

Note 22: Employee Compensation – Pension and Other Employee Future Benefits

Pension and Other Employee Future Benefit Plans

We sponsor a number of arrangements globally, with the largest of such arrangements located in Canada, the United States and the United Kingdom, that provide pension and other employee future benefits to our retired and current employees. The largest of these arrangements, by defined benefit obligation, are the primary defined benefit pension plans for employees in Canada and the United States and the primary other employee future benefit plan for employees in Canada.

Pension arrangements include defined benefit pension plans, as well as supplementary arrangements that provide pension benefits in excess of statutory limits. Generally, under these plans we provide retirement benefits based on an employee's years of service and average annual earnings over a period of time prior to retirement. Our pension and other employee future benefit expenses, recorded in employee compensation expense, mainly comprise the current service cost plus or minus the interest on net defined benefit assets or liabilities. In addition, we provide defined contribution pension plans to employees in some of our subsidiaries. The costs of these plans, recorded in employee compensation expense, are equal to our contributions to the plans.

The defined benefit pension plans for our employees in the United States were closed to new members on April 1, 2016 and closed to future accruals on March 1, 2017. A defined contribution pension plan was made available for employees affected by the closure. As a result of the closure of these plans, we recorded a curtailment gain of \$52 million in non-interest expense, employee compensation, in our Consolidated Statement of Income in 2016.

We also provide other employee future benefits, including health and dental care benefits and life insurance, for eligible current and retired employees.

Short-term employee benefits, such as salaries, paid absences, bonuses and other benefits, are accounted for on an accrual basis over the period in which the employees provide the related services.

Investment Policy

The assets of the defined benefit pension plans are managed in accordance with all applicable laws and regulations. The plans are administered under a defined governance structure, with the oversight resting with the Board of Directors.

The plans are managed under a framework that considers both assets and liabilities in the development of an investment policy and in managing risk. Over the past several years, we have implemented a liability-driven investment strategy for the primary Canadian plan to enhance risk-adjusted returns while reducing the plan's surplus volatility. This strategy has reduced the impact of the plan on our regulatory capital.

The plans invest in asset classes that include equities, fixed income and alternative strategies, under established investment guidelines. Plan assets are diversified across asset classes and by geographic exposure. They are managed by asset management firms that are responsible for the selection of investment securities. Derivative instruments are permitted under policy guidelines and are generally used to hedge foreign currency exposures, manage interest rate exposures or replicate the return of an asset.

Asset Allocations

The asset allocation ranges and weighted-average actual asset allocations of our primary pension plans, based on the fair market values at October 31, are as follows:

	Pension benefit plans		
	Target Range 2017	Actual 2017	Actual 2016
Equities	25% – 50%	40%	42%
Fixed income investments	25% – 55%	46%	44%
Other	10% – 40%	14%	14%

Our pension and other employee future benefit plan assets are measured at fair value on a recurring basis.

Risk Management

The plans are exposed to various risks, including market risk (interest rate, equity and foreign currency risks), credit risk, operational risk, surplus risk and longevity risk. We follow a number of approaches to monitor and actively manage these risks, including:

- monitoring surplus-at-risk, which measures a plan's risk in an asset-liability framework;
- stress testing and scenario analyses to evaluate the volatility of the plans' financial positions and any potential impact on the bank;
- hedging of currency exposures and interest rate risk within policy limits;
- controls related to asset mix allocations, geographic allocations, portfolio duration, credit quality of debt securities, sector guidelines, issuer/counterparty limits and others; and
- ongoing monitoring of exposures, performance and risk levels.

Pension and Other Employee Future Benefit Liabilities

Our actuaries perform valuations of our defined benefit obligations for pension and other employee future benefits as at October 31 of each year using the projected unit credit method based on management's assumptions about discount rates, rates of compensation increase, retirement age, mortality and health care cost trend rates.

The discount rates for the primary Canadian and U.S. pension and other employee future benefit plans were selected based on the yields of high-quality AA rated corporate bond yields with terms matching the plans' cash flows.

The fair value of plan assets is deducted from the defined benefit obligation to determine the net defined benefit asset or liability. For defined benefit pension plans that are in a net defined benefit asset position, the recognized asset is limited to the present value of economic benefits available in the form of future refunds from the plan or reductions in future contributions to the plan (the "asset ceiling"). Changes in the asset ceiling are recognized in other comprehensive income. Components of the change in our net defined benefit assets or liabilities and our pension and other employee future benefit expense are as follows:

Current service cost represents benefits earned in the current year. The cost is determined with reference to the current workforce and the amount of benefits to which employees will be entitled upon retirement, based on the provisions of our benefit plans.

Interest on net defined benefit asset or liability represents the increase in the net defined benefit asset or liability that results from the passage of time and is determined by applying the discount rate to the net defined benefit asset or liability.

Actuarial gains and losses may arise in two ways. First, each year our actuaries recalculate the defined benefit obligations and compare them to those estimated as at the previous year end. Any differences that result from changes in demographic and economic assumptions or from plan member experience being different from management's expectations at the previous year end are considered actuarial gains or losses. Second, actuarial gains and losses arise when there are differences between the discount rate and actual returns on plan assets. Actuarial gains and losses are recognized immediately in other comprehensive income as they occur and are not subsequently reclassified to income in future periods.

Plan amendments are changes in our defined benefit obligations that result from changes to provisions of the plans. The effects of plan amendments are recognized immediately in income when a plan is amended.

Settlements occur when defined benefit obligations for plan participants are settled, usually through lump sum cash payments, and as a result we no longer have any obligation to provide such participants with benefit payments in the future.

Funding of Pension and Other Employee Future Benefit Plans

We fund our defined benefit pension plans in Canada and the United States in accordance with statutory requirements, and the assets in these plans are used to pay benefits to retirees and other employees. Some groups of employees are also eligible to make voluntary contributions in order to receive enhanced benefits. Our supplementary pension plan in Canada is funded, while in the United States the supplementary pension plan is unfunded.

Our other employee future benefit plans in Canada and the United States are either partially funded or unfunded. Benefit payments related to these plans are paid either through the respective plan or directly by us.

We measure the fair value of plan assets for our plans in Canada and the United States as at October 31. In addition to actuarial valuations for accounting purposes, we are required to prepare valuations for determining our minimum funding requirements for our pension arrangements in accordance with the relevant statutory framework (our "funding valuation"). An annual funding valuation is performed for our plans in Canada and the United States. The most recent funding valuation for our primary Canadian pension plan was performed as at October 31, 2017 and the most recent funding valuation for our primary U.S. pension plan was performed as at January 1, 2017. Benefit payments for fiscal 2018 are estimated to be \$508 million.

A summary of plan information for the past three years is as follows:

(Canadian \$ in millions)	Pension benefit plans			Other employee future benefit plans		
	2017	2016	2015	2017	2016	2015
Defined benefit obligation	8,846	8,992	7,934	1,460	1,493	1,323
Fair value of plan assets	8,990	8,655	8,072	157	150	131
Surplus (deficit) and net defined benefit asset (liability)	144	(337)	138	(1,303)	(1,343)	(1,192)
Surplus (deficit) is comprised of:						
Funded or partially funded plans	339	(127)	362	28	7	(32)
Unfunded plans	(195)	(210)	(224)	(1,331)	(1,350)	(1,160)
Surplus (deficit) and net defined benefit asset (liability)	144	(337)	138	(1,303)	(1,343)	(1,192)

Pension and Other Employee Future Benefit Expenses

Pension and other employee future benefit expenses are determined as follows:

(Canadian \$ in millions)	Pension benefit plans			Other employee future benefit plans		
	2017	2016	2015	2017	2016	2015
Annual benefits expense						
Current service cost	254	224	286	32	25	29
Net interest (income) expense on net defined benefit (asset) liability	7	(10)	(5)	47	52	50
Gain on settlement	-	-	(13)	-	-	-
Administrative expenses	5	5	4	-	-	-
Remeasurement of other long-term benefits	-	-	-	(6)	6	4
Benefits expense	266	219	272	73	83	83
Canada and Quebec pension plan expense	75	73	73	-	-	-
Defined contribution expense	123	96	86	-	-	-
Total annual pension and other employee future benefit expenses recognized in the Consolidated Statement of Income	464	388	431	73	83	83

Weighted-average assumptions used to determine benefit expenses

	Pension benefit plans			Other employee future benefit plans		
	2017	2016	2015	2017	2016	2015
Discount rate at beginning of year (2)(3)	3.4%	4.2%	4.1%	3.6%	4.4%	4.2%
Rate of compensation increase	2.8%	2.7%	2.9%	2.4%	2.4%	2.6%
Assumed overall health care cost trend rate	na	na	na	5.2% (1)	5.3% (1)	5.5% (1)

(1) Trending to 4.5% in 2031 and remaining at that level thereafter.

(2) The pension benefit current service cost is calculated using a separate discount rate of 3.68% and 4.48% for 2017 and 2016, respectively.

(3) The other employee future benefit plans current service cost is calculated using a separate discount rate of 3.78% and 4.66% for 2017 and 2016, respectively.

na - not applicable

Assumptions regarding future mortality are based on published statistics and mortality tables calibrated to plan experience, when applicable. The current life expectancies underlying the amounts of the defined benefit obligations for our primary plans are as follows:

(Years)	Canada		United States	
	2017	2016	2017	2016
Life expectancy for those currently age 65				
Males	23.6	23.5	22.0	22.2
Females	24.0	23.9	23.4	23.8
Life expectancy at age 65 for those currently age 45				
Males	24.6	24.5	23.2	23.4
Females	24.9	24.9	24.6	25.0

Changes in the estimated financial positions of our pension benefit plans and other employee future benefit plans are as follows:

(Canadian \$ in millions, except as noted)	Pension benefit plans		Other employee future benefit plans	
	2017	2016	2017	2016
Defined benefit obligation				
Defined benefit obligation at beginning of year	8,992	7,934	1,493	1,323
Current service cost	254	224	32	25
Interest cost	300	326	52	57
Benefits paid	(448)	(406)	(45)	(42)
Employee contributions	15	13	5	4
Actuarial (gains) losses due to:				
Changes in demographic assumptions	(127)	(34)	(107)	(37)
Changes in financial assumptions	(150)	1,041	(2)	164
Plan member experience	45	(9)	39	(6)
Foreign exchange and other	(35)	(97)	(7)	5
Defined benefit obligation at end of year	8,846	8,992	1,460	1,493
Wholly or partially funded defined benefit obligation	8,651	8,782	129	143
Unfunded defined benefit obligation	195	210	1,331	1,350
Total defined benefit obligation	8,846	8,992	1,460	1,493
Weighted-average assumptions used to determine the defined benefit obligation				
Discount rate at end of year	3.5%	3.4%	3.6%	3.6%
Rate of compensation increase	2.4%	2.8%	2.0%	2.4%
Assumed overall health care cost trend rate	na	na	5.2% (1)	5.3% (1)
Fair value of plan assets				
Fair value of plan assets at beginning of year	8,655	8,072	150	131
Interest income	293	336	5	5
Return on plan assets (excluding interest income)	277	532	8	10
Employer contributions	219	235	40	38
Employee contributions	15	13	5	4
Benefits paid	(448)	(406)	(45)	(42)
Administrative expenses	(5)	(5)	-	-
Foreign exchange and other	(16)	(122)	(6)	4
Fair value of plan assets at end of year	8,990	8,655	157	150
Surplus (deficit) and net defined benefit asset (liability) at end of year	144	(337)	(1,303)	(1,343)
Recorded in:				
Other assets	508	118	-	-
Other liabilities	(364)	(455)	(1,303)	(1,343)
Surplus (deficit) and net defined benefit asset (liability) at end of year	144	(337)	(1,303)	(1,343)
Actuarial gains (losses) recognized in other comprehensive income				
Net actuarial gains on plan assets	277	532	8	10
Actuarial gains (losses) on defined benefit obligation due to:				
Changes in demographic assumptions	127	34	104	34
Changes in financial assumptions	150	(1,041)	-	(160)
Plan member experience	(45)	9	(41)	12
Foreign exchange and other	(3)	(8)	-	-
Actuarial gains (losses) recognized in other comprehensive income for the year	506	(474)	71	(104)

(1) Trending to 4.5% in 2031 and remaining at that level thereafter.

na - not applicable

Our pension and other employee future benefit plan assets are measured at fair value on a recurring basis. The fair values of plan assets held by our primary plans as at October 31 are as follows:

(Canadian \$ in millions)	Canadian plans		U.S. plans (1)	
	2017	2016	2017	2016
Cash and money market funds (2)	85	68	55	48
Securities issued or guaranteed by: (3)				
Canadian federal government	192	144	-	-
Canadian provincial and municipal governments	797	722	-	-
U.S. federal government	20	3	307	145
U.S. states, municipalities and agencies	-	-	16	18
Pooled funds (4)	3,673	3,451	82	106
Derivative instruments	(29)	(26)	-	-
Corporate debt (5)	747	881	520	481
Corporate equity (2)	938	832	354	539
	6,423	6,075	1,334	1,337

(1) All of the U.S. plans' assets have quoted prices in active markets, except pooled funds, corporate debt and securities issued or guaranteed by U.S. states, municipalities and agencies.

(2) \$80 million (\$61 million in 2016) of the cash and money market funds and corporate equity are held by Canadian plans as at October 31, 2017 and 2016 have quoted prices in active markets.

(3) \$622 million (\$537 million in 2016) of securities issued or guaranteed by governments held by Canadian plans have quoted prices in active markets.

(4) \$1,743 million (\$1,607 million in 2016) of pooled funds held by Canadian plans have quoted prices in active markets.

(5) \$9 million (\$7 million in 2016) of corporate debt held by Canadian plans has quoted prices in active markets.

No plan assets are directly invested in the bank's or related parties' securities as at October 31, 2017 and 2016. As at October 31, 2017, our primary Canadian plan indirectly held, through pooled funds, approximately \$3 million (\$13 million in 2016) of our common shares. The plans do not hold any property we occupy or other assets we use.

The plans paid \$4 million in the year ended October 31, 2017 (\$4 million in 2016) to the bank and certain of our subsidiaries for investment management, record-keeping, custodial and administrative services rendered.

Sensitivity of Assumptions

Key weighted-average assumptions used in measuring the defined benefit obligations for our primary plans are outlined in the following table. The sensitivity analysis provided in the table should be used with caution as it is hypothetical and the impact of changes in each key assumption may not be linear. The sensitivities to changes in each key variable have been calculated independently of the impact of changes in other key variables. Actual experience may result in simultaneous changes in a number of key assumptions, which would amplify or reduce certain sensitivities.

(Canadian \$ in millions, except as noted)	Defined benefit obligation	
	Pension benefit plans	Other employee future benefit plans
Discount rate (%)	3.5	3.6
Impact of: 1% increase (\$)	(891)	(170)
1% decrease (\$)	1,125	216
Rate of compensation increase (%)	2.4	2.0
Impact of: 0.25% increase (\$)	43	1
0.25% decrease (\$)	(42)	(1)
Mortality		
Impact of: 1 year shorter life expectancy (\$)	(150)	(34)
1 year longer life expectancy (\$)	147	35
Assumed overall health care cost trend rate (%)	na	5.2 (1)
Impact of: 1% increase (\$)	na	81
1% decrease (\$)	na	(82)

(1) Trending to 4.5% in 2031 and remaining at that level thereafter.

na - not applicable

Disaggregation of Defined Benefit Obligation

Disaggregation of the defined benefit obligation for our primary plans is as follows:

	2017	2016
Canadian pension plans		
Active members	43%	45%
Inactive and retired members	57%	55%
	100%	100%
U.S. pension plans		
Active members	66%	68%
Inactive and retired members	34%	32%
	100%	100%
Canadian other employee future benefit plans		
Active members	41%	44%
Inactive and retired members	59%	56%
	100%	100%

Maturity Profile

The duration of the defined benefit obligation for our primary plans is as follows:

(Years)	2017	2016
Canadian pension plans	14.7	16.0
U.S. pension plans	8.0	8.3
Canadian other employee future benefit plans	16.5	17.2

Cash Flows

Cash payments we made during the year in connection with our employee future benefit plans are as follows:

(Canadian \$ in millions)	Pension benefit plans			Other employee future benefit plans		
	2017	2016	2015	2017	2016	2015
Contributions to defined benefit plans	187	192	198	-	-	-
Contributions to defined contribution plans	123	96	86	-	-	-
Benefits paid directly to pensioners	32	43	33	40	38	35
	342	331	317	40	38	35

Our best estimate of the contributions we expect to make for the year ending October 31, 2018 is approximately \$196 million to our defined benefit pension plans and \$45 million to our other employee future benefit plans.