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Phone Number>**312-326-8200**
Filer>
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Period Of Report>**09-30-2024**
Inv Company>
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Notifications>
Internet Notification Address>**ica@dfinsolutions.com**
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM N-CSR

CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT INVESTMENT COMPANIES

Investment Company Act file number 811-21409

Pioneer Municipal High Income Advantage Fund, Inc.
(Exact name of registrant as specified in charter)

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

Christopher J. Kelley, Amundi Asset 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, 2025

Date of reporting period: April 1, 2024 through September 30, 2024

Form N-CSR is to be used by management investment companies to file reports with the Commission not later than 10 days after the transmission to stockholders of any report that is required to be transmitted to stockholders under Rule 30e-1 under the Investment Company Act of 1940 (17 CFR 270.30e-1). The Commission may use the information provided on Form N-CSR in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-CSR, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-CSR 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. REPORT TO STOCKHOLDERS.

Pioneer Municipal High Income Advantage Fund, Inc.

Semiannual Report | September 30, 2024

Ticker Symbol: MAV

Amundi ASSET MANAGEMENT

visit us: www.amundi.com/us

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Portfolio Management Discussion | 9/30/24

In the following interview, John (Jake) Crosby van Roden III and Prakash Vadlamani discuss the factors that affected the performance of the Pioneer Municipal High Income Advantage Fund, Inc. during the six-month period ended September 30, 2024. Mr. van Roden, Managing Director and Director of Municipals and a portfolio manager at Amundi Asset Management US, Inc. ("Amundi US"), and Mr. Vadlamani, Senior Vice President, Associate Portfolio Manager and Senior Credit Analyst at Amundi US, are responsible for the day-to-day management of the Fund.

Q How did the Fund perform during the six-month period ended September 30, 2024?

A Pioneer Municipal High Income Advantage Fund, Inc. returned 5.01% at net asset value (NAV) and 11.01% at market price during the six-month period ended September 30, 2024. During the same six-month period, the Fund's benchmarks, the Bloomberg US Municipal High Yield Bond Index and the Bloomberg Municipal Bond Index, returned 5.88% and 2.69% at NAV, respectively. The Bloomberg US Municipal High Yield Bond Index is an unmanaged measure of the performance of lower rated municipal bonds, while the Bloomberg Municipal Bond Index is an unmanaged measure of the performance of investment-grade municipal bonds. Unlike the Fund, the two indices do not use leverage. While the use of leverage increases investment opportunity, it also increases investment risk.

During the same six-month period, the average return at NAV of the 24 closed end funds in Morningstar's Closed End High Yield Municipal category (which may or may not be leveraged) was 4.80%, and the average return at market price of the closed-end funds within the same Morningstar category was 11.03%. The shares of the Fund were selling at a 6.36% discount to NAV on September 30, 2024. Comparatively, the shares of the Fund were selling at a 11.41% discount to NAV on March 31, 2024. On September 30, 2024, the standardized 30-day SEC yield of the Fund's shares was 3.52%*.

* The 30-day SEC yield is a standardized formula that is based on the hypothetical annualized earning power (investment income only) of the Fund's portfolio securities during the period indicated.

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Q Which of the Fund's investment strategies contributed positively the Fund's benchmark-relative to performance during the six-month period ended September 30, 2024?

A With respect to ratings categories, the Fund's exposure to lower quality issues within the high-yield municipal bond category benefited benchmark-relative results during the six-month period, as spread tightening, or the premium over the risk-free rate on non-rated securities (securities not assigned a rating by the major rating agencies) outpaced double and single B rated municipal bonds. In terms of asset allocation, the Fund's positioning in hospital, state & local general obligation municipal securities, and electric utility sectors contributed positively to the Fund's relative returns during the six-month period. A longer duration bias within tobacco master settlement agreement (MSA), hospitals, and taxable securities contributed positively to the Fund's benchmark-relative returns.

Q Which investment strategies detracted from the Fund's benchmark-relative performance results during the six month period ended September 30, 2024?

A The Fund carries leveraged exposure to the municipal bond market. The cost of the Fund's borrowing for leverage detracted from the the Fund's benchmark-relative returns for the period. As short-term leverage costs begin to fall with the change in Fed Fund rates, we would expect an improvement in the earnings profile of the Fund. With respect to sector positioning, overweight allocations to charter schools and housing bonds detracted from relative performance.

Q Did the Fund's distributions to stockholders change during the six-month period ended September 30, 2024?**

A The Fund's monthly distribution rate increased from $0.310 to $0.325 per share in April 2024, and remained at that level through September 30, 2024. The increase in the Fund's monthly distribution rate over the period was due to a decrease in the cost of the leverage incurred by the Fund, following the reduction in leverage of the Fund in February of 2024.

** Dividends/Distributions are not guaranteed.

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Q Did the level of leverage in the Fund change during the six-month period ended September 30, 2024?

A On September 30, 2024, 18.1% of the Fund's total managed assets were financed by leverage obtained through the issuance of Variable Rate Muni Fund Term Preferred Shares. This figure remained consistent with the 18.1% of total managed assets financed by leverage at the beginning of the period on April 1, 2024. The interest rate on the Fund's leverage decreased by 9 basis points during the period from March 31, 2024 to September 30, 2024.

Q Did the Fund have any exposure to derivatives during the six- month period ended September 30, 2024?

A The Fund's limited exposure to U.S. treasury futures had a negligible effect on benchmark relative performance.

Q What is your investment outlook, and how is the Fund positioned heading into the second half of its fiscal year?

A The Fund is underweight select sectors within the Puerto Rico tax-exempt market based on current valuation levels and the potential for elevated volatility. We have opportunistically added specific Puerto Rico municipal exposure deemed to be attractive, closing the underweight relative to the benchmark over time.

We are paying special attention to call structure and extension risk, repositioning to benefit from a new Fed environment that includes lower interest rates.

We have continued to prefer investments in hospital-related issues, since the sector has historically had very low default rates. The revenue received by hospitals has remained diverse, coming from a combination of Medicare, Medicaid, private insurers, and self-payors. The Fund is also overweight to tobacco MSA bonds, due in part to the fact that the sector has never experienced a default. Tobacco bond revenues have provided substantial funding for the advancement of public health and other similar programs to state and local governments that signed the tobacco MSA. Within sectors, we are focused on diversification across states and geographic locations.

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The Fund is also underweight to state general obligation issues, which have tended to be sensitive to political considerations, as certain state governments may have lower flexibility to raise taxes due to constituents' preferences, thus limiting their ability to increase revenues. Likewise, healthcare and labor costs could apply additional pressure.

The US economy has experienced stronger growth than anticipated this year, but is gradually decelerating. The once overheated labor market has cooled, with companies reducing their hiring rates, yet layoffs have remained relatively low thus far. The re-emergence of a more dovish Powell has also decreased downside risk for corporate bonds. Currently, high yield spreads are relatively and historically narrow, suggesting that investors have already accounted for limited economic risk. Currently, spreads in taxable credit-sensitive areas are relatively (and historically) narrow, suggesting that investors may find superior value in tax-exempt markets. While yields remain attractive relative to inflation, the market has factored in a very aggressive trajectory for Fed rate cuts over the next year. We anticipate a greater likelihood of curve steepening due to rising long-term Treasury rates in the coming quarters, driven by increased issuance to address substantial government deficits, which will push term premiums higher, in our view.

Our goal is to invest the Fund in what we believe are fundamentally sound credits representing relative value opportunities, while maintaining an appropriate level of risk management. We also seek to avoid experiencing defaults in the Fund through our emphasis on fundamental research. We believe this steady, long-term approach remains the most effective way to identify opportunities and to help minimize the risk associated with investing in the high-yield municipal market.

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Please refer to the Schedule of Investments on pages 13 - 23 for a full listing of Portfolio securities.

All investments are subject to risk, including the possible loss of principal. In he past several years, financial markets have experienced increased volatility and heightened uncertainty. The market prices of securities may go up or down, sometimes rapidly or unpredictably, due to general market conditions, such as real or perceived adverse economic, political, or regulatory conditions, recessions, inflation, changes in interest or currency rates, lack of liquidity in he bond markets, the spread of infectious illness or other public health issues, armed conflict including Russia's military invasion of Ukraine, sanctions against Russia, other nations or individuals or companies and possible countermeasures, market disruptions caused by tariffs, trade disputes or other government actions, or adverse investor sentiment. These conditions may continue, recur, worsen or spread.

Investments in high-yield or lower-rated securities are subject to greater-than average risk.

The Fund may invest in securities of issuers that are in default or that are in bankruptcy.

A portion of income may be subject to state, federal, and/or alternative minimum tax. Capital gains, if any, are subject to a capital gains tax.

When interest rates rise, the prices of fixed-income securities held by the Fund will generally fall. Conversely, when interest rates fall, the prices of fixed-income securities held by the Fund will generally rise.

The value of municipal securities can be adversely affected by changes in financial condition of municipal issuers, lower revenues, and regulatory and political developments. By concentrating in municipal securities, the portfolio is more susceptible to adverse economic, political or regulatory developments than is a portfolio that invests more broadly.

Investments in the Fund are subject to possible loss due to the financial failure of the issuers of the underlying securities and the issuers' inability to meet their debt obligations.

The Fund currently uses leverage through the issuance of preferred shares. Leverage creates significant risks, including the risk that the Fund's incremental income or capital appreciation for investments purchased with the proceeds of leverage will not be sufficient to cover the cost of leverage, which may adversely affect the return for the holders of common shares.

The Fund is required to meet certain regulatory and rating agency asset coverage requirements in connection with its outstanding preferred shares. In

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order to maintain required asset coverage levels, the Fund may be required to alter the composition of its investment portfolio or take other actions, such as redeeming preferred shares with the proceeds from portfolio transactions, at what might be inopportune times in the market. Such actions could reduce the net earnings or returns to holders of the Fund's common shares over time, which is likely to result in a decrease in the market value of the Fund’s shares.

These risks may increase share price volatility.

Any information in this stockholder report regarding market or economic trends or the factors influencing the Fund's historical or future performance are statements of opinion as of the date of this report. Past performance is no guarantee of future results.

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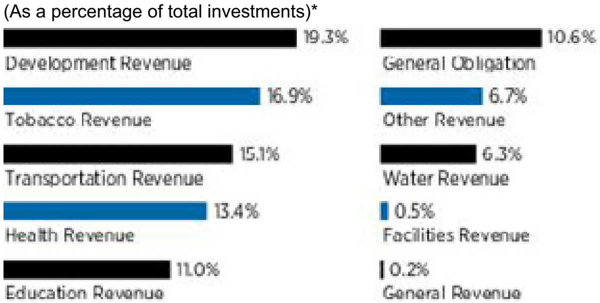
Portfolio Summary | 9/30/24

Portfolio Diversification

(As a percentage of total investments)*



Portfolio Maturity

(As a percentage of total investments)*

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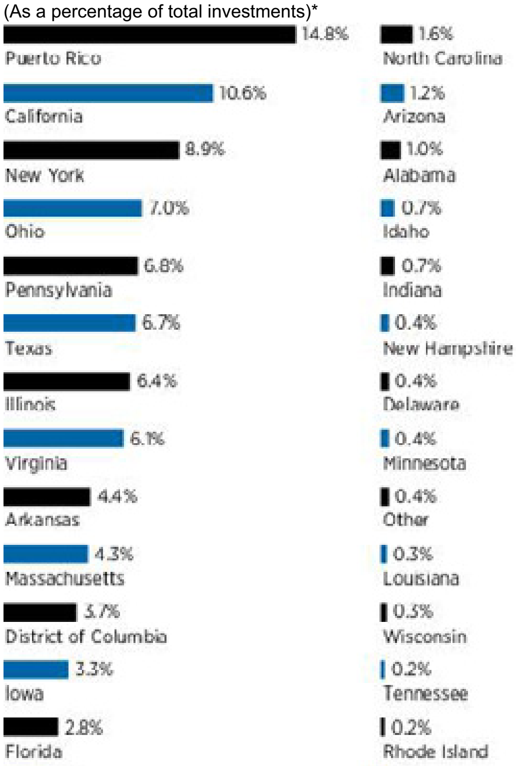
State Diversification

(As a percentage of total investments)*



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Portfolio Summary | 9/30/24 (continued)

10 Largest Holdings

(As a percentage of total investments)*

1.	Puerto Rico Commonwealth Aqueduct & Sewer Authority, Series A, 5.00%, 7/1/47 (144A)	5.38%
2.	Buckeye Tobacco Settlement Financing Authority, Senior Class 2, Series B-2, 5.00%, 6/1/55	5.00
3.	California County Tobacco Securitization Agency, Capital Appreciation, Stanislaus County, Subordinated, Series A, 6/1/46	3.97
4.	Arkansas Development Finance Authority, Green Bond, 5.45%, 9/1/52	3.88
5.	Massachusetts Development Finance Agency, WGBH Educational Foundation, Series A, 5.75%, 1/1/42 (AMBAC Insured)	3.79
6.	Puerto Rico Sales Tax Financing Corp. Sales Tax Revenue, Series A-1, 5.00%, 7/1/58	3.73
7.	City of Houston Airport System Revenue, 4.00%, 7/15/41	2.63
8.	Iowa Finance Authority, Alcoa Inc. Projects, 4.75%, 8/1/42	2.56
9.	Commonwealth of Puerto Rico, Restructured Series A-1, 4.00%, 7/1/46	2.38
10.	Montgomery County Higher Education and Health Authority, Thomas Jefferson University, 4.00%, 9/1/49	2.34

* Excludes short-term investments and all derivative contracts except for options purchased. The Fund is actively managed, and current holdings may be different. The holdings listed should not be considered recommendations to buy or sell any securities.

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Prices and Distributions | 9/30/24

Market Value per Common Share^

	9/30/24	3/31/24
Market Value	$ 8.84	$ 8.15
Discount	(6.36)%	(11.41)%

Net Asset Value per Common Share^

	9/30/24	3/31/24
Net Asset Value	$9.44	$9.20

Distributions per Common Share*: 4/1/24 - 9/30/24

	Net Investment Income	Short-Term Capital Gains	Long-Term Capital Gains
4/1/24 – 9/30/24	$0.1950	$—	$—

Yields

	9/30/24	3/31/24
30-Day SEC Yield	3.52%	3.31%

The data shown above represents past performance, which is no guarantee of future results.

^ Net asset value and market value are published in *Barron's* on Saturday, *The Wall Street Journal* on Monday and *The New York Times* on Monday and Saturday. Net asset value and market value are published daily on the Fund's website at www.amundi.com/us.

* The amount of distributions made to stockholders during the period was in excess of the net investment income earned by the Fund during the period.

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Performance Update | 9/30/24

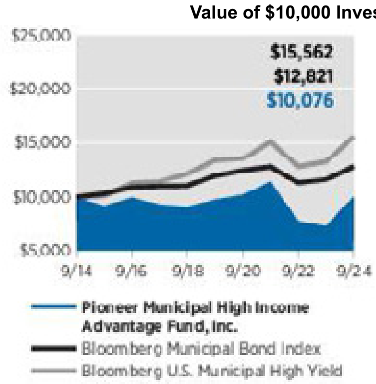
Investment Returns

The mountain chart on the right shows the change in market value, including reinvestment of dividends and distributions, of a $10,000 investment made in common shares of Pioneer Municipal High Income Advantage Fund, Inc. during the periods shown, compared to that of the Bloomberg Municipal Bond Index and the Bloomberg U.S. Municipal High Yield Bond Index.

Average Annual Total Return
(As of September 30, 2024)

Period	Net Asset Value (NAV)	Market Price	Bloomberg Municipal Bond Index	Bloomberg U.S. Municipal High Yield Bond Index
10 Years	2.63%	0.08%	2.52%	4.52%
5 Years	0.02	0.58	1.39	3.07
1 Year	21.30	37.38	10.37	17.38

Value of $10,000 Investment



Call 1-800-710-0935 or visit www.amundi.com/us for the most recent month-end performance results. Current performance may be lower or higher than the performance data quoted.

Performance data shown represents past performance. Past performance is no guarantee of future results. Investment return and market price will fluctuate, and your shares may trade below NAV due to such factors as interest rate changes and the perceived credit quality of borrowers.

Total investment return does not reflect broker sales charges or commissions. All performance is for common shares of the Fund.

Shares of closed-end funds, unlike open-end funds, are not continuously offered. There is a one-time public offering and, once issued, shares of closed-end funds are bought and sold in the open market through a stock exchange and frequently trade at prices lower than their NAV. NAV per common share is total assets less total liabilities, which include preferred shares, divided by the number of common shares outstanding.

When NAV is lower than market price, dividends are assumed to be reinvested at the greater of NAV or 95% of the market price. When NAV is higher, dividends are assumed to be reinvested at prices obtained through open-market purchases under the Fund's dividend reinvestment plan.

The performance table and graph do not reflect the deduction of fees and taxes that a stockholder would pay on Fund distributions or the sale of Fund shares. Had these fees and taxes been reflected, performance would have been lower.

The Bloomberg Municipal Bond Index is an unmanaged, broad measure of the municipal bond market. The Bloomberg U.S. Municipal High Yield Bond Index is unmanaged, totals over $26 billion in market value and maintains over 1,300 securities. Municipal bonds in this index have the following requirements: maturities of one year or greater, sub investment grade (below Baa or non-rated), fixed coupon rate, issue date later than 12/31/90, deal size over $20 million, maturity size of at least $3 million. Index returns are calculated monthly, assume reinvestment of dividends and, unlike Fund returns, do not reflect any fees, expenses or sales charges. **The indices do not employ leverage. You cannot invest directly in the indices.**

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Schedule of Investments | 9/30/24

(unaudited)

Principal Amount USD ($)		Value
	UNAFFILIATED ISSUERS — 119.7%	
	MUNICIPAL BONDS — 119.2% of Net Assets(a)	
	Alabama — 1.2%	
2,500,000	Mobile County Industrial Development Authority, Calvert LLC Project, Series A, 5.00%, 6/1/54	$ 2,599,475
	Total Alabama	**$ 2,599,475**
	Arizona — 1.4%	
1,325,000	Arizona Industrial Development Authority, Doral Academy Nevada Fire Mesa, Series A, 5.00%, 7/15/39	$ 1,345,485
1,965,000	Industrial Development Authority of the City of Phoenix, 3rd & Indian School Assisted Living Project, 5.40%, 10/1/36	1,839,004
	Total Arizona	**$ 3,184,489**
	Arkansas — 5.3%	
1,500,000	Arkansas Development Finance Authority, Big River Steel Project, 4.75%, 9/1/49 (144A)	$ 1,503,000
10,000,000	Arkansas Development Finance Authority, Green Bond, 5.45%, 9/1/52	10,493,400
	Total Arkansas	**$ 11,996,400**
	California — 12.7%	
38,610,000(b)	California County Tobacco Securitization Agency, Capital Appreciation, Stanislaus County, Subordinated, Series A, 6/1/46	$ 10,727,788
1,500,000	California Municipal Finance Authority, Series A, 5.25%, 11/1/52 (AGM Insured)	1,654,245
1,000,000	California Municipal Finance Authority, Westside Neighborhood School Project, 6.375%, 6/15/64 (144A)	1,102,610
300,000	California School Finance Authority, Envision Education – Obligated Group, Series A, 5.00%, 6/1/54 (144A)	310,896
600,000	California School Finance Authority, New Designs Charter School Project, Series A, 5.00%, 6/1/64 (144A)	607,422
1,875,000	California Statewide Communities Development Authority, Lancer Plaza Project, 5.875%, 11/1/43	1,878,675
2,000,000	California Statewide Communities Development Authority, Loma Linda University Medical Center, 5.50%, 12/1/58 (144A)	2,068,780

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

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Schedule of Investments | 9/30/24
(unaudited) (continued)

Principal Amount USD ($)		Value
	California — (continued)	
5,915,000	California Statewide Communities Development Authority, Loma Linda University Medical Center, Series A, 5.00%, 12/1/46 (144A)	$ 5,987,163
4,000,000	San Diego County Regional Airport Authority, Private Activity, Series B, 5.25%, 7/1/58	4,339,000
	Total California	**$ 28,676,579**
	Colorado — 2.6%	
1,000,000	Aerotropolis Regional Transportation Authority, 4.375%, 12/1/52	$ 922,190
1,250,000	Colorado Educational & Cultural Facilities Authority, Ascent Classical Academy Charter Schools, Inc Project, 5.75%, 4/1/59 (144A)	1,320,450
1,148,000(c)	Cottonwood Highlands Metropolitan District No. 1, Series A, 5.00%, 12/1/49	1,159,365
2,350,000	Dominion Water & Sanitation District, 5.875%, 12/1/52	2,414,884
	Total Colorado	**$ 5,816,889**
	Delaware — 0.5%	
450,000	Delaware State Economic Development Authority, Aspira of Delaware Charter, 3.00%, 6/1/32	$ 413,757
700,000	Delaware State Economic Development Authority, Aspira of Delaware Charter, 4.00%, 6/1/42	652,414
	Total Delaware	**$ 1,066,171**
	District of Columbia — 4.4%	
500,000	District of Columbia, Union Market Project, Series A, 5.125%, 6/1/34 (144A)	$ 514,925
5,715,000	District of Columbia Tobacco Settlement Financing Corp., Asset-Backed, 6.75%, 5/15/40	5,910,110
3,250,000	Washington Metropolitan Area Transit Authority Dedicated Revenue, Climate Transition Bonds, Series A, 5.25%, 7/15/59	3,598,368
	Total District of Columbia	**$ 10,023,403**
	Florida — 3.4%	
600,000	Capital Projects Finance Authority, Navigator Academy Of Leadership Obligated Group Project, 5.00%, 6/15/54 (144A)	$ 603,870
940,000	Capital Projects Finance Authority, Navigator Academy Of Leadership Obligated Group Project, 5.00%, 6/15/64 (144A)	943,431
750,000	Capital Trust Authority, Mason Classical Academy Project, Series A, 5.00%, 6/1/54 (144A)	757,560

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

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Principal Amount USD ($)		Value
	Florida — (continued)	
850,000	Capital Trust Authority, Mason Classical Academy Project, Series A, 5.00%, 6/1/64 (144A)	$ 854,768
825,000	County of Lake, Imagine South Lake, Charter School Project, 5.00%, 1/15/49 (144A)	827,459
1,000,000	Florida Development Finance Corp., Brightline Florida Passenger Rail Project, 5.25%, 7/1/53 (AGM Insured)	1,046,910
1,000,000	Florida Development Finance Corp., Brightline Florida Passenger Rail Project, 5.50%, 7/1/53	1,047,500
500,000	Florida Development Finance Corp., The Henry Project, Series A-1, 5.25%, 6/1/54 (144A)	519,445
1,000,000	Florida Development Finance Corp., The Henry Project, Series A-1, 5.25%, 6/1/59 (144A)	1,033,620
	Total Florida	**$ 7,634,563**
	Idaho — 0.9%	
2,000,000	Power County Industrial Development Corp., FMC Corp. Project, 6.45%, 8/1/32	$ 2,006,160
	Total Idaho	**$ 2,006,160**
	Illinois — 7.6%	
3,760,000(c)	Chicago Board of Education, Series A, 5.00%, 12/1/47	$ 3,847,420
1,000,000(c)	Chicago Board of Education, Series A, 7.00%, 12/1/46 (144A)	1,073,660
1,200,000(c)	Chicago Board of Education, Series D, 5.00%, 12/1/46	1,218,264
2,000,000(c)	Chicago Board of Education, Series H, 5.00%, 12/1/46	2,024,020

1,250,000	Chicago O'Hare International Airport, Series A, 5.50%, 1/1/59	1,373,187
1,300,000(c)	City of Chicago, Series A, 5.00%, 1/1/44	1,365,364
550,000(c)	City of Chicago, Series A, 5.00%, 1/1/45	576,092
2,000,000(c)	City of Chicago, Series B-R, 5.50%, 1/1/34	2,005,340
140,903(b)(d)	Illinois Finance Authority, Cabs Clare Oaks Project, Series B-1, 11/15/52	2,308
223,202(d)(e)	Illinois Finance Authority, Clare Oaks Project, Series A-3, 4.00%, 11/15/52	145,081
3,000,000	Metropolitan Pier & Exposition Authority, McCormick Place Expansion, 4.00%, 6/15/50	2,889,030
964,193(d)	Southwestern Illinois Development Authority, Village of Sauget Project, 5.625%, 11/1/26	674,936
	Total Illinois	**$ 17,194,702**

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

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Schedule of Investments | 9/30/24
(unaudited) (continued)

Principal Amount USD ($)		Value
	Indiana — 0.8%	
750,000	City of Valparaiso, Pratt Paper LLC Project, 5.00%, 1/1/54 (144A)	$ 773,708
1,000,000	Indiana Finance Authority, Multipurpose Educational Facilities, Avondale Meadows Academy Project, 5.125%, 7/1/37	1,020,660
	Total Indiana	**$ 1,794,368**
	Iowa — 3.9%	
6,900,000	Iowa Finance Authority, Alcoa Inc. Projects, 4.75%, 8/1/42	$ 6,905,589
2,055,000	Iowa Tobacco Settlement Authority, Series A-2, 4.00%, 6/1/49	1,977,485
	Total Iowa	**$ 8,883,074**
	Louisiana — 0.3%	
700,000	Louisiana Public Facilities Authority, I-10 Calcasieu River Bridge Public-Private Partnership Project, 5.75%, 9/1/64	$ 775,600
	Total Louisiana	**$ 775,600**
	Massachusetts — 5.2%	
1,400,000	Massachusetts Development Finance Agency, Lowell General Hospital, Series G, 5.00%, 7/1/44	$ 1,400,126
8,000,000	Massachusetts Development Finance Agency, WGBH Educational Foundation, Series A, 5.75%, 1/1/42 (AMBAC Insured)	10,233,120
	Total Massachusetts	**$ 11,633,246**
	Michigan — 2.4%	
1,955,000	David Ellis Academy-West, 5.25%, 6/1/45	$ 1,834,709
3,000,000	Michigan Finance Authority, The Henry Ford Health Detroit South Campus Central Utility Plant Project, 5.50%, 2/28/49	3,326,730
205,000	Michigan Public Educational Facilities Authority, Crescent Academy, 7.00%, 10/1/36	205,508
	Total Michigan	**$ 5,366,947**
	Minnesota — 0.4%	
1,000,000	City of Ham Lake, DaVinci Academy, Series A, 5.00%, 7/1/47	$ 1,000,480
	Total Minnesota	**$ 1,000,480**

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

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Principal Amount USD ($)		Value
	Montana — 0.2%	
2,445,000(d)(e)	City of Hardin, Tax Allocation, Rocky Mountain Power, Inc., Project, 6.25%, 9/1/31	$ 464,550
1,000,000(d)	Two Rivers Authority, 7.375%, 11/1/27	40,000
	Total Montana	**$ 504,550**
	New Hampshire — 0.5%	
1,375,000	New Hampshire Health and Education Facilities Authority Act, Catholic Medical Centre, 3.75%, 7/1/40	$ 1,224,039
	Total New Hampshire	**$ 1,224,039**
	New York — 10.6%	
3,000,000	Erie Tobacco Asset Securitization Corp., Asset-Backed, Series A, 5.00%, 6/1/45	$ 2,801,160
2,000,000	Metropolitan Transportation Authority, Green Bond, Series C-1, 5.25%, 11/15/55	2,116,120
5,000,000	Metropolitan Transportation Authority, Green Bond, Series D-2, 4.00%, 11/15/48	4,879,250
2,530,000	New York Counties Tobacco Trust IV, Settlement pass through, Series A, 5.00%, 6/1/45	2,400,616
3,240,000	New York Counties Tobacco Trust VI, Series 2B, 5.00%, 6/1/45	3,119,051
1,750,000	New York Transportation Development Corp., Green Bond, 5.375%, 6/30/60	1,827,752
5,500,000	New York Transportation Development Corp., John F. Kennedy International Airport New Terminal One Project, 5.50%, 6/30/60	5,879,390
1,000,000	Westchester County Local Development Corp., Purchase Senior Learning Community, Inc. Project, 4.50%, 7/1/56 (144A)	943,910
	Total New York	**$ 23,967,249**
	North Carolina — 1.9%	
4,000,000	North Carolina Medical Care Commission, Carolina Meadows, 5.25%, 12/1/54	$ 4,342,640
	Total North Carolina	**$ 4,342,640**
	Ohio — 8.4%	
14,355,000	Buckeye Tobacco Settlement Financing Authority, Senior Class 2, Series B-2, 5.00%, 6/1/55	$ 13,498,006
1,500,000	County of Muskingum, Genesis Healthcare System Project , 5.00%, 2/15/44	1,500,435

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

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Schedule of Investments | 9/30/24

(unaudited) (continued)

Principal Amount USD ($)		Value
	Ohio — (continued)	
2,000,000	Ohio Housing Finance Agency, Mortgage-Backed Securities Program, Series B, 4.70%, 9/1/54 (GNMA/FNMA/FHLMC Insured)	$ 2,026,440
2,000,000	State of Ohio, 5.00%, 12/31/39	2,012,600
	Total Ohio	**$ 19,037,481**
	Pennsylvania — 8.2%	
1,500,000	Allentown Neighborhood Improvement Zone Development Authority, Waterfront - 30 E. Allen Street Project, Series A, 5.25%, 5/1/42 (144A)	$ 1,555,200
1,000,000	Chester County Industrial Development Authority, Collegium Charter School, Series A, 5.25%, 10/15/47	1,011,110
6,665,000	Montgomery County Higher Education and Health Authority, Thomas Jefferson University, 4.00%, 9/1/49	6,310,355
2,000,000	Montgomery County Industrial Development Authority, The Haverford School Project, 4.00%, 3/1/49	1,890,480
3,335,000	Pennsylvania Higher Educational Facilities Authority, University of Pennsylvania, 4.00%, 8/15/49	3,291,645
2,500,000(e)	Philadelphia Authority for Industrial Development, 5.125%, 12/15/44 (144A)	2,464,525
500,000	Philadelphia Authority for Industrial Development, 5.50%, 6/1/49 (144A)	504,070

1,000,000	Philadelphia Authority for Industrial Development, Global Leadership Academy Charter School Project, Series A, 5.00%, 11/15/50	904,630
470,000	Philadelphia Authority for Industrial Development, Greater Philadelphia Health Action, Inc., Project, Series A, 6.625%, 6/1/50	470,644
	Total Pennsylvania	**$ 18,402,659**
	Puerto Rico — 17.8%	
2,885,151(e)	Commonwealth of Puerto Rico, 11/1/43	$ 1,857,604
2,375,679(c)	Commonwealth of Puerto Rico, Restructured Series A-1, 4.00%, 7/1/37	2,331,776
5,021,480(c)	Commonwealth of Puerto Rico, Restructured Series A-1, 4.00%, 7/1/41	4,829,961
6,810,000(c)	Commonwealth of Puerto Rico, Restructured Series A-1, 4.00%, 7/1/46	6,425,167

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

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Principal Amount USD ($)		Value
	Puerto Rico — (continued)	
14,250,000	Puerto Rico Commonwealth Aqueduct & Sewer Authority, Series A, 5.00%, 7/1/47 (144A)	$ 14,536,425
9,996,000	Puerto Rico Sales Tax Financing Corp. Sales Tax Revenue, Series A-1, 5.00%, 7/1/58	10,086,564
	Total Puerto Rico	**$ 40,067,497**
	Rhode Island — 0.2%	
1,355,000(d)	Central Falls Detention Facility Corp., 7.25%, 7/15/35	$ 542,000
	Total Rhode Island	**$ 542,000**
	South Carolina — 2.3%	
4,400,000(f)	Tobacco Settlement Revenue Management Authority, Series B, 6.375%, 5/15/30	$ 5,082,000
	Total South Carolina	**$ 5,082,000**
	Tennessee — 0.3%	
550,000	Knox County Health Educational & Housing Facility Board, University of Tennessee Project, Series B-1, 5.25%, 7/1/64 (BAM Insured)	$ 588,121
	Total Tennessee	**$ 588,121**
	Texas — 8.0%	
450,000	Arlington Higher Education Finance Corp., BASIS Texas Charter Schools, Inc., 4.875%, 6/15/59 (144A)	$ 452,181
300,000	Arlington Higher Education Finance Corp., Great Hearts America, Series A, 5.00%, 8/15/54	300,690
500,000	Arlington Higher Education Finance Corp., LTTS Charter School, Universal Academy, 5.45%, 3/1/49 (144A)	535,830
1,000,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.00%, 3/1/34	1,001,980
1,500,000	Arlington Higher Education Finance Corp., Universal Academy, Series A, 7.125%, 3/1/44	1,500,765
7,345,000	City of Houston Airport System Revenue, 4.00%, 7/15/41	7,110,548
1,000,000	City of Houston Airport System Revenue, Series A, 4.00%, 7/1/41	963,340
5,000,000(d)(e)	Greater Texas Cultural Education Facilities Finance Corp., 9.00%, 2/1/50 (144A)	2,850,000

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

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Schedule of Investments | 9/30/24

(unaudited) (continued)

Principal Amount USD ($)		Value
	Texas — (continued)	
2,430,000	Greater Texas Cultural Education Facilities Finance Corp., Texas Bipmedical Research Institute Project, Series A, 5.25%, 6/1/54	$ 2,591,401
1,000,000(e)	Texas Midwest Public Facility Corp., Secure Treatment Facility Project, Restructured, 12/1/30	729,640
	Total Texas	**$ 18,036,375**
	Virginia — 7.3%	
2,035,000	Lynchburg Economic Development Authority, 3.00%, 1/1/51	$ 1,605,167
50,000	Tobacco Settlement Financing Corp., Series B-1, 5.00%, 6/1/47	48,575
1,000,000	Virginia Small Business Financing Authority, Senior Lien, 5.00%, 12/31/47	1,016,970
1,000,000	Virginia Small Business Financing Authority, Senior Lien 95 Express Lanes LLC Project, 4.00%, 1/1/48	928,320
5,500,000	Virginia Small Business Financing Authority, Transform 66-P3 Project, 5.00%, 12/31/49	5,588,220
2,500,000	Virginia Small Business Financing Authority, Transform 66-P3 Project, 5.00%, 12/31/52	2,536,900
4,600,000	Virginia Small Business Financing Authority, Transform 66-P3 Project, 5.00%, 12/31/56	4,663,480
	Total Virginia	**$ 16,387,632**
	Washington — 0.2%	
500,000	Washington State Housing Finance Commission, Radford Court And Nordhem Court Portfolio, 5.00%, 7/1/54	$ 528,050
	Total Washington	**$ 528,050**
	Wisconsin — 0.3%	
750,000	Public Finance Authority, Roseman University Health Sciences Project, 5.875%, 4/1/45	$ 756,030
	Total Wisconsin	**$ 756,030**
	TOTAL MUNICIPAL BONDS (Cost $257,254,843)	**$269,118,869**

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

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Principal Amount USD ($)		Value
	U.S. GOVERNMENT AND AGENCY OBLIGATIONS — 0.5% of Net Assets	
1,000,000(b)	U.S. Treasury Bills, 10/24/24	$ 996,983
	TOTAL U.S. GOVERNMENT AND AGENCY OBLIGATIONS (Cost $997,025)	**$ 996,983**
	TOTAL INVESTMENTS IN UNAFFILIATED ISSUERS — 119.7% (Cost $258,251,868)	**$270,115,852**
	OTHER ASSETS AND LIABILITIES — (19.7)%	$ (44,418,764)
	NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS — 100.0%	**$225,697,088**

AGM	Assured Guaranty Municipal Corp.
AMBAC	Ambac Assurance Corporation.
BAM	Build America Mutual Assurance Company.
(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 September 30, 2024, the value of these securities amounted to $44,644,908, or 19.8% of net assets applicable to common stockholders.
(a)	Consists of Revenue Bonds unless otherwise indicated.
(b)	Security issued with a zero coupon. Income is recognized through accretion of discount.

(c) Represents a General Obligation Bond.
(d) Security is in default.
(e) The interest rate is subject to change periodically. The interest rate and/or reference index and spread shown at September 30, 2024.
(f) Escrow to maturity.

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

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Schedule of Investments | 9/30/24
(unaudited) (continued)

The concentration of investments as a percentage of total investments by type of obligation/market sector is as follows:

Revenue Bonds:	
Development Revenue	19.3%
Tobacco Revenue	16.9
Transportation Revenue	15.1
Health Revenue	13.4
Education Revenue	11.0
Other Revenue	6.7
Water Revenue	6.3
Facilities Revenue	0.5
General Revenue	0.2
	89.4%
General Obligation Bonds:	10.6%
	100.0%

FUTURES CONTRACTS
FIXED INCOME INDEX FUTURES CONTRACTS

Number of Contracts Long	Description	Expiration Date	Notional Amount	Market Value	Unrealized (Depreciation)
135	U.S. Long Bond (CBT)	12/19/24	$16,854,263	$16,765,313	$(88,950)
TOTAL FUTURES CONTRACTS			**$16,854,263**	**$16,765,313**	**$(88,950)**

CBT Chicago Board of Trade.

Purchases and sales of securities (excluding temporary cash investments) for the six months ended September 30, 2024, aggregated $53,209,126 and $53,044,028, respectively.

At September 30, 2024, the net unrealized appreciation on investments based on cost for federal tax purposes of $257,193,176 was as follows:

Aggregate gross unrealized appreciation for all investments in which there is an excess of value over tax cost	$18,929,327
Aggregate gross unrealized depreciation for all investments in which there is an excess of tax cost over value	(6,095,601)
Net unrealized appreciation	$12,833,726

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

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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.). See Notes to Financial Statements — Note 1A.
- Level 3 – significant unobservable inputs (including the Adviser's own assumptions in determining fair value of investments). See Notes to Financial Statements — Note 1A.

The following is a summary of the inputs used as of September 30, 2024 in valuing the Fund's investments:

	Level 1	Level 2	Level 3	Total
Municipal Bonds	$ —	$269,118,869	$—	$269,118,869
U.S. Government and Agency Obligations	—	996,983	—	996,983
Total Investments in Securities	**$ —**	**$270,115,852**	**$—**	**$270,115,852**
Other Financial Instruments				
Variable Rate MuniFund Term Preferred Shares[(a)]	$ —	$ (50,000,000)	$—	$ (50,000,000)
Net unrealized depreciation on futures contracts	(88,950)	—	—	(88,950)
Total Other Financial Instruments	**$(88,950)**	**$ (50,000,000)**	**$—**	**$ (50,088,950)**

(a) The Fund may hold liabilities in which the fair value approximates the carrying amount for financial statement purposes.

During the period ended September 30, 2024, there were no transfers in or out of Level 3.

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

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Statement of Assets and Liabilities | 9/30/24

(unaudited)

ASSETS:	
Investments in unaffiliated issuers, at value (cost $258,251,868)	$270,115,852
Cash	965,410
Futures collateral	1,682,024
Due from broker for futures	92,813
Receivables —	
Interest	3,167,811
Other assets	3,236
Total assets	**$276,027,146**

LIABILITIES:	
Variable Rate MuniFund Term Preferred Shares*	$ 50,000,000
Payables —	
Distributions	5,148
Directors' fees	372
Variation margin for futures contracts	92,813
Management fees	22,628
Administrative expenses	28,145
Accrued expenses	180,952
Total liabilities	**$ 50,330,058**
NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS:	
Paid-in capital	$284,214,601
Distributable earnings (loss)	(58,517,513)
Net assets	**$225,697,088**
NET ASSET VALUE PER COMMON SHARE:	
No par value	
Based on $225,697,088/23,914,439 common shares	$ 9.44

* $100,000 liquidation value per share applicable to 500 shares.

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

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Statement of Operations (unaudited)

FOR THE SIX MONTHS ENDED 9/30/24

INVESTMENT INCOME:		
Interest from unaffiliated issuers	$ 7,114,165	
Total Investment Income		**$ 7,114,165**
EXPENSES:		
Management fees	$ 813,756	
Administrative expenses	37,880	
Transfer agent fees	9,302	
Stockholder communications expense	47,525	
Custodian fees	1,224	
Professional fees	234,324	
Printing expense	7,676	
Officers' and Directors' fees	4,566	
Insurance expense	2,675	
Interest expense	1,477,992	
Miscellaneous	66,179	
Total expenses		$ 2,703,099
Net investment income		**$ 4,411,066**
REALIZED AND UNREALIZED GAIN (LOSS) ON INVESTMENTS:		
Net realized gain (loss) on:		
Investments in unaffiliated issuers	$(10,040,699)	
Futures contracts	740,020	$ (9,300,679)
Change in net unrealized appreciation (depreciation) on:		
Investments in unaffiliated issuers	$ 15,453,473	
Futures contracts	(280,546)	$15,172,927
Net realized and unrealized gain (loss) on investments		**$ 5,872,248**
Net increase in net assets resulting from operations		**$10,283,314**

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

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Statements of Changes in Net Assets

	Six Months Ended 9/30/24 (unaudited)	Year Ended 3/31/24
FROM OPERATIONS:		
Net investment income (loss)	$ 4,411,066	$ 9,308,711
Net realized gain (loss) on investments	(9,300,679)	(18,508,575)
Change in net unrealized appreciation (depreciation) on investments	15,172,927	13,054,389
Net increase in net assets resulting from operations	**$ 10,283,314**	**$ 3,854,525**

DISTRIBUTIONS TO COMMON STOCKHOLDERS:		
($0.20 and $0.35 per share, respectively)	$ (4,663,316)	$ (8,322,225)
Total distributions to common stockholders	$ (4,663,316)	$ (8,322,225)
Net increase (decrease) in net assets applicable to common stockholders	**$ 5,619,998**	**$ (4,467,700)**
NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS:		
Beginning of period	$220,077,090	$224,544,790
End of period	**$225,697,088**	**$220,077,090**

	Six Months Ended 9/30/24 Common Shares (unaudited)	Six Months Ended 9/30/24 Amount (unaudited)	Year Ended 3/31/24 Common Shares	Year Ended 3/31/24 Amount
FUND SHARE TRANSACTIONS				
Common Shares sold	—	$—	—	$—
Reinvestment of distributions	—	—	—	—
Less Common Shares repurchased	—	—	—	—
Net increase	—	$—	—	$—

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

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Statement of Cash Flows (unaudited)

FOR THE SIX MONTHS ENDED 9/30/24

Cash Flows From Operating Activities	
Net increase in net assets resulting from operations	$ 10,283,314
Adjustments to reconcile net decrease in net assets resulting from operations to net cash and restricted cash from operating activities:	
Purchases of investment securities	$(53,209,126)
Proceeds from disposition and maturity of investment securities	53,067,308
Net sales of short term investments	2,019,462
Net accretion and amortization of discount/premium on investment securities	(620,555)
Net realized loss on investments in unaffiliated issuers	10,040,699
Change in unrealized appreciation on investments in unaffiliated issuers	(15,453,473)
Increase in due from broker for futures	(92,813)
Decrease in interest receivable	246,229
Decrease in distributions paid in advance	741,348
Increase in other assets	(3,136)
Increase in variation margin for futures contracts	126,563
Decrease in management fees payable	(3,928)
Decrease in directors' fees payable	(1,135)
Decrease in due to broker for futures	(33,750)
Increase in administrative expenses payable	1,225
Decrease in accrued expenses payable	(34,724)
Net cash and restricted cash from operating activities	$ 7,073,508

Cash Flows Used In Financing Activities:	
Distributions to stockholders	(5,399,516)
Net cash flows used in financing activities	$ (5,399,516)
NET INCREASE (DECREASE) IN CASH AND RESTRICTED CASH	$ 1,673,992
Cash and Restricted Cash:	
Beginning of period*	$ 973,442
End of period*	$ 2,647,434
Cash Flow Information:	
Cash paid for interest	$ 1,477,992

* The following table provides a reconciliation of cash, restricted cash and foreign currencies reported within the Statement of Assets and Liabilities that sum to the total of the same such amounts shown in the Statement of Cash Flows:

	Six Months Ended 9/30/24	**Year Ended 3/31/24**
Cash	$ 965,410	$125,590
Restricted cash	1,682,024	847,852
Total cash and restricted cash shown in the Statement of Cash Flows	**$2,647,434**	**$973,442**

The accompanying notes are an integral part of these financial statements

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Financial Highlights

	Six Months Ended 9/30/24 (unaudited)	**Year Ended 3/31/24**	**Year Ended 3/31/23**	**Year Ended 3/31/22**	**Year Ended 3/31/21**	**Year Ended 3/31/20**
Per Share Operating Performance						
Net asset value, beginning of period	$ 9.20	$ 9.39	$ 10.75	$ 12.16	$ 11.77	$ 11.68
Increase (decrease) from investment operations: (a)						
Net investment income (loss)(b)	$ 0.18	$ 0.39	$ 0.41	$ 0.49	$ 0.53	$ 0.49
Net realized and unrealized gain (loss) on investments	0.26	(0.23)	(1.28)	(1.38)	0.42	0.06
Net increase (decrease) from investment operations	**$ 0.44**	**$ 0.16**	**$ (0.87)**	**$ (0.89)**	**$ 0.95**	**$ 0.55**
Distributions to stockholders:						
Net investment income and previously undistributed net investment income	$ (0.20)*	$ (0.35)	$ (0.42)*	$ (0.52)*	$ (0.56)*	$ (0.46)
Tax return of capital	—	—	(0.07)	—	—	—
Total distributions	**$ (0.20)**	**$ (0.35)**	**$ (0.49)**	**$ (0.52)**	**$ (0.56)**	**$ (0.46)**
Net increase (decrease) in net asset value	**$ 0.24**	**$ (0.19)**	**$ (1.36)**	**$ (1.41)**	**$ 0.39**	**$ 0.09**
Net asset value, end of period	$ 9.44	$ 9.20	$ 9.39	$ 10.75	$ 12.16	$ 11.77
Market value, end of period	$ 8.84	$ 8.15	$ 8.23	$ 9.83	$ 11.82	$ 10.18
Total return at net asset value(c)	**5.01%(d)**	**2.49%(e)**	**(7.42)%**	**(7.54)%**	**8.60%**	**5.12%**
Total return at market value(c)	**11.01%(d)**	**3.59%**	**(11.26)%**	**(13.03)%**	**22.05%**	**(1.30)%**
Ratios to average net assets of stockholders:						
Total expenses plus interest expense(f)(g)	2.44%(h)	4.76%	3.40%	1.86%	1.82%	2.61%
Net investment income	3.99%(h)	4.32%	4.29%	4.02%	4.33%	4.14%
Portfolio turnover rate	20%(d)	16%	63%	11%	12%	11%
Net assets of common stockholders, end of period (in thousands)	$225,697	$220,077	$224,545	$257,047	$290,614	$281,372
Preferred shares outstanding (in thousands)(i)(j)(k)(l)	$ 50,000	$ 50,000	$140,000	$180,000	$180,000	$160,000
Asset coverage per preferred share, end of period	$551,394	$540,154	$260,389	$242,804	$261,452	$276,030

Average market value per preferred share(m)	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000

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

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	Six Months Ended 9/30/24 (unaudited)	Year Ended 3/31/24	Year Ended 3/31/23	Year Ended 3/31/22	Year Ended 3/31/21	Year Ended 3/31/20
Liquidation value, including interest expense payable, per preferred share	$100,000	$100,000	$100,000	$100,000	$100,000	$100,172

* The amount of distributions made to stockholders during the period was in excess of the net investment income earned by the Fund during the period. The Fund has accumulated undistributed net investment income which is part of the Fund's NAV. A portion of this accumulated net investment income was distributed to stockholders during the period. A decrease in distributions may have a negative effect on the market value of the Fund's shares.

(a) The per common share data presented above is based upon the average common shares outstanding for the periods presented.

(b) Beginning March 31, 2020, distribution payments to preferred stockholders are included as a component of net investment income.

(c) Total investment return is calculated assuming a purchase of common shares at the current net asset value or market value on the first day and a sale at the current net asset value or market value on the last day of the periods reported. Dividends and distributions, if any, are assumed for purposes of this calculation to be reinvested at prices obtained under the Fund's dividend reinvestment plan. Total investment return does not reflect brokerage commissions. Past performance is not a guarantee of future results.

(d) Not annualized.

(e) For the period ended March 31, 2024, the Fund's total return includes a reimbursement by the Adviser (see Notes to the Financial Statements-Note 1B). The impact on total return was less than 0.005%.

(f) Includes interest expense of 1.34%, 3.47%, 2.09%, 0.56%, 0.64% and 1.50%, respectively.

(g) Prior to March 31, 2020, the expense ratios do not reflect the effect of distribution payments to preferred stockholders.

(h) Annualized.

(i) The Fund redeemed 900 Variable Rate MuniFund Term Preferred Shares, with a liquidation preference of $100,000 per share, on February 29, 2024.

(j) The Fund redeemed 200 Variable Rate MuniFund Term Preferred Shares, with a liquidation preference of $100,000 per share, on November 14, 2022.

(k) The Fund redeemed 200 Variable Rate MuniFund Term Preferred Shares, with a liquidation preference of $100,000 per share, on September 29, 2022.

(l) The Fund issued 200 Variable Rate MuniFund Term Preferred Shares, with a liquidation preference of $100,000 per share, on February 16, 2021.

(m) Market value is redemption value without an active market.

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

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Notes to Financial Statements | 9/30/24

(unaudited)

1. Organization and Significant Accounting Policies

Pioneer Municipal High Income Advantage Fund, Inc. (the “Fund”) is organized as a Maryland corporation. Prior to April 21, 2021, the Fund was organized as a Delaware statutory trust. On April 21, 2021, the Fund redomiciled to a Maryland corporation through a statutory merger of the predecessor Delaware statutory trust with and into a newly-established Maryland corporation formed for the purpose of effecting the redomiciling. The Fund was originally organized on August 6, 2003. Prior to commencing operations on October 20, 2003, the Fund had no operations other than matters relating to its organization and registration as a diversified, closed end management investment company under the Investment Company Act of 1940, as amended (the "1940 Act"). The investment objective of the Fund is to seek a high level of current income exempt from regular federal income tax, and the Fund may, as a secondary objective, also seek capital appreciation to the extent that it is consistent with its primary investment objective.

Amundi Asset Management US, Inc., an indirect, wholly owned subsidiary of Amundi and Amundi’s wholly owned subsidiary, Amundi USA, Inc., serves as the Fund’s investment adviser (the “Adviser”).

The Fund is required to comply with Rule 18f-4 under the 1940 Act, which governs the use of derivatives by registered investment companies. Rule 18f-4 permits funds to enter into derivatives transactions (as defined in Rule 18f-4) and certain other transactions notwithstanding the restrictions on the issuance of “senior securities” under Section 18 of the 1940 Act. Rule 18f-4 requires a fund to establish and maintain a comprehensive derivative risk management program, appoint a derivative risk manager and comply with a relative or absolute limit on fund leverage risk calculated based on value-at-risk (“VaR”), unless the Fund uses derivatives in only a limited manner (a “limited derivatives user”). The Fund is currently a limited derivatives user for purposes of Rule 18f-4.

The Fund is an investment company and follows investment company accounting and reporting guidance under U.S. Generally Accepted Accounting Principles (“U.S. GAAP”). U.S. GAAP requires the management of the Fund to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of income, expenses and gain or loss on investments during the reporting period. Actual results could differ from those estimates.

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The following is a summary of significant accounting policies followed by the Fund in the preparation of its financial statements:

A. Security Valuation

The net asset value of the Fund is computed once daily, on each day the New York Stock Exchange ("NYSE") is open, as of the close of regular trading on the NYSE.

Fixed income securities are valued by using prices supplied by independent pricing services, which consider such factors as market prices, market events, quotations from one or more brokers, Treasury spreads, yields, maturities and ratings, or may use a pricing matrix or other fair value methods or techniques to provide an estimated value of the security or instrument. A pricing matrix is a means of valuing a debt security on the basis of current market prices for other debt securities, historical trading patterns in the market for fixed income securities and/or other factors. Non-U.S. debt securities that are listed on an exchange will be valued at the bid price obtained from an independent third party pricing service. When independent third party pricing services are unable to supply prices, or when prices or market quotations are considered to be unreliable, the value of that security may be determined using quotations from one or more broker-dealers.

Securities for which independent pricing services or broker-dealers are unable to supply prices or for which market prices and/or quotations are not readily available or are considered to be unreliable are valued by a fair valuation team comprised of certain personnel of the Adviser. The Adviser is designated as the valuation designee for the Fund pursuant to Rule 2a-5 under the 1940 Act. The Adviser's fair valuation team is responsible for monitoring developments that may impact fair valued securities.

Inputs used when applying fair value methods to value a security may include credit ratings, the financial condition of the company, current market conditions and comparable securities. The Adviser may use fair value methods if it is determined that a significant event has occurred after the close of the exchange or market on which the security trades and prior to the determination of the Fund's net asset value. Examples of a significant event might include political or economic news, corporate restructurings, natural disasters, terrorist activity or trading halts. Thus, the valuation of the Fund's securities may differ significantly from exchange prices, and such differences could be material.

Futures contracts are generally valued at the closing settlement price established by the exchange on which they are traded.

B. Investment Income and Transactions

Interest income, including interest on income-bearing cash accounts, is recorded on the accrual basis. Dividend and interest income are reported net of unrecoverable foreign taxes withheld at the applicable country rates and net of income accrued on defaulted securities.

Discounts and premiums on purchase prices of debt securities are accreted or amortized, respectively, daily, into interest income on an effective yield to maturity basis with a corresponding increase or decrease in the cost basis of the security. Premiums and discounts related to certain mortgage backed securities are amortized or accreted in proportion to the monthly paydowns.

Interest and dividend income payable by delivery of additional shares is reclassified as PIK (payment-in-kind) income upon receipt and is included in interest and dividend income, respectively.

Security transactions are recorded as of trade date. Gains and losses on sales of investments are calculated on the identified cost method for both financial reporting and federal income tax purposes.

C. Federal Income Taxes

It is the Fund's policy to comply with the requirements of the Internal Revenue Code applicable to regulated investment companies and to distribute all of its net taxable income and net realized capital gains, if any, to its stockholders. Therefore, no provision for federal income taxes is required. As of September 30, 2024, the Fund did not accrue any interest or penalties with respect to uncertain tax positions, which, if applicable, would be recorded as an income tax expense on the Statement of Operations. Tax returns filed within the prior three years remain subject to examination by federal and state tax authorities.

The amount and character of income and capital gain distributions to stockholders are determined in accordance with federal income tax rules, which may differ from U.S. GAAP. Distributions in excess of net investment income or net realized gains are temporary over distributions for financial statement purposes resulting from differences in the recognition or classification of income or distributions for financial statement and tax purposes. Capital accounts within the financial statements are adjusted for permanent book/tax differences to reflect tax character, but are not adjusted for temporary differences.

The tax character of current year distributions payable will be determined at the end of the current taxable year. The tax character of distributions paid during the year ended March 31, 2024 was as follows:

	2024
Distributions paid from:	
Tax-exempt income	$15,807,773
Ordinary income	67,364
Total	**$15,875,137**

The following shows the components of distributable earnings (losses) on a federal income tax basis at March 31, 2024:

	2024
Distributable earnings/(losses):	
Undistributed ordinary income	$ 461,587
Undistributed tax-exempt income	214,763
Capital loss carryforward	(61,541,713)
Other book/tax temporary differences	(741,351)
Net unrealized depreciation	(2,530,797)
Total	**$(64,137,511)**

The difference between book basis and tax basis unrealized depreciation is primarily attributable to the tax deferral of losses on wash sales, the mark to market on futures contracts, the book/tax differences in the accrual of income on securities in default, and discounts on fixed income securities.

D. Automatic Dividend Reinvestment Plan

All stockholders whose shares are registered in their own names automatically participate in the Automatic Dividend Reinvestment Plan (the "Plan"), under which participants receive all dividends and capital gain distributions (collectively, dividends) in full and fractional shares of the Fund in lieu of cash. Stockholders may elect not to participate in the Plan. Stockholders not participating in the Plan receive all dividends and capital gain distributions in cash. Participation in the Plan is completely voluntary and may be terminated or resumed at any time without penalty by notifying Equiniti Trust Company, the agent for stockholders in administering the Plan (the "Plan Agent"), in writing prior to any dividend record date; otherwise such termination or resumption will be effective with respect to any subsequently declared dividend or other distribution.

If a stockholder's shares are held in the name of a brokerage firm, bank or other nominee, the stockholder can ask the firm or nominee to participate in the Plan on the stockholder's behalf. If the firm or

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nominee does not offer the Plan, dividends will be paid in cash to the stockholder of record. A firm or nominee may reinvest a stockholder's cash dividends in shares of the Fund on terms that differ from the terms of the Plan.

Whenever the Fund declares a dividend on shares payable in cash, participants in the Plan will receive the equivalent in shares acquired by the Plan Agent either (i) through receipt of additional unissued but authorized shares from the Fund or (ii) by purchase of outstanding shares on the New York Stock Exchange or elsewhere. If, on the payment date for any dividend, the net asset value per share is equal to or less than the market price per share plus estimated brokerage trading fees (market premium), the Plan Agent will invest the dividend amount in newly issued shares. The number of newly issued shares to be credited to each account will be determined by dividing the dollar amount of the dividend by the net asset value per share on the date the shares are issued, provided that the maximum discount from the then current market price per share on the date of issuance does not exceed 5%. If, on the payment date for any dividend, the net asset value per share is greater than the market value (market discount), the Plan Agent will invest the dividend amount in shares acquired in open-market purchases. There are no brokerage charges with respect to newly issued shares. However, each participant will pay a pro rata share of brokerage trading fees incurred with respect to the Plan Agent's open-market purchases. Participating in the Plan does not relieve stockholders from any federal, state or local taxes which may be due on dividends paid in any taxable year. Stockholders holding Plan shares in a brokerage account may be able to transfer the shares to another broker and continue to participate in the Plan.

E. Risks

The value of securities held by the Fund may go up or down, sometimes rapidly or unpredictably, due to general market conditions, such as real or perceived adverse economic, political or regulatory conditions, recessions, the spread of infectious illness or other public health issues, inflation, changes in interest rates, armed conflict such as between Russia and Ukraine or in the Middle East, sanctions against Russia, other nations or individuals or companies and possible countermeasures, lack of liquidity in the bond markets or adverse investor sentiment. In the past several years, financial markets have experienced increased volatility, depressed valuations, decreased liquidity and heightened uncertainty. These conditions may continue, recur, worsen or spread. Inflation and interest rates may increase. These circumstances could

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adversely affect the value and liquidity of the Fund's investments and negatively impact the Fund's performance.

Some sectors of the economy and individual issuers have experienced or may experience particularly large losses. Periods of extreme volatility in the financial markets, reduced liquidity of many instruments, increased government debt, inflation, and disruptions to supply chains, consumer demand and employee availability, may continue for some time. Following Russia's invasion of Ukraine, Russian securities lost all, or nearly all, their market value. Other securities or markets could be similarly affected by past or future political, geopolitical or other events or conditions.

Governments and central banks, including the U.S. Federal Reserve, have taken extraordinary and unprecedented actions to support local and global economies and the financial markets. These actions have resulted in significant expansion of public debt, including in the U.S. The consequences of high public debt, including its future impact on the economy and securities markets, may not be known for some time.

The U.S. and other countries are periodically involved in disputes over trade and other matters, which may result in tariffs, investment restrictions and adverse impacts on affected companies and securities. For example, the U.S. has imposed tariffs and other trade barriers on Chinese exports, has restricted sales of certain categories of goods to China, and has established barriers to investments in China. Trade disputes may adversely affect the economies of the U.S. and its trading partners, as well as companies directly or indirectly affected and financial markets generally. If the political climate between the U.S. and China does not improve or continues to deteriorate, if China were to attempt unification of Taiwan by force, or if other geopolitical conflicts develop or get worse, economies, markets and individual securities may be severely affected both regionally and globally, and the value of the Fund's assets may go down.

At times, the Fund's investments may represent industries or industry sectors that are interrelated or have common risks, making the Fund more susceptible to any economic, political, or regulatory developments or other risks affecting those industries and sectors.

Under normal circumstances, the Fund will invest substantially all of its assets in municipal securities. The municipal bond market can be susceptible to unusual volatility, particularly for lower-rated and unrated securities. Liquidity can be reduced unpredictably in response to overall economic conditions or credit tightening. Municipal issuers may be adversely affected by rising health care costs, increasing unfunded

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pension liabilities, and by the phasing out of federal programs providing financial support. Unfavorable conditions and developments relating to projects financed with municipal securities can result in lower revenues to issuers of municipal securities, potentially resulting in defaults. Issuers often depend on revenues from these projects to make principal and interest payments. The value of municipal securities can also be adversely affected by changes in the financial condition of one or more individual municipal issuers or insurers of municipal issuers, regulatory and political developments, tax law changes or other legislative actions, and by uncertainties and public perceptions concerning these and other factors. Municipal securities may be more susceptible to down-grades or defaults during recessions or similar periods of economic stress. Financial difficulties of municipal issuers may continue or get worse, particularly in the event of economic or market turmoil or a recession. To the extent the Fund invests significantly in a single state (including California and Massachusetts), city, territory (including Puerto Rico), or region, or in securities the payments on which are dependent upon a single project or source of revenues, or that relate to a sector or industry, including health care facilities, education, transportation, special revenues and pollution control, the Fund will be more susceptible to associated risks and developments.

The Fund invests in below investment grade (high yield) municipal securities. Debt securities rated below investment grade are commonly referred to as "junk bonds" and are considered speculative with respect to the issuer's capacity to pay interest and repay principal. These securities involve greater risk of loss, are subject to greater price volatility, and may be less liquid and more difficult to value, especially during periods of economic uncertainty or change, than higher rated debt securities.

The market prices of the Fund's fixed income securities may fluctuate significantly when interest rates change. The value of your investment will generally go down when interest rates rise. A rise in rates tends to have a greater impact on the prices of longer term or duration securities. For example, if interest rates increase by 1%, the value of a Fund's portfolio with a portfolio duration of ten years would be expected to decrease by 10%, all other things being equal. A general rise in interest rates could adversely affect the price and liquidity of fixed income securities. The maturity of a security may be significantly longer than its effective duration. A security's maturity and other features may be more relevant than its effective duration in determining the security's sensitivity to other factors affecting the issuer or markets generally, such as changes in credit quality or in the yield premium that the

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market may establish for certain types of securities (sometimes called "credit spread"). In general, the longer its maturity the more a security may be susceptible to these factors. When the credit spread for a fixed income security goes up, or "widens", the value of the security will generally go down.

If an issuer or guarantor of a security held by the Fund or a counterparty to a financial contract with the Fund defaults on its obligation to pay principal and/or interest, has its credit rating downgraded or is perceived to be less creditworthy, or the credit quality or value of any underlying assets declines, the value of your investment will typically decline. Changes in actual or perceived creditworthiness may occur quickly. The Fund could be delayed or hindered in its enforcement of rights against an issuer, guarantor or counterparty.

With the increased use of technologies such as the Internet to conduct business, the Fund is susceptible to operational, information security and related risks. While the Fund's Adviser has established business continuity plans in the event of, and risk management systems to prevent, limit or mitigate, such cyber-attacks, there are inherent limitations in such plans and systems, including the possibility that certain risks have not been identified. Furthermore, the Fund cannot control the cybersecurity plans and systems put in place by service providers to the Fund such as the Fund's custodian and accounting agent, and the Fund's transfer agent. In addition, many beneficial owners of Fund shares hold them through accounts at broker-dealers, retirement platforms and other financial market participants over which neither the Fund nor the Adviser exercises control. Each of these may in turn rely on service providers to them, which are also subject to the risk of cyber-attacks. Cybersecurity failures or breaches at the Adviser or the Fund's service providers or intermediaries have the ability to cause disruptions and impact business operations, potentially resulting in financial losses, interference with the Fund's ability to calculate its net asset value, impediments to trading, the inability of Fund stockholders to effect share purchases or sales or receive distributions, loss of or unauthorized access to private stockholder information and violations of applicable privacy and other laws, regulatory fines, penalties, reputational damage, or additional compliance costs. Such costs and losses may not be covered under any insurance. In addition, maintaining vigilance against cyber-attacks may involve substantial costs over time, and system enhancements may themselves be subject to cyber-attacks.

F. Statement of Cash Flows

Information on financial transactions which have been settled through the receipt or disbursement of cash or restricted cash is presented in the Statement of Cash Flows. Cash as presented in the Fund's Statement of Assets and Liabilities includes cash on hand at the Fund's custodian bank and does not include any short-term investments. For the six months ended September 30, 2024, the Fund had restricted cash in the form of futures collateral on the Statement of Assets and Liabilities.

G. Futures Contracts

The Fund may enter into futures transactions in order to attempt to hedge against changes in interest rates, securities prices and currency exchange rates or to seek to increase total return. Futures contracts are types of derivatives.

All futures contracts entered into by the Fund are traded on a futures exchange. Upon entering into a futures contract, the Fund is required to deposit with a broker an amount of cash or securities equal to the minimum "initial margin" requirements of the associated futures exchange. The amount of cash deposited with the broker as collateral at September 30, 2024 is recorded as "Futures collateral" on the Statement of Assets and Liabilities.

Subsequent payments for futures contracts ("variation margin") are paid or received by the Fund, depending on the daily fluctuation in the value of the contracts, and are recorded by the Fund as unrealized appreciation or depreciation. Cash received from or paid to the broker related to previous margin movement is held in a segregated account at the broker and is recorded as either "Due from broker for futures" or "Due to broker for futures" on the Statement of Assets and Liabilities. When the contract is closed, the Fund realizes a gain or loss equal to the difference between the opening and closing value of the contract as well as any fluctuation in foreign currency exchange rates where applicable. Futures contracts are subject to market risk, interest rate risk and currency exchange rate risk. Changes in value of the contracts may not directly correlate to the changes in value of the underlying securities. With futures, there is reduced counterparty credit risk to the Fund since futures are exchange-traded and the exchange's clearinghouse, as counterparty to all exchange-traded futures, guarantees the futures against default.

The average notional value of long position futures contracts during the six months ended September 30, 2024 was $16,233,520. Open futures contracts outstanding at September 30, 2024 are listed in the Schedule of Investments.

2. Management Agreement

The Adviser manages the Fund's portfolio. Management fees payable under the Fund's Investment Management Agreement with the Adviser are calculated daily and paid monthly at the annual rate of 0.60% of the Fund's average daily managed assets. "Managed assets" means (a) the total assets of the Fund, including any form of investment leverage, minus (b) all accrued liabilities incurred in the normal course of operations, which shall not include any liabilities or obligations attributable to investment leverage obtained through (i) indebtedness of any type (including, without limitation, borrowing through a credit facility or the issuance of debt securities), (ii) the issuance of preferred stock or other similar preference securities, and/or (iii) any other means. For the six months September 30, 2024, the management fee was 0.60% (annualized) of the Fund's average daily managed assets, which was equivalent to 0.74% (annualized) of the Fund's average daily net assets.

In addition, under the management and administration agreements, certain other services and costs, including accounting, regulatory reporting and insurance premiums, are paid by the Fund as administrative reimbursements. Reflected on the Statement of Assets and Liabilities is $22,628 in management fees payable to the Adviser at September 30, 2024.

3. Compensation of Officers and Directors

The Fund pays an annual fee to its Directors. The Adviser reimburses the Fund for fees paid to the Interested Directors. Except for the chief compliance officer, the Fund does not pay any salary or other compensation to its officers. The Fund pays a portion of the chief compliance officer's compensation for his services as the Fund's chief compliance officer. Amundi US pays the remaining portion of the chief compliance officer's compensation. For the six months ended September 30, 2024, the Fund paid $4,566 in Officers' and Directors' compensation, which is reflected on the Statement of Operations as Officers'and Directors' fees. At September 30, 2024, the Fund had a payable for officers' and Directors' fees on its Statement of Assets and Liabilities of $372.

4. Transfer Agent

Equiniti Trust Company, LLC ("EQ"), formerly known as American Stock Transfer & Trust Company, serves as the transfer agent with respect to the

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Fund's common shares. The Fund pays EQ an annual fee as is agreed to from time to time by the Fund and EQ for providing such services.

In addition, the Fund reimbursed the transfer agent for out-of-pocket expenses incurred by the transfer agent related to stockholder communications activities such as proxy and statement mailings, and outgoing phone calls.

5. Additional Disclosures about Derivative Instruments and Hedging Activities

The Fund's use of derivatives may enhance or mitigate the Fund's exposure to the following risks:

Interest rate risk relates to the fluctuations in the value of interest-bearing securities due to changes in the prevailing levels of market interest rates.

Credit risk relates to the ability of the issuer of a financial instrument to make further principal or interest payments on an obligation or commitment that it has to the Fund.

Foreign exchange rate risk relates to fluctuations in the value of an asset or liability due to changes in currency exchange rates.

Equity risk relates to the fluctuations in the value of financial instruments as a result of changes in market prices (other than those arising from interest rate risk or foreign exchange rate risk), whether caused by factors specific to an individual investment, its issuer, or all factors affecting all instruments traded in a market or market segment.

Commodity risk relates to the risk that the value of a commodity or commodity index will fluctuate based on increases or decreases in the commodities market and factors specific to a particular industry or commodity.

The fair value of open derivative instruments (not considered to be hedging instruments for accounting disclosure purposes) by risk exposure at September 30, 2024, was as follows:

Statement of Assets and Liabilities	Interest Rate Risk	Credit Risk	Foreign Exchange Rate Risk	Equity Risk	Commodity Risk
Liabilities					
Net unrealized depreciation on futures contracts*	$88,950	$—	$—	$—	$—
Total Value	**$88,950**	**$—**	**$—**	**$—**	**$—**

* Includes cumulative unrealized appreciation (depreciation) of futures contracts as reported in the Schedule of Investments. Only net variation margin is reported within the assets and/or liabilities on the Statement of Assets and Liabilities.

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The effect of derivative instruments (not considered to be hedging instruments for accounting disclosure purposes) on the Statement of Operations and Statement of Cash Flows by risk exposure at September 30, 2024, was as follows:

Statement of Operations	Interest Rate Risk	Credit Risk	Foreign Exchange Rate Risk	Equity Risk	Commodity Risk
Net Realized Gain (Loss) on					
Futures contracts	$ 740,020	$—	$—	$—	$—
Total Value	**$ 740,020**	**$—**	**$—**	**$—**	**$—**
Change in Net Unrealized Appreciation (Depreciation) on					
Futures contracts	$(280,546)	$—	$—	$—	$—
Total Value	**$(280,546)**	**$—**	**$—**	**$—**	**$—**

6. Fund Shares

There are 1,000,000,000 shares of common stock of the Fund (“common shares”), $0.001 par value per share authorized.

Transactions in common shares for the six months ended September 30, 2024 and year ended March 31, 2024 were as follows:

	9/30/24	3/31/24
Shares outstanding at beginning of period	23,914,439	23,914,439
Shares outstanding at end of period	**23,914,439**	**23,914,439**

The Fund may classify or reclassify any unissued shares into one or more series of preferred shares.

As of September 30, 2024, the Fund has outstanding 500 Variable Rate MuniFund Term Preferred Shares Series 2021 (“series 2021 VMTP Shares” or “VMTP Shares”). The Fund issued 1,600 VMTP Shares on February 16, 2018 and 200 VMTP Shares on February 16, 2021. The Fund redeemed 200 VMTP Shares on September 29, 2022, 200 VMTP Shares on November 14, 2022 and 900 VMTP Shares on February 29, 2024.

7. Variable Rate MuniFund Term Preferred Shares

The Fund has 500 shares issued and outstanding of Series 2021 VMTP Shares, with a liquidation preference of $100,000 per share. VMTP Shares are issued via private placement and are not publicly available.

The Fund is obligated to redeem its VMTP Shares by the date as specified in its offering document (“Term Redemption Date”), unless earlier redeemed by the Fund. VMTP Shares are subject to optional and mandatory redemption in certain circumstances. The VMTP Shares may be redeemed at the option of the Fund, subject to payment of premium for approximately

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one year following the date of issuance (“Optional Redemption Date”), and at the redemption price per share thereafter. The redemption price per share is equal to the sum of the liquidation preference per share plus any accumulated but unpaid dividends. The Fund may be obligated to redeem a certain amount of the VMTP Shares if it fails to maintain certain asset coverage and leverage ratio requirements and such failures are not cured by the applicable cure date. The Term Redemption Date for the Fund’s Series 2021 VMTP Shares was extended from August 2, 2024 to August 2, 2027 on March 1, 2024. Six months prior to Term Redemption Date, the Fund is required to segregate liquid assets with the Fund’s custodian in an amount equal to at least 100% of the term redemption amount.

VMTP Shares are subject to restrictions on transfer, generally do not trade, and market quotations are generally not available. VMTP Shares are short-term or short/intermediate-term instruments that pay a variable dividend rate tied to a short-term index, plus an additional fixed “spread” amount established at the time of issuance. For financial reporting purposes, the liquidation preference of VMTP Shares is a liability and is recognized as a component of “Variable Rate MuniFund Term Preferred Shares” on the Statement of Assets and Liabilities since the shares have a stated mandatory redemption date.

Dividends on the VMTP Shares (which are treated as interest payments for financial reporting purposes and are recorded as interest expense on the Statement of Operations) are declared daily, paid monthly and recorded as incurred. For the six months ended September 30, 2024, interest expense on VMTP Shares amounted to $1,477,992. The dividend rate for the VMTP Shares is determined weekly. Unpaid dividends on VMTP Shares are recognized as “Interest Expense Payable” on the Statement of Assets and Liabilities. For the six months ended September 30, 2024, there was no interest expense payable on VMTP Shares. From April 30, 2024 through September 30, 2024, the Series 2021 VMTP Shares paid an average dividend rate of 5.83% and the average liquidation value outstanding of VMTP Shares for the Fund during the six months ended September 30, 2024, was $50,000,000.

The Fund did not incur any offering costs as a result of the offerings on February 16, 2018 and February 16, 2021.

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Transactions in the Series 2021 VMTP Shares during the Fund's current and prior reporting periods were as follows:

	Period Ended 9/30/24		Year Ended 3/31/24	
	Shares	Amount	Shares	Amount
VMTP Shares issued	—	$ —	—	$ —
VMTP Shares redeemed	—	—	(900)	(90,000,000)
Net decrease	—	$ —	(900)	$(90,000,000)

8. Definitive Agreement

The Fund's Adviser is currently an indirect, wholly-owned subsidiary of Amundi. On July 9, 2024, Amundi announced that it had entered into a definitive agreement with Victory Capital Holdings, Inc. ("Victory Capital") to combine the Adviser with Victory Capital, and for Amundi to become a strategic stockholder of Victory Capital (the "Transaction"). Victory Capital is headquartered in San Antonio, Texas. The closing of the Transaction is subject to certain regulatory approvals and other conditions. There is no assurance that the Transaction will close.

The closing of the Transaction would cause the Fund's current investment advisory agreement with the Adviser to terminate. Under the terms of the Transaction, the Fund's Board of Trustees will be asked to approve a reorganization of the Fund into a corresponding, newly established Victory Fund advised by Victory Capital Management Inc., an affiliate of Victory Capital. The proposed reorganization of the Fund would be sought in connection with the closing of the Transaction. If approved by the Board, the proposal to reorganize the Fund will be submitted to the stockholders of the Fund for their approval. There is no assurance that the Board or the stockholders of the Fund will approve the proposal to reorganize the Fund.

9. Subsequent Events

A monthly distribution was declared on October 3, 2024 of $0.033 per common share payable October 31, 2024, to common stockholders of record on October 18, 2024.

Subsequent to September 30, 2024, dividends declared on VMTP Shares totaled $233,701 through October 21, 2024.

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Additional Information (unaudited)

Qualified interest income is exempt from nonresident alien (NRA) tax withholding. The percentage of the Fund's ordinary income distributions derived from qualified interest income was 0.00%.

Notice is hereby given in accordance with Section 23(c) of the Investment Company Act of 1940 that the Fund may purchase, from time to time, its shares in the open market.

Results of Annual Meeting of Stockholders

The Annual Meeting of Stockholders of Pioneer Municipal High Income Advantage Fund, Inc. was held on October 3, 2024. Following is a description of the proposal considered at the Meeting and the number of shares of Common Stock and Preferred Stock voted:

Proposal - To consider and vote upon the election of three Class III Directors, two to be elected by the holders of shares of Common Stock of the Fund and Preferred Stock of the Fund voting together as a single class, and one to be elected by the holders of shares of preferred stock of the Fund voting as a separate class. Each elected Director will serve until the third annual meeting following his election and until his successor is duly elected and qualifies:

Nominee	Votes For	Votes Against	Votes Abstained
Craig C. MacKay*	500.00	0.00	0.00
Thomas J. Perna**	12,568,742.00	4,612,000.00	576,727.00

Fred J. Ricciardi**	12,552,234.00	4,622,258.00	582,979.00

* Elected by holders of shares of Preferred Stock of the Fund voting as a separate class.

** Elected by holders of shares of Common Stock of the Fund and Preferred Stock of the Fund voting together as a single class.

Each of Mr. MacKay, Mr. Perna and Mr. Ricciardi received a majority of all of the votes entitled to be cast with respect to his election by the stockholders of the Fund, and was elected as a Director of the Fund.

In addition to Mr. MacKay, Mr. Perna and Mr. Ricciardi, the other Directors of the Fund at the time of the Annual Meeting, John E. Baumgardner, Jr., Diane Durnin, Benjamin M. Friedman, Lisa M. Jones, Lorraine H. Monchak and Marco Pirondini, continue to serve as Directors of the Fund.

Notice is hereby given in accordance with Section 23(c) of the Investment Company Act of 1940 that the Fund may purchase, from time to time, its shares in the open market.

Anti-takeover provisions. The Fund's Charter and Bylaws include provisions that are designed to limit the ability of other entities or persons

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to acquire control of the Fund for short-term objectives, including by converting the Fund to open-end status or changing the composition of the Board, that may be detrimental to the Fund's ability to achieve its primary investment objective of seeking to provide its common stockholders with a high level of current income exempt from regular federal income tax. These provisions include staggered terms of service for the Directors, advance notice requirements for stockholder proposals, and super-majority voting requirements for certain transactions with affiliates, open-ending the Fund or a merger, liquidation, asset sale or similar transaction. The Fund's Bylaws also contain a provision providing that the Board of Directors has adopted a resolution to opt in the Fund to the provisions of the Maryland Control Share Acquisition Act ("MCSAA"). Such provisions may limit the ability of stockholders to sell their shares at a premium over prevailing market prices by discouraging a third party from seeking to obtain control of the Fund. There can be no assurance, however, that such provisions will be sufficient to deter activist investors that seek to cause the Fund to take actions that may not be aligned with the interests of long-term stockholders. Furthermore, the law is uncertain on the use of control share provisions. Certain courts have found that control share provisions are unenforceable under the 1940 Act. It is possible that a court could decide that the Fund's decision to opt in to the MCSAA is not enforceable under the 1940 Act.

Exclusive forum provisions. The Fund's Bylaws designate the Circuit Court for Baltimore City, Maryland as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by the Fund's stockholders and provide that claims relating to causes of action under the United States federal securities laws may only be brought in the United States District Court for the District of Maryland, Northern Division, which could limit stockholders' ability to obtain a favorable judicial forum for disputes with the Fund or its directors, officers or the Fund's agents, if any, and could discourage lawsuits against the Fund and its directors, officers and agents, if any.

The Fund's Bylaws provide that, unless the Fund consents in writing to the selection of an alternative forum, the Circuit Court for Baltimore City, Maryland, or, if that court does not have jurisdiction, the United States District Court for the District of Maryland, Northern Division, will be the sole and exclusive forum for (a) any Internal Corporate Claim, as such term is defined in the MGCL, (b) any derivative action or proceeding brought on the Fund's behalf (other than actions arising under federal securities laws), (c) any action asserting a claim of breach of any duty owed by any of the Fund's directors, officers or other agents to the Fund or to the Fund's stockholders, (d) any action asserting a claim against the Fund or any of

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the Fund's directors, officers or other agents arising pursuant to any provision of the MGCL or the Fund's Charter or Bylaws or (e) any other action asserting a claim against the Fund or any of the Fund's directors, officers or other agents that is governed by the internal affairs doctrine. Furthermore, the Fund's Bylaws provide that, unless the Fund consents in writing to the selection of an alternative forum, the United States District Court for the District of Maryland, Northern Division shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolution of any claim arising under the United States federal securities laws.

These exclusive forum provisions may limit the ability of the Fund's stockholders to bring a claim in a judicial forum that such stockholders find favorable for disputes with the Fund or the Fund's directors, officers, or agents, if any, which may discourage such lawsuits against the Fund and the Fund's directors, officers, and agents, if any. Alternatively, if a court were to find the choice of forum provisions contained in the Fund's Bylaws to be inapplicable or unenforceable in an action, the Fund may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect the Fund's business, financial condition, and operating results.

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Approval of Renewal of Investment Management Agreement

Amundi Asset Management US, Inc. ("Amundi US") serves as the investment adviser to Pioneer Municipal High Income Advantage Fund, Inc. (the "Fund") pursuant to an investment management agreement between Amundi US and the Fund. In order for Amundi US to remain the investment adviser of the Fund, the Directors of the Fund, including a majority of the Fund's Independent Directors, must determine annually whether to renew the investment management agreement for the Fund.

The contract review process began in January 2024 as the Directors of the Fund agreed on, among other things, an overall approach and timeline for the process. Contract review materials were provided to the Directors in March 2024, July 2024 and September 2024. In addition, the Directors reviewed and discussed the Fund's performance at regularly scheduled meetings throughout the year, and took into account other information related to the Fund provided to the Directors at regularly scheduled meetings, in connection with the review of the Fund's investment management agreement.

In March 2024, the Directors, among other things, discussed the memorandum provided by Fund counsel that summarized the legal standards and other considerations that are relevant to the Directors in their deliberations regarding the renewal of the investment management agreement, and reviewed and discussed the qualifications of the investment management teams for the Fund, as well as the level of investment by the Fund's portfolio managers in the Fund. In July 2024, the Directors, among other things, reviewed the Fund's management fees and total expense ratios, the financial statements of Amundi US and its parent companies, profitability analyses provided by Amundi US, and analyses from Amundi US as to possible economies of scale. The Directors also reviewed the profitability of the institutional business of Amundi US as compared to that of Amundi US's fund management business, and considered the differences between the fees and expenses of the Fund and the fees and expenses of Amundi US's institutional accounts, as well as the different services provided by Amundi US to the Fund and to the institutional accounts. The Directors further considered contract review materials, including additional materials received in response to the Directors' request, in September 2024.

At a meeting held on September 17, 2024, based on their evaluation of the information provided by Amundi US and third parties, the Directors of the Fund, including the Independent Directors voting separately advised by independent counsel, unanimously approved the renewal of the investment

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management agreement for another year. In approving the renewal of the investment management agreement, the Directors considered various factors that they determined were relevant, including the factors described below. The Directors did not identify any single factor as the controlling factor in determining to approve the renewal of the agreement.

Nature, Extent and Quality of Services

The Directors considered the nature, extent and quality of the services that had been provided by Amundi US to the Fund, taking into account the investment objective and strategy of the Fund. The Directors also reviewed Amundi US's investment approach for the Fund and its research process. The Directors considered the resources of Amundi US and the personnel of Amundi US who provide investment management services to the Fund. They also reviewed the amount of non-Fund assets managed by the portfolio managers of the Fund. They considered the non-investment resources and personnel of Amundi US that are involved in Amundi US's services to the Fund, including Amundi US's compliance, risk management, and legal resources and personnel. The Directors considered the compliance services being provided to the Fund by Amundi US and how Amundi US has addressed any compliance issues during the past year. The Directors noted the substantial attention and high priority given by Amundi US's senior management to the Pioneer Fund complex, including with respect to the increasing regulation to which the Pioneer Funds are subject.

The Directors considered that Amundi US supervises and monitors the performance of the Fund's service providers and provides the Fund with personnel (including Fund officers) and other resources that are necessary for the Fund's business management and operations. The Directors also considered that, as administrator, Amundi US is responsible for the administration of the Fund's business and other affairs. The Directors considered that the Fund reimburses Amundi US its pro rata share of Amundi US's costs of providing administration services to the Pioneer Funds.

Based on these considerations, the Directors concluded that the nature, extent and quality of services that had been provided by Amundi US to the Fund were satisfactory and consistent with the terms of the investment management agreement.

Performance of the Trust

In considering the Fund's performance, the Directors regularly review and discuss throughout the year data prepared by Amundi US and information comparing the Fund's performance with the performance of its peer group of funds, as classified by Morningstar, Inc. (Morningstar), and with the

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performance of the Fund's benchmark index. The Directors also regularly consider the Fund's returns at market value relative to its peers, as well as the discount at which the Fund's shares may trade on the New York Stock Exchange compared to its net asset value per share. They also discuss the Fund's performance with Amundi US on a regular basis. The Directors' regular reviews and discussions were factored into the Directors' deliberations concerning the renewal of the investment management agreement.

Management Fee and Expenses

The Directors considered information showing the fees and expenses of the Fund in comparison to the management fees and expense ratios of a peer group of funds selected on the basis of criteria determined by the Independent Directors for this purpose using data provided by Strategic Insight Mutual Fund Research and Consulting, LLC (Strategic Insight), an independent third party. The peer group comparisons referred to below are organized in quintiles. Each quintile represents one-fifth of the peer group. In all peer group comparisons referred to below, first quintile is most favorable to the Fund's shareowners.

The Directors considered that the Fund's management fee (based on managed assets) for the most recent fiscal year was in the second quintile relative to the management fees paid by other funds in its Strategic Insight peer group for the comparable period. The Directors considered that the expense ratio (based on managed assets) of the Fund's common shares for the most recent fiscal year was in the first quintile (including investment-related expenses) and in the fourth quintile (excluding investment-related expenses), in each case relative to its Strategic Insight peer group for the comparable period. The Directors noted Amundi US's explanation of the reasons that the expense ratio of the Fund's common shares was in the fourth quintile (excluding investment-related expenses) relative to its Strategic Insight peer group.

The Directors reviewed management fees charged by Amundi US to institutional and other clients, including publicly offered European funds sponsored by Amundi US's affiliates, unaffiliated U.S. registered investment companies (in a sub-advisory capacity), and unaffiliated foreign and domestic separate accounts. The Directors also considered Amundi US's costs in providing services to the Fund and Amundi US's costs in providing services to the other clients and considered the differences in management fees and profit margins for fund and non-fund services. In evaluating the fees associated with Amundi US's client accounts, the Directors took into account the respective demands, resources and complexity associated with the Fund and other client accounts. The

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Directors noted that, in some instances, the fee rates for those clients were lower than the management fee for the Fund and considered that, under the investment management and administration agreements with the Fund, Amundi US performs additional services for the Fund that it does not provide to those other clients or services that are broader in scope, including oversight of the Fund's other service providers and activities related to compliance and the extensive regulatory and tax regimes to which the Fund is subject. The Directors also considered the entrepreneurial risks associated with Amundi US's management of the Fund.

The Directors concluded that the management fee payable by the Fund to Amundi US was reasonable in relation to the nature and quality of the services provided by Amundi US.

Profitability

The Directors considered information provided by Amundi US regarding the profitability of Amundi US with respect to the advisory services provided by Amundi US to the Fund, including the methodology used by Amundi US in allocating certain of its costs to the management of the Fund. The Directors also considered Amundi US's profit margin in connection with the overall operation of the Fund. They further reviewed the financial results, including the profit margins, realized by Amundi US from non-fund businesses. The Directors considered Amundi US's profit margins in comparison to the limited industry data available and noted that the profitability of any adviser was affected by numerous factors, including its organizational structure and method for allocating expenses. The Directors concluded that Amundi US's profitability with respect to the management of the Fund was not unreasonable.

Economies of Scale

The Directors considered the extent to which Amundi US may realize economies of scale or other efficiencies in managing and supporting the Fund. Since the Fund is a closed-end fund that has not raised additional capital, the Directors concluded that economies of scale were not a relevant consideration in the renewal of the investment advisory agreement.

Other Benefits

The Directors considered the other benefits that Amundi US enjoys from its relationship with the Fund. The Directors considered the character and amount of fees paid or to be paid by the Fund, other than under the investment management agreement, for services provided by Amundi US and its affiliates. The Directors further considered the revenues and profitability of Amundi US's businesses other than the Fund business. To

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the extent applicable, the Directors also considered the benefits to the Fund and to Amundi US and its affiliates from the use of "soft" commission dollars generated by the Fund to pay for research and brokerage services.

The Directors considered that Amundi US is the principal U.S. asset management business of Amundi, which is one of the largest asset managers globally. Amundi's worldwide asset management business manages over $2.1 trillion in assets (including the Pioneer Funds). The Directors noted that Amundi US has access to additional research and portfolio management capabilities as a result of its relationship with Amundi and Amundi's global presence. The Directors considered that Amundi US and the Fund receive reciprocal intangible benefits from the relationship, including mutual brand recognition and, for the Fund, direct and indirect access to the resources of a large global asset manager. The Directors concluded that any such benefits received by Amundi US as a result of its relationship with the Fund were reasonable.

Conclusion

After consideration of the factors described above as well as other factors, the Directors, including the Independent Directors, concluded that the investment management agreement for the Fund, including the fees payable thereunder, was fair and reasonable and voted to approve the proposed renewal of the investment management agreement.

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Directors, Officers and Service Providers

Directors
Thomas J. Perna, Chairman
John E. Baumgardner, Jr.
Diane Durnin
Benjamin M. Friedman
Lisa M. Jones
Lorraine H. Monchak
Craig C. MacKay
Marco Pirondini
Fred J. Ricciardi

Officers
Lisa M. Jones, President and Chief Executive Officer
Marco Pirondini Executive Vice President
Anthony J. Koenig, Jr., Treasurer and Chief Financial and Accounting Officer
Christopher J. Kelley, Secretary and Chief Legal Officer

Investment Adviser and Administrator
Amundi Asset Management US, Inc.

Custodian and Sub-Administrator
The Bank of New York Mellon Corporation

Independent Registered Public Accounting Firm
Deloitte & Touche LLP

Legal Counsel
Morgan, Lewis & Bockius LLP

Transfer Agent
Equiniti Trust Company, LLC

Proxy Voting Policies and Procedures of the Fund are available without charge, upon request, by calling our toll free number (1-800-225-6292). Information regarding how the Fund voted proxies relating to portfolio securities during the most recent 12-month period ended June 30 is publicly available to stockholders at www.amundi.com/us. This information is also available on the Securities and Exchange Commission's web site at www.sec.gov.

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How to Contact Amundi

We are pleased to offer a variety of convenient ways for you to contact us for assistance or information.

You can call Equiniti Trust Company, LLC (EQ) for:

Account Information	1-800-710-0935

Or write to EQ:

For	**Write to**
General inquiries, lost dividend checks, change of address, lost stock certificates, stock transfer	Equiniti Trust Company, LLC Operations Center 6201 15th Ave. Brooklyn, NY 11219
Dividend reinvestment plan (DRIP)	Equiniti Trust Company, LLC Wall Street Station P.O. Box 922 New York, NY 10269-0560

Website	**https://equiniti.com/us**

For additional information, please contact your investment adviser or visit our web site www.amundi.com/us.

The Fund files a complete schedule of portfolio holdings with the Securities and Exchange Commission for the first and third quarters of each fiscal year as an exhibit to its reports on Form N-PORT. Stockholders may view the filed Form N-PORT by visiting the Commission's web site at https://www.sec.gov.

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Amundi
ASSET MANAGEMENT

Amundi Asset Management US, Inc.
60 State Street
Boston, MA 02109
www.amundi.com/us

ITEM 2. CODE OF ETHICS.

(a) Disclose whether, as of the end of the period covered by the report, the registrant has adopted a code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party. If the registrant has not adopted such a code of ethics, explain why it has not done so.

The registrant has adopted, as of the end of the period covered by this report, a code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer and controller.

(b) For purposes of this Item, the term "code of ethics" means written standards that are reasonably designed to deter wrongdoing and to promote:

(1) Honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;

(2) Full, fair, accurate, timely, and understandable disclosure in reports and documents that a registrant files with, or submits to, the Commission and in other public communications made by the registrant;

(3) Compliance with applicable governmental laws, rules, and regulations;

(4) The prompt internal reporting of violations of the code to an appropriate person or persons identified in the code; and

(5) Accountability for adherence to the code.

(c) The registrant must briefly describe the nature of any amendment, during the period covered by the report, to a provision of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party, and that relates to any element of the code of ethics definition enumerated in paragraph (b) of this Item. The registrant must file a copy of any such amendment as an exhibit pursuant to Item 19(a), unless the registrant has elected to satisfy paragraph (f) of this Item by posting its code of ethics on its website pursuant to paragraph (f)(2) of this Item, or by undertaking to provide its code of ethics to any person without charge, upon request, pursuant to paragraph (f)(3) of this Item.

The registrant has made no amendments to the code of ethics during the period covered by this report.

(d) If the registrant has, during the period covered by the report, granted a waiver, including an implicit waiver, from a provision of the code of ethics to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, regardless of whether these individuals are employed by the registrant or a third party, that relates to one or more of the items set forth in paragraph (b) of this Item, the registrant must briefly describe the nature of the waiver, the name of the person to whom the waiver was granted, and the date of the waiver.

Not applicable.

(e) If the registrant intends to satisfy the disclosure requirement under paragraph (c) or (d) of this Item regarding an amendment to, or a waiver from, a provision of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and that relates to any element of the code of ethics definition enumerated in paragraph (b) of this Item by posting such information on its Internet website, disclose the registrant's Internet address and such intention.

Not applicable.

(f) The registrant must:

(1) File with the Commission, pursuant to Item 19(a)(1), a copy of its code of ethics that applies to the registrant's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, as an exhibit to its annual report on this Form N-CSR (see attachment);

(2) Post the text of such code of ethics on its Internet website and disclose, in its most recent report on this Form N-CSR, its Internet address and the fact that it has posted such code of ethics on its Internet website; or

(3) Undertake in its most recent report on this Form N-CSR to provide to any person without charge, upon request, a copy of such code of ethics and explain the manner in which such request may be made. See Item 19(2)

ITEM 3. AUDIT COMMITTEE FINANCIAL EXPERT.

(a) (1) Disclose that the registrant's Board of Directors has determined that the registrant either:

(i) Has at least one audit committee financial expert serving on its audit committee; or

(ii) Does not have an audit committee financial expert serving on its audit committee.

The registrant's Board of Directors has determined that the registrant has at least one audit committee financial expert.

(2) If the registrant provides the disclosure required by paragraph (a)(1)(i) of this Item, it must disclose the name of the audit committee financial expert and whether that person is "independent." In order to be considered "independent" for purposes of this Item, a member of an audit committee may not, other than in his or her capacity as a member of the audit committee, the Board of Directors, or any other board committee:

(i) Accept directly or indirectly any consulting, advisory, or other compensatory fee from the issuer; or

(ii) Be an "interested person" of the investment company as defined in Section 2(a)(19) of the Act (15 U.S.C. 80a-2(a)(19)).

Mr. Fred J. Ricciardi, an independent Director, is such an audit committee financial expert.

(3) If the registrant provides the disclosure required by paragraph (a)(1) (ii) of this Item, it must explain why it does not have an audit committee financial expert.

Not applicable.

ITEM 4. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

(a) Disclose, under the caption AUDIT FEES, the aggregate fees billed for each of the last two fiscal years for professional services rendered by the principal accountant for the audit of the registrant's annual financial statements or services that are normally provided by the accountant in connection with statutory and regulatory filings or engagements for those fiscal years.

N/A

(b) Disclose, under the caption AUDIT-RELATED FEES, the aggregate fees billed in each of the last two fiscal years for assurance and related services by the principal accountant that are reasonably related to the performance of the audit of the registrant's financial statements and are not reported under paragraph (a) of this Item. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(c) Disclose, under the caption TAX FEES, the aggregate fees billed in each of the last two fiscal years for professional services rendered by the principal accountant for tax compliance, tax advice, and tax planning. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(d) Disclose, under the caption ALL OTHER FEES, the aggregate fees billed in each of the last two fiscal years for products and services provided by the principal accountant, other than the services reported in paragraphs (a) through (c) of this Item. Registrants shall describe the nature of the services comprising the fees disclosed under this category.

N/A

(e) (1) Disclose the audit committee's pre-approval policies and procedures described in paragraph (c)(7) of Rule 2-01 of Regulation S-X.

PIONEER FUNDS

APPROVAL OF AUDIT, AUDIT-RELATED, TAX AND OTHER SERVICES
PROVIDED BY THE INDEPENDENT AUDITOR

SECTION I - POLICY PURPOSE AND APPLICABILITY

The Pioneer Funds recognize the importance of maintaining the independence of their outside auditors. Maintaining independence is a shared responsibility involving Amundi Asset Management US, Inc., the audit committee and the independent auditors.

The Funds recognize that a Fund's independent auditors: 1) possess knowledge of the Funds, 2) are able to incorporate certain services into the scope of the audit, thereby avoiding redundant work, cost and disruption of Fund personnel and processes, and 3) have expertise that has value to the Funds. As a result, there are situations where it is desirable to use the Fund's independent auditors for services in addition to the annual audit and where the potential for conflicts of interests are minimal. Consequently, this policy, which is intended to comply with Rule 210.2-01(C)(7), sets forth guidelines and procedures to be followed by the Funds when retaining the independent audit firm to perform audit, audit-related tax and other services under those circumstances, while also maintaining independence.

Approval of a service in accordance with this policy for a Fund shall also constitute approval for any other Fund whose pre-approval is required pursuant to Rule 210.2-01(c)(7)(ii).

In addition to the procedures set forth in this policy, any non-audit services that may be provided consistently with Rule 210.2-01 may be approved by the Audit Committee itself and any pre-approval that may be waived in accordance with Rule 210.2-01(c)(7)(i)(C) is hereby waived.

Selection of a Fund's independent auditors and their compensation shall be determined by the Audit Committee and shall not be subject to this policy.

SECTION II - POLICY

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
I. AUDIT SERVICES	Services that are directly related to performing the independent audit of the Funds	• Accounting research assistance • SEC consultation, registration statements, and reporting • Tax accrual related matters • Implementation of new accounting standards • Compliance letters (e.g. rating agency letters) • Regulatory reviews and assistance regarding financial matters • Semi-annual reviews (if requested) • Comfort letters for closed end offerings
II. AUDIT-RELATED SERVICES	Services which are not prohibited under Rule 210.2-01(C)(4) (the “Rule”) and are related extensions of the audit services support the audit, or use the knowledge/expertise gained from the audit procedures as a foundation to complete the project. In most cases, if the Audit-Related Services are not performed by the Audit firm, the scope of the Audit Services would likely increase. The Services are typically well-defined and governed by accounting professional standards (AICPA, SEC, etc.)	• AICPA attest and agreed-upon procedures • Technology control assessments • Financial reporting control assessments • Enterprise security architecture assessment

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
• “One-time” pre-approval for the audit period for all pre-approved specific service subcategories. Approval of the independent auditors as auditors for a Fund shall constitute pre approval for these services. • “One-time” pre-approval for the fund fiscal year within a specified dollar limit for all pre-approved specific service subcategories	• A summary of all such services and related fees reported at each regularly scheduled Audit Committee meeting. • A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

- Specific approval is needed to exceed the pre-approved dollar limit for these services (see general Audit Committee approval policy below for details on obtaining specific approvals)
- Specific approval is needed to use the Fund's auditors for Audit-Related Services not denoted as "pre-approved", or to add a specific service subcategory as "pre-approved"

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
III. TAX SERVICES	Services which are not prohibited by the Rule, if an officer of the Fund determines that using the Fund's auditor to provide these services creates significant synergy in the form of efficiency, minimized disruption, or the ability to maintain a desired level of confidentiality.	• Tax planning and support • Tax controversy assistance • Tax compliance, tax returns, excise tax returns and support • Tax opinions

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
• "One-time" pre-approval for the fund fiscal year within a specified dollar limit • Specific approval is needed to exceed the pre-approved dollar limits for these services (see general Audit Committee approval policy below for details on obtaining specific approvals) • Specific approval is needed to use the Fund's auditors for tax services not denoted as pre-approved, or to add a specific service subcategory as "pre-approved"	• A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PRE-APPROVED SERVICE SUBCATEGORIES
IV. OTHER SERVICES A. SYNERGISTIC, UNIQUE QUALIFICATIONS	Services which are not prohibited by the Rule, if an officer of the Fund determines that using the Fund's auditor to provide these services creates significant synergy in the form of efficiency, minimized disruption, the ability to maintain a desired level of confidentiality, or where the Fund's auditors posses unique or superior qualifications to provide these services, resulting in superior value and results for the Fund.	• Business Risk Management support • Other control and regulatory compliance projects

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
• "One-time" pre-approval for the fund fiscal year within a specified dollar limit • Specific approval is needed to exceed the pre-approved dollar limits for these services (see general Audit Committee approval policy below for details on obtaining specific approvals) • Specific approval is needed to use the Fund's auditors for "Synergistic" or "Unique Qualifications" Other Services not denoted as pre-approved to the left, or to add a specific service subcategory as "pre-approved"	• A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

SECTION III - POLICY DETAIL, CONTINUED

SERVICE CATEGORY	SERVICE CATEGORY DESCRIPTION	SPECIFIC PROHIBITED SERVICE SUBCATEGORIES
PROHIBITED SERVICES	Services which result in the auditors losing independence status under the Rule.	1. Bookkeeping or other services related to the accounting records or financial statements of the audit client* 2. Financial information systems design and implementation* 3. Appraisal or valuation services, fairness* opinions, or contribution-in-kind reports 4. Actuarial services (i.e., setting actuarial reserves versus actuarial audit work)* 5. Internal audit outsourcing services* 6. Management functions or human resources 7. Broker or dealer, investment advisor, or investment banking services 8. Legal services and expert services unrelated to the audit 9. Any other service that the Public Company Accounting Oversight Board determines, by regulation, is impermissible

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
• These services are not to be performed with the exception of the(*) services that may be permitted if they would not be subject to audit procedures at the audit client (as defined in rule 2-01(f)(4)) level the firm providing the service.	• A summary of all services and related fees reported at each regularly scheduled Audit Committee meeting will serve as continual confirmation that has not provided any restricted services.

GENERAL AUDIT COMMITTEE APPROVAL POLICY:

- For all projects, the officers of the Funds and the Fund's auditors will each make an assessment to determine that any proposed projects will not impair independence.
- Potential services will be classified into the four non-restricted service categories and the "Approval of Audit, Audit-Related, Tax and Other Services" Policy above will be applied. Any services outside the specific pre-approved service subcategories set forth above must be specifically approved by the Audit Committee.
- At least quarterly, the Audit Committee shall review a report summarizing the services by service category, including fees, provided by the Audit firm as set forth in the above policy.

(2) Disclose the percentage of services described in each of paragraphs (b) through (d) of this Item that were approved by the audit committee pursuant to paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X.

N/A

(f) If greater than 50 percent, disclose the percentage of hours expended on the principal accountants engagement to audit the registrant's financial statements for the most recent fiscal year that were attributed to work performed by persons other than the principal accountant's full-time, permanent employees.

N/A

(g) Disclose the aggregate non-audit fees billed by the registrants accountant for services rendered to the registrant, and rendered to the registrants investment adviser (not including any sub-adviser whose role is primarily portfolio management and is subcontracted with or overseen by another investment adviser), and any entity controlling, controlled by, or under common control with the adviser that provides ongoing services to the registrant for each of the last two fiscal years of the registrant.

N/A

(h) Disclose whether the registrants audit committee of the Board of Directors has considered whether the provision of non-audit services that were rendered to the registrants investment adviser (not including any subadviser whose role is primarily portfolio management and is subcontracted with or overseen by another investment adviser), and any entity controlling, controlled by, or under common control with the investment adviser that provides ongoing services to the registrant that were not pre-approved pursuant to paragraph (c)(7)(ii) of Rule 2-01 of Regulation S-X is compatible with maintaining the principal accountant's independence.

The Fund's audit committee of the Board of Directors has considered whether the provision of non-audit services that were rendered to the Affiliates (as defined) that were not pre- approved pursuant to paragraph (c)(7)(ii) of Rule 2-01 of Regulation S-X is compatible with maintaining the principal accountant's independence.

(i) A registrant identified by the Commission pursuant to Section 104(i)(2)(A) of the Sarbanes-Oxley Act of 2002 (15 U.S.C. 7214(i)(2)(A)), as having retained, for the preparation of the audit report on its financial statements included in the Form NCSR, a registered public accounting firm that has a branch or office that is located in a foreign jurisdiction and that the Public Company Accounting Oversight Board has determined it is unable to inspect or investigate completely because of a position taken by an authority in the foreign jurisdiction must electronically submit to the Commission on a supplemental basis documentation that establishes that the registrant is not owned or controlled by a governmental entity in the foreign jurisdiction. The registrant must submit this documentation on or before the due date for this form. A registrant that is owned or controlled by a foreign governmental entity is not required to submit such documentation.

N/A

(j) A registrant that is a foreign issuer, as defined in 17 CFR 240.3b-4, identified by the Commission pursuant to Section 104(i)(2)(A) of the Sarbanes-Oxley Act of 2002 (15 U.S.C. 7214(i)(2)(A)), as having retained, for the preparation of the audit report on its financial statements included in the Form N-CSR, a registered public accounting firm that has a branch or office that is located in a foreign jurisdiction and that the Public Company Accounting Oversight Board has determined it is unable to inspect or investigate completely because of a position taken by an authority in the foreign jurisdiction, for each year in which the registrant is so identified, must provide the below disclosures. Also, any such identified foreign issuer that uses a variable-interest entity or any similar structure that results in additional foreign entities being consolidated in the financial statements of the registrant is required to provide the below disclosures for itself and its consolidated foreign operating entity or entities. A registrant must disclose:

(1) That, for the immediately preceding annual financial statement period, a registered public accounting firm that the PCAOB was unable to inspect or investigate completely, because of a position taken by an authority in the foreign jurisdiction, issued an audit report for the registrant;

N/A

(2) The percentage of shares of the registrant owned by governmental entities in the foreign jurisdiction in which the registrant is incorporated or otherwise organized;

N/A

(3) Whether governmental entities in the applicable foreign jurisdiction with respect to that registered public accounting firm have a controlling financial interest with respect to the registrant;

N/A

(4) The name of each official of the Chinese Communist Party who is a member of the board of directors of the registrant or the operating entity with respect to the registrant;

N/A

(5) Whether the articles of incorporation of the registrant (or equivalent organizing document) contains any charter of the Chinese Communist Party, including the text of any such charter.

N/A

ITEM 5. AUDIT COMMITTEE OF LISTED REGISTRANTS

(a) If the registrant is a listed issuer as defined in Rule 10A-3 under the Exchange Act (17 CFR 240.10A-3), state whether or not the registrant has a separately-designated standing audit committee established in accordance with Section 3(a)(58)(A) of the Exchange Act (15 U.S.C. 78c(a)(58)(A)). If the registrant has such a committee, however designated, identify each committee member. If the entire Board of Directors is acting as the registrant's audit committee as specified in Section 3(a)(58)(B) of the Exchange Act (15 U.S.C. 78c(a)(58)(B)), so state.

N/A

(b) If applicable, provide the disclosure required by Rule 10A-3(d) under the Exchange Act (17 CFR 240.10A-3(d)) regarding an exemption from the listing standards for audit committees.

N/A

ITEM 6. SCHEDULE OF INVESTMENTS.

File Schedule of Investments in securities of unaffiliated issuers as of the close of the reporting period as set forth in 210.1212 of Regulation S-X [17 CFR 210.12-12], unless the schedule is included as part of the report to shareholders filed under Item 1 of this Form.

Included in Item 1

ITEM 7. FINANCIAL STATEMENTS AND FINANCIAL HIGHLIGHTS FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES

Included in Item 1

ITEM 8. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES.

N/A

ITEM 9. DISCLOSURE OF PROXY VOTING POLICIES AND PROCEDURES FOR OPEN-END MANAGEMENT INVESTMENT COMPANIES. (Unaudited)

N/A

Item 10. REMUNERATION PAID TO DIRECTORS, OFFICERS, AND OTHERS OF CLOSED-END MANAGEMENT INVESTMENT COMPANIES. (Unaudited)

Each Board Member also serves as a Board Member of other Funds in the Pioneer Family of Funds complex. Annual retainer fees and attendance fees are allocated to each Fund based on net assets. Directors' fees paid by the Fund are within Item 1. Statement of Operations as Directors' fees and expenses.

Item 11. STATEMENT REGARDING BASIS FOR APPROVAL OF INVESMENT ADVISORY CONTRACT. (Unaudited)

Pioneer Municipal High Income Advantage Fund, Inc.
Approval of Renewal of Investment Management Agreement

Amundi Asset Management US, Inc. ("Amundi US") serves as the investment adviser to Pioneer Municipal High Income Advantage Fund, Inc. (the "Fund") pursuant to an investment management agreement between Amundi US and the Fund. In order for Amundi US to remain the investment adviser of the Fund, the Directors of the Fund, including a majority of the Fund's Independent Directors, must determine annually whether to renew the investment management agreement for the Fund.

The contract review process began in January 2024 as the Directors of the Fund agreed on, among other things, an overall approach and timeline for the process. Contract review materials were provided to the Directors in March 2024, July 2024 and September 2024. In addition, the Directors reviewed and discussed the Fund's performance at regularly scheduled meetings throughout the year, and took into account other information related to the Fund provided to the Directors at regularly scheduled meetings, in connection with the review of the Fund's investment management agreement.

In March 2024, the Directors, among other things, discussed the memorandum provided by Fund counsel that summarized the legal standards and other considerations that are relevant to the Directors in their deliberations regarding the renewal of the investment management agreement, and reviewed and discussed the qualifications of the investment management teams for the Fund, as well as the level of investment by the Fund's portfolio managers in the Fund. In July 2024, the Directors, among other things, reviewed the Fund's management fees and total expense ratios, the financial statements of Amundi US and its parent companies, profitability analyses provided by Amundi US, and analyses from Amundi US as to possible economies of scale. The Directors also reviewed the profitability of the institutional business of Amundi US as compared to that of Amundi US's fund management business, and considered the differences between the fees and expenses of the Fund and the fees and expenses of Amundi US's institutional accounts, as well as the different services provided by Amundi US to the Fund and to the institutional accounts. The Directors further considered contract review materials, including additional materials received in response to the Directors' request, in September 2024.

At a meeting held on September 17, 2024, based on their evaluation of the information provided by Amundi US and third parties, the Directors of the Fund, including the Independent Directors voting separately advised by independent counsel, unanimously approved the renewal of the investment management agreement for another year. In approving the renewal of the investment management agreement, the Directors considered various factors that they determined were relevant, including the factors described below. The Directors did not identify any single factor as the controlling factor in determining to approve the renewal of the agreement.

Nature, Extent and Quality of Services. The Directors considered the nature, extent and quality of the services that had been provided by Amundi US to the Fund, taking into account the investment objective and strategy of the Fund. The Directors also reviewed Amundi US's investment approach for the Fund and its research process. The Directors considered the resources of Amundi US and the personnel of Amundi US who provide investment management services to the Fund. They also reviewed the amount of non-Fund assets managed by the portfolio managers of the Fund. They considered the non-investment resources and personnel of Amundi US that are involved in Amundi US's services to the Fund, including Amundi US's compliance, risk management, and legal resources and personnel. The Directors considered the compliance services being provided to the Fund by Amundi US and how Amundi US has addressed any compliance issues during the past year. The Directors noted the substantial attention and high priority given by Amundi US's senior management to the Pioneer Fund complex, including with respect to the increasing regulation to which the Pioneer Funds are subject.

The Directors considered that Amundi US supervises and monitors the performance of the Fund's service providers and provides the Fund with personnel (including Fund officers) and other resources that are necessary for the Fund's business management and operations. The Directors also considered that, as administrator, Amundi US is responsible for the administration of the Fund's business and other affairs. The Directors considered that the Fund reimburses Amundi US its pro rata share of Amundi US's costs of providing administration services to the Pioneer Funds.

Based on these considerations, the Directors concluded that the nature, extent and quality of services that had been provided by Amundi US to the Fund were satisfactory and consistent with the terms of the investment management agreement.

Performance of the Fund. In considering the Fund's performance, the Directors regularly review and discuss throughout the year data prepared by Amundi US and information comparing the Fund's performance with the performance of its peer group of funds, as classified by Morningstar, Inc. (Morningstar), and with the performance of the Fund's benchmark index. The Directors also regularly consider the Fund's returns at market value relative to its peers, as well as the discount at which the Fund's shares may trade on the New York Stock Exchange compared to its net asset value per share. They also discuss the Fund's performance with Amundi US on a regular basis. The Directors' regular reviews and discussions were factored into the Directors' deliberations concerning the renewal of the investment management agreement.

Management Fee and Expenses. The Directors considered information showing the fees and expenses of the Fund in comparison to the management fees and expense ratios of a peer group of funds selected on the basis of criteria determined by the Independent Directors for this purpose using data provided by Strategic Insight Mutual Fund Research and Consulting, LLC (Strategic Insight), an independent third party. The peer group comparisons referred to below are organized in quintiles. Each quintile represents one-fifth of the peer group. In all peer group comparisons referred to below, first quintile is most favorable to the Fund's shareowners.

The Directors considered that the Fund's management fee (based on managed assets) for the most recent fiscal year was in the second quintile relative to the management fees paid by other funds in its Strategic Insight peer group for the comparable period. The Directors considered that the expense ratio (based on managed assets) of the Fund's common shares for the most recent fiscal year was in the first quintile (including investment-related expenses) and in the fourth quintile (excluding investment-related expenses), in each case relative to its Strategic Insight peer group for the comparable period. The Directors noted Amundi US's explanation of the reasons that the expense ratio of the Fund's common shares was in the fourth quintile (excluding investment-related expenses) relative to its Strategic Insight peer group.

The Directors reviewed management fees charged by Amundi US to institutional and other clients, including publicly offered European funds sponsored by Amundi US's affiliates, unaffiliated U.S. registered investment companies (in a sub-advisory capacity), and unaffiliated foreign and domestic separate accounts. The Directors also considered Amundi US's costs in providing services to the Fund and Amundi US's costs in providing services to the other clients and considered the differences in management fees and profit margins for fund and non-fund services. In evaluating the fees associated with Amundi US's client accounts, the Directors took into account the respective demands, resources and complexity associated with the Fund and other client accounts. The Directors noted that, in some instances, the fee rates for those clients were lower than the management fee for the Fund and considered that, under the investment management and administration agreements with the Fund, Amundi US performs additional services for the Fund that it does not provide to those other clients or services that are broader in scope, including oversight of the Fund's other service providers and activities related to compliance and the extensive regulatory and tax regimes to which the Fund is subject. The Directors also considered the entrepreneurial risks associated with Amundi US's management of the Fund.

The Directors concluded that the management fee payable by the Fund to Amundi US was reasonable in relation to the nature and quality of the services provided by Amundi US.

Profitability. The Directors considered information provided by Amundi US regarding the profitability of Amundi US with respect to the advisory services provided by Amundi US to the Fund, including the methodology used by Amundi US in allocating certain of its costs to the management of the Fund. The Directors also considered Amundi US's profit margin in connection with the overall operation of the Fund. They further reviewed the financial results, including the profit margins, realized by Amundi US from non-fund businesses. The Directors considered Amundi US's profit margins in comparison to the limited industry data available and noted that the profitability of any adviser was affected by numerous factors, including its organizational structure and method for allocating expenses. The Directors concluded that Amundi US's profitability with respect to the management of the Fund was not unreasonable.

Economies of Scale. The Directors considered the extent to which Amundi US may realize economies of scale or other efficiencies in managing and supporting the Fund. Since the Fund is a closed-end fund that has not raised additional capital, the Directors concluded that economies of scale were not a relevant consideration in the renewal of the investment advisory agreement.

Other Benefits. The Directors considered the other benefits that Amundi US enjoys from its relationship with the Fund. The Directors considered the character and amount of fees paid or to be paid by the Fund, other than under the investment management agreement, for services provided by Amundi US and its affiliates. The Directors further considered the revenues and profitability of Amundi US's businesses other than the Fund business. To the extent applicable, the Directors also considered the benefits to the Fund and to Amundi US and its affiliates from the use of "soft" commission dollars generated by the Fund to pay for research and brokerage services.

The Directors considered that Amundi US is the principal U.S. asset management business of Amundi, which is one of the largest asset managers globally. Amundi's worldwide asset management business manages over $2.1 trillion in assets (including the Pioneer Funds). The Directors noted that Amundi US has access to additional research and portfolio management capabilities as a result of its relationship with Amundi and Amundi's global presence. The Directors considered that Amundi US and the Fund receive reciprocal intangible benefits from the relationship, including mutual brand recognition and, for the Fund, direct and indirect access to the resources of a large global asset manager. The Directors concluded that any such benefits received by Amundi US as a result of its relationship with the Fund were reasonable.

Conclusion. After consideration of the factors described above as well as other factors, the Directors, including the Independent Directors, concluded that the investment management agreement for the Fund, including the fees payable thereunder, was fair and reasonable and voted to approve the proposed renewal of the investment management agreement.

ITEM 12. DISCLOSURE OF PROXY VOTING POLICIES AND PROCEDURES FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES. (Unaudited)

A closed-end management investment company that is filing an annual report on this Form N-CSR must, unless it invests exclusively in non-voting securities, describe the policies and procedures that it uses to determine how to vote proxies relating to portfolio securities, including the procedures that the company uses when a vote presents a conflict between the interests of its shareholders, on the one hand, and those of the company's investment adviser; principal underwriter; or any affiliated person (as defined in Section 2(a)(3) of the Investment Company Act of 1940 (15 U.S.C. 80a-2(a)(3)) and the rules thereunder) of the company, its investment adviser, or its principal underwriter, on the other. Include any policies and procedures of the company's investment adviser, or any other third party, that the company uses, or that are used on the company's behalf, to determine how to vote proxies relating to portfolio securities.

N/A

ITEM 13. PORTFOLIO MANAGERS OF CLOSED-END MANAGEMENT INVESTMENT COMPANIES.

(a) If the registrant is a closed-end management investment company that is filing an annual report on this Form N-CSR, provide the following information:

(1) State the name, title, and length of service of the person or persons employed by or associated with the registrant or an investment adviser of the registrant who are primarily responsible for the day-to-day management of the registrant's portfolio ("Portfolio Manager"). Also state each Portfolio Manager's business experience during the past 5 years.

N/A

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ITEM 14. PURCHASES OF EQUITY SECURITIES BY CLOSED-END MANAGEMENT INVESTMENT COMPANY AND AFFILIATED PURCHASERS.

(a) If the registrant is a closed-end management investment company, in the following tabular format, provide the information specified in paragraph (b) of this Item with respect to any purchase made by or on behalf of the registrant or any affiliated purchaser, as defined in Rule 10b-18(a)(3) under the Exchange Act (17 CFR 240.10b-18(a)(3)), of shares or other units of any class of the registrant's equity securities that is registered by the registrant pursuant to Section 12 of the Exchange Act (15 U.S.C. 781).

N/A

ITEM 15. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.

Describe any material changes to the procedures by which shareholders may recommend nominees to the registrant's Board of Directors, where those changes were implemented after the registrant last provided disclosure in response to the requirements of Item 407(c)(2)(iv) of Regulation S-R(17 CFR 229.407)(as required by Item 22(b)(15)) of Schedule 14A (17 CFR 240.14a-101), or this Item.

There have been no material changes to the procedures by which the shareholders may recommend nominees to the registrant's Board of Directors since the registrant last provided disclosure in response to the requirements of Item 407(c)(2)(iv) of Regulation S-R of Schedule 14(A) in its definitive proxy statement, or this item.

ITEM 16. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive and principal financials 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 270.30(a)-3(b) and Rules 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 the 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 control over financial reporting (as defined in Rule 30a-3(d) under the Act (17CFR 270.30a-3(d)) that occurred during the period covered by this report 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 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 17. DISCLOSURE OF SECURITIES LENDING ACTIVITIES FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES.

(a) If the registrant is a closed-end management investment company, provide the following dollar amounts of income and compensation related to the securities lending activities of the registrant during its most recent fiscal year:

N/A

(1) Gross income from securities lending activities;

N/A

(2) All fees and/or compensation for each of the following securities lending activities and related services: any share of revenue generated by the securities lending program paid to the securities lending agent(s) (revenue split); fees paid for cash collateral management services (including fees deducted from a pooled cash collateral reinvestment vehicle) that are not included in the revenue split; administrative fees that are not included in the revenue split; fees for indemnification that are not included in the revenue split; rebates paid to borrowers; and any other fees relating to the securities lending program that are not included in the revenue split, including a description of those other fees;

N/A

(3) The aggregate fees/compensation disclosed pursuant to paragraph (2); and

N/A

(4) Net income from securities lending activities (i.e., the dollar amount in paragraph (1) minus the dollar amount in paragraph (3)).

If a fee for a service is included in the revenue split, state that the fee is included in the revenue split.

N/A

(b) If the registrant is a closed-end management investment company, describe the services provided to the registrant by the securities lending agent in the registrants most recent fiscal year.

N/A

Item 18. RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION.

N/A

ITEM 19. EXHIBITS.

(a) File the exhibits listed below as part of this Form. Letter or number the exhibits in the sequence indicated.

(1) Any code of ethics, or amendment thereto, that is the subject of the disclosure required by Item 2, to the extent that the registrant intends to satisfy the Item 2 requirements through filing of an exhibit.

(2) 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:

Filed herewith.

(b) Certifications pursuant to Rule 30a-2(b) under the 1940 Act and Section 906 of the Sarbanes-Oxley Act of 2002 are attached hereto.

(3) Not applicable.

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 Fund, Inc.

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

Date December 6, 2024

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, Principal Executive Officer

Date December 6, 2024

By (Signature and Title)* /s/ Anthony J. Koenig, Jr.
Anthony J. Koenig, Jr., Principal Financial Officer

Date December 6, 2024

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

CODE OF ETHICS

FOR

SENIOR OFFICERS

POLICY

This Code of Ethics for Senior Officers (this "Code") sets forth the policies, practices and values expected to be exhibited by Senior Officers of the Pioneer Funds (collectively, the "Funds" and each, a "Fund"). This Code does not apply generally to officers and employees of service providers to the Funds, including Amundi Asset Management US, Inc., and Amundi Distributor US, Inc. (collectively, "Amundi US"), unless such officers and employees are also Senior Officers.

The term "Senior Officers" shall mean the principal executive officer, principal financial officer, principal accounting officer and controller of the Funds, although one person may occupy more than one such office. Each Senior Officer is identified by title in Exhibit A to this Code.

The Chief Compliance Officer ("CCO") of the Pioneer Funds is primarily responsible for implementing and monitoring compliance with this Code, subject to the overall supervision of the Board of Directors of the Funds (the "Board"). The CCO has the authority to interpret this Code and its applicability to particular situations. Any questions about this Code should be directed to the CCO or his or her designee.

PURPOSE

The purposes of this Code are to:

- Promote honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;
- Promote full, fair, accurate, timely and understandable disclosure in reports and documents that the Fund files with, or submits to, the Securities and Exchange Commission ("SEC") and in other public communications made by the Fund;

- Promote compliance with applicable laws and governmental rules and regulations;
- Promote the prompt internal reporting of violations of the Code to an appropriate person or persons identified in the Code; and
- Establish accountability for adherence to the Code.

Each Senior Officer should adhere to a high standard of business ethics and should be sensitive to situations that may give rise to actual as well as apparent conflicts of interest.

Responsibilities of Senior Officers

Conflicts of Interest

A "conflict of interest" occurs when a Senior Officer's private interests interfere in any way – or even appear to interfere – with the interests of or his/her service to a Fund. A conflict can arise when a Senior Officer takes actions or has interests that may make it difficult to perform his or her Fund work objectively and effectively. Conflicts of interest also arise when a Senior Officer or a member of his/her family receives improper personal benefits as a result of the Senior Officer's position with the Fund.

Certain conflicts of interest arise out of the relationships between Senior Officers and the Fund and already are subject to conflict of interest provisions in the Investment Company Act of 1940, as amended (the "ICA"), and the Investment Advisers Act of 1940, as amended (the "IAA"). For example, Senior Officers may not individually engage in certain transactions (such as the purchase or sale of securities or other property) with the Funds because of their status as "affiliated persons" of the Funds. The Fund's and Amundi US' compliance programs and procedures are designed to prevent, or identify and correct, violations of these provisions. This Code does not, and is not intended to, repeat or replace such policies and procedures, and such conflicts fall outside of the parameters of this Code.

Although typically not presenting an opportunity for improper personal benefit, conflicts arise as a result of the contractual relationship between the Fund and Amundi US because the Senior Officers are officers or employees of both. As a result, this Code recognizes that Senior Officers will, in the normal course of their duties (whether formally for a Fund or for Amundi US, or for both), be involved in establishing policies and implementing decisions that will have different effects on Amundi US and the Fund. The participation of Senior Officers in such activities is inherent in the contractual relationship between a Fund and Amundi US and is consistent with the performance by the Senior Officers of their duties as officers of the Fund and, if addressed in conformity with the provisions of the ICA and the IAA, will be deemed to have been handled ethically. In addition, it is recognized by the Board that Senior Officers may also be officers of investment companies other than the Pioneer Funds.

Other conflicts of interest are covered by this Code, even if such conflicts of interest are not subject to provisions of the ICA or the IAA. In reading the following examples of conflicts of interest under this Code, Senior Officers should keep in mind that such a list cannot ever be exhaustive or cover every possible scenario. It follows that the overarching principle is that the personal interest of a Senior Officer should not be placed improperly before the interest of a Fund.

Each Senior Officer must:

- Not use his or her personal influence or personal relationships improperly to influence investment decisions or financial reporting by a Fund whereby the Senior Officer would benefit personally to the detriment of the Fund;
- Not cause a Fund to take action, or fail to take action, for the individual personal benefit of the Senior Officer rather than the benefit of the Fund; and
- Report at least annually any affiliations or other relationships that give rise to conflicts of interest.

Any material conflict of interest situation should be approved by the CCO, his or her designee or the Board. Examples of these include:

- Service as a director on the board of any public or private company;
- The receipt of any gift with a value in excess of an amount established from time to time by Amundi US' Business Gift and Entertainment Policy from any single non-relative person or entity. Customary business lunches, dinners and entertainment at which both the Senior Officer and the giver are present, and promotional items of insignificant value are exempt from this prohibition;
- The receipt of any entertainment from any company with which a Fund has current or prospective business dealings unless such entertainment is business-related, reasonable in cost, appropriate as to time and place, and not so frequent as to raise any question of impropriety;
- Any ownership interest in, or any consulting or employment relationship with, any of a Fund's service providers other than its investment adviser, principal underwriter, administrator or any affiliated person thereof; and
- A direct or indirect financial interest in commissions, transaction charges or spreads paid by a Fund for effecting portfolio transactions or for selling or redeeming shares other than an interest arising from the Senior Officer's employment, such as compensation or equity ownership.

Corporate Opportunities

Senior Officers may not (a) take for themselves personally opportunities that are discovered through the use of a Fund's property, information or position; (b) use a Fund's property, information, or position for personal gain; or (c) compete with a Fund. Senior Officers owe a duty to the Funds to advance their legitimate interests when the opportunity to do so arises.

Confidentiality

Senior Officers should maintain the confidentiality of information entrusted to them by the Funds, except when disclosure is authorized or legally mandated. Confidential information includes all non-public information that might be of use to competitors, or harmful to the Funds, if disclosed.

Fair dealing with Fund shareholders, suppliers, and competitors

Senior Officers should endeavor to deal fairly with the Funds' shareholders, suppliers, and competitors. Senior Officers should not take unfair advantage of anyone through manipulation, concealment, abuse of privileged information, misrepresentation of material facts, or any other unfair-dealing practice. Senior Officers should not knowingly misrepresent or cause others to misrepresent facts about a Fund to others, whether within or outside the Fund, including to the Board, the Funds' auditors or to governmental regulators and self-regulatory organizations.

Compliance with Law

Each Senior Officer must not knowingly violate any law, rule and regulation applicable to his or her activities as an officer of the Funds. In addition, Senior Officers are responsible for understanding and promoting compliance with the laws, rules and regulations applicable to his or her particular position and by persons under the Senior Officer's supervision. Senior Officers should endeavor to comply not only with the letter of the law, but also with the spirit of the law.

Disclosure

Each Senior Officer should familiarize himself or herself with the disclosure requirements generally applicable to the Funds. Each Senior Officer should, to the extent appropriate within his or her area of responsibility, consult with other officers of the Funds and Amundi US with the goal of promoting full, fair, accurate, timely and understandable disclosure in the reports and documents a Fund files with, or submits to, the SEC and in other public communications made by the Funds.

Initial and Annual Certifications

Upon becoming a Senior Officer the Senior Officer is required to certify that he or she has received, read, and understands this Code. On an annual basis, each Senior Officer must certify that he or she has complied with all of the applicable requirements of this Code.

Administration and Enforcement of the Code

Report of Violations

Amundi US relies on each Senior Officer to report promptly if he or she knows of any conduct by a Senior Officer in violation of this Code. All violations or suspected violations of this Code must be reported to the CCO or a member of Amundi US' Legal and Compliance Department. Failure to do so is itself a violation of this Code.

Investigation of Violations

Upon notification of a violation or suspected violation, the CCO or other members of Amundi US' Compliance Department will take all appropriate action to investigate the potential violation reported. If, after such investigation, the CCO believes that no violation has occurred, the CCO and Compliance Department is not required to take no further action. Any matter the CCO believes is a violation will be reported to the Independent Directors. If the Independent Directors concur that a violation has occurred, they will inform and make a recommendation to the full Board. The Board shall be responsible for determining appropriate action. The Funds, their officers and employees, will not retaliate against any Senior Officer for reports of potential violations that are made in good faith and without malicious intent.

The CCO or his or her designee is responsible for applying this Code to specific situations in which questions are presented under it and has the authority to interpret this Code in any particular situation. The CCO or his or her designee shall make inquiries regarding any potential conflict of interest.

Violations and Sanctions

Compliance with this Code is expected and violations of its provisions will be taken seriously and could result in disciplinary action. In response to violations of the Code, the Board may impose such sanctions as it deems appropriate within the scope of its authority over Senior Officers, including termination as an officer of the Funds.

Waivers from the Code

The Independent Directors will consider any approval or waiver sought by any Senior Officer.

The Independent Directors will be responsible for granting waivers, as appropriate. Any change to or waiver of this Code will, to the extent required, be disclosed as provided by SEC rules.

OTHER POLICIES AND PROCEDURES

This Code shall be the sole Code of Ethics adopted by the Funds for purposes of Section 406 of the Sarbanes-Oxley Act and the rules and forms applicable to registered investment companies thereunder. The Funds' and Amundi US' Codes of Ethics under Rule 17j-1 under the ICA and Rule 204A-1 of the IAA are separate requirements applying to the Senior Officers and others, and are not a part of this Code. To the extent any other policies and procedures of the Funds or Amundi US overlap or conflict with the provisions of the Code, they are superseded by this Code.

SCOPE OF RESPONSIBILITIES

A Senior Officer's responsibilities under this Code are limited to Fund matters over which the Senior Officer has direct responsibility or control, matters in which the Senior Officer routinely participates, and matters with which the Senior Officer is otherwise involved. In addition, a Senior Officer is responsible for matters of which the Senior Officer has actual knowledge.

AMENDMENTS

This Code other than Exhibit A may not be amended except in a writing that is specifically approved or ratified by a majority vote of the Board, including a majority of the Independent Directors.

CONFIDENTIALITY

All reports and records prepared or maintained pursuant to this Code will be considered confidential and shall be maintained and protected accordingly. Except as otherwise required by law or this Code, such matters shall not be disclosed to anyone other than the Board and their counsel, or to Amundi US' Legal and Compliance Department.

INTERNAL USE

This Code is intended solely for the internal use by the Funds and does not constitute an admission, by or on behalf of any Fund, as to any fact, circumstance, or legal conclusion.

EXHIBIT A – SENIOR OFFICERS OF THE PIONEER FUNDS (EFFECTIVE AS OF AUGUST 14, 2008)

President (Principal Executive Officer)

Treasurer (Principal Financial Officer)

CERTIFICATION PURSUANT TO RULE 30a-2(a)

UNDER THE 1940 ACT AND SECTION 302

OF THE SARBANES-OXLEY ACT OF 2002

I, Lisa M. Jones, certify that:

1. I have reviewed this report on Form N-CSR of Pioneer Municipal High Income Advantage Fund, Inc.;

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 financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, changes in net assets, and cash flows (if the financial statements are required to include a statement of cash flows) of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer 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 registrants internal control over financial reporting that occurred during the period covered by this report that has materially affected, or is reasonably likely to materially affect, the registrants internal control over financial reporting; and

5. The registrants other certifying officer 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 in the design or operation of internal controls 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: December 6, 2024

/s/ Lisa M. Jones

Lisa M. Jones

Principal Executive Officer

CERTIFICATION PURSUANT TO RULE 30a-2(a)

UNDER THE 1940 ACT AND SECTION 302

OF THE SARBANES-OXLEY ACT OF 2002

I, Anthony J. Koenig, Jr., certify that:

1. I have reviewed this report on Form N-CSR of Pioneer Municipal High Income Advantage Fund, Inc.;

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 financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, changes in net assets, and cash flows (if the financial statements are required to include a statement of cash flows) of the registrant as of, and for, the periods presented in this report;

4. The registrants other certifying officer 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 registrants internal control over financial reporting that occurred during the period covered by this report that has materially affected, or is reasonably likely to materially affect, the registrants internal control over financial reporting; and

5. The registrants other certifying officer 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 in the design or operation of internal controls 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: December 6, 2024

/s/ Anthony J. Koenig, Jr

Anthony J. Koenig, Jr.

Principal Financial Officer

CERTIFICATION PURSUANT TO

18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY

ACT OF 2002

I, Lisa M. Jones, certify that, to the best of my knowledge:

1. The Form N-CSR (the Report) of Pioneer Municipal High Income Advantage Fund, Inc. fully complies for the period covered by the Report with the requirements of Section 13(a) or 15 (d), as applicable, of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of the operations of the Fund.

Date: December 6, 2024

/s/ Lisa M. Jones

Lisa M. Jones

Principal Executive Officer

This certification is being furnished pursuant to Rule 30a-2(b) under the Investment Company Act of 1940, as amended, and 18 U.S.C. section 1350 and is not being filed as part of the Report with the Securities and Exchange Commission.

A signed original of this written statement required by section 906 has been provided to the Fund and will be retained by the Fund and furnished to the Securities Exchange Commission or its staff upon request.

CERTIFICATION PURSUANT TO

18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY

ACT OF 2002

I, Anthony J. Koenig, Jr., certify that, to the best of my knowledge:

1. The Form N-CSR (the Report) of Pioneer Municipal High Income Advantage Fund, Inc. fully complies for the period covered by the Report with the requirements of Section 13(a) or 15 (d), as applicable, of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of the operations of the Fund.

Date: December 6, 2024

/s/ Anthony J. Koenig, Jr.

Anthony J. Koenig, Jr.

Principal Financial Officer

This certification is being furnished pursuant to Rule 30a-2(b) under the Investment Company Act of 1940, as amended, and 18 U.S.C. section 1350 and is not being filed as part of the Report with the Securities and Exchange Commission.

A signed original of this written statement required by section 906 has been provided to the Fund and will be retained by the Fund and furnished to the Securities Exchange Commission or its staff upon request.