

Pioneer Municipal High Income Opportunities Fund, Inc.

Schedule of Investments | January 31,
2024

Ticker Symbol: MIO

Schedule of Investments | 1/31/24

(unaudited)

Principal Amount USD (\$)		Value
UNAFFILIATED ISSUERS — 110.6%		
MUNICIPAL BONDS — 110.6% of Net Assets(a)		
Arizona — 3.1%		
1,675,000	Arizona Industrial Development Authority, Doral Academy Nevada Fire Mesa, Series A, 5.00%, 7/15/49	\$ 1,611,082
1,000,000	Arizona Industrial Development Authority, Doral Academy Of Northern Nevada Project, Series A, 4.00%, 7/15/51 (144A)	755,040
950,000	Arizona Industrial Development Authority, Doral Academy Of Northern Nevada Project, Series A, 4.00%, 7/15/56 (144A)	684,371
4,000,000	Maricopa County Industrial Development Authority, Commercial Metals Company, 4.00%, 10/15/47 (144A)	3,546,600
Total Arizona		\$ 6,597,093
Arkansas — 5.2%		
9,500,000	Arkansas Development Finance Authority, Big River Steel Project, 4.50%, 9/1/49 (144A)	\$ 9,143,370
1,750,000	Arkansas Development Finance Authority, Green Bond, 5.45%, 9/1/52	1,764,647
Total Arkansas		\$ 10,908,017
California — 6.2%		
1,000,000	California County Tobacco Securitization Agency, Golden Gate Tobacco Settlement, Series A, 5.00%, 6/1/47	\$ 961,760
1,000,000	California Statewide Communities Development Authority, Baptist University, Series A, 5.00%, 11/1/41 (144A)	1,005,660
2,315,000	California Statewide Communities Development Authority, Loma Linda University Medical Center, Series A, 5.25%, 12/1/56 (144A)	2,327,084
750,000	City of Oroville, Oroville Hospital, 5.25%, 4/1/39	517,568
3,865,000	City of Oroville, Oroville Hospital, 5.25%, 4/1/49	2,572,776
8,550,000	City of Oroville, Oroville Hospital, 5.25%, 4/1/54	5,843,497
Total California		\$ 13,228,345
Colorado — 11.9%		
5,180,000	Aerotropolis Regional Transportation Authority, 4.25%, 12/1/41	\$ 4,614,655
3,500,000	Aerotropolis Regional Transportation Authority, 4.375%, 12/1/52	2,876,825
2,640,000	Aerotropolis Regional Transportation Authority, 5.00%, 12/1/51	2,402,505

Principal Amount USD (\$)		Value
	Colorado — (continued)	
3,000,000	Colorado High Performance Transportation Enterprise, 5.00%, 12/31/56	\$ 3,007,320
1,897,000(b)	Cottonwood Highlands Metropolitan District No. 1, Series A, 5.00%, 12/1/49	1,780,202
7,000,000	Dominion Water & Sanitation District, 5.875%, 12/1/52	7,012,040
3,475,000	Prairie Center Metropolitan District No 3, Series A, 5.00%, 12/15/41 (144A)	3,463,567
	Total Colorado	\$ 25,157,114
	Delaware — 0.3%	
1,015,000	Delaware State Economic Development Authority, Aspira of Delaware Charter, 4.00%, 6/1/57	\$ 697,122
	Total Delaware	\$ 697,122
	Florida — 3.0%	
1,335,000	Capital Trust Authority, Series A, 5.50%, 12/15/33 (144A)	\$ 1,356,257
1,320,000	Capital Trust Authority, Series A, 6.50%, 12/15/53 (144A)	1,343,258
4,425,000	Florida Development Finance Corp., Glenridge On Palmer Ranch Project, 5.00%, 6/1/51 (144A)	3,553,762
	Total Florida	\$ 6,253,277
	Illinois — 6.2%	
4,260,000(b)	Chicago Board of Education, Series A, 5.00%, 12/1/42	\$ 4,231,288
9,500,000	Metropolitan Pier & Exposition Authority, McCormick Place Expansion, 4.00%, 6/15/50	8,812,295
	Total Illinois	\$ 13,043,583
	Indiana — 1.2%	
2,500,000	Indiana Finance Authority, Multipurpose Educational Facilities, Avondale Meadows Academy Project, 5.375%, 7/1/47	\$ 2,452,500
	Total Indiana	\$ 2,452,500
	Iowa — 3.9%	
8,600,000	Iowa Finance Authority, Alcoa Inc. Projects, 4.75%, 8/1/42	\$ 8,364,876
	Total Iowa	\$ 8,364,876
	Kentucky — 0.5%	
1,010,000	City of Henderson, 4.70%, 1/1/52 (144A)	\$ 966,863
	Total Kentucky	\$ 966,863

Schedule of Investments | 1/31/24

(unaudited) (continued)

Principal Amount USD (\$)		Value
2,000,000	Massachusetts — 0.9% Massachusetts Development Finance Agency, Lowell General Hospital, Series G, 5.00%, 7/1/44	\$ 1,977,280
	Total Massachusetts	\$ 1,977,280
1,430,000(c)	Minnesota — 0.4% City of Rochester, Rochester Math & Science Academy, Series A, 5.125%, 9/1/38	\$ 858,000
	Total Minnesota	\$ 858,000
1,865,000	New Jersey — 0.9% Tobacco Settlement Financing Corp., Series B, 5.00%, 6/1/46	\$ 1,879,715
	Total New Jersey	\$ 1,879,715
5,300,000	New York — 28.9% Chautauqua Tobacco Asset Securitization Corp., 5.00%, 6/1/48	\$ 5,101,409
1,000,000	Dutchess County Local Development Corp., Health Quest Systems Inc., Series B, 5.00%, 7/1/46	988,140
8,885,000	Erie Tobacco Asset Securitization Corp., Asset-Backed, Series A, 5.00%, 6/1/45	8,158,740
3,505,000	Nassau County Tobacco Settlement Corp., Asset-Backed, Series A-3, 5.00%, 6/1/35	3,230,523
2,895,000	Nassau County Tobacco Settlement Corp., Asset-Backed, Series A-3, 5.125%, 6/1/46	2,638,098
1,730,000	New York Counties Tobacco Trust IV, Series A, 5.00%, 6/1/42	1,432,717
7,915,000	New York Counties Tobacco Trust IV, Settlement pass through, Series A, 5.00%, 6/1/45	7,361,425
2,000,000	New York Transportation Development Corp., 5.375%, 8/1/36	2,052,920
5,000,000	New York Transportation Development Corp., Series A, 5.25%, 1/1/50	5,007,550
3,000,000	New York Transportation Development Corp., Green Bond, 5.375%, 6/30/60	3,137,130
12,325,000	TSASC, Inc., Series B, 5.00%, 6/1/48	11,121,094
8,000,000	Westchester County Local Development Corp., Purchase Senior Learning Community, 4.50%, 7/1/56 (144A)	6,125,440
5,775,000	Westchester County Local Development Corp., Purchase Senior Learning Community, 5.00%, 7/1/56 (144A)	4,838,237
	Total New York	\$ 61,193,423

Principal Amount USD (\$)		Value
11,600,000	Ohio — 5.2% Buckeye Tobacco Settlement Financing Authority, Senior Class 2, Series B-2, 5.00%, 6/1/55	\$ 10,922,212
	Total Ohio	\$ 10,922,212
5,900,000	Oklahoma — 2.8% Tulsa Airports Improvement Trust, Series C, 5.50%, 12/1/35	\$ 5,904,838
	Total Oklahoma	\$ 5,904,838
600,000	Pennsylvania — 2.5% Allentown Commercial and Industrial Development Authority, 5.75%, 6/15/43	\$ 629,970
1,600,000	Allentown Commercial and Industrial Development Authority, 6.00%, 6/15/53	1,660,112
750,000	Philadelphia Authority for Industrial Development, 4.00%, 6/1/41	629,535
2,500,000	Philadelphia Authority for Industrial Development, 5.125%, 12/15/44 (144A)	2,332,975
	Total Pennsylvania	\$ 5,252,592
7,673,960(b)	Puerto Rico — 14.3% Commonwealth of Puerto Rico, Restructured Series A1, 4.00%, 7/1/37	\$ 7,136,783
1,796,000(b)	Commonwealth of Puerto Rico, Restructured Series A1, 4.00%, 7/1/41	1,625,380
3,624,000(b)	Commonwealth of Puerto Rico, Restructured Series A1, 4.00%, 7/1/46	3,214,778
3,220,000	Puerto Rico Commonwealth Aqueduct & Sewer Authority, Series A, 5.00%, 7/1/37 (144A)	3,281,985
8,500,000	Puerto Rico Commonwealth Aqueduct & Sewer Authority, Series A, 5.00%, 7/1/47 (144A)	8,415,000
6,844,000	Puerto Rico Sales Tax Financing Corp. Sales Tax Revenue, Restructured Series A-1, 4.75%, 7/1/53	6,705,546
	Total Puerto Rico	\$ 30,379,472
3,000,000	Texas — 1.3% City of Houston Airport System Revenue, 4.00%, 7/15/41	\$ 2,709,300
	Total Texas	\$ 2,709,300
7,315,000	Virginia — 2.9% Tobacco Settlement Financing Corp., Series A-1, 6.706%, 6/1/46	\$ 6,242,036
	Total Virginia	\$ 6,242,036

Schedule of Investments | 1/31/24

(unaudited) (continued)

Principal Amount USD (\$)		Value
15,000,000	West Virginia — 5.5% Tobacco Settlement Finance Authority, Series A, 4.306%, 6/1/49	\$ 11,730,450
	Total West Virginia	\$ 11,730,450
1,115,000	Wisconsin — 3.5% Public Finance Authority, Coral Academy Science Reno, 5.00%, 6/1/39 (144A)	\$ 1,071,225
8,000,000	Public Finance Authority, Searstone CCRC Project, 4.00%, 6/1/41 (144A)	6,296,320
	Total Wisconsin	\$ 7,367,545
	TOTAL MUNICIPAL BONDS (Cost \$231,582,229)	\$234,085,653
	TOTAL INVESTMENTS IN UNAFFILIATED ISSUERS — 110.6% (Cost \$231,582,229)	\$234,085,653
	OTHER ASSETS AND LIABILITIES — (10.6)%	\$ (22,430,075)
	NET ASSETS — 100.0%	\$211,655,578

(144A) The resale of such security is exempt from registration under Rule 144A of the Securities Act of 1933. Such securities may be resold normally to qualified institutional buyers. At January 31, 2024, the value of these securities amounted to \$60,507,014, or 28.6% of net assets.

- (a) Consists of Revenue Bonds unless otherwise indicated.
- (b) Represents a General Obligation Bond.
- (c) Security is in default.

FUTURES CONTRACTS

FIXED INCOME INDEX FUTURES CONTRACTS

Number of Contracts Long	Description	Expiration Date	Notional Amount	Market Value	Unrealized Appreciation
38	U.S. Ultra Bond (CBT)	3/19/24	\$4,623,932	\$4,910,313	\$286,381
	TOTAL FUTURES CONTRACTS		\$4,623,932	\$4,910,313	\$286,381

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

Level 1 – unadjusted 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 Adviser's own assumptions in determining fair value of investments).

The following is a summary of the inputs used as of January 31, 2024 in valuing the Fund's investments:

	Level 1	Level 2	Level 3	Total
Municipal Bonds	\$ –	\$234,085,653	\$–	\$234,085,653
Total Investments in Securities	\$ –	\$234,085,653	\$–	\$234,085,653
Other Financial Instruments				
Net unrealized appreciation on futures contracts	\$286,381	\$ –	\$–	\$ 286,381
Total Other Financial Instruments	\$286,381	\$ –	\$–	\$ 286,381

During the period ended January 31, 2024, there were no transfers in or out of Level 3.