Fund financial statements of

The University of British Columbia Staff Pension Plan

December 31, 2019

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Independent Auditor's Report

To the Pension Board of
The University of British Columbia Staff Pension Plan

Opinion

We have audited the fund financial statements of The University of British Columbia Staff Pension Plan (the "Plan"), which comprise the statement of financial position as at December 31, 2019, and the statement of changes in net assets available for benefits for the year then ended, and notes to the fund financial statements, including a summary of significant accounting policies (collectively referred to as the "fund financial statements").

In our opinion, the accompanying fund financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as at December 31, 2019, and the changes in net assets available for benefits for the year then ended in accordance with the financial reporting provisions of Section 38(i)(c) of the regulations to the Pension Benefits Standards Act S.B.C. 2012 and Bulletin PENS 18-003 issued by the BC Financial Services Authority ("BCFSA") (formerly the Financial Institutions Commission) to the Plan in April 2018 (the "Financial Reporting Framework").

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards ("Canadian GAAS"). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Fund Financial Statements* section of our report. We are independent of the Plan in accordance with the ethical requirements that are relevant to our audit of the fund financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter - Basis of Accounting

We draw attention to Note 2 to the fund financial statements, which describes the basis of accounting. The fund financial statements are prepared to assist the Pension Board of the Plan to meet regulations of Section 38(i)(c) of the Pension Benefit Standards Act S.B.C 2012 and Bulletin PENS 18-003 issued by BCFSA in April 2018. As a result, the fund financial statements may not be suitable for another purpose. Our opinion is not modified in respect of this matter.

Responsibilities of Management and those Charged with Governance for the Fund Financial Statements

Management is responsible for the preparation and fair presentation of the fund financial statements in accordance with the Financial Reporting Framework, and for such internal control as management determines is necessary to enable the preparation of the fund financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the fund financial statements, management is responsible for assessing the Plan's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless The University of British Columbia either intends to liquidate the Plan or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Plan's financial reporting process.

Auditor’s Responsibilities for the Audit of the Fund Financial Statements

Our objectives are to obtain reasonable assurance about whether the fund financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian GAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these fund financial statements.

As part of an audit in accordance with Canadian GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the fund financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management’s use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Plan’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the fund financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the Plan to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the fund financial statements, including the disclosures, and whether the fund financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Deloitte LLP

Chartered Professional Accountants
June 23, 2020
Vancouver, British Columbia

The University of British Columbia Staff Pension Plan

Statement of financial position

December 31, 2019

(Expressed in thousands of dollars)

	Notes	2019 $	2018 $
Assets			
Investments	4		
Fixed income			
Cash and cash equivalents		**4,713**	14,251
Derivative investments, net		**2,149**	—
Long term fixed income		**494,389**	477,390
Real return bonds		**—**	64,630
Private debt		**7,645**	—
Infrastructure debt		**194,601**	172,692
Mortgages		**112,061**	—
Equities			
Canadian equities		**155,921**	154,174
Foreign equities		**325,521**	241,717
Emerging market equities		**158,450**	78,442
Alternative investments			
Private equities		**62,243**	57,273
Infrastructure equities		**246,082**	234,161
Real estate		**179,436**	206,612
Hedge funds		**168**	203
		1,943,379	1,701,545
Cash	4	**16,723**	20,061
Prepaid expenses		**3**	5
		1,960,105	1,721,611
Contributions receivable			
University of British Columbia		**212**	230
Members		**188**	158
		400	388
		1,960,505	1,721,999
Liabilities			
Derivative investments, net		**—**	3,707
Benefits payable		**51**	42
Accounts payable and accrued liabilities		**1,566**	912
		1,617	4,661
Net assets available for benefits		**1,958,888**	1,717,338

The accompanying notes are an integral part of the financial statements.

Approved on behalf of the Pension Board

________________________________, Chair

________________________________, Board Member

The University of British Columbia Staff Pension Plan

Statement of changes in net assets available for benefits

December 31, 2019

(Expressed in thousands of dollars)

	Notes	2019 $	2018 $
Increase in net assets			
University's required contributions		**52,536**	47,492
Members' required contributions		**36,653**	33,381
Transfers from other plans for buyback		**147**	61
		89,336	80,934
Investment income	5	**60,659**	52,207
Change in fair value of investments	6	**150,164**	822
		300,159	133,963
Decrease in net assets			
Payments to or on behalf of members			
Retirement benefits to members and beneficiaries		**41,987**	38,770
Members' accounts transferred or refunded		**6,484**	5,917
Death benefits		**660**	796
		49,131	45,483
Operations			
Administrative expenses	7	**1,796**	1,728
Investment			
Consulting fees		**53**	55
Management fees	8	**7,629**	6,343
		58,609	53,609
Increase in net assets available for benefits		**241,550**	80,354
Net assets available for benefits, beginning of year		**1,717,338**	1,636,984
Net assets available for benefits, end of year		**1,958,888**	1,717,338

The accompanying notes are an integral part of the financial statements.

1. Description of plan

The following description of The University of British Columbia Staff Pension Plan (the "Plan") is a summary only. For more complete information, reference should be made to the Plan text, which is available from The University of British Columbia (the "University" or the "Sponsor") Pension Administration Office. The Plan is registered under the Pension Benefits Standards Act of British Columbia (registration no. 85439). As a registered pension plan under the Income Tax Act of Canada, the Plan is exempt from taxation.

(a) General

The Plan is a target benefit pension plan with fixed member and employer contributions. The Plan provides that benefits may be adjusted depending on the Plan's funded status. The Plan is open to eligible full-time, certain part-time monthly-paid and hourly-paid staff.

(b) Funding policy

The Plan text requires members to make contributions of 6.5% of basic salary and the University to make contributions of 9.4% of basic salary.

(c) Benefits

Pension benefits are calculated using the following formula:

For service earned to June 30, 2009, 2% times the average of the member's three best years' of pensionable earnings multiplied by such pensionable service less a Canada Pension Plan benefit offset equal to 0.7% of the lesser of best average pensionable earnings and average YMPE multiplied by such pensionable service. For service earned beginning July 1, 2009 onwards, the benefit is a flat 1.8% of the best average pensionable earnings multiplied by such pensionable service. Calculated benefits in excess of Canada Revenue Agency's allowable eligible maximum benefit are paid in accordance with a Supplemental Retirement Arrangement ("SRA"), if the member is eligible. The SRA is a separate non-registered pension plan. Cost of living increases are calculated each year based on the Consumer Price Index for Canada and added to pension benefits, subject to the Plan's ability to pay.

Termination benefits are payable on termination of employment, and death benefits are paid in the event of death prior to retirement.

2. Basis of accounting

These financial statements present the aggregate financial position of the Plan as a separate financial reporting entity independent of the Sponsor and Plan members. The financial statements have been prepared in accordance with the accounting policies set out in note 3 to comply with the financial reporting provisions of Section 38(i)(c) of the regulations to the Pension Benefits Standards Act S.B.C. 2012 and Bulletin PENS 18-003 issued by the BC Financial Services Authority ("BCFSA") (formerly the Financial Institutions Commission) to the Plan in April 2018 (the "Financial Reporting Framework").

2. Basis of accounting (continued)

The basis of accounting used in these financial statements materially differs from Canadian accounting standards for pension plans because it excludes the pension obligation of the Plan. The bulletin issued by BCFSA confirms that the BCFSA permits audited financial statements to be prepared without disclosing the pension obligation. Consequently, these financial statements do not purport to show the adequacy of the Plan's assets to meet the Plan's pension obligations.

The accounting policies adopted in the preparation of these financial statements have been prepared on the basis of Part IV of the CPA Canada Handbook, Canadian accounting standards for pension plans (the "Handbook"), except for the exclusion of the pension obligation as noted above.

The Plan has adopted Canadian accounting standards for private enterprises in connection with any balances or transactions outside of the scope of Part IV of the Handbook.

3. Significant accounting policies

(a) Use of estimates

The preparation of fund financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the amounts of increases and decreases in net assets available for benefits for the reporting period. The most significant estimates relate to the estimated fair values of level 3 investments, as described in note 3(b). Actual results could differ from those estimates.

(b) Investments

Investments are recorded on a settlement date basis and at fair value. Fair value is 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.

Fair values for investments are determined using the following methods:

(i) Cash and cash equivalents

Domestic money market securities are stated at cost plus accrued income which approximates fair value.

(ii) Pooled funds

Bonds and equities

Pooled fund net asset values are provided by the investment managers and are generally based on the quoted market price of the underlying investments.
The underlying investments include publicly traded equities and bonds.

3. Significant accounting policies (continued)

(b) Investments (continued)

(iii) Private equities

Private equity investments are held through limited partnership units investing in private equity assets. The fair value of limited partnership units are based on net asset values reported in their respective financial statements. Fair values of the underlying assets are based on valuation methods which include, but are not limited to, the market approach (i.e. observable valuation measures for comparable companies) and the income approach (i.e. discounted cash flow model), with consideration for factors such as expected liquidation value, leverage, and economic conditions.

(iv) Real estate

Real estate investments are held in equities, real estate investment trusts and limited partnerships invested in real estate. The fair values of the shares, investment trust units and limited partnership units are based on the net asset values reported in their respective financial statements. Fair values of the underlying real estate assets are based on the most recent external manager appraisals of the properties such as commercial, industrial and residential properties. A combination of internal and external appraisals are used.

(v) Infrastructure equity

Infrastructure investments are held through limited partnership units investing in infrastructure assets, and in a pooled fund investing in publicly traded equities. The fair values of limited partnership units are based on the net asset values reported in their respective financial statements. Fair values of the underlying assets are based on the most recent external managers' valuations of the underlying infrastructure assets such as toll roads, water utilities, power and electrical utilities, communication towers and parts. Methods used by external fund managers include, but are not limited to, discounted cash flow models, the income approach or recent market transactions.

(vi) Derivatives

Foreign currency forward contracts are valued based on market closing forward rates from independent sources.

(vii) Mortgages

Mortgage investments are held in pooled mortgage funds consisting primarily of first mortgages of commercial properties across Canada. Pooled fund net asset values are provided by the investment manager's fund administrator and reported in their respective audited financial statements. Fair values of the underlying mortgages are based on discounting future cash flows using a discount rate equal to the risk-free rate plus an appropriate risk spread premium. The spread premium is derived by the manager or their selected vendor using a risk rating program and a monthly spread matrix, depending on factors which include the underlying profile of the borrower, terms of the mortgage and underlying collateral for the mortgage.

3. Significant accounting policies (continued)

(b) Investments (continued)

(viii) Private Debt

Private debt instruments are held through investment trusts and limited partnerships consisting primarily of assets that are senior in the capital structure. The fair values of fund units are based on the net asset values reported in managers' audited financial statements. Fair values of the underlying assets are based on the most recent external manager's valuation of the mortgages. For investments that are not marketable (mostly the loans), managers adopt a held-to-maturity approach which values investments at par and/or amortized cost, adjusted for the amortization or accretion of purchase discounts or premiums over time. However, for investments assumed to be held to maturity, adjustments will be made if the investment is assessed to be fundamentally impaired.

(c) Revenue recognition

Adjustments to investments due to the fluctuation of fair values are reflected as part of the change in fair value of investments in the statement of changes in net assets available for benefits. Realized gains and losses are calculated based on the average cost of the investments. Investment income is recognized as follows:

(i) Interest income is recognized in the period earned.

(ii) Dividend income is recognized on the ex-dividend date.

(iii) Income from investments in trusts and limited partnerships is recognized on an accrual basis when earned.

(iv) Pooled fund income is recognized on the date of distribution by the funds.

(d) Members' benefits transferred or refunded

Members' benefits transferred or refunded are recognized as a decrease in net assets on an accrual basis.

(e) Foreign currency translation

Transactions denominated in foreign currencies are translated at the rates of exchange at the date of the transaction. Assets and liabilities denominated in foreign currency are translated into Canadian dollars at the rate of exchange in effect at the statement of financial position date. Unrealized exchange gains or losses on foreign currency are included in the change in fair value of investments.

4. Investments

(a) Cash and cash equivalents

Cash and cash equivalents consist of cash or securities primarily issued by either Canadian chartered banks or the Bank of Canada that mature at various dates in the next fiscal year.

(Expressed in thousands of dollars)

4. Investments (continued)

(b) Fair value measurements – Hierarchy disclosure

Part IV of the Handbook establishes a three-tier hierarchy as a framework for disclosing fair values based on inputs used to value the Plan's investments. The hierarchy of inputs is summarized below:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The following is a summary of the inputs used as of December 31, 2019 in valuing the Plan's cash, investments and derivative financial instruments:

	Quoted prices in active markets for identical assets (Level 1) $	Significant other observable inputs (Level 2) $	Significant unobservable inputs (Level 3) $	Total $
Cash and cash equivalents	16,723	4,713	-	21,436
Derivative investments, net	-	2,149	-	2,149
Long term fixed income	-	494,389	-	494,389
Real return bonds	-	-	-	-
Private debt (vii)	-	-	7,645	7,645
Infrastructure debt (i)	-	66,721	127,880	194,601
Mortgages (vi)	-	15,922	96,139	112,061
Canadian equities	76,747	79,174	-	155,921
Foreign equities	-	325,521	-	325,521
Emerging market equities (ii)	-	158,203	247	158,450
Private equities (iii)	-	-	62,243	62,243
Infrastructure equity (i)	-	45,624	200,458	246,082
Real estate (iv)	-	-	179,436	179,436
Hedge funds (v)	-	-	168	168
	93,470	1,192,416	674,216	1,960,102

(Expressed in thousands of dollars)

4. Investments (continued)

(b) Fair value measurements – Hierarchy disclosure (continued)

The following is a summary of the inputs used as of December 31, 2018 in valuing the Plan's cash, investments and derivative financial instruments:

	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
	$	$	$	$
Cash and cash equivalents	20,061	14,251	-	34,312
Derivative investments, net	-	(3,707)	-	(3,707)
Long term fixed income	-	477,390	-	477,390
Real return bonds	-	64,630	-	64,630
Private debt (vii)	-	-	-	-
Infrastructure debt (i)	-	77,944	94,748	172,692
Mortgages (vi)	-	-	-	-
Canadian equities	79,801	74,373	-	154,174
Foreign equities	-	241,717	-	241,717
Emerging market equities (ii)	-	78,009	433	78,442
Private equities (iii)	-	-	57,273	57,273
Infrastructure equity (i)	-	23,115	211,046	234,161
Real estate (iv)	-	-	206,612	206,612
Hedge funds (v)	-	-	203	203
	99,862	1,047,722	570,315	1,717,899

(Expressed in thousands of dollars)

4. Investments (continued)

(b) Fair value measurements – Hierarchy disclosure (continued)

The following table provides the changes during the year ended December 31, 2019 for financial instruments for which Level 3 inputs were used in determining fair value:

	Emerging market equities $	Hedge funds $	Private equities $	Private debt $	Mortgages $	Real estate $	Infrastructure debt $	Infrastructure equity $	Total $
Balance, January 1, 2019	433	203	57,273	—	—	206,612	94,748	211,046	570,315
Purchases	—	—	10,348	7,608	166,140	15,953	35,662	26,307	262,018
Sales	(180)	—	(7,500)	(279)	(55,250)	(56,633)	(7,075)	(25,909)	(152,826)
Realized gains/(losses)	—	—	2,934	417	1,892	19,084	4,866	29,130	58,323
Net transfers into and/or out of Level 3	—	—	—	—	(15,922)	—	—	(45,623)	(61,545)
Expenses	—	—	(1,491)	—	(41)	(1,480)	(186)	(567)	(3,765)
Change in unrealized appreciation/depreciation	(6)	(35)	679	(101)	(680)	(4,100)	(135)	6,074	1,696
Balance, December 31, 2019	247	168	62,243	7,645	96,139	179,436	127,880	200,458	674,216

The following table provides the changes during the year ended December 31, 2018 for financial instruments for which Level 3 inputs were used in determining fair value:

	Emerging market equities $	Hedge funds $	Private equities $	Private debt $	Mortgages $	Real estate $	Infrastructure debt $	Infrastructure equity $	Total $
Balance, January 1, 2018	440	209	40,443	—	—	177,742	78,648	183,797	481,279
Purchases	—	157	22,997	—		70,903	18,413	137,490	249,960
Sales	—	(170)	(10,991)	—	—	(62,174)	(6,986)	(134,399)	(214,720)
Realized gains/(losses)	20	(5)	6,538	—	—	5,957	3,911	18,235	34,656
Net transfers into and/or out of Level 3	—	—	—	—	—	(1,769)	—	(23,115)	(24,884)
Expenses	—	—	(887)	—	—	—	(135)	(465)	(1,487)
Change in unrealized appreciation/depreciation	(27)	12	(827)	—	—	15,953	897	29,503	45,511
Balance, December 31, 2018	433	203	57,273	—	—	206,612	94,748	211,046	570,315

4. Investments (continued)

(b) Fair value measurements – Hierarchy disclosure (continued)

The total unrealized and realized gains (losses) recognized during the year related to Level 3 investments was ($5,291) ($53,796 in 2018). There were no transfers between Level 1 and Level 2 during the years ended December 31, 2019 and 2018.

Level 3 investments consist of the following:

(i) Infrastructure debt and equity

Infrastructure investments consist of investments in limited partnerships investing in infrastructure assets and a pooled fund investing in publicly traded equities. These investments are primarily in Canada, the United States, Australia and Europe.

(ii) Emerging market equities

These comprise shares and units of investment trusts where the underlying investments are listed on emerging markets stock exchanges.

(iii) Private equities

Private equities consist of investments in limited liability partnerships that have invested in private equities.

(iv) Real estate

Real estate investments consist of investments in equities, real estate investment trusts and limited liability partnerships involved in real estate. Real estate investments are primarily in North American and Asian properties.

(v) Hedge funds

The plan has investments in two (two in 2018) hedge funds with two (two in 2018) hedge fund managers. The managers invest in a number of individual hedge funds with different strategies.

(vi) Mortgages

These comprise investments held in pooled mortgage funds consisting primarily of first mortgages of commercial properties across Canada.

(vii) Private debt

Private debt consist of investments held through investment trusts and limited partnerships consisting primarily of assets that are senior in the capital structure.

(Expressed in thousands of dollars)

4. Investments (continued)

(c) Geographical allocation

The composition of the entire portfolio of investments, by country or region, is summarized as follows:

	2019	2018
	%	%
Canada	**60**	67
United States	**19**	17
United Kingdom	**3**	2
Europe	**8**	7
Asia	**10**	7
	100	100

5. Investment income

	2019	2018
	$	$
Interest income	**6,420**	7,807
Dividend income	**10,437**	6,029
Real estate income	**9,863**	5,315
Infrastructure income	**15,198**	14,937
Pooled fund distributions		
Bonds	**13,613**	15,030
Equities	**5,128**	3,089
	60,659	52,207

(Expressed in thousands of dollars)

6. Change in fair value of investments

	2019 $	2018 $
Realized gains on investments	**52,455**	30,374
Change in unrealized (losses)/gains on investments	**97,709**	(29,552)
	150,164	822

7. Administrative expenses

	2019 $	2018 $
Salaries and administrative costs	**1,362**	1,272
Actuarial services	**121**	129
Custodian	**178**	197
Other	**91**	87
Audit	**44**	43
	1,796	1,728

8. Related party

The Plan reimburses UBC Investment Management Trust Inc. ("IMANT"), an entity wholly owned by the Sponsor, for its proportionate share of IMANT's operating costs. Costs for the year ended December 31, 2019, which are included in management fees, totaled $1,340 ($1,026 in 2018).

9. Commitments

(a) Investments

In addition to investments already made in the following asset classes, the Plan is committed to invest the following amounts as at December 31:

	2019 €	2018 €	2019 US$	2018 US$	2019 Cdn$	2018 Cdn$
Real estate	**—**	—	**20,671**	21,297	**5,449**	10,643
Infrastructure equity	**525**	525	**1,538**	1,436	**1,930**	2,885
Infrastructure debt	**—**	—	**—**	—	**22,352**	42,970
Private equities	**9,897**	11,479	**18,849**	26,979	**—**	714
Private debt	**—**	—	**—**	—	**22,228**	—
	10,422	12,004	**41,058**	49,712	**51,959**	57,212

As at December 31, 2019, the total commitment in Canadian dollars was $120,370 ($143,851 in 2018).

(Expressed in thousands of dollars)

9. Commitments (continued)

(b) Leases

The Plan has entered into an operating lease for office premises with an expiry date of October 31, 2022. As of December 31, 2019, the future minimum lease payments are due as follows:

	$
2020	75
2021	75
2022	62
	212

10. Financial instruments

The fair values of the Plan's cash, investment income receivable, contributions receivable, benefits payable and accounts payable are considered by management to approximate their carrying values due to the short-term nature of these financial instruments.

The Plan's investments are recognized at fair value in accordance with the significant accounting policy disclosed in Note 3(b).

11. Risk management

The Plan's investment activities expose it to a variety of financial risks: market risk (including currency risk, interest rate risk and price risk), credit risk and liquidity risk. As a pension plan, the Plan is fundamentally concerned with the management of risk. The Plan's overall risk management program seeks to maximize the returns derived for the level of risk to which the Plan is exposed and seeks to minimize potential adverse effects on the Plan's financial performance. The risk exposure is set to achieve the overall liability requirements of the Plan design.

The assets of the Plan are managed by a wholly-owned subsidiary of the University, IMANT. The Plan employs a Statement of Investment Policies and Procedures ("Policy") to identify, assess, manage and monitor its financial risks. The Policy provides asset mix ranges and limitations on the quality and concentration of investments the Plan is to hold. The Board of the Plan ("Pension Board") formulates the Plan's policy asset mix and the terms in the Policy document, which it recommends to the UBC Board of Governors for approval. The day to day management and adherence to the policy is the responsibility of the staff of IMANT. IMANT employs 39 investment managers (39 in 2018) across 59 mandates (59 in 2018).

The Pension Board oversees the management of the Plan with a focus on effective plan design, governance, investment policy, financing, administration and legal compliance. IMANT staff monitors the investment performance of the fund, including asset class and manager performance against specified benchmarks and reports regularly to the Pension Board on overall performance and compliance with the Policy.

(Expressed in thousands of dollars)

11. Risk management (continued)

A majority of the Plan's assets are invested in pooled funds. Pooled funds provide a more cost effective means of achieving diversification within selected asset classes. The manager of each pooled investment fund is governed by the manager's own investment policy for the pooled fund. IMANT staff are responsible for ensuring that the detailed investment policy statement setting out the investment constraints for the managers of such segregated accounts is prepared and agreed to by the managers.

(a) *Price risk*

The Plan is exposed to price risk. This arises from investments held by the Plan for which prices in the future are uncertain. The value of the various holdings in the funds may move up or down, sometimes rapidly. The Plan manages price risk by allocating its assets across a number of different investment managers with different mandates and investment styles. Different types of investments have historically reflected higher levels of risk, as measured by their volatility of returns.

Given the overall target asset class holdings of the Plan, management expects most annual returns to be within a +/-8% (+/-10% in 2018) range of an expected long-term return of roughly +6% (+6% in 2018) (i.e. results ranging from -2% to +14%). This is based on AON's capital market assumptions as at December 31, 2019. While there may be some changes to the expected return from year to year of the individual asset classes, these changes should not be significant as the expected returns and volatilities are based on long-term results. The range of expected annual returns is based on the following asset class volatility figures:

	2019	2018
Cash and cash equivalents	**+/- 1.2%**	+/- 1.3%
Long term fixed income	**+/- 6.9%**	+/- 9.0%
Real return bonds	**+/- 5.4%**	+/- 6.2%
Private debt	**+/- 15.8%**	+/- 16.2%
Infrastructure debt	**+/- 6.4%**	+/- 9.5%
Mortgages	**+/- 2.6%**	+/- 2.9%
Canadian equities	**+/- 16.0%**	+/- 16.0%
Foreign equities	**+/- 14.4%**	+/- 14.0%
Emerging market equities	**+/- 23.6%**	+/- 24.0%
Private equities	**+/- 22.6%**	+/- 25.0%
Infrastructure equity	**+/- 18.9%**	+/- 19.0%
Real estate	**+/- 15.4%**	+/- 12.5%

(Expressed in thousands of dollars)

11. Risk management (continued)

(a) Price risk (continued)

	Market value at December 31, 2019 $	**Percentage of investments**	Market value at December 31, 2018 $	Percentage of investments
Cash and cash equivalents	**4,713**	**0%**	14,251	1%
Long term fixed income	**494,389**	**26%**	477,390	28%
Real return bonds	**—**	**0%**	64,630	4%
Private debt	**7,645**	**0%**	—	0%
Infrastructure debt	**194,601**	**10%**	172,692	10%
Mortgages	**112,061**	**6%**	—	0%
Canadian equities	**155,921**	**8%**	154,174	9%
Foreign equities	**325,521**	**17%**	241,717	14%
Emerging market equities	**158,450**	**8%**	78,442	5%
Private equities	**62,243**	**3%**	57,273	3%
Infrastructure equity	**246,082**	**13%**	234,161	14%
Real estate	**179,436**	**9%**	206,612	12%
Hedge Funds	**168**	**0%**	203	0%
	1,941,230	**100%**	1,701,545	100%

Based on the estimated range of volatility by asset class this would equate to the following dollar amounts, with all other variables held constant:

	2019	**$**	2018	$
Cash and cash equivalents	**+/- 1.2%**	**57**	+/- 1.3%	185
Long term fixed income	**+/- 6.9%**	**34,113**	+/- 9.0%	42,965
Real return bonds	**+/- 5.4%**	**—**	+/- 6.2%	4,007
Private debt	**+/- 15.8%**	**1,208**	—	—
Infrastructure debt	**+/- 6.4%**	**12,454**	+/- 9.5%	16,406
Mortgages	**+/- 2.6%**	**2,914**	—	—
Canadian equities	**+/- 16.0%**	**24,947**	+/- 16.0%	24,668
Foreign equities	**+/- 14.4%**	**46,875**	+/- 14.0%	33,840
Emerging market equities	**+/- 23.6%**	**37,394**	+/- 24.0%	18,825
Private equities	**+/- 22.6%**	**14,067**	+/- 25.0%	14,318
Infrastructure equity	**+/- 18.9%**	**46,509**	+/- 19.0%	44,491
Real estate	**+/- 15.4%**	**27,633**	+/- 12.5%	25,826

(b) Interest rate risk

The Plan is subject to interest rate risk. Interest rate risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market interest rates. Rising interest rates cause a decrease in bond prices. Duration is the most common measure of this risk and quantifies the effect of changes in bond prices due to a change in interest rates. The bond portfolio has an average duration of roughly 14 years (14 years in 2018). Therefore, if long-term interest rates increased by 1%, the bond portfolio would fall in value by approximately 14% (14% in 2018). The impact on the value of the Plan’s investments from an increase in interest rates will be partially or fully mitigated by the decrease in the value of the Plan’s pension obligation.

(Expressed in thousands of dollars)

11. Risk management (continued)

(c) Foreign currency risk

Foreign currency risk is the risk that the value of non-Canadian investments, denominated in other than Canadian dollars, will increase or decrease because of changes in foreign currency exchange rates. The Plan has significant investments denominated in foreign currencies across a majority of the asset classes including U.S. and international equities, real estate and hedge funds. The Plan's investment policy includes a benchmark target requirement to hedge 100% exposure in non-Canadian real estate and infrastructure investments. In addition to direct hedging by some of the investment managers, the Plan retains an external manager to implement a rolling monthly foreign currency forward program to achieve the 100% hedging target. This program includes hedging of U.S. dollar, Euro, Japanese Yen and Pound Sterling investments. As of December 31, 2019, roughly 40% (33% in 2018) of the Plan's assets were invested outside of Canada, and 23% (23% in 2018) of this exposure was hedged. U.S. dollar exposure accounts for 19% (17% in 2018) of the non-Canadian investment while Europe, Australasia, and Far East ("EAFE") currencies account for 22% (16% in 2018) of the exposure. A 10% strengthening/weakening of the Canadian dollar versus the U.S. dollar at December 31, 2019 would have decreased/increased the U.S. dollar exposure by roughly $37,242 ($29,116 in 2018). This amount would be reduced by non-Canadian real estate and infrastructure investments hedged through the currency hedging program. This assumes that all other variables remain constant.

(d) Credit risk

Credit risk is the risk of financial loss to the Plan if a counterparty to a financial instrument fails to meet its contractual obligations. The Plan's cash and cash equivalent, investment income receivable, contributions receivable, and bonds are subject to credit risk.
The maximum exposure to credit risk on these instruments is their carrying value of $710,826 ($749,413 in 2018). The Plan manages the risk by limiting the credit exposure allowed by the investment managers. The investment policies of the various bond managers provide limits to the credit exposure and/or set a minimum overall average portfolio quality allowed by each manager. The Plan also invests in derivative strategies to replicate equity index exposure and to hedge foreign currency exposure. Counterparties for these investments are restricted to a minimum credit rating of "A" or "A2".

The overall credit ratings as a percentage of the total bonds and mortgages as of December 31, 2019 held in the Plan are as follows:

	2019 **%**	2018 %
AAA	**13**	22
AA	**29**	31
A	**25**	21
BBB	**9**	7
Mortgages	**4**	4
Unrated	**20**	15
	100	100

11. Risk management (continued)

(e) Liquidity risk

Liquidity risk for the Plan refers to the likelihood of any potential loss from a large percentage of requests for redemptions by Plan members. If all members with a deferred pension entitlement under age 55 had requested a transfer of their termination benefit on December 31, 2019 this would represent approximately 4.0% (5.0% in 2018) of the Plan's assets.

All of the Plan's benefits payable, accounts payable, and accrued liabilities presented on the statements of financial position are due within one year.

Most of the Plan's assets are invested in large pooled funds of which the Plan is just one of many parties invested in these pooled funds which provides a high degree of liquidity. The Plan's managers typically invest in equities and bonds that are very marketable and that have a high degree of liquidity should they need to be sold in a relatively short timeframe.

Liquidity risk for the investment program refers to the risk that the Plan may not be able to generate sufficient cash resources to settle its obligations in full as they fall due or can only do so on terms that are materially disadvantageous.

The investments are exposed to monthly settlement of foreign currency forward contracts as well as cash calls related to the private equity, real estate and infrastructure investments. The sources of funding for these settlements are from the liquid portion of the Plan, the public market securities, as well as capital distributions related to private equity, real estate and infrastructure investments.

Investments in infrastructure, real estate, private equity and hedge funds have more restrictive liquidity constraints than public securities and may require continuing investment commitments. Infrastructure, real estate and private equity investments are mostly made through limited partnership agreements typically with contractual 10 year terms. Investments in the infrastructure, real estate and private equity limited partnerships occur over four to five year periods and redemptions are at the investment manager's discretion. For hedge fund investments, redemptions are on a quarterly or semi-annual basis and require 90 days' notice.

12. Capital management

The Plan defines its capital as the net assets available for benefits. The Plan's objectives when managing capital are to safeguard its ability to continue as a going concern, so that the Plan can provide the basic benefit to the Plan members and indexing subject to the Plan's ability to pay.

The Plan manages the capital structure and makes adjustments to it through implementation of the Statement of Investment Policies and Procedures that affects the earnings of the Plan and through the benefits/funding policy that affects the benefits paid. The Plan is not subject to externally imposed capital requirements.

The UBC Board of Governors is ultimately responsible for monitoring and evaluating the Plan's investment performance on a regular basis.

13. Subsequent events

On March 11, 2020 the World Health Organization characterized the outbreak of a strain of the novel coronavirus ("COVID-19") as a pandemic which has resulted in a series of public health and emergency measures that have been put in place to combat the spread of the virus.

The pandemic has caused losses in the global and Canadian capital markets, changes in interest rates, and fluctuations in various foreign currency exchange rates, consequently affecting the valuation and performance of the investments held by the Plan.

The duration and impact of COVID-19 is unknown at this time and it is not possible to reasonably estimate the impact that the length and severity of these developments will have on the financial results and condition of the Plan in future periods.