes (“VFN”)**—An arrangement that allows for drawings on a revolving basis and have been issued pursuant to the Variable Funding Note Purchase Agreement.

**Variable interest entity (“VIE”)**—An entity that: (1) lacks enough equity investment at risk to permit the entity to finance its activities without additional financial support from other parties; (2) has equity owners that lack the right to make significant decisions affecting the entity’s operations; and/or (3) has equity owners that do not have an obligation to absorb or the right to receive the entity’s losses or return.

**Wrong-way risk**—The risk that arises when an exposure to a particular counterparty is positively correlated with the probability of default of such counterparty itself.





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