UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

☒ Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the Quarterly Period Ended March 31, 2020

or

☐ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Commission File No. 001-35651

THE BANK OF NEW YORK MELLON CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**13-2614959**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

240 Greenwich Street
New York, New York 10286
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code – (212) 495-1784

Not Applicable
(Former name, former address and former fiscal year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act: Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value	BK	New York Stock Exchange
Depositary Shares, each representing 1/4,000th of a share of Series C Noncumulative Perpetual Preferred Stock	BK PrC	New York Stock Exchange
6.244% Fixed-to-Floating Rate Normal Preferred Capital Securities of Mellon Capital IV (fully and unconditionally guaranteed by The Bank of New York Mellon Corporation)	BK/P	New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of March 31, 2020, 885,442,821 shares of the registrant's common stock, $0.01 par value per share, were outstanding.

THE BANK OF NEW YORK MELLON CORPORATION

First Quarter 2020 Form 10-Q
Table of Contents

	Page
Consolidated Financial Highlights (unaudited)	2
Part I - Financial Information	
Items 2. and 3. Management's Discussion and Analysis of Financial Condition and Results of Operations; Quantitative and Qualitative Disclosures about Market Risk:	
General	4
Overview	4
Key first quarter 2020 events	4
Highlights of first quarter 2020 results	5
Impact of coronavirus pandemic on our business	6
Fee and other revenue	7
Net interest revenue	9
Noninterest expense	11
Income taxes	11
Review of businesses	12
Critical accounting estimates	18
Consolidated balance sheet review	21
Liquidity and dividends	31
Capital	35
Trading activities and risk management	39
Asset/liability management	41
Off-balance sheet arrangements	42
Supplemental information - Explanation of GAAP and Non-GAAP financial measures	43
Recent accounting and regulatory developments	45
Website information	47
Item 1. Financial Statements:	
Consolidated Income Statement (unaudited)	48
Consolidated Comprehensive Income Statement (unaudited)	50
Consolidated Balance Sheet (unaudited)	51
Consolidated Statement of Cash Flows (unaudited)	52
Consolidated Statement of Changes in Equity (unaudited)	53
Notes to Consolidated Financial Statements:	
Note 1—Basis of presentation	55
Note 2—Accounting changes and new accounting guidance	55
Note 3—Acquisitions and dispositions	60
Note 4—Securities	60
Note 5—Loans and asset quality	65
Note 6—Goodwill and intangible assets	70
Note 7—Other assets	71
Note 8—Contract revenue	73
Note 9—Net interest revenue	74
Note 10—Employee benefit plans	75
Note 11—Income taxes	75
Note 12—Variable interest entities and securitization	75
Note 13—Preferred stock	76
Note 14—Other comprehensive income (loss)	77
Note 15—Fair value measurement	78
Note 16—Fair value option	84
Note 17—Derivative instruments	85
Note 18—Commitments and contingent liabilities	91
Note 19—Lines of business	96
Note 20—Supplemental information to the Consolidated Statement of Cash Flows	98
Item 4. Controls and Procedures	99
Forward-looking Statements	100
Part II - Other Information	
Item 1. Legal Proceedings.	102
Item 1A. Risk Factors	102
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.	103
Item 6. Exhibits.	103
Index to Exhibits	104
Signature	106

The Bank of New York Mellon Corporation (and its subsidiaries)

Consolidated Financial Highlights (unaudited)

(dollars in millions, except per share amounts and unless otherwise noted)	Quarter ended		
	March 31, 2020	Dec. 31, 2019	March 31, 2019
Results applicable to common shareholders of The Bank of New York Mellon Corporation:			
Net income	**$ 944**	$ 1,391	$ 910
Basic earnings per share	**$ 1.05**	$ 1.52	$ 0.94
Diluted earnings per share	**$ 1.05**	$ 1.52	$ 0.94
Fee and other revenue	**$ 3,332**	$ 3,946	$ 3,032
(Loss) income from consolidated investment management funds	**(38)**	17	26
Net interest revenue	**814**	815	841
Total revenue	**$ 4,108**	$ 4,778	$ 3,899
Return on common equity *(annualized)*	**10.1%**	14.6%	10.0%
Return on tangible common equity *(annualized)* – Non-GAAP *(a)*	**20.4%**	29.3%	20.7%
Return on average assets *(annualized)*	**0.99%**	1.56%	1.10%
Fee revenue as a percentage of total revenue	**81%**	83%	78%
Non-U.S. revenue as a percentage of total revenue	**36%**	31%	36%
Pre-tax operating margin	**30%**	38%	31%
Net interest margin	**1.01%**	1.09%	1.20%
Net interest margin on a fully taxable equivalent ("FTE") basis – Non-GAAP *(b)*	**1.01%**	1.09%	1.20%
Assets under custody and/or administration ("AUC/A") at period end *(in trillions) (c)*	**$ 35.2**	$ 37.1	$ 34.5
Assets under management ("AUM") at period end *(in billions) (d)*	**$ 1,796**	$ 1,910	$ 1,841
Market value of securities on loan at period end *(in billions) (e)*	**$ 389**	$ 378	$ 377
Average common shares and equivalents outstanding *(in thousands)*:			
Basic	**894,122**	911,324	962,397
Diluted	**896,689**	914,739	965,960
Selected average balances:			
Interest-earning assets	**$ 323,936**	$ 297,987	$ 282,185
Total assets	**$ 385,278**	$ 354,341	$ 336,165
Interest-bearing deposits	**$ 197,632**	$ 182,424	$ 159,879
Noninterest-bearing deposits	**$ 60,577**	$ 49,632	$ 54,583
Long-term debt	**$ 27,231**	$ 28,117	$ 28,254
Preferred stock	**$ 3,542**	$ 3,542	$ 3,542
Total The Bank of New York Mellon Corporation common shareholders' equity	**$ 37,664**	$ 37,842	$ 37,086
Other information at period end:			
Cash dividends per common share	**$ 0.31**	$ 0.31	$ 0.28
Common dividend payout ratio	**30%**	20%	30%
Common dividend yield *(annualized)*	**3.7%**	2.4%	2.3%
Closing stock price per common share	**$ 33.68**	$ 50.33	$ 50.43
Market capitalization	**$ 29,822**	$ 45,331	$ 48,288
Book value per common share	**$ 42.47**	$ 42.12	$ 39.36
Tangible book value per common share – Non-GAAP *(a)*	**$ 21.53**	$ 21.33	$ 19.74
Full-time employees	**47,900**	48,400	49,800
Common shares outstanding *(in thousands)*	**885,443**	900,683	957,517

Consolidated Financial Highlights (unaudited) (continued)

Regulatory capital and other ratios	March 31, 2020	Dec. 31, 2019
Average liquidity coverage ratio ("LCR")	**115%**	120%
Regulatory capital ratios: *(f)*		
Advanced:		
Common Equity Tier 1 ("CET1") ratio	**11.4%**	11.5%
Tier 1 capital ratio	**13.5**	13.7
Total capital ratio	**14.3**	14.4
Standardized:		
CET1 ratio	**11.3%**	12.5%
Tier 1 capital ratio	**13.5**	14.8
Total capital ratio	**14.4**	15.8
Tier 1 leverage ratio	**6.0%**	6.6%
Supplementary leverage ratio ("SLR")	**5.6**	6.1
BNY Mellon shareholders' equity to total assets ratio	**8.8%**	10.9%
BNY Mellon common shareholders' equity to total assets ratio	**8.0**	9.9

(a) Return on tangible common equity and tangible book value per common share, Non-GAAP measures, exclude goodwill and intangible assets, net of deferred tax liabilities. See "Supplemental information – Explanation of GAAP and Non-GAAP financial measures" beginning on page 43 for the reconciliation of Non-GAAP measures.

(b) See "Net interest revenue" on page 9 for a reconciliation of this Non-GAAP measure.

(c) Includes the AUC/A of CIBC Mellon Global Securities Services Company ("CIBC Mellon"), a joint venture with the Canadian Imperial Bank of Commerce, of $1.2 trillion at March 31, 2020, $1.5 trillion at Dec. 31, 2019 and $1.3 trillion at March 31, 2019.

(d) Excludes securities lending cash management assets and assets managed in the Investment Services business.

(e) Represents the total amount of securities on loan in our agency securities lending program managed by the Investment Services business. Excludes securities for which BNY Mellon acts as an agent on behalf of CIBC Mellon clients, which totaled $59 billion at March 31, 2020, $60 billion at Dec. 31, 2019 and $62 billion at March 31, 2019.

(f) For our CET1, Tier 1 capital and Total capital ratios, our effective capital ratios under U.S. capital rules are the lower of the ratios as calculated under the Standardized and Advanced Approaches. For additional information on our capital ratios, see "Capital" beginning on page 35.

Items 2. and 3. Management's Discussion and Analysis of Financial Condition and Results of Operations; Quantitative and Qualitative Disclosures about Market Risk

General

In this Quarterly Report on Form 10-Q, 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. The term "Parent" refers to The Bank of New York Mellon Corporation but not its subsidiaries.

Certain business terms used in this report are defined in the Glossary included in our Annual Report on Form 10-K for the year ended Dec. 31, 2019 ("2019 Annual Report").

The following should be read in conjunction with the Consolidated Financial Statements included in this report. Investors should also read the sections titled "Forward-looking Statements" and "Risk Factors."

Overview

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

BNY Mellon has two business segments, Investment Services and Investment Management, which offer a comprehensive set of capabilities and deep expertise across the investment lifecycle, enabling the Company to provide solutions to buy-side and sell-side market participants, as well as leading institutional and wealth management clients globally.

The diagram below presents our two business segments and lines of business, with the remaining operations in the Other segment.



Key first quarter 2020 events

Todd Gibbons named Chief Executive Officer

In March 2020, Todd Gibbons was appointed Chief Executive Officer ("CEO"). He had served as interim CEO since September 2019, and remains a member of the Board of Directors. During Todd's career at BNY Mellon, he has held leadership roles across risk, finance, client management and many of our businesses. Most recently, Todd served as Vice Chairman and CEO of Clearing, Markets and Client Management. Todd also served for nine years as BNY Mellon's Chief Financial Officer.

Temporarily suspended share buybacks

In March 2020, we and other members of the Financial Services Forum announced the temporary suspension of share buybacks until the end of the second quarter of 2020 to preserve capital and liquidity in order to further the objective of using capital and liquidity to support clients and customers.

Highlights of first quarter 2020 results

Net income applicable to common shareholders was $944 million, or $1.05 per diluted common share, in the first quarter of 2020. Net income applicable to common shareholders was $910 million, or $0.94 per diluted common share, in the first quarter of 2019. The highlights below are based on the first quarter of 2020 compared with the first quarter of 2019, unless otherwise noted.

- Total revenue of $4.1 billion increased 5% primarily reflecting:
  - Fee revenue increased 10% primarily reflecting higher foreign exchange and other trading revenue, higher transaction volumes across the Investment Services businesses and higher performance fees, partially offset by equity investment losses, including seed capital. (See "Fee and other revenue" beginning on page 7.)
  - Net interest revenue decreased 3% primarily reflecting lower interest rates on interest-earning assets and the impact of hedging activities (primarily offset in foreign exchange and other trading revenue). This was partially offset by the benefit of lower deposit and funding rates and higher deposits, securities and loans. (See "Net interest revenue" on page 9.)
- Provision for credit losses was $169 million primarily reflecting the macroeconomic environment in conjunction with the application of the new current expected credit losses accounting standard. (See "Consolidated balance sheet review - Allowance for credit losses" beginning on page 26.)
- Noninterest expense of $2.7 billion increased slightly primarily reflecting the continued investments in technology and higher pension expense, partially offset by lower staff expense and the favorable impact of a stronger U.S. dollar. (See "Noninterest expense" on page 11.)
- Effective tax rate of 21.6%. (See "Income taxes" on page 11.)

Capital and liquidity

- CET1 ratio was 11.3% under the Standardized Approach at March 31, 2020, compared with 11.5% under the Advanced Approaches at Dec. 31, 2019. The decrease in the CET1 ratio primarily reflects an increase in risk-weighted assets ("RWAs") driven by a larger balance sheet. (See "Capital" beginning on page 35.)
- Repurchased 21.7 million common shares for $985 million, and paid dividends of $282 million to common shareholders in the first quarter of 2020. The share repurchases for the first quarter were completed prior to the temporary suspension announced jointly with the Financial Services Forum on March 15, 2020.

Highlights of our principal businesses

Investment Services

- Total revenue increased 9%.
- Income before income taxes increased 13%.
- AUC/A of $35.2 trillion, increased 2%, primarily reflecting higher client inflows, partially offset by lower market values and the unfavorable impact of a stronger U.S. dollar.

Investment Management

- Total revenue decreased 4%.
- Income before income taxes decreased 27%.
- AUM of $1.8 trillion decreased 2%, primarily reflecting the unfavorable impact of a stronger U.S. dollar (principally versus the British pound).

See "Review of businesses" and Note 19 of the Notes to Consolidated Financial Statements for additional information on our businesses.

Impact of coronavirus pandemic on our business

The coronavirus pandemic has had a significant effect on the global macroeconomic environment. The following discusses the areas of our business that have been impacted and could continue to be impacted by the current environment.

By the end of March 2020, we transitioned approximately 95% of our employees to work from home arrangements, while continuing to be fully operational with minimal disruption to servicing our clients. However, our continued reliance on work-from-home arrangements may result in increased operational risks.

Market volatility associated with the performance of global equity and fixed income markets and lower interest rates has had, and may continue to have, a considerable impact on all of our businesses. Our lower-risk diversified fee-based business model benefits from heightened volatility and a flight-to-quality on a relative basis compared with other credit-focused financial institutions.

Our Investment Services businesses were favorably impacted by higher client volumes. The significant increases in market volatility has resulted in increased client activity in foreign exchange, and higher asset servicing, clearing services in Pershing, as well as clearance and collateral management fee revenue.

This volatility coupled with the interest rate environment also led to an increase in deposit levels as our clients increased the levels of cash placed with us. This favorably impacted net interest revenue. However, the low interest rate environment has partially offset that benefit and may continue to reduce our net interest revenue and margin. In addition, the increase in our balance sheet has resulted in a reduction in our capital and liquidity ratios.

If short-term interest rates remain at recent levels or decrease further, we may be impacted by money market fee waivers, which would reduce fee revenue. See further discussion of money market fee waivers in "Fee and other revenue."

As discussed above under "Key first quarter 2020 events," we, along with other members of the Financial Services Forum, announced that we would suspend share repurchases through the second quarter of 2020.

Our Investment Management business was negatively impacted by a decline in investment and other income related to seed capital investments, as well as lower investment management fee revenue as lower market values offset the impact of AUM inflows.

During the first quarter of 2020, we purchased $2.2 billion of commercial paper and certificates of deposit ("CDs") from affiliated money market mutual funds in order to provide liquidity support to the funds. We also purchased $650 million of commercial paper and CDs from third-party money market mutual funds and funded this purchase through the Federal Reserve Bank of Boston's Money Market Mutual Fund Liquidity Facility ("MMLF") program. See "Recent regulatory developments" for additional information on the MMLF.

The need to apply macroeconomic forecasting in the current environment in conjunction with the new expected credit loss accounting guidance has resulted in and may continue to result in heightened levels of credit loss provisioning. The continuing effects of the pandemic could also result in increased credit losses and charge offs.

In addition, a prolonged economic downturn may result in other asset write-downs and impairments, including, but not limited to, equity investments, goodwill and intangibles.

It is difficult to forecast the impact of the coronavirus, together with related public health measures, on our results with certainty because so much depends on how the health crisis evolves, its impact on the global economy as well as actions taken by central banks and governments to support the economy. However, the heightened levels of volumes and deposits have decreased from the levels experienced at the end of March 2020.

The current macroeconomic environment has also resulted in responses by governmental and regulatory bodies. See "Recent regulatory developments" for additional information on legislative and regulatory developments in response to the coronavirus pandemic.

For further discussion of the current and potential impact of the coronavirus pandemic see Item 1A.

Risk Factors "The coronavirus pandemic is adversely affecting us and creates significant risks and uncertainties for our business, and the ultimate impact of the pandemic on us will depend on future developments, which are highly uncertain and cannot be predicted."

Fee and other revenue

Fee and other revenue

(dollars in millions, unless otherwise noted)	1Q20	4Q19	1Q19	1Q20 vs. 4Q19	1Q20 vs. 1Q19
Investment services fees:					
Asset servicing fees *(a)*	**$ 1,159**	$ 1,148	$ 1,122	**1 %**	**3 %**
Clearing services fees *(b)*	**470**	421	398	**12**	**18**
Issuer services fees	**263**	264	251	**—**	**5**
Treasury services fees	**149**	147	132	**1**	**13**
Total investment services fees	**2,041**	1,980	1,903	**3**	**7**
Investment management and performance fees	**862**	883	841	**(2)**	**2**
Foreign exchange and other trading revenue	**319**	168	170	**90**	**88**
Financing-related fees	**59**	46	51	**28**	**16**
Distribution and servicing	**31**	34	31	**(9)**	**—**
Investment and other income	**11**	860	35	**N/M**	**N/M**
Total fee revenue	**3,323**	3,971	3,031	**(16)**	**10**
Net securities gains (losses)	**9**	(25)	1	**N/M**	**N/M**
Total fee and other revenue	**$ 3,332**	$ 3,946	$ 3,032	**(16)%**	**10 %**
Fee revenue as a percentage of total revenue	**81%**	83%	78%		
AUC/A at period end *(in trillions) (c)*	**$ 35.2**	$ 37.1	$ 34.5	**(5)%**	**2 %**
AUM at period end *(in billions) (d)*	**$ 1,796**	$ 1,910	$ 1,841	**(6)%**	**(2)%**

(a) Asset servicing fees include the fees from the Clearance and Collateral Management business and also include securities lending revenue of $51 million in the first quarter of 2020, $44 million in the fourth quarter of 2019 and $48 million in the first quarter of 2019.
(b) Clearing services fees are almost entirely earned by our Pershing business.
(c) Consists of AUC/A primarily from the Asset Servicing business and, to a lesser extent, the Clearance and Collateral Management, Issuer Services, Pershing and Wealth Management businesses. Includes the AUC/A of CIBC Mellon of $1.2 trillion at March 31, 2020, $1.5 trillion at Dec. 31, 2019 and $1.3 trillion at March 31, 2019.
(d) Excludes securities lending cash management assets and assets managed in the Investment Services business.
N/M - Not meaningful.

Fee and other revenue increased 10% compared with the first quarter of 2019 and decreased 16% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects higher foreign exchange and other trading revenue, clearing services fees and asset servicing fees, partially offset by lower investment and other income. The decrease compared with the fourth quarter of 2019 primarily reflects lower investment and other income due to a gain on sale of an equity investment recorded in the fourth quarter of 2019, and lower investment management and performance fees, partially offset by higher foreign exchange and other trading revenue and clearing services fees.

Money market mutual fund fee waivers

If short-term interest rates continue at recent levels or decrease further, money market mutual funds will be expected to waive fees to protect investors from negative returns. The fee waivers will initially impact clearing services fees in Pershing, but may also impact revenue in our other businesses including investment management fees and distribution and servicing revenue in Asset Management and fees in Asset Servicing, but would also result in lower distribution and servicing expense. Money market fee waivers are highly sensitive to changes in short-term interest rates and are difficult to predict, but the impact has the potential to grow over the coming quarters.

Investment services fees

Investment services fees increased 7% compared with the first quarter of 2019 and 3% compared with the fourth quarter of 2019 reflecting the following:

- Asset servicing fees increased 3% compared with the first quarter of 2019 and 1% compared with the fourth quarter of 2019. Both increases primarily reflect higher volumes from existing clients.
- Clearing services fees increased 18% compared with the first quarter of 2019 and 12% compared with the fourth quarter of 2019. Both increases primarily reflect growth in clearing volumes. The increase compared with the first quarter of 2019 also reflects growth in client assets and accounts.
- Issuer services fees increased 5% compared with the first quarter of 2019 and decreased slightly compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects higher Corporate Trust and Depositary Receipts fees.
- Treasury services fees increased 13% compared with the first quarter of 2019 and 1% compared with the fourth quarter of 2019. Both increases primarily reflect higher payment fees.

See the "Investment Services business" in "Review of businesses" for additional details.

Investment management and performance fees

Investment management and performance fees increased 2% compared with the first quarter of 2019 and decreased 2% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects higher performance fees and average market values, partially offset by an unfavorable change in the mix of AUM since the first quarter of 2019. The decrease compared with the fourth quarter of 2019 primarily reflects lower market values. On a constant currency basis (Non-GAAP), investment management and performance fees increased 3% compared with the first quarter of 2019. Performance fees were $50 million in the first quarter of 2020, $31 million in the first quarter of 2019 and $48 million in the fourth quarter of 2019.

AUM was $1.8 trillion at March 31, 2020, a decrease of 2% compared with March 31, 2019, primarily reflecting the unfavorable impact of a stronger U.S. dollar (principally versus the British pound).

See the "Investment Management business" in "Review of businesses" for additional details regarding the drivers of investment management and performance fees, AUM and AUM flows.

Foreign exchange and other trading revenue

Foreign exchange and other trading revenue *(in millions)*		**1Q20**	4Q19	1Q19
Foreign exchange	**$**	**253**	$ 138	$ 160
Other trading revenue		**66**	30	10
Total foreign exchange and other trading revenue	**$**	**319**	$ 168	$ 170

Foreign exchange and other trading revenue increased 88% compared with the first quarter of 2019 and 90% compared with the fourth quarter of 2019.

Foreign exchange revenue is primarily driven by the volume of client transactions and the spread realized on these transactions, both of which are impacted by market volatility, and the impact of foreign currency hedging activities. In the first quarter of 2020, foreign exchange revenue totaled $253 million, an increase of 58% compared with the first quarter of 2019 and 83% compared with the fourth quarter of 2019. Both increases primarily reflect higher volatility and volumes. Foreign exchange revenue is primarily reported in the Investment Services business and, to a lesser extent, the Investment Management business and the Other segment.

Other trading revenue totaled $66 million in the first quarter of 2020 compared with $10 million in the first quarter of 2019 and $30 million in the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects the impact of Investment Management hedging activities and derivative gains. The increase compared with the fourth quarter of 2019 primarily reflects derivative and fixed income trading gains. Other trading revenue is reported in all three business segments.

Investment and other income

The following table provides the components of investment and other income.

Investment and other income						
(in millions)		**1Q20**		4Q19		1Q19
Corporate/bank-owned life insurance	**$**	**36**	$	43	$	30
Expense reimbursements from joint venture		**21**		20		19
Asset-related gains		**4**		815		1
Seed capital (losses) gains *(a)*		**(31)**		4		2
Other (loss)		**(19)**		(22)		(17)
Total investment and other income	**$**	**11**	$	860	$	35

(a) Excludes seed capital gains related to consolidated investment management funds, which are reflected in operations of consolidated investment management funds.

Investment and other income decreased compared with both the first quarter of 2019 and fourth quarter of 2019. The decrease compared with the first quarter of 2019 primarily reflects equity investment losses, including seed capital, partially offset by a one-time fee in Pershing. The decrease compared with the fourth quarter of 2019 primarily reflects the gain on the sale of an equity investment recorded in the fourth quarter of 2019.

Net interest revenue

Net interest revenue								
							1Q20 vs.	
(dollars in millions)		**1Q20**		4Q19		1Q19	**4Q19**	**1Q19**
Net interest revenue – GAAP	**$**	**814**	$	815	$	841	**—**	**(3)%**
Add: Tax equivalent adjustment		**2**		2		4	**N/M**	**N/M**
Net interest revenue (FTE) basis – Non-GAAP *(a)*	**$**	**816**	$	817	$	845	**—**	**(3)%**
Average interest-earning assets	**$**	**323,936**	$	297,987	$	282,185	**9 %**	**15 %**
Net interest margin – GAAP		**1.01%**		1.09%		1.20%	**) (8bps**	**) (19bps**
Net interest margin (FTE) – Non-GAAP *(a)*		**1.01%**		1.09%		1.20%	**) (8bps**	**) (19bps**

(a) Net interest revenue (FTE) – Non-GAAP and net interest margin (FTE) – Non-GAAP include the tax equivalent adjustments on tax-exempt income which allows for comparisons of amounts arising from both taxable and tax-exempt sources and is consistent with industry practice. The adjustment to an FTE basis has no impact on net income.

N/M - Not meaningful.

bps - basis points.

Net interest revenue decreased 3% compared with the first quarter of 2019 and decreased slightly compared with the fourth quarter of 2019. The decrease compared with the first quarter of 2019 primarily reflects lower interest rates on interest-earning assets and the impact of hedging activities. This was partially offset by the benefit of lower deposit and funding rates and higher deposits, securities and loans. The decrease compared with the fourth quarter of 2019 was primarily driven by the favorable impact of higher deposits, securities and loans offset by the impact of hedging activities and lower rates. The impact of hedging activities is primarily offset in foreign exchange and other trading revenue.

Net interest margin decreased 19 basis points compared with the first quarter of 2019 and 8 basis points compared with the fourth quarter of 2019. Both decreases primarily reflect lower asset yields and higher interest-earning assets, partially offset by lower deposit rates.

Average interest-earning assets of $324 billion in the first quarter of 2020 increased 15% compared with the first quarter of 2019 and 9% compared with the fourth quarter of 2019. Both increases primarily reflect higher interest-bearing deposits with the Federal Reserve and other central banks and securities. The increase compared with the first quarter of 2019 also reflects higher federal funds sold and securities purchased under resale agreements and loans. The increases were primarily driven by higher average deposits.

Average non-U.S. dollar deposits comprised approximately 25% of our average total deposits in the first quarter of 2020. Approximately 40% of the average non-U.S. dollar deposits in the first quarter of 2020 were euro-denominated.

Net interest revenue in future quarters will depend on the level and mix of client deposits, deposit rates, as well as the level and shape of the yield curve, which may result in lower yields on interest-earning assets.

Average balances and interest rates	Quarter ended								
	March 31, 2020			Dec. 31, 2019			March 31, 2019		
(dollars in millions; average rates annualized)	**Average balance**	**Interest**	**Average rates**	Average balance	Interest	Average rates	Average balance	Interest	Average rates
Assets									
Interest-earning assets:									
Interest-bearing deposits with the Federal Reserve and other central banks	**$ 80,403**	**$ 80**	**0.39%**	$ 61,627	$ 94	0.60%	$ 63,583	$ 139	0.87%
Interest-bearing deposits with banks (primarily foreign banks)	**17,081**	**58**	**1.37**	15,788	65	1.63	13,857	63	1.85
Federal funds sold and securities purchased under resale agreements *(a)*	**34,109**	**396**	**4.67**	38,846	452	4.62	28,968	474	6.63
Margin loans	**12,984**	**87**	**2.69**	11,609	96	3.25	12,670	135	4.34
Non-margin loans:									
Domestic offices	**31,720**	**238**	**3.02**	29,690	250	3.36	28,177	269	3.85
Foreign offices	**11,170**	**71**	**2.55**	11,418	78	2.70	10,511	86	3.32
Total non-margin loans	**42,890**	**309**	**2.89**	41,108	328	3.18	38,688	355	3.70
Securities:									
U.S. government obligations	**23,175**	**108**	**1.87**	18,444	96	2.08	23,597	129	2.22
U.S. government agency obligations	**69,046**	**400**	**2.32**	67,494	398	2.36	64,867	427	2.63
State and political subdivisions *(b)*	**1,033**	**8**	**3.06**	1,134	9	3.03	2,206	15	2.71
Other securities *(b)*	**36,375**	**86**	**0.95**	35,242	145	1.64	28,647	151	2.13
Trading securities *(b)*	**6,840**	**40**	**2.36**	6,695	40	2.41	5,102	36	2.91
Total securities *(b)*	**136,469**	**642**	**1.88**	129,009	688	2.13	124,419	758	2.45
Total interest-earning assets *(b)*	**$ 323,936**	**$ 1,572**	**1.95%**	$ 297,987	$ 1,723	2.30%	$ 282,185	$ 1,924	2.75%
Noninterest-earnings assets	**61,342**			56,354			53,980		
Total assets	**$ 385,278**			$ 354,341			$ 336,165		
Liabilities									
Interest-bearing liabilities:									
Interest-bearing deposits:									
Domestic offices	**$ 99,915**	**$ 170**	**0.69%**	$ 87,162	$ 216	0.98%	$ 70,562	$ 224	1.29%
Foreign offices	**97,717**	**70**	**0.29**	95,262	118	0.49	89,317	167	0.76
Total interest-bearing deposits	**197,632**	**240**	**0.49**	182,424	334	0.73	159,879	391	0.99
Federal funds purchased and securities sold under repurchase agreements *(a)*	**13,919**	**275**	**7.96**	12,668	291	9.11	11,922	331	11.26
Trading liabilities	**1,626**	**7**	**1.61**	1,504	9	2.25	1,305	7	2.25
Other borrowed funds	**719**	**4**	**2.27**	709	5	2.83	3,305	24	2.87
Commercial paper	**1,581**	**6**	**1.56**	1,792	7	1.66	1,377	8	2.44
Payables to customers and broker-dealers	**16,386**	**30**	**0.73**	15,178	40	1.07	16,108	70	1.76
Long-term debt	**27,231**	**194**	**2.83**	28,117	220	3.09	28,254	248	3.52
Total interest-bearing liabilities	**$ 259,094**	**$ 756**	**1.17%**	$ 242,392	$ 906	1.48%	$ 222,150	$ 1,079	1.96%
Total noninterest-bearing deposits	**60,577**			49,632			54,583		
Other noninterest-bearing liabilities	**24,229**			20,681			18,628		
Total liabilities	**343,900**			312,705			295,361		
Temporary equity									
Redeemable noncontrolling interests	**66**			69			70		
Permanent equity									
Total The Bank of New York Mellon Corporation shareholders' equity	**41,206**			41,384			40,628		
Noncontrolling interests	**106**			183			106		
Total permanent equity	**41,312**			41,567			40,734		
Total liabilities, temporary equity and permanent equity	**$ 385,278**			$ 354,341			$ 336,165		
Net interest revenue (FTE) – Non-GAAP *(c)*		**$ 816**			$ 817			$ 845	
Net interest margin (FTE) – Non-GAAP *(b)(c)*			**1.01%**			1.09%			1.20%
Less: Tax equivalent adjustment *(b)*		**2**			2			4	
Net interest revenue – GAAP		**$ 814**			$ 815			$ 841	
Net interest margin – GAAP			**1.01%**			1.09%			1.20%

(a) Includes the average impact of offsetting under enforceable netting agreements of approximately $80 billion for the first quarter of 2020, $60 billion for the fourth quarter of 2019 and $44 billion for the first quarter of 2019. On a Non-GAAP basis, excluding the impact of offsetting, the yield on federal funds sold and securities purchased under resale agreements would have been 1.39% for the first quarter of 2020, 1.82% for the fourth quarter of 2019 and 2.63% for the first quarter of 2019. On a Non-GAAP basis, excluding the impact of offsetting, the rate on federal funds purchased and securities sold under repurchase agreements would have been 1.18% for the first quarter of 2020, 1.59% for the fourth quarter of 2019 and 2.40% for the first quarter of 2019. We believe providing the rates excluding the impact of netting is useful to investors as it is more reflective of the actual rates earned and paid.

(b) Average rates were calculated on an FTE basis, at tax rates of approximately 21%.

(c) See "Net interest revenue" on page 9 for a reconciliation of this Non-GAAP measure.

Noninterest expense

Noninterest expense

(dollars in millions)	1Q20	4Q19	1Q19	1Q20 vs. 4Q19	1Q20 vs. 1Q19
Staff	**$ 1,482**	$ 1,639	$ 1,524	**(10)%**	**(3)%**
Professional, legal and other purchased services	**330**	367	325	**(10)**	**2**
Software and equipment	**326**	326	283	**—**	**15**
Net occupancy	**135**	151	137	**(11)**	**(1)**
Sub-custodian and clearing	**105**	119	105	**(12)**	**—**
Distribution and servicing	**91**	92	91	**(1)**	—
Business development	**42**	65	45	**(35)**	**(7)**
Bank assessment charges	**35**	32	31	**9**	**13**
Amortization of intangible assets	**26**	28	29	**(7)**	**(10)**
Other	**140**	145	129	**(3)**	**9**
Total noninterest expense	**$ 2,712**	$ 2,964	$ 2,699	**(9)%**	**— %**
Full-time employees at period end	**47,900**	48,400	49,800	**(1)%**	**(4)%**

Total noninterest expense increased slightly compared with the first quarter of 2019 and decreased 9% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects the continued investments in technology and higher pension expense, partially offset by lower staff expense and the favorable impact of a stronger U.S. dollar. The investments in technology are included in staff, professional, legal and other purchased services, and software and equipment expenses. The decrease compared with the fourth quarter of 2019 primarily reflects lower severance, professional, legal and other purchased services and litigation expenses and decreases in most other expense categories, partially offset by the impact of vesting of long-term stock awards for retirement eligible employees and higher pension expense.

Our investments in technology infrastructure and platforms are expected to continue. As a result, we expect to incur higher technology-related expenses in 2020 than in 2019 and higher pension expense as a result of a lower expected rate of return on plan assets. These increases are expected to be offset by decreases in other expenses as we continue to manage overall expenses.

Income taxes

BNY Mellon recorded an income tax provision of $265 million (21.6% effective tax rate) in the first quarter of 2020, $237 million (19.9% effective tax rate) in the first quarter of 2019 and $373 million (20.5% effective tax rate) in the fourth quarter of 2019. For additional information, see Note 11 of the Notes to Consolidated Financial Statements.

Review of businesses

We have an internal information system that produces performance data along product and service lines for our two principal businesses, Investment Services and Investment Management, and the Other segment.

Business accounting principles

Our business data has been determined on an internal management basis of accounting, rather than the generally accepted accounting principles used for consolidated financial reporting. These measurement principles are designed so that reported results of the businesses will track their economic performance.

For information on the accounting principles of our businesses, see Note 19 of the Notes to Consolidated Financial Statements. For information on the primary products and services in each line of business, the primary types of revenue by business and how our businesses are presented and analyzed, see Note 24 of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

Business results are subject to reclassification when organizational changes are made. In the first quarter of 2020, we reclassified the results of certain services provided between the segments from noninterest expense to fee and other revenue. This activity is offset in the Other segment and relates to services that are also provided to third parties and provides consistency with the reporting of the revenues. This adjustment had no impact on income before taxes of the businesses. Also in the first quarter of 2020, we reclassified the results related to certain lending activities from the Wealth Management business to the Pershing business. These loans were originated by the Wealth Management business as a service to Pershing clients. This resulted in an increase in total revenue, noninterest expense and income before taxes in the Pershing business and corresponding decrease in the Wealth Management business. Prior periods have been restated for both reclassifications. The results are also subject to refinements in revenue and expense allocation methodologies, which are typically reflected on a prospective basis.

The results of our businesses may be influenced by client and other activities that vary by quarter. In the first quarter, staff expense typically increases reflecting the vesting of long-term stock awards for retirement-eligible employees. In the third quarter, volume-related fees may decline due to reduced client activity. In the third quarter, staff expense typically increases reflecting the annual employee merit increase. In the fourth quarter, we typically incur higher business development and marketing expenses. In our Investment Management business, performance fees are typically higher in the fourth and first quarters, as those quarters represent the end of the measurement period for many of the performance fee-eligible relationships.

The results of our businesses may also be impacted by the translation of financial results denominated in foreign currencies to the U.S. dollar. We are primarily impacted by activities denominated in the British pound and the euro. On a consolidated basis and in our Investment Services business, we typically have more foreign currency-denominated expenses than revenues. However, our Investment Management business typically has more foreign currency-denominated revenues than expenses. Overall, currency fluctuations impact the year-over-year growth rate in the Investment Management business more than the Investment Services business. However, currency fluctuations, in isolation, are not expected to significantly impact net income on a consolidated basis.

Fee revenue in Investment Management, and to a lesser extent in Investment Services, is impacted by the value of market indices. At March 31, 2020, we estimate that a 5% change in global equity markets, spread evenly throughout the year, would impact fee revenue by less than 1% and diluted earnings per common share by $0.03 to $0.05.

See Note 19 of the Notes to Consolidated Financial Statements for the consolidating schedules which show the contribution of our businesses to our overall profitability.

Investment Services business

(dollars in millions, unless otherwise noted)	1Q20	4Q19 *(a)*	3Q19 *(a)*	2Q19 *(a)*	1Q19 *(a)*	1Q20 vs. 4Q19	1Q20 vs. 1Q19
Revenue:							
Investment services fees:							
Asset servicing fees *(b)*	**$ 1,147**	$ 1,138	$ 1,138	$ 1,126	$ 1,111	**1 %**	**3 %**
Clearing services fees *(c)*	**470**	421	419	411	398	**12**	**18**
Issuer services fees	**263**	264	324	291	251	**—**	**5**
Treasury services fees	**149**	147	139	140	132	**1**	**13**
Total investment services fees	**2,029**	1,970	2,020	1,968	1,892	**3**	**7**
Foreign exchange and other trading revenue	**261**	151	160	153	157	**73**	**66**
Other *(d)*	**146**	115	116	112	112	**27**	**30**
Total fee and other revenue	**2,436**	2,236	2,296	2,233	2,161	**9**	**13**
Net interest revenue	**806**	778	761	783	804	**4**	**—**
Total revenue	**3,242**	3,014	3,057	3,016	2,965	**8**	**9**
Provision for credit losses	**149**	(5)	(15)	(4)	8	**N/M**	**N/M**
Noninterest expense (excluding amortization of intangible assets)	**1,969**	2,160	1,952	1,943	1,961	**(9)**	**—**
Amortization of intangible assets	**18**	19	21	20	20	**(5)**	**(10)**
Total noninterest expense	**1,987**	2,179	1,973	1,963	1,981	**(9)**	**—**
Income before income taxes	**$ 1,106**	$ 840	$ 1,099	$ 1,057	$ 976	**32 %**	**13 %**
Pre-tax operating margin	**34%**	28%	36%	35%	33%		
Securities lending revenue	**$ 46**	$ 40	$ 39	$ 40	$ 44	**15 %**	**5 %**
Total revenue by line of business:							
Asset Servicing	**$ 1,531**	$ 1,411	$ 1,411	$ 1,397	$ 1,415	**9 %**	**8 %**
Pershing	**653**	579	575	572	561	**13**	**16**
Issuer Services	**419**	415	466	446	396	**1**	**6**
Treasury Services	**339**	329	312	317	317	**3**	**7**
Clearance and Collateral Management	**300**	280	293	284	276	**7**	**9**
Total revenue by line of business	**$ 3,242**	$ 3,014	$ 3,057	$ 3,016	$ 2,965	**8 %**	**9 %**
Metrics:							
Average loans	**$ 41,789**	$ 38,721	$ 37,005	$ 36,404	$ 37,235	**8 %**	**12 %**
Average deposits	**$ 242,187**	$ 215,388	$ 208,044	$ 201,146	$ 195,082	**12 %**	**24 %**
AUC/A at period end *(in trillions) (e)*	**$ 35.2**	$ 37.1	$ 35.8	$ 35.5	$ 34.5	**(5)%**	**2 %**
Market value of securities on loan at period end *(in billions) (f)*	**$ 389**	$ 378	$ 362	$ 369	$ 377	**3 %**	**3 %**
Pershing:							
Net new assets (U.S. platform) *(in billions) (g)*	**$ 31**	$ 33	$ 19	$ 21	$ —	**(6)%**	**N/M**
Average active clearing accounts (U.S. platform) *(in thousands)*	**6,437**	6,340	6,283	6,254	6,169	**2 %**	**4 %**
Average long-term mutual fund assets (U.S. platform)	**$ 549,206**	$ 573,475	$ 547,522	$ 532,384	$ 507,606	**(4)%**	**8 %**
Average investor margin loans (U.S. platform)	**$ 9,419**	$ 9,420	$ 9,222	$ 9,440	$ 10,093	**— %**	**(7)%**
Clearance and Collateral Management:							
Average tri-party collateral management balances *(in billions)*	**$ 3,724**	$ 3,562	$ 3,550	$ 3,400	$ 3,266	**5 %**	**14 %**

(a) Prior periods have been restated to reflect the reclassifications.
(b) Asset servicing fees include the fees from the Clearance and Collateral Management business.
(c) Clearing services fees are almost entirely earned by our Pershing business.
(d) Other revenue includes investment management and performance fees, financing-related fees, distribution and servicing revenue, securities gains and losses and investment and other income.
(e) Consists of AUC/A primarily from the Asset Servicing business and, to a lesser extent, the Clearance and Collateral Management, Issuer Services and Pershing businesses. Includes the AUC/A of CIBC Mellon of $1.2 trillion at March 31, 2020, $1.5 trillion at Dec. 31, 2019, $1.4 trillion at Sept. 30, 2019 and June 30, 2019 and $1.3 trillion at March 31, 2019.

(f) Represents the total amount of securities on loan in our agency securities lending program managed by the Investment Services business. Excludes securities for which BNY Mellon acts as agent on behalf of CIBC Mellon clients, which totaled $59 billion at March 31, 2020, $60 billion at Dec. 31, 2019, $66 billion at Sept. 30, 2019, $64 billion at June 30, 2019 and $62 billion at March 31, 2019.

(g) Net new assets represents net flows of assets (e.g., net cash deposits and net securities transfers) in customer accounts in Pershing LLC, a U.S. broker-dealer.

N/M - Not meaningful.

Business description

BNY Mellon Investment Services provides business services and technology solutions to entities including financial institutions, corporations, foundations and endowments, public funds and government agencies. Our lines of business include: Asset Servicing, Pershing, Issuer Services, Treasury Services and Clearance and Collateral Management. For information on the drivers of the Investment Services fee revenue, see Note 10 of the Notes to Consolidated Financial Statements.

We are one of the leading global investment services providers with $35.2 trillion of AUC/A at March 31, 2020.

The Asset Servicing business provides a comprehensive suite of solutions. As one of the largest global custody and fund accounting providers and a trusted partner, we offer services for the safekeeping of assets in capital markets globally as well as alternative investment and structured product strategies. We provide custody and foreign exchange services, support exchange-traded funds and unit investment trusts and provide our clients outsourcing capabilities. Our robust digital and data offerings enable us to provide fully integrated technology solutions for our clients. We deliver securities lending and financing solutions on both an agency and principal basis. Our agency securities lending program is one of the largest lenders of U.S. and non-U.S. securities, servicing a lendable asset pool of approximately $3.6 trillion in 34 separate markets. Our market-leading liquidity services portal enables cash investments for institutional clients and includes fund research and analytics.

Pershing provides execution, clearing, custody, business and technology solutions, delivering dependable operational support to broker-dealers, wealth managers and registered investment advisors (RIAs) globally.

The Issuer Services business includes Corporate Trust and Depositary Receipts. Our Corporate Trust business delivers a full range of issuer and related investor services, including trustee, paying agency, fiduciary, escrow and other financial services. We are a leading provider to the debt capital markets, providing customized and market-driven solutions to investors, bondholders and lenders. Our Depositary Receipts business drives global investing by providing servicing and value-added solutions that enable, facilitate and enhance cross-border trading, clearing, settlement and ownership. We are one of the largest providers of depositary receipts services in the world, partnering with leading companies from more than 50 countries.

Our Treasury Services business provides global payments, liquidity management and trade finance services for financial institutions, corporations and the public sector.

Our Clearance and Collateral Management business clears and settles equity and fixed-income transactions globally and serves as custodian for tri-party repo collateral worldwide. We are the primary provider of U.S. government securities clearance and a provider of non-U.S. government securities clearance. Our collateral services include collateral management, administration and segregation. We offer innovative solutions and industry expertise which help financial institutions and institutional investors with their liquidity, financing, risk and balance sheet challenges. We are a leading provider of tri-party collateral management services with an average of $3.7 trillion serviced globally including approximately $2.8 trillion of the U.S. tri-party repo market.

Review of financial results

AUC/A of $35.2 trillion increased 2% compared with March 31, 2019, primarily reflecting higher client inflows, partially offset by lower market values and the unfavorable impact of a stronger U.S. dollar. AUC/A consisted of 31% equity securities and 69% fixed-income securities at March 31, 2020 and 35% equity securities and 65% fixed-income securities at March 31, 2019.

Total revenue of $3.2 billion increased 9% compared with the first quarter of 2019 and 8% compared with the fourth quarter of 2019. Our Investment Services businesses were favorably impacted by higher client volumes in the first quarter of 2020 as a result of the current economic environment. See “Impact of coronavirus pandemic on our business” for additional information. The drivers of total revenue by line of business are indicated below.

Asset Servicing revenue of $1.5 billion increased 8% compared with the first quarter of 2019 and 9%

compared with the fourth quarter of 2019. Both increases primarily reflect higher foreign exchange and other trading revenue. The increase compared with the first quarter of 2019 also reflects higher volumes from existing clients, partially offset by lower net interest revenue. The decrease in net interest revenue primarily reflects lower rates, partially offset by higher deposits and loans.

Pershing revenue of $653 million increased 16% compared with the first quarter of 2019 and 13% compared with the fourth quarter of 2019. Both increases primarily reflect higher clearing volumes and a one-time fee. The increase compared with the first quarter of 2019 also reflects growth in client assets and accounts.

Issuer Services revenue of $419 million increased 6% compared with the first quarter of 2019 and 1% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 reflects higher Corporate Trust and Depositary Receipts fees. The increase compared with the fourth quarter of 2019 primarily reflects higher Depositary Receipts fees.

Treasury Services revenue of $339 million increased 7% compared with the first quarter of 2019 and 3% compared with the fourth quarter of 2019. Both increases primarily reflect higher fees and net interest revenue. The increase in net interest revenue was driven by deposit growth.

Clearance and Collateral Management revenue of $300 million increased 9% compared with the first quarter of 2019 and 7% compared with the fourth quarter of 2019. Both increases primarily reflect growth in collateral management and clearance volumes and higher net interest revenue.

Market and regulatory trends are driving investable assets toward lower fee asset management products at reduced margins for our clients. These dynamics are also negatively impacting our investment services fees. However, at the same time, these trends are providing additional outsourcing opportunities as clients and other market participants seek to comply with new regulations and reduce their operating costs.

Noninterest expense of $2.0 billion increased slightly compared with the first quarter of 2019 and decreased 9% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 was primarily driven by continued investments in technology. The decrease compared with the fourth quarter of 2019 primarily reflects lower severance and litigation expenses, partially offset by higher other staff expense.

Investment Management business

(dollars in millions)	1Q20	4Q19	*(a)*	3Q19	*(a)*	2Q19	*(a)*	1Q19	*(a)*	1Q20 vs. 4Q19	1Q20 vs. 1Q19
Revenue:											
Investment management fees *(b)*	**$ 812**	$ 836		$ 830		$ 831		$ 810		**(3)%**	**— %**
Performance fees	**50**	48		2		2		31		**4**	**61**
Investment management and performance fees *(c)*	**862**	884		832		833		841		**(2)**	**2**
Distribution and servicing	**43**	44		45		44		45		**(2)**	**(4)**
Other *(b)*	**(59)**	(4)		(39)		(23)		(17)		**N/M**	**N/M**
Total fee and other revenue *(b)*	**846**	924		838		854		869		**(8)**	**(3)**
Net interest revenue	**52**	47		49		59		67		**11**	**(22)**
Total revenue	**898**	971		887		913		936		**(8)**	**(4)**
Provision for credit losses	**9**	—		—		(2)		1		**N/M**	**N/M**
Noninterest expense (excluding amortization of intangible assets)	**687**	722		582		646		660		**(5)**	**4**
Amortization of intangible assets	**8**	9		10		9		9		**(11)**	**(11)**
Total noninterest expense	**695**	731		592		655		669		**(5)**	**4**
Income before income taxes	**$ 194**	$ 240		$ 295		$ 260		$ 266		**(19)%**	**(27)%**
Pre-tax operating margin	**22%**	25%		33%		29%		28%			
Adjusted pre-tax operating margin – Non-GAAP *(d)*	**24%**	27%		37%		32%		31%			
Total revenue by line of business:											
Asset Management	**$ 620**	$ 692		$ 608		$ 622		$ 640		**(10)%**	**(3)%**
Wealth Management	**278**	279		279		291		296		**—**	**(6)**
Total revenue by line of business	**$ 898**	$ 971		$ 887		$ 913		$ 936		**(8)%**	**(4)%**
Average balances:											
Average loans	**$ 12,124**	$ 12,022		$ 12,013		$ 12,205		$ 12,339		**1 %**	**(2)%**
Average deposits	**$ 16,144**	$ 15,195		$ 14,083		$ 14,615		$ 15,815		**6 %**	**2 %**

(a) Prior periods have been restated to reflect the reclassifications.

(b) Total fee and other revenue includes the impact of the consolidated investment management funds, net of noncontrolling interests. Additionally, other revenue includes asset servicing fees, treasury services fees, foreign exchange and other trading revenue and investment and other income.

(c) On a constant currency basis, investment management and performance fees increased 3% (Non-GAAP) compared with the first quarter of 2019. See "Supplemental information – Explanation of GAAP and Non-GAAP financial measures" beginning on page 43 for the reconciliation of this Non-GAAP measure.

(d) Net of distribution and servicing expense. See "Supplemental information – Explanation of GAAP and Non-GAAP financial measures" beginning on page 43 for the reconciliation of this Non-GAAP measure.

N/M - Not meaningful.

AUM trends						1Q20 vs.	
(dollars in billions)	**1Q20**	4Q19	3Q19	2Q19	1Q19	**4Q19**	**1Q19**
AUM at period end, by product type: *(a)*							
Equity	**$ 120**	$ 154	$ 147	$ 152	$ 149	**(22)%**	**(19)%**
Fixed income	**211**	224	211	209	208	**(6)**	**1**
Index	**274**	339	321	322	333	**(19)**	**(18)**
Liability-driven investments	**705**	728	742	709	709	**(3)**	**(1)**
Multi-asset and alternative investments	**171**	192	182	184	178	**(11)**	**(4)**
Cash	**315**	273	278	267	264	**15**	**19**
Total AUM by product type	**$ 1,796**	$ 1,910	$ 1,881	$ 1,843	$ 1,841	**(6)%**	**(2)%**
Changes in AUM: *(a)*							
Beginning balance of AUM	**$ 1,910**	$ 1,881	$ 1,843	$ 1,841	$ 1,722		
Net (outflows) inflows:							
Long-term strategies:							
Equity	**(2)**	(6)	(4)	(2)	(4)		
Fixed income	**—**	5	2	(4)	3		
Liability-driven investments	**(5)**	(3)	(4)	1	5		
Multi-asset and alternative investments	**(1)**	3	(1)	1	(4)		
Total long-term active strategies (outflows)	**(8)**	(1)	(7)	(4)	—		
Index	**3**	(5)	(3)	(22)	(2)		
Total long-term strategies (outflows)	**(5)**	(6)	(10)	(26)	(2)		
Short-term strategies:							
Cash	**43**	(7)	11	2	2		
Total net inflows (outflows)	**38**	(13)	1	(24)	—		
Net market impact	**(91)**	(20)	66	42	103		
Net currency impact	**(61)**	62	(29)	(16)	16		
Ending balance of AUM	**$ 1,796**	$ 1,910	$ 1,881	$ 1,843	$ 1,841	**(6)%**	**(2)%**
Wealth Management client assets *(b)*	**$ 236**	$ 266	$ 259	$ 257	$ 253	**(11)%**	**(7)%**

(a) Excludes securities lending cash management assets and assets managed in the Investment Services business.
(b) Includes AUM and AUC/A in the Wealth Management business.

Business description

Our Investment Management business consists of two lines of business, Asset Management and Wealth Management. Our investment firms deliver a highly diversified portfolio of investment strategies independently, and through our global distribution network, to institutional and retail clients globally. BNY Mellon Wealth Management provides investment management, custody, wealth and estate planning and private banking services. See pages 16 and 17 of our 2019 Annual Report for additional information on our Investment Management business.

Review of financial results

AUM decreased 2% compared with March 31, 2019 primarily reflecting the unfavorable impact of a stronger U.S. dollar (principally versus the British pound).

Net long-term strategy outflows were $5 billion in the first quarter of 2020, primarily resulting from outflows of liability-driven investments and equity funds. Short-term strategy inflows were $43 billion in the first quarter of 2020. Market and regulatory trends have resulted in increased demand for lower fee asset management products and for performance-based fees.

Total revenue of $898 million decreased 4% compared with the first quarter of 2019 and 8% compared with the fourth quarter of 2019.

Our Investment Management business was impacted by lower investment and other income, investment management fees and lower market values as a result of the current macroeconomic environment. See “Impact of coronavirus pandemic on our business” for additional information.

Asset Management revenue of $620 million decreased 3% compared with the first quarter of 2019 and 10% compared with the fourth quarter of 2019. The decrease compared with the first quarter of 2019 primarily reflects equity investment losses, including seed capital, and an unfavorable change in the mix of AUM since the first quarter of 2019, partially offset

by higher performance fees and market values. The decrease compared with the fourth quarter of 2019 primarily reflects equity investment losses, including seed capital, the impact of hedging activities and lower market values.

Wealth Management revenue of $278 million decreased 6% compared with the first quarter of 2019 and decreased slightly compared with the fourth quarter of 2019. The decrease compared with the first quarter of 2019 reflects lower net interest revenue due to lower interest rates, offset by the impact of higher deposits.

Revenue generated in the Investment Management business included 42% from non-U.S. sources in the first quarter of 2020, compared with 40% in the first quarter of 2019 and 42% in the fourth quarter of 2019.

Noninterest expense of $695 million increased 4% compared with the first quarter of 2019 and decreased 5% compared with the fourth quarter of 2019. The increase compared with the first quarter of 2019 primarily reflects higher professional, legal and other purchased services expense. The decrease compared with the fourth quarter of 2019 primarily reflects lower severance expense.

Other segment

(in millions)	**1Q20**	4Q19	*(a)*	3Q19	*(a)*	2Q19	*(a)*	1Q19	*(a)*
Fee revenue	**$ 21**	$ 817		$ (5)		$ 24		$ 17	
Net securities gains (losses)	**9**	(23)		(1)		7		1	
Total fee and other revenue	**30**	794		(6)		31		18	
Net interest (expense)	**(44)**	(10)		(80)		(40)		(30)	
Total (loss) revenue	**(14)**	784		(86)		(9)		(12)	
Provision for credit losses	**11**	(3)		(1)		(2)		(2)	
Noninterest expense	**30**	54		25		29		49	
(Loss) income before income taxes	**$ (55)**	$ 733		$ (110)		$ (36)		$ (59)	
Average loans and leases	**$ 1,961**	$ 1,974		$ 1,817		$ 1,764		$ 1,784	

(a) Prior periods have been restated to reflect the reclassifications.

See page 18 of our 2019 Annual Report for additional information on the Other segment.

Review of financial results

Fee revenue, net securities gains (losses) and net interest expense include corporate treasury and other investment activity, including hedging activity which offsets between fee revenue and net interest expense.

Total revenue decreased $798 million compared with the fourth quarter of 2019, primarily reflecting the gain on the sale of an equity investment recorded in the fourth quarter of 2019.

Net interest expense increased $14 million compared with the first quarter of 2019 and $34 million compared with the fourth quarter of 2019. Both increases primarily reflect corporate treasury activity.

Noninterest expense decreased $19 million compared with the first quarter of 2019 primarily reflecting lower staff expense. Noninterest expense decreased $24 million compared to the fourth quarter of 2019 primarily reflecting lower severance, partially offset by higher other staff expense, including pension expense.

Critical accounting estimates

Our significant accounting policies are described in Note 1 of the Notes to Consolidated Financial Statements in our 2019 Annual Report and in Note 2 of the Notes to Consolidated Financial Statements in this Form 10-Q. Our critical accounting estimates are those related to the allowance for credit losses, fair value of financial instruments and derivatives, goodwill and other intangibles and litigation and regulatory contingencies, as referenced below.

Critical accounting estimates	Reference
Allowance for credit losses	See below.
Fair value of financial instruments and derivatives	2019 Annual Report, pages 23-24.
Goodwill and other intangibles	2019 Annual Report, pages 24-25. Also, see below.
Litigation and regulatory contingencies	"Legal proceedings" in Note 18 of the Notes to Consolidated Financial Statements.

Allowance for credit losses

The allowance for credit losses covers financial assets subject to credit losses and measured at amortized cost, including loans and lending-related commitments, held-to-maturity securities, certain securities financing transactions and deposits with banks. The allowance for credit losses is intended to adjust the carrying value of these assets by an estimated amount of credit losses that we expect to incur over the life of the asset. Similarly, the allowance for credit losses on lending-related commitments and other off-balance sheet financial instruments is meant to capture the credit losses that we expect to recognize in these portfolios as of the balance sheet date.

A quantitative methodology and qualitative framework is used to estimate the allowance for credit losses.

The quantitative component of our estimate uses models and methodologies that categorize financial assets based on product type, collateral type, and other credit trends and risk characteristics, including relevant information about past events, current conditions and reasonable and supportable forecasts of future economic conditions that affect the collectability of the recorded amounts. For the quantitative component, we segment portfolios into various major components including commercial loans and lease financing, commercial real estate, financial institutions, residential mortgages, and other. The segmentation of our debt securities portfolios is by major asset class and is influenced by whether the security is structured or non-structured (i.e., direct obligation), as well as the issuer type. The components of the credit loss calculation for each major portfolio or asset class include a probability of default, loss given default and exposure at default, as applicable, and their values depend on the forecast behavior of variables in the macroeconomic environment. We utilize a multi-scenario macroeconomic forecast which includes a weighting of baseline, stronger near-term growth and moderate recession scenarios and allows us to develop our estimate using a wide span of economic variables. Our baseline scenario reflects a view on likely performance of each global region and the other two scenarios are designed relative to the baseline scenario. The scenarios include a reasonable and supportable forecast period, typically two to three years, and a reversion period, in which the economic data reverts to long-term historical experience of each economic variable. In general, the forecasts across the alternative economic scenarios tend to revert toward the long-term trends after the forecast period, which is the period in which the confidence interval is considered reasonable and supportable. The speed at which the scenario specific forecasts revert is based on observed historical patterns of mean reversion that are reflected in our model parameter estimates. Certain macroeconomic variables such as unemployment or home prices take longer to revert after a contraction, though specific recovery times are scenario-specific. Reversion will usually take longer the further away the scenario specific forecast is from the historical mean. On a quarterly basis, and within a developed governance structure, we update these scenarios for current economic conditions and may adjust the scenario weighting based on our economic outlook. The Company uses its best judgment to assess these economic conditions and loss data in estimating the allowance for credit losses and these estimates are subject to periodic refinement based on changes to underlying external or Company-specific historical data.

In the quantitative component of our estimate, we measure expected credit losses using an individual evaluation method if the risk characteristics of the asset is no longer consistent with the portfolio or class of asset. For these assets we do not employ the macroeconomic model calculation but consider factors such as payment status, collateral value, the obligor's financial condition, guarantor support, the probability of collecting scheduled principal and interest payments when due, and recovery expectations if they can be reasonably estimated. For loans, we measure the expected credit loss as the difference between the amortized cost basis in the loan and the present value of the expected future cash flows from the borrower which is generally discounted at the loan's effective interest rate, or the fair value of the collateral, if the loan is collateral dependent. We generally consider nonperforming loans as well as loans that have been or are

anticipated to be modified under a troubled debt restructuring for individual evaluation given the risk characteristics of such loans.

Available-for-sale debt securities are recorded at fair value. When an available-for-sale debt security is in an unrealized loss position, we employ a methodology to identify and estimate the credit loss portion of the unrealized loss position. The measurement of expected credit losses is performed at the security level and is based on our best single estimate of cash flows, on a discounted basis; however, we do not specifically employ the macroeconomic forecasting models and scenarios summarized above.

The qualitative component of our estimate for the allowance for credit losses is intended to capture expected losses that may not have been fully captured in the quantitative component. Through an established governance structure, management determines the qualitative allowance each period based on an evaluation of various internal and environmental factors which include: scenario weighting and sensitivity risk, credit concentration risk, economic conditions and other considerations. We may also make adjustments for idiosyncratic risks or natural disaster risks.

To the extent actual results differ from forecasts or management's judgment, the allowance for credit losses may be greater or less than future charge-offs and recoveries.

Our allowance for credit losses is sensitive to a number of inputs, most notably the credit ratings assigned to each borrower as well as macroeconomic forecast assumptions that are incorporated in our estimate of credit losses through the expected life of the loan portfolio. Thus, as the macroeconomic environment and related forecasts change, the allowance for credit losses may change materially. The following sensitivity analyses do not represent management's expectations of the deterioration of our portfolios or the economic environment, but are provided as hypothetical scenarios to assess the sensitivity of the allowance for credit losses to changes in key inputs. If each credit were rated one grade better, the allowance would have decreased by $90 million, while if each credit were rated one grade worse, the allowance would have increased by $127 million. Pertaining to our multi-scenario based macroeconomic forecast, in determining the March 31, 2020 allowance for credit losses, we placed meaningful weighting towards a moderate recession scenario that assumes contraction in many important economic variables over several quarters. From a sensitivity perspective, for every ten percentage points change in weighting applied to the recessionary scenario, the allowance for credit losses would change by approximately $20 million.

Goodwill and other intangible assets

BNY Mellon's business segments include six reporting units for which goodwill impairment testing is performed on an annual basis. The Investment Services segment is comprised of four reporting units and the Investment Management segment is comprised of two reporting units.

An interim test is performed when events or circumstances occur that may indicate that it is more likely than not that the fair value of any reporting unit may be less than its carrying value.

Due to significant changes in the macroeconomic environment in the first quarter of 2020, we performed an interim goodwill impairment test of the Asset Management reporting unit, resulting in no goodwill impairment. The fair value of the Asset Management reporting unit, with $7.2 billion of allocated goodwill, exceeded its carrying value by approximately 2%.

Estimated cash flows used in the income approach were based on management's projections as of March 31, 2020. The discount rate applied to these cash flows was 10% and incorporated a 7% market equity risk premium. We assumed a long-term growth rate of 3.6%. Estimated cash flows extend far into the future, and, by their nature, are difficult to estimate over such an extended time frame. Factors that may significantly affect the cash flow estimates include, among others, market values of assets we manage, customer behaviors and attrition, changes in revenue growth trends, certain money market fee waiver practices, cost structures and technology, regulatory and legislative changes, specific industry or market sector conditions, competition and changes in interest rates. In the future, small changes in the assumptions, such as changes in the cash flow estimates, discount rate or long-term growth rate, or a prolonged macroeconomic downturn could produce a material non-cash goodwill impairment, which would have no impact on our regulatory capital ratios.

As of March 31, 2020, if the discount rate applied to the estimated cash flows was increased or decreased by 25 basis points, the fair value of the Asset Management reporting unit would decrease or increase by 4%, respectively. Similarly, if the long-term growth rate was increased or decreased by 10 basis points, the fair value of the Asset Management reporting unit would increase or decrease by approximately 1%, respectively.

Consolidated balance sheet review

One of our key risk management objectives is to maintain a balance sheet that remains strong throughout market cycles to meet the expectations of our major stakeholders, including our shareholders, clients, creditors and regulators.

We also seek to undertake overall liquidity risk, including intraday liquidity risk, that stays within our risk appetite. The objective of our balance sheet management strategy is to maintain a balance sheet that is characterized by strong liquidity and asset quality, ready access to external funding sources at competitive rates and a strong capital structure that supports our risk-taking activities and is adequate to absorb potential losses. In managing the balance sheet, appropriate consideration is given to balancing the competing needs of maintaining sufficient levels of liquidity and complying with applicable regulations and supervisory expectations while optimizing profitability.

At March 31, 2020, total assets were $468 billion, compared with $382 billion at Dec. 31, 2019. The increase in total assets was primarily driven by higher interest-bearing deposits with the Federal Reserve and other central banks and higher securities, resulting from significant deposit inflows. Deposits totaled $337 billion at March 31, 2020, compared with $259 billion at Dec. 31, 2019. The increase reflects the current macroeconomic environment. Total interest-bearing deposits as a percentage of total interest-earning assets were 60% at March 31, 2020 and 62% at Dec. 31, 2019. The higher level of client deposits received in the first quarter of 2020 was primarily placed with the Federal Reserve and other central banks or in short-term deposits with large global banks.

At March 31, 2020, available funds totaled $202 billion which include cash and due from banks, interest-bearing deposits with the Federal Reserve and other central banks, interest-bearing deposits with banks and federal funds sold and securities purchased under resale agreements. This compares with available funds of $145 billion at Dec. 31, 2019. Total available funds as a percentage of total assets were 43% at March 31, 2020 and 38% at Dec. 31, 2019. For additional information on our liquid funds and available funds, see “Liquidity and dividends.”

Securities were $139 billion, or 30% of total assets, at March 31, 2020, compared with $123 billion, or 32% of total assets, at Dec. 31, 2019. The increase in securities primarily reflects investments in U.S. Treasury securities, commercial paper and CDs, agency residential mortgage-backed securities (“RMBS”) and an increase in the net unrealized pre-tax gain. For additional information on our securities portfolio, see “Securities” and Note 4 of the Notes to Consolidated Financial Statements.

Loans were $62 billion, or 13% of total assets, at March 31, 2020, compared with $55 billion, or 14% of total assets, at Dec. 31, 2019. The increase was primarily driven by higher overdrafts and higher loans in the financial institutions and commercial portfolios. For additional information on our loan portfolio, see “Loans” and Note 5 of the Notes to Consolidated Financial Statements.

Long-term debt totaled $27.5 billion at both March 31, 2020 and Dec. 31, 2019. Maturities of $1.8 billion were offset by issuances and an increase in the fair value of hedged long-term debt. For additional information on long-term debt, see “Liquidity and dividends.”

The Bank of New York Mellon Corporation total shareholders’ equity decreased to $41.1 billion at March 31, 2020 from $41.5 billion at Dec. 31, 2019. For additional information, see “Capital.”

Country risk exposure

The following table presents BNY Mellon's top 10 exposures by country (excluding the U.S.) as of March 31, 2020, as well as certain countries with higher-risk profiles, and is presented on an internal risk management basis. We monitor our exposure to these and other countries as part of our internal country risk management process.

The country risk exposure below reflects the Company's risk to an immediate default of the counterparty or obligor based on the country of residence of the entity which incurs the liability. If there is credit risk mitigation, the country of residence of the entity providing the risk mitigation is the country of risk. The country of risk for securities is generally based on the domicile of the issuer of the security.

Country risk exposure at March 31, 2020	Interest-bearing deposits						
(in billions)	Central banks	Banks	Lending *(a)*	Securities *(b)*	Other *(c)*	Total exposure	
Top 10 country exposure:							
United Kingdom ("UK")	$ 15.5	$ 0.4	$ 1.4	$ 4.8	$ 4.4	$ 26.5	
Germany	16.7	0.7	0.7	4.0	0.3	22.4	
Japan	19.3	0.9	0.2	0.4	0.3	21.1	
Belgium	7.9	1.2	0.1	0.2	—	9.4	
Canada	—	2.5	0.2	4.1	2.5	9.3	
China	—	2.6	1.3	—	0.3	4.2	
France	0.1	0.9	—	2.3	0.6	3.9	
Ireland	0.6	0.1	0.5	0.5	2.0	3.7	
Singapore	—	1.7	0.2	0.9	0.6	3.4	
South Korea	0.1	0.4	1.8	—	0.1	2.4	
Total Top 10 country exposure	$ 60.2	$ 11.4	$ 6.4	$ 17.2	$ 11.1	$ 106.3	*(d)*
Select country exposure:							
Italy	$ 0.1	$ 0.6	$ —	$ 1.4	$ —	$ 2.1	
Brazil	—	—	1.5	0.1	0.1	1.7	
Total select country exposure	$ 0.1	$ 0.6	$ 1.5	$ 1.5	$ 0.1	$ 3.8	

(a) Lending includes loans, acceptances, issued letters of credit, net of participations, and lending-related commitments.
(b) Securities include both the available-for-sale and held-to-maturity portfolios.
(c) Other exposures include over-the-counter ("OTC") derivative and securities financing transactions, net of collateral.
(d) The top 10 country exposures comprise approximately 80% of our total non-U.S. exposure.

Based on our internal country risk management process at March 31, 2020, our largest country risk exposure was to the UK, which withdrew from the European Union ("EU") on Jan. 31, 2020. For additional information, see "Other Matters - UK's Withdrawal from the EU ("Brexit")" and "Risk Factors - The UK's withdrawal from the EU may have negative effects on global economic conditions, global financial markets, and our business and results of operations" both included in our 2019 Annual Report.

Events in recent years have resulted in increased focus on Italy and Brazil. The country risk exposure to Italy primarily consists of investment grade sovereign debt. The country risk exposure to Brazil is primarily short-term trade finance loans extended to large financial institutions. We also have operations in Brazil providing investment services and investment management services.

Securities

In the discussion of our securities portfolio, we have included certain credit ratings information because the information can indicate the degree of credit risk to which we are exposed. Significant changes in ratings classifications for our securities portfolio could indicate increased credit risk for us and could be accompanied by a reduction in the fair value of our securities portfolio.

The following table shows the distribution of our total securities portfolio.

Securities portfolio (dollars in millions)	Dec. 31, 2019 Fair value	1Q20 change in unrealized gain (loss)	March 31, 2020 Amortized cost	March 31, 2020 Fair value	Fair value as a % of amortized cost *(a)*	Unrealized gain (loss)	Ratings *(b)* AAA/ AA-	A+/ A-	BBB+/ BBB-	BB+ and lower	A1+/A1	Not rated
Agency RMBS	$ 54,646	$ 809	**$ 56,002**	**$ 57,078**	102%	$ 1,076	100%	—%	—%	—%	—%	—%
U.S. Treasury	18,865	368	**24,367**	**24,803**	102	436	100	—	—	—	—	—
Sovereign debt/sovereign guaranteed *(c)*	13,404	23	**13,710**	**13,833**	101	123	72	6	21	1	—	—
Agency commercial mortgage-backed securities ("MBS")	10,613	295	**11,183**	**11,534**	103	351	100	—	—	—	—	—
Foreign covered bonds *(d)*	4,276	(20)	**5,361**	**5,349**	100	(12)	100	—	—	—	—	—
Supranational	3,734	13	**4,316**	**4,339**	101	23	100	—	—	—	—	—
Collateralized loan obligations ("CLOs")	4,063	(228)	**4,341**	**4,098**	94	(243)	99	—	—	—	—	1
Commercial paper/CDs	—	1	**3,464**	**3,465**	100	1	—	—	—	—	100	—
U.S. government agencies	2,933	98	**3,303**	**3,421**	104	118	100	—	—	—	—	—
Foreign government agencies *(e)*	2,641	22	**2,736**	**2,761**	101	25	95	5	—	—	—	—
Non-agency commercial MBS	2,165	(80)	**2,501**	**2,452**	98	(49)	100	—	—	—	—	—
Other asset-backed securities ("ABS")	2,143	(39)	**2,257**	**2,220**	98	(37)	100	—	—	—	—	—
Non-agency RMBS *(f)*	1,316	(129)	**1,479**	**1,548**	105	69	47	8	2	26	—	17
State and political subdivisions	1,061	(9)	**983**	**1,001**	102	18	76	23	—	—	—	1
Corporate bonds	853	(7)	**804**	**818**	102	14	18	69	13	—	—	—
Other	1	—	**1**	**1**	100	—	—	—	—	—	—	100
Total securities	$ 122,714 *(g)*	**$ 1,117**	**$ 136,808**	**$ 138,721** *(g)*	**101%**	**$ 1,913** *(g)(h)*	**94%**	**1%**	**2%**	**—%**	**3%**	**—%**

(a) Amortized cost reflects historical impairments.
(b) Represents ratings by Standard & Poor's ("S&P") or the equivalent.
(c) Primarily consists of exposure to UK, France, Germany, Spain, Italy and Singapore.
(d) Primarily consists of exposure to Canada, UK, Australia and Norway.
(e) Primarily consists of exposure to Germany, the Netherlands and Finland.
(f) Includes RMBS that were included in the former Grantor Trust of $640 million at Dec. 31, 2019 and $535 million at March 31, 2020.
(g) Includes net unrealized losses on derivatives hedging securities available-for-sale of $641 million at Dec. 31, 2019 and $1,665 million at March 31, 2020.
(h) Includes unrealized gains of $800 million at March 31, 2020 related to available-for-sale securities, net of hedges.

The fair value of our securities portfolio, including related hedges, was $138.7 billion at March 31, 2020, compared with $122.7 billion at Dec. 31, 2019. The increase primarily reflects investments in U.S. Treasury securities, commercial paper and CDs, agency RMBS, and an increase in the net unrealized pre-tax gain. At March 31, 2020, the securities portfolio, including the impact of interest rate swap hedges, is 69% fixed rate and 31% floating rate.

Included in securities were $1.2 billion of commercial paper and $943 million of CDs purchased from affiliated money market mutual funds in order to provide liquidity support to the funds. The purchase price was in excess of the fair value by $8 million and was recorded in other expense on the consolidated income statement.

Also included in our securities portfolio was $651 million of commercial paper and CDs purchased from money market mutual funds managed by third parties and funded through the MMLF program.

At March 31, 2020, the securities portfolio had a net unrealized gain, including the impact of related hedges, of $1.9 billion, compared with a net unrealized gain, including the impact of related hedges, of $796 million at Dec. 31, 2019. The increase in the net unrealized pre-tax gain was primarily driven by lower market interest rates.

The unrealized gain (after-tax) on our available-for-sale securities portfolio, net of hedges, included in accumulated other comprehensive income ("OCI") was $608 million at March 31, 2020, compared with

an unrealized gain (after-tax) of $361 million at Dec. 31, 2019. The increase in the unrealized gain, net of tax, was primarily driven by lower market interest rates.

At March 31, 2020, 94% of the securities in our portfolio were rated AAA/AA-, compared with 95% at Dec. 31, 2019.

See Note 4 of the Notes to Consolidated Financial Statements for the pre-tax net securities gains (losses) by security type. See Note 15 of the Notes to Consolidated Financial Statements for details of securities by level in the fair value hierarchy.

The following table presents the amortizable purchase premium (net of discount) related to the securities portfolio and accretable discount related to the 2009 restructuring of the securities portfolio.

Net premium amortization and discount accretion of securities *(a)*						
(dollars in millions)	**1Q20**	4Q19	3Q19	2Q19	1Q19
Amortizable purchase premium (net of discount) relating to securities:						
Balance at period end	**$ 1,555**	$ 1,319	$ 1,308	$ 1,315	$ 1,388
Estimated average life remaining at period end *(in years)*	**3.8**	4.3	4.2	4.5	4.8
Amortization	**$ 101**	$ 100	$ 95	$ 91	$ 78
Accretable discount related to the prior restructuring of the securities portfolio:						
Balance at period end	**$ 159**	$ 163	$ 171	$ 181	$ 193
Estimated average life remaining at period end *(in years)*	**6.1**	6.3	6.3	6.3	6.3
Accretion	**$ 11**	$ 12	$ 13	$ 13	$ 16

(a) Amortization of purchase premium decreases net interest revenue while accretion of discount increases net interest revenue. Both were recorded on a level yield basis.

Loans

Total exposure – consolidated	**March 31, 2020**			Dec. 31, 2019		
(in billions)	**Loans**	**Unfunded commitments**	**Total exposure**	Loans	Unfunded commitments	Total exposure
Non-margin loans:						
Financial institutions	**$ 14.2**	**$ 35.3**	**$ 49.5**	$ 12.5	$ 34.4	$ 46.9
Commercial	**3.4**	**11.0**	**14.4**	1.8	12.6	14.4
Subtotal institutional	**17.6**	**46.3**	**63.9**	14.3	47.0	61.3
Wealth management loans and mortgages	**16.3**	**0.8**	**17.1**	16.2	0.8	17.0
Commercial real estate	**6.5**	**3.0**	**9.5**	5.6	3.6	9.2
Lease financings	**1.1**	**—**	**1.1**	1.1	—	1.1
Other residential mortgages	**0.5**	**—**	**0.5**	0.5	—	0.5
Overdrafts	**6.1**	**—**	**6.1**	2.7	—	2.7
Other	**1.2**	**—**	**1.2**	1.2	—	1.2
Subtotal non-margin loans	**49.3**	**50.1**	**99.4**	41.6	51.4	93.0
Margin loans	**13.1**	**0.1**	**13.2**	13.4	0.1	13.5
Total	**$ 62.4**	**$ 50.2**	**$ 112.6**	$ 55.0	$ 51.5	$ 106.5

At March 31, 2020, total exposures of $112.6 billion increased 6% compared with Dec. 31, 2019, primarily reflecting higher overdrafts and exposure in the financial institutions portfolio.

Our financial institutions and commercial portfolios comprise our largest concentrated risk. These portfolios comprised 57% of our total exposure at March 31, 2020 and 58% at Dec. 31, 2019. Additionally, most of our overdrafts relate to financial institutions.

Financial institutions

The financial institutions portfolio is shown below.

Financial institutions portfolio exposure *(dollars in billions)*	**March 31, 2020**					Dec. 31, 2019		
	Loans	**Unfunded commitments**	**Total exposure**	**% Inv. grade**	**% due <1 yr.**	Loans	Unfunded commitments	Total exposure
Securities industry	**$ 4.2**	**$ 24.5**	**$ 28.7**	**99%**	**99%**	$ 2.9	$ 23.4	$ 26.3
Banks	**7.5**	**1.1**	**8.6**	**80**	**98**	7.4	1.1	8.5
Asset managers	**1.3**	**6.5**	**7.8**	**99**	**82**	1.3	6.4	7.7
Insurance	**0.3**	**2.4**	**2.7**	**100**	**8**	—	2.7	2.7
Government	**0.1**	**0.2**	**0.3**	**100**	**64**	0.1	0.3	0.4
Other	**0.8**	**0.6**	**1.4**	**96**	**57**	0.8	0.5	1.3
Total	**$ 14.2**	**$ 35.3**	**$ 49.5**	**96%**	**90%**	$ 12.5	$ 34.4	$ 46.9

The financial institutions portfolio exposure was $49.5 billion at March 31, 2020, an increase of 6% compared with Dec. 31, 2019, primarily reflecting increased exposure in the securities industry portfolio. In addition, we experienced increased drawdowns of committed exposure.

Financial institution exposures are high quality, with 96% of the exposures meeting the investment grade equivalent criteria of our internal credit rating classification at March 31, 2020. Each customer is assigned an internal credit rating, which is mapped to an equivalent external rating agency grade based upon a number of dimensions, which are continually evaluated and may change over time. For ratings of non-U.S. counterparties, our internal credit rating is generally capped at a rating equivalent to the sovereign rating of the country where the counterparty resides, regardless of the internal credit rating assigned to the counterparty or the underlying collateral.

In addition, 79% of the financial institutions exposure is secured. For example, securities industry clients and asset managers often borrow against marketable securities held in custody.

The exposure to financial institutions is generally short-term with 90% of the exposures expiring within one year. At March 31, 2020, 19% of the exposure to financial institutions had an expiration within 90 days, compared with 18% at Dec. 31, 2019.

At March 31, 2020, the secured intraday credit provided to dealers in connection with their tri-party repo activity totaled $20.6 billion and was included in the securities industry portfolio. Dealers secure the outstanding intraday credit with high-quality liquid collateral having a market value in excess of the amount of the outstanding credit. Secured intraday credit facilities represent nearly half of the exposure in the financial institutions portfolio and are reviewed and reapproved annually.

Our banks exposure primarily relates to our global trade finance. These exposures are short-term in nature, with 98% due in less than one year. The investment grade percentage of our bank exposure was 80% at March 31, 2020, compared with 77% at Dec. 31, 2019. Our non-investment grade exposures are primarily in Brazil. These loans are primarily trade finance loans.

The asset managers portfolio exposure is high-quality, with 99% of the exposures meeting our investment grade equivalent ratings criteria as of March 31, 2020. These exposures are generally short-term liquidity facilities, with the majority to regulated mutual funds.

Commercial

The commercial portfolio is presented below.

Commercial portfolio exposure	**March 31, 2020**					Dec. 31, 2019		
(dollars in billions)	**Loans**	**Unfunded commitments**	**Total exposure**	**% Inv. grade**	**% due <1 yr.**	Loans	Unfunded commitments	Total exposure
Manufacturing	**$ 1.4**	**$ 3.7**	**$ 5.1**	**94%**	**14%**	$ 0.9	$ 4.2	$ 5.1
Services and other	**1.3**	**2.9**	**4.2**	**95**	**24**	0.6	3.7	4.3
Energy and utilities	**0.7**	**3.5**	**4.2**	**93**	**5**	0.3	3.7	4.0
Media and telecom	**—**	**0.9**	**0.9**	**93**	**—**	—	1.0	1.0
Total	**$ 3.4**	**$ 11.0**	**$ 14.4**	**94%**	**13%**	$ 1.8	$ 12.6	$ 14.4

The commercial portfolio exposure was $14.4 billion at March 31, 2020, unchanged from Dec. 31, 2019, however, we did experience increased drawdowns of committed exposure.

We have $750 million of total direct exposure to the oil and gas industry, most of which is reflected in the energy and utilities portfolio in the table above. This exposure is to refining, exploration and production and integrated companies and was 65% investment grade at March 31, 2020 and 91% at Dec. 31, 2019.

Our credit strategy is to focus on investment grade clients that are active users of our non-credit services.
The following table summarizes the percentage of the financial institutions and commercial portfolio exposures that are investment grade.

Percentage of the portfolios that are investment grade	Quarter ended				
	March 31, 2020	Dec. 31, 2019	Sept. 30, 2019	June 30, 2019	March 31, 2019
Financial institutions	**96%**	95%	95%	95%	94%
Commercial	**94%**	96%	95%	95%	95%

Wealth management loans and mortgages

Our wealth management exposure was $17.1 billion at March 31, 2020, compared with $17.0 billion at Dec. 31, 2019. Wealth management loans and mortgages primarily consist of loans to high-net-worth individuals, which are secured by marketable securities and/or residential property. Wealth management mortgages are primarily interest-only, adjustable-rate mortgages with a weighted-average loan-to-value ratio of 62% at origination. Less than 1% of the mortgages were past due at March 31, 2020.

At March 31, 2020, the wealth management mortgage portfolio consisted of the following geographic concentrations: California - 23%; New York - 17%; Massachusetts - 10%; Florida - 8%; and other - 42%.

Commercial real estate

The composition of the commercial real estate portfolio by asset class, including percentage secured, is presented below.

Composition of commercial real estate portfolio by asset class	**March 31, 2020**		Dec. 31, 2019	
(in billions)	**Total exposure**	**Percentage secured**	Total exposure	Percentage secured
Office	**$ 3.2**	**41%**	$ 3.1	40%
Residential	**3.2**	**43**	3.1	44
Retail	**1.0**	**8**	1.0	8
Hotels	**0.6**	**—**	0.6	—
Mixed-use	**0.7**	**—**	0.6	—
Healthcare	**0.3**	**—**	0.3	—
Other	**0.5**	**8**	0.5	8
Total commercial real estate	**$ 9.5**	**66%**	$ 9.2	65%

Our commercial real estate exposure totaled $9.5 billion at March 31, 2020, compared with $9.2 billion at Dec. 31, 2019. Our income-producing commercial real estate facilities are focused on experienced owners and are structured with moderate leverage based on existing cash flows. Our commercial real estate lending activities also include construction and renovation facilities. Our client base consists of experienced developers and long-term holders of real estate assets. Loans are approved on the basis of existing or projected cash flows and supported by appraisals and knowledge of local market conditions. Development loans are structured with moderate leverage, and in many instances, involve some level of recourse to the developer.

At March 31, 2020, approximately 95% of the unsecured portfolio consists of real estate investment trusts ("REITs") and real estate operating companies, which are both predominantly investment grade.

At March 31, 2020, our commercial real estate portfolio consisted of the following concentrations: New York metro - 45%; REITs and real estate operating companies - 33%; and other - 22%.

Lease financings

The lease financings portfolio exposure totaled $1.1 billion at both March 31, 2020 and Dec. 31, 2019. At March 31, 2020, approximately 98% of leasing exposure was investment grade, or investment grade equivalent and consisted of exposures backed by well-diversified assets, primarily large-ticket transportation equipment and real estate. The largest component of our lease residual value exposure is freight-related rail. Assets are both domestic and foreign-based, with primary concentrations in the U.S. and Germany.

Other residential mortgages

The other residential mortgages portfolio primarily consists of 1-4 family residential mortgage loans and totaled $472 million at March 31, 2020 and $494 million at Dec. 31, 2019. Included in this portfolio at March 31, 2020 were $87 million of mortgage loans purchased in 2005, 2006 and the first quarter of 2007, of which 9% of the serviced loan balance was at least 60 days delinquent.

Overdrafts

Overdrafts primarily relate to custody and securities clearance clients and are generally repaid within two business days.

Other loans

Other loans primarily include loans to consumers that are fully collateralized with equities, mutual funds and fixed-income securities.

Margin loans

Margin loan exposure of $13.2 billion at March 31, 2020 and $13.5 billion at Dec. 31, 2019 was collateralized with marketable securities. Borrowers are required to maintain a daily collateral margin in excess of 100% of the value of the loan. Margin loans included $3.6 billion at both March 31, 2020 and Dec. 31, 2019 related to a term loan program that offers fully collateralized loans to broker-dealers.

Allowance for credit losses

Our credit strategy is to focus on investment grade clients who are active users of our non-credit services. Our primary exposure to the credit risk of a customer consists of funded loans, unfunded contractual commitments to lend, standby letters of credit ("SBLC") and overdrafts associated with our custody and securities clearance businesses.

The following table details changes in our allowance for credit losses.

Allowance for credit losses activity *(dollars in millions)*	**March 31, 2020**		Dec. 31, 2019	March 31, 2019
Beginning balance of allowance for credit losses	**$ 216**		$ 224	$ 252
Impact of adopting ASU 2016-13	**(55)**	*(a)*	N/A	N/A
Provision for credit losses	**169**	*(a)*	(8)	7
Net (charge-offs):				
Loans:				
Commercial	**—**		—	(11)
Other financial instruments	**(1)**		N/A	N/A
Net (charge-offs)	**(1)**		—	(11)
Ending balance of allowance for credit losses	**$ 329**		$ 216	$ 248
Allowance for loan losses	**$ 140**		$ 122	$ 146
Allowance for lending-related commitments	**148**		94	102
Allowance for financial instruments	**41**	*(b)*	N/A	N/A
Total allowance for credit losses	**$ 329**		$ 216	$ 248
Non-margin loans	**$ 49,253**		$ 41,567	$ 41,176
Margin loans	**13,115**		13,386	12,311
Total loans	**$ 62,368**		$ 54,953	$ 53,487
Allowance for loan losses as a percentage of total loans	**0.22%**		0.22%	0.27%
Allowance for loan losses as a percentage of non-margin loans	**0.28**		0.29	0.35
Allowance for loan losses and lending-related commitments as a percentage of total loans	**0.46**		0.39	0.46
Allowance for loan losses and lending-related commitments as a percentage of non-margin loans	**0.58**		0.52	0.60

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 of the Notes to Consolidated Financial Statement for additional information. Includes the reclassification of credit-related reserves on accounts receivable of $4 million.

(b) Includes allowance for credit losses on federal funds sold and securities purchased under resale agreements, available-for-sale securities, accounts receivable, cash and due from banks and interest-bearing deposits with banks.

N/A - Not applicable.

The provision for credit losses was $169 million in the first quarter 2020, primarily reflecting the macroeconomic environment in conjunction with the application of the new current expected credit losses accounting standard. The expected credit loss models incorporated a multi-scenario macroeconomic forecast that was meaningfully weighted towards a moderate recession scenario that assumes contraction in many important economic variables over several quarters.

We had $13.1 billion of secured margin loans on our balance sheet at March 31, 2020 compared with $13.4 billion at Dec. 31, 2019. We have rarely suffered a loss on these types of loans. As a result, we believe that the ratio of allowance for loan losses and lending-related commitments as a percentage of non-margin loans is a more appropriate metric to measure the adequacy of the reserve.

Reverse repurchase agreements are fully collateralized transactions. Substantially all of the collateral was high quality. At March 31, 2020, we had $1.2 billion of reverse repos fully secured by non-agency debt securities that have experienced decreased liquidity during March 2020. The allowance for credit losses related to these assets at March 31, 2020 is $18 million.

The allowance for loan losses and allowance for lending-related commitments represent management's estimate of lifetime expected losses in our credit portfolio. This evaluation process is subject to numerous estimates and judgments. To the extent actual results differ from forecasts or

management's judgment, the allowance for credit losses may be greater or less than future charge-offs.

Based on an evaluation of the allowance for credit losses as discussed in "Critical accounting estimates" and Note 2 of the Notes to Consolidated Financial Statements, we have allocated our allowance for loans and lending-related commitments as presented below.

Allocation of allowance for loan losses and lending-related commitments	**March 31, 2020**	*(a)*	Dec. 31, 2019	March 31, 2019
Commercial real estate	**72%**		35%	30%
Commercial	**9**		28	33
Foreign	**—**	*(b)*	11	12
Financial institutions	**6**		9	9
Wealth management *(c)*	**3**		9	8
Other residential mortgages	**5**		6	6
Lease financings	**5**		2	2
Total	**100%**		100%	100%

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 of the Notes to Consolidated Financial Statement for additional information.

(b) The allowance related to the foreign exposure has been reclassified to the respective classes of financing receivables.

(c) Includes the allowance for credit losses on wealth management mortgages.

The allocation of the allowance for credit losses is inherently judgmental, and the entire allowance for credit losses is available to absorb credit losses regardless of the nature of the losses.

Nonperforming assets

The table below presents our nonperforming assets.

Nonperforming assets *(dollars in millions)*	**March 31, 2020**	Dec. 31, 2019
Nonperforming loans:		
Other residential mortgages	**$ 60**	$ 62
Wealth management loans and mortgages	**27**	24
Total nonperforming loans	**87**	86
Other assets owned	**1**	3
Total nonperforming assets	**$ 88**	$ 89
Nonperforming assets ratio	**0.14%**	0.16%
Nonperforming assets ratio, excluding margin loans	**0.18**	0.21
Allowance for loan losses/nonperforming loans *(a)*	**160.9**	141.9
Allowance for loan losses/nonperforming assets *(a)*	**159.1**	137.1
Allowance for loan losses and lending-related commitments/nonperforming loans *(a)(b)*	**331.0**	251.2
Allowance for loan losses and lending-related commitments/nonperforming assets *(a)(b)*	**327.3**	242.7

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 of the Notes to Consolidated Financial Statement for additional information.

(b) Total allowance for credit losses includes both the allowance for credit losses on loans and lending-related commitments.

Nonperforming assets decreased slightly compared with Dec. 31, 2019.

Lost interest

Interest revenue would have increased by $1 million in the first quarter of 2020 and fourth quarter of 2019 and $2 million in the first quarter of 2019 if nonperforming loans at period-end had been performing for the entire respective period.

Loan modifications

The Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), which became law on March 27, 2020, provides that financial institutions may, subject to certain conditions, elect to temporarily suspend the U.S. GAAP requirements with respect to loan modifications related to the coronavirus pandemic that would otherwise be treated as troubled debt restructurings ("TDRs") and the determination that such a loan modification is a TDR. We modified loans of less than $1 million in the first quarter of 2020, first quarter of 2019 and fourth quarter of 2019. These loans were primarily other residential loans.

Deposits

Increased volatility coupled with the interest rate environment led to an increase in deposit levels as our clients increased the levels of cash placed with us. Total deposits were $336.7 billion at March 31, 2020, an increase of 30%, compared with $259.5 billion at Dec. 31, 2019.

Noninterest-bearing deposits were $96.6 billion at March 31, 2020 compared with $57.6 billion at Dec. 31, 2019. Interest-bearing deposits were $240.1 billion at March 31, 2020 compared with $201.9 billion at Dec. 31, 2019. See "Impact of coronavirus pandemic on our business" for additional information.

Short-term borrowings

We fund ourselves primarily through deposits and, to a lesser extent, other short-term borrowings and long-term debt. Short-term borrowings consist of federal funds purchased and securities sold under repurchase agreements, payables to customers and broker-dealers, commercial paper and other borrowed funds. Certain short-term borrowings, for example, securities sold under repurchase agreements, require the delivery of securities as collateral.

Information related to federal funds purchased and securities sold under repurchase agreements is presented below.

Federal funds purchased and securities sold under repurchase agreements

	Quarter ended		
(dollars in millions)	**March 31, 2020**	Dec. 31, 2019	March 31, 2019
Maximum month-end balance during the quarter	**$ 16,644**	$ 16,171	$ 12,113
Average daily balance *(a)*	**$ 13,919**	$ 12,668	$ 11,922
Weighted-average rate during the quarter *(a)*	**7.96%**	9.11%	11.26%
Ending balance *(b)*	**$ 13,128**	$ 11,401	$ 11,761
Weighted-average rate at period end *(b)*	**3.93%**	9.47%	9.82%

(a) Includes the average impact of offsetting under enforceable netting agreements of $80,216 million in the first quarter of 2020, $59,756 million in the fourth quarter of 2019 and $44,091 million in the first quarter of 2019. On a Non-GAAP basis, excluding the impact of offsetting, the weighted-average rates would have been 1.18% for the first quarter of 2020, 1.59% for the fourth quarter of 2019 and 2.40% for the first quarter of 2019. We believe providing the rates excluding the impact of netting is useful to investors as it is more reflective of the actual rates paid.

(b) Includes the impact of offsetting under enforceable netting agreements of $80,203 million at March 31, 2020, $93,794 million at Dec. 31, 2019 and $47,461 million at March 31, 2019.

Fluctuations of federal funds purchased and securities sold under repurchase agreements reflect changes in overnight borrowing opportunities. The decrease in the weighted-average rates compared with March 31, 2019 and Dec. 31, 2019 primarily reflect lower interest rates and repurchase agreement activity with the Fixed Income Clearing Corporation ("FICC"), where we record interest expense gross, but the ending and average balances reflect the impact of offsetting under enforceable netting agreements. This activity primarily relates to government securities collateralized resale and repurchase agreements executed with clients that are novated to and settle with the FICC.

Information related to payables to customers and broker-dealers is presented below.

Payables to customers and broker-dealers

(dollars in millions)	Quarter ended March 31, 2020	Dec. 31, 2019	March 31, 2019
Maximum month-end balance during the quarter	**$ 24,016**	$ 19,166	$ 20,343
Average daily balance *(a)*	**$ 20,629**	$ 18,532	$ 19,291
Weighted-average rate during the quarter *(a)*	**0.73%**	1.07%	1.76%
Ending balance	**$ 24,016**	$ 18,758	$ 19,310
Weighted-average rate at period end	**0.28%**	1.01%	1.75%

(a) The weighted-average rate is calculated based on, and is applied to, the average interest-bearing payables to customers and broker-dealers, which were $16,386 million in the first quarter of 2020, $15,178 million in the fourth quarter of 2019 and $16,108 million in the first quarter of 2019.

Payables to customers and broker-dealers represent funds awaiting re-investment and short sale proceeds payable on demand. Payables to customers and broker-dealers are driven by customer trading activity and market volatility.

Information related to commercial paper is presented below.

Commercial paper

(dollars in millions)	Quarter ended March 31, 2020	Dec. 31, 2019	March 31, 2019
Maximum month-end balance during the quarter	**$ 3,379**	$ 3,959	$ 4,601
Average daily balance	**$ 1,581**	$ 1,792	$ 1,377
Weighted-average rate during the quarter	**1.56%**	1.66%	2.44%
Ending balance	**$ 1,121**	$ 3,959	$ 2,773
Weighted-average rate at period end	**1.57%**	1.60%	2.40%

The Bank of New York Mellon issues commercial paper that matures within 397 days from date of issue and is not redeemable prior to maturity or subject to voluntary prepayment. The fluctuations in the commercial paper balances primarily reflect funding of investments in short-term assets.

Information related to other borrowed funds is presented below.

Other borrowed funds

(dollars in millions)	Quarter ended March 31, 2020	Dec. 31, 2019	March 31, 2019
Maximum month-end balance during the quarter	**$ 1,544**	$ 599	$ 3,969
Average daily balance	**$ 719**	$ 709	$ 3,305
Weighted-average rate during the quarter	**2.27%**	2.83%	2.87%
Ending balance	**$ 1,544**	$ 599	$ 3,932
Weighted-average rate at period end	**2.01%**	2.65%	3.31%

Other borrowed funds primarily include borrowings from the Federal Home Loan Bank, the Federal Reserve Bank of Boston under the MMLF program, overdrafts of sub-custodian account balances in our Investment Services businesses, finance lease liabilities and borrowings under lines of credit by our Pershing subsidiaries. Overdrafts typically relate to timing differences for settlements. The decrease in other borrowed funds compared with March 31, 2019 primarily reflects a decrease in borrowings from the Federal Home Loan Bank, partially offset by borrowings from the Federal Reserve Bank of Boston under the MMLF program. The increase in other borrowed funds compared with Dec. 31, 2019 primarily reflects borrowings from the Federal Reserve Bank of Boston under the MMLF program and higher overdrafts of sub-custodian account balances in our Investment Services businesses.

Liquidity and dividends

BNY Mellon defines liquidity as the ability of the Parent and its subsidiaries to access funding or convert assets to cash quickly and efficiently, or to roll over or issue new debt, especially during periods of market stress, at a reasonable cost, and in order to meet its short-term (up to one year) obligations. Funding liquidity risk is the risk that BNY Mellon cannot meet its cash and collateral obligations at a reasonable cost for both expected and unexpected cash flow and collateral needs without adversely affecting daily operations or our financial condition. Funding liquidity risk can arise from funding mismatches, market constraints from the inability to convert assets into cash, the inability to hold or raise cash, low overnight deposits, deposit run-off or contingent liquidity events.

Changes in economic conditions or exposure to credit, market, operational, legal and reputational risks also can affect BNY Mellon's liquidity risk profile and are considered in our liquidity risk framework. See "Impact of coronavirus pandemic on our business" for additional information.

The Parent's policy is to have access to sufficient unencumbered cash and cash equivalents at each quarter-end to cover maturities and other forecasted debt redemptions, net interest payments and net tax payments for the following 18-month period, and to provide sufficient collateral to satisfy transactions subject to Section 23A of the Federal Reserve Act. As of March 31, 2020, the Parent was in compliance with this policy.

For additional information on our liquidity policy, see "Risk Management - Liquidity Risk" in our 2019 Annual Report.

We monitor and control liquidity exposures and funding needs within and across significant legal entities, branches, currencies and business lines, taking into account, among other factors, any applicable restrictions on the transfer of liquidity among entities.

BNY Mellon also manages potential intraday liquidity risks. We monitor and manage intraday liquidity against existing and expected intraday liquid resources (such as cash balances, remaining intraday credit capacity, intraday contingency funding and available collateral) to enable BNY Mellon to meet its intraday obligations under normal and reasonably severe stressed conditions.

We define available funds for internal liquidity management purposes as cash and due from banks, interest-bearing deposits with the Federal Reserve and other central banks, interest-bearing deposits with banks and federal funds sold and securities purchased under resale agreements. The following table presents our total available funds at period end and on an average basis.

Available funds	**March 31,**	Dec. 31,	Average		
(dollars in millions)	**2020**	2019	**1Q20**	4Q19	1Q19
Cash and due from banks	**$ 5,091**	$ 4,830	**$ 4,595**	$ 5,144	$ 4,853
Interest-bearing deposits with the Federal Reserve and other central banks	**146,535**	95,042	**80,403**	61,627	63,583
Interest-bearing deposits with banks	**22,672**	14,811	**17,081**	15,788	13,857
Federal funds sold and securities purchased under resale agreements	**27,363**	30,182	**34,109**	38,846	28,968
Total available funds	**$ 201,661**	$ 144,865	**$ 136,188**	$ 121,405	$ 111,261
Total available funds as a percentage of total assets	**43%**	38%	**35%**	34%	33%

Total available funds were $201.7 billion at March 31, 2020, compared with $144.9 billion at Dec. 31, 2019. The increase was primarily due to higher interest-bearing deposits with the Federal Reserve and other central banks.

Average non-core sources of funds, such as federal funds purchased and securities sold under repurchase agreements, trading liabilities, commercial paper and other borrowed funds, were $17.8 billion for the three months ended March 31, 2020 and $17.9 billion for the three months ended March 31, 2019. The slight decrease primarily reflects a decrease in other borrowed funds partially offset by an increase in federal funds purchased and securities sold under repurchase agreements.

Average foreign deposits, primarily from our European-based Investment Services businesses, were $97.7 billion for the three months ended March 31, 2020, compared with $89.3 billion for the three months ended March 31, 2019. Average interest-bearing domestic deposits were $99.9 billion for the three months ended March 31, 2020 and $70.6 billion for the three months ended March 31, 2019. The increase primarily reflects increased client activity.

Average payables to customers and broker-dealers were $16.4 billion for the three months ended March 31, 2020 and $16.1 billion for the three months ended March 31, 2019. Payables to customers and broker-dealers are driven by customer trading activity and market volatility.

Average long-term debt was $27.2 billion for the three months ended March 31, 2020 and $28.3 billion for three months ended March 31, 2019.

Average noninterest-bearing deposits increased to $60.6 billion for the three months ended March 31,

2020 from $54.6 billion for the three months ended March 31, 2019, primarily reflecting client activity.

A significant reduction in our Investment Services business would reduce our access to deposits. See "Asset/liability management" for additional factors that could impact our deposit balances.

Sources of liquidity

The Parent's three major sources of liquidity are access to the debt and equity markets, dividends from its subsidiaries, and cash on hand and cash otherwise made available in business-as-usual circumstances to the Parent through a committed credit facility with our intermediate holding company ("IHC").

Our ability to access the capital markets on favorable terms, or at all, is partially dependent on our credit ratings, which are as follows:

Credit ratings at March 31, 2020

	Moody's	S&P	Fitch	DBRS
Parent:				
Long-term senior debt	A1	A	AA-	AA
Subordinated debt	A2	A-	A+	AA (low)
Preferred stock	Baa1	BBB	BBB	A
Outlook - Parent	Stable	Stable	Stable	Stable
The Bank of New York Mellon:				
Long-term senior debt	Aa2	AA-	AA	AA (high)
Subordinated debt	NR	A	NR	NR
Long-term deposits	Aa1	AA-	AA+	AA (high)
Short-term deposits	P1	A-1+	F1+	R-1 (high)
Commercial paper	P1	A-1+	F1+	R-1 (high)
BNY Mellon, N.A.:				
Long-term senior debt	Aa2 *(a)*	AA-	AA *(a)*	AA (high)
Long-term deposits	Aa1	AA-	AA+	AA (high)
Short-term deposits	P1	A-1+	F1+	R-1 (high)
Outlook - Banks	Stable	Stable	Stable	Stable

(a) Represents senior debt issuer default rating.
NR - Not rated.

In April 2020, Fitch upgraded the Parent's preferred stock rating to BBB+ and downgraded the Parent's subordinated debt rating to A. The long-term senior debt rating for the Parent was affirmed.

Long-term debt totaled $27.5 billion at both March 31, 2020 and Dec. 31, 2019. Maturities of $1.8 billion were offset by issuances and an increase in the fair value of hedged long-term debt. The Parent has $2.2 billion of long-term debt that will mature in the remainder of 2020.

The Parent issued $1.25 billion of fixed rate senior notes maturing in 2025 at an annual interest rate of 1.60% in April 2020.

The Bank of New York Mellon may issue notes and CDs. At March 31, 2020 and Dec. 31, 2019, $539 million and $1.1 billion, respectively, of CDs were outstanding. At March 31, 2020 and Dec. 31, 2019, $1.3 billion of notes were outstanding.

The Bank of New York Mellon also issues commercial paper that matures within 397 days from date of issue and is not redeemable prior to maturity or subject to voluntary prepayment. The average commercial paper outstanding was $1.6 billion for the three months ended March 31, 2020 and $1.4 billion for the three months ended March 31, 2019. Commercial paper outstanding was $1.1 billion at March 31, 2020 and $4.0 billion at Dec. 31, 2019.

Subsequent to March 31, 2020, our U.S. bank subsidiaries could declare dividends to the Parent of approximately $209 million, without the need for a regulatory waiver. In addition, at March 31, 2020, non-bank subsidiaries of the Parent had liquid assets of approximately $1.6 billion. Restrictions on our ability to obtain funds from our subsidiaries are

discussed in more detail in "Supervision and Regulation - Capital Planning and Stress Testing - Payment of Dividends, Stock Repurchases and Other Capital Distributions" and in Note 19 of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

Pershing LLC has uncommitted lines of credit in place for liquidity purposes which are guaranteed by the Parent. Pershing LLC has three separate uncommitted lines of credit amounting to $750 million in aggregate. There were no borrowings under these lines in the first quarter of 2020. Pershing Limited, an indirect UK-based subsidiary of BNY Mellon, has three separate uncommitted lines of credit amounting to $350 million in aggregate. Average borrowings under these lines were $79 million, in aggregate, in the first quarter of 2020.

BNY Mellon Capital Markets, LLC also has an uncommitted line of credit in place for $100 million for liquidity purposes. There were no borrowings under this line in the first quarter of 2020.

The double leverage ratio is the ratio of our equity investment in subsidiaries divided by our consolidated Parent company equity, which includes our noncumulative perpetual preferred stock. In short, the double leverage ratio measures the extent to which equity in subsidiaries is financed by Parent company debt. As the double leverage ratio increases, this can reflect greater demands on a company's cash flows in order to service interest payments and debt maturities. BNY Mellon's double leverage ratio is managed in a range considering the high level of unencumbered available liquid assets held in its principal subsidiaries (such as central bank deposit placements and government securities), the Company's cash generating fee-based business model, with fee revenue representing 81% of total revenue in the first quarter of 2020, and the dividend capacity of our banking subsidiaries. Our double leverage ratio was 120.7% at March 31, 2020 and 116.9% at Dec. 31, 2019, and within the range targeted by management.

Uses of funds

The Parent's major uses of funds are repurchases of common stock, payment of dividends, principal and interest payments on its borrowings, acquisitions and additional investments in its subsidiaries.

In February 2020, a quarterly cash dividend of $0.31 per common share was paid to common shareholders. Our common stock dividend payout ratio was 30% for the first quarter of 2020.

In the first quarter of 2020, we repurchased 21.7 million common shares at an average price of $45.44 per common share for a total cost of $985 million. The first quarter 2020 share repurchases were completed prior to the announcement, issued jointly by us and the other members of the Financial Services Forum, to temporarily suspend share repurchases through the second quarter of 2020.

Liquidity coverage ratio ("LCR")

U.S. regulators have established an LCR that requires certain banking organizations, including BNY Mellon, to maintain a minimum amount of unencumbered high-quality liquid assets ("HQLA") sufficient to withstand the net cash outflow under a hypothetical standardized acute liquidity stress scenario for a 30-day time horizon.

The following table presents BNY Mellon's consolidated HQLA at March 31, 2020, and the average HQLA and average LCR for the first quarter of 2020.

Consolidated HQLA and LCR	
(dollars in billions)	**March 31, 2020**
Securities *(a)*	**$ 108**
Cash *(b)*	**146**
Total consolidated HQLA *(c)*	**$ 254**
Total consolidated HQLA – average *(c)*	**$ 184**
Average LCR	**115%**

(a) Primarily includes securities of U.S. government-sponsored enterprises, sovereign securities, U.S. Treasury, U.S. agency and investment-grade corporate debt.

(b) Primarily includes cash on deposit with central banks.

(c) Consolidated HQLA presented before adjustments. After haircuts and the impact of trapped liquidity, consolidated HQLA totaled $202 billion at March 31, 2020 and averaged $142 billion for the first quarter of 2020.

BNY Mellon and each of our affected domestic bank subsidiaries were compliant with the U.S. LCR requirements of at least 100% throughout the first quarter of 2020.

Statement of cash flows

The following summarizes the activity reflected on the consolidated statement of cash flows. While this

information may be helpful to highlight certain macro trends and business strategies, the cash flow analysis may not be as relevant when analyzing changes in our net earnings and net assets. We believe that in addition to the traditional cash flow analysis, the discussion related to liquidity and dividends and asset/liability management herein may provide more useful context in evaluating our liquidity position and related activity.

Net cash used for operating activities was $1.7 billion in the three months ended March 31, 2020, compared with $949 million in the three months ended March 31, 2019. In the three months ended March 31, 2020 and three months ended March 31, 2019, cash flows used for operations primarily resulted from the change in accruals and other, net, partially offset by earnings. In the three months ended March 31, 2020, cash flows used for operations was also offset by changes in trading assets and liabilities.

Net cash used for investing activities was $78.6 billion in the three months ended March 31, 2020, compared with net cash provided by investing activities of $20.8 billion in the three months ended March 31, 2019. In the three months ended March 31, 2020, net cash used for investing activities primarily reflects changes in interest-bearing deposits with the Federal Reserve and other central banks, net changes in securities, loans and interest-bearing deposits with banks. In the three months ended March 31, 2019, net cash provided by investing activities primarily reflects changes in interest-bearing deposits with the Federal Reserve and other central banks, changes in federal funds sold and securities purchased under resale agreements, and net changes in securities and loans.

Net cash provided by financing activities was $82.9 billion in the three months ended March 31, 2020, compared with net cash used for financing activities of $19.8 billion in the three months ended March 31, 2019. In the three months ended March 31, 2020, net cash provided by financing activities primarily reflects changes in deposits. In the three months ended March 31, 2019, net cash used for financing activities primarily reflects the change in deposits, change in federal funds purchased and securities sold under repurchase agreements, and repayment of long-term debt.

Capital

Capital data *(dollars in millions, except per share amounts; common shares in thousands)*	**March 31, 2020**	Dec. 31, 2019
Average common equity to average assets	**9.8%**	10.7%
At period end:		
BNY Mellon shareholders' equity to total assets ratio	**8.8%**	10.9%
BNY Mellon common shareholders' equity to total assets ratio	**8.0%**	9.9%
Total BNY Mellon shareholders' equity	**$ 41,145**	$ 41,483
Total BNY Mellon common shareholders' equity	**$ 37,603**	$ 37,941
BNY Mellon tangible common shareholders' equity – Non-GAAP *(a)*	**$ 19,068**	$ 19,216
Book value per common share *(a)*	**$ 42.47**	$ 42.12
Tangible book value per common share – Non-GAAP *(a)*	**$ 21.53**	$ 21.33
Closing stock price per common share	**$ 33.68**	$ 50.33
Market capitalization	**$ 29,822**	$ 45,331
Common shares outstanding	**885,443**	900,683
Cash dividends per common share	**$ 0.31**	$ 0.31
Common dividend payout ratio	**30%**	20%
Common dividend yield	**3.7%**	2.4%

(a) See "Supplemental information – Explanation of GAAP and Non-GAAP financial measures" beginning on page 43 for a reconciliation of GAAP to Non-GAAP.

The Bank of New York Mellon Corporation total shareholders' equity decreased to $41.1 billion at March 31, 2020 from $41.5 billion at Dec. 31, 2019. The decrease primarily reflects common stock repurchases, foreign currency translation and dividend payments, partially offset by earnings and unrealized gains on securities available-for-sale.

In the first quarter of 2020, we repurchased 21.7 million common shares at an average price of $45.44 per common share for a total of $985 million under the current program.

The unrealized gain (after-tax) on our available-for-sale securities portfolio, net of hedges, included in accumulated OCI was $608 million at March 31, 2020, compared with an unrealized gain (after-tax), net of hedges, of $361 million at Dec. 31, 2019. The increase in the unrealized gain, net of tax, was primarily driven by lower market interest rates.

Capital adequacy

Regulators establish certain levels of capital for bank holding companies ("BHCs") and banks, including BNY Mellon and our bank subsidiaries, in accordance with established quantitative measurements. For the Parent to maintain its status as a financial holding company ("FHC"), our U.S. bank subsidiaries and BNY Mellon must, among other things, qualify as "well capitalized." As of March 31, 2020 and Dec. 31, 2019, BNY Mellon and our U.S. bank subsidiaries were "well capitalized."

Failure to satisfy regulatory standards, including "well capitalized" status or capital adequacy rules more generally, could result in limitations on our activities and adversely affect our financial condition. See the discussion of these matters in "Supervision and Regulation - Regulated Entities of BNY Mellon and Ancillary Regulatory Requirements" and "Risk Factors - Operational Risk - Failure to satisfy regulatory standards, including "well capitalized" and "well managed" status or capital adequacy and liquidity rules more generally, could result in limitations on our activities and adversely affect our business and financial condition," both of which are in our 2019 Annual Report.

The U.S. banking agencies' capital rules are based on the framework adopted by the Basel Committee on Banking Supervision ("BCBS"), as amended from time to time. For additional information on these capital requirements, see "Supervision and Regulation" in our 2019 Annual Report and "Recent regulatory developments" in this Form 10-Q.

The table below presents our consolidated and largest bank subsidiary regulatory capital ratios.

Consolidated and largest bank subsidiary regulatory capital ratios	**March 31, 2020**			Dec. 31, 2019
	Well capitalized	Minimum required *(a)*	Capital ratios	Capital ratios
Consolidated regulatory capital ratios: *(b)*				
Advanced Approaches:				
CET1 ratio	N/A *(c)*	8.5%	**11.4%**	11.5%
Tier 1 capital ratio	6%	10	**13.5**	13.7
Total capital ratio	10%	12	**14.3**	14.4
Standardized Approach:				
CET1 ratio	N/A *(c)*	8.5%	**11.3%**	12.5%
Tier 1 capital ratio	6%	10	**13.5**	14.8
Total capital ratio	10%	12	**14.4**	15.8
Tier 1 leverage ratio	N/A *(c)*	4	**6.0**	6.6
SLR *(d)*	N/A *(c)*	5	**5.6**	6.1
The Bank of New York Mellon regulatory capital ratios: *(b)*				
Advanced Approaches:				
CET1 ratio	6.5%	7%	**15.5%**	15.1%
Tier 1 capital ratio	8	8.5	**15.5**	15.1
Total capital ratio	10	10.5	**15.6**	15.2
Tier 1 leverage ratio	5	4	**6.7**	6.9
SLR *(d)*	6	3	**6.2**	6.4

(a) Minimum requirements for March 31, 2020 include minimum thresholds plus currently applicable buffers.
(b) For our CET1, Tier 1 capital and Total capital ratios, our effective capital ratios under U.S. capital rules are the lower of the ratios as calculated under the Standardized and Advanced Approaches. The Tier 1 leverage ratio is based on Tier 1 capital and quarterly average total assets. The U.S. global systemically important banks ("G-SIB") surcharge of 1.5% is subject to change. The countercyclical capital buffer is currently set to 0%.
(c) The Federal Reserve's regulations do not establish well capitalized thresholds for these measures for BHCs.
(d) The SLR is based on Tier 1 capital and total leverage exposure, which includes certain off-balance sheet exposures.

Our CET1 ratio determined under the Standardized Approach was 11.3% at March 31, 2020 and was 11.5% at Dec. 31, 2019 under the Advanced Approaches. The decrease primarily reflects an increase in RWAs driven by a larger balance sheet.

Our operational loss risk model is informed by external losses, including fines and penalties levied against institutions in the financial services industry, particularly those that relate to businesses in which we operate, and as a result external losses have impacted and could in the future impact the amount of capital that we are required to hold.

Our capital ratios are necessarily subject to, among other things, anticipated compliance with all necessary enhancements to model calibration, approval by regulators of certain models used as part of RWA calculations, other refinements, further implementation guidance from regulators, market practices and standards and any changes BNY Mellon may make to its businesses. As a consequence of these factors, our capital ratios may materially change, and may be volatile over time and from period to period.

The following table presents our capital components and RWAs.

Capital components and risk-weighted assets *(in millions)*		**March 31, 2020**		Dec. 31, 2019
CET1:				
Common shareholders' equity	**$**	**37,603**	$	37,941
Adjustments for:				
Goodwill and intangible assets *(a)*		**(18,535)**		(18,725)
Net pension fund assets		**(269)**		(272)
Equity method investments		**(290)**		(311)
Deferred tax assets		**(46)**		(46)
Other		**2**		(47)
Total CET1		**18,465**		18,540
Other Tier 1 capital:				
Preferred stock		**3,542**		3,542
Other		**(74)**		(86)
Total Tier 1 capital	**$**	**21,933**	$	21,996
Tier 2 capital:				
Subordinated debt	**$**	**1,248**	$	1,248
Allowance for credit losses		**314**		216
Other		**(1)**		(11)
Total Tier 2 capital – Standardized Approach		**1,561**		1,453
Excess of expected credit losses		**101**		—
Less: Allowance for credit losses		**314**		216
Total Tier 2 capital – Advanced Approaches	**$**	**1,348**	$	1,237
Total capital:				
Standardized Approach	**$**	**23,494**	$	23,449
Advanced Approaches	**$**	**23,281**	$	23,233
Risk-weighted assets:				
Standardized Approach	**$**	**163,006**	$	148,695
Advanced Approaches:				
Credit Risk	**$**	**97,093**	$	95,490
Market Risk		**3,630**		4,020
Operational Risk		**61,838**		61,388
Total Advanced Approaches	**$**	**162,561**	$	160,898
Average assets for Tier 1 leverage ratio	**$**	**366,058**	$	334,869
Total leverage exposure for SLR	**$**	**392,807**	$	362,452

(a) Reduced by deferred tax liabilities associated with intangible assets and tax deductible goodwill.

The table below presents the factors that impacted CET1 capital.

CET1 generation *(in millions)*		**1Q20**
CET1 – Beginning of period	**$**	**18,540**
Net income applicable to common shareholders of The Bank of New York Mellon Corporation		**944**
Goodwill and intangible assets, net of related deferred tax liabilities		**190**
Gross CET1 generated		**1,134**
Capital deployed:		
Common stock repurchases		**(985)**
Common stock dividend payments		**(282)**
Total capital deployed		**(1,267)**
Other comprehensive income:		
Foreign currency translation		**(367)**
Unrealized gain on assets available-for-sale		**176**
Defined benefit plans		**18**
Unrealized gain on cash flow hedges		**(11)**
Other		**(5)**
Total other comprehensive income		**(189)**
Additional paid-in capital *(a)*		**129**
Other additions:		
Embedded goodwill		**21**
Net pension fund assets		**3**
Deferred tax assets		**—**
Other		**94**
Total other additions		**118**
Net CET1 deployed		**(75)**
CET1 – End of period	**$**	**18,465**

(a) Primarily related to stock awards, the exercise of stock options and stock issued for employee benefit plans.

The following table shows the impact on the consolidated capital ratios at March 31, 2020 of a $100 million increase or decrease in common equity, or a $1 billion increase or decrease in RWAs, quarterly average assets or total leverage exposure.

Sensitivity of consolidated capital ratios at March 31, 2020	**Increase or decrease of**	
(in basis points)	**$100 million in common equity**	**$1 billion in RWA, quarterly average assets or total leverage exposure**
CET1:		
Standardized Approach	6 bps	7 bps
Advanced Approaches	6	7
Tier 1 capital:		
Standardized Approach	6	8
Advanced Approaches	6	8
Total capital:		
Standardized Approach	6	9
Advanced Approaches	6	9
Tier 1 leverage	3	2
SLR	3	1

Capital ratios vary depending on the size of the balance sheet at period end and the levels and types of investments in assets. The balance sheet size fluctuates from period to period based on levels of customer and market activity. In general, when servicing clients are more actively trading securities, deposit balances and the balance sheet as a whole are higher. In addition, when markets experience significant volatility or stress, our balance sheet size may increase considerably as client deposit levels increase.

Effective April 1, 2020, custody banks, including BNY Mellon and The Bank of New York Mellon, are permitted to exclude certain central bank placements from leverage exposure used in the SLR calculation. Based on our current leverage exposure, this change would increase our consolidated SLR by approximately 145 basis points. Also effective April 1, 2020 and lasting through March 31, 2021, BHCs are permitted to exclude U.S. Treasury securities from the SLR's leverage exposure. Based on BNY Mellon's current leverage exposure and amount of U.S. Treasury securities, the interim rule would additionally increase our consolidated SLR approximately 55 basis points. See "Supervision and Regulation" in our 2019 Annual Report and "Recent regulatory developments" in this Form 10-Q for additional information.

Total Loss-Absorbing Capacity ("TLAC")

The final TLAC rule establishing external TLAC, external long-term debt ("LTD") and related requirements for U.S. G-SIBs, including BNY Mellon, at the top-tier holding company level became effective on Jan. 1, 2019. The following summarizes the minimum requirements for BNY Mellon's external TLAC and external LTD ratios, plus currently applicable buffers.

	As a % of RWAs *(a)*	As a % of total leverage exposure
Eligible external TLAC ratios	Regulatory minimum of 18% plus a buffer *(b)* equal to the sum of 2.5%, the method 1 G-SIB surcharge (currently 1%), and the countercyclical capital buffer, if any	Regulatory minimum of 7.5% plus a buffer *(c)* equal to 2%
Eligible external LTD ratios	Regulatory minimum of 6% plus the greater of the method 1 or method 2 G-SIB surcharge (currently 1.5%)	4.5%

(a) RWA is the greater of Standardized and Advanced Approaches.
(b) Buffer to be met using only CET1.
(c) Buffer to be met using only Tier 1 capital.

External TLAC consists of the Parent's Tier 1 capital and eligible unsecured LTD issued by it that has a remaining term to maturity of at least one year and satisfies certain other conditions. Eligible LTD consists of the unpaid principal balance of eligible unsecured debt securities, subject to haircuts for amounts due to be paid within two years, that satisfy certain other conditions. Debt issued prior to Dec. 31, 2016 has been permanently grandfathered to the extent these instruments otherwise would be ineligible only due to containing impermissible acceleration rights or being governed by foreign law.

The following table presents our external TLAC and external LTD ratios.

TLAC and LTD ratios	**March 31, 2020**		
	Minimum required	Minimum ratios with buffers	Ratios
Eligible external TLAC:			
As a percentage of RWA	18.0%	21.5%	27.1%
As a percentage of total leverage exposure	7.5%	9.5%	11.3%
Eligible external LTD:			
As a percentage of RWA	7.5%	N/A	12.1%
As a percentage of total leverage exposure	4.5%	N/A	5.0%

If BNY Mellon maintains risk-based ratio or leverage TLAC measures above the minimum required level, but with a risk-based ratio or leverage below the minimum level with buffers, we will face constraints on dividends, equity repurchases and discretionary executive compensation based on the amount of the shortfall and eligible retained income.

Trading activities and risk management

Our trading activities are focused on acting as a market-maker for our customers, facilitating customer trades and risk mitigating hedging in compliance with the Volcker Rule. The risk from market-making activities for customers is managed by our traders and limited in total exposure through a system of position limits, value-at-risk ("VaR") methodology and other market sensitivity measures. VaR is the potential loss in value due to adverse market movements over a defined time horizon with a specified confidence level. The calculation of our VaR used by management and presented below assumes a one-day holding period, utilizes a 99% confidence level and incorporates non-linear product characteristics. VaR facilitates comparisons across portfolios of different risk characteristics. VaR also captures the diversification of aggregated risk at the firm-wide level.

VaR represents a key risk management measure and it is important to note the inherent limitations to VaR, which include:

- VaR does not estimate potential losses over longer time horizons where moves may be extreme;
- VaR does not take account of potential variability of market liquidity; and
- Previous moves in market risk factors may not produce accurate predictions of all future market moves.

See Note 17 of the Notes to Consolidated Financial Statements for additional information on the VaR methodology.

The following tables indicate the calculated VaR amounts for the trading portfolio for the designated periods using the historical simulation VaR model.

VaR *(a)*	**1Q20**			
(in millions)	**Average**	**Minimum**	**Maximum**	**March 31, 2020**
Interest rate	**$ 4.9**	**$ 3.2**	**$ 11.3**	**$ 5.1**
Foreign exchange	**3.1**	**1.7**	**6.3**	**4.5**
Equity	**1.4**	**0.8**	**2.3**	**0.9**
Credit	**3.4**	**1.2**	**12.1**	**9.8**
Diversification	**(6.4)**	**N/M**	**N/M**	**(9.9)**
Overall portfolio	**6.4**	**3.5**	**14.3**	**10.4**

VaR *(a)*	4Q19			Dec. 31,
(in millions)	Average	Minimum	Maximum	2019
Interest rate	$ 4.4	$ 3.3	$ 6.6	$ 4.8
Foreign exchange	2.7	1.5	5.3	2.7
Equity	0.8	0.3	1.1	1.0
Credit	1.4	1.0	2.0	1.3
Diversification	(3.6)	N/M	N/M	(4.0)
Overall portfolio	5.7	3.9	9.2	5.8

VaR *(a)*	1Q19			March 31,
(in millions)	Average	Minimum	Maximum	2019
Interest rate	$ 4.0	$ 3.2	$ 5.3	$ 4.2
Foreign exchange	3.8	2.8	6.4	3.9
Equity	0.7	0.6	1.1	0.9
Credit	0.6	0.4	1.0	0.7
Diversification	(2.9)	N/M	N/M	(3.5)
Overall portfolio	6.2	4.6	9.5	6.2

(a) VaR exposure does not include the impact of the Company's consolidated investment management funds and seed capital investments.

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

The increase in VaR at March 31, 2020 compared with both March 31, 2019 and Dec. 31, 2019 reflects higher market volatility due to the coronavirus pandemic.

The interest rate component of VaR represents instruments whose values are predominantly driven by U.S. Treasury securities interest rate levels. These instruments include, but are not limited to, U.S. Treasury securities, 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 first quarter of 2020, interest rate risk generated 38% of average gross VaR, foreign exchange risk generated 24% of average gross VaR, equity risk generated 11% of average gross VaR and credit risk generated 27% of average gross VaR. During the first quarter of 2020, our daily trading loss did not exceed our calculated VaR amount of the overall portfolio.

The following table of total daily trading revenue or loss illustrates the number of trading days in which our trading revenue or loss fell within particular ranges during the past five quarters.

Distribution of trading revenue (loss) *(a)*

	Quarter ended				
(dollars in millions)	**March 31, 2020**	Dec. 31, 2019	Sept. 30, 2019	June 30, 2019	March 31, 2019
Revenue range:	Number of days				
Less than $(2.5)	—	3	2	—	1
$(2.5) – $0	**3**	5	7	4	5
$0 – $2.5	**19**	23	26	30	22
$2.5 – $5.0	**19**	24	22	23	23
More than $5.0	**21**	7	7	7	10

(a) Trading revenue (loss) includes realized and unrealized gains and losses primarily related to spot and forward foreign exchange transactions, derivatives and securities trades for our customers and excludes any associated commissions, underwriting fees and net interest revenue.

The number of days when revenue was generated increased compared with both the first quarter of 2019 and the fourth quarter of 2019 driven by the significant increase in volatility and volumes in the first quarter of 2020.

Trading assets include debt and equity instruments and derivative assets, primarily interest rate and foreign exchange contracts, not designated as hedging instruments. Trading assets were $12.9 billion at March 31, 2020 and $13.6 billion at Dec. 31, 2019.

Trading liabilities include debt and equity instruments and derivative liabilities, primarily interest rate and foreign exchange contracts, not designated as hedging instruments. Trading liabilities were $6.6 billion at March 31, 2020 and $4.8 billion at Dec. 31, 2019.

Under our fair value methodology for derivative contracts, an initial "risk-neutral" valuation is performed on each position assuming time-discounting based on a AA credit curve. In addition, we consider credit risk in arriving at the fair value of our derivatives.

We reflect external credit ratings as well as observable credit default swap spreads for both ourselves and our counterparties when measuring the fair value of our derivative positions. Accordingly, the valuation of our derivative positions is sensitive to the current changes in our own credit spreads, as well as those of our counterparties.

At March 31, 2020, our OTC derivative assets, including those in hedging relationships, of $5.9 billion included a credit valuation adjustment ("CVA") deduction of $44 million. Our OTC derivative liabilities, including those in hedging relationships, of $6.3 billion included a debit valuation adjustment ("DVA") of $1 million related to our own credit spread. Net of hedges, the CVA decreased by $4 million and the DVA was unchanged in the first quarter of 2020. The net impact of these adjustments increased foreign exchange and other trading revenue by $4 million in the first quarter of 2020, $1 million in the fourth quarter of 2019 and less than $1 million in the first quarter of 2019.

The table below summarizes the distribution of credit ratings for our foreign exchange and interest rate derivative counterparties over the past five quarters, which indicates the level of counterparty credit associated with these trading activities. Significant changes in counterparty credit ratings could alter the level of credit risk faced by BNY Mellon.

Foreign exchange and other trading counterparty risk rating profile *(a)*

	Quarter ended				
	March 31, 2020	Dec. 31, 2019	Sept. 30, 2019	June 30, 2019	March 31, 2019
Rating:					
AAA to AA-	**56%**	54%	55%	54%	49%
A+ to A-	**24**	24	24	26	28
BBB+ to BBB-	**14**	17	16	17	20
BB+ and lower *(b)*	**6**	5	5	3	3
Total	**100%**	100%	100%	100%	100%

(a) Represents credit rating agency equivalent of internal credit ratings.
(b) Non-investment grade.

Asset/liability management

Our diversified business activities include processing securities, accepting deposits, investing in securities, lending, raising money as needed to fund assets and other transactions. The market risks from these activities include interest rate risk and foreign exchange risk. Our primary market risk is exposure to movements in U.S. dollar interest rates and certain foreign currency interest rates. We actively manage interest rate sensitivity and use earnings simulation and discounted cash flow models to identify interest rate exposures.

An earnings simulation model is the primary tool used to assess changes in pre-tax net interest revenue. The model incorporates management's assumptions regarding interest rates, market spreads, changes in the prepayment behavior of loans and securities and the impact of derivative financial instruments used for interest rate risk management purposes. These assumptions have been developed through a combination of historical analysis and future expected pricing behavior and are inherently uncertain. Actual results may differ materially from projected results due to timing, magnitude and frequency of interest rate changes, and changes in market conditions and management's strategies, among other factors.

In the table below, we use the earnings simulation model to run various interest rate ramp scenarios from a baseline scenario. The interest rate ramp scenarios examine the impact of large interest rate movements. In each scenario, all currencies' interest rates are shifted higher or lower. Typically, the baseline scenario uses the average deposit balances of the last month of the quarter. However, during the month of March we experienced a significant increase in deposits and a corresponding increase in

central bank placements. To normalize the analysis, we used the first quarter average for these balances. The 100 basis point ramp scenario assumes rates change 25 basis points above or below the yield curve in each of the next four quarters and the 200 basis point ramp scenario assumes a 50 basis point per quarter change. Interest rate sensitivity is quantified by calculating the change in pre-tax net interest revenue between the scenarios over a 12-month measurement period. The net interest revenue sensitivity methodology assumes static deposit levels and also assumes that no management actions will be taken to mitigate the effects of interest rate changes.

The following table shows net interest revenue sensitivity for BNY Mellon.

Estimated changes in net interest revenue *(in millions)*	**March 31, 2020**	Dec. 31, 2019	March 31, 2019
Up 200 bps parallel rate ramp vs. baseline *(a)*	**$ 557**	$ 195	$ 410
Up 100 bps parallel rate ramp vs. baseline *(a)*	**334**	79	208
Down 100 bps parallel rate ramp vs. baseline *(a)*	**100**	(40)	(91)
Long-term up 50 bps, short-term unchanged *(b)*	**166**	110	149
Long-term down 50 bps, short-term unchanged *(b)*	**(158)**	(105)	(178)

(a) In the parallel rate ramp, both short-term and long-term rates move in four equal quarterly increments.
(b) Long-term is equal to or greater than one year.

The increase in sensitivities at March 31, 2020 compared with Dec. 31, 2019 primarily reflects higher deposit balances and the forecasted difference in deposit rate changes versus asset yield changes given the prevailing low interest rate environment. This was partially offset by an increase in the amount of higher fixed rate securities in our securities portfolio. The down 100 bps scenario assumes we would pass on the cost of negative central bank rates.

To illustrate the net interest revenue sensitivity to deposit runoff, we note that a $5 billion instantaneous reduction of U.S. dollar denominated noninterest-bearing deposits would reduce the net interest revenue sensitivity results in the ramp up 100 basis point and 200 basis point scenarios in the table above by approximately $30 million and approximately $60 million, respectively. The impact would be smaller if the runoff was assumed to be a mixture of interest-bearing and noninterest-bearing deposits.

For a discussion of factors impacting the growth or contraction of deposits, see “Risk Factors - Our business, financial condition and results of operations could be adversely affected if we do not effectively manage our liquidity,” in our 2019 Annual Report.

Off-balance sheet arrangements

Off-balance sheet arrangements discussed in this section are limited to certain guarantees, retained or contingent interests and obligations arising out of unconsolidated variable interest entities (“VIEs”). Guarantees include SBLCs issued as part of our corporate banking business and securities lending indemnifications issued as part of our Investment Services business. See Note 18 of the Notes to Consolidated Financial Statements for a further discussion of our off-balance sheet arrangements.

Supplemental information - Explanation of GAAP and Non-GAAP financial measures

BNY Mellon has included in this Form 10-Q certain Non-GAAP financial measures on a tangible basis as a supplement to generally accepted accounting principles ("GAAP") information, which exclude goodwill and intangible assets, net of deferred tax liabilities. We believe that the return on tangible common equity is additional useful information for investors because it presents a measure of those assets that can generate income, and the tangible book value per common share is additional useful information because it presents the level of tangible assets in relation to shares of common stock outstanding.

The presentation of the growth rates of investment management and performance fees on a constant currency basis permits investors to assess the significance of changes in foreign currency exchange rates. Growth rates on a constant currency basis were determined by applying the current period foreign currency exchange rates to the prior period revenue. We believe that this presentation, as a supplement to GAAP information, gives investors a clearer picture of the related revenue results without the variability caused by fluctuations in foreign currency exchange rates.

BNY Mellon has also included the operating margin for the Investment Management business net of distribution and servicing expense that was passed to third parties who distribute or service our managed funds. We believe that this measure is useful when evaluating the performance of the Investment Management business relative to industry competitors.

The following table presents the reconciliation of the return on common equity and tangible common equity.

Return on common equity and tangible common equity reconciliation						
(dollars in millions)		**1Q20**		4Q19		1Q19
Net income applicable to common shareholders of The Bank of New York Mellon Corporation – GAAP	**$**	**944**	$	1,391	$	910
Add: Amortization of intangible assets		**26**		28		29
Less: Tax impact of amortization of intangible assets		**6**		7		7
Adjusted net income applicable to common shareholders of The Bank of New York Mellon Corporation, excluding amortization of intangible assets – Non-GAAP	**$**	**964**	$	1,412	$	932
Average common shareholders' equity	**$**	**37,664**	$	37,842	$	37,086
Less: Average goodwill		**17,311**		17,332		17,376
Average intangible assets		**3,089**		3,119		3,209
Add: Deferred tax liability – tax deductible goodwill *(a)*		**1,109**		1,098		1,083
Deferred tax liability – intangible assets *(a)*		**666**		670		690
Average tangible common shareholders' equity – Non-GAAP	**$**	**19,039**	$	19,159	$	18,274
Return on common shareholders' equity – GAAP		**10.1%**		14.6%		10.0%
Return on tangible common shareholders' equity – Non-GAAP		**20.4%**		29.3%		20.7%

(a) Deferred tax liabilities are based on fully phased-in U.S. capital rules.

The following table presents the reconciliation of book value and tangible book value per common share.

Book value and tangible book value per common share reconciliation *(dollars in millions, except per share amounts and unless otherwise noted)*	**March 31, 2020**	Dec. 31, 2019	March 31, 2019
BNY Mellon shareholders' equity at period end – GAAP	**$ 41,145**	$ 41,483	$ 41,225
Less: Preferred stock	**3,542**	3,542	3,542
BNY Mellon common shareholders' equity at period end – GAAP	**37,603**	37,941	37,683
Less: Goodwill	**17,240**	17,386	17,367
Intangible assets	**3,070**	3,107	3,193
Add: Deferred tax liability – tax deductible goodwill *(a)*	**1,109**	1,098	1,083
Deferred tax liability – intangible assets *(a)*	**666**	670	690
BNY Mellon tangible common shareholders' equity at period end – Non-GAAP	**$ 19,068**	$ 19,216	$ 18,896
Period-end common shares outstanding *(in thousands)*	**885,443**	900,683	957,517
Book value per common share – GAAP	**$ 42.47**	$ 42.12	$ 39.36
Tangible book value per common share – Non-GAAP	**$ 21.53**	$ 21.33	$ 19.74

(a) Deferred tax liabilities are based on fully phased-in U.S. capital rules.

The following table presents the impact of changes in foreign currency exchange rates on our consolidated investment management and performance fees.

Constant currency reconciliation – Consolidated *(dollars in millions)*	**1Q20**	1Q19	**1Q20 vs. 1Q19**
Investment management and performance fees – GAAP	**$ 862**	$ 841	**2%**
Impact of changes in foreign currency exchange rates	**—**	(5)	
Adjusted investment management and performance fees – Non-GAAP	**$ 862**	$ 836	**3%**

The following table presents the impact of changes in foreign currency exchange rates on investment management and performance fees reported in the Investment Management business.

Constant currency reconciliation – Investment Management business *(dollars in millions)*	**1Q20**	1Q19	**1Q20 vs. 1Q19**
Investment management and performance fees – GAAP	**$ 862**	$ 841	**2%**
Impact of changes in foreign currency exchange rates	**—**	(5)	
Adjusted investment management and performance fees – Non-GAAP	**$ 862**	$ 836	**3%**

The following table presents the reconciliation of the pre-tax operating margin for the Investment Management business.

Pre-tax operating margin reconciliation – Investment Management business *(dollars in millions)*	**1Q20**	4Q19	3Q19	2Q19	1Q19
Income before income taxes – GAAP	**$ 194**	$ 240	$ 295	$ 260	$ 266
Total revenue – GAAP	**$ 898**	$ 971	$ 887	$ 913	$ 936
Less: Distribution and servicing expense	**91**	93	98	94	91
Adjusted total revenue, net of distribution and servicing expense – Non-GAAP	**$ 807**	$ 878	$ 789	$ 819	$ 845
Pre-tax operating margin – GAAP *(a)*	**22%**	25%	33%	29%	28%
Adjusted pre-tax operating margin, net of distribution and servicing expense – Non-GAAP *(a)*	**24%**	27%	37%	32%	31%

(a) Income before taxes divided by total revenue.

Recent accounting and regulatory developments

Recent accounting developments

The following ASU issued by the FASB had not yet been adopted as of March 31, 2020.

ASU 2020-04, Reference Rate Reform: Facilitation of the Effects of Reference Rate Reform on Financial Reporting

In March 2020, the FASB issued an ASU*, Reference Rate Reform: Facilitation of the Effects of Reference Rate Reform on Financial Reporting.* This ASU provides temporary optional expedients and exceptions for applying U.S. GAAP to financial contracts, hedging relationships and other transactions affected by reference rate reform. This ASU also permits an entity to make a one-time election to sell and/or transfer held-to-maturity securities that are affected by reference rate reform and were classified as held-to-maturity on or before Jan. 1, 2020. The guidance in this ASU can be adopted as of March 12, 2020 through Dec. 31, 2022. We are assessing the impacts of the new standard, but would not expect this ASU to have a material impact on BNY Mellon.

Recent regulatory developments

For a summary of additional regulatory matters relevant to our operations, see "Supervision and Regulation" in our 2019 Annual Report. The following discussions summarize certain regulatory, legislative and other developments that may affect BNY Mellon, the impact of many of which we are still evaluating.

The Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act")

On March 27, 2020, the President signed into law the CARES Act, a law that provides unprecedented economic stimulus and emergency relief to address the effects of the coronavirus pandemic. The CARES Act provides assistance to industries, businesses, nonprofits and individuals and spans areas such as financial assistance, tax, financial reporting, financial regulation, real estate, employee benefits and family and medical leave. Some provisions that may be of particular interest to the financial industry include the grant of temporary authority to the U.S. Department of Treasury to guarantee U.S. money market mutual funds ("MMMF"); approval for the establishment by the FDIC of a program to guarantee obligations of insured depository institutions; expansion of the FDIC's power to guarantee deposits held in noninterest-bearing business transaction accounts; and expansion of the OCC's authority to exempt certain transactions from, or suspend, the OCC lending limits. The authorities granted under these provisions are set to expire on Dec. 31, 2020. In addition, the CARES Act provides that financial institutions may, subject to certain conditions, elect to temporarily suspend (i) U.S. GAAP requirements with respect to loan modifications related to the coronavirus pandemic that would otherwise be treated as TDRs and (ii) any determination that a loan modified as a result of the coronavirus pandemic is a TDR. The CARES Act also includes an appropriation of $454 billion, which is to be used by the Federal Reserve to provide liquidity to the financial system under existing Federal Reserve facilities or new programs.

Money Market Mutual Fund Liquidity Facility

On March 18, 2020, the Federal Reserve announced the establishment of the MMLF, which is designed to provide indirect liquidity to MMMFs so that such MMMFs can meet the demands for redemptions by households and businesses. Under the terms of the MMLF, the Federal Reserve Bank of Boston may make loans to U.S. depository institutions, U.S. bank holding companies and their U.S. broker-dealer subsidiaries and other eligible financial institutions ("borrowers") subject to stringent terms and conditions imposed by the Federal Reserve Bank of Boston. Among other terms and conditions, such loans must be secured by certain high-quality short-dated debt instruments purchased by the borrowers from qualifying MMMFs promptly before the loans are extended. The qualifying instruments include U.S. Treasuries; U.S. agency securities; secured commercial paper; highly rated unsecured or asset-backed commercial paper; highly rated certificates of deposit; highly rated municipal short-term debt and variable demand notes; and receivables from certain repurchase agreements. MMLF loans must generally be repaid contemporaneously with the maturity of the collateral and borrowers are not generally required to repay the loans if the obligors of the collateral instruments fail to make payments on such instruments. The MMLF will terminate on Sept. 30, 2020, unless extended. See "Impact of coronavirus

pandemic on our business" for additional information.

Capital, Liquidity and TLAC Relief

In light of the coronavirus pandemic, the Federal Reserve has taken a series of regulatory actions to encourage banks to deploy capital and liquidity to support businesses and individuals affected by the pandemic.

On March 15, 2020, the Federal Reserve issued a statement encouraging banking organizations to use their capital and liquidity buffers to support lending to individuals and businesses affected by the coronavirus pandemic. To facilitate banking organizations' use of the buffers, the Federal Reserve, the FDIC and the OCC (the "Agencies") issued an interim final rule revising the definition of "eligible retained income". To the extent a banking organization's capital buffer is less than 100%, its distributions and discretionary bonus payments are constrained by the amount of the shortfall and its eligible retained income. The definition of eligible retained income, as previously defined, created the potential for sudden and severe limitations on capital distributions. Under the interim final rule, eligible retained income is defined as the greater of (i) a banking organization's net income for the four preceding calendar quarters, net of any distributions and associated tax effects not already reflected in net income, and (ii) the average of a banking organization's net income over the preceding four quarters. The Federal Reserve made corresponding changes to the total-loss absorbing capacity buffer requirements.

On March 23, 2020, the Agencies issued an interim final rule to exclude non-recourse exposures acquired as part of the MMLF from a banking organization's total leverage exposure, average total consolidated assets, advanced approaches-total risk weighted assets and standardized total RWAs. The relief applies to assets purchased beginning on March 19, 2020, including assets purchased by BNY Mellon and pledged as eligible collateral to the Federal Reserve Bank of Boston in connection with BNY Mellon's participation in the MMLF. In addition, on May 5, 2020, the Agencies issued an interim final rule to neutralize the LCR effects of the advances made by the MMLF and the exposures securing MMLF advances.

The Agencies have adopted an interim final rule permitting banking organizations to temporarily delay the estimated effects of CECL on regulatory capital until Jan. 1, 2022 and then to phase-in those effects through Jan. 1, 2025. Under the interim final rule, during 2020 and 2021, the adjustment to CET1 capital reflects the change in retained earnings upon adoption of CECL at Jan. 1, 2020 plus 25% of the increase in the allowance for credit losses since Jan. 1, 2020. BNY Mellon has not yet elected to apply this interim final rule. See Notes 2 and 5 of the Notes to Consolidated Financial Statements for additional information on the impact of the adoption of CECL and the change in the allowance for credit losses during the first quarter of 2020.

To increase the flexibility of BHCs, like BNY Mellon, and other financial companies, to act as financial intermediaries, on April 1, 2020, the Federal Reserve issued an interim final rule to temporarily exclude from the calculation of the SLR of bank holding companies, such as the Parent, on-balance sheet amounts of U.S. Treasury securities and deposits at Federal Reserve Banks beginning with the second quarter of 2020. The interim final rule will remain in effect through March 31, 2021. See "Capital" for additional information.

Volcker Covered Funds Proposal

On Jan. 30, 2020, the Federal Reserve, OCC, FDIC, Securities and Exchange Commission ("SEC") and Commodity Futures Trading Commission ("CFTC") approved a notice of proposed rulemaking to amend the implementing regulations for the provisions of the Dodd-Frank Act commonly referred to as the "Volcker Rule". This proposal, which follows revisions to the proprietary trading provisions of the Volcker Rule in 2019, contains a number of targeted amendments to the Volcker Rule regulations, principally focused on the restrictions on banking entities' investments in and other relationships with covered funds. BNY Mellon's preliminary assessment is that the proposed changes would be favorable and reduce certain compliance burdens; however, the general prohibitions and requirements with respect to investment in, sponsoring and transactions with covered funds would remain in place. The proposed provision that, if enacted, may have the most targeted benefits for BNY Mellon, concerns transactions with covered funds which we sponsor or advise. The proposal would exempt certain transactions from the currently applicable

prohibitions, including intraday credit extensions and certain payment, clearing and settlement transactions, subject to certain conditions. Comments on the proposal were due on May 1, 2020.

Changes to CCAR and Stress Capital Buffer

On March 4, 2020, the Federal Reserve finalized a stress capital buffer ("SCB") rule. The final rule eliminates the quantitative grounds for objection to a firm's CCAR capital plan. The rule introduces an SCB that will be part of quarterly capital requirements beginning Oct. 1, 2020. The final rule replaces the current 2.5% capital conservation buffer with an SCB requirement for Standardized Approach capital ratios that is based on the largest projected decrease in a firm's CET1 ratio in the nine quarter CCAR supervisory severely adverse scenario based on the Federal Reserve's models, subject to a 2.5% floor. Each CCAR firm, including BNY Mellon, will be notified of its SCB by June 30, and the SCB will become effective on October 1 of the applicable calendar year. Starting on Oct. 1, 2020, it requires that firms reduce their planned capital actions if those distributions would cause the firm to fall below applicable buffer requirements based on a firm's own baseline scenario projections, and allows firms to increase certain capital distributions if they are forecasted to be above capital buffer constraints. The final rule also eliminates the requirement for prior approval of common stock distributions in excess of the distributions in a firm's capital plan, provided that such distributions do not cause a breach of the firm's capital ratios, including applicable capital buffer.

Website information

Our website is www.bnymellon.com. We currently make available the following information under the Investor Relations portion of our website. With respect to filings with the SEC, we post such information as soon as reasonably practicable after we electronically file such materials with, or furnish them to, the SEC.

- All of our SEC filings, including annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to these reports, as well as proxy statements and SEC Forms 3, 4 and 5;
- Financial statements and footnotes prepared using eXtensible Business Reporting Language ("XBRL");
- Our earnings materials and selected management conference calls and presentations;
- Other regulatory disclosures, including: Pillar 3 Disclosures (and Market Risk Disclosure contained therein); Liquidity Coverage Ratio Disclosures; Federal Financial Institutions Examination Council - Consolidated Reports of Condition and Income for a Bank With Domestic and Foreign Offices; Consolidated Financial Statements for Bank Holding Companies; and the Dodd-Frank Act Stress Test Results for BNY Mellon and The Bank of New York Mellon; and
- Our Corporate Governance Guidelines, Amended and Restated By-laws, Directors' Code of Conduct and the Charters of the Audit, Finance, Corporate Governance, Nominating and Social Responsibility, Human Resources and Compensation, Risk and Technology Committees of our Board of Directors.

We may use our website, our Twitter account (twitter.com/BNYMellon) and other social media channels as additional means of disclosing information to the public. The information disclosed through those channels may be considered to be material. The contents of our website or social media channels referenced herein are not incorporated by reference into this Quarterly Report on Form 10-Q.

Item 1. Financial Statements

The Bank of New York Mellon Corporation (and its subsidiaries)

Consolidated Income Statement (unaudited)

(in millions)	Quarter ended **March 31, 2020**	Dec. 31, 2019	March 31, 2019
Fee and other revenue			
Investment services fees:			
Asset servicing fees	**$ 1,159**	$ 1,148	$ 1,122
Clearing services fees	**470**	421	398
Issuer services fees	**263**	264	251
Treasury services fees	**149**	147	132
Total investment services fees	**2,041**	1,980	1,903
Investment management and performance fees	**862**	883	841
Foreign exchange and other trading revenue	**319**	168	170
Financing-related fees	**59**	46	51
Distribution and servicing	**31**	34	31
Investment and other income	**11**	860	35
Total fee revenue	**3,323**	3,971	3,031
Net securities gains (losses)	**9**	(25)	1
Total fee and other revenue	**3,332**	3,946	3,032
Operations of consolidated investment management funds			
Investment (loss) income	**(38)**	17	26
Interest of investment management fund note holders	**—**	—	—
(Loss) income from consolidated investment management funds	**(38)**	17	26
Net interest revenue			
Interest revenue	**1,570**	1,721	1,920
Interest expense	**756**	906	1,079
Net interest revenue	**814**	815	841
Total revenue	**4,108**	4,778	3,899
Provision for credit losses *(a)*	**169**	(8)	7
Noninterest expense			
Staff	**1,482**	1,639	1,524
Professional, legal and other purchased services	**330**	367	325
Software and equipment	**326**	326	283
Net occupancy	**135**	151	137
Sub-custodian and clearing	**105**	119	105
Distribution and servicing	**91**	92	91
Business development	**42**	65	45
Bank assessment charges	**35**	32	31
Amortization of intangible assets	**26**	28	29
Other	**140**	145	129
Total noninterest expense	**2,712**	2,964	2,699
Income			
Income before income taxes	**1,227**	1,822	1,193
Provision for income taxes	**265**	373	237
Net income	**962**	1,449	956
Net loss (income) attributable to noncontrolling interests (includes $18, $(9) and $(10) related to consolidated investment management funds, respectively)	**18**	(9)	(10)
Net income applicable to shareholders of The Bank of New York Mellon Corporation	**980**	1,440	946
Preferred stock dividends	**(36)**	(49)	(36)
Net income applicable to common shareholders of The Bank of New York Mellon Corporation	**$ 944**	$ 1,391	$ 910

(a) The provision for credit losses for the quarter ended March 31, 2020 relates to the financial instruments within the scope of Accounting Standards Update ("ASU") 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments. See Note 2 of the Notes to Consolidated Financial Statements for additional information.

Consolidated Income Statement (continued)

Net income applicable to common shareholders of The Bank of New York Mellon Corporation used for the earnings per share calculation *(in millions)*	Quarter ended **March 31, 2020**	Dec. 31, 2019	March 31, 2019
Net income applicable to common shareholders of The Bank of New York Mellon Corporation	**$ 944**	$ 1,391	$ 910
Less: Earnings allocated to participating securities	**3**	6	5
Net income applicable to common shareholders of The Bank of New York Mellon Corporation after required adjustment for the calculation of basic and diluted earnings per common share	**$ 941**	$ 1,385	$ 905

Average common shares and equivalents outstanding of The Bank of New York Mellon Corporation *(in thousands)*	Quarter ended **March 31, 2020**	Dec. 31, 2019	March 31, 2019
Basic	**894,122**	911,324	962,397
Common stock equivalents	**3,941**	5,191	6,071
Less: Participating securities	**(1,374)**	(1,776)	(2,508)
Diluted	**896,689**	914,739	965,960
Anti-dilutive securities *(a)*	**2,584**	3,515	5,550

(a) Represents stock options, restricted stock, restricted stock units and participating securities outstanding but not included in the computation of diluted average common shares because their effect would be anti-dilutive.

Earnings per share applicable to common shareholders of The Bank of New York Mellon Corporation *(in dollars)*	Quarter ended **March 31, 2020**	Dec. 31, 2019	March 31, 2019
Basic	**$ 1.05**	$ 1.52	$ 0.94
Diluted	**$ 1.05**	$ 1.52	$ 0.94

See accompanying unaudited Notes to Consolidated Financial Statements.

Consolidated Comprehensive Income Statement (unaudited)

(in millions)	Quarter ended **March 31, 2020**	Dec. 31, 2019	March 31, 2019
Net income	**$ 962**	$ 1,449	$ 956
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	**(369)**	388	29
Unrealized gain (loss) on assets available-for-sale:			
Unrealized gain (loss) arising during the period	**183**	(77)	239
Reclassification adjustment	**(7)**	19	(1)
Total unrealized gain (loss) on assets available-for-sale	**176**	(58)	238
Defined benefit plans:			
Prior service cost arising during the period	**—**	(1)	—
Net (loss) gain arising during the period	**—**	(78)	(9)
Amortization of prior service credit, net loss and initial obligation included in net periodic benefit cost	**18**	4	10
Total defined benefit plans	**18**	(75)	1
Net unrealized (loss) gain on cash flow hedges	**(11)**	4	5
Total other comprehensive (loss) income, net of tax *(a)*	**(186)**	259	273
Total comprehensive income	**776**	1,708	1,229
Net loss (income) attributable to noncontrolling interests	**18**	(9)	(10)
Other comprehensive loss (income) attributable to noncontrolling interests	**2**	(4)	(2)
Comprehensive income applicable to shareholders of The Bank of New York Mellon Corporation	**$ 796**	$ 1,695	$ 1,217

(a) Other comprehensive (loss) income attributable to The Bank of New York Mellon Corporation shareholders was $(184) million for the quarter ended March 31, 2020, $255 million for the quarter ended Dec. 31, 2019 and $271 million for the quarter ended March 31, 2019.

See accompanying unaudited Notes to Consolidated Financial Statements.

The Bank of New York Mellon Corporation (and its subsidiaries)

Consolidated Balance Sheet (unaudited)

(dollars in millions, except per share amounts)	March 31, 2020	Dec. 31, 2019
Assets		
Cash and due from banks (including allowance for credit losses of $3 at March 31, 2020) *(a)*	**$ 5,091**	$ 4,830
Interest-bearing deposits with the Federal Reserve and other central banks	**146,535**	95,042
Interest-bearing deposits with banks (including allowance for credit losses of $1 at March 31, 2020; $4,714 and $2,437 is restricted) *(a)*	**22,672**	14,811
Federal funds sold and securities purchased under resale agreements (including allowance for credit losses of $18 at March 31, 2020) *(a)*	**27,363**	30,182
Securities:		
Held-to-maturity (including allowance for credit losses of less than $1 at March 31, 2020; fair value of $38,418 and $34,805) *(a)*	**37,305**	34,483
Available-for-sale (including allowance for credit losses of $15 at March 31, 2020; amortized cost of $99,503 and $87,435) *(a)*	**101,968**	88,550
Total securities	**139,273**	123,033
Trading assets	**12,918**	13,571
Loans	**62,368**	54,953
Allowance for credit losses *(a)*	**(140)**	(122)
Net loans	**62,228**	54,831
Premises and equipment	**3,514**	3,625
Accrued interest receivable	**576**	624
Goodwill	**17,240**	17,386
Intangible assets	**3,070**	3,107
Other assets (including allowance for credit losses on accounts receivable of $4 at March 31, 2020, also includes $527 and $419, at fair value) *(a)*	**27,446**	20,221
Subtotal assets of operations	**467,926**	381,263
Assets of consolidated investment management funds, at fair value	**229**	245
Total assets	**$ 468,155**	$ 381,508
Liabilities		
Deposits:		
Noninterest-bearing (principally U.S. offices)	**$ 96,600**	$ 57,630
Interest-bearing deposits in U.S. offices	**118,466**	101,542
Interest-bearing deposits in non-U.S. offices	**121,651**	100,294
Total deposits	**336,717**	259,466
Federal funds purchased and securities sold under repurchase agreements	**13,128**	11,401
Trading liabilities	**6,625**	4,841
Payables to customers and broker-dealers	**24,016**	18,758
Commercial paper	**1,121**	3,959
Other borrowed funds	**1,544**	599
Accrued taxes and other expenses	**4,705**	5,642
Other liabilities (including allowance for credit losses on lending-related commitments of $148 and $94, also includes $973 and $607, at fair value) *(a)*	**11,425**	7,612
Long-term debt (includes $397 and $387, at fair value)	**27,494**	27,501
Subtotal liabilities of operations	**426,775**	339,779
Liabilities of consolidated investment management funds, at fair value	**1**	1
Total liabilities	**426,776**	339,780
Temporary equity		
Redeemable noncontrolling interests	**140**	143
Permanent equity		
Preferred stock – par value $0.01 per share; authorized 100,000,000 shares; issued 35,826 and 35,826 shares	**3,542**	3,542
Common stock – par value $0.01 per share; authorized 3,500,000,000 shares; issued 1,380,881,570 and 1,374,443,376 shares	**14**	14
Additional paid-in capital	**27,644**	27,515
Retained earnings	**32,601**	31,894
Accumulated other comprehensive loss, net of tax	**(2,827)**	(2,638)
Less: Treasury stock of 495,438,749 and 473,760,338 common shares, at cost	**(19,829)**	(18,844)
Total The Bank of New York Mellon Corporation shareholders' equity	**41,145**	41,483
Nonredeemable noncontrolling interests of consolidated investment management funds	**94**	102
Total permanent equity	**41,239**	41,585
Total liabilities, temporary equity and permanent equity	**$ 468,155**	$ 381,508

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 of the Notes to Consolidated Financial Statements for additional information.

See accompanying unaudited Notes to Consolidated Financial Statements.

The Bank of New York Mellon Corporation (and its subsidiaries)

Consolidated Statement of Cash Flows (unaudited)

	Three months ended March 31,	
(in millions)	**2020**	2019
Operating activities		
Net income	**$ 962**	$ 956
Net (income) loss attributable to noncontrolling interests	**18**	(10)
Net income applicable to shareholders of The Bank of New York Mellon Corporation	**980**	946
Adjustments to reconcile net income to net cash (used for) operating activities:		
Provision for credit losses *(a)*	**169**	7
Pension plan contributions	**(6)**	(17)
Depreciation and amortization	**354**	302
Deferred tax (benefit)	**(300)**	(28)
Net securities (gains)	**(9)**	(1)
Change in trading assets and liabilities	**2,419**	(57)
Change in accruals and other, net	**(5,292)**	(2,101)
Net cash (used for) operating activities	**(1,685)**	(949)
Investing activities		
Change in interest-bearing deposits with banks	**(6,066)**	413
Change in interest-bearing deposits with the Federal Reserve and other central banks	**(52,370)**	7,096
Purchases of securities held-to-maturity	**(5,151)**	(1,403)
Paydowns of securities held-to-maturity	**1,503**	914
Maturities of securities held-to-maturity	**1,310**	500
Purchases of securities available-for-sale	**(22,222)**	(8,894)
Sales of securities available-for-sale	**3,107**	3,692
Paydowns of securities available-for-sale	**2,042**	1,400
Maturities of securities available-for-sale	**4,727**	7,223
Net change in loans	**(7,626)**	3,010
Sales of loans and other real estate	**1**	51
Change in federal funds sold and securities purchased under resale agreements	**2,739**	6,640
Net change in seed capital investments	**18**	3
Purchases of premises and equipment/capitalized software	**(264)**	(264)
Other, net	**(349)**	429
Net cash (used for) provided by investing activities	**(78,601)**	20,810
Financing activities		
Change in deposits	**79,678**	(16,146)
Change in federal funds purchased and securities sold under repurchase agreements	**1,775**	(2,482)
Change in payables to customers and broker-dealers	**5,329**	(414)
Change in other borrowed funds	**961**	695
Change in commercial paper	**(2,838)**	834
Net proceeds from the issuance of long-term debt	**998**	—
Repayments of long-term debt	**(1,750)**	(1,500)
Proceeds from the exercise of stock options	**30**	31
Issuance of common stock	**3**	13
Treasury stock acquired	**(985)**	(555)
Common cash dividends paid	**(282)**	(270)
Preferred cash dividends paid	**(36)**	(36)
Other, net	**(3)**	(7)
Net cash provided by (used for) financing activities	**82,880**	(19,837)
Effect of exchange rate changes on cash	**(56)**	11
Change in cash and due from banks and restricted cash		
Change in cash and due from banks and restricted cash	**2,538**	35
Cash and due from banks and restricted cash at beginning of period	**7,267**	8,258
Cash and due from banks and restricted cash at end of period	**$ 9,805**	$ 8,293
Cash and due from banks and restricted cash:		
Cash and due from banks at end of period (unrestricted cash)	**$ 5,091**	$ 5,980
Restricted cash at end of period	**4,714**	2,313
Cash and due from banks and restricted cash at end of period	**$ 9,805**	$ 8,293
Supplemental disclosures		
Interest paid	**$ 851**	$ 1,122
Income taxes paid	**185**	100
Income taxes refunded	**10**	3

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 of the Notes to Consolidated Financial Statements for additional information.

See accompanying unaudited Notes to Consolidated Financial Statements.

Consolidated Statement of Changes in Equity (unaudited)

(in millions, except per share amount)	The Bank of New York Mellon Corporation shareholders						Nonredeemable noncontrolling interests of consolidated investment management funds	Total permanent equity		Redeemable non-controlling interests/ temporary equity
	Preferred stock	Common stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive (loss), net of tax	Treasury stock				
Balance at Dec. 31, 2019	$ 3,542	$ 14	$ 27,515	$ 31,894	$ (2,638)	$ (18,844)	$ 102	$ 41,585	*(a)*	$ 143
Impact of adopting ASU 2016-13, *Financial Instruments - Credit Losses*	—	—	—	45	(5)	—	—	40		—
Adjusted balance at Jan. 1, 2020	3,542	14	27,515	31,939	(2,643)	(18,844)	102	41,625		143
Shares issued to shareholders of noncontrolling interests	—	—	—	—	—	—	—	—		**17**
Redemption of subsidiary shares from noncontrolling interests	—	—	—	—	—	—	—	—		**(16)**
Other net changes in noncontrolling interests	—	—	**(5)**	—	—	—	**10**	**5**		**(2)**
Net income	—	—	—	**980**	—	—	**(18)**	**962**		—
Other comprehensive income	—	—	—	—	**(184)**	—	—	**(184)**		**(2)**
Dividends:										
Common stock at $0.31 per share	—	—	—	**(282)**	—	—	—	**(282)**		—
Preferred stock	—	—	—	**(36)**	—	—	—	**(36)**		—
Repurchase of common stock	—	—	—	—	—	**(985)**	—	**(985)**		—
Common stock issued under employee benefit plans	—	—	**9**	—	—	—	—	**9**		—
Stock awards and options exercised	—	—	**125**	—	—	—	—	**125**		—
Balance at March 31, 2020	**$ 3,542**	**$ 14**	**$ 27,644**	**$ 32,601**	**$ (2,827)**	**$ (19,829)**	**$ 94**	**$ 41,239**	*(a)*	**$ 140**

(a) Includes total The Bank of New York Mellon Corporation common shareholders' equity of $37,941 million at Dec. 31, 2019 and $37,603 million at March 31, 2020.

(in millions, except per share amount)	The Bank of New York Mellon Corporation shareholders						Nonredeemable noncontrolling interests of consolidated investment management funds	Total permanent equity		Redeemable non-controlling interests/ temporary equity
	Preferred stock	Common stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive (loss), net of tax	Treasury stock				
Balance at Sept. 30, 2019	$ 3,542	$ 14	$ 27,471	$ 30,789	$ (2,893)	$ (17,803)	$ 203	$ 41,323	*(a)*	$ 147
Shares issued to shareholders of noncontrolling interests	—	—	—	—	—	—	—	—		25
Redemption of subsidiary shares from noncontrolling interests	—	—	—	—	—	—	—	—		(41)
Other net changes in noncontrolling interests	—	—	(17)	—	—	—	(110)	(127)		8
Net income	—	—	—	1,440	—	—	9	1,449		—
Other comprehensive income	—	—	—	—	255	—	—	255		4
Dividends:										
Common stock at $0.31 per share	—	—	—	(286)	—	—	—	(286)		—
Preferred stock	—	—	—	(49)	—	—	—	(49)		—
Repurchase of common stock	—	—	—	—	—	(1,041)	—	(1,041)		—
Common stock issued under:										
Employee benefit plans	—	—	6	—	—	—	—	6		—
Stock awards and options exercised	—	—	55	—	—	—	—	55		—
Balance at Dec. 31, 2019	$ 3,542	$ 14	$ 27,515	$ 31,894	$ (2,638)	$ (18,844)	$ 102	$ 41,585	*(a)*	$ 143

(a) Includes total The Bank of New York Mellon Corporation common shareholders' equity of $37,578 million at Sept. 30, 2019 and $37,941 million at Dec. 31, 2019.

Consolidated Statement of Changes in Equity (unaudited) (continued)

(in millions, except per share amount)	The Bank of New York Mellon Corporation shareholders						Nonredeemable noncontrolling interests of consolidated investment management funds	Total permanent equity		Redeemable non-controlling interests/ temporary equity
	Preferred stock	Common stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive (loss), net of tax	Treasury stock				
Balance at Dec. 31, 2018	$ 3,542	$ 14	$ 27,118	$ 28,652	$ (3,171)	$ (15,517)	$ 101	$ 40,739	*(a)*	$ 129
Reclassification of certain tax effects related to adopting ASU 2018-02	—	—	—	90	(90)	—	—	—		—
Adjusted balance at Jan. 1, 2019	3,542	14	27,118	28,742	(3,261)	(15,517)	101	40,739		129
Shares issued to shareholders of noncontrolling interests	—	—	—	—	—	—	—	—		20
Redemption of subsidiary shares from noncontrolling interests	—	—	—	—	—	—	—	—		(7)
Other net changes in noncontrolling interests	—	—	19	—	—	—	11	30		(22)
Net income	—	—	—	946	—	—	10	956		—
Other comprehensive income	—	—	—	—	271	—	—	271		2
Dividends:										
Common stock at $0.28 per share	—	—	—	(270)	—	—	—	(270)		—
Preferred stock	—	—	—	(36)	—	—	—	(36)		—
Repurchase of common stock	—	—	—	—	—	(555)	—	(555)		—
Common stock issued under:										
Employee benefit plans	—	—	10	—	—	—	—	10		—
Direct stock purchase and dividend reinvestment plan	—	—	11	—	—	—	—	11		—
Stock awards and options exercised	—	—	191	—	—	—	—	191		—
Balance at March 31, 2019	$ 3,542	$ 14	$ 27,349	$ 29,382	$ (2,990)	$ (16,072)	$ 122	$ 41,347	*(a)*	$ 122

(a) Includes total The Bank of New York Mellon Corporation common shareholders' equity of $37,096 million at Dec. 31, 2018 and $37,683 million at March 31, 2019.

See accompanying unaudited Notes to Consolidated Financial Statements.

Note 1–Basis of presentation

In this Quarterly Report on Form 10-Q, 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. The term "Parent" refers to The Bank of New York Mellon Corporation but not its subsidiaries.

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. For information on our significant accounting and reporting policies, see Note 1 in our 2019 Annual Report.

The accompanying consolidated financial statements are unaudited. In the opinion of management, all adjustments necessary for a fair presentation of financial position, results of operations and cash flows for the periods presented have been made. These financial statements should be read in conjunction with our 2019 Annual Report. Certain immaterial reclassifications have been made to prior periods to place them on a basis comparable with the current period presentation.

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates based upon assumptions about future economic and market conditions which affect reported amounts and related disclosures in our financial statements. Although our current estimates contemplate current conditions and how we expect them to change in the future, it is reasonably possible that actual conditions could be worse than anticipated in those estimates, which could materially affect our results of operations and financial condition.

Note 2–Accounting changes and new accounting guidance

The following accounting guidance was adopted in the first quarter of 2020.

Accounting Standards Update ("ASU") 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments

In June 2016, the Financial Accounting Standards Board ("FASB") issued an ASU, *Financial Instruments – Credit Losses: Measurement of Credit Losses on Financial Instruments*. This ASU introduces a new current expected credit losses model, which applies to financial assets subject to credit losses and measured at amortized cost, including held-to-maturity securities and certain off-balance sheet credit exposures. The guidance also changes current practice for the impairment model for available-for-sale debt securities by requiring the use of an allowance to record estimated credit losses and subsequent recoveries. The standard requires a cumulative effect of initial application to be recognized in retained earnings at the date of initial application.

In conjunction with adopting the new standard, we developed expected credit loss models and approaches that include consideration of multiple forecast scenarios and other methodologies. On Jan. 1, 2020, we adopted this new accounting guidance on a prospective basis and recognized a $45 million after-tax increase in retained earnings primarily attributable to a reduction to the allowance for credit losses for our commercial lending portfolios. The comparative financial information for prior periods has not been restated. See the Consolidated Balance Sheet and Notes 4 and 5 for the disclosures required by this ASU.

The table below presents the reconciliation of the allowance for credit losses (pre-tax).

Allowance for credit losses *(in millions)*		
Allowance for credit losses – Dec. 31, 2019	$	216
Impact of adopting ASU 2016-13:		
Securities		7
Loans *(a)*		(69)
Other		3
Total impact of adoption of ASU 2016-13		(59)
Reclassification of credit-related reserves on accounts receivable		4
Allowance for credit losses – Jan. 1, 2020	$	161

(a) Includes $48 million related to loans and $21 million for lending-related commitments.

Significant accounting policies

Loans

Loans are reported at amortized cost, net of any unearned income and deferred fees and costs. Certain loan origination and upfront commitment fees, as well as certain direct loan origination and commitment costs, are deferred and amortized as a yield adjustment over the lives of the related loans. Loans held for sale are carried at the lower of cost or fair value.

Troubled debt restructuring/loan modifications

A modified loan is considered a troubled debt restructuring ("TDR") if the debtor is experiencing financial difficulties and the creditor grants a concession to the debtor that would not otherwise be considered. A TDR may include a transfer of real estate or other assets from the debtor to the creditor, or a modification of the term of the loan. Credit losses related to TDRs are accounted for under an individual evaluation methodology (see "Allowance for credit losses" below). Credit losses for anticipated TDRs are accounted for similarly to TDRs and are identified when there is a reasonable expectation that a TDR will be executed with the borrower and when we expect the modification to affect the timing or amount of payments and/or the payment term. The Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), which became law on March 27, 2020, provides that financial institutions may, subject to certain conditions, elect to temporarily suspend the U.S. GAAP requirements with respect to loan modifications related to the coronavirus pandemic that would otherwise be treated as TDRs and the determination that such a loan modification is a TDR.

Nonperforming assets

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.

When a first or second lien residential mortgage loan reaches 90 days delinquent, it is subject to an individual evaluation of credit loss and placed on nonaccrual status.

When a loan is placed on nonaccrual status, previously accrued and uncollected interest is reversed against current period interest revenue. Interest receipts on nonaccrual loans are recognized as interest revenue or are applied to principal when we believe the ultimate collectability of principal is in doubt. Nonaccrual loans generally are restored to an accrual basis when principal and interest become current and remain current for a specified period.

"Allowance for credit losses" below provides additional information regarding the individual evaluation of credit losses for nonperforming loans.

Allowance for credit losses

The accounting policy for estimating credit losses related to financial assets measured at amortized cost, including loans and lending-related commitments changed beginning in the first quarter 2020 as a result of the adoption of ASU 2016-13, *Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments*. This ASU also included targeted amendments with respect to credit losses for available-for-sale debt securities. The accounting policy for determining 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 judgmental and inherently uncertain.

Credit quality is monitored by management and is reflected within the allowance for credit losses. The allowance represents management's estimate of expected credit losses over the expected contractual life of the financial instruments as of the balance sheet date. The allowance methodology is designed

to provide procedural discipline in assessing the appropriateness of the allowance.

A quantitative methodology and qualitative framework is used to estimate the allowance for credit losses. The qualitative framework is described in further detail within "Allowance for credit losses - Other" below. The quantitative component of our estimate uses models and methodologies that categorize financial assets based on product type, collateral type, and other credit trends and risk characteristics, including relevant information about past events, current conditions and reasonable and supportable forecasts of future economic conditions that affect the collectability of the recorded amounts. The allowance may be determined using various methods, including discounted cash flow methods, loss-rate methods, probability of default methods or other methods that we determine to be appropriate. We estimate our expected credit losses using the probability of default method for the majority of our financial assets. We measure expected credit losses of financial assets on a collective (pool) basis when similar risk characteristics exist. For a financial asset that does not share risk characteristics with other assets, expected credit losses are measured based on an individual evaluation method.

In our estimate, with the exception of our small home equity line of credit portfolio, available-for-sale debt securities, and individually evaluated financial assets, we utilize a multi-scenario macroeconomic forecast which includes a weighting of baseline, stronger near-term growth and moderate recession scenarios. This approach allows us to develop our estimate using a wide span of economic input variables. Our baseline scenario reflects a view on likely performance of each global region and the other two scenarios are designed relative to the baseline scenario. The scenarios include both a reasonable and supportable forecast period as well as a reversion period. The reasonable and supportable forecast is typically over a two to three year horizon, followed by a reversion period in which the economic data reverts to long-term historical experience. In general, the forecasts across the alternative economic scenarios tend to revert toward the long-term trends after the forecast period, which is the period in which the confidence interval is considered reasonable and supportable. The speed at which the scenario specific forecasts revert is based on observed historical patterns of mean reversion that are reflected in our model parameter estimates. Certain macroeconomic variables such as unemployment or home prices take longer to revert after a contraction, though specific recovery times are scenario-specific. Reversion will usually take longer the further away the scenario specific forecast is from the historical mean. On a quarterly basis, within a developed governance structure, we update these scenarios for current economic conditions and may adjust the scenario weighting based on our economic outlook.

Allowance for credit losses - Loans and lending-related commitments

The allowance for credit losses on loans is presented as a valuation allowance to loans, and the allowance for credit losses on lending-related commitments is recorded in other liabilities. The components of the allowance for credit losses on loans and lending-related commitments consist of the following three elements:

- a pooled allowance component for higher risk-rated and pass-rated commercial and institutional credits;
- a pooled allowance component for residential mortgage loans; and
- an asset-specific allowance component involving individually evaluated credits of $1 million or greater.

The first element, a pooled allowance component for higher risk-rated and pass-rated commercial and institutional credits, is based on our expected credit loss model. Individual credit analyses are performed on such loans before being assigned a credit rating. All borrowers are collectively evaluated based on their credit rating. The loss expected in each loan incorporates the borrower's credit rating, facility rating and maturity. The loss given default, derived from the facility rating, incorporates a recovery expectation, and for unfunded lending exposures, an estimate of the use of the facility at default (usage given default). The borrower's probability of default is derived from the associated credit rating. For each of the different parameters, specific credit models are developed for each segment of our portfolio, including commercial loans and lease financing, commercial real estate, financial institutions, and other. Segmentation is established based on risk characteristics of the loans and how risk is monitored. We use both internal and external data in the development of these parameters. In estimating the

term of the exposures and resulting effect on the measurement of expected credit loss, we consider the impact of potential prepayments as well as the effect of borrower extension options. Borrower ratings are reviewed at least annually and are periodically mapped to third-party databases, including rating agency and default and recovery databases, to ensure ongoing consistency and validity. Higher risk-rated loans and lending-related commitments are reviewed quarterly.

The second element, a pooled allowance component for residential mortgage loans, is determined by first segregating our mortgage pools into two categories: (i) our wealth management mortgages and (ii) our legacy mortgage portfolio disclosed as other residential mortgages. We then apply models to each portfolio to predict prepayments, default rates and loss severity. We consider historical loss experience and use a loan-level, multi-period default model which further segments each portfolio by product type including first lien fixed rate mortgages, first lien adjustable rate mortgages, second lien mortgages, and interest only mortgages. We calculate the mortgage loss up to loan contractual maturity and embed a reasonable and supportable forecast and macroeconomic variable inputs which are described above. For home equity lines of credit, probability of default and loss given default are based on external data from third-party databases due to the small size of the portfolio and limited internal data. Our legacy mortgage portfolio and home equity line of credit portfolios represent small sub-segments of our mortgage loans.

The third element, individually evaluated credits, is based on individual analysis of loans of $1 million and greater which no longer share the risk characteristics with other loans. Factors we consider in measuring the extent of expected credit loss include the payment status, collateral value, the borrower's financial condition, guarantor support, the probability of collecting scheduled principal and interest payments when due, anticipated modifications of payment structure or term for troubled borrowers, and recoveries if they can be reasonably estimated. We measure the expected credit loss as the difference between the amortized cost basis in the loan and the present value of the expected future cash flows from the borrower which is generally discounted at the loan's effective interest rate, or the fair value of the collateral, if the loan is collateral dependent. We generally consider nonperforming loans as well as loans that have been or are anticipated to be modified under a troubled debt restructuring for individual evaluation given the risk characteristics of such loans.

Allowance for credit losses - Securities - Debt

When estimating expected credit losses, we segment our available-for-sale and held-to-maturity debt securities portfolios by major asset class. This is influenced by whether the security is structured or non-structured (i.e., direct obligation), as well as the issuer type.

Debt securities are classified as available-for-sale securities when we intend to hold the securities for an indefinite period of time or when the securities may be used for tactical asset/liability management purposes and may be sold from time to time to effectively manage interest rate exposure, prepayment risk and liquidity needs. Available-for-sale securities are measured at fair value. The difference between fair value and amortized cost represents the unrealized gains or losses on assets classified as available-for-sale, and is recorded net of tax as an addition to, or deduction from, other comprehensive income, unless we determine that this difference or a portion thereof represents an expected credit loss. If we determine that a credit loss exists, the amount is recognized as an allowance for credit losses in securities - available-for sale, with a corresponding adjustment to the provision for credit losses. We evaluate credit losses at the individual security level and do not recognize credit losses if the fair value exceeds amortized cost, and if we determine that a credit loss exists, we limit the recognition of the loss to the difference between fair value and amortized cost. In our determination of whether an expected credit loss exists, we routinely conduct periodic reviews and examine various quantitative and qualitative factors that are unique to each portfolio, including the severity of the unrealized loss position, agency rating, credit enhancement, cash flow deterioration and other factors. The measurement of an expected credit loss is then based on the best estimate of the present value of cash flows to be collected from the debt security. Generally, cash flows are discounted at the effective interest rate implicit in the debt security. Changes to the present value of cash flows due to the passage of time are recognized within the allowance for credit losses.

We estimate expected credit losses for held-to-maturity debt securities using a similar methodology as described in the first allowance element within "Allowance for credit losses - Loans and lending-related commitments" above. The allowance for credit losses on held-to-maturity debt securities are recorded in securities - held-to-maturity. The components of the credit loss calculation for each major portfolio or asset class include a probability of default and loss given default and their values depend on the forecast behavior of variables in the macroeconomic environment. For structured debt securities, we estimated expected credit losses at the individual security level and use a cash flow model to project principal losses. Generally, cash flows are discounted at the effective interest rate implicit in the debt security. The difference is reflected in the allowance for credit losses, and changes to the present value of cash flows due to the passage of time are recognized within the allowance for credit losses.

We currently do not require an estimate of expected credit losses to be measured and recorded for U.S. Treasury securities, agency debt securities, as well as other debt securities that meet certain conditions that are based on a combination of factors such as guarantees, credit ratings, and other credit quality factors. These assets are monitored within our established governance structure on a recurring basis to determine if any changes are warranted.

Allowance for credit losses – Other financial instruments

We also estimate expected credit losses associated with margin loans, reverse repurchase agreements, security lending indemnifications, and deposits with third-party financial institutions using a similar methodology as described in the first allowance element within "Allowance for credit losses - Loans and lending-related commitments" above. The allowance for credit losses on reverse repurchase agreements are recorded in federal funds sold and securities purchased under resale agreements; the allowance for credit losses on securities lending indemnifications is recorded in other liabilities and the allowance for credit losses on deposits with third party financial institutions is recorded in cash and due from banks or interest-bearing deposits with banks. Our reverse repurchase agreements are short term and subject to continuous overcollateralization by our counterparties and timely collateral replenishment, when necessary. As a result, we estimate the expected credit loss related to the uncollateralized portion of the asset at the balance sheet date, if any, and when there is a reasonable expectation that the counterparty will not replenish the collateral in compliance with the terms of the repurchase agreement. This method is also applied to margin lending arrangements and securities lending indemnifications.

Allowance for credit losses - Other

We do not apply our credit loss measurement methodologies to accrued interest receivable balances related to our loan, debt securities and deposits with third party financial institutions assets given our nonaccrual policy that requires charge-off of interest receivable when deemed uncollectible. Accrued interest receivable balances related to these instruments is presented in total with other interest-bearing instruments in the consolidated balance sheet. Accrued interest related to each major loan class is disclosed within our credit quality disclosure in Note 5.

Our policy for credit losses related to purchased financial assets requires an evaluation to be performed prior to the effective purchase date to determine if more than an insignificant decline in credit quality has occurred during the period between the origination and purchase date, or in the case of debt securities, the period between the issuance and purchase date. If we purchase a financial asset with more than insignificant deterioration in credit quality, the measurement of expected credit loss is performed using the methodologies described above, and the credit loss is recorded as an allowance for credit losses on the purchase date. Subsequent to purchase, changes (favorable and unfavorable) in expected cash flows are recognized immediately in net income by adjusting the allowance. We evaluate various factors in the determination of whether a more than an insignificant decline in credit quality has occurred and these factors vary depending upon the type of asset purchased. Such factors include changes in risk rating and/or agency rating, collateral deterioration, payment status, purchase price, credit spreads, and other factors. We did not purchase any such assets during the most recent reporting period and did not own such assets as of March 31, 2020.

We apply a separate credit loss methodology to accounts receivables to estimate the expected credit losses associated with these short-term receivables

which historically have not resulted in significant credit losses. The allowance for credit losses on accounts receivable is reflected in other assets.

The qualitative component of our estimate for the allowance for credit losses is intended to capture expected losses that may not have been fully captured in the quantitative component. Through an established governance structure, management determines the qualitative allowance each period based on an evaluation of various internal and environmental factors which include: scenario weighting and sensitivity risk, credit concentration risk, economic conditions and other considerations. We may also make adjustments for idiosyncratic risks. Once determined in the aggregate, our qualitative allowance is then allocated to each of our financial instrument portfolios except for debt securities and those instruments carried in other assets based on the respective instruments' quantitative allowance balances. The allocation of this additional allowance for credit losses is inherently judgmental, and the entire allowance for credit losses is available to absorb credit losses regardless of the nature of the loss.

Note 3–Acquisitions and dispositions

We sometimes structure our acquisitions with both an initial payment and later contingent payments tied to post-closing revenue or income growth. There were no contingent payments in the first quarter of 2020.

At March 31, 2020, we are potentially obligated to pay additional consideration which, using reasonable assumptions, could range from $5 million to $13 million over the next two years, but could be higher as certain of the arrangements do not contain a contractual maximum.

Transaction in 2019

On Nov. 8, 2019, BNY Mellon, along with the other holders of Promontory Interfinancial Network, LLC ("PIN"), completed the sale of their interests in PIN. BNY Mellon recorded an after-tax gain of $622 million on the sale of this equity investment.

Note 4–Securities

On Jan. 1, 2020, we adopted *ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments* on a prospective basis. See Note 2 for the significant accounting policy related to securities.

The following tables present the amortized cost, the gross unrealized gains and losses and the fair value of securities at March 31, 2020 and Dec. 31, 2019.

Securities at March 31, 2020

(in millions)	Amortized cost	Gross unrealized Gains	Gross unrealized Losses	Fair value
Available-for-sale:				
Agency RMBS	**$ 26,484**	**$ 426**	**$ 219**	**$ 26,691**
U.S. Treasury	**21,430**	**1,651**	**—**	**23,081**
Sovereign debt/sovereign guaranteed	**12,791**	**128**	**9**	**12,910**
Agency commercial mortgage-backed securities ("MBS")	**9,315**	**510**	**20**	**9,805**
Foreign covered bonds	**5,284**	**24**	**36**	**5,272**
Supranational	**4,316**	**38**	**6**	**4,348**
Collateralized loan obligations ("CLOs")	**4,341**	**1**	**244**	**4,098**
Commercial paper/certificates of deposit ("CDs")	**2,813**	**3**	**2**	**2,814**
Foreign government agencies	**2,736**	**31**	**3**	**2,764**
Non-agency commercial MBS	**2,501**	**35**	**63**	**2,473**
Other asset-backed securities ("ABS")	**2,257**	**6**	**43**	**2,220**
U.S. government agencies	**2,059**	**156**	**2**	**2,213**
Non-agency RMBS *(a)*	**1,404**	**114**	**43**	**1,475**
State and political subdivisions	**967**	**20**	**2**	**985**
Corporate bonds	**804**	**16**	**2**	**818**
Other debt securities	**1**	**—**	**—**	**1**
Total securities available-for-sale *(b)(c)*	**$ 99,503**	**$ 3,159**	**$ 694**	**$ 101,968**
Held-to-maturity:				
Agency RMBS	**$ 29,518**	**$ 874**	**$ 5**	**$ 30,387**
U.S. Treasury	**2,937**	**121**	**—**	**3,058**
Agency commercial MBS	**1,868**	**84**	**—**	**1,952**
U.S. government agencies	**1,244**	**7**	**3**	**1,248**
Sovereign debt/sovereign guaranteed	**919**	**37**	**—**	**956**
Commercial paper/CDs	**651**	**—**	**—**	**651**
Foreign covered bonds	**77**	**—**	**—**	**77**
Non-agency RMBS	**75**	**3**	**5**	**73**
State and political subdivisions	**16**	**—**	**—**	**16**
Total securities held-to-maturity	**$ 37,305**	**$ 1,126**	**$ 13**	**$ 38,418**
Total securities	**$ 136,808**	**$ 4,285**	**$ 707**	**$ 140,386**

(a) Includes $535 million that was included in the former Grantor Trust.
(b) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. The allowance for credit loss on available-for-sale securities of $15 million primarily relates to CLOs and Non-Agency RMBS. See Note 2 for additional information.
(c) Includes gross unrealized gains of $29 million and gross unrealized losses of $59 million recorded in accumulated other comprehensive income related to securities that were transferred from available-for-sale to held-to-maturity. The unrealized gains and losses are primarily related to Agency RMBS and will be amortized into net interest revenue over the contractual lives of the securities.

Securities at Dec. 31, 2019

(in millions)	Amortized cost	Gross unrealized Gains	Gross unrealized Losses	Fair value
Available-for-sale:				
Agency RMBS	$ 27,022	$ 164	$ 143	$ 27,043
U.S. Treasury	14,979	472	20	15,431
Sovereign debt/sovereign guaranteed	12,548	109	11	12,646
Agency commercial MBS	9,231	203	17	9,417
Foreign covered bonds	4,189	15	7	4,197
CLOs	4,078	1	16	4,063
Supranational	3,697	18	6	3,709
Foreign government agencies	2,638	7	2	2,643
Non-agency commercial MBS	2,134	46	2	2,178
Other ABS	2,141	7	5	2,143
U.S. government agencies	1,890	61	2	1,949
Non-agency RMBS *(a)*	1,038	202	7	1,233
State and political subdivisions	1,017	27	—	1,044
Corporate bonds	832	21	—	853
Other debt securities	1	—	—	1
Total securities available-for-sale *(b)*	$ 87,435	$ 1,353	$ 238	$ 88,550
Held-to-maturity:				
Agency RMBS	$ 27,357	$ 292	$ 46	$ 27,603
U.S. Treasury	3,818	28	3	3,843
Agency commercial MBS	1,326	21	3	1,344
U.S. government agencies	1,023	1	2	1,022
Sovereign debt/sovereign guaranteed	756	31	—	787
Non-agency RMBS	80	4	1	83
Foreign covered bonds	79	—	—	79
Supranational	27	—	—	27
State and political subdivisions	17	—	—	17
Total securities held-to-maturity	$ 34,483	$ 377	$ 55	$ 34,805
Total securities	$ 121,918	$ 1,730	$ 293	$ 123,355

(a) Includes $640 million that was included in the former Grantor Trust.
(b) Includes gross unrealized gains of $32 million and gross unrealized losses of $65 million recorded in accumulated other comprehensive income related to securities that were transferred from available-for-sale to held-to-maturity. The unrealized gains and losses are primarily related to Agency RMBS and will be amortized into net interest revenue over the contractual lives of the securities.

The following table presents the realized gains, losses and impairments, on a gross basis.

Net securities gains (losses)

(in millions)	**1Q20**	4Q19	1Q19
Realized gross gains	**$ 12**	$ 5	$ 5
Realized gross losses	**(3)**	(29)	(4)
Recognized gross impairments	**—**	(1)	—
Total net securities gains (losses)	**$ 9**	$ (25)	$ 1

The following table presents pre-tax net securities gains (losses) by type.

Net securities gains (losses) *(in millions)*	**1Q20**	4Q19	1Q19
U.S. Treasury	**$ 5**	$ (17)	$ 1
Other	**4**	(8)	—
Total net securities gains (losses)	**$ 9**	$ (25)	$ 1

Allowance for credit losses - Securities

In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, *Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments*, on a prospective basis. The allowance for credit losses related to securities was $7 million on Jan. 1, 2020 and $15 million at March 31, 2020. The increase reflects additional credit deterioration in the available-for-sale CLO portfolio. For additional information about the review of securities under previous other-than-temporary impairment guidance, refer to Notes 1 and 4 in the 2019 Annual Report.

Credit quality indicators - Securities

At March 31, 2020, the gross unrealized losses on the securities portfolio were primarily attributable to an increase in interest rates from the date of purchase, and for certain securities that were transferred from available-for-sale to held-to-maturity, an increase in interest rates through the date they were transferred. Specifically, $59 million of the unrealized losses at March 31, 2020 and $65 million at Dec. 31, 2019 reflected in the available-for-sale sections of the tables below relate to certain securities (primarily Agency RMBS) that were transferred in prior periods from available-for-sale to held-to-maturity. The unrealized losses will be amortized into net interest revenue over the contractual lives of the securities. The transfer created a new cost basis for the securities. As a result, if these securities have experienced unrealized losses since the date of transfer, the corresponding fair value and unrealized losses would be reflected in the held-to-maturity sections of the following tables. We do not intend to sell these securities, and it is not more likely than not that we will have to sell these securities.

The following table shows the aggregate fair value of available-for-sale securities with a continuous unrealized loss position for less than 12 months and those that have been in a continuous unrealized loss position for 12 months or more without an allowance for credit losses.

Available-for-sale securities in an unrealized loss position at March 31, 2020 *(a)*	Less than 12 months		12 months or more		Total	
(in millions)	Fair value	Unrealized losses	Fair value	Unrealized losses	Fair value	Unrealized losses
Agency RMBS	**$ 5,200**	**$ 53**	**$ 6,969**	**$ 166**	**$ 12,169**	**$ 219**
Sovereign debt/sovereign guaranteed	**2,801**	**9**	**104**	**—**	**2,905**	**9**
Agency commercial MBS	**1,440**	**14**	**522**	**6**	**1,962**	**20**
Foreign covered bonds	**2,934**	**33**	**255**	**3**	**3,189**	**36**
Supranational	**1,663**	**6**	**203**	**—**	**1,866**	**6**
CLOs	**3,456**	**189**	**554**	**41**	**4,010**	**230**
Commercial paper/CDs	**1,225**	**2**	**—**	**—**	**1,225**	**2**
Foreign government agencies	**942**	**3**	**50**	**—**	**992**	**3**
Non-agency commercial MBS	**1,050**	**60**	**37**	**3**	**1,087**	**63**
Other ABS	**1,283**	**38**	**193**	**5**	**1,476**	**43**
U.S. government agencies	**73**	**2**	**—**	**—**	**73**	**2**
Non-agency RMBS *(b)*	**737**	**27**	**96**	**12**	**833**	**39**
State and political subdivisions	**37**	**2**	**15**	**—**	**52**	**2**
Corporate bonds	**232**	**2**	**—**	**—**	**232**	**2**
Total securities available-for-sale *(c)*	**$ 23,073**	**$ 440**	**$ 8,998**	**$ 236**	**$ 32,071**	**$ 676**

(a) Includes $3.9 billion of securities with an unrealized loss of greater than $1 million.

(b) Includes $97 million of securities with an unrealized loss of $7 million for less than 12 months and $1 million of securities with an unrealized loss of less than $1 million for 12 months or more that were included in the former Grantor Trust.

(c) Includes gross unrealized losses of $59 million for 12 months or more recorded in accumulated other comprehensive income related to securities that were transferred from available-for-sale to held-to-maturity. The unrealized losses are primarily related to Agency RMBS and will be amortized into net interest revenue over the contractual lives of the securities. There were no gross unrealized losses for less than 12 months.

The following table presents the temporarily impaired securities under the disclosure guidance that existed prior to the adoption of ASU 2016-13 and shows the aggregate fair value of available-for-sale securities with a continuous unrealized loss position for less than 12 months and those that have been in a continuous unrealized loss position for 12 months or more.

Temporarily impaired securities at Dec. 31, 2019	Less than 12 months		12 months or more		Total	
(in millions)	Fair value	Unrealized losses	Fair value	Unrealized losses	Fair value	Unrealized losses
Available-for-sale:						
Agency RMBS	$ 8,373	$ 33	$ 5,912	$ 110	$ 14,285	$ 143
U.S. Treasury	1,976	16	766	4	2,742	20
Sovereign debt/sovereign guaranteed	4,045	10	225	1	4,270	11
Agency commercial MBS	1,960	12	775	5	2,735	17
Foreign covered bonds	1,009	4	690	3	1,699	7
CLOs	1,066	2	1,499	14	2,565	16
Supranational	1,336	6	360	—	1,696	6
Foreign government agencies	1,706	2	47	—	1,753	2
Non-agency commercial MBS	525	2	45	—	570	2
Other ABS	456	3	305	2	761	5
U.S. government agencies	377	2	—	—	377	2
Non-agency RMBS *(a)*	101	—	113	7	214	7
State and political subdivisions	—	—	16	—	16	—
Corporate bonds	82	—	21	—	103	—
Total securities available-for-sale *(b)*	$ 23,012	$ 92	$ 10,774	$ 146	$ 33,786	$ 238

(a) Includes $2 million of securities with an unrealized loss of less than $1 million for less than 12 months and $2 million of securities with an unrealized loss of less than $1 million for 12 months or more that were included in the former Grantor Trust.

(b) Includes gross unrealized losses of $65 million for 12 months or more recorded in accumulated other comprehensive income related to securities that were transferred from available-for-sale to held-to-maturity. The unrealized losses are primarily related to Agency RMBS and will be amortized into net interest revenue over the contractual lives of the securities. There were no gross unrealized losses for less than 12 months.

The following table shows the credit quality of the held-to-maturity securities. We have included certain credit ratings information because the information can indicate the degree of credit risk to which we are exposed. Significant changes in ratings classifications could indicate increased credit risk for us and could be accompanied by a reduction in the fair value of our securities portfolio.

Held-to-maturity securities portfolio at March 31, 2020 *(a)*			Ratings *(b)*					
(dollars in millions)	Amortized cost	Unrealized gain (loss)	AAA/ AA-	A+/ A-	BBB+/ BBB-	BB+ and lower	A1+/A1	Not rated
Agency RMBS	$ 29,518	$ 869	100%	—%	—%	—%	—%	—%
U.S. Treasury	2,937	121	100	—	—	—	—	—
Agency commercial MBS	1,868	84	100	—	—	—	—	—
U.S. government agencies	1,244	4	100	—	—	—	—	—
Sovereign debt/sovereign guaranteed *(c)*	919	37	100	—	—	—	—	—
Commercial paper/CDs	651	—	—	—	—	—	100	—
Foreign covered bonds *(d)*	77	—	100	—	—	—	—	—
Non-agency RMBS	75	(2)	42	43	3	12	—	—
State and political subdivisions	16	—	7	2	6	—	—	85
Total held-to-maturity securities	**$ 37,305**	**$ 1,113**	**98%**	**—%**	**—%**	**—%**	**2%**	**—%**

(a) In the first quarter of 2020, we adopted new accounting guidance included in ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses On Financial Instruments, on a prospective basis. See Note 2 for additional information.

(b) Represents ratings by Standard & Poor's ("S&P") or the equivalent.

(c) Primarily consists of exposure to France, UK and Germany.

(d) Primarily consists of exposure to Canada.

Maturity distribution

The following table shows the maturity distribution by carrying amount and yield (on a tax equivalent basis) of our securities portfolio.

Maturity distribution and yields on securities at March 31, 2020	U.S. Treasury		U.S. government agencies		State and political subdivisions		Other bonds, notes and debentures		Mortgage/ asset-backed		
(dollars in millions)	Amount	Yield *(a)*	Amount	Yield *(a)*	Amount	Yield *(a)*	Amount	Yield *(a)*	Amount	Yield *(a)*	Total
Securities available-for-sale:											
One year or less	$ 1,353	2.58%	$ 26	2.46%	$ 165	2.93%	$ 11,377	1.20%	$ —	—%	**$ 12,921**
Over 1 through 5 years	12,422	1.53	474	1.73	719	3.29	14,763	0.76	—	—	**28,378**
Over 5 through 10 years	6,009	1.69	1,594	2.70	88	2.58	2,601	0.65	—	—	**10,292**
Over 10 years	3,297	3.11	119	2.06	13	2.32	186	1.67	—	—	**3,615**
Mortgage-backed securities	—	—	—	—	—	—	—	—	40,444	2.50	**40,444**
Asset-backed securities	—	—	—	—	—	—	—	—	6,318	2.70	**6,318**
Total	$ 23,081	1.86%	$ 2,213	2.46%	$ 985	3.15%	$ 28,927	0.93%	$ 46,762	2.53%	**$ 101,968**
Securities held-to-maturity:											
One year or less	$ —	—%	$ —	—%	$ —	—%	$ 758	1.53%	$ —	—%	**$ 758**
Over 1 through 5 years	2,937	1.98	603	1.86	3	5.68	703	0.68	—	—	**4,246**
Over 5 through 10 years	—	—	259	2.30	—	—	186	0.69	—	—	**445**
Over 10 years	—	—	382	2.43	13	4.76	—	—	—	—	**395**
Mortgage-backed securities	—	—	—	—	—	—	—	—	31,461	2.88	**31,461**
Total	$ 2,937	1.98%	$ 1,244	2.12%	$ 16	4.92%	$ 1,647	1.06%	$ 31,461	2.88%	**$ 37,305**

(a) Yields are based upon the amortized cost of securities.

Pledged assets

At March 31, 2020, BNY Mellon had pledged assets of $131 billion, including $99 billion pledged as collateral for potential borrowings at the Federal Reserve Discount Window and $6 billion pledged as collateral for borrowing at the Federal Home Loan Bank. The components of the assets pledged at March 31, 2020 included $111 billion of securities, $13 billion of loans, $6 billion of trading assets and $1 billion of interest-bearing deposits with banks.

If there has been no borrowing at the Federal Reserve Discount Window, the Federal Reserve generally allows banks to freely move assets in and out of their pledged assets account to sell or repledge the assets for other purposes. BNY Mellon regularly moves assets in and out of its pledged assets account at the Federal Reserve.

At Dec. 31, 2019, BNY Mellon had pledged assets of $118 billion, including $80 billion pledged as collateral for potential borrowing at the Federal Reserve Discount Window and $6 billion pledged as collateral for borrowing at the Federal Home Loan Bank. The components of the assets pledged at Dec. 31, 2019 included $98 billion of securities, $13 billion of loans, $7 billion of trading assets and less than $1 billion of interest-bearing deposits with banks.

At March 31, 2020 and Dec. 31, 2019, pledged assets included $24 billion and $29 billion, respectively, for which the recipients were permitted to sell or repledge the assets delivered.

At March 31, 2020, we pledged commercial paper and CDs totaling $651 million as collateral to the Federal Reserve Bank of Boston to secure non-recourse borrowings under the Federal Reserve's Money Market Mutual Fund Liquidity Facility ("MMLF") program.

We also obtain securities as collateral, including receipts under resale agreements, securities borrowed, derivative contracts and custody agreements, on terms which permit us to sell or repledge the securities to others. At March 31, 2020 and Dec. 31, 2019, the market value of the securities received that can be sold or repledged was $132 billion and $153 billion, respectively. We routinely sell or repledge these securities through delivery to third parties. As of March 31, 2020 and Dec. 31, 2019, the market value of securities collateral sold or repledged was $101 billion and $107 billion, respectively.

Restricted cash and securities

Cash and securities may be segregated under federal and other regulations or requirements. At March 31, 2020 and Dec. 31, 2019, cash segregated under

federal and other regulations or requirements was $5 billion and $2 billion, respectively. Restricted cash is included in interest-bearing deposits with banks on the consolidated balance sheet. Securities segregated under federal and other regulations or requirements were $5 billion at March 31, 2020 and $1 billion at Dec. 31, 2019. Restricted securities were sourced from securities purchased under resale agreements and are included in federal funds sold and securities purchased under resale agreements on the consolidated balance sheet.

Note 5–Loans and asset quality

Loans

The table below provides the details of our loan portfolio and industry concentrations of credit risk at March 31, 2020 and Dec. 31, 2019.

Loans *(in millions)*	**March 31, 2020**	Dec. 31, 2019
Domestic:		
Commercial	**$ 3,010**	$ 1,442
Commercial real estate	**6,429**	5,575
Financial institutions	**6,231**	4,852
Lease financings	**472**	537
Wealth management loans and mortgages	**16,128**	16,050
Other residential mortgages	**472**	494
Overdrafts	**1,851**	524
Other	**1,168**	1,167
Margin loans	**11,733**	11,907
Total domestic	**47,494**	42,548
Foreign:		
Commercial	**425**	347
Commercial real estate	**22**	7
Financial institutions	**7,985**	7,626
Lease financings	**582**	576
Wealth management loans and mortgages	**131**	140
Other (primarily overdrafts)	**4,347**	2,230
Margin loans	**1,382**	1,479
Total foreign	**14,874**	12,405
Total loans *(a)*	**$ 62,368**	$ 54,953

(a) Net of unearned income of $301 million at March 31, 2020 and $313 million at Dec. 31, 2019 primarily related to domestic and foreign lease financings.

Our loan portfolio consists of three portfolio segments: commercial, lease financings and mortgages. We manage our portfolio at the class level, which consists of six classes of financing receivables: commercial, commercial real estate, financial institutions, lease financings, wealth management loans and mortgages, and other residential mortgages.

The following tables are presented for each class of financing receivables and provide additional information about our credit risks.

Allowance for credit losses

On Jan. 1, 2020, we adopted *ASU 2016-13, Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments,* on a prospective basis. See Note 2 for the significant accounting policy related to allowance for credit losses on loans and lending-related commitments.

Activity in the allowance for credit losses on loans and lending-related commitments is presented below.

Allowance for credit losses activity for the quarter ended March 31, 2020 *(in millions)*	Commercial	Commercial real estate	Financial institutions	Lease financings	Wealth management loans and mortgages	Other residential mortgages	Foreign	*(a)*	Total
Balance at Dec. 31, 2019	$ 60	$ 76	$ 20	$ 3	$ 20	$ 13	$ 24		$ 216
Impact of adopting ASU 2016-13	(43)	14	(6)	—	(12)	2	(24)		(69)
Balance at Jan. 1, 2020	17	90	14	3	8	15	—		147
Charge-offs	—	—	—	—	—	—	—		—
Recoveries	—	—	—	—	—	—	—		—
Net (charge-offs) recoveries	—	—	—	—	—	—	—		—
Provision	9	118	4	10	1	(1)	—		141
Ending balance *(b)*	**$ 26**	**$ 208**	**$ 18**	**$ 13**	**$ 9**	**$ 14**	**$ —**		**$ 288**
Allowance for:									
Loan losses	$ 13	$ 83	$ 10	$ 13	$ 7	$ 14	$ —		$ 140
Lending-related commitments	13	125	8	—	2	—	—		148
Individually evaluated for impairment:									
Loan balance	$ —	$ —	$ —	$ —	$ 18	*(c)* $ —	$ —		$ 18
Allowance for loan losses	—	—	—	—	—	—	—		—

(a) The allowance related to the foreign exposure has been reclassified to financial institutions ($10 million), commercial ($10 million) and lease financings ($4 million).
(b) Includes $12 million of allowance for credit losses related to foreign loans, primarily financial institutions.
(c) Includes collateral dependent loans of $18 million with $26 million of collateral at fair value.

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
Charge-offs	—	—	—	—	—	(1)	—	—	(1)
Recoveries	—	—	—	—	—	1	—	—	1
Net (charge-offs) recoveries	—	—	—	—	—	—	—	—	—
Provision	(1)	(1)	(1)	—	—	(1)	—	(4)	(8)
Ending balance	$ 60	$ 76	$ 20	$ 3	$ 20	$ 13	$ —	$ 24	$ 216
Allowance for:									
Loan 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.

Allowance for credit losses activity for the quarter ended March 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	$ 81	$ 75	$ 22	$ 5	$ 21	$ 16	$ —	$ 32	$ 252
Charge-offs	(11)	—	—	—	—	—	—	—	(11)
Recoveries	—	—	—	—	—	—	—	—	—
Net recoveries	(11)	—	—	—	—	—	—	—	(11)
Provision	12	(1)	1	(1)	—	(1)	—	(3)	7
Ending balance	$ 82	$ 74	$ 23	$ 4	$ 21	$ 15	$ —	$ 29	$ 248
Allowance for:									
Loan losses	$ 24	$ 56	$ 10	$ 4	$ 18	$ 15	$ —	$ 19	$ 146
Lending-related commitments	58	18	13	—	3	—	—	10	102
Individually evaluated for impairment:									
Loan balance	$ 96	$ —	$ —	$ —	$ 4	$ —	$ —	$ —	$ 100
Allowance for loan losses	10	—	—	—	—	—	—	—	10
Collectively evaluated for impairment:									
Loan balance	$ 1,626	$ 4,921	$ 4,652	$ 653	$ 15,724	$ 574	$ 13,913 *(a)*	$ 11,324	$ 53,387
Allowance for loan losses	14	56	10	4	18	15	—	19	136

(a) Includes $654 million of domestic overdrafts, $12,107 million of margin loans and $1,152 million of other loans at March 31, 2019.

Nonperforming assets

The table below presents our nonperforming assets.

Nonperforming assets *(in millions)*	**March 31, 2020** Recorded investment: With an allowance	Without an allowance	Total	Dec. 31, 2019
Nonperforming loans:				
Other residential mortgages	**$ 60**	**$ —**	**$ 60**	$ 62
Wealth management loans and mortgages	**9**	**18**	**27**	24
Total nonperforming loans	**69**	**18**	**87**	86
Other assets owned	**1**	**—**	**1**	3
Total nonperforming assets	**$ 70**	**$ 18**	**$ 88**	$ 89

At March 31, 2020, undrawn commitments to borrowers whose loans were classified as nonaccrual or reduced rate were not material.

Past due loans

The table below presents our past due loans.

Past due loans and still accruing interest	**March 31, 2020** Days past due				Dec. 31, 2019 Days past due			
(in millions)	30-59	60-89	≥90	Total past due	30-59	60-89	≥90	Total past due
Financial institutions	**$ —**	**$ —**	**$ —**	**$ —**	$ 1	$ 30	$ —	$ 31
Wealth management loans and mortgages	**77**	**1**	**—**	**78**	22	5	—	27
Commercial real estate	**—**	**—**	**—**	**—**	6	12	—	18
Other residential mortgages	**9**	**1**	**—**	**10**	8	3	—	11
Total past due loans	**$ 86**	**$ 2**	**$ —**	**$ 88**	$ 37	$ 50	$ —	$ 87

Loan modifications

The CARES Act, which became law on March 27, 2020, provides that financial institutions may, subject to certain conditions, elect to temporarily suspend the U.S. GAAP requirements with respect to loan modifications related to the coronavirus pandemic that would otherwise be treated as troubled debt restructurings ("TDRs") and the determination that such a loan modification is a TDR. We modified loans of less than $1 million in the first quarter of 2020, first quarter of 2019 and fourth quarter of 2019. The loans were primarily other residential loans.

Credit quality indicators

Our credit strategy is to focus on investment-grade clients that are active users of our non-credit services. Each customer is assigned an internal credit rating, which is mapped to an external rating agency grade equivalent, if possible, based upon a number of dimensions, which are continually evaluated and may change over time.

The table below provides information about the credit profile of the loan portfolio by the period of origination.

Credit profile of the loan portfolio							March 31, 2020			
							Revolving loans			
	Originated, at amortized cost									
(in millions)	**1Q20**	2019	2018	2017	2016	Prior to 2016	Amortized cost	Converted to term loans - Amortized cost	Total *(a)*	Accrued interest receivable
Commercial:										
Investment grade	**$ 20**	$ 286	$ 107	$ 600	$ 57	$ —	**$ 1,994**	**$ —**	**$ 3,064**	
Non-investment grade	**41**	72	12	—	6	—	**240**	**—**	**371**	
Total commercial	**61**	358	119	600	63	—	**2,234**	**—**	**3,435**	**$ 4**
Commercial real estate:										
Investment grade	**414**	1,412	1,047	624	636	640	**586**	**—**	**$ 5,359**	
Non-investment grade	**15**	136	213	106	313	48	**232**	**29**	**1,092**	
Total commercial real estate	**429**	1,548	1,260	730	949	688	**818**	**29**	**6,451**	**11**
Financial institutions:										
Investment grade	**49**	270	133	125	14	189	**11,429**	**—**	**$ 12,209**	
Non-investment grade	**15**	8	—	—	—	—	**1,984**	**—**	**2,007**	
Total financial institutions	**64**	278	133	125	14	189	**13,413**	**—**	**14,216**	**26**
Wealth management loans and mortgages:										
Investment grade	**3**	83	12	178	58	94	**7,049**	**—**	**$ 7,477**	
Non-investment grade	**—**	—	—	—	—	—	**132**	**—**	**132**	
Wealth management mortgages	**208**	1,139	752	1,438	1,833	3,239	**41**	**—**	**8,650**	
Total wealth management loans and mortgages	**211**	1,222	764	1,616	1,891	3,333	**7,222**	**—**	**16,259**	**38**
Lease financings	**—**	21	23	72	34	904	**—**	**—**	**1,054**	**—**
Other residential mortgages	**—**	—	—	—	—	472	**—**	**—**	**472**	**2**
Other loans	**5**	—	—	—	—	—	**1,214**	**—**	**1,219**	**1**
Margin loans	**2,260**	1,300	—	—	—	—	**9,555**	**—**	**13,115**	**12**
Total loans	**$ 3,030**	$ 4,727	$ 2,299	$ 3,143	$ 2,951	$ 5,586	**$ 34,456**	**$ 29**	**$ 56,221**	**$ 94**

(a) Excludes overdrafts of $6,147 million. Overdrafts occur on a daily basis primarily in the custody and securities clearance business and are generally repaid within two business days.

Commercial loans

The commercial loan portfolio is divided into investment grade and non-investment grade categories based on the assigned internal credit ratings, which are generally consistent with those of the public rating agencies. Customers with ratings consistent with BBB- (S&P)/Baa3 (Moody's) or better are considered to be investment grade. Those clients with ratings lower than this threshold are considered to be non-investment grade.

Commercial real estate

Our income-producing commercial real estate facilities are focused on experienced owners and are structured with moderate leverage based on existing cash flows. Our commercial real estate lending

activities also include construction and renovation facilities.

Financial institutions

Financial institution exposures are high quality, with 96% of the exposures meeting the investment grade equivalent criteria of our internal credit rating classification at March 31, 2020. In addition, 79% of the financial institutions exposure is secured. For example, securities industry clients and asset managers often borrow against marketable securities held in custody. The exposure to financial institutions is generally short-term with 90% expiring within one year.

Wealth management loans and mortgages

Wealth management non-mortgage loans are not typically rated by external rating agencies. A majority of the wealth management loans are secured by the customers' investment management accounts or custody accounts. Eligible assets pledged for these loans are typically investment grade fixed-income securities, equities and/or mutual funds. Internal ratings for this portion of the wealth management portfolio, therefore, would equate to investment grade external ratings. Wealth management loans are provided to select customers based on the pledge of other types of assets, including business assets, fixed assets or a modest amount of commercial real estate. For the loans collateralized by other assets, the credit quality of the obligor is carefully analyzed, but we do not consider this portfolio of loans to be investment grade.

Credit quality indicators for wealth management mortgages are not correlated to external ratings. Wealth management mortgages are typically loans to high-net-worth individuals, which are secured primarily by residential property. These loans are primarily interest-only, adjustable rate mortgages with a weighted-average loan-to-value ratio of 62% at origination. Delinquency rate is a key indicator of credit quality in the wealth management portfolio. At March 31, 2020, less than 1% of the mortgages were past due.

At March 31, 2020, the wealth management mortgage portfolio consisted of the following geographic concentrations: California - 23%; New York - 17%; Massachusetts - 10%; Florida - 8%; and other - 42%.

Lease financing

At March 31, 2020, the lease financings portfolio consisted of exposures backed by well-diversified assets, primarily large-ticket transportation equipment and real estate. The largest component of our lease residual value exposure is freight-related rail. Assets are both domestic and foreign-based, with primary concentrations in the U.S. and Germany.

Other residential mortgages

The other residential mortgage portfolio primarily consists of 1-4 family residential mortgage loans and totaled $472 million at March 31, 2020 and $494 million at Dec. 31, 2019. These loans are not typically correlated to external ratings. Included in this portfolio at March 31, 2020 were $87 million of mortgage loans purchased in 2005, 2006 and the first quarter of 2007, of which 9% of the serviced loan balance was at least 60 days delinquent.

Overdrafts

Overdrafts primarily relate to custody and securities clearance clients and totaled $6.1 billion at March 31, 2020 and $2.7 billion at Dec. 31, 2019. Overdrafts occur on a daily basis primarily in the custody and securities clearance business and are generally repaid within two business days.

Other loans

Other loans primarily include loans to consumers that are fully collateralized with equities, mutual funds and fixed-income securities.

Margin loans

We had $13.1 billion of secured margin loans at March 31, 2020, compared with $13.4 billion at Dec. 31, 2019. Margin loans are collateralized with marketable securities, and borrowers are required to maintain a daily collateral margin in excess of 100% of the value of the loan. We have rarely suffered a loss on these types of loans.

Reverse repurchase agreements

Reverse repurchase agreements are fully collateralized transactions. Substantially all of the collateral was high quality. At March 31, 2020, we had $1.2 billion of reverse repos fully secured by

non-agency debt securities that have experienced decreased liquidity during March 2020. The allowance for credit losses related to these assets at March 31, 2020 is $18 million.

Note 6–Goodwill and intangible assets

Goodwill

The tables below provide a breakdown of goodwill by business.

Goodwill by business *(in millions)*	Investment Services	Investment Management	Other	Consolidated
Balance at Dec. 31, 2019	$ 8,332	$ 9,007	$ 47	$ 17,386
Foreign currency translation	(43)	(103)	—	(146)
Other *(a)*	47	—	(47)	—
Balance at March 31, 2020	**$ 8,336**	**$ 8,904**	**$ —**	**$ 17,240**

(a) Reflects the transfer of goodwill associated with the Capital Markets business.

Goodwill by business *(in millions)*	Investment Services	Investment Management	Other	Consolidated
Balance at Dec. 31, 2018	$ 8,333	$ 8,970	$ 47	$ 17,350
Foreign currency translation	(5)	22	—	17
Balance at March 31, 2019	$ 8,328	$ 8,992	$ 47	$ 17,367

Intangible assets

The tables below provide a breakdown of intangible assets by business.

Intangible assets – net carrying amount by business *(in millions)*	Investment Services	Investment Management	Other	Consolidated
Balance at Dec. 31, 2019	$ 678	$ 1,580	$ 849	$ 3,107
Amortization	(18)	(8)	—	(26)
Foreign currency translation	(1)	(10)	—	(11)
Balance at March 31, 2020	**$ 659**	**$ 1,562**	**$ 849**	**$ 3,070**

Intangible assets – net carrying amount by business *(in millions)*	Investment Services	Investment Management	Other	Consolidated
Balance at Dec. 31, 2018	$ 758	$ 1,613	$ 849	$ 3,220
Amortization	(20)	(9)	—	(29)
Foreign currency translation	(1)	3	—	2
Balance at March 31, 2019	$ 737	$ 1,607	$ 849	$ 3,193

The table below provides a breakdown of intangible assets by type.

Intangible assets	**March 31, 2020**				Dec. 31, 2019		
(in millions)	Gross carrying amount	Accumulated amortization	Net carrying amount	Remaining weighted-average amortization period	Gross carrying amount	Accumulated amortization	Net carrying amount
Subject to amortization: *(a)*							
Customer contracts—Investment Services	**$ 1,515**	**$ (1,227)**	**$ 288**	**10 years**	$ 1,520	$ (1,214)	$ 306
Customer relationships—Investment Management	**709**	**(548)**	**161**	**11 years**	712	(544)	168
Other	**64**	**(18)**	**46**	**14 years**	64	(16)	48
Total subject to amortization	**2,288**	**(1,793)**	**495**	**10 years**	2,296	(1,774)	522
Not subject to amortization: *(b)*							
Tradenames	**1,291**	**N/A**	**1,291**	**N/A**	1,293	N/A	1,293
Customer relationships	**1,284**	**N/A**	**1,284**	**N/A**	1,292	N/A	1,292
Total not subject to amortization	**2,575**	**N/A**	**2,575**	**N/A**	2,585	N/A	2,585
Total intangible assets	**$ 4,863**	**$ (1,793)**	**$ 3,070**	**N/A**	$ 4,881	$ (1,774)	$ 3,107

(a) Excludes fully amortized intangible assets.
(b) Intangible assets not subject to amortization have an indefinite life.

Estimated annual amortization expense for current intangibles for the next five years is as follows:

For the year ended Dec. 31,	Estimated amortization expense *(in millions)*
2020	**$ 104**
2021	**81**
2022	**63**
2023	**52**
2024	**45**

Impairment testing

BNY Mellon's business segments include six reporting units for which goodwill impairment testing is performed on an annual basis, in the second quarter. In the first quarter of 2020, we performed an interim goodwill impairment test of the Asset Management reporting unit, which resulted in no goodwill impairment.

Intangible assets not subject to amortization are tested for impairment annually or more often if events or circumstances indicate they may be impaired.

Note 7–Other assets

The following table provides the components of other assets presented on the consolidated balance sheet.

Other assets *(in millions)*	**March 31, 2020**	Dec. 31, 2019
Fails to deliver	**$ 8,200**	*(a)* $ 1,671
Corporate/bank-owned life insurance	**5,240**	5,219
Accounts receivable	**4,649**	3,802
Software	**1,678**	1,590
Prepaid pension assets	**1,502**	1,464
Renewable energy investments	**1,119**	1,144
Equity in a joint venture and other investments	**1,091**	1,102
Qualified affordable housing project investments	**993**	1,024
Prepaid expense	**515**	491
Federal Reserve Bank stock	**466**	466
Fair value of hedging derivatives	**187**	21
Seed capital	**141**	184
Income taxes receivable	**47**	388
Other *(b)*	**1,618**	1,655
Total other assets	**$ 27,446**	$ 20,221

(a) The increase at March 31, 2020 primarily reflects higher trade volumes in the current macroeconomic environment.
(b) At March 31, 2020 and Dec. 31, 2019, other assets include $20 million and $22 million, respectively, of Federal Home Loan Bank stock, at cost.

Non-readily marketable equity securities

Non-readily marketable equity securities do not have readily determinable fair values. These investments are valued using a measurement alternative where the investments are carried at cost, less any impairment, and plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment of the same issuer. The observable price changes are recorded in investment and other income on the consolidated income statement. Our non-readily marketable equity securities totaled $101 million at March 31, 2020 and $61 million at Dec. 31, 2019 and are included in equity in a joint venture and other investments in the table above.

The following table presents the adjustments on the non-readily marketable equity securities.

Non-readily marketable equity securities *(in millions)*	**1Q20**	4Q19	1Q19	Life-to-date
Upward adjustments	**$ 4**	$ 1	$ —	$ 36
Downward adjustments	**—**	(2)	—	(4)
Net adjustments	**$ 4**	$ (1)	$ —	$ 32

Qualified affordable housing project investments

We invest in affordable housing projects primarily to satisfy the Company's requirements under the Community Reinvestment Act. Our total investment in qualified affordable housing projects totaled $1.0 billion at both March 31, 2020 and Dec. 31, 2019.

Commitments to fund future investments in qualified affordable housing projects totaled $390 million at March 31, 2020 and $422 million at Dec. 31, 2019 and are recorded in other liabilities. A summary of the commitments to fund future investments is as follows: 2020 – $114 million; 2021 – $181 million; 2022 – $83 million; 2023 – $6 million; 2024 – $2 million; and 2025 and thereafter – $4 million.

Tax credits and other tax benefits recognized were $38 million in the first quarter of 2020, $31 million in the fourth quarter of 2019 and $39 million in the first quarter of 2019.

Amortization expense included in the provision for income taxes was $31 million in the first quarter of 2020, $24 million in the fourth quarter of 2019 and $32 million in the first quarter of 2019.

Investments valued using net asset value ("NAV") per share

In our Investment Management business, we make seed capital investments in certain funds we manage. We also hold private equity investments, specifically small business investment companies ("SBICs"), which are compliant with the Volcker Rule, and certain other corporate investments. Seed capital, private equity and other corporate investments are included in other assets on the consolidated balance sheet. The fair value of certain of these investments was estimated using the NAV per share for our ownership interest in the funds.

The table below presents information on our investments valued using NAV.

Investments valued using NAV	**March 31, 2020**		Dec. 31, 2019	
(in millions)	Fair value	Unfunded commitments	Fair value	Unfunded commitments
Seed capital *(a)*	**$ 51**	**$ —**	$ 59	$ —
Private equity investments (SBICs) *(b)*	**80**	**52**	89	55
Other *(c)*	**27**	**—**	33	—
Total	**$ 158**	**$ 52**	$ 181	$ 55

(a) Primarily includes leveraged loans and structured credit funds, which are generally not redeemable. Distributions from such investments will be received as the underlying investments in the funds, which have a life of six years, are liquidated.

(b) Private equity investments include Volcker Rule-compliant investments in SBICs that invest in various sectors of the economy. Private equity investments do not have redemption rights. Distributions from such investments will be received as the underlying investments in the private equity investments, which have a life of 10 years, are liquidated.

(c) Primarily includes investments in funds that relate to deferred compensation arrangements with employees. Investments in funds can be redeemed on a quarterly basis with redemption notice periods of up to 95 days.

Note 8–Contract revenue

Fee revenue in Investment Services and Investment Management is primarily variable, based on levels of assets under custody and/or administration, assets under management and the level of client-driven transactions, as specified in fee schedules. See Note 10 of the Notes to Consolidated Financial Statements in our 2019 Annual Report for information on the nature of our services and revenue recognition. See Note 24 of the Notes to Consolidated Financial Statements in our 2019 Annual Report for additional information on our principal businesses, Investment Services and Investment Management, and the primary services provided.

Disaggregation of contract revenue

Contract revenue is included in fee revenue on the consolidated income statement. The following table presents fee revenue related to contracts with customers, disaggregated by type of fee revenue, for each business segment.

Disaggregation of contract revenue by business segment *(a)*

	Quarter ended											
	March 31, 2020				Dec. 31, 2019				March 31, 2019			
(in millions)	IS	IM	Other	Total	IS *(b)*	IM *(b)*	Other *(b)*	Total	IS *(b)*	IM *(b)*	Other *(b)*	Total
Fee revenue - contract revenue:												
Investment services fees:												
Asset servicing fees	**$ 1,127**	**$ 23**	**$ (11)**	**$ 1,139**	$ 1,117	$ 25	$ (14)	$ 1,128	$ 1,081	$ 20	$ (8)	$ 1,093
Clearing services fees	**470**	**—**	**—**	**470**	421	—	—	421	398	—	—	398
Issuer services fees	**263**	**—**	**—**	**263**	264	—	—	264	251	—	—	251
Treasury services fees	**149**	**—**	**—**	**149**	148	—	—	148	132	—	—	132
Total investment services fees	**2,009**	**23**	**(11)**	**2,021**	1,950	25	(14)	1,961	1,862	20	(8)	1,874
Investment management and performance fees	**5**	**862**	**(4)**	**863**	5	886	(4)	887	4	841	(4)	841
Financing-related fees	**28**	**—**	**—**	**28**	12	—	—	12	17	—	—	17
Distribution and servicing	**(12)**	**43**	**—**	**31**	(10)	44	—	34	(14)	45	—	31
Investment and other income	**72**	**(50)**	**—**	**22**	72	(50)	—	22	69	(49)	—	20
Total fee revenue - contract revenue	**2,102**	**878**	**(15)**	**2,965**	2,029	905	(18)	2,916	1,938	857	(12)	2,783
Fee and other revenue - not in scope of Accounting Standards Codification ("ASC") 606 *(c)(d)*	**334**	**(32)**	**45**	**347**	207	19	812	1,038	223	12	30	265
Total fee and other revenue	**$ 2,436**	**$ 846**	**$ 30**	**$ 3,312**	$ 2,236	$ 924	$ 794	$ 3,954	$ 2,161	$ 869	$ 18	$ 3,048

(a) Business segment data has been determined on an internal management basis of accounting, rather than the generally accepted accounting principles used for consolidated financial reporting.

(b) Prior periods have been restated to reflect the reclassifications. See Note 19 for additional information.

(c) Primarily includes foreign exchange and other trading revenue, financing-related fees, asset servicing fees, net securities gains (losses) and investment and other income (loss), all of which are accounted for using other accounting guidance.

(d) The Investment Management business includes (loss) income from consolidated investment management funds, net of noncontrolling interests, of $(20) million in the first quarter of 2020, $8 million in the fourth quarter of 2019 and $16 million in the first quarter of 2019.

IS - Investment Services segment.

IM - Investment Management segment.

Contract balances

Our clients are billed based on fee schedules that are agreed upon in each customer contract. Receivables from customers were $2.6 billion at March 31, 2020 and $2.4 billion at Dec. 31, 2019.

Contract assets represent accrued revenues that have not yet been billed to the customers due to certain contractual terms other than the passage of time and were $48 million at March 31, 2020 and $32 million at Dec. 31, 2019. Accrued revenues recorded as contract assets are usually billed on an annual basis.

Both receivables from customers and contract assets are included in other assets on the consolidated balance sheet.

Contract liabilities represent payments received in advance of providing services under certain contracts and were $194 million at March 31, 2020 and $168 million at Dec. 31, 2019. Contract liabilities are included in other liabilities on the consolidated balance sheet. Revenue recognized in the first quarter of 2020 relating to contract liabilities as of Dec. 31, 2019 was $50 million.

Changes in contract assets and liabilities primarily relate to either party's performance under the contracts.

Contract costs

Incremental costs for obtaining contracts that are deemed recoverable are capitalized as contract costs. Such costs result from the payment of sales incentives, primarily in the Wealth Management business, and totaled $89 million at March 31, 2020 and $86 million at Dec. 31, 2019. Capitalized sales incentives are amortized based on the transfer of goods or services to which the assets relate and typically average nine years. The amortization of capitalized sales incentives, which is primarily included in staff expense on the consolidated income statement, totaled $5 million in the first quarter of 2020, first quarter of 2019 and fourth quarter of 2019.

Costs to fulfill a contract are capitalized when they relate directly to an existing contract or a specific anticipated contract, generate or enhance resources that will be used to fulfill performance obligations, and are recoverable. Such costs generally represent set-up costs, which include any direct cost incurred at the inception of a contract which enables the fulfillment of the performance obligation, and totaled $14 million at March 31, 2020 and $16 million at Dec. 31, 2019. These capitalized costs are amortized on a straight-line basis over the expected contract period, which generally ranges from seven to nine years. The amortization is included in other expense on the consolidated income statement and totaled $1 million in the first quarter of 2020, first quarter of 2019 and fourth quarter of 2019. There were no impairments recorded on capitalized contract costs in the first quarter of 2020.

Unsatisfied performance obligations

We do not have any unsatisfied performance obligations other than those that are subject to a practical expedient election under ASC 606, *Revenue From Contracts With Customers*. The practical expedient election applies to (i) contracts with an original expected length of one year or less, and (ii) contracts for which we recognize revenue at the amount to which we have the right to invoice for services performed.

Note 9–Net interest revenue

The following table provides the components of net interest revenue presented on the consolidated income statement.

Net interest revenue	Quarter ended		
(in millions)	**March 31, 2020**	Dec. 31, 2019	March 31, 2019
Interest revenue			
Deposits with the Federal Reserve and other central banks	**$ 80**	$ 94	$ 139
Deposits with banks	**58**	65	63
Federal funds sold and securities purchased under resale agreements	**396**	452	474
Margin loans	**87**	96	135
Non-margin loans	**309**	328	355
Securities:			
Taxable	**594**	639	706
Exempt from federal income taxes	**6**	7	12
Total securities	**600**	646	718
Trading securities	**40**	40	36
Total interest revenue	**1,570**	1,721	1,920
Interest expense			
Deposits	**240**	334	391
Federal funds purchased and securities sold under repurchase agreements	**275**	291	331
Trading liabilities	**7**	9	7
Other borrowed funds	**4**	5	24
Commercial paper	**6**	7	8
Customer payables	**30**	40	70
Long-term debt	**194**	220	248
Total interest expense	**756**	906	1,079
Net interest revenue	**814**	815	841
Provision for credit losses	**169**	(8)	7
Net interest revenue after provision for credit losses	**$ 645**	$ 823	$ 834

Note 10–Employee benefit plans

The components of net periodic benefit (credit) cost are presented below. The service cost component is reflected in staff expense, whereas the remaining components are reflected in other expense.

Net periodic benefit (credit) cost	Quarter ended					
	March 31, 2020			March 31, 2019		
(in millions)	Domestic pension benefits	Foreign pension benefits	Health care benefits	Domestic pension benefits	Foreign pension benefits	Health care benefits
Service cost	**$ —**	**$ 3**	**$ —**	$ —	$ 3	$ —
Interest cost	**39**	**7**	**1**	44	8	2
Expected return on assets	**(80)**	**(10)**	**(1)**	(84)	(11)	(2)
Other	**22**	**3**	**(1)**	13	—	(1)
Net periodic benefit (credit) cost	**$ (19)**	**$ 3**	**$ (1)**	$ (27)	$ —	$ (1)

Note 11–Income taxes

BNY Mellon recorded an income tax provision of $265 million (21.6% effective tax rate) in the first quarter of 2020, $237 million (19.9% effective tax rate) in the first quarter of 2019 and $373 million (20.5% effective tax rate) in the fourth quarter of 2019.

Our total tax reserves as of March 31, 2020 were $176 million compared with $173 million at Dec. 31, 2019. If these tax reserves were unnecessary, $176 million would affect the effective tax rate in future periods. We recognize accrued interest and penalties, if applicable, related to income taxes in income tax expense. Included in the balance sheet at March 31, 2020 is accrued interest, where applicable, of $35 million. The additional tax expense related to interest for the first quarter of 2020 was $4 million, compared with $2 million for the first quarter of 2019.

It is reasonably possible the total reserve for uncertain tax positions could decrease within the next 12 months by approximately $100 million as a result of adjustments related to tax years that are still subject to examination.

Our federal income tax returns are closed to examination through 2013. Our New York State, New York City and UK income tax returns are closed to examination through 2012.

Note 12–Variable interest entities and securitization

We have variable interests in variable interest entities ("VIEs"), which include investments in retail, institutional and alternative investment funds, including CLO structures in which we provide asset management services, some of which are consolidated.

We earn management fees from these funds as well as performance fees in certain funds and may also provide start-up capital for new funds. The funds are primarily financed by our customers' investments in the funds' equity or debt.

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.

The following table presents the incremental assets and liabilities included in the consolidated balance sheet as of March 31, 2020 and Dec. 31, 2019. The net assets of any consolidated VIE are solely available to settle the liabilities of the VIE and to settle any investors' ownership liquidation requests, including any seed capital we invested in the VIE.

Consolidated investments	**March 31, 2020**			Dec. 31, 2019		
(in millions)	Investment Management funds	Securitization	Total consolidated investments	Investment Management funds	Securitization	Total consolidated investments
Trading assets	**$ 215**	**$ 400**	**$ 615**	$ 229	$ 400	$ 629
Other assets	**14**	**—**	**14**	16	—	16
Total assets	**$ 229** *(a)*	**$ 400**	**$ 629**	$ 245 *(b)*	$ 400	$ 645
Other liabilities	**$ 1**	**$ 397**	**$ 398**	$ 1	$ 387	$ 388
Total liabilities	**$ 1** *(a)*	**$ 397**	**$ 398**	$ 1 *(b)*	$ 387	$ 388
Nonredeemable noncontrolling interests	**$ 94** *(a)*	**$ —**	**$ 94**	$ 102 *(b)*	$ —	$ 102

(a) Includes voting model entities ("VMEs") with assets of $44 million, liabilities of $1 million and nonredeemable noncontrolling interests of less than $1 million.
(b) Includes VMEs with assets of $50 million, liabilities of $1 million and nonredeemable noncontrolling interests of $1 million.

We have not provided financial or other support that was not otherwise contractually required to be provided to our VIEs. Additionally, creditors of any consolidated VIEs do not have any recourse to the general credit of BNY Mellon.

Non-consolidated VIEs

As of March 31, 2020 and Dec. 31, 2019, the following assets and liabilities related to the VIEs where we are not the primary beneficiary were included in our consolidated balance sheets and primarily related to accounting for our investments in qualified affordable housing and renewable energy projects.

The maximum loss exposure indicated in the table below relates solely to our investments in, and unfunded commitments to, the VIEs.

Non-consolidated VIEs	**March 31, 2020**			Dec. 31, 2019		
(in millions)	Assets	Liabilities	Maximum loss exposure	Assets	Liabilities	Maximum loss exposure
Securities - Available-for-sale *(a)*	**$ 180**	**$ —**	**$ 180**	$ 208	$ —	$ 208
Other	**2,287**	**390**	**2,677**	2,400	422	2,822

(a) Includes investments in the Company's sponsored CLOs.

Note 13–Preferred stock

BNY Mellon has 100 million authorized shares of preferred stock with a par value of $0.01 per share. The following table summarizes BNY Mellon's preferred stock issued and outstanding at March 31, 2020 and Dec. 31, 2019.

Preferred stock summary *(a)*		**Total shares issued and outstanding**		**Carrying value** *(b)* *(in millions)*	
	Per annum dividend rate	**March 31, 2020**	Dec. 31, 2019	**March 31, 2020**	Dec. 31, 2019
Series A	Greater of (i) three-month LIBOR plus 0.565% for the related distribution period; or (ii) 4.000%	**5,001**	5,001	**$ 500**	$ 500
Series C	5.2%	**5,825**	5,825	**568**	568
Series D	4.50% to but excluding June 20, 2023, then a floating rate equal to the three-month LIBOR plus 2.46%	**5,000**	5,000	**494**	494
Series E	4.95% to and including June 20, 2020, then a floating rate equal to the three-month LIBOR plus 3.42%	**10,000**	10,000	**990**	990
Series F	4.625% to and including Sept. 20, 2026, then a floating rate equal to the three-month LIBOR plus 3.131%	**10,000**	10,000	**990**	990
Total		**35,826**	35,826	**$ 3,542**	$ 3,542

(a) All outstanding preferred stock is noncumulative perpetual preferred stock with a liquidation preference of $100,000 per share.
(b) The carrying value of the Series C, Series D, Series E and Series F preferred stock is recorded net of issuance costs.

The table below presents the dividends paid on our preferred stock.

Preferred dividends paid

(dollars in millions, except per share amounts)	Depositary shares per share		1Q20 Per share	1Q20 Total dividend	4Q19 Per share	4Q19 Total dividend	1Q19 Per share	1Q19 Total dividend
Series A	100	*(a)*	**$ 1,011.11**	**$ 5**	$ 1,011.11	$ 5	$ 1,000.00	$ 5
Series C	4,000		**1,300.00**	**8**	1,300.00	8	1,300.00	8
Series D	100		**N/A**	**—**	2,250.00	11	N/A	—
Series E	100		**N/A**	**—**	2,475.00	25	N/A	—
Series F	100		**2,312.50**	**23**	N/A	—	2,312.50	23
Total				**$ 36**		$ 49		$ 36

(a) Represents Normal Preferred Capital Securities.
N/A - Not applicable.

For additional information on the preferred stock, see Note 15 of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

Note 14–Other comprehensive income (loss)

Components of other comprehensive income (loss)	Quarter ended								
	March 31, 2020			Dec. 31, 2019			March 31, 2019		
(in millions)	Pre-tax amount	Tax (expense) benefit	After-tax amount	Pre-tax amount	Tax (expense) benefit	After-tax amount	Pre-tax amount	Tax (expense) benefit	After-tax amount
Foreign currency translation:									
Foreign currency translation adjustments arising during the period *(a)*	**$ (265)**	**$ (104)**	**$ (369)**	$ 292	$ 96	$ 388	$ 27	$ 2	$ 29
Total foreign currency translation	**(265)**	**(104)**	**(369)**	292	96	388	27	2	29
Unrealized gain (loss) on assets available-for-sale:									
Unrealized gain (loss) arising during period	**243**	**(60)**	**183**	(114)	37	(77)	322	(83)	239
Reclassification adjustment *(b)*	**(9)**	**2**	**(7)**	25	(6)	19	(1)	—	(1)
Net unrealized gain (loss) on assets available-for-sale	**234**	**(58)**	**176**	(89)	31	(58)	321	(83)	238
Defined benefit plans:									
Prior service cost arising during the period	**—**	**—**	**—**	(1)	—	(1)	—	—	—
Net (loss) gain arising during the period	**—**	**—**	**—**	(110)	32	(78)	(11)	2	(9)
Amortization of prior service credit, net loss and initial obligation included in net periodic benefit cost *(b)*	**24**	**(6)**	**18**	14	(10)	4	13	(3)	10
Total defined benefit plans	**24**	**(6)**	**18**	(97)	22	(75)	2	(1)	1
Unrealized gain (loss) on cash flow hedges:									
Unrealized hedge (loss) gain arising during period	**(13)**	**3**	**(10)**	17	(5)	12	6	(4)	2
Reclassification of net loss (gain) to net income:									
Interest rate contracts - interest expense	**—**	**—**	**—**	(8)	2	(6)	—	—	—
Foreign exchange (“FX”) contracts - staff expense	**(1)**	**—**	**(1)**	(2)	—	(2)	1	2	3
Total reclassifications to net income	**(1)**	**—**	**(1)**	(10)	2	(8)	1	2	3
Net unrealized (loss) gain on cash flow hedges	**(14)**	**3**	**(11)**	7	(3)	4	7	(2)	5
Total other comprehensive (loss) income	**$ (21)**	**$ (165)**	**$ (186)**	$ 113	$ 146	$ 259	$ 357	$ (84)	$ 273

(a) Includes the impact of hedges of net investments in foreign subsidiaries. See Note 17 for additional information.
(b) The reclassification adjustment related to the unrealized gain (loss) on assets available-for-sale is recorded as net securities gains on the consolidated income statement. The amortization of prior service credit, net loss and initial obligation included in net periodic benefit cost is recorded as staff expense on the consolidated income statement.

Note 15–Fair value measurement

Fair value is defined as the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date. A three-level hierarchy for fair value measurements is utilized based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date. BNY Mellon's own creditworthiness is considered when valuing liabilities. See Note 20 of the Notes to Consolidated Financial Statements in our 2019 Annual Report for information on how we determine fair value and the fair value hierarchy.

The following tables present the financial instruments carried at fair value at March 31, 2020 and Dec. 31, 2019, by caption on the consolidated balance sheet and by the three-level valuation hierarchy. We have included credit ratings information in certain of the tables because the information indicates the degree of credit risk to which we are exposed, and significant changes in ratings classifications could result in increased risk for us.

Assets measured at fair value on a recurring basis at March 31, 2020 *(dollars in millions)*	Level 1	Level 2	Level 3	Netting *(a)*	Total carrying value
Available-for-sale securities:					
Agency RMBS	$ —	$ 26,691	$ —	$ —	$ 26,691
U.S. Treasury	23,081	—	—	—	23,081
Sovereign debt/sovereign guaranteed	7,070	5,840	—	—	12,910
Agency commercial MBS	—	9,805	—	—	9,805
Foreign covered bonds	—	5,272	—	—	5,272
Supranational	—	4,348	—	—	4,348
CLOs	—	4,098	—	—	4,098
Commercial paper/CDs	—	2,814	—	—	2,814
Foreign government agencies	—	2,764	—	—	2,764
Non-agency commercial MBS	—	2,473	—	—	2,473
Other ABS	—	2,220	—	—	2,220
U.S. government agencies	—	2,213	—	—	2,213
Non-agency RMBS *(b)*	—	1,475	—	—	1,475
State and political subdivisions	—	985	—	—	985
Corporate bonds	—	818	—	—	818
Other debt securities	—	1	—	—	1
Total available-for-sale securities	30,151	71,817	—	—	101,968
Trading assets:					
Debt instruments	1,812	3,179	—	—	4,991
Equity instruments *(c)*	2,231	—	—	—	2,231
Derivative assets not designated as hedging:					
Interest rate	8	6,035	—	(3,047)	2,996
Foreign exchange	—	9,964	—	(7,272)	2,692
Equity and other contracts	6	11	—	(9)	8
Total derivative assets not designated as hedging	14	16,010	—	(10,328)	5,696
Total trading assets	4,057	19,189	—	(10,328)	12,918
Other assets:					
Derivative assets designated as hedging:					
Foreign exchange	—	187	—	—	187
Total derivative assets designated as hedging	—	187	—	—	187
Other assets *(d)*	46	136	—	—	182
Assets measured at NAV *(d)*					158
Subtotal assets of operations at fair value	**34,254**	**91,329**	**—**	**(10,328)**	**115,413**
Percentage of assets of operations prior to netting	27%	73%	—%		
Assets of consolidated investment management funds	188	41	—	—	229
Total assets	**$ 34,442**	**$ 91,370**	**$ —**	**$ (10,328)**	**$ 115,642**
Percentage of total assets prior to netting	27%	73%	—%		

Liabilities measured at fair value on a recurring basis at March 31, 2020 *(dollars in millions)*	Level 1	Level 2	Level 3	Netting *(a)*	Total carrying value
Trading liabilities:					
Debt instruments	$ 1,101	$ 143	$ —	$ —	$ 1,244
Equity instruments	64	—	—	—	64
Derivative liabilities not designated as hedging:					
Interest rate	14	5,261	—	(3,479)	1,796
Foreign exchange	—	11,854	—	(8,382)	3,472
Equity and other contracts	1	51	—	(3)	49
Total derivative liabilities not designated as hedging	15	17,166	—	(11,864)	5,317
Total trading liabilities	1,180	17,309	—	(11,864)	6,625
Long-term debt *(c)*	—	397	—	—	397
Other liabilities – derivative liabilities designated as hedging:					
Interest rate	—	927	—	—	927
Foreign exchange	—	46	—	—	46
Total other liabilities – derivative liabilities designated as hedging	—	973	—	—	973
Subtotal liabilities of operations at fair value	**1,180**	**18,679**	**—**	**(11,864)**	**7,995**
Percentage of liabilities of operations prior to netting	6%	94%	—%		
Liabilities of consolidated investment management funds	—	1	—	—	1
Total liabilities	**$ 1,180**	**$ 18,680**	**$ —**	**$ (11,864)**	**$ 7,996**
Percentage of total liabilities prior to netting	6%	94%	—%		

(a) ASC 815, Derivatives and Hedging, permits the netting of derivative receivables and derivative payables under legally enforceable master netting agreements and permits the netting of cash collateral. Netting is applicable to derivatives not designated as hedging instruments included in trading assets or trading liabilities and derivatives designated as hedging instruments included in other assets or other liabilities. Netting is allocated to the derivative products based on the net fair value of each product.

(b) Includes $535 million in Level 2 that was included in the former Grantor Trust.

(c) Includes certain interests in securitizations.

(d) Includes seed capital, private equity investments and other assets.

Assets measured at fair value on a recurring basis at Dec. 31, 2019 *(dollars in millions)*	Level 1	Level 2	Level 3	Netting *(a)*	Total carrying value
Available-for-sale securities:					
Agency RMBS	$ —	$ 27,043	$ —	$ —	$ 27,043
U.S. Treasury	15,431	—	—	—	15,431
Sovereign debt/sovereign guaranteed	7,784	4,862	—	—	12,646
Agency commercial MBS	—	9,417	—	—	9,417
Foreign covered bonds	—	4,197	—	—	4,197
CLOs	—	4,063	—	—	4,063
Supranational	—	3,709	—	—	3,709
Foreign government agencies	—	2,643	—	—	2,643
Non-agency commercial MBS	—	2,178	—	—	2,178
Other ABS	—	2,143	—	—	2,143
U.S. government agencies	—	1,949	—	—	1,949
Non-agency RMBS *(b)*	—	1,233	—	—	1,233
State and political subdivisions	—	1,044	—	—	1,044
Corporate bonds	—	853	—	—	853
Other debt securities	—	1	—	—	1
Total available-for-sale securities	23,215	65,335	—	—	88,550
Trading assets:					
Debt instruments	1,568	4,243	—	—	5,811
Equity instruments *(c)*	4,539	—	—	—	4,539
Derivative assets not designated as hedging:					
Interest rate	4	3,686	—	(1,792)	1,898
Foreign exchange	—	5,331	—	(4,021)	1,310
Equity and other contracts	—	19	—	(6)	13
Total derivative assets not designated as hedging	4	9,036	—	(5,819)	3,221
Total trading assets	6,111	13,279	—	(5,819)	13,571
Other assets*:*					
Derivative assets designated as hedging:					
Foreign exchange	—	21	—	—	21
Total derivative assets designated as hedging	—	21	—	—	21
Other assets *(d)*	38	179	—	—	217
Assets measured at NAV *(d)*					181
Subtotal assets of operations at fair value	29,364	78,814	—	(5,819)	102,540
Percentage of assets of operations prior to netting	27%	73%	—%		
Assets of consolidated investment management funds	212	33	—	—	245
Total assets	$ 29,576	$ 78,847	$ —	$ (5,819)	$ 102,785
Percentage of total assets prior to netting	27%	73%	—%		

Liabilities measured at fair value on a recurring basis at Dec. 31, 2019 *(dollars in millions)*	Level 1	Level 2	Level 3	Netting *(a)*	Total carrying value
Trading liabilities:					
Debt instruments	$ 1,477	$ 107	$ —	$ —	$ 1,584
Equity instruments	73	—	—	—	73
Derivative liabilities not designated as hedging:					
Interest rate	6	3,244	—	(1,986)	1,264
Foreign exchange	—	5,340	—	(3,428)	1,912
Equity and other contracts	3	6	—	(1)	8
Total derivative liabilities not designated as hedging	9	8,590	—	(5,415)	3,184
Total trading liabilities	1,559	8,697	—	(5,415)	4,841
Long-term debt *(c)*	—	387	—	—	387
Other liabilities – derivative liabilities designated as hedging:					
Interest rate	—	350	—	—	350
Foreign exchange	—	257	—	—	257
Total other liabilities – derivative liabilities designated as hedging	—	607	—	—	607
Subtotal liabilities of operations at fair value	1,559	9,691	—	(5,415)	5,835
Percentage of liabilities of operations prior to netting	14%	86%	—%		
Liabilities of consolidated investment management funds	1	—	—	—	1
Total liabilities	$ 1,560	$ 9,691	$ —	$ (5,415)	$ 5,836
Percentage of total liabilities prior to netting	14%	86%	—%		

(a) ASC 815, Derivatives and Hedging, permits the netting of derivative receivables and derivative payables under legally enforceable master netting agreements and permits the netting of cash collateral. Netting is applicable to derivatives not designated as hedging instruments included in trading assets or trading liabilities and derivatives designated as hedging instruments included in other assets or other liabilities. Netting is allocated to the derivative products based on the net fair value of each product.

(b) Includes $640 million in Level 2 that was included in the former Grantor Trust.

(c) Includes certain interests in securitizations.

(d) Includes seed capital, private equity investments and other assets.

Details of certain available-for-sale securities measured at fair value on a recurring basis	March 31, 2020						Dec. 31, 2019					
			Ratings *(a)*						Ratings *(a)*			
(dollars in millions)	Total carrying value	*(b)*	AAA/ AA-	A+/ A-	BBB+/ BBB-	BB+ and lower	Total carrying value	*(b)*	AAA/ AA-	A+/ A-	BBB+/ BBB-	BB+ and lower
Non-agency RMBS *(c)*, originated in:												
2007-2020	**$ 826**		**79%**	**1%**	**—%**	**20%**	$ 464		55%	1%	—%	44%
2006	**244**		**—**	**22**	**—**	**78**	291		—	21	—	79
2005	**258**		**5**	**2**	**8**	**85**	305		5	2	8	85
2004 and earlier	**147**		**22**	**23**	**6**	**49**	173		22	24	4	50
Total non-agency RMBS	**$ 1,475**		**48%**	**6%**	**2%**	**44%**	$ 1,233		25%	9%	3%	63%
Non-agency commercial MBS originated in:												
2009-2020	**$ 2,473**		**100%**	**—%**	**—%**	**—%**	$ 2,178		98%	2%	—%	—%
Foreign covered bonds:												
Canada	**$ 2,207**		**100%**	**—%**	**—%**	**—%**	$ 1,798		100%	—%	—%	—%
UK	**1,109**		**100**	**—**	**—**	**—**	984		100	—	—	—
Australia	**605**		**100**	**—**	**—**	**—**	431		100	—	—	—
Norway	**495**		**100**	**—**	**—**	**—**	287		100	—	—	—
Germany	**465**		**100**	**—**	**—**	**—**	357		100	—	—	—
Other	**391**		**100**	**—**	**—**	**—**	340		100	—	—	—
Total foreign covered bonds	**$ 5,272**		**100%**	**—%**	**—%**	**—%**	$ 4,197		100%	—%	—%	—%
Sovereign debt/sovereign guaranteed:												
UK	**$ 2,971**		**100%**	**—%**	**—%**	**—%**	$ 3,318		100%	—%	—%	—%
Germany	**2,168**		**100**	**—**	**—**	**—**	1,997		100	—	—	—
France	**1,577**		**100**	**—**	**—**	**—**	1,272		100	—	—	—
Spain	**1,546**		**—**	**4**	**96**	**—**	1,453		—	6	94	—
Italy	**1,390**		**—**	**—**	**100**	**—**	1,260		—	—	100	—
Singapore	**768**		**100**	**—**	**—**	**—**	742		100	—	—	—
Ireland	**462**		**—**	**100**	**—**	**—**	301		—	100	—	—
Netherlands	**387**		**100**	**—**	**—**	**—**	791		100	—	—	—
Austria	**347**		**100**	**—**	**—**	**—**	240		100	—	—	—
Canada	**345**		**100**	**—**	**—**	**—**	271		100	—	—	—
Hong Kong	**294**		**100**	**—**	**—**	**—**	411		100	—	—	—
Other *(d)*	**655**		**39**	**39**	**—**	**22**	590		29	48	—	23
Total sovereign debt/sovereign guaranteed	**$ 12,910**		**71%**	**6%**	**22%**	**1%**	$ 12,646		73%	5%	21%	1%
Foreign government agencies:												
Germany	**$ 1,161**		**100%**	**—%**	**—%**	**—%**	$ 1,131		100%	—%	—%	—%
Netherlands	**632**		**100**	**—**	**—**	**—**	678		100	—	—	—
Sweden	**250**		**100**	**—**	**—**	**—**	202		100	—	—	—
Finland	**240**		**100**	**—**	**—**	**—**	245		100	—	—	—
Other	**481**		**72**	**28**	**—**	**—**	387		67	33	—	—
Total foreign government agencies	**$ 2,764**		**95%**	**5%**	**—%**	**—%**	$ 2,643		95%	5%	—%	—%

(a) Represents ratings by S&P or the equivalent.
(b) At March 31, 2020 and Dec. 31, 2019, sovereign debt/sovereign guaranteed securities were included in Level 1 and Level 2 in the valuation hierarchy. All other assets in the table are Level 2 assets in the valuation hierarchy.
(c) Includes $535 million at March 31, 2020 and $640 million at Dec. 31, 2019 that were included in the former Grantor Trust.
(d) Includes non-investment grade sovereign debt/sovereign guaranteed securities related to Brazil of $113 million at March 31, 2020 and $134 million at Dec. 31, 2019.

Assets and liabilities measured at fair value on a nonrecurring basis

Under certain circumstances, we make adjustments to the fair value of our assets, liabilities and unfunded lending-related commitments Examples would be the recording of an impairment of an asset and non-readily marketable equity securities carried at cost with upward or downward adjustments.

although they are not measured at fair value on an ongoing basis.

The following table presents the financial instruments carried on the consolidated balance sheet by caption and level in the fair value hierarchy as of March 31, 2020 and Dec. 31, 2019.

Assets measured at fair value on a nonrecurring basis	**March 31, 2020**				Dec. 31, 2019			
(in millions)	Level 1	Level 2	Level 3	Total carrying value	Level 1	Level 2	Level 3	Total carrying value
Loans *(a)*	$ —	$ 56	$ —	$ 56	$ —	$ 58	$ —	$ 58
Other assets *(b)*	—	102	—	102	—	64	—	64
Total assets at fair value on a nonrecurring basis	**$ —**	**$ 158**	**$ —**	**$ 158**	$ —	$ 122	$ —	$ 122

(a) The fair value of these loans decreased less than $1 million in the first quarter of 2020 and the fourth quarter of 2019, based on the fair value of the underlying collateral, as required by guidance in ASC 326, Financial Instruments – Credit Losses, with an offset to the allowance for credit losses.
(b) Includes non-readily marketable equity securities carried at cost with upward or downward adjustments and other assets received in satisfaction of debt.

Estimated fair value of financial instruments

The following tables present the estimated fair value and the carrying amount of financial instruments not carried at fair value on the consolidated balance sheet at March 31, 2020 and Dec. 31, 2019, by caption on the consolidated balance sheet and by the valuation hierarchy.

Summary of financial instruments	**March 31, 2020**				
(in millions)	**Level 1**	**Level 2**	**Level 3**	**Total estimated fair value**	**Carrying amount**
Assets:					
Interest-bearing deposits with the Federal Reserve and other central banks	**$ —**	**$ 146,535**	**$ —**	**$ 146,535**	**$ 146,535**
Interest-bearing deposits with banks	**—**	**22,689**	**—**	**22,689**	**22,672**
Federal funds sold and securities purchased under resale agreements	**—**	**27,363**	**—**	**27,363**	**27,363**
Securities held-to-maturity	**4,014**	**34,404**	**—**	**38,418**	**37,305**
Loans *(a)*	**—**	**61,482**	**—**	**61,482**	**61,174**
Other financial assets	**5,091**	**1,198**	**—**	**6,289**	**6,289**
Total	**$ 9,105**	**$ 293,671**	**$ —**	**$ 302,776**	**$ 301,338**
Liabilities:					
Noninterest-bearing deposits	**$ —**	**$ 96,600**	**$ —**	**$ 96,600**	**$ 96,600**
Interest-bearing deposits	**—**	**239,459**	**—**	**239,459**	**240,117**
Federal funds purchased and securities sold under repurchase agreements	**—**	**13,128**	**—**	**13,128**	**13,128**
Payables to customers and broker-dealers	**—**	**24,016**	**—**	**24,016**	**24,016**
Commercial paper	**—**	**1,121**	**—**	**1,121**	**1,121**
Borrowings	**—**	**1,767**	**—**	**1,767**	**1,767**
Long-term debt	**—**	**27,521**	**—**	**27,521**	**27,097**
Total	**$ —**	**$ 403,612**	**$ —**	**$ 403,612**	**$ 403,846**

(a) Does not include the leasing portfolio.

Summary of financial instruments	Dec. 31, 2019				
(in millions)	Level 1	Level 2	Level 3	Total estimated fair value	Carrying amount
Assets:					
Interest-bearing deposits with the Federal Reserve and other central banks	$ —	$ 95,042	$ —	$ 95,042	$ 95,042
Interest-bearing deposits with banks	—	14,832	—	14,832	14,811
Federal funds sold and securities purchased under resale agreements	—	30,182	—	30,182	30,182
Securities held-to-maturity	4,630	30,175	—	34,805	34,483
Loans *(a)*	—	54,194	—	54,194	53,718
Other financial assets	4,830	1,233	—	6,063	6,063
Total	$ 9,460	$ 225,658	$ —	$ 235,118	$ 234,299
Liabilities:					
Noninterest-bearing deposits	$ —	$ 57,630	$ —	$ 57,630	$ 57,630
Interest-bearing deposits	—	200,846	—	200,846	201,836
Federal funds purchased and securities sold under repurchase agreements	—	11,401	—	11,401	11,401
Payables to customers and broker-dealers	—	18,758	—	18,758	18,758
Commercial paper	—	3,959	—	3,959	3,959
Borrowings	—	917	—	917	917
Long-term debt	—	27,858	—	27,858	27,114
Total	$ —	$ 321,369	$ —	$ 321,369	$ 321,615

(a) Does not include the leasing portfolio.

Note 16–Fair value option

We elected fair value as an alternative measurement for selected financial assets and liabilities that are not otherwise required to be measured at fair value, including the assets and liabilities of consolidated investment management funds and certain long-term debt. The following table presents the assets and liabilities of consolidated investment management funds, at fair value.

Assets and liabilities of consolidated investment management funds, at fair value		
(in millions)	**March 31, 2020**	Dec. 31, 2019
Assets of consolidated investment management funds:		
Trading assets	**$ 215**	$ 229
Other assets	**14**	16
Total assets of consolidated investment management funds	**$ 229**	$ 245
Liabilities of consolidated investment management funds:		
Other liabilities	**1**	1
Total liabilities of consolidated investment management funds	**$ 1**	$ 1

BNY Mellon values the assets and liabilities of its consolidated investment management funds using quoted prices for identical assets or liabilities in active markets or observable inputs such as quoted prices for similar assets or liabilities. Quoted prices for either identical or similar assets or liabilities in inactive markets may also be used. Accordingly, fair value best reflects the interests BNY Mellon holds in the economic performance of the consolidated investment management funds. Changes in the value of the assets and liabilities are recorded in the consolidated income statement as investment income of consolidated investment management funds and in the interest of investment management fund note holders, respectively.

We have elected the fair value option on $240 million of long-term debt. The fair value of this long-term debt was $397 million at March 31, 2020 and $387 million at Dec. 31, 2019. The long-term debt is valued using observable market inputs and is included in Level 2 of the valuation hierarchy.

The following table presents the changes in fair value of long-term debt recorded in foreign exchange and other trading revenue in the consolidated income statement.

Change in fair value of long-term debt *(a)*			
(in millions)	**1Q20**	4Q19	1Q19
Foreign exchange and other trading revenue	**$ (10)**	$ (1)	$ (5)

(a) The changes in fair value are approximately offset by an economic hedge included in foreign exchange and other trading revenue.

Note 17–Derivative instruments

We use derivatives to manage exposure to market risk, including interest rate risk, equity price risk and foreign currency risk, as well as credit risk. Our trading activities are focused on acting as a market-maker for our customers and facilitating customer trades in compliance with the Volcker Rule.

The notional amounts for derivative financial instruments express the dollar volume of the transactions; however, credit risk is much smaller. We perform credit reviews and enter into netting agreements and collateral arrangements to minimize the credit risk of derivative financial instruments. We enter into offsetting positions to reduce exposure to foreign currency, interest rate and equity price risk.

Use of derivative financial instruments involves reliance on counterparties. Failure of a counterparty to honor its obligation under a derivative contract is a risk we assume whenever we engage in a derivative contract. There were no counterparty default losses recorded in the first quarter of 2020.

Hedging derivatives

We utilize interest rate swap agreements to manage our exposure to interest rate fluctuations. We enter into fair value hedges as an interest rate risk management strategy to reduce fair value variability by converting certain fixed rate interest payments associated with available-for-sale securities and long-term debt to floating interest rates. We also utilize interest rate swaps and forward exchange contracts as cash flow hedges to manage our exposure to interest and foreign exchange rate changes.

The available-for-sale securities hedged consist of U.S. Treasury bonds, agency and non-agency commercial MBS, sovereign debt, corporate bonds and covered bonds. At March 31, 2020, $16.5 billion par value of available-for-sale securities were hedged with interest rate swaps designated as fair value hedges that had notional values of $16.5 billion.

The fixed rate long-term debt instruments hedged generally have original maturities of five to 30 years.

In fair value hedging relationships, debt is hedged with “receive fixed rate, pay variable rate” swaps. At March 31, 2020, $13.9 billion par value of debt was hedged with interest rate swaps designated as fair value hedges that had notional values of $13.9 billion.

In addition, we utilize forward foreign exchange contracts as hedges to mitigate foreign exchange exposures. We use forward foreign exchange contracts as cash flow hedges to convert certain forecasted non-U.S. dollar revenue and expenses into U.S. dollars. We use forward foreign exchange contracts with maturities of 12 months or less as cash flow hedges to hedge our foreign exchange exposure to currencies such as, Indian rupee, British pound, Hong Kong dollar, Singapore dollar and Polish zloty used in revenue and expense transactions for entities that have the U.S. dollar as their functional currency. As of March 31, 2020, the hedged forecasted foreign currency transactions and designated forward foreign exchange contract hedges were $291 million (notional), with a pre-tax loss of $10 million recorded in accumulated OCI. This loss will be reclassified to earnings over the next 12 months.

Forward foreign exchange contracts are also used to hedge the value of our net investments in foreign subsidiaries. These forward foreign exchange contracts have maturities of less than one year. The derivatives employed are designated as hedges of changes in value of our foreign investments due to exchange rates. The change in fair market value of these forward foreign exchange contracts is reported within foreign currency translation adjustments in shareholders’ equity, net of tax. At March 31, 2020, forward foreign exchange contracts with notional amounts totaling $7.2 billion were designated as net investment hedges.

In addition to forward foreign exchange contracts, we also designate non-derivative financial instruments as hedges of our net investments in foreign subsidiaries. Those non-derivative financial instruments designated as hedges of our net investments in foreign subsidiaries were all long-term liabilities of BNY Mellon and, at March 31, 2020, had a combined U.S. dollar equivalent carrying value of $168 million.

The following table presents the pre-tax gains (losses) related to our fair value and cash flow hedging activities recognized in the consolidated income statement.

Income statement impact of fair value and cash flow hedges

(in millions)	Location of gains (losses)	**1Q20**	4Q19	1Q19
Interest rate fair value hedges of available-for-sale securities				
Derivative	Interest revenue	**$ (1,033)**	$ 324	$ (383)
Hedged item	Interest revenue	**1,011**	(311)	376
Interest rate fair value hedges of long-term debt				
Derivative	Interest expense	**714**	(145)	185
Hedged item	Interest expense	**(708)**	144	(184)
Foreign exchange fair value hedges of available-for-sale securities				
Derivative *(a)*	Other revenue	**7**	6	6
Hedged item	Other revenue	**(7)**	(6)	(5)
Cash flow hedge of interest rate risk				
Gain reclassified from OCI into income	Interest expense	**—**	8	—
Cash flow hedges of forecasted FX exposures				
Gain (loss) reclassified from OCI into income	Staff expense	**1**	2	(1)
(Loss) gain recognized in the consolidated income statement due to fair value and cash flow hedging relationships		**$ (15)**	$ 22	$ (6)

(a) Includes gains of less than $1 million in the first quarter of 2020 and the fourth quarter of 2019 and a gain of $1 million in the first quarter of 2019 associated with the amortization of the excluded component. At March 31, 2020 and Dec. 31, 2019, the remaining accumulated OCI balance associated with the excluded component was de minimis.

The following table presents the impact of hedging derivatives used in net investment hedging relationships.

Impact of derivative instruments used in net investment hedging relationships

(in millions)

Derivatives in net investment hedging relationships	Gain or (loss) recognized in accumulated OCI on derivatives			Location of gain or (loss) reclassified from accumulated OCI into income	Gain or (loss) reclassified from accumulated OCI into income		
	1Q20	4Q19	1Q19		**1Q20**	4Q19	1Q19
FX contracts	**$ 437**	$ (341)	$ (6)	Net interest revenue	**$ —**	$ —	$ —

The following table presents information on the hedged items in fair value hedging relationships.

Hedged items in fair value hedging relationships

(in millions)	Carrying amount of hedged asset or liability		Hedge accounting basis adjustment increase (decrease) *(a)*	
	March 31, 2020	Dec. 31, 2019	**March 31, 2020**	Dec. 31, 2019
Available-for-sale securities *(b)(c)*	**$ 16,559**	$ 13,792	**$ 1,846**	$ 687
Long-term debt	**$ 14,907**	$ 13,945	**$ 849**	$ 116

(a) Includes $210 million and $53 million of basis adjustment increases on discontinued hedges associated with available-for-sale securities at March 31, 2020 and Dec. 31, 2019, respectively, and $178 million and $200 million of basis adjustment decreases on discontinued hedges associated with long-term debt at March 31, 2020 and Dec. 31, 2019, respectively.

(b) Excludes hedged items where only foreign currency risk is the designated hedged risk, as the basis adjustments related to foreign currency hedges will not reverse through the consolidated income statement in future periods. The carrying amount excluded for available-for-sale securities was $- million at March 31, 2020 and $142 million at Dec. 31, 2019.

(c) Carrying amount represents the amortized cost.

The following table summarizes the notional amount and carrying values of our total derivative portfolio at March 31, 2020 and Dec. 31, 2019.

Impact of derivative instruments on the balance sheet	Notional value		Asset derivatives fair value		Liability derivatives fair value	
(in millions)	**March 31, 2020**	Dec. 31, 2019	**March 31, 2020**	Dec. 31, 2019	**March 31, 2020**	Dec. 31, 2019
Derivatives designated as hedging instruments: *(a)(b)*						
Interest rate contracts	**$ 30,356**	$ 28,365	**$ —**	$ —	**$ 927**	$ 350
Foreign exchange contracts	**7,524**	8,390	**187**	21	**46**	257
Total derivatives designated as hedging instruments			**$ 187**	$ 21	**$ 973**	$ 607
Derivatives not designated as hedging instruments: *(b)(c)*						
Interest rate contracts	**$ 273,595**	$ 306,790	**$ 6,043**	$ 3,690	**$ 5,275**	$ 3,250
Foreign exchange contracts	**924,891**	848,961	**9,964**	5,331	**11,854**	5,340
Equity contracts	**1,269**	3,189	**15**	19	**51**	5
Credit contracts	**165**	165	**2**	—	**1**	4
Total derivatives not designated as hedging instruments			**$ 16,024**	$ 9,040	**$ 17,181**	$ 8,599
Total derivatives fair value *(d)*			**$ 16,211**	$ 9,061	**$ 18,154**	$ 9,206
Effect of master netting agreements *(e)*			**(10,328)**	(5,819)	**(11,864)**	(5,415)
Fair value after effect of master netting agreements			**$ 5,883**	$ 3,242	**$ 6,290**	$ 3,791

(a) The fair value of asset derivatives and liability derivatives designated as hedging instruments is recorded as other assets and other liabilities, respectively, on the consolidated balance sheet.
(b) For derivative transactions settled at clearing organizations, cash collateral exchanged is deemed a settlement of the derivative each day. The settlement reduces the gross fair value of derivative assets and liabilities and results in a corresponding decrease in the effect of master netting agreements, with no impact to the consolidated balance sheet.
(c) The fair value of asset derivatives and liability derivatives not designated as hedging instruments is recorded as trading assets and trading liabilities, respectively, on the consolidated balance sheet.
(d) Fair values are on a gross basis, before consideration of master netting agreements, as required by ASC 815, Derivatives and Hedging.
(e) Effect of master netting agreements includes cash collateral received and paid of $1,320 million and $2,856 million, respectively, at March 31, 2020, and $1,022 million and $618 million, respectively, at Dec. 31, 2019.

Trading activities (including trading derivatives)

Our trading activities are focused on acting as a market-maker for our customers, facilitating customer trades and risk mitigating economic hedging in compliance with the Volcker Rule. The change in the fair value of the derivatives utilized in our trading activities is recorded in foreign exchange and other trading revenue on the consolidated income statement.

The following table presents our foreign exchange and other trading revenue.

Foreign exchange and other trading revenue			
(in millions)	**1Q20**	4Q19	1Q19
Foreign exchange	**$ 253**	$ 138	$ 160
Other trading revenue	**66**	30	10
Total foreign exchange and other trading revenue	**$ 319**	$ 168	$ 170

Foreign exchange revenue includes income from purchasing and selling foreign currencies and currency forwards, futures and options. Other trading revenue reflects results from trading in cash instruments, including fixed income and equity securities and non-foreign exchange derivatives.

We also use derivative financial instruments as risk mitigating economic hedges, which are not formally designated as accounting hedges. This includes hedging the foreign currency, interest rate or market risks inherent in some of our balance sheet exposures, such as seed capital investments and deposits, as well as certain investment management fee revenue streams. We also use total return swaps to economically hedge obligations arising from the Company's deferred compensation plan whereby the participants defer compensation and earn a return linked to the performance of investments they select. The gains or losses on these total return swaps are recorded in staff expense on the consolidated income statement and were a loss of $41 million in the first quarter of 2020 and gains of $18 million in the first quarter of 2019 and $13 million in the fourth quarter of 2019.

We manage trading risk through a system of position limits, a value-at-risk ("VaR") methodology based on historical simulation and other market sensitivity

measures. Risk is monitored and reported to senior management by a separate unit, independent from trading, on a daily basis. Based on certain assumptions, the VaR methodology is designed to capture the potential overnight pre-tax dollar loss from adverse changes in fair values of all trading positions. The calculation assumes a one-day holding period, utilizes a 99% confidence level and incorporates non-linear product characteristics. The VaR model is one of several statistical models used to develop economic capital results, which are allocated to lines of business for computing risk-adjusted performance.

VaR methodology does not evaluate risk attributable to extraordinary financial, economic or other occurrences. As a result, the risk assessment process includes a number of stress scenarios based upon the risk factors in the portfolio and management's assessment of market conditions. Additional stress scenarios based upon historical market events are also performed. Stress tests may incorporate the impact of reduced market liquidity and the breakdown of historically observed correlations and extreme scenarios. VaR and other statistical measures, stress testing and sensitivity analysis are incorporated into other risk management materials.

Counterparty credit risk and collateral

We assess the 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.

Collateral requirements are determined after a comprehensive review of the credit quality of each counterparty. Collateral is generally held or pledged in the form of cash and/or highly liquid government securities. Collateral requirements are monitored and adjusted daily.

Additional disclosures concerning derivative financial instruments are provided in Note 15.

Disclosure of contingent features in over-the-counter ("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.

(in millions)	**March 31, 2020**	Dec. 31, 2019
Aggregate fair value of OTC derivatives in net liability positions *(a)*	**$ 8,050**	$ 3,442
Collateral posted	**$ 8,299**	$ 3,671

(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.

Potential close-out exposures (fair value) *(a)*

(in millions)	**March 31, 2020**	Dec. 31, 2019
If The Bank of New York Mellon's rating changed to: *(b)*		
A3/A-	**$ 106**	$ 56
Baa2/BBB	**$ 1,213**	$ 608
Ba1/BB+	**$ 4,766**	$ 2,084

(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 rating by Moody's/S&P.

If The Bank of New York Mellon's debt rating had fallen below investment grade on March 31, 2020 and Dec. 31, 2019, existing collateral arrangements would have required us to post additional collateral of $30 million and $63 million, respectively.

Offsetting assets and liabilities

The following tables present derivative and financial instruments and their related offsets. There were no derivative instruments or financial instruments subject to a legally enforceable netting agreement for which we are not currently netting.

Offsetting of derivative assets and financial assets at March 31, 2020

(in millions)	Gross assets recognized	Gross amounts offset in the balance sheet	*(a)*	Net assets recognized in the balance sheet	Gross amounts not offset in the balance sheet: Financial instruments	Gross amounts not offset in the balance sheet: Cash collateral received	Net amount
Derivatives subject to netting arrangements:							
Interest rate contracts	**$ 4,103**	**$ 3,047**		**$ 1,056**	**$ 369**	**$ —**	**$ 687**
Foreign exchange contracts	**8,984**	**7,272**		**1,712**	**132**	**—**	**1,580**
Equity and other contracts	**15**	**9**		**6**	**—**	**—**	**6**
Total derivatives subject to netting arrangements	**13,102**	**10,328**		**2,774**	**501**	**—**	**2,273**
Total derivatives not subject to netting arrangements	**3,109**	**—**		**3,109**	**—**	**—**	**3,109**
Total derivatives	**16,211**	**10,328**		**5,883**	**501**	**—**	**5,382**
Reverse repurchase agreements	**97,971**	**80,203**	*(b)*	**17,768**	**17,759**	**—**	**9**
Securities borrowing	**9,613**	**—**		**9,613**	**9,055**	**—**	**558**
Total	**$ 123,795**	**$ 90,531**		**$ 33,264**	**$ 27,315**	**$ —**	**$ 5,949**

(a) Includes the effect of netting agreements and net cash collateral received. The offset related to the OTC derivatives was allocated to the various types of derivatives based on the net positions.

(b) Offsetting of reverse repurchase agreements relates to our involvement in the Fixed Income Clearing Corporation ("FICC"), where we settle government securities transactions on a net basis for payment and delivery through the Fedwire system.

Offsetting of derivative assets and financial assets at Dec. 31, 2019

(in millions)	Gross assets recognized	Gross amounts offset in the balance sheet	*(a)*	Net assets recognized in the balance sheet	Gross amounts not offset in the balance sheet: Financial instruments	Gross amounts not offset in the balance sheet: Cash collateral received	Net amount
Derivatives subject to netting arrangements:							
Interest rate contracts	$ 2,394	$ 1,792		$ 602	$ 207	$ —	$ 395
Foreign exchange contracts	4,861	4,021		840	44	—	796
Equity and other contracts	9	6		3	—	—	3
Total derivatives subject to netting arrangements	7,264	5,819		1,445	251	—	1,194
Total derivatives not subject to netting arrangements	1,797	—		1,797	—	—	1,797
Total derivatives	9,061	5,819		3,242	251	—	2,991
Reverse repurchase agreements	112,355	93,794	*(b)*	18,561	18,554	—	7
Securities borrowing	11,621	—		11,621	11,278	—	343
Total	$ 133,037	$ 99,613		$ 33,424	$ 30,083	$ —	$ 3,341

(a) Includes the effect of netting agreements and net cash collateral received. The offset related to the OTC derivatives was allocated to the various types of derivatives based on the net positions.

(b) Offsetting of reverse repurchase agreements relates to our involvement in the FICC, where we settle government securities transactions on a net basis for payment and delivery through the Fedwire system.

Offsetting of derivative liabilities and financial liabilities at March 31, 2020

(in millions)	Gross liabilities recognized	Gross amounts offset in the balance sheet	*(a)*	Net liabilities recognized in the balance sheet	Gross amounts not offset in the balance sheet: Financial instruments	Gross amounts not offset in the balance sheet: Cash collateral pledged	Net amount
Derivatives subject to netting arrangements:							
Interest rate contracts	**$ 6,181**	**$ 3,479**		**$ 2,702**	**$ 1,452**	**$ —**	**$ 1,250**
Foreign exchange contracts	**10,705**	**8,382**		**2,323**	**545**	**—**	**1,778**
Equity and other contracts	**27**	**3**		**24**	**—**	**—**	**24**
Total derivatives subject to netting arrangements	**16,913**	**11,864**		**5,049**	**1,997**	**—**	**3,052**
Total derivatives not subject to netting arrangements	**1,241**	**—**		**1,241**	**—**	**—**	**1,241**
Total derivatives	**18,154**	**11,864**		**6,290**	**1,997**	**—**	**4,293**
Repurchase agreements	**92,057**	**80,203**	*(b)*	**11,854**	**11,823**	**—**	**31**
Securities lending	**750**	**—**		**750**	**717**	**—**	**33**
Total	**$ 110,961**	**$ 92,067**		**$ 18,894**	**$ 14,537**	**$ —**	**$ 4,357**

(a) Includes the effect of netting agreements and net cash collateral paid. The offset related to the OTC derivatives was allocated to the various types of derivatives based on the net positions.

(b) Offsetting of repurchase agreements relates to our involvement in the FICC, where we settle government securities transactions on a net basis for payment and delivery through the Fedwire system.

Offsetting of derivative liabilities and financial liabilities at Dec. 31, 2019

(in millions)	Gross liabilities recognized	Gross amounts offset in the balance sheet	*(a)*	Net liabilities recognized in the balance sheet	Gross amounts not offset in the balance sheet: Financial instruments	Gross amounts not offset in the balance sheet: Cash collateral pledged	Net amount
Derivatives subject to netting arrangements:							
Interest rate contracts	$ 3,550	$ 1,986		$ 1,564	$ 1,539	$ —	$ 25
Foreign exchange contracts	4,873	3,428		1,445	74	—	1,371
Equity and other contracts	5	1		4	2	—	2
Total derivatives subject to netting arrangements	8,428	5,415		3,013	1,615	—	1,398
Total derivatives not subject to netting arrangements	778	—		778	—	—	778
Total derivatives	9,206	5,415		3,791	1,615	—	2,176
Repurchase agreements	104,451	93,794	*(b)*	10,657	10,657	—	—
Securities lending	718	—		718	694	—	24
Total	$ 114,375	$ 99,209		$ 15,166	$ 12,966	$ —	$ 2,200

(a) Includes the effect of netting agreements and net cash collateral paid. The offset related to the OTC derivatives was allocated to the various types of derivatives based on the net positions.

(b) Offsetting of repurchase agreements relates to our involvement in the FICC, where we settle government securities transactions on a net basis for payment and delivery through the Fedwire system.

Secured borrowings

The following table presents the contract value of repurchase agreements and securities lending transactions accounted for as secured borrowings by the type of collateral provided to counterparties.

Repurchase agreements and securities lending transactions accounted for as secured borrowings

	March 31, 2020				Dec. 31, 2019			
	Remaining contractual maturity				Remaining contractual maturity			
(in millions)	Overnight and continuous	Up to 30 days	30 days or more	Total	Overnight and continuous	Up to 30 days	30 days or more	Total
Repurchase agreements:								
U.S. Treasury	**$ 82,520**	**$ —**	**$ —**	**$ 82,520**	$ 94,788	$ 10	$ —	$ 94,798
U.S. government agencies	**633**	**—**	**10**	**643**	594	16	—	610
Agency RMBS	**3,794**	**—**	**77**	**3,871**	4,234	774	—	5,008
Corporate bonds	**542**	**—**	**1,280**	**1,822**	266	236	1,617	2,119
Other debt securities	**527**	**681**	**1,011**	**2,219**	40	188	1,079	1,307
Equity securities	**215**	**—**	**767**	**982**	31	99	479	609
Total	**$ 88,231**	**$ 681**	**$ 3,145**	**$ 92,057**	$ 99,953	$ 1,323	$ 3,175	$ 104,451
Securities lending:								
U.S. government agencies	**$ 7**	**$ —**	**$ —**	**$ 7**	$ 19	$ —	$ —	$ 19
Other debt securities	**196**	**—**	**—**	**196**	201	—	—	201
Equity securities	**547**	**—**	**—**	**547**	498	—	—	498
Total	**$ 750**	**$ —**	**$ —**	**$ 750**	$ 718	$ —	$ —	$ 718
Total borrowings	**$ 88,981**	**$ 681**	**$ 3,145**	**$ 92,807**	$ 100,671	$ 1,323	$ 3,175	$ 105,169

BNY Mellon's repurchase agreements and securities lending transactions primarily encounter risk associated with liquidity. We are required to pledge collateral based on predetermined terms within the agreements. If we were to experience a decline in the fair value of the collateral pledged for these transactions, we could be required to provide additional collateral to the counterparty, therefore decreasing the amount of assets available for other liquidity needs that may arise. BNY Mellon also offers tri-party collateral agency services in the tri-party repo market where we are exposed to credit risk. In order to mitigate this risk, we require dealers to fully secure intraday credit.

Note 18–Commitments and contingent liabilities

Off-balance sheet arrangements

In the normal course of business, various commitments and contingent liabilities are outstanding that are not reflected in the accompanying consolidated balance sheets.

Our significant trading and off-balance sheet risks are securities, foreign currency and interest rate risk management products, commercial lending commitments, letters of credit and securities lending indemnifications. We assume these risks to reduce interest rate and foreign currency risks, to provide customers with the ability to meet credit and liquidity needs and to hedge foreign currency and interest rate risks. These items involve, to varying degrees, credit, foreign currency and interest rate risks not recognized on the balance sheet. Our off-balance sheet risks are managed and monitored in manners similar to those used for on-balance sheet risks.

The following table presents a summary of our off-balance sheet credit risks.

Off-balance sheet credit risks *(in millions)*	**March 31, 2020**	Dec. 31, 2019
Lending commitments	**$ 47,732**	$ 49,119
Standby letters of credit ("SBLC") *(a)*	**2,328**	2,298
Commercial letters of credit	**113**	74
Securities lending indemnifications *(b)(c)*	**421,691**	408,378

(a) Net of participations totaling $146 million at March 31, 2020 and $146 million at Dec. 31, 2019.

(b) Excludes the indemnification for securities for which BNY Mellon acts as an agent on behalf of CIBC Mellon clients, which totaled $56 billion at March 31, 2020 and $57 billion at Dec. 31, 2019.

(c) Includes cash collateral, invested in indemnified repurchase agreements, held by us as securities lending agent of $38 billion at March 31, 2020 and $37 billion at Dec. 31, 2019.

The total potential loss on undrawn lending commitments, standby and commercial letters of credit, and securities lending indemnifications is equal to the total notional amount if drawn upon, which does not consider the value of any collateral.

Since many of the lending commitments are expected to expire without being drawn upon, the total amount does not necessarily represent future cash requirements. A summary of lending commitment maturities is as follows: $32.0 billion in less than one year, $15.4 billion in one to five years and $314 million over five years.

SBLCs principally support obligations of corporate clients and were collateralized with cash and securities of $186 million at March 31, 2020 and $184 million at Dec. 31, 2019. At March 31, 2020, $1.7 billion of the SBLCs will expire within one year, $677 million in one to five years and $1 million over five years.

We must recognize, at the inception of an SBLC and foreign and other guarantees, a liability for the fair value of the obligation undertaken in issuing the guarantee. The fair value of the liability, which was recorded with a corresponding asset in other assets, was estimated as the present value of contractual customer fees. The estimated liability for losses related to SBLCs and foreign and other guarantees, if any, is included in the allowance for lending-related commitments.

Payment/performance risk of SBLCs is monitored using both historical performance and internal ratings criteria. BNY Mellon's historical experience is that SBLCs typically expire without being funded. SBLCs below investment grade are monitored closely for payment/performance risk. The table below shows SBLCs by investment grade:

Standby letters of credit

	March 31, 2020	Dec. 31, 2019
Investment grade	**91%**	90%
Non-investment grade	**9%**	10%

A commercial letter of credit is normally a short-term instrument used to finance a commercial contract for the shipment of goods from a seller to a buyer. Although the commercial letter of credit is contingent upon the satisfaction of specified conditions, it represents a credit exposure if the buyer defaults on the underlying transaction. As a result, the total contractual amounts do not necessarily represent future cash requirements. Commercial letters of credit totaled $113 million at March 31, 2020 and $74 million at Dec. 31, 2019.

We expect many of the lending commitments and letters of credit to expire without the need to advance any cash. The revenue associated with guarantees frequently depends on the credit rating of the obligor and the structure of the transaction, including collateral, if any. The allowance for lending-related commitments was $148 million at March 31, 2020 and $94 million at Dec. 31, 2019.

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. Securities lending indemnifications were secured by collateral of $443 billion at March 31, 2020 and $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 March 31, 2020 and Dec. 31, 2019, $56 billion and $57 billion, respectively, of borrowings at CIBC Mellon, for which BNY Mellon acts as agent on behalf of CIBC Mellon clients, were secured by collateral of $60 billion and $61 billion, respectively. 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.

Unsettled repurchase and reverse repurchase agreements

In the normal course of business, we enter into repurchase agreements and reverse repurchase agreements that settle at a future date. In repurchase agreements, BNY Mellon receives cash from and provides securities as collateral to a counterparty at settlement. In reverse repurchase agreements, BNY Mellon advances cash to and receives securities as collateral from the counterparty at settlement. These transactions are recorded on the consolidated balance sheet on the settlement date. At March 31, 2020, we had no unsettled repurchase agreements and $28.3 billion of unsettled reverse repurchase agreements which all settled the following business day.

Industry concentrations

We have significant industry concentrations related to credit exposure at March 31, 2020. The tables below present our credit exposure in the financial institutions and commercial portfolios.

Financial institutions portfolio exposure *(in billions)*	**March 31, 2020**		
	Loans	**Unfunded commitments**	**Total exposure**
Securities industry	**$ 4.2**	**$ 24.5**	**$ 28.7**
Banks	**7.5**	**1.1**	**8.6**
Asset managers	**1.3**	**6.5**	**7.8**
Insurance	**0.3**	**2.4**	**2.7**
Government	**0.1**	**0.2**	**0.3**
Other	**0.8**	**0.6**	**1.4**
Total	**$ 14.2**	**$ 35.3**	**$ 49.5**

Commercial portfolio exposure *(in billions)*	**March 31, 2020**		
	Loans	**Unfunded commitments**	**Total exposure**
Manufacturing	**$ 1.4**	**$ 3.7**	**$ 5.1**
Services and other	**1.3**	**2.9**	**4.2**
Energy and utilities	**0.7**	**3.5**	**4.2**
Media and telecom	**—**	**0.9**	**0.9**
Total	**$ 3.4**	**$ 11.0**	**$ 14.4**

Major concentrations in securities lending are primarily to broker-dealers and are generally collateralized with cash and/or securities.

Sponsored Member Repo Program

BNY Mellon is a sponsoring member in the FICC sponsored member program, where we submit eligible overnight repurchase and reverse repurchase transactions in U.S. Treasury securities ("Sponsored Member Transactions") between BNY Mellon and our sponsored member clients for novation and clearing through FICC pursuant to the FICC Government Securities Division rulebook (the "FICC Rules"). We also guarantee to FICC the prompt and full payment and performance of our sponsored member clients' respective obligations under the FICC Rules in connection with such clients' Sponsored Member Transactions. We minimize our credit exposure under this guaranty by obtaining a security interest in our sponsored member clients' collateral and rights under Sponsored Member Transactions. See "Offsetting assets and liabilities" in Note 17 for additional information on our repurchase and reverse repurchase agreements.

Indemnification arrangements

We have provided standard representations for underwriting agreements, acquisition and divestiture agreements, sales of loans and commitments, and other similar types of arrangements and customary indemnification for claims and legal proceedings related to providing financial services that are not otherwise included above. Insurance has been purchased to mitigate certain of these risks. Generally, there are no stated or notional amounts included in these indemnifications and the contingencies triggering the obligation for indemnification are not expected to occur. Furthermore, often counterparties to these transactions provide us with comparable indemnifications. We are unable to develop an estimate of the maximum payout under these indemnifications for several reasons. In addition to the lack of a stated or notional amount in a majority of such indemnifications, we are unable to predict the nature of events that would trigger indemnification or the level of indemnification for a certain event. We believe, however, that the possibility that we will have to make any material payments for these indemnifications is remote. At March 31, 2020 and Dec. 31, 2019, we have not recorded any material liabilities under these arrangements.

Clearing and settlement exchanges

We are a noncontrolling equity investor in, and/or member of, several industry clearing or settlement exchanges through which foreign exchange, securities, derivatives or other transactions settle. Certain of these industry clearing and settlement

exchanges require their members to guarantee their obligations and liabilities and/or to provide liquidity support in the event other members do not honor their obligations. We believe the likelihood that a clearing or settlement exchange (of which we are a member) would become insolvent is remote. Additionally, certain settlement exchanges have implemented loss allocation policies that enable the exchange to allocate settlement losses to the members of the exchange. It is not possible to quantify such mark-to-market loss until the loss occurs. Any ancillary costs that occur as a result of any mark-to-market loss cannot be quantified. In addition, we also sponsor clients as members on clearing and settlement exchanges and guarantee their obligations. At March 31, 2020 and Dec. 31, 2019, we have not recorded any material liabilities under these arrangements.

Legal proceedings

In the ordinary course of business, The Bank of New York Mellon Corporation and its subsidiaries are routinely named as defendants in or made parties to pending and potential legal actions. We also are subject to governmental and regulatory examinations, information-gathering requests, investigations and proceedings (both formal and informal). Claims for significant monetary damages are often asserted in many of these legal actions, while claims for disgorgement, restitution, penalties and/or other remedial actions or sanctions may be sought in governmental and regulatory matters. It is inherently difficult to predict the eventual outcomes of such matters given their complexity and the particular facts and circumstances at issue in each of these matters. However, on the basis of our current knowledge and understanding, we do not believe that judgments, settlements or orders, if any, arising from these matters (either individually or in the aggregate, after giving effect to applicable reserves and insurance coverage) will have a material adverse effect on the consolidated financial position or liquidity of BNY Mellon, although they could have a material effect on our results of operations in a given period.

In view of the inherent unpredictability of outcomes in litigation and regulatory matters, particularly where (i) the damages sought are substantial or indeterminate, (ii) the proceedings are in the early stages, or (iii) the matters involve novel legal theories or a large number of parties, as a matter of course there is considerable uncertainty surrounding the timing or ultimate resolution of litigation and regulatory matters, including a possible eventual loss, fine, penalty or business impact, if any, associated with each such matter. In accordance with applicable accounting guidance, we establish accruals for litigation and regulatory matters when those matters proceed to a stage where they present loss contingencies that are both probable and reasonably estimable. In such cases, there may be a possible exposure to loss in excess of any amounts accrued. We regularly monitor such matters for developments that could affect the amount of the accrual, and will adjust the accrual amount as appropriate. If the loss contingency in question is not both probable and reasonably estimable, we do not establish an accrual and the matter continues to be monitored for any developments that would make the loss contingency both probable and reasonably estimable. We believe that our accruals for legal proceedings are appropriate and, in the aggregate, are not material to the consolidated financial position of BNY Mellon, although future accruals could have a material effect on the results of operations in a given period. In addition, if we have the potential to recover a portion of an estimated loss from a third party, we record a receivable up to the amount of the accrual that is probable of recovery.

For certain of those matters described here for which a loss contingency may, in the future, be reasonably possible (whether in excess of a related accrued liability or where there is no accrued liability), BNY Mellon is currently unable to estimate a range of reasonably possible loss. For those matters described here where BNY Mellon is able to estimate a reasonably possible loss, the aggregate range of such reasonably possible loss is up to $750 million in excess of the accrued liability (if any) related to those matters. For matters where a reasonably possible loss is denominated in a foreign currency, our estimate is adjusted quarterly based on prevailing exchange rates. We do not consider potential recoveries when estimating reasonably possible losses.

The following describes certain judicial, regulatory and arbitration proceedings involving BNY Mellon:

Mortgage-Securitization Trusts Proceedings

The Bank of New York Mellon has been named as a defendant in a number of legal actions brought by MBS investors alleging that the trustee has expansive duties under the governing agreements, including the duty to investigate and pursue breach of

representation and warranty claims against other parties to the MBS transactions. Four actions commenced in August 2014, December 2014, December 2015, and February 2017 are pending in New York federal court; one action commenced in November 2011 is pending in the Court of Appeals for the Tenth Circuit; and one action commenced in May 2016 is pending in New York state court.

Matters Related to R. Allen Stanford

In late December 2005, Pershing LLC ("Pershing") became a clearing firm for Stanford Group Co. ("SGC"), a registered broker-dealer that was part of a group of entities ultimately controlled by R. Allen Stanford ("Stanford"). Stanford International Bank ("SIB"), also controlled by Stanford, issued certificates of deposit ("CDs"). Some investors allegedly wired funds from their SGC accounts to purchase CDs. In 2009, the Securities and Exchange Commission ("SEC") charged Stanford with operating a Ponzi scheme in connection with the sale of CDs, and SGC was placed into receivership. Alleged purchasers of CDs have filed two putative class action proceedings against Pershing: one in November 2009 in Texas federal court, and one in May 2016 in New Jersey federal court. Thirteen lawsuits have been filed against Pershing in Louisiana, Florida and New Jersey federal courts in January 2010, January and February 2015, October 2015, and May 2016. The purchasers allege that Pershing, as SGC's clearing firm, assisted Stanford in a fraudulent scheme and assert contractual, statutory and common law claims. In March 2019, a group of investors filed a putative class action against The Bank of New York Mellon in New Jersey federal court, making the same allegations as in the prior actions brought against Pershing. All of the cases that have been brought in federal court against Pershing and the case brought against The Bank of New York Mellon have been consolidated in Texas federal court for discovery purposes. On Dec. 19, 2019, the Court of Appeals for the Fifth Circuit affirmed the dismissal of six individual federal lawsuits brought under Florida law, which will also apply to four other similarly situated cases. On March 18, 2020, the plaintiffs in those lawsuits filed a Petition for Writ of Certiorari seeking permission to appeal to the United States Supreme Court. Financial Industry Regulatory Authority, Inc. ("FINRA") arbitration proceedings also have been initiated by alleged purchasers asserting similar claims.

Brazilian Postalis Litigation

BNY Mellon Servicos Financeiros DTVM S.A. ("DTVM"), a subsidiary that provides asset services in Brazil, acts as administrator for certain investment funds in which a public pension fund for postal workers called Postalis-Instituto de Seguridade Social dos Correios e Telégrafos ("Postalis") invested. On Aug. 22, 2014, Postalis sued DTVM in Rio de Janeiro, Brazil for losses related to a Postalis fund for which DTVM is administrator. Postalis alleges that DTVM failed to properly perform duties, including to conduct due diligence of and exert control over the manager. On March 12, 2015, Postalis filed a lawsuit in Rio de Janeiro against DTVM and BNY Mellon Administração de Ativos Ltda. ("Ativos") alleging failure to properly perform duties relating to another fund of which DTVM is administrator and Ativos is manager. On Dec. 14, 2015, Associacão dos Profissionais dos Correios ("ADCAP"), a Brazilian postal workers association, filed a lawsuit in São Paulo against DTVM and other defendants alleging that DTVM improperly contributed to Postalis investment losses. On March 20, 2017, the lawsuit was dismissed without prejudice, and ADCAP has appealed that decision. On Dec. 17, 2015, Postalis filed three lawsuits in Rio de Janeiro against DTVM and Ativos alleging failure to properly perform duties with respect to investments in several other funds. On Feb. 4, 2016, Postalis filed a lawsuit in Brasilia against DTVM, Ativos and BNY Mellon Alocação de Patrimônio Ltda., an investment management subsidiary, alleging failure to properly perform duties and liability for losses with respect to investments in various funds of which the defendants were administrator and/or manager. On Jan. 16, 2018, the Brazilian Federal Prosecution Service ("MPF") filed a civil lawsuit in São Paulo against DTVM alleging liability for Postalis losses based on alleged failures to properly perform certain duties as administrator to certain funds in which Postalis invested or as controller of Postalis's own investment portfolio. On April 18, 2018, the court dismissed the lawsuit without prejudice, and the MPF has appealed that decision. In addition, the Tribunal de Contas da Uniao, an administrative tribunal, has initiated two proceedings with the purpose of determining liability for losses to two investment funds administered by DTVM in which Postalis was the exclusive investor. On Oct. 4, 2019, Postalis and another pension fund filed a request for arbitration in São Paulo against DTVM and Ativos alleging liability for losses to an investment fund for which DTVM was administrator and Ativos was manager. On Oct. 25, 2019, Postalis filed a lawsuit in Rio de Janeiro against DTVM and

Ativos, alleging liability for losses in another fund for which DTVM was administrator and Ativos was manager.

Brazilian Silverado Litigation

DTVM acts as administrator for the Fundo de Investimento em Direitos Creditórios Multisetorial Silverado Maximum ("Silverado Maximum Fund"), which invests in commercial credit receivables. On June 2, 2016, the Silverado Maximum Fund sued DTVM in its capacity as administrator, along with Deutsche Bank S.A. - Banco Alemão in its capacity as custodian and Silverado Gestão e Investimentos Ltda. in its capacity as investment manager. The Fund alleges that each of the defendants failed to fulfill its respective duty, and caused losses to the Fund for which the defendants are jointly and severally liable.

German Tax Matters

German authorities are investigating past "cum/ex" trading, which involved the purchase of equity securities on or shortly before the dividend date, but settled after that date, potentially resulting in an unwarranted refund of withholding tax. German authorities have taken the view that past cum/ex trading may have resulted in tax avoidance or evasion. European subsidiaries of BNY Mellon have been informed by German authorities about investigations into potential cum/ex trading by certain third-party investment funds, where one of the subsidiaries had acquired entities that served as depositary and/or fund manager for those third-party investment funds. We have received information requests from the authorities relating to pre-acquisition activity and are cooperating fully with those requests. We have not received any tax demand concerning cum/ex trading. In August 2019, the District Court of Bonn ordered that one of these subsidiaries be joined as a secondary party in connection with the prosecution of unrelated individual defendants. Trial commenced in September 2019. In March 2020, the court stated that it would refrain from taking action against the subsidiary in order to expedite the conclusion of the trial. The court convicted the unrelated individual defendants, and determined that the cum/ex trading activities of the relevant third-party investment funds were unlawful. In connection with the acquisition of the subject entities, we obtained an indemnity for liabilities from the sellers that we intend to pursue as necessary.

Note 19–Lines of business

We have an internal information system that produces performance data along product and service lines for our two principal businesses and the Other segment. The primary products and services and types of revenue for our principal businesses and a description of the Other segment are presented in Note 24 of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

Business accounting principles

Our business data has been determined on an internal management basis of accounting, rather than the generally accepted accounting principles used for consolidated financial reporting. These measurement principles are designed so that reported results of the businesses will track their economic performance.

Business results are subject to reclassification when organizational changes are made. In the first quarter of 2020, we reclassified the results of certain services provided between the segments from noninterest expense to fee and other revenue. This activity is offset in the Other segment and relates to services that are also provided to third parties and provides consistency with the reporting of the revenues. This adjustment had no impact on income before taxes of the businesses. Also in the first quarter of 2020, we reclassified the results related to certain lending activities from the Wealth Management business to the Pershing business. These loans were originated by the Wealth Management business as a service to Pershing clients. This resulted in an increase in total revenue, noninterest expense and income before taxes in the Pershing business and corresponding decrease in the Wealth Management business. Prior periods have been restated for both reclassifications. The results are also subject to refinements in revenue and expense allocation methodologies, which are typically reflected on a prospective basis.

The accounting policies of the businesses are the same as those described in Note 1 of the Notes to Consolidated Financial Statements in our 2019 Annual Report.

The results of our businesses are presented and analyzed on an internal management reporting basis.

- Revenue amounts reflect fee and other revenue generated by each business and includes revenue

for services provided between the segments that are also provided to third parties. Fee and other revenue transferred between businesses under revenue transfer agreements is included within other revenue in each business.

- Revenues and expenses associated with specific client bases are included in those businesses. For example, foreign exchange activity associated with clients using custody products is included in Investment Services.
- Net interest revenue is allocated to businesses based on the yields on the assets and liabilities generated by each business. We employ a funds transfer pricing system that matches funds with the specific assets and liabilities of each business based on their interest sensitivity and maturity characteristics.
- The provision for credit losses associated with the respective credit portfolios is reflected in each business segment.
- Incentives expense related to restricted stock is allocated to the businesses.
- Support and other indirect expenses, including services provided between segments that are not provided to third parties or not subject to a revenue transfer agreement, are allocated to businesses based on internally developed methodologies and reflected in noninterest expense.
- Recurring FDIC expense is allocated to the businesses based on average deposits generated within each business.
- Litigation expense is generally recorded in the business in which the charge occurs.
- Management of the securities portfolio is a shared service contained in the Other segment. As a result, gains and losses associated with the valuation of the securities portfolio are generally included in the Other segment.
- Client deposits serve as the primary funding source for our securities portfolio. We typically allocate all interest revenue to the businesses generating the deposits. Accordingly, accretion related to the portion of the securities portfolio restructured in 2009 has been included in the results of the businesses.
- Balance sheet assets and liabilities and their related income or expense are specifically assigned to each business. Businesses with a net liability position have been allocated assets.
- Goodwill and intangible assets are reflected within individual businesses.

The following consolidating schedules present the contribution of our businesses to our overall profitability.

For the quarter ended March 31, 2020 *(dollars in millions)*	**Investment Services**	**Investment Management**		**Other**	**Consolidated**	
Total fee and other revenue	**$ 2,436**	**$ 846**	*(a)*	**$ 30**	**$ 3,312**	*(a)*
Net interest revenue (expense)	**806**	**52**		**(44)**	**814**	
Total revenue (loss)	**3,242**	**898**	*(a)*	**(14)**	**4,126**	*(a)*
Provision for credit losses	**149**	**9**		**11**	**169**	
Noninterest expense	**1,987**	**695**		**30**	**2,712**	
Income (loss) before income taxes	**$ 1,106**	**$ 194**	*(a)*	**$ (55)**	**$ 1,245**	*(a)*
Pre-tax operating margin *(b)*	**34%**	**22%**		**N/M**	**30%**	
Average assets	**$ 304,089**	**$ 30,543**		**$ 50,646**	**$ 385,278**	

(a) Total fee and other revenue includes net loss from consolidated investment management funds of $20 million, representing $38 million of losses and a loss attributable to noncontrolling interests of $18 million. Total revenue and income before income taxes are net of a loss attributable to noncontrolling interests of $18 million.

(b) Income before income taxes divided by total revenue.

N/M - Not meaningful.

For the quarter ended Dec. 31, 2019 *(dollars in millions)*	Investment Services	*(a)*	Investment Management	*(a)*	Other	*(a)*	Consolidated	
Total fee and other revenue	$ 2,236		$ 924	*(b)*	$ 794		$ 3,954	*(b)*
Net interest revenue (expense)	778		47		(10)		815	
Total revenue	3,014		971	*(b)*	784		4,769	*(b)*
Provision for credit losses	(5)		—		(3)		(8)	
Noninterest expense	2,179		731		54		2,964	
Income (loss) before income taxes	$ 840		$ 240	*(b)*	$ 733		$ 1,813	*(b)*
Pre-tax operating margin *(c)*	28%		25%		N/M		38%	
Average assets	$ 278,098		$ 28,481		$ 47,762		$ 354,341	

(a) Prior periods have been restated to reflect the reclassifications.
(b) Total fee and other revenue includes net income from consolidated investment management funds of $8 million, representing $17 million of income and noncontrolling interests of $9 million. Total revenue and income before income taxes are net of noncontrolling interests of $9 million.
(c) Income before income taxes divided by total revenue.
N/M - Not meaningful.

For the quarter ended March 31, 2019 *(dollars in millions)*	Investment Services	*(a)*	Investment Management	*(a)*	Other	*(a)*	Consolidated	
Total fee and other revenue	$ 2,161		$ 869	*(b)*	$ 18		$ 3,048	*(b)*
Net interest revenue (expense)	804		67		(30)		841	
Total revenue (loss)	2,965		936	*(b)*	(12)		3,889	*(b)*
Provision for credit losses	8		1		(2)		7	
Noninterest expense	1,981		669		49		2,699	
Income (loss) before income taxes	$ 976		$ 266	*(b)*	$ (59)		$ 1,183	*(b)*
Pre-tax operating margin *(c)*	33%		28%		N/M		31%	
Average assets	$ 256,034		$ 31,857		$ 48,274		$ 336,165	

(a) Prior periods have been restated to reflect the reclassifications.
(b) Total fee and other revenue includes net income from consolidated investment management funds of $16 million, representing $26 million of income and noncontrolling interests of $10 million. Total revenue and income before income taxes are net of noncontrolling interests of $10 million.
(c) Income before income taxes divided by total revenue.
N/M - Not meaningful.

Note 20–Supplemental information to the Consolidated Statement of Cash Flows

Non-cash investing and financing transactions that, appropriately, are not reflected in the consolidated statement of cash flows are listed below.

Non-cash investing and financing transactions *(in millions)*	Three months ended March 31, **2020**	2019	
Change in assets of consolidated investment management funds	**$ 16**	$ 11	
Change in liabilities of consolidated investment management funds	**—**	1	
Change in nonredeemable noncontrolling interests of consolidated investment management funds	**8**	21	
Securities purchased not settled	**1,667**	1,407	
Securities matured not settled	**9**	680	
Premises and equipment/capitalized software funded by finance lease obligations	**—**	13	
Premises and equipment/operating lease obligations	**15**	1,281	*(a)*
Investment redemptions not settled	**37**	—	

(a) Includes $1,244 million related to the adoption of ASU 2016-02, Leases, and $37 million related to new or modified leases.

Item 4. Controls and Procedures

Disclosure controls and procedures

Our management, including the Chief Executive Officer and Chief Financial Officer, with participation by the members of the Disclosure Committee, has responsibility for ensuring that there is an adequate and effective process for establishing, maintaining, and evaluating disclosure controls and procedures that are designed to ensure that information required to be disclosed by us in our SEC reports is timely recorded, processed, summarized and reported and that information required to be disclosed by BNY Mellon is accumulated and communicated to BNY Mellon's management to allow timely decisions regarding the required disclosure. In addition, our ethics hotline can also be used by employees and others for the anonymous communication of concerns about financial controls or reporting matters. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

As of the end of the period covered by this report, an evaluation was carried out under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective.

Changes in internal control over financial reporting

In the ordinary course of business, we may routinely modify, upgrade or enhance our internal controls and procedures for financial reporting. There have not been any changes in our internal control over financial reporting as defined in Rule 13a-15(f) of the Exchange Act during the first quarter of 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Some statements in this Quarterly Report are forward-looking. These include all statements about the usefulness of Non-GAAP measures, the future results of BNY Mellon, our businesses, financial, liquidity and capital condition, results of operations, liquidity, risk and capital management and processes, goals, strategies, outlook, objectives, expectations (including those regarding our performance results, expenses, nonperforming assets, products, impacts of currency fluctuations, impacts of trends on our businesses, regulatory, technology, market, economic or accounting developments and the impacts of such developments on our businesses, legal proceedings and other contingencies), effective tax rate, net interest revenue, estimates (including those regarding expenses, losses inherent in our credit portfolios and capital ratios), intentions (including those regarding our capital returns and expenses, including our investments in technology and pension expense), targets, opportunities, potential actions, growth and initiatives, including the potential effects of the coronavirus pandemic on any of the foregoing.

In this report, any other report, any press release or any written or oral statement that BNY Mellon or its executives may make, 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.

Actual results may differ materially from those expressed or implied as a result of a number of factors, including those discussed in "Risk Factors" in this Quarterly Report and our 2019 Annual Report, such as:

- a communications or technology disruption or failure within our infrastructure or the infrastructure of third parties that results in a loss of information, delays our ability to access information or impacts our ability to provide services to our clients may materially adversely affect our business, financial condition and results of operations;
- a cybersecurity incident, or a failure to protect our computer systems, networks and information and our clients' information against cybersecurity threats, could result in the theft, loss, unauthorized access to, disclosure, use or alteration of information, system or network failures, or loss of access to information; any such incident or failure could adversely impact our ability to conduct our businesses, damage our reputation and cause losses;
- our business may be materially adversely affected by operational risk;
- the coronavirus pandemic is adversely affecting us and creates significant risks and uncertainties for our business, and the ultimate impact of the pandemic on us will depend on future developments, which are highly uncertain and cannot be predicted;
- our risk management framework may not be effective in mitigating risk and reducing the potential for losses;
- we are subject to extensive government rulemaking, policies, regulation and supervision; these rules and regulations 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;
- regulatory or enforcement actions or litigation could materially adversely affect our results of operations or harm our businesses or reputation;
- our businesses may be negatively affected by adverse events, publicity, government scrutiny or other reputational harm;
- failure to satisfy regulatory standards, including "well capitalized" and "well managed" status or capital adequacy and liquidity rules more generally, could result in limitations on our activities and adversely affect our business and financial condition;
- a failure or circumvention of our controls and procedures could have a material adverse effect on our business, reputation, results of operations and financial condition;
- the application of our Title I preferred resolution strategy or resolution under the Title II orderly liquidation authority could adversely affect the Parent's liquidity and financial condition and the Parent's security holders;
- impacts from climate change, natural disasters, acts of terrorism, pandemics, global conflicts and other geopolitical events may have a negative impact on our business and operations;
- we are dependent on fee-based business for a substantial majority of our revenue and our fee-based revenues could be adversely affected by slowing in market activity, weak financial markets, underperformance and/or negative trends in savings rates or in investment preferences;

- weakness and volatility in financial markets and the economy generally may materially adversely affect our business, results of operations and financial condition;
- changes in interest rates and yield curves could have a material adverse effect on our profitability;
- transitions away from and the anticipated replacement of LIBOR and other IBORs could adversely impact our business and results of operations;
- the UK's withdrawal from the EU may have negative effects on global economic conditions, global financial markets, and our business and results of operations;
- we may experience losses on securities related to volatile and illiquid market conditions, reducing our earnings and impacting our financial condition;
- the failure or perceived weakness of any of our significant clients or counterparties, many of whom are major financial institutions and sovereign entities, and our assumption of credit and counterparty risk, could expose us to loss and adversely affect our business;
- our business, financial condition and results of operations could be adversely affected if we do not effectively manage our liquidity;
- we could incur losses if our allowance for credit losses, including loan and lending-related commitments reserves, is inadequate;
- any material reduction in our credit ratings or the credit ratings of our principal bank subsidiaries, The Bank of New York Mellon or BNY Mellon, N.A., could increase the cost of funding and borrowing to us and our rated subsidiaries and have a material adverse effect on our results of operations and financial condition and on the value of the securities we issue;
- new lines of business, new products and services or transformational or strategic project initiatives may subject us to additional risks, and the failure to implement these initiatives could affect our results of operations;
- we are subject to competition in all aspects of our business, which could negatively affect our ability to maintain or increase our profitability;
- our business may be adversely affected if we are unable to attract and retain employees;
- our strategic transactions present risks and uncertainties and could have an adverse effect on our business, results of operations and financial condition;
- tax law changes or challenges to our tax positions with respect to historical transactions may adversely affect our net income, effective tax rate and our overall results of operations and financial condition;
- our ability to return capital to shareholders is subject to the discretion of our Board of Directors and may be limited by U.S. banking laws and regulations, including those governing capital and the approval of our capital plan, applicable provisions of Delaware law or our failure to pay full and timely dividends on our preferred stock;
- the Parent is a non-operating holding company, and as a result, is dependent on dividends from its subsidiaries and extensions of credit from its IHC to meet its obligations, including with respect to its securities, and to provide funds for share repurchases and payment of dividends to its stockholders; and
- changes in accounting standards governing the preparation of our financial statements and future events could have a material impact on our reported financial condition, results of operations, cash flows and other financial data.

Investors should consider all risk factors discussed in this Quarterly Report and our 2019 Annual Report and any subsequent reports filed with the SEC by BNY Mellon pursuant to the Exchange Act. 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 report.

Item 1. Legal Proceedings.

The information required by this Item is set forth in the "Legal proceedings" section in Note 18 of the Notes to Consolidated Financial Statements, which portion is incorporated herein by reference in response to this item.

Item 1A. Risk Factors

The following discussion supplements the discussion of risk factors that could affect our business, financial condition or results of operations set forth in Part I, Item 1A., Risk Factors, on pages 75 through 99 of our 2019 Annual Report. The discussion of Risk Factors, as so supplemented, sets forth our most significant risk factors that could affect our business, financial condition or results of operations. However, other factors, besides that discussed below or in our 2019 Annual Report or other of our reports filed with or furnished to the SEC, also could adversely affect our business or results. We cannot assure you that the risk factors described below or elsewhere in this report and such other reports address all potential risks that we may face. These risk factors also serve to describe factors which may cause our results to differ materially from those described in forward-looking statements included herein or in other documents or statements that make reference to this Form 10-Q. See "Forward-looking Statements."

The coronavirus pandemic is adversely affecting us and creates significant risks and uncertainties for our business, and the ultimate impact of the pandemic on us will depend on future developments, which are highly uncertain and cannot be predicted.

The coronavirus pandemic has negatively affected the global economy, lowered equity market valuations, decreased liquidity in fixed income markets, created significant volatility and disruption in financial markets, increased unemployment levels and disrupted businesses in many industries. This has resulted in increased demand on our transaction processing and clearance capabilities in many of our Investment Services businesses and volatility in the levels and mix of the assets under management of our Asset Management business. Moreover, governmental actions in response to the pandemic are meaningfully influencing the interest rate environment, which has, and may continue to, reduce our net interest margin and result in our granting money market fee waivers. The effects of the pandemic have resulted, and could continue to result, in higher and more volatile provisions for credit losses for financial instruments subject to ASU 2016-13, *Financial Instruments - Credit Losses: Measurement of Credit Losses on Financial Instruments*, held by us. The continuing effects of the pandemic could also result in increased credit losses and charge-offs, particularly if our credit exposures continue to increase and as more clients and customers experience credit deterioration, as well as increased risk of other asset write-downs and impairments, including, but not limited to, equity investments, goodwill and intangibles. Any of these events could potentially result in a material adverse impact on our business.

In addition, reliance on work-from-home capabilities by us, our clients and other industry participants, as well as the potential inability to maintain critical staff in operational facilities due to stay-at-home orders across jurisdictions, illness and quarantines present heightened cybersecurity, information security and operational risks. Any disruption to our ability to deliver services to our clients and customers could result in potential liability to our clients and customers, regulatory fines, penalties or other sanctions, increased operational costs or harm to our reputation.

The pandemic has resulted in an increase in our balance sheet and corresponding reduction in our capital ratios, in particular leverage ratios, as we experience deposit inflows. Moreover, on March 15, 2020, we, along with the other member banks of the Financial Services Forum, announced that we would suspend share repurchases through the second quarter of 2020 to preserve capital and liquidity in order to further our objective of using our capital and liquidity to support our clients and customers. The pandemic may cause us to further limit capital distributions.

The extent to which the pandemic impacts our business, financial condition, liquidity and results of operations, as well as our regulatory capital, will depend on future developments, which are highly uncertain and cannot be predicted, including the scope and duration of the pandemic, the effectiveness of our work-from-home arrangements, actions taken by governmental authorities in response to the pandemic, as well as the direct and indirect impact on us, our clients and customers, and third parties. To

the extent the pandemic adversely affects our business, financial condition, liquidity or results of operations, it may also have the effect of heightening many of the other risks described in the section entitled "Risk Factors" in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

(c) The following table discloses repurchases of our common stock made in the first quarter of 2020. All of the Company's preferred stock outstanding has preference over the Company's common stock with respect to the payment of dividends.

Issuer purchases of equity securities

Share repurchases – first quarter of 2020 *(dollars in millions, except per share amounts; common shares in thousands)*	Total shares repurchased	Average price per share	Total shares repurchased as part of a publicly announced plan or program	Maximum approximate dollar value of shares that may yet be purchased under the publicly announced plans or programs at March 31, 2020	
January 2020	11,018	$ 45.71	11,018	$ 1,415	
February 2020	8,850	46.29	8,850	1,005	
March 2020	1,810	39.62	1,810	933	
First quarter of 2020 *(a)*	**21,678**	**$ 45.44**	**21,678**	933	*(b)*

(a) Includes 1,924 thousand shares repurchased at a purchase price of $87 million from employees, primarily in connection with the employees' payment of taxes upon the vesting of restricted stock. The average price per share of open market purchases was $45.47.

(b) Represents the maximum value of the shares authorized to be repurchased through the second quarter of 2020, including employee benefit plan repurchases.

In June 2019, in connection with the Federal Reserve's non-objection to our 2019 capital plan, BNY Mellon announced a share repurchase plan providing for the repurchase of up to $3.94 billion of common stock starting in the third quarter of 2019 and continuing through the second quarter of 2020. This new share repurchase plan replaces all previously authorized share repurchase plans. The first quarter 2020 share repurchases were completed prior to the announcement, issued jointly by us and the other members of the Financial Services Forum, to temporarily suspend share repurchases through the second quarter of 2020.

Share repurchases may be executed through open market repurchases, in privately negotiated transactions or by other means, including through repurchase plans designed to comply with Rule 10b5-1 and other derivative, accelerated share repurchase and other structured transactions. The timing and exact amount of any common stock repurchases will depend on various factors, including market conditions and the common stock trading price; the Company's capital position, liquidity and financial performance; alternative uses of capital; and legal and regulatory considerations.

Item 6. Exhibits.

The list of exhibits required to be filed as exhibits to this report appears below.

Index to Exhibits

Exhibit No.	Description	Method of Filing
3.1	Restated Certificate of Incorporation of The Bank of New York Mellon Corporation.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 000-52710) as filed with the Commission on July 2, 2007, and incorporated herein by reference.
3.2	Certificate of Designations of The Bank of New York Mellon Corporation with respect to Series A Noncumulative Preferred Stock, dated June 15, 2007.	Previously filed as Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 000-52710) as filed with the Commission on July 5, 2007, and incorporated herein by reference.
3.3	Certificate of Designations of The Bank of New York Mellon Corporation with respect to Series C Noncumulative Perpetual Preferred Stock, dated Sept. 13, 2012.	Previously filed as Exhibit 3.2 to the Company's Registration Statement on Form 8A12B (File No. 001-35651) as filed with the Commission on Sept. 14, 2012, and incorporated herein by reference.
3.4	Certificate of Designations of The Bank of New York Mellon Corporation with respect to the Series D Noncumulative Perpetual Preferred Stock, dated May 16, 2013.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-35651) as filed with the Commission on May 16, 2013, and incorporated herein by reference.
3.5	Certificate of Designations of The Bank of New York Mellon Corporation with respect to the Series E Noncumulative Perpetual Preferred Stock, dated April 27, 2015.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-35651) as filed with the Commission on April 28, 2015, and incorporated herein by reference.
3.6	Certificate of Designations of The Bank of New York Mellon Corporation with respect to the Series F Noncumulative Perpetual Preferred Stock, dated July 29, 2016.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-35651) as filed with the Commission on Aug. 1, 2016, and incorporated herein by reference.
3.7	Certificate of Amendment to the Company's Restated Certificate of Incorporation, as filed with the Secretary of State of the State of Delaware on April 9, 2019.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-35651) as filed with the Commission on April 10, 2019, and incorporated herein by reference.
3.8	Amended and Restated By-Laws of The Bank of New York Mellon Corporation, as amended and restated on Feb. 12, 2018.	Previously filed as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-35651) as filed with the Commission on Feb. 13, 2018, and incorporated herein by reference.

Exhibit No.	Description	Method of Filing
4.1	None of the instruments defining the rights of holders of long-term debt of the Parent or any of its subsidiaries represented long-term debt in excess of 10% of the total assets of the Company as of March 31, 2020. The Company hereby agrees to furnish to the Commission, upon request, a copy of any such instrument.	N/A
31.1	Certification of the Chief Executive Officer pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
31.2	Certification of the Chief Financial Officer pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed herewith.
32.1	Certification of the Chief Executive Officer pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith.
32.2	Certification of the Chief Financial Officer pursuant to 18 U.S.C. §1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished herewith.
101.INS	Inline XBRL Instance Document.	The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.	Filed herewith.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.	Filed herewith.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.	Filed herewith.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.	Filed herewith.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.	Filed herewith.
104	The cover page of the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, formatted in inline XBRL.	The cover page interactive data file is embedded within the inline XBRL document and included in Exhibit 101.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

THE BANK OF NEW YORK MELLON CORPORATION
(Registrant)

Date: May 7, 2020

By: /s/ Kurtis R. Kurimsky
Kurtis R. Kurimsky
Corporate Controller
(Duly Authorized Officer and
Principal Accounting Officer of
the Registrant)

Exhibit 31.1

CERTIFICATION

I, Thomas P. Gibbons, certify that:

1. I have reviewed this quarterly report on Form 10-Q of The Bank of New York Mellon Corporation (the "registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2020

/s/ Thomas P. Gibbons

Name: Thomas P. Gibbons

Title: Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Michael P. Santomassimo, certify that:

1. I have reviewed this quarterly report on Form 10-Q of The Bank of New York Mellon Corporation (the "registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 7, 2020

/s/ Michael P. Santomassimo

Name: Michael P. Santomassimo

Title: Chief Financial Officer

Exhibit 32.1

CERTIFICATION

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of The Bank of New York Mellon Corporation ("BNY Mellon"), hereby certifies, to his knowledge, that BNY Mellon's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 (the "Report") fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of BNY Mellon.

Dated: May 7, 2020

/s/ Thomas P. Gibbons

Name: Thomas P. Gibbons

Title: Chief Executive Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.

Exhibit 32.2

CERTIFICATION

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of The Bank of New York Mellon Corporation ("BNY Mellon"), hereby certifies, to his knowledge, that BNY Mellon's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 (the "Report") fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of BNY Mellon.

Dated: May 7, 2020

/s/ Michael P. Santomassimo

Name: Michael P. Santomassimo

Title: Chief Financial Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.