PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST
Form N-Q
August 28, 2018

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

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS
OF REGISTERED MANAGEMENT INVESTMENT COMPANY

Investment Company Act file number 811-21409

Pioneer Municipal High Income Advantage Trust
(Exact name of registrant as specified in charter)

60 State Street, Boston, MA 02109
(Address of principal executive offices) (ZIP code)

Terrence J. Cullen, Pioneer Investment Management, Inc.,
60 State Street, Boston, MA 02109
(Name and address of agent for service)

Registrant's telephone number, including area code: (617) 742-7825

Date of fiscal year end: March 31

Date of reporting period: June 30, 2018

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after close of the first and third fiscal quarters, pursuant to Rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b1-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget ("OMB") control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. ss. 3507.

ITEM 1. Schedule of Investments.

File the schedules as of the close of the reporting period as set forth in ss. 210.12-12 – 12-14 of Regulation S-X [17 CFR 210.12-12 – 12-14]. The schedules need not be audited.

Pioneer Municipal High
Income Advantage Trust

NQ | June 30, 2018

Ticker Symbol: MAV

Principal Amount USD ($)		Value
	UNAFFILIATED ISSUERS - 157.1%	
	CORPORATE BOND - 1.6% of Net Assets	
	DIVERSIFIED FINANCIALS - 1.6%	
	Specialized Finance - 1.6%	
4,432,000^	Texas Pellets, Inc. / German Pellets Texas LLC, 8.0%, 9/30/18 (144A)	$4,432,000
	Total Diversified Financials	$4,432,000
	TOTAL CORPORATE BOND (Cost $4,432,000)	$4,432,000
	TAX EXEMPT OBLIGATIONS - 155.5% of Net Assets(a)	
	Alabama - 1.6%	
2,500,000	Alabama Industrial Development Authority, Pine City Fiber Co., 6.45%, 12/1/23	$2,499,800
2,500,000	Huntsville-Redstone Village Special Care Facilities Financing Authority, Redstone Village Project, 5.5%, 1/1/43	1,968,700
		$4,468,500
	Arizona - 2.5%	
4,000,000(b)	City of Phoenix, 5.0%, 7/1/27	$4,733,280
2,000,000	City of Phoenix, Industrial Development Authority, 3rd & Indian School Assisted Living Project, 5.4%, 10/1/36	2,058,800
27,000	County of Pima, Industrial Development Authority, Arizona Charter Schools Project, Series C, 6.75%, 7/1/31	27,167
		$6,819,247
	California - 14.2%	
6,990,000	California County Tobacco Securitization Agency, Asset-Backed, Gold County Funding Corp., 5.25%, 6/1/46	$6,989,511
38,610,000(c)	California County Tobacco Securitization Agency, Capital Appreciation, Stanislaus County, Subordinated, Series A, 6/1/46	7,236,286
1,845,000	California Educational Facilities Authority, Stanford University, 5.25%, 4/1/40	2,441,119
1,550,000	California Enterprise Development Authority, Sunpower Corp., 8.5%, 4/1/31	1,656,578
5,000,000	California Pollution Control Financing Authority, 5.0%, 7/1/37 (144A)	5,032,900
3,000,000(d)	California School Finance Authority, Classical Academies Project, Series A, 7.375%, 10/1/43	3,533,340
1,875,000	California Statewide Communities Development Authority, Lancer Plaza Project, 5.875%, 11/1/43	2,080,969
757,342(e)	California Statewide Communities Development Authority, Microgy Holdings Project, 9.0%, 12/1/38	8
1,500,000(d)	City of Madera, Irrigation Financing Authority, 6.25%, 1/1/31	1,604,445
1,500,000(d)	City of Madera, Irrigation Financing Authority, 6.5%, 1/1/40	1,609,965
2,695,000(b)	Coast Community College District, Election, Series D, 5.0%, 8/1/31	3,226,993
1,000,000	Golden State Tobacco Securitization Corp., Asset-Backed, Series A-1, 5.125%, 6/1/47	1,000,010
65,000(f)		64,982

	Lehman Municipal Trust Receipts, RIB, 10.512%, 11/1/39 (144A) (AGM Insured)	
2,425,000(b)	State of California, Various Purposes, 5.75%, 4/1/31	2,500,757
465,000	Tobacco Securitization Authority of Southern California, Series A-1, 5.125%, 6/1/46	466,014
		$39,443,877
	Colorado - 0.7%	
1,500,000(d)	Colorado Educational & Cultural Facilities Authority, Rocky Mountain Classical Academy Project, 8.0%, 9/1/43	$1,928,970
	Connecticut - 3.8%	
2,035,000	Mohegan Tribal Finance Authority, 7.0%, 2/1/45 (144A)	$2,092,367
7,200,000(b)	State of Connecticut, Series E, 4.0%, 9/1/30	7,454,232
1,000,000	Town of Hamden, Whitney Center Project, Series A, 7.75%, 1/1/43	1,043,520
		$10,590,119
	District of Columbia - 4.8%	
3,975,000	District of Columbia, Housing Product Trust Fund, Series A, 4.25%, 6/1/37 (NATL Insured)	$3,981,201
1,995,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.5%, 5/15/33	2,258,859
6,825,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.75%, 5/15/40	7,078,685
		$13,318,745
	Florida - 9.0%	
1,500,000	Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/41	$1,676,940
1,500,000	Alachua County Health Facilities Authority, Terraces Bonita Springs Project, Series A, 8.125%, 11/15/46	1,671,960
2,500,000(d)	County of Miami-Dade, Aviation Revenue, Series B, 5.5%, 10/1/41	2,620,850
5,000,000	County of Miami-Dade, Water & Sewer System Revenue, Series A, 4.0%, 10/1/44	5,159,850
5,000,000	Florida's Turnpike Enterprise, Department of Transportation, Series A, 4.0%, 7/1/32	5,283,700
1,000,000(d)	Hillsborough County Industrial Development Authority, Various Health Facilities, 8.0%, 8/15/32	1,078,480
7,035,000(b)	State of Florida, Capital Outlay, Series A, 4.0%, 6/1/38	7,454,356
		$24,946,136
	Georgia - 6.2%	
5,000,000	City of Atlanta, Water & Wastewater Revenue, Series A, 5.0%, 11/1/34	$5,848,100
900,000	DeKalb County Georgia Hospital Authority, DeKalb Medical Center, Inc., Project, 6.0%, 9/1/30	962,100
750,000	DeKalb County Georgia Hospital Authority, DeKalb Medical Center, Inc., Project, 6.125%, 9/1/40	798,495
8,750,000	Private Colleges & Universities Authority, Emory University, Series A, 5.0%, 10/1/43	9,696,050
		$17,304,745
	Guam - 0.4%	
1,000,000	Guam Department of Education, Certificates of Participation, John F. Kennedy High School, Series A, 6.625%, 12/1/30	$1,031,840

Principal Amount USD ($)		Value
	Idaho - 0.7%	
2,000,000	Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	$2,007,600
	Illinois - 2.8%	
1,000,000(b)	Chicago Board of Education, Series A, 7.0%, 12/1/46 (144A)	$1,196,830
417,400(f)	Illinois Finance Authority, Clare Oaks Project, Series B, 4.0%, 11/15/52	354,506
261,000(c)	Illinois Finance Authority, Clare Oaks Project, Series C-1, 11/15/52	8,986
52,200(c)	Illinois Finance Authority, Clare Oaks Project, Series C-2, 11/15/52	15,277
52,200(c)	Illinois Finance Authority, Clare Oaks Project, Series C-3, 11/15/52	9,200
1,450,000	Illinois Finance Authority, Memorial Health System, 5.5%, 4/1/39	1,488,135
2,000,000(d)	Illinois Finance Authority, Northwestern Memorial Hospital, Series A, 6.0%, 8/15/39	2,098,560
280,000(d)	Illinois Finance Authority, Swedish Covenant, Series A, 6.0%, 8/15/38	298,278
1,000,000	Metropolitan Pier & Exposition Authority, McCormick Place, Series B, 5.0%, 6/15/52 (ST APPROP Insured)	1,028,450
1,350,000	Southwestern Illinois Development Authority, Village of Sauget Project, 5.625%, 11/1/26	1,285,632
		$7,783,854
	Indiana - 0.9%	
250,000	City of Carmel, Barrington Carmel Project, Series A, 7.0%, 11/15/32	$261,305
750,000	City of Carmel, Barrington Carmel Project, Series A, 7.125%, 11/15/42	787,485
500,000	City of Carmel, Barrington Carmel Project, Series A, 7.125%, 11/15/47	524,795
1,000,000	Indiana Finance Authority, Educational Facilities, 5.125%, 7/1/37	973,370
		$2,546,955
	Kansas - 0.4%	
1,000,000(d)	Kansas Development Finance Authority, Hayes Medical Center, Inc., Series Q, 5.0%, 5/15/35	$1,029,220
	Louisiana - 2.9%	
7,000,000	Jefferson Parish Hospital Service District No. 2, East Jefferson General Hospital, 6.375%, 7/1/41	$7,280,350
750,000	Opelousas Louisiana General Hospital Authority, Opelousas General Health System Project, 5.75%, 10/1/23	751,013
		$8,031,363
	Maine - 2.0%	
1,500,000	Maine Health & Higher Educational Facilities Authority, Maine General Medical Center, 7.5%, 7/1/32	$1,669,620
3,500,000	Maine Turnpike Authority, Series A, 5.0%, 7/1/42	3,805,655
		$5,475,275

	Maryland - 3.9%	
2,000,000(d)	Maryland Health & Higher Educational Facilities Authority, Charlestown Community, 6.25%, 1/1/45	$2,207,360
2,090,000	Maryland Health & Higher Educational Facilities Authority, City Neighbors, Series A, 6.75%, 7/1/44	2,269,092
1,250,000(d)	Maryland Health & Higher Educational Facilities Authority, Doctor's Community Hospital, 5.75%, 7/1/38	1,346,813
4,500,000	Maryland Health & Higher Educational Facilities Authority, Maryland University Medical System, Series A, 5.0%, 7/1/43	4,854,015
		$10,677,280
	Massachusetts - 10.0%	
7,000,000(c)	Massachusetts Bay Transportation Authority, Series A, 7/1/28	$5,081,790
2,575,000(d)	Massachusetts Development Finance Agency, Broad Institute, Inc., Series A, 5.25%, 4/1/37	2,811,050
961,679	Massachusetts Development Finance Agency, Linden Ponds, Inc., Series A-1, 5.5%, 11/15/46	969,921
2,200,000	Massachusetts Development Finance Agency, Partner's Healthcare System, Series M-4, 5.0%, 7/1/39	2,408,010
8,000,000	Massachusetts Development Finance Agency, WGBH Foundation, Series A, 5.75%, 1/1/42 (AMBAC Insured)	10,696,240
4,325,000	Massachusetts Health & Educational Facilities Authority, Massachusetts Institute of Technology, Series K, 5.5%, 7/1/32	5,687,029
		$27,654,040
	Michigan - 3.0%	
2,000,000	Flint Michigan Hospital Building Authority, Hurley Medical Center, 7.375%, 7/1/35	$2,150,440
560,000	Michigan Public Educational Facilities Authority, Crescent Academy, 7.0%, 10/1/36	561,120
5,000,000	Michigan State University, Series A, 5.0%, 8/15/41	5,556,100
		$8,267,660
	Minnesota - 2.7%	
2,000,000	Bloomington Port Authority, Radisson Blu Mall of America, 9.0%, 12/1/35	$2,230,480
1,000,000	City of Ham Lake, DaVinci Academy, Series A, 5.0%, 7/1/47	1,007,200
3,755,000(b)	State of Minnesota, Series B, 4.0%, 8/1/27	4,173,307
		$7,410,987
	Montana - 0.1%	
2,445,000(e)	City of Hardin, Tax Allocation, Rocky Mountain Power, Inc., Project, 6.25%, 9/1/31	$317,850
1,000,000(e)	Two Rivers Authority, Inc., 7.375%, 11/1/27	42,000
		$359,850
	Nevada - 0.7%	
2,000,000	County of Washoe, Fuel Tax, 5.0%, 2/1/43	$2,033,800
	New Hampshire - 0.7%	
2,000,000	New Hampshire Health & Education Facilities Authority Act, Catholic Medical Centre, 3.75%, 7/1/40	$1,967,580
	New Jersey - 9.1%	
7,500,000	New Jersey Economic Development Authority, Continental Airlines, 5.75%, 9/15/27	$8,254,950
Principal Amount		

USD ($)		Value
	New Jersey - (continued)	
3,500,000(f)	New Jersey State Turnpike Authority, RIB, 11.064%, 1/1/28 (144A) (AGM Insured)	$5,574,555
15,375,000(c)	New Jersey Transportation Trust Fund Authority, 12/15/27 (BHAC-CR MBIA Insured)	11,507,111
		$25,336,616
	New York - 9.8%	
5,000,000	New York State Dormitory Authority, Columbia University, 5.0%, 10/1/41	$5,377,650
2,000,000(d)	New York State Dormitory Authority, Orange Medical Center, 6.125%, 12/1/29	2,038,980
7,500,000	New York State Dormitory Authority, Series A, 4.0%, 7/1/37	7,963,575
7,500,000	New York State Dormitory Authority, Series C, 5.0%, 3/15/39	8,367,600
1,500,000	New York State Dormitory Authority, Trustees of Columbia University, 5.0%, 10/1/45	1,972,035
1,333,463	Westchester County Healthcare Corp., Series A, 5.0%, 11/1/44	1,424,165
		$27,144,005
	North Carolina - 0.7%	
500,000	City of Charlotte, Airport Revenue, Series A, 5.0%, 7/1/42	$576,190
1,250,000	City of Charlotte, Airport Revenue, Series A, 5.0%, 7/1/47	1,435,175
		$2,011,365
	Ohio - 6.8%	
3,000,000(d)	Akron Bath Copley Joint Township Hospital District, Akron General Health System, 5.0%, 1/1/31	$3,288,480
2,500,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 5.875%, 6/1/47	2,510,675
9,945,000	Buckeye Tobacco Settlement Financing Authority, Asset-Backed, Series A-2, 6.5%, 6/1/47	10,199,691
2,500,000(b)(d)	State of Ohio, Common Schools, Series B, 5.0%, 6/15/29	2,784,475
		$18,783,321
	Oregon - 1.2%	
1,000,000	Oregon Health & Science University, Series A, 5.0%, 7/1/42	$1,141,400
2,000,000	Oregon State Facilities Authority, Samaritan Health Services, Series A, 5.25%, 10/1/40	2,105,340
		$3,246,740
	Pennsylvania - 8.6%	
1,000,000	Chester County Industrial Development Authority, Collegium Charter School, Series A, 5.25%, 10/15/47	$1,021,080
1,965,000	Pennsylvania Economic Development Financing Authority, US Airways Group, Series B, 8.0%, 5/1/29	2,138,353
5,000,000	Pennsylvania Economic Development Financing Authority, USG Corp. Project, 6.0%, 6/1/31	5,009,300
1,555,000(d)	Pennsylvania Turnpike Commission, Series D, 5.3%, 12/1/41	1,630,464
3,445,000(d)	Pennsylvania Turnpike Commission, Series D, 5.3%, 12/1/41	3,619,627
500,000	Philadelphia Authority for Industrial Development, Greater Philadelphia Health Action, Inc., Project, Series A, 6.625%, 6/1/50	521,450
6,000,000	Philadelphia Authority for Industrial Development, Nueva Esperanze, Inc., 8.2%, 12/1/43	6,649,920
1,000,000		1,048,530

	Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.5%, 6/15/33 (144A)	
2,000,000	Philadelphia Authority for Industrial Development, Performing Arts Charter School Project, 6.75%, 6/15/43 (144A)	2,096,380
		$23,735,104
	Puerto Rico - 0.9%	
6,500,000(b)(e)	Commonwealth of Puerto Rico, Series A, 8.0%, 7/1/35	$2,632,500
	Rhode Island - 1.9%	
1,355,000(e)	Central Falls Detention Facility Corp., 7.25%, 7/15/35	$243,900
3,000,000	Rhode Island Health & Educational Building Corp., Brown University, Series A, 4.0%, 9/1/37	3,159,900
1,500,000(d)	Rhode Island Health & Educational Building Corp., Tockwatten Home Issue, 8.375%, 1/1/46	1,735,530
		$5,139,330
	South Carolina - 2.1%	
4,400,000(g)	Tobacco Settlement Revenue Management Authority, Series B, 6.375%, 5/15/30	$5,822,916
	South Dakota - 1.5%	
4,000,000	South Dakota Health & Educational Facilities Authority, Sanford Health, Series B, 4.0%, 11/1/44	$4,035,480
	Tennessee - 2.0%	
5,000,000(d)	Johnson City Health & Educational Facilities Board, Mountain States Health Alliance, 6.5%, 7/1/38	$5,465,600
	Texas - 16.9%	
1,000,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.0%, 3/1/34	$1,034,220
1,500,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.125%, 3/1/44	1,545,780
2,500,000(d)	Central Texas Regional Mobility Authority, Sub Lien, 6.75%, 1/1/41	2,789,475
2,500,000(b)	County of Harris, Series A, 5.0%, 10/1/26	2,927,975
5,000,000(b)	Goose Creek Consolidated Independent School District, Series C, 4.0%, 2/15/26 (PSF-GTD Insured)	5,398,800
5,020,000	Grand Parkway Transportation Corp., Series A, 5.5%, 4/1/53	5,616,828
2,663,453(e)	Gulf Coast Industrial Development Authority, Microgy Holdings Project, 7.0%, 12/1/36	27
3,000,000	Houston Higher Education Finance Corp., St. John's School Project, Series A, 5.0%, 9/1/38	3,258,660
3,355,000	North Texas Tollway Authority, Series A, 5.0%, 1/1/30	3,779,911
1,500,000(d)	Red River Health Facilities Development Corp., MRC Crestview, Series A, 8.0%, 11/15/41	1,788,855
2,000,000(b)	Richardson Independent School District, School Building, 5.0%, 2/15/38 (PSF-GTD Insured)	2,203,820
6,960,000^(e)	Sanger Industrial Development Corp., Texas Pellets Project, Series B, 8.0%, 7/1/38	2,610,000
1,000,000(e)	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 4.875%, 11/15/48	694,340
750,000	Tarrant County Cultural Education Facilities Finance Corp., Mirador Project, Series A, 5.0%, 11/15/55	520,402
1,000,000(e)	Texas Midwest Public Facility Corp., Secure Treatment Facility Project, 9.0%, 10/1/30	230,000

Principal Amount USD ($)		Value
	Texas - (continued)	
3,365,000	Texas Private Activity Bond Surface Transportation Corp., NTE Mobility Partners LLC, 7.0%, 12/31/38	$3,988,063
2,500,000(d)	Travis County Health Facilities Development Corp., Longhorn Village Project, 7.125%, 1/1/46	2,818,725
5,000,000(b)	Tyler Independent School District, School Building, 5.0%, 2/15/38 (PSF-GTD Insured)	5,509,550
		$46,715,431
	Utah - 2.3%	
5,000,000	County of Utah, IHC Health Services, Inc., Series B, 4.0%, 5/15/47	$5,136,750
1,000,000	Salt Lake City Corp., Airport Revenue, Series B, 5.0%, 7/1/36	1,153,230
		$6,289,980
	Virginia - 9.2%	
2,275,000(b)	County of Arlington, 4.0%, 8/15/35	$2,434,591
2,000,000(d)	County of Washington, Industrial Development Authority, Mountain States Health Alliance, Series C, 7.75%, 7/1/38	2,061,540
4,550,000	Tobacco Settlement Financing Corp., Series B-1, 5.0%, 6/1/47	4,549,864
5,000,000	University of Virginia, Multi Year Capital Project, Series A, 4.0%, 8/1/48	5,245,350
5,000,000	University of Virginia, Series A, 5.0%, 4/1/42	5,797,300
5,000,000	Virginia Public School Authority Revenue, 4.0%, 8/1/25 (State Aid Withholding)	5,461,700
		$25,550,345
	Washington - 4.2%	
3,000,000	City of Seattle, Water System Revenue, 4.0%, 8/1/32	$3,218,310
2,500,000(b)	King County, Issaquah School District No. 411, 4.0%, 12/1/31 (SCH BD GTY Insured)	2,673,025
2,500,000	University of Washington, Series B, 5.0%, 6/1/29	2,890,950
1,500,000(d)	Washington State Health Care Facilities Authority, Kadlec Regional Medical Center, 5.5%, 12/1/39	1,628,865
1,100,000	Washington State Housing Finance Commission, Mirabella Project, Series A, 6.75%, 10/1/47 (144A)	1,196,327
		$11,607,477
	West Virginia - 0.4%	
2,000,000(e)	City of Philippi, Alderson-Broaddus College, Inc., Series A, 7.75%, 10/1/44	$1,196,000
	Wisconsin - 3.9%	
5,000,000	Public Finance Authority, Glenridge Palmer Ranch, Series A, 8.25%, 6/1/46	$5,749,600
750,000	Public Finance Authority, Roseman University Health Sciences Project, 5.875%, 4/1/45	807,547
1,000,000	Public Finance Authority, SearStone CCRC Project, Series A, 5.3%, 6/1/47	989,730
1,490,000(d)	Public Finance Authority, SearStone CCRC Project, Series A, 8.625%, 6/1/47	1,828,856
1,500,000(d)	Wisconsin Health & Educational Facilities Authority, Pro Healthcare, Inc., Group, 6.625%, 2/15/39	1,546,605

	$10,922,338
TOTAL TAX EXEMPT OBLIGATIONS (Cost $414,597,743)	$430,732,191
TOTAL INVESTMENTS IN UNAFFILIATED ISSUERS - 157.1% (Cost $419,029,743)	$435,164,191
OTHER ASSETS AND LIABILITIES - 0.7%	$1,882,422
VARIABLE RATE MUNIFUND TERM PREFERRED SHARES AT REDEMPTION VALUE - (57.8)%	$(159,990,074)
NET ASSETS APPLICABLE TO COMMON SHAREOWNERS - 100.0%	$277,056,539

(144A) Security is exempt from registration under Rule 144A of the Securities Act of 1933. Such securities may be resold normally to qualified institutional buyers in a transaction exempt from registration. At June 30, 2018, the value of these securities amounted to $22,734,871, or 8.2% of net assets applicable to common shareowners.

RIB Residual Interest Bond is purchased in a secondary market. The interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate at June 30, 2018.

^ Security is valued using fair value methods (other than supplied by independent pricing services).
(a) Consists of Revenue Bonds unless otherwise indicated.
(b) Represents a General Obligation Bond.
(c) Security issued with a zero coupon. Income is recognized through accretion of discount.
(d) Prerefunded bonds have been collateralized by U.S. Treasury or U.S. Government Agency securities which are held in escrow to pay interest and principal on the tax exempt issue and to retire the bonds in full at the earliest refunding date.
(e) Security is in default.
(f) The interest rate is subject to change periodically. The interest rate and/or reference index and spread shown at June 30, 2018.
(g) Escrow to maturity.

Various inputs are used in determining the value of the Trust's investments. These inputs are summarized in the three broad levels below.

Level 1 - quoted prices in active markets for identical securities.
Level 2 - other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risks, etc.).
Level 3 - significant unobservable inputs (including the Trust's own assumptions in determining fair value of investments).

The following is a summary of the inputs used as of June 30, 2018, in valuing the Trust's investments.

	Level 1	Level 2	Level 3	Total
Corporate Bond	$ –	$4,432,000	$–	$4,432,000
Tax Exempt Obligations				
Texas	–	44,105,431	2,610,000	46,715,431
All Other Tax Exempt Obligations	–	384,016,760	–	384,016,760
Total Investments in Securities	$ –	$432,554,191	$2,610,000	$435,164,191

The following is a reconciliation of assets valued using significant unobservable inputs (Level 3):

Tax Exempt Obligations	
Balance as of 3/31/18	$2,610,000
Realized gain (loss)	–
Change in unrealized appreciation (depreciation)	776
Accrued discounts/premiums	(776)
Purchases	–
Sales	–
Transfers in to Level 3*	–
Transfers out of Level 3*	–
Balance as of 6/30/18	$2,610,000

* Transfers are calculated on the beginning of period value. During three months ended June 30, 2018 there were no transfers between Levels 1, 2 and 3.

Net change in unrealized appreciation (depreciation) of Level 3 investments still held and considered Level 3 at June 30, 2018: $776.

ITEM 2. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive and principal financial officers, or persons performing similar functions, regarding the effectiveness of the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Act (17 CFR 270.30a-3(c))) as of a date within 90 days of the filing date of the report that includes the disclosure required by this paragraph, based on the evaluation of these controls and procedures required by Rule 30a-3(b) under the Act (17 CFR 270.30a-3(b))) and Rule 13a-15(b) or 15d-15(b) under the Exchange Act (17 CFR 240.13a-15(b) or 240.15d-15(b)).

The registrant's principal executive officer and principal financial officer have concluded that the registrant's disclosure controls and procedures are effective based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of this report.

(b) Disclose any change in the registrant's internal controls over financial reporting (as defined in Rule 30a-3(d) under the Act (17 CFR 270.30a-3(d)) that occurred during the registrant's last fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.

There were no significant changes in the registrant's internal control over financial reporting that occurred during the second fiscal quarter of the period covered by this report that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

ITEM 3. EXHIBITS.

File as exhibits as part of this Form a separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2(a) under the Act (17 CFR 270.30a-2(a)), exactly as set forth below:

CERTIFICATIONS

I, [identify the certifying individual], certify that:

1. I have reviewed this report on Form N-Q of [identify registrant];

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

3. Based on my knowledge, the schedules of investments included in this report fairly present in all material respects the investments of the registrant as of the end of the fiscal quarter for which the report is filed;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940) and internal control over financial reporting (as defined in Rule 30a-3(d) under the Investment Company Act of 1940) for the registrant and have:

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

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

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of a date within 90 days prior to the filing date of this report, based on such evaluation; and

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

5. The registrant's other certifying officer(s) and I have disclosed to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: [Signature] [Title]

Filed herewith.

SIGNATURES

[See General Instruction F]

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Pioneer Municipal High Income Advantage Trust

By (Signature and Title)* /s/ Lisa M.Jones
Lisa M.Jones, President and Chief Executive Officer

Date August 28, 2018

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By (Signature and Title)* /s/ Lisa M. Jones
Lisa M.Jones, President and Chief Executive Officer

Date August 28, 2018

By (Signature and Title)* /s/ Mark E. Bradley
Mark E. Bradley, Treasurer and Chief Accounting and Financial Officer

Date August 28, 2018

* Print the name and title of each signing officer under his or her signature.