



CPP
INVESTMENT
BOARD

Canada Pension Plan Investment Board
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Condensed Interim Consolidated
Financial Statements of

Canada Pension Plan Investment Board

September 30, 2019

Canada Pension Plan Investment Board
Condensed Interim Consolidated Balance Sheet
(Unaudited)

<i>(CAD millions)</i>	As at September 30, 2019	As at March 31, 2019
Assets		
Investments	\$ 520,156	\$ 494,567
Pending trades receivable	6,198	4,692
Premises and equipment	467	387
Other assets	295	244
Total assets	527,116	499,890
Liabilities		
Investment liabilities	111,298	102,864
Pending trades payable	5,795	4,401
Accounts payable and accrued liabilities	535	645
Total liabilities	117,628	107,910
Net assets	\$ 409,488	\$ 391,980
Net assets, represented by:		
Share capital	\$ -	\$ -
Accumulated net income from operations	260,999	247,624
Accumulated net transfers from the Canada Pension Plan	148,489	144,356
Net assets	\$ 409,488	\$ 391,980

The accompanying notes are an integral part of these Condensed Interim Consolidated Financial Statements.

Canada Pension Plan Investment Board

Condensed Interim Consolidated Statement of Comprehensive Income (Unaudited)

<i>(CAD millions)</i>	For the three months ended		For the six months ended	
	September 30, 2019	September 30, 2018	September 30, 2019	September 30, 2018
Investment income	\$ 10,112	\$ 3,114	\$ 15,034	\$ 10,509
Investment management fees	(446)	(428)	(882)	(908)
Transaction costs	(148)	(135)	(197)	(223)
Net investment income (note 4)	\$ 9,518	\$ 2,551	\$ 13,955	\$ 9,378
Personnel costs	203	159	394	349
General operating expenses	90	87	186	170
Operating expenses	293	246	580	519
Net income from operations and comprehensive income	\$ 9,225	\$ 2,305	\$ 13,375	\$ 8,859

The accompanying notes are an integral part of these Condensed Interim Consolidated Financial Statements.

Canada Pension Plan Investment Board

Condensed Interim Consolidated Statement of Changes in Net Assets

(Unaudited)

	For the three months ended				
	Number of shares outstanding	Share capital	Accumulated net transfers from the Canada Pension Plan	Accumulated net income from operations	Total net assets
<i>(CAD millions)</i>					
As at July 1, 2019	10	\$ -	\$ 148,852	\$ 251,774	\$ 400,626
Total net income for the period		-	-	9,225	9,225
Canada Pension Plan transfers:					
Transfers from the Canada Pension Plan		-	9,889	-	9,889
Transfers to the Canada Pension Plan		-	(10,252)	-	(10,252)
Balance at September 30, 2019	10	\$ -	\$ 148,489	\$ 260,999	\$ 409,488

	For the six months ended				
	Number of shares outstanding	Share capital	Accumulated net transfers from the Canada Pension Plan	Accumulated net income from operations	Total net assets
<i>(CAD millions)</i>					
As at April 1, 2018	10	\$ -	\$ 140,520	\$ 215,614	\$ 356,134
Total net income for the period		-	-	8,859	8,859
Canada Pension Plan transfers:					
Transfers from the Canada Pension Plan		-	20,795	-	20,795
Transfers to the Canada Pension Plan		-	(17,474)	-	(17,474)
Balance at September 30, 2018	10	\$ -	\$ 143,841	\$ 224,473	\$ 368,314
As at April 1, 2019	10	\$ -	\$ 144,356	\$ 247,624	\$ 391,980
Total net income for the period		-	-	13,375	13,375
Canada Pension Plan transfers:					
Transfers from the Canada Pension Plan		-	23,630	-	23,630
Transfers to the Canada Pension Plan		-	(19,497)	-	(19,497)
Balance at September 30, 2019	10	\$ -	\$ 148,489	\$ 260,999	\$ 409,488

The accompanying notes are an integral part of these Condensed Interim Consolidated Financial Statements.

Canada Pension Plan Investment Board

Condensed Interim Consolidated Statement of Cash Flows

(Unaudited)

<i>(CAD millions)</i>	For the six months ended	
	September 30, 2019	September 30, 2018
Cash flows from operating activities		
Net income from operations	\$ 13,375	\$ 8,859
Adjustments for non-cash items:		
Amortization of premises and equipment	22	10
Realized and unrealized losses (gains) on debt financing liabilities	310	(241)
Adjustments for net changes in operating assets and liabilities:		
(Increase) in investments	(25,694)	(15,325)
(Increase) in pending trades receivable	(1,506)	(1,912)
Decrease (increase) in other assets	61	(17)
Increase in investment-related liabilities	5,304	5,909
Increase in pending trades payable	1,394	2,237
(Decrease) in accounts payable and accrued liabilities	(194)	(326)
Net cash flows (used in) operating activities	(6,928)	(806)
Cash flows from financing activities		
Transfers from the Canada Pension Plan	23,630	20,795
Transfers to the Canada Pension Plan	(19,497)	(17,474)
Proceeds from debt financing liabilities ¹	11,402	24,004
Repayments of debt financing liabilities ¹	(8,582)	(22,035)
Net cash flows provided by financing activities	6,953	5,290
Cash flows from investing activities		
Acquisitions of premises and equipment	(18)	(21)
Net cash flows (used in) investing activities	(18)	(21)
Net increase in cash and cash equivalents	7	4,463
Effect of exchange rate changes on cash and cash equivalents	(237)	(218)
Cash and cash equivalents at the beginning of the period	8,706	8,296
Cash and cash equivalents at the end of the period	8,476	12,541
Cash and cash equivalents at the end of the period are comprised of:		
Cash held for operating purposes ²	200	119
Cash and cash equivalents held for investment purposes ³	8,276	12,422
Total	\$ 8,476	\$ 12,541

¹ The comparative cash flow figures have been revised for the reclassification of net cash flow of \$1,969 million from operating activities related to proceeds from and repayments of debt financing liabilities.

² Presented as a component of other assets on the Condensed Interim Consolidated Balance Sheet.

³ Presented as a component of investments on the Condensed Interim Consolidated Balance Sheet and money market securities on the Condensed Interim Consolidated Schedule of Investment Portfolio.

The accompanying notes are an integral part of these Condensed Interim Consolidated Financial Statements.

Canada Pension Plan Investment Board

Condensed Interim Consolidated Schedule of Investment Portfolio (Unaudited)

The schedule below provides information on investments and investment liabilities held by Canada Pension Plan Investment Board and its investment holding subsidiaries.

<i>(CAD millions)</i>	As at September 30, 2019	As at March 31, 2019
Equities		
Public equities	\$ 133,011	\$ 141,189
Private equities	103,299	96,659
Total equities	236,310	237,848
Fixed income		
Bonds	104,349	85,604
Other debt	30,256	27,325
Money market securities	11,410	9,829
Total fixed income	146,015	122,758
Absolute return strategies	26,211	25,512
Real assets		
Real estate	45,839	45,846
Infrastructure	35,005	33,131
Energy and resources	9,153	8,002
Power and renewables	5,193	5,075
Total real assets	95,190	92,054
Investment receivables		
Securities purchased under reverse repurchase agreements and securities borrowed	11,164	11,174
Derivative assets	2,995	3,192
Other	2,271	2,029
Total investment receivables	16,430	16,395
Total investments	\$ 520,156	\$ 494,567
Investment liabilities		
Securities sold under repurchase agreements and securities lent	(49,779)	(39,491)
Securities sold short	(23,949)	(29,027)
Debt financing liabilities	(33,991)	(30,861)
Derivative liabilities	(1,980)	(2,330)
Other	(1,599)	(1,155)
Total investment liabilities	(111,298)	(102,864)
Pending trades receivable	6,198	4,692
Pending trades payable	(5,795)	(4,401)
Net investments	\$ 409,261	\$ 391,994

The accompanying notes are an integral part of these Condensed Interim Consolidated Financial Statements.

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General information

Canada Pension Plan Investment Board (CPP Investment Board) was established in December 1997 pursuant to the *Canada Pension Plan Investment Board Act* (CPPIB Act). CPP Investment Board is responsible for assisting the Canada Pension Plan (CPP) in meeting its obligations to contributors and beneficiaries under the legislation *Canada Pension Plan* (CPP Act). In December 2016, Royal Assent was given to Bill C-26 titled *An Act to Amend the Canada Pension Plan, the CPPIB Act and the Income Tax Act*. With that, the CPP Act defines two separate parts of the CPP. The “base CPP” refers to the existing benefits and contributions. The “additional CPP” refers to the additional benefits and additional contributions that began on January 1, 2019. All references to “CPP” mean base CPP and additional CPP collectively.

The Condensed Interim Consolidated Financial Statements (Interim Financial Statements) provide information on the net assets managed by CPP Investment Board and do not include the liabilities and other assets of the CPP.

The Interim Financial Statements for the three and six months ended September 30, 2019 were approved by the Board of Directors and authorized for issue on November 13, 2019.

1. Summary of significant accounting policies

1.1. Basis of presentation

The Interim Financial Statements have been prepared in compliance with International Accounting Standard 34, *Interim Financial Reporting* and do not include all of the information and disclosures required in the Annual Consolidated Financial Statements. The Interim Financial Statements should be read in conjunction with CPP Investment Board’s 2019 Annual Consolidated Financial Statements included on pages 116 to 152 in CPP Investment Board’s 2019 Annual Report. The Interim Financial Statements follow the same accounting policies and methods as the most recent Annual Consolidated Financial Statements. CPP Investment Board adopted International Financial Reporting Standard (IFRS) 16, *Leases*, effective April 1, 2019, the impact of which is not material.

1.2. Subsidiaries

CPP Investment Board qualifies as an investment entity as it meets the definition of an investment entity outlined in IFRS 10, *Consolidated Financial Statements*. As a consequence, the Interim Financial Statements represent the results of operations of CPP Investment Board and its wholly-owned subsidiaries that were created to provide investment-related services to support its operations. Operating subsidiaries of this nature include those that provide investment advisory services or subsidiaries that were created to provide financing to CPP Investment Board.

Subsidiaries that are managed by CPP Investment Board to hold investments are referred to herein as investment holding subsidiaries. Such subsidiaries are not consolidated in these Interim Financial Statements but instead are measured and reported at fair value. Fair value for unconsolidated investment holding subsidiaries is based on the fair value of the underlying investments and investment liabilities held by the investment holding subsidiary together with its accumulated net income from operations less dividends paid.

2. Fair value measurement

This note categorizes the fair values of investments and investment liabilities within the three levels of the fair value hierarchy. For investment valuations that require significant judgment, the note further provides the roll-forward of these investments during the period and the range of valuation techniques and inputs used.

Canada Pension Plan Investment Board

Notes to the Condensed Interim Consolidated Financial Statements

(Unaudited)

2.1. Fair value hierarchy

<i>(CAD millions)</i>	As at September 30, 2019			
	Level 1	Level 2	Level 3	
	Quoted Market Price	Valuation technique – observable market inputs	Valuation technique – non-observable market inputs	
				Total
Investments				
Equities				
Public equities	\$ 119,279	\$ 13,511	\$ 221	\$ 133,011
Private equities	-	-	103,299	103,299
Total equities	119,279	13,511	103,520	236,310
Fixed income				
Bonds	62,861	41,488	-	104,349
Other debt	-	6,155	24,101	30,256
Money market securities	-	11,410	-	11,410
Total fixed income	62,861	59,053	24,101	146,015
Absolute return strategies	-	23,610	2,601	26,211
Real assets				
Real estate	-	-	45,839	45,839
Infrastructure	-	-	35,005	35,005
Energy and resources	-	-	9,153	9,153
Power and renewables	-	-	5,193	5,193
Total real assets	-	-	95,190	95,190
Investment receivables				
Securities purchased under reverse repurchase agreements and securities borrowed	-	11,164	-	11,164
Derivative assets	1	2,993	1	2,995
Other	-	2,271	-	2,271
Total investment receivables	1	16,428	1	16,430
Total investments	\$ 182,141	\$ 112,602	\$ 225,413	\$ 520,156
Investment liabilities				
Securities sold under repurchase agreements and securities lent	-	(49,779)	-	(49,779)
Securities sold short	(23,949)	-	-	(23,949)
Debt financing liabilities	(25,423)	(8,568)	-	(33,991)
Derivative liabilities	(91)	(1,889)	-	(1,980)
Other	-	(1,599)	-	(1,599)
Total investment liabilities	(49,463)	(61,835)	-	(111,298)
Pending trades receivable ¹	-	6,198	-	6,198
Pending trades payable ¹	-	(5,795)	-	(5,795)
Net investments	\$ 132,678	\$ 51,170	\$ 225,413	\$ 409,261

Notes to the Condensed Interim Consolidated Financial Statements

(Unaudited)

	As at March 31, 2019				Total
	Level 1	Level 2	Level 3		
	Quoted Market Price	Valuation technique – observable market inputs	Valuation technique – non-observable market inputs		
(CAD millions)					
Investments					
Equities					
Public equities	\$ 129,212	\$ 11,769	\$ 208	\$	141,189
Private equities	-	-	96,659		96,659
Total equities	129,212	11,769	96,867		237,848
Fixed income					
Bonds	49,912	35,692	-		85,604
Other debt	-	5,215	22,110		27,325
Money market securities	-	9,829	-		9,829
Total fixed income	49,912	50,736	22,110		122,758
Absolute return strategies	-	23,588	1,924		25,512
Real assets					
Real estate	-	-	45,846		45,846
Infrastructure	-	-	33,131		33,131
Energy and resources	-	-	8,002		8,002
Power and renewables	-	-	5,075		5,075
Total real assets	-	-	92,054		92,054
Investment receivables					
Securities purchased under reverse repurchase agreements and securities borrowed	-	11,174	-		11,174
Derivative assets	2	3,189	1		3,192
Other	-	1,962	67		2,029
Total investment receivables	2	16,325	68		16,395
Total investments	\$ 179,126	\$ 102,418	\$ 213,023	\$	494,567
Investment liabilities					
Securities sold under repurchase agreements and securities lent	-	(39,491)	-		(39,491)
Securities sold short	(29,027)	-	-		(29,027)
Debt financing liabilities	(26,538)	(4,323)	-		(30,861)
Derivative liabilities	(48)	(2,282)	-		(2,330)
Other	-	(1,155)	-		(1,155)
Total investment liabilities	(55,613)	(47,251)	-		(102,864)
Pending trades receivable ¹	-	4,692	-		4,692
Pending trades payable ¹	-	(4,401)	-		(4,401)
Net investments	\$ 123,513	\$ 55,458	\$ 213,023	\$	391,994

¹ Pending trades receivable and payable are measured at amortized cost, which is a reasonable approximation of fair value.

2.2. Transfers between Level 1 and Level 2

During the six months ended September 30, 2019, there were no transfers from Level 1 to Level 2 (for the year ended March 31, 2019 - \$11 million) and \$7 million of transfers from Level 2 to Level 1 (for the year ended March 31, 2019 - \$338 million). Transfers between Level 1 and Level 2 depend on the availability of quoted market prices in active markets and valuations using inputs other than quoted prices that are observable. These transfers have been recognized at the end of period values.

2.3. Level 3 reconciliation

The following presents the reconciliations for investments included in Level 3 of the fair value hierarchy:

Reconciliation of changes in fair value for Level 3 investments

For the six months ended September 30, 2019									
(CAD millions)	Fair value as at April 1, 2019	Gain (loss) included in investment income	Purchases	Sales ¹	Transfers into Level 3 ²	Transfers out of Level 3 ²	Fair value as at September 30, 2019	Change in unrealized gains (losses) on investments still held at September 30, 2019 ^{3,4}	
Investments									
Equities									
Public equities	\$ 208	\$ 23	\$ -	\$ (10)	\$ -	\$ -	\$ 221	\$ 21	
Private equities	96,659	5,133	8,377	(6,323)	-	(547)	103,299	5,325	
Total equities	96,867	5,156	8,377	(6,333)	-	(547)	103,520	5,346	
Fixed income									
Other debt	22,110	(523)	6,101	(2,857)	-	(730)	24,101	(420)	
Absolute return strategies	1,924	69	-	(36)	644	-	2,601	93	
Real assets									
Real estate	45,846	(791)	1,576	(792)	-	-	45,839	(835)	
Infrastructure	33,131	(898)	3,277	(505)	-	-	35,005	(995)	
Energy and resources	8,002	(222)	1,806	(433)	-	-	9,153	(222)	
Power and renewables	5,075	(30)	150	(2)	-	-	5,193	(33)	
Total real assets	92,054	(1,941)	6,809	(1,732)	-	-	95,190	(2,085)	
Investment receivables									
Derivative assets	1	-	-	-	-	-	1	-	
Other	67	32	-	(99)	-	-	-	-	
Total investment receivables	68	32	-	(99)	-	-	1	-	
Total	\$ 213,023	\$ 2,793	\$ 21,287	\$ (11,057)	\$ 644	\$ (1,277)	\$ 225,413	\$ 2,934	

Canada Pension Plan Investment Board

Notes to the Condensed Interim Consolidated Financial Statements

(Unaudited)

For the year ended March 31, 2019								
<i>(CAD millions)</i>	Fair value as at April 1, 2018	Gain (loss) included in investment income	Purchases	Sales ¹	Transfers into Level 3 ²	Transfers out of Level 3 ²	Fair value as at March 31, 2019	Change in unrealized gains (losses) on investments still held at March 31, 2019 ^{3,4}
Investments								
Equities								
Public equities	\$ 273	\$ 20	\$ -	\$ (85)	\$ -	\$ -	\$ 208	\$ 15
Private equities	74,563	12,712	22,191	(11,816)	1	(992)	96,659	6,488
Total equities	74,836	12,732	22,191	(11,901)	1	(992)	96,867	6,503
Fixed income								
Other debt	16,626	(162)	12,851	(6,911)	246	(540)	22,110	115
Absolute return strategies								
	1,585	68	550	(279)	-	-	1,924	57
Real assets								
Real estate	44,712	1,705	2,868	(3,439)	-	-	45,846	1,524
Infrastructure	27,450	3,257	2,952	(528)	-	-	33,131	3,301
Energy and resources	5,729	49	2,829	(605)	-	-	8,002	28
Power and renewables	2,949	8	2,387	(269)	-	-	5,075	9
Total real assets	80,840	5,019	11,036	(4,841)	-	-	92,054	4,862
Investment receivables								
Derivative assets	-	2	-	(1)	-	-	1	1
Other	6	(32)	93	-	-	-	67	(32)
Total investment receivables	6	(30)	93	(1)	-	-	68	(31)
Total	\$ 173,893	\$ 17,627	\$ 46,721	\$ (23,933)	\$ 247	\$ (1,532)	\$ 213,023	\$ 11,506

¹ Includes return of capital.

² Transfers into and out of Level 3 are deemed to have occurred at the end of period values.

³ Includes the entire change in fair value for the period for those investments that were transferred into Level 3 during the period, and excludes the entire change in fair value for the period for those investments that were transferred out of Level 3 during the period.

⁴ Included in investment income.

During the six months ended September 30, 2019 and the year ended March 31, 2019, transfers into and out of Level 3 were primarily due to changes in the availability of market observable inputs used to determine fair value.

Canada Pension Plan Investment Board

Notes to the Condensed Interim Consolidated Financial Statements

(Unaudited)

2.4. Level 3 – Significant unobservable inputs

The following presents fair values of the investments held by CPP Investment Board and its investment holding subsidiaries categorized within Level 3 of the fair value hierarchy, valuation techniques used to determine their fair values, and ranges and weighted averages of unobservable inputs:

As at September 30, 2019					
(CAD millions)	Fair value	Primary valuation techniques used ^{1,2}	Significant unobservable inputs	Range of input values ³	Weighted average ³
Public equities					
Fund investments	\$ 221	Net asset value provided by investment manager	-	-	-
Private equities					
Direct	41,658	Earnings multiples of comparable companies	EBITDA multiple	4.5X-38.9X	15.5X
	11,316	Discounted cash flow Value provided by investment manager	Discount rate	7.0%-13.0%	12.2%
Fund investments	50,325	Net asset value provided by investment manager	-	-	-
Other debt					
Direct private debt	11,693	Discounted cash flow	Discount rate	4.0%-27.9%	10.3%
	2,291	Value provided by investment manager	-	-	-
Direct private real estate debt	5,089	Discounted cash flow	Discount rate	4.2%-12.2%	6.4%
Asset-backed securities	2,552	Comparable pricing	Price	95.0%-101.6%	99.6%
Fund investments	2,476	Net asset value provided by investment manager	-	-	-
Absolute return strategies					
Fund investments	2,601	Net asset value provided by investment manager	-	-	-
Real estate					
Direct	19,387	Discounted cash flow	Discount rate	5.0%-14.3%	6.7%
	23,738	Net asset value provided by investment manager	Terminal capitalization rate	3.7%-10.5%	5.5%
Fund investments	2,714	Net asset value provided by investment manager	-	-	-
Infrastructure					
Direct	34,933	Discounted cash flow	Discount rate	7.0%-13.8%	8.6%
Fund investments	72	Net asset value provided by investment manager	-	-	-
Energy and Resources					
Direct	9,153	Discounted cash flow	Discount rate	9.0%-15.0%	11.1%
Power and Renewables					
Direct	5,193	Discounted cash flow	Discount rate	7.9%-14.3%	10.3%
Investment receivables					
Derivative assets	1	Option model	Market volatility	30.0%	30.0%
Total	\$ 225,413				

Canada Pension Plan Investment Board

Notes to the Condensed Interim Consolidated Financial Statements

(Unaudited)

As at March 31, 2019					
(CAD millions)	Fair value	Primary valuation techniques used ^{1,2}	Significant unobservable inputs	Range of input values ³	Weighted average ³
Public equities					
Fund investments	\$ 208	Net asset value provided by investment manager	-	-	-
Private equities					
Direct	38,106	Earnings multiples of comparable companies	EBITDA multiple	6.1X-16.9X	13.0X
	9,340	Discounted cash flow Value provided by investment manager	Discount rate	11.6%-13.0%	12.6%
Fund investments	49,213	Net asset value provided by investment manager	-	-	-
Other debt					
Direct private debt	10,534	Discounted cash flow	Discount rate	6.9%-29.4%	11.5%
	2,191	Value provided by investment manager	-	-	-
Direct private real estate debt	5,084	Discounted cash flow	Discount rate	4.5%-11.0%	6.7%
Asset-backed securities	2,010	Comparable pricing	Price	97.7%-103.7%	99.5%
Fund investments	2,291	Net asset value provided by investment manager	-	-	-
Absolute return strategies					
Fund investments	1,924	Net asset value provided by investment manager	-	-	-
Real estate					
Direct	17,862	Discounted cash flow	Discount rate	5.0%-14.3%	6.7%
	25,353	Terminal capitalization rate	-	3.7%-10.5%	5.5%
	25,353	Net asset value provided by investment manager	-	-	-
Fund investments	2,631	Net asset value provided by investment manager	-	-	-
Infrastructure					
Direct	33,080	Discounted cash flow	Discount rate	7.0%-11.9%	8.7%
Fund investments	51	Net asset value provided by investment manager	-	-	-
Energy and Resources					
Direct	8,002	Discounted cash flow	Discount rate	9.0%-15.0%	11.0%
Power and Renewables					
Direct	5,075	Discounted cash flow	Discount rate	7.9%-14.4%	10.4%
Investment receivables					
Derivative assets	1	Option model	Market volatility	30.0%	30.0%
Other	67	Discounted cash flow	Discount rate	9.2%-10.4%	10.1%
Total	\$ 213,023				

¹ In certain cases, external valuations are prepared by a third party and hence, valuation information is not available.

² May include certain recently acquired investments held at cost, which approximates fair value.

³ The range of input values represents the highest and lowest inputs used to value the investments in a particular asset class. The weighted average of the input values is calculated based on the relative fair values of the investments within the asset class. The diversity of investments reported within each asset class, such as the geographic location and industry sector of the investments, may result in certain ranges of inputs being wide and unevenly distributed across the range.

2.5. Sensitivity analysis of valuations using unobservable inputs

Significant changes in any of the above unobservable inputs would result in a significantly higher or lower fair value measurement. The interrelationship of significant unobservable inputs and fair value measurement for the most significant key inputs identified in the table above is as follows:

- An increase (decrease) in the EBITDA multiple will result in a higher (lower) fair value.
- An increase (decrease) in the discount rate and terminal capitalization rate will result in a lower (higher) fair value.

The fair value of these direct investments classified within Level 3 of the fair value hierarchy above are based on accepted industry valuation methods that may include the use of estimates made by management, appraisers or both where significant judgment is required. By using valuation methods based on reasonable alternative assumptions, different fair values could result. With all other variables held constant, the use of reasonable alternative assumptions would result in a decrease of \$5,600 million (March 31, 2019 - \$7,900 million) or increase of \$5,200 million (March 31, 2019 - \$5,600 million) in net assets. This sensitivity analysis is subject to the exercise of judgment and excludes investments where fair values are provided by investment managers as the underlying assumptions used are not available to CPP Investment Board.

3. Derivatives

3.1. Fair value of derivatives

The fair value of derivative contracts is as follows:

<i>(CAD millions)</i>	As at September 30, 2019		As at March 31, 2019	
	Positive fair value	Negative fair value	Positive fair value	Negative fair value
Equity contracts				
Futures	\$ -	\$ -	\$ -	\$ -
Swaps	1,504	(1,322)	2,164	(1,596)
Options:				
Over-the-counter – purchased	12	-	1	-
Over-the-counter – written	-	(28)	-	(41)
Warrants	1	-	1	-
Total equity contracts	1,517	(1,350)	2,166	(1,637)
Foreign exchange contracts				
Forwards	273	(123)	88	(135)
Options:				
Over-the-counter – purchased	49	-	1	-
Over-the-counter – written	-	(17)	-	(12)
Total foreign exchange contracts	322	(140)	89	(147)
Interest rate contracts				
Futures	-	-	-	-
Forwards	-	-	-	-
Swaps	1,077	(243)	692	(206)
Options:				
Exchange-traded – purchased	-	-	2	-
Exchange-traded – written	-	-	-	(1)
Over-the-counter – purchased	41	-	1	-
Over-the-counter – written	-	(108)	-	(46)
Total interest rate contracts	1,118	(351)	695	(253)
Credit contracts				
Purchased credit default swaps	7	(27)	7	(229)
Written credit default swaps	29	(7)	235	(8)
Options:				
Over-the-counter – purchased	1	-	-	-
Over-the-counter – written	-	(14)	-	(9)
Total credit contracts	37	(48)	242	(246)
Commodity contracts				
Futures	-	-	-	-
Options:				
Exchange-traded – purchased	1	-	-	-
Exchange-traded – written	-	(91)	-	(47)
Total commodity contracts	1	(91)	-	(47)
Total	\$ 2,995	\$ (1,980)	\$ 3,192	\$ (2,330)

3.2. Notional amounts of the derivatives by terms to maturity

The terms to maturity of the notional amounts for derivatives are as follows:

(CAD millions)	Terms to maturity					As at March 31, 2019
	As at September 30, 2019					
	Within 1 year	1 to 5 years	6 to 10 years	Over 10 years	Total	
Equity contracts						
Futures	\$ 7,380	\$ 15	\$ -	\$ -	\$ 7,395	\$ 6,386
Swaps	113,792	1,890	4	-	115,686	108,367
Options:						
Over-the-counter – purchased	458	89	-	-	547	1
Over-the-counter – written	1,986	-	-	-	1,986	1,918
Warrants	1	10	23	-	34	26
Total equity contracts	123,617	2,004	27	-	125,648	116,698
Foreign exchange contracts						
Forwards	21,658	723	-	-	22,381	16,969
Options:						
Over-the-counter – purchased	681	930	-	-	1,611	375
Over-the-counter – written	6,688	-	-	-	6,688	4,282
Total foreign exchange contracts	29,027	1,653	-	-	30,680	21,626
Interest rate contracts						
Futures	11,741	388	-	-	12,129	4,110
Forwards	11,568	-	-	-	11,568	2,707
Swaps	60,566	33,846	12,779	17,668	124,859	93,429
Options:						
Exchange-traded – purchased	-	-	-	-	-	26,719
Exchange-traded – written	-	-	-	-	-	26,719
Over-the-counter – purchased	3,576	64	-	-	3,640	675
Over-the-counter – written	12,591	154	-	-	12,745	4,809
Total interest rate contracts	100,042	34,452	12,779	17,668	164,941	159,168
Credit contracts						
Purchased credit default swaps	1,230	9,111	641	-	10,982	13,772
Written credit default swaps	1,230	10,688	1,601	28	13,547	15,337
Options:						
Over-the-counter – purchased	758	-	-	-	758	-
Over-the-counter – written	9,364	-	-	-	9,364	4,676
Total credit contracts	12,582	19,799	2,242	28	34,651	33,785
Commodity contracts						
Futures	5,376	-	-	-	5,376	3,408
Options:						
Exchange-traded – purchased	-	1,867	-	-	1,867	-
Exchange-traded – written	2,986	-	-	-	2,986	1,847
Total commodity contracts	8,362	1,867	-	-	10,229	5,255
Total	\$ 273,630	\$ 59,775	\$ 15,048	\$ 17,696	\$ 366,149	\$ 336,532

4. Net investment income

4.1. Net investment income by nature

<i>(CAD millions)</i>	For the three months ended	
	September 30, 2019	September 30, 2018
Interest, dividends, and other investment income ¹	\$ 1,158	\$ 1,236
Realized (losses) gains on private equities and real assets ²	(233)	12
Unrealized gains (losses) on private equities and real assets ²	418	(13)
Unrealized gains on investment holding subsidiaries ² (note 4.2)	4,830	2,665
Realized and unrealized gains (losses) on public and other investments ^{2,3}	3,939	(786)
Total investment income	10,112	3,114
Investment management fees ⁴	(446)	(428)
Transaction costs ⁵	(148)	(135)
Net investment income	\$ 9,518	\$ 2,551

¹ Net of interest expense on debt financing liabilities of \$164 million (September 30, 2018 - \$110 million).

² Includes foreign currency gains or losses.

³ Consists of investment income from public equities, fixed income, absolute return strategies, derivatives and other.

⁴ Includes investment management fees of \$290 million (September 30, 2018 - \$346 million) incurred by investment holding subsidiaries.

⁵ Includes transaction costs of \$60 million (September 30, 2018 - \$37 million) incurred by investment holding subsidiaries.

<i>(CAD millions)</i>	For the six months ended	
	September 30, 2019	September 30, 2018
Interest, dividends, and other investment income ¹	\$ 2,684	\$ 2,806
Realized (losses) gains on private equities and real assets ²	(183)	11
Unrealized (losses) gains on private equities and real assets ²	(387)	824
Unrealized gains on investment holding subsidiaries ² (note 4.2)	6,610	7,304
Realized and unrealized gains (losses) on public and other investments ^{2,3}	6,310	(436)
Total investment income	15,034	10,509
Investment management fees ⁴	(882)	(908)
Transaction costs ⁵	(197)	(223)
Net investment income	\$ 13,955	\$ 9,378

¹ Net of interest expense on debt financing liabilities of \$323 million (September 30, 2018 - \$214 million).

² Includes foreign currency gains or losses.

³ Consists of investment income from public equities, fixed income, absolute return strategies, derivatives and other.

⁴ Includes investment management fees of \$583 million (September 30, 2018 - \$584 million) incurred by investment holding subsidiaries.

⁵ Includes transaction costs of \$65 million (September 30, 2018 - \$58 million) incurred by investment holding subsidiaries.

4.2. Supplemental information on investment income

The unrealized gains generated from investment holding subsidiaries are a composite of the following income and expenses:

<i>(CAD millions)</i>	For the three months ended	
	September 30, 2019	September 30, 2018
Interest, dividends, and other investment income	\$ 1,203	\$ 978
Realized gains on private equities and real assets ¹	1,117	1,782
Unrealized gains (losses) on private equities and real assets ¹	2,052	(437)
Realized and unrealized gains on public and other investments ^{1,2}	458	342
Dividends paid to CPP Investment Board	-	-
Investment income from investment holding subsidiaries	\$ 4,830	\$ 2,665

<i>(CAD millions)</i>	For the six months ended	
	September 30, 2019	September 30, 2018
Interest, dividends, and other investment income	\$ 2,262	\$ 2,421
Realized gains on private equities and real assets ¹	2,518	2,558
Unrealized gains on private equities and real assets ¹	1,223	1,284
Realized and unrealized gains on public and other investments ^{1,2}	608	1,041
Dividends paid to CPP Investment Board	(1)	-
Investment income from investment holding subsidiaries	\$ 6,610	\$ 7,304

¹ Includes foreign currency gains or losses.

² Consists of investment income from public equities, fixed income, absolute return strategies, derivatives and other.

5. Segment information

5.1. Investment segments

5.1.1. Net income (loss) from operations by investment segment

<i>(CAD millions)</i>	For the three months ended September 30, 2019							
	Total Portfolio Management	Capital Markets and Factor Investing		Active Equities	Credit Investments	Private Equity	Real Assets	Total
Investment income	\$ 3,683	\$ 136	\$ 1,133	\$ 912	\$ 3,790	\$ 458	\$ 10,112	
Expenses ¹	(73)	(328)	(67)	(47)	(215)	(157)	(887)	
Net income (loss) from operations	\$ 3,610	\$ (192)	\$ 1,066	\$ 865	\$ 3,575	\$ 301	\$ 9,225	

<i>(CAD millions)</i>	For the three months ended September 30, 2018							
	Total Portfolio Management	Capital Markets and Factor Investing		Active Equities	Credit Investments	Private Equity	Real Assets	Total
Investment income (loss)	\$ 583	\$ (53)	\$ (44)	\$ 498	\$ 1,654	\$ 476	\$ 3,114	
Expenses ¹	(56)	(225)	(72)	(32)	(212)	(212)	(809)	
Net income (loss) from operations	\$ 527	\$ (278)	\$ (116)	\$ 466	\$ 1,442	\$ 264	\$ 2,305	

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For the six months ended September 30, 2019								
(CAD millions)	Total Portfolio Management	Capital Markets and Factor Investing		Active Equities	Credit Investments	Private Equity	Real Assets	Total
		Investment income (loss)	\$ 6,017					
Expenses ¹	(145)	(635)	(130)	(83)	(402)	(264)	(1,659)	
Net income (loss) from operations	\$ 5,872	\$ (243)	\$ 2,184	\$ 795	\$ 5,460	\$ (693)	\$ 13,375	

For the six months ended September 30, 2018								
(CAD millions)	Total Portfolio Management	Capital Markets and Factor Investing		Active Equities	Credit Investments	Private Equity	Real Assets	Total
		Investment income	\$ 920					
Expenses ¹	(126)	(611)	(134)	(72)	(368)	(339)	(1,650)	
Net income (loss) from operations	\$ 794	\$ (268)	\$ 1,566	\$ 1,024	\$ 4,620	\$ 1,123	\$ 8,859	

¹ Includes investment management fees, transaction costs and operating expenses.

5.1.2. Net assets (liabilities) by investment segment

Net assets (liabilities)								
(CAD millions)	Total Portfolio Management ¹	Capital Markets and Factor Investing		Active Equities	Credit Investments	Private Equity	Real Assets	Total
		As at:						
September 30, 2019	\$ 175,023	\$ 26	\$ 1,116	\$ 42,759	\$ 93,108	\$ 97,456	\$ 409,488	
March 31, 2019	172,599	(31)	1,047	36,579	87,696	94,090	391,980	

¹ Net assets attributable to Total Portfolio Management include debt financing liabilities of \$33,991 million (March 31, 2019 - \$30,861 million) and net corporate assets of \$227 million (March 31, 2019 - net corporate liabilities of \$14 million).

5.2. Geographic information

Net investments are presented in the table below based on the region to which they have primary economic exposure:

Net investments ¹								
(CAD millions)	Canada	U.S.	Asia	Europe		U.K.	Other	Total
				(excluding U.K.)				
As at:								
September 30, 2019	\$ 64,474	\$ 137,315	\$ 98,521	\$ 53,160	\$ 21,367	\$ 34,424	\$ 409,261	
March 31, 2019	60,897	131,196	90,060	53,959	22,078	33,804	391,994	

¹ Includes debt financing liabilities of \$3,610 million, \$22,343 million, \$7,875 million and \$163 million (March 31, 2019 - \$3,828 million, \$20,803 million, \$6,230 million, and nil), based on the currencies of the issuances, in Canada, the U.S., Europe (excluding the U.K.), and the U.K., respectively.

6. Risk management

6.1. Total portfolio risk

A suite of risk measures is used within CPP Investment Board to monitor and assess the risk profile of the base CPP Investment Portfolio and the additional CPP Investment Portfolio (collectively the Investment Portfolios). Regular risk reports are provided to senior management and the Board to support the governance of the various dimensions of investment risks to which the Investment Portfolios are exposed. As at April 1, 2019, a series of additional investment risk limits came into effect to align with the new risk appetite statements developed as part of the enhancement to the Integrated Risk Framework, as described on pages 46 to 51 in CPP Investment Board's 2019 Annual Report. While CPP Investment Board has changed the articulation of its risk appetite, which sets the upper and lower limits for risk taking, the target level of risk of the Investment Portfolios has not changed materially.

Central to the new investment risk limits is the concept of Plan Adjustment Risk which has been defined as the risk of increases in the Minimum Contribution Rates for the CPP due solely to adverse investment experience. It is an overarching measure that is impacted by market, credit, and liquidity risk. The additional investment risk governance measures include: percentage probability of plan adjustment, acceptable Potential Investment Losses over one and five-year horizons, and Liquidity Coverage Ratio.

- Plan Adjustment Risk: The percentage probability of a 0.25% increase in the Minimum Contribution Rate, over a 20-year horizon, due solely to adverse investment experience.
- Potential Investment Losses: The losses of the Investment Portfolios is estimated at the 95th percentile and represent the total portfolio loss that CPP Investment Board does not expect to exceed 19 times out of 20.

The monitoring of adherence to investment risk limits is conducted independently by the Risk Group using both industry standards and internally developed risk models.

The table below provides a summary of the key investment risk governance measures of the base CPP Investment Portfolio. For the Liquidity Coverage Ratio, refer to the Liquidity risk note (note 9).

<i>(CAD millions, unless otherwise specified)</i>	Limit	As at	
		September 30, 2019	March 31, 2019
		base CPP ³	base CPP
Plan Adjustment Risk	30 %	23 %	23 %
Potential Investment Loss:			
One-year horizon	\$ 80,000	\$ 70,588	\$ 66,745
Five-year horizon ¹	25 %	14 %	15 %
Equity/Debt Risk Equivalency Ratio ²	55 - 100 %	87 %	87 %

¹ Percentage of investment value.

² Conditional Value at Risk is measured to calculate the Equity/Debt Risk Equivalency Ratio.

³ The additional risk governance measures of the additional CPP Investment Portfolio are under development and will be presented to the Board for approval within the year.

7. Market risk

Market risk is the risk that the fair value or future cash flows of an investment or investment liability will fluctuate because of changes in market prices and rates. Market risk includes equity risk, interest rate risk, credit spread risk and currency risk. The sensitivity of these risks is summarized in the tables below.

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7.1. Equity

The Investment Portfolios are invested in both publicly traded and private equities. Equity risk, which is the risk that the fair value or future cash flows will fluctuate because of changes in equity prices, is a significant source of risk of the Investment Portfolios. The table below presents the effect of a 1% decrease/increase in the S&P 500 index on loss/profit of public equity investments, with all other variables held constant.

<i>(CAD millions)</i>	As at September 30, 2019		As at March 31, 2019	
	Impact of 1% decrease in the S&P 500 index			
Loss on public equity investments	\$	(1,073)	\$	(1,021)

7.2. Interest rate

Interest rate risk is the risk that the fair value or future cash flows of an investment or investment-related liability will fluctuate because of changes in market interest rates. The Investment Portfolios are exposed to interest rate risk primarily through holdings of fixed income securities, certain investment liabilities and interest rate derivatives.

7.2.1. Interest rate risk sensitivity¹

With all other variables held constant, a 25 basis points increase/decrease in nominal risk-free rates would result in a decrease/increase in the value of investments directly impacted by interest rate changes as follows:

<i>(CAD millions)</i>	As at September 30, 2019		As at March 31, 2019	
Maturity	Impact of increase of 25 basis points on net assets			
Within 1 year	\$	1	\$	14
1 to 5 years		(576)		(557)
6 to 10 years		(438)		(434)
Over 10 years		(1,239)		(1,091)
Total decrease in investment value	\$	(2,252)	\$	(2,068)

¹ This sensitivity only applies to debt instruments and interest rate sensitive derivatives.

The Investment Portfolios' sensitivity to various countries' risk free rates is as follows:

	As at September 30, 2019		As at March 31, 2019	
Region				
Canada	38	%	39	%
United States	41		43	
Europe	10		11	
Other	11		7	
Total	100	%	100	%

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7.3. Credit spread

Credit spread is the difference in yield on certain securities compared to a comparable risk free security (i.e. government issued) with the same maturity date. Credit spread risk is the risk that the fair value of these securities will fluctuate because of changes in credit spread.

	As at September 30, 2019	As at March 31, 2019
Percentage of credit risk in A or better rated debt	65 %	75 %

(CAD millions)	As at September 30, 2019	As at March 31, 2019
	Impact of 1 basis point widening of credit spread	
Decrease in net assets	\$ 33	\$ 31

7.4. Currency

The Investment Portfolios are exposed to currency risk through holdings of investments or investment liabilities in various currencies. Fluctuations in the relative value of foreign currencies against the Canadian dollar can result in a positive or negative effect on the fair value or future cash flows of these investments and investment liabilities.

7.4.1. Currency risk exposures and sensitivity

The net currency exposures after allocating foreign currency derivatives, in Canadian dollars, are as follows:

(CAD millions)	As at September 30, 2019			As at March 31, 2019		
Currency	Net exposure	% of total		Net exposure	% of total	
United States dollar	\$ 220,836	54 %		\$ 204,605	52 %	
Euro	31,368	8		33,539	9	
British pound sterling	17,300	4		18,219	5	
Chinese renminbi	13,215	3		12,577	3	
Australian dollar	12,962	3		13,587	3	
Hong Kong dollar	9,711	2		10,376	3	
Japanese yen	9,457	2		8,416	2	
Indian rupee	8,218	2		6,509	2	
Brazilian real	4,813	1		3,620	1	
Swiss franc	2,898	1		2,623	1	
Mexican peso	2,634	1		1,785	-	
Chilean peso	2,420	1		2,722	1	
Other	8,954	2		13,224	3	
Total foreign exposure	344,786	84		331,802	85	
Canadian dollar	64,475	16		60,192	15	
Total	\$ 409,261	100 %		\$ 391,994	100 %	

With all other variables and underlying values held constant, a 10% appreciation/depreciation of the Canadian dollar against all other currencies would result in a decrease/increase in net investments by \$34,479 million (March 31, 2019 - \$33,180 million).

8. Credit risk

Credit risk is the risk of financial loss due to a counterparty failing to meet its contractual obligations, or a reduction in the value of the assets due to a decline in the credit quality of the underlying entity.

8.1. Counterparty exposures

Credit rating	(CAD millions) As at September 30, 2019						As at March 31, 2019		
	Bonds ¹	Money market securities ¹	Reverse repurchase agreements ¹	Over-the-counter derivatives	Other debt ^{1,2}	Total	% of total	Total	% of total
AAA	\$ 33,542	\$ 734	\$ -	\$ -	\$ 1,157	\$ 35,433	25 %	\$ 24,086	20 %
AA	33,394	2,123	1,802	267	910	38,496	27	37,230	30
A	26,507	3,118	3,575	2,603	946	36,749	26	37,101	30
BBB	6,399	-	1,952	122	1,398	9,871	7	7,684	6
BB	3,992	1,427	-	-	4,123	9,542	7	5,837	5
B	1,033	-	-	-	8,918	9,951	7	9,114	8
CCC/D	387	-	-	-	1,280	1,667	1	1,647	1
Total	\$ 105,254	\$ 7,402	\$ 7,329	\$ 2,992	\$ 18,732	\$ 141,709	100 %	\$ 122,699	100 %

¹ Includes accrued interest.

² Includes direct investments in private debt and asset-backed securities.

8.2. Credit Value at risk

In addition to incorporating credit risk within the Potential Investment Loss measures as described in note 6.1, a standalone measure for losses due to defaults and credit rating migration is also monitored. A Monte Carlo simulation that incorporates likelihood of default, credit rating migration and recovery in the event of default for underlying credit instruments is adopted to quantify this dimension of risk. Credit Value at risk, at a 99% confidence level, implies there is a 1% chance that the credit instruments in the Investment Portfolios will lose more than the amounts shown below in any given year due to default and credit migration risk.

(CAD millions)	As at September 30, 2019		As at March 31, 2019	
	base CPP	additional CPP	base CPP	additional CPP
Credit Value at risk	\$ 6,247	\$ 12	\$ 5,317	\$ 3

9. Liquidity risk

Liquidity risk includes two main components:

- Solvency risk – The risk of failing to obtain the funds needed to meet payment obligations as they come due.
- Portfolio Rebalancing risk – The risk that CPP Investment Board is unable to fund investment programs and optimize/rebalance the Investment Portfolios.

Liquidity risk increases by the use of various forms of leverage which CPP Investment Board uses to manage certain other risks and enhance Fund returns. The use of leverage is governed through various liquidity risk limits which require sufficient liquidity to be available to manage both components of liquidity risk.

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The table below presents the unsecured credit facilities that CPP Investment Board maintained at each reporting date. There were no credit facilities drawn as at September 30, 2019 and March 31, 2019.

<i>(CAD millions)</i>	As at September 30, 2019	As at March 31, 2019
Unsecured credit facilities held	\$ 6,134	\$ 6,176

An additional measure, the Liquidity Coverage Ratio, has been introduced as described in note 6.1. The Liquidity Coverage Ratio measures the level of liquidity CPPIB maintains to meet all CPP and investment obligations over any 10-day period. It measures the amount of liquid securities available to meet CPP Investment Board's payment obligations as they become due, to fund investment programs, or to rebalance the portfolio in periods of market stress, all without realizing unacceptable losses.

	Limit	As at September 30, 2019	As at March 31, 2019
Liquidity Coverage Ratio	1.0x	1.9x	2.8x

9.1. Terms to maturity

The tables below present the contractual maturities of investments and investment liabilities of CPP Investment Board and its investment holding subsidiaries:

Non-derivative investments

<i>(CAD millions)</i>	Terms to maturity							As at	
	As at September 30, 2019						March 31, 2019		
	Within 1 year	1 to 5 years	6 to 10 years	Over 10 years	Total ³	Average effective yield	Total ³	Average effective yield	
Non-marketable bonds									
Canadian provincial government	\$ 1,668	\$ 6,249	\$ 2,125	\$ 13,276	\$ 23,318	2.4 %	\$ 23,439	2.7 %	
Marketable bonds									
Government of Canada	8,561	9,481	457	904	19,403	1.5	8,553	1.7	
Canadian provincial government	36	779	2,048	3,482	6,345	2.3	6,158	2.7	
Canadian government corporations	-	2,098	636	406	3,140	2.0	3,281	2.2	
Foreign government	181	17,251	8,688	15,840	41,960	2.1	36,470	2.3	
Corporate bonds	36	4,094	4,197	1,856	10,183	3.7	7,703	4.4	
Other debt									
Private debt ¹	181	5,617	5,387	638	11,823	7.8	11,350	8.1	
Private real estate debt ¹	223	1,887	2,885	-	4,995	6.1	5,001	6.7	
Asset-backed securities	-	130	230	2,192	2,552	3.5	2,010	3.0	
Securities purchased under reverse repurchase agreements	8,351	-	-	-	8,351	1.6	8,205	0.8	
Securities borrowed²	2,813	-	-	-	2,813	n/a	2,969	n/a	
Total	\$ 22,050	\$ 47,586	\$ 26,653	\$ 38,594	\$ 134,883	n/a	\$ 115,139	n/a	

¹ Includes direct investments and excludes fund investments.

² Relates to cash collateral, which has no effective yield.

³ Represents fair value.

Non-derivative investment liabilities

(CAD millions)	Terms to maturity							As at March 31, 2019		
	As at September 30, 2019							Total ⁴	Fair value	Weighted average interest rate
	Within 1 year	1 to 5 years	6 to 10 years	Over 10 years	Total ⁴	Fair value	Weighted average interest rate			
Securities sold under repurchase agreements	\$ 48,791	\$ -	\$ -	\$ -	\$ 48,791	\$ 48,719	2.0 %	\$ 38,548	\$ 38,375	2.3 %
Securities lent ¹	1,060	-	-	-	1,060	1,060	n/a	1,116	1,116	n/a
Securities sold short ^{2,3}	23,949	-	-	-	23,949	23,949	n/a	29,027	29,027	n/a
Debt financing liabilities										
Commercial paper payable	8,587	-	-	-	8,587	8,568	2.4	4,378	4,323	2.7
Term debt	1,646	14,472	5,267	2,887	24,272	25,423	0.8	26,099	26,538	1.6
Total	\$ 84,033	\$ 14,472	\$ 5,267	\$ 2,887	\$ 106,659	\$ 107,719	n/a	\$ 99,168	\$ 99,379	n/a

¹ Relates to cash collateral, which has no effective yield.

² Considered repayable within one year based on the earliest period in which the counterparty could request payment under certain conditions.

³ Includes equities sold short for which the average interest rate is not applicable.

⁴ Represents contractual amounts.

10. Collateral

The net fair value of collateral held and pledged was as follows:

(CAD millions)	As at September 30, 2019	As at March 31, 2019
Third-party assets held as collateral on¹:		
Reverse repurchase agreements	\$ 8,354	\$ 8,207
Over-the-counter derivative transactions	1,637	965
Securities lent ²	1,342	1,627
Other debt	657	772
Own and third-party assets pledged as collateral on:		
Repurchase agreements	(48,791)	(38,383)
Securities sold short ³	(28,302)	(34,549)
Over-the-counter derivative transactions	(718)	(407)
Private equities	(7,928)	(7,849)
Other debt	(4,465)	(4,562)
Total	\$ (78,214)	\$ (74,179)

¹ The fair value of the collateral held that may be sold or repledged as at September 30, 2019 was \$9,457 million (March 31, 2019 - \$9,557 million). The fair value of collateral sold or repledged as at September 30, 2019 was \$2,999 million (March 31, 2019 - \$3,504 million).

² Includes cash collateral of \$1,060 million (March 31, 2019 - \$1,116 million). The fair value of securities lent as at September 30, 2019 was \$1,322 million (March 31, 2019 - \$1,602 million).

³ The fair value of securities borrowed as at September 30, 2019 was \$22,881 million (March 31, 2019 - \$27,110 million) of which \$22,353 million was sold or repledged (March 31, 2019 - \$26,631 million) for securities sold short.

11. Commitments

CPP Investment Board and its investment holding subsidiaries have entered into commitments related to the funding of investments. These commitments are generally payable on demand based on the funding needs of the investment subject to the terms and conditions of each agreement. As at September 30, 2019, the unfunded commitments totalled \$52,446 million (March 31, 2019 - \$47,408 million).

12. Guarantees

As part of certain investment transactions, CPP Investment Board and its investment holding subsidiaries agreed to guarantee, as at September 30, 2019, up to \$4,093 million (March 31, 2019 - \$4,437 million) to other counterparties in the event certain investee entities default under the terms of loan and other related agreements.

13. Base CPP and additional CPP

The following note discloses the net assets, net investments and net income of the base CPP account and the additional CPP account.

13.1. Changes in net assets

The accumulated transfers from/to the CPP and its two parts, the base CPP and the additional CPP, as well as their accumulated net income since inception, are as follows:

<i>(CAD millions)</i>	For the three months ended							Total net assets
	Accumulated net transfers from CPP			Accumulated net income				
	base CPP	additional CPP	Total	base CPP	additional CPP	Total		
As at July 1, 2019	\$ 147,988	\$ 864	\$ 148,852	\$ 251,762	\$ 12	\$ 251,774	\$ 400,626	
Total net income for the period	-	-	-	9,206	19	9,225	9,225	
Transfers from CPP	9,573	316	9,889	-	-	-	9,889	
Transfers to CPP	(10,252)	-	(10,252)	-	-	-	(10,252)	
Balance as at September 30, 2019	\$ 147,309	\$ 1,180	\$ 148,489	\$ 260,968	\$ 31	\$ 260,999	\$ 409,488	

<i>(CAD millions)</i>	For the six months ended							Total net assets
	Accumulated net transfers from CPP			Accumulated net income				
	base CPP	additional CPP	Total	base CPP	additional CPP	Total		
As at April 1, 2018	\$ 140,520	\$ -	\$ 140,520	\$ 215,614	\$ -	\$ 215,614	\$ 356,134	
Total net income for the period	-	-	-	8,859	-	8,859	8,859	
Transfers from CPP	20,795	-	20,795	-	-	-	20,795	
Transfers to CPP	(17,474)	-	(17,474)	-	-	-	(17,474)	
Balance as at September 30, 2018	\$ 143,841	\$ -	\$ 143,841	\$ 224,473	\$ -	\$ 224,473	\$ 368,314	
As at April 1, 2019	\$ 143,935	\$ 421	\$ 144,356	\$ 247,622	\$ 2	\$ 247,624	\$ 391,980	
Total net income for the period	-	-	-	13,346	29	13,375	13,375	
Transfers from CPP	22,871	759	23,630	-	-	-	23,630	
Transfers to CPP	(19,497)	-	(19,497)	-	-	-	(19,497)	
Balance as at September 30, 2019	\$ 147,309	\$ 1,180	\$ 148,489	\$ 260,968	\$ 31	\$ 260,999	\$ 409,488	

13.2. Net assets of base CPP and additional CPP

The net assets of the base CPP and the additional CPP are as follows:

As at September 30, 2019				
<i>(CAD millions)</i>	base CPP	additional CPP	Total	
Cash and cash equivalents held for investment purposes	\$ 8,260	\$ 16	\$	8,276
Net investments other than cash and cash equivalents	399,803	1,182		400,985
Net investments	408,063	1,198		409,261
Premises and equipment	454	13		467
Other assets ¹	294	1		295
Accounts payable and accrued liabilities	(534)	(1)		(535)
Net assets	\$ 408,277	\$ 1,211	\$	409,488

As at March 31, 2019				
<i>(CAD millions)</i>	base CPP	additional CPP	Total	
Cash and cash equivalents held for investment purposes	\$ 8,606	\$ 12	\$	8,618
Net investments other than cash and cash equivalents	382,979	397		383,376
Net investments	391,585	409		391,994
Premises and equipment	373	14		387
Other assets ¹	243	1		244
Accounts payable and accrued liabilities	(644)	(1)		(645)
Net assets	\$ 391,557	\$ 423	\$	391,980

¹ Includes cash held for operating purposes.

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(Unaudited)

13.3. Schedule of investment portfolio for base CPP and additional CPP

The table below provides details of the investments and investment liabilities for the base CPP and the additional CPP:

<i>(CAD millions)</i>	As at September 30, 2019		
	base CPP	additional CPP	Total
Equities			
Public equities	\$ 132,789	\$ 222	\$ 133,011
Private equities	103,126	173	103,299
Total equities	235,915	395	236,310
Fixed income			
Bonds	103,664	685	104,349
Other debt	30,205	51	30,256
Money market securities	11,389	21	11,410
Total fixed income	145,258	757	146,015
Absolute return strategies	26,167	44	26,211
Real assets			
Real estate	45,762	77	45,839
Infrastructure	34,947	58	35,005
Energy and resources	9,138	15	9,153
Power and renewables	5,184	9	5,193
Total real assets	95,031	159	95,190
Investment receivables			
Securities purchased under reverse repurchase agreements and securities borrowed	11,146	18	11,164
Derivative assets	2,990	5	2,995
Other	2,264	7	2,271
Total investment receivables	16,400	30	16,430
Total investments	\$ 518,771	\$ 1,385	\$ 520,156
Investment liabilities			
Securities sold under repurchase agreements and securities lent	(49,696)	(83)	(49,779)
Securities sold short	(23,909)	(40)	(23,949)
Debt financing liabilities	(33,934)	(57)	(33,991)
Derivative liabilities	(1,977)	(3)	(1,980)
Other	(1,596)	(3)	(1,599)
Total investment liabilities	(111,112)	(186)	(111,298)
Pending trades receivable	6,185	13	6,198
Pending trades payable	(5,781)	(14)	(5,795)
Net investments	\$ 408,063	\$ 1,198	\$ 409,261

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(Unaudited)

<i>(CAD millions)</i>	As at March 31, 2019			Total
	base CPP		additional CPP	
Equities				
Public equities	\$ 141,105	\$	84	\$ 141,189
Private equities	96,601		58	96,659
Total equities	237,706		142	237,848
Fixed income				
Bonds	85,379		225	85,604
Other debt	27,309		16	27,325
Money market securities	9,817		12	9,829
Total fixed income	122,505		253	122,758
Absolute return strategies	25,497		15	25,512
Real assets				
Real estate	45,819		27	45,846
Infrastructure	33,111		20	33,131
Energy and resources	7,997		5	8,002
Power and renewables	5,072		3	5,075
Total real assets	91,999		55	92,054
Investment receivables				
Securities purchased under reverse repurchase agreements and securities borrowed	11,167		7	11,174
Derivative assets	3,190		2	3,192
Other	2,027		2	2,029
Total investment receivables	16,384		11	16,395
Total investments	\$ 494,091	\$	476	\$ 494,567
Investment liabilities				
Securities sold under repurchase agreements and securities lent	(39,467)		(24)	(39,491)
Securities sold short	(29,010)		(17)	(29,027)
Debt financing liabilities	(30,843)		(18)	(30,861)
Derivative liabilities	(2,329)		(1)	(2,330)
Other	(1,154)		(1)	(1,155)
Total investment liabilities	(102,803)		(61)	(102,864)
Pending trades receivable	4,689		3	4,692
Pending trades payable	(4,392)		(9)	(4,401)
Net investments	\$ 391,585	\$	409	\$ 391,994

13.4. Net income of base CPP and additional CPP

Details of net income of the base CPP and the additional CPP are as follows:

<i>(CAD millions)</i>	For the three months ended September 30, 2019		
	base CPP	additional CPP	Total
Investment income	\$ 10,092	\$ 20	\$ 10,112
Investment management fees	(446)	-	(446)
Transaction costs	(148)	-	(148)
Net investment income	9,498	20	9,518
Operating expenses	(292)	(1)	(293)
Net income	\$ 9,206	\$ 19	\$ 9,225

<i>(CAD millions)</i>	For the three months ended September 30, 2018 ¹		
	base CPP	additional CPP	Total
Investment income	\$ 3,114	\$ -	\$ 3,114
Investment management fees	(428)	-	(428)
Transaction costs	(135)	-	(135)
Net investment income	2,551	-	2,551
Operating expenses	(246)	-	(246)
Net income	\$ 2,305	\$ -	\$ 2,305

<i>(CAD millions)</i>	For the six months ended September 30, 2019		
	base CPP	additional CPP	Total
Investment income	\$ 15,002	\$ 32	\$ 15,034
Investment management fees	(881)	(1)	(882)
Transaction costs	(197)	-	(197)
Net investment income	13,924	31	13,955
Operating expenses	(578)	(2)	(580)
Net income	\$ 13,346	\$ 29	\$ 13,375

<i>(CAD millions)</i>	For the six months ended September 30, 2018 ¹		
	base CPP	additional CPP	Total
Investment income	\$ 10,509	\$ -	\$ 10,509
Investment management fees	(908)	-	(908)
Transaction costs	(223)	-	(223)
Net investment income	9,378	-	9,378
Operating expenses	(519)	-	(519)
Net income	\$ 8,859	\$ -	\$ 8,859

¹ For the three months and six months ended September 30, 2018, there was no breakdown of the base CPP and the additional CPP as the additional CPP came into effect on January 1, 2019.