

PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST

Form N-CSR

May 30, 2007

OMB APPROVAL

OMB Number: 3235-0570  
Expires: September 30, 2007  
Estimated average burden  
hours per response.....19.4

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 Trust  
(Exact name of registrant as specified in charter)

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

Dorothy E. Bourassa, Pioneer Investment Management, Inc.,  
60 State Street, Boston, MA 02109  
(Name and address of agent for service)

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

Date of fiscal year end: March 31

Date of reporting period: April 1, 2006 through March 31, 2007

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. REPORTS TO SHAREOWNERS.

-----  
PIONEER

-----  
MUNICIPAL  
HIGH INCOME  
ADVANTAGE  
TRUST

Annual  
Report

3/31/07

[LOGO] PIONEER  
Investments (R)

Table of Contents  
-----

Letter to Shareowners	2
Portfolio Management Discussion	4
Portfolio Summary	8
Prices and Distributions	9
Performance Update	10
Schedule of Investments	11
Financial Statements	22
Financial Highlights	25
Notes to Financial Statements	27
Report of Independent Registered Public Accounting Firm	37
Results of Shareowner Meeting	38
Factors Considered by the Independent Trustees in Approving the Management Contract	39
Trustees, Officers and Service Providers	44

President's

Dear Shareowner,  
-----

Staying diversified and keeping your portfolio invested in the markets are two general investment principles that have served investors well over time. These were particularly useful guides during the past year, as U.S. and global stock and bond markets grew strongly during this period.

The markets were supported by relatively low short-term interest rates and generally strong economies around the globe. The U.S. stock market, as measured by the Standard & Poor's 500 Index, gained approximately 10% over the 12 months ending March 31, 2007. European and emerging markets equities performed even better, with indexes in those regions rising more than 20% over the same period. The U.S. bond market, despite growing concerns about the health of the U.S.

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

mortgage industry, gained roughly 7% over the past 12 months, as measured by the Lehman Aggregate Bond Index. The high yield market, as measured by the Merrill Lynch High Yield Bond Master II Index, returned nearly 12%.

We believe that the climate for investors generally will continue to be positive. While still strong, the U.S. economy has slowed. This was due in part to the lagging effects of rising energy and commodity prices, rising short-term interest rates from historically low levels, and the effect of U.S. factories approaching full utilization.

We have enjoyed a cyclical recovery with strong economic growth, and the U.S. economy now appears to be slowing to a rate that may be more sustainable. The Federal Reserve Board has indicated a reduced likelihood of future rate hikes, and continues to highlight its commitment to keeping inflationary pressures contained. This is in keeping with "best practices" among the world's central banks: low and stable inflation is believed to be the best backdrop for stable economic growth and low average unemployment.

In Europe, healthy labor markets are supporting growing consumption and rising GDP growth. Inflationary pressures appear to be largely under control, helped by productivity gains and a positive operating environment for European companies that are finding strong export markets for their goods and services around the globe. Japanese economic growth continues to make progress, and the country has

2

Letter

become a more attractive market compared to recent years. China continues its rise as a world economic power, and its stock market has experienced the wide market swings that often accompany rapid growth.

While the outlook generally appears favorable for investors, sudden swings in the markets should be expected. Just as staying diversified and staying invested are important investment principles, it is also important to pay attention to asset allocation. As always, we encourage shareowners to work closely with their financial advisor to find the appropriate mix of investments in stocks, bonds and money market assets so that it is aligned to your particular risk tolerance and investment objective.

Respectfully,

/s/ Daniel K. Kingsbury

Daniel K. Kingsbury, President and CEO  
Pioneer Investment Management USA Inc.

Any information in this shareowner report regarding market or economic trends or the factors influencing the Trust's historical or future performance are statements of the opinion of Trust management as of the date of this report. These statements should not be relied upon for any other purposes. Past performance is no guarantee of future results, and there is no guarantee that market forecasts discussed will be realized.

3

Pioneer Municipal High Income Advantage Trust

-----  
PORTFOLIO MANAGEMENT DISCUSSION 3/31/07  
-----

Throughout the Trust's fiscal year, investors in Pioneer Municipal High Income Advantage Trust benefited from a well-diversified portfolio of securities that provided a relatively high level of tax-free income. In the following interview, David Eurkus, who is responsible for daily management of the Trust, discusses some of the factors that had an impact on the municipal bond market and the Trust.

Q: How did the Trust perform over the past 12 months?

A: For the 12-month period ended March 31, 2007, Pioneer Municipal High Income Advantage Trust produced a total return of 11.96% at net asset value and 10.21% at market price. As of March 31, 2007, the Trust was selling at a discount of market price to net asset value of 1.9%. The Lehman Brothers Municipal Bond Index returned 5.43%, while the Lehman Brothers Non-Investment Grade Municipal Bond Index returned 9.84% for the same period. At the end of the 12 months, the Trust held 144 issues in 35 states, territories and the District of Columbia. On March 31, 2007, the Trust's 30-day SEC yield was 7.52%. When reviewing the Trust's relative performance, it is important to note that the Lehman Brothers Municipal Bond Index tracks the performance only of investment-grade bonds and does not include below investment-grade bonds, which are a significant part of the portfolio. At the end of the 12 months, about 45% of the Trust's total investments were in investment-grade bonds with the remaining in below investment-grade bonds.

Call 1-800-225-6292 or visit [www.pioneerinvestments.com](http://www.pioneerinvestments.com) for the most recent month-end performance results. Current performance may be lower or higher than the performance data quoted. The performance data quoted represents past performance, which is no guarantee of future results. Investment return and principal value will fluctuate, and shares, when redeemed, may be worth more or less than their original costs.

Q: What was the investment environment like during the year?

A: The investment backdrop changed substantially during the fiscal year. At the beginning of the period, interest rates were on an upward trajectory in the face of relatively strong economic growth. As a result, the Federal Reserve continued to boost the Federal funds rate, the rate banks charge for overnight loans. In the second half of the period, economic growth moderated; and

4

Pioneer Municipal High Income Advantage Trust  
-----  
-----

for several months the central bank left the Federal funds rate unchanged at 5.25%, and market rates declined. Throughout the 12 months, investors gravitated toward the riskiest investments, boosting the prices of lower-quality, higher-yielding bonds. For the entire fiscal period, these lower-quality assets led the fixed-income market.

Q: What strategies did you use in managing the Trust?

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

A: In keeping with our buy-and-hold strategy, we made relatively few changes to the Trust, maintaining a mix of 31.3% of total investments in investment-grade bonds, 68.1% of total investments in below investment-grade bonds, and 0.6% of total investments in cash equivalents. At the end of the fiscal period, the Trust's average quality was BBB-. We kept the Trust invested in sectors that comprise the economic fabric of the United States, including transportation, education, healthcare, and public power, among others. In addition, we had a position in tobacco bonds, which are backed by tobacco companies' payments to states. We also created a position in bonds issued by correctional institutions that have been privatized by the federal government and are now being built and managed by private corporations.

On March 31, 2007, 29% of the Trust was leveraged, which means that in the past we borrowed funds at relatively low rates and invested those funds in high-yielding bonds. This leveraging strategy has aided return for several years. Should rates decline, the cost of borrowing would also go down, providing the Trust with a modest amount of additional income. A rise in short-term interest rates in the future would add to the Trust's borrowing costs, and the ability to sustain present dividend levels could be affected.

Q: What contributed to performance?

A: Nearly all of the portfolio's positions contributed to results, but the biggest gains came from transportation and education bonds. In addition, the Trust's higher-yielding, below investment-grade bonds outperformed the investment-grade bonds in the portfolio.

5

Pioneer Municipal High Income Advantage Trust

-----  
PORTFOLIO MANAGEMENT DISCUSSION 3/31/07

(continued)  
-----

Q: What detracted from performance?

A: Our holdings in the housing sector, which accounted for 2.1% of total investments, underperformed because of weakness in the real estate industry in general and concerns about the rise in sub-prime mortgage defaults in particular. Because of the relatively strong economy, many issuers have a surplus of cash which they are using to pay down their bond debt earlier than expected. As some of our bonds have been called, or redeemed, before their maturity dates, we have invested the proceeds in new securities that have lower yields than the redeemed bonds. Having bonds called sooner than expected is a normal part of the fixed-income process, and we continue to find attractive investment opportunities.

Q: What is your outlook over the next six months?

A: The environment continues to be attractive for municipal bonds, as economic growth moderates and interest rates and inflation remain at relatively low levels. While new bond issuance has declined, demand for high-yield securities remains robust as new types of investors, such as hedge funds and property and casualty insurers, seek the tax-advantaged yields that municipal bonds can provide. This supply/demand dynamic is positive for the Trust because it has the potential of increasing the value of the bonds in

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

the portfolio. As we look ahead, we plan to maintain our investment approach of keeping the Trust fully invested in sectors that are vital to the U.S. economy.

Investments in high-yield or lower-rated securities are subject to greater-than-average risk. The Trust 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 in the Trust will generally fall. Conversely, when interest rates fall, the prices of fixed-income securities in the Trust will generally rise. 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 Trust are subject to possible loss due to the

6

Pioneer Municipal High Income Advantage Trust

-----  
-----

financial failure of underlying securities and their inability to meet their debt obligations.

The Trust may use leverage through the issuance of preferred shares with an aggregate liquidation preference of up to 331/3% of the Trust's total assets after such issuance. Leverage creates significant risks, including the risk that the Trust's income or capital appreciation will not be sufficient to cover the cost of leverage, which may adversely affect the return for the holders of common shares.

Risks of investing in the Trust are discussed in greater detail in the Trust's registration statement on Form N-2 relating to its common shares.

Any information in this shareowner report regarding market or economic trends or the factors influencing the Trust's historical or future performance are statements of the opinion of Trust management as of the date of this report. These statements should not be relied upon for any other purposes. Past performance is no guarantee of future results, and there is no guarantee that market forecasts discussed will be realized.

7

Pioneer Municipal High Income Advantage Trust

-----  
PORTFOLIO SUMMARY 3/31/07  
-----

Portfolio Diversification

-----  
(As a percentage of total investment portfolio)

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

[The following data was represented as a pie chart in the printed material]

Health Revenue	25.1%
Insured	13.1%
Development Revenue	11.6%
Airport Revenue	11.4%
Tobacco Revenue	9.6%
Transportation Revenue	6.1%
Facilities Revenue	6.0%
Pollution Control Revenue	5.7%
General Obligation	4.6%
Other Revenue	2.1%
Housing Revenue	1.8%
Education Revenue	1.5%
Water Revenue	1.1%
Power Revenue	0.3%

### Portfolio Maturity

---

(As a percentage of long-term holdings)

[The following data was represented as a pie chart in the printed material]

0-1 years	11.1%
1-3 years	13.2%
3-6 years	41.2%
6-8 years	15.6%
8-10 years	3.6%
10+ years	15.3%

### Quality Distribution

---

(As a percentage of total investment portfolio; based on S&P ratings)

[The following data was represented as a pie chart in the printed material]

AAA	10.2%
AA	0.4%
A	2.7%
BBB	18.0%
BB	8.9%
B	13.9%
CCC	1.2%
Not Rated	44.1%
Cash Equivalent	0.6%

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

-----  
 PRICES AND DISTRIBUTIONS 3/31/07  
 -----

Share Prices and Distributions  
 -----

Market Value per Common Share	3/31/07	3/31/06
	\$15.61	\$14.99

Net Asset Value per Common Share	3/31/07	3/31/06
	\$15.91	\$15.04

Distributions per Common Share	Net Investment Income	Short-Term Capital Gains	Long-Term Capital Gains
(4/1/06 - 3/31/07)	\$0.86	\$ -	\$ -

10 Largest Holdings  
 -----

(As a percentage of long-term holdings) \*

1.	New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29	2.75%
2.	Non-Profit Preferred Funding Trust I, Series E, 8.0%, 9/15/37 (144A)	2.66
3.	Charlotte North Carolina Special Facilities Revenue, 5.6%, 7/1/27	2.34
4.	University of California, RIB, 6.275%, 5/15/38 (144A)	2.31
5.	Houston Texas Airport System Revenue, 6.75%, 7/1/29	2.19
6.	Miami-Dade County Aviation Revenue, 5.0%, 10/1/37	2.14
7.	Indiana State Development Finance Authority Revenue, 5.75%, 10/1/11	2.13
8.	Tobacco Settlement Financing Corp., 5.875%, 5/15/39	2.06
9.	Brazos River Authority Pollution Control Revenue, 6.75%, 10/1/38	1.94
10.	Valley Health System Hospital Revenue, 6.875%, 5/15/23	1.91

\* This list excludes temporary cash and derivative investments. The portfolio is actively managed, and current holdings may be different.



Pioneer Municipal High Income Advantage Trust

-----  
 PERFORMANCE UPDATE 3/31/07  
 -----

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 Trust, compared to that of the Lehman Brothers Municipal Bond Index and Lehman Brothers Non-Investment Grade Municipal Bond Index.

-----  
 Cumulative Total Returns  
 (As of March 31, 2007)

Period	Net Asset	Market
	Value (NAV)	Price
Life-of-Trust (10/20/03)	40.50%	31.69%
1 Year	11.96	10.21

-----  
 [The following data was represented as a line graph in the printed material]

Value of \$10,000 Investment

	Pioneer Municipal High Income Advantage Trust	Lehman Brothers Municipal Bond Index	Lehman Brothers Non-Investment Grade Municipal Bond Index
10/03	\$10,000	\$10,000	\$10,000
3/04	\$10,293	\$10,364	\$10,565
3/05	\$10,712	\$10,641	\$11,536
3/06	\$11,949	\$11,046	\$12,588
3/07	\$13,169	\$11,645	\$13,827

Call 1-800-225-6292 or visit [www.pioneerinvestments.com](http://www.pioneerinvestments.com) 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 net asset value ("NAV"), due to such factors as interest rate changes, and the perceived credit quality of borrowers.

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

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

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 sold in the open market through a stock exchange and frequently trade at prices lower than their NAV. NAV is total assets less total liabilities which includes 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 under the Trust's dividend reinvestment plan.

The performance table and graph do not reflect the deduction of fees and taxes that a shareowner would pay on Trust distributions or the redemption of Trust shares.

Index comparison begins October 31, 2003. The Lehman Brothers Municipal Bond Index is a broad measure of the municipal bond market. Lehman Brothers Non-Investment Grade Municipal Bond Index totals over \$26 billion in market value and maintains over 1300 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 Trust returns, do not reflect any fees, expenses or sales charges. You cannot invest directly in the Indices.

10

## Pioneer Municipal High Income Advantage Trust

### ----- SCHEDULE OF INVESTMENTS 3/31/07 -----

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
		TAX-EXEMPT OBLIGATIONS - 131.4% of Net Assets	
		Alaska - 1.2%	
\$ 3,875,000 (a)	NR/Aaa	Alaska State Housing Finance Corp., RIB, 9.315%, 6/1/49 (144A)	\$ 4,374,8
		Arizona - 4.1%	
5,000,000	NR/NR	Casa Grande Industrial Development Authority Hospital Revenue, 7.625%, 12/1/29	\$ 5,535,3
3,000,000 (a)	NR/Aaa	Downtown Phoenix Hotel Corp., RIB, 6.103%, 7/1/40 (144A)	3,414,8
1,000,000	NR/Baa3	Pima County Industrial Development Authority, 6.3%, 7/1/31 (144A)	1,076,2
1,560,000	NR/Baa3	Pima County Industrial Development Authority, 6.75%, 7/1/31	1,673,7
1,000,000+	NR/NR	Pima County Industrial Development Authority, 7.5%, 7/1/34	1,206,4
2,000,000	NR/NR	San Luis Facility Development Corp.,	

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		7.25%, 5/1/27	2,038,9
			-----
			\$ 14,945,5
			-----
2,680,000+	AAA/Aaa	California - 6.6% Golden State Tobacco Securitization Corp., 6.75%, 6/1/39	\$ 3,122,5
9,520,000 (a)	NR/Aaa	University of California, RIB, 6.275%, 5/15/38 (144A)	11,277,8
9,320,000	B+/NR	Valley Health System Hospital Revenue, 6.875%, 5/15/23	9,334,3
			-----
			\$ 23,734,7
			-----
2,850,000	BBB/Baa3	Colorado - 1.9% Denver Health & Hospital Authority Healthcare Revenue, 6.0%, 12/1/31	\$ 3,031,6
3,520,000	CCC/B3	Northwest Parkway Public Highway Authority, 7.125%, 6/15/41	3,785,1
			-----
			\$ 6,816,7
			-----
2,700,000	BBB/Baa3	District of Columbia - 2.1% District of Columbia Tobacco Settlement Financing Corp., 6.5%, 5/15/33	\$ 3,216,9
4,000,000	BBB/Baa3	District of Columbia Tobacco Settlement Financing Corp., 6.75%, 5/15/40	4,398,3
			-----
			\$ 7,615,3
			-----

The accompanying notes are an integral part of these financial statements. 11

Pioneer Municipal High Income Advantage Trust

-----  
SCHEDULE OF INVESTMENTS 3/31/07

(continued)

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
\$ 1,000,000	NR/NR	Florida - 5.6% Greater Orlando Aviation Authority, 6.5%, 11/15/36	\$ 1,067,0
4,500,000	BBB-/Baa2	Hillsborough County Florida Industrial Development Authority Pollution Control Revenue, 5.5%, 10/1/23	4,757,5
1,980,000	NR/NR	Hillsborough County Florida Industrial Development Authority Pollution Control Revenue, 6.75%, 7/1/29	2,027,6
500,000	BB+/NR	Miami Beach Health Facilities Authority, 5.375%, 11/15/28	507,1
1,500,000	BB+/Ba1	Miami Beach Health Facilities Authority, 6.7%, 11/15/19	1,639,0
10,000,000	AAA/Aaa	Miami-Dade County Aviation Revenue,	

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		5.0%, 10/1/37	10,438,3
			-----
			\$ 20,436,8
			-----
		Georgia - 2.1%	
4,000,000 (a)	NR/Aaa	Atlanta Georgia Water and Wastewater Revenue, RIB, 6.193%, 11/1/43 (144A)	\$ 4,562,6
1,065,000	NR/B2	Effingham County Industrial Development Authority, 6.5%, 6/1/31	1,129,3
1,650,000	NR/NR	Savannah Georgia Economic Development Authority Revenue, 7.4%, 1/1/34	1,803,7
			-----
			\$ 7,495,7
			-----
		Guam - 1.5%	
5,000,000	B+/Ba3	Northern Mariana Islands, 6.75%, 10/1/33	\$ 5,589,3
			-----
		Idaho - 2.3%	
2,000,000	BBB-/Baa3	Power County Industrial Development Corp., 6.45%, 8/1/32	\$ 2,121,9
5,920,000	BBB-/Baa3	Power County Pollution Control Revenue, 5.625%, 10/1/14	6,071,4
			-----
			\$ 8,193,4
			-----
		Illinois - 6.1%	
4,000,000	NR/NR	Centerpoint Intermodal Center, 8.0%, 6/15/23 (144A)	\$ 4,134,4
1,000,000	NR/NR	Illinois Finance Authority Revenue, 5.1%, 8/15/31	1,018,4
1,100,000	NR/NR	Illinois Finance Authority Revenue, 5.5%, 5/15/26	1,127,3

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

Pioneer Municipal High Income Advantage Trust

-----  
-----

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
		Illinois - (continued)	
\$ 1,850,000	NR/NR	Illinois Finance Authority Revenue, 5.75%, 5/15/38	\$ 1,926,9
1,000,000	NR/NR	Illinois Finance Authority Revenue, 6.0%, 11/15/27	1,056,0
3,000,000	NR/NR	Illinois Finance Authority Revenue, 6.0%, 11/15/39	3,140,4
1,645,000	NR/NR	Illinois Health Facilities Authority Revenue, 5.5%, 11/15/19	1,652,0
1,265,000	NR/B2	Illinois Health Facilities Authority Revenue, 6.7%, 3/1/14	1,265,3
2,400,000	NR/B2	Illinois Health Facilities Authority Revenue,	

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		6.75%, 3/1/24	2,400,0
1,500,000	NR/NR	Illinois Health Facilities Authority Revenue,	
		6.9%, 11/15/33	1,657,2
2,700,000	NR/NR	Southwestern Illinois Development Authority	
		Revenue, 5.625%, 11/1/26	2,747,8
			-----
			\$ 22,126,2
			-----
		Indiana - 4.9%	
10,000,000	BBB/Ba1	Indiana State Development Finance Authority	
		Revenue, 5.75%, 10/1/11	\$ 10,378,6
5,000,000	NR/B2	Jasper County Industrial Economic Development	
		Revenue, 5.6%, 4/1/29	5,064,2
2,245,000	NR/NR	Vincennes Industrial Economic Development	
		Revenue, 6.25%, 1/1/24	2,265,1
			-----
			\$ 17,708,0
			-----
		Kentucky - 1.4%	
500,000	BB-/NR	Kentucky Economic Development Finance Authority	
		Hospital System Revenue, 5.7%, 10/1/10	\$ 509,5
4,400,000	BB-/NR	Kentucky Economic Development Finance Authority	
		Hospital System Revenue, 5.875%, 10/1/22	4,482,1
			-----
			\$ 4,991,7
			-----
		Louisiana - 3.0%	
750,000	BBB+/NR	Opelousas Louisiana General Hospital Authority	
		Revenue, 5.75%, 10/1/23	\$ 795,4
9,415,000	BBB/Baa3	Tobacco Settlement Financing Corp.,	
		5.875%, 5/15/39	10,053,3
			-----
			\$ 10,848,7
			-----

The accompanying notes are an integral part of these financial statements. 13

Pioneer Municipal High Income Advantage Trust

-----  
SCHEDULE OF INVESTMENTS 3/31/07

(continued)  
-----

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
		Maryland - 0.6%	
\$ 710,000	NR/NR	Maryland Health & Higher Educational Facilities	
		Authority Revenue, 5.25%, 1/1/27	\$ 729,5
1,250,000	NR/NR	Maryland Health & Higher Educational Facilities	
		Authority Revenue, 5.3%, 1/1/37	1,283,3
			-----
			\$ 2,012,9
			-----
		Massachusetts - 7.4%	
1,000,000	AAA/Aaa	Lynn Massachusetts Water & Sewer Commission	

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		General Revenue, 5.0%, 12/1/32	\$ 1,055,5
5,000,000	AAA/Aa1	Massachusetts Bay Transportation Authority Revenue, 5.25%, 7/1/31	5,760,1
2,195,000	BBB-/Baa3	Massachusetts Health & Educational Facilities Authority Revenue, 5.375%, 7/15/28	2,238,5
1,000,000+	BBB-/Baa3	Massachusetts Health & Educational Facilities Authority Revenue, 6.35%, 7/15/32	1,127,2
3,520,000 (a)	NR/Aaa	Massachusetts State College Building Authority Project Revenue, RIB, 6.28%, 5/1/41 (144A)	4,107,8
900,000	BB/NR	Massachusetts State Development Finance Agency, 5.25%, 10/1/18	893,1
2,920,000	NR/Ba2	Massachusetts State Development Finance Agency, 6.0%, 11/1/28	2,982,9
4,710,000	NR/NR	Massachusetts State Development Finance Agency, 7.1%, 7/1/32	4,911,9
3,335,000 (a)	NR/Aa3	Massachusetts State Housing Finance Agency, RIB, 6.989%, 12/1/45 (144A)	3,518,1
			----- \$ 26,595,5 -----
		Michigan - 5.0%	
1,650,000	NR/NR	Crescent Academy Project, 5.75%, 12/1/36	\$ 1,696,4
3,000,000+	AAA/Baa3	Delta County Michigan Economic Development Corp., 6.25%, 4/15/27	3,344,4
3,000,000	BB/NR	Macomb County Hospital Finance Authority Revenue, 5.875%, 11/15/34	3,179,2
4,130,000	BB-/Ba3	Michigan State Hospital Finance Authority Revenue, 5.5%, 8/15/23	4,103,2
1,000,000	NR/NR	Michigan State Strategic Fund Solid Waste Disposal Revenue, 7.375%, 1/15/22	1,017,0
3,000,000 (b)	NR/NR	Wayne Charter County Michigan Special Airport Facilities Revenue, 6.0%, 12/1/29	2,341,1
3,405,000 (b)	NR/NR	Wayne Charter County Michigan Special Airport Facilities Revenue, 6.75%, 12/1/15	2,312,8
			----- \$ 17,994,6 -----

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

Pioneer Municipal High Income Advantage Trust

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
\$ 1,850,000	NR/NR	Missouri - 1.4%	
		Kansas City Industrial Development Authority Revenue, 5.875%, 1/1/37 (144A)	\$ 1,863,0
1,500,000	NR/Caa2	St. Louis Industrial Development Authority Revenue, 7.2%, 12/15/28	1,490,8
1,840,000	NR/Caa2	St. Louis Industrial Development Authority Revenue, 7.25%, 12/15/35	1,826,5

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

			\$ 5,180,4
2,445,000 (c)	NR/NR	Montana - 0.7% Hardin Increment Industrial Infrastructure Development Revenue, 0.0%, 9/1/31	\$ 1,617,6
1,000,000	NR/NR	Two Rivers Authority, Inc., Project Revenue, 7.375%, 11/1/27	1,031,5
			\$ 2,649,1
2,425,000	B/NR	Nevada - 2.1% Clark County Industrial Development Revenue, 5.5%, 10/1/30	\$ 2,416,4
2,500,000	B/NR	Clark County Industrial Development Revenue, 5.9%, 11/1/32	2,501,1
1,600,000	NR/NR	Nevada State Department of Business & Industry, 7.25%, 1/1/23	1,677,6
1,000,000	NR/NR	Nevada State Department of Business & Industry, 7.375%, 1/1/30	1,051,6
70,000	NR/NR	Nevada State Department of Business & Industry, 7.375%, 1/1/40	73,5
			\$ 7,720,4
1,000,000	A/NR	New Hampshire - 1.5% New Hampshire Health & Educational Facilities Authority Revenue, 5.375%, 1/1/34	\$ 1,058,4
1,125,000	NR/NR	New Hampshire Health & Educational Facilities Authority Revenue, 5.875%, 7/1/34	1,184,5
3,000,000+	NR/NR	New Hampshire Higher Educational & Health Facilities Authority Revenue, 6.25%, 1/1/18	3,107,7
			\$ 5,350,7
13,000,000	B/B3	New Jersey - 8.5% New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29	\$ 13,440,3
2,500,000	BBB/Baal	New Jersey Health Care Facilities Financing Authority Revenue, 5.375%, 7/1/33	2,609,5
2,495,000 (a)	NR/Aaa	New Jersey State Turnpike Authority, RIB, 7.785%, 1/1/28 (144A)	4,015,3

The accompanying notes are an integral part of these financial statements. 15

Pioneer Municipal High Income Advantage Trust

SCHEDULE OF INVESTMENTS 3/31/07

(continued)

Principal Amount	S&P/ Moody's Ratings (unaudited)	Val
\$ 1,000,000+	AAA/Aaa	New Jersey - (continued) Tobacco Settlement Financing Corp.,

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		6.25%, 6/1/43	\$ 1,137,0
3,250,000+	AAA/Aaa	Tobacco Settlement Financing Corp.,	
		6.75%, 6/1/39	3,784,3
5,000,000+	AAA/Aaa	Tobacco Settlement Financing Corp.,	
		7.0%, 6/1/41	5,887,3
			-----
			\$ 30,873,9
			-----
		New York - 10.6%	
3,000,000	NR/NR	Dutchess County Industrial Development Agency	
		Revenue, 7.5%, 3/1/29	\$ 3,334,9
5,000,000	A/A3	Nassau County New York Industrial Development	
		Agency Revenue, 5.25%, 6/1/27	5,186,1
6,980,000	BB-/Ba2	New York City Industrial Development Agency,	
		5.25%, 12/1/32	6,944,4
2,000,000	A/NR	New York City Industrial Development Agency,	
		5.375%, 6/1/23	2,100,8
2,000,000	CCC+/Caal	New York City Industrial Development Agency,	
		6.9%, 8/1/24	2,018,0
3,950,000	BB-/Ba2	New York City Industrial Development Agency,	
		7.625%, 12/1/32	4,415,3
2,600,000	NR/NR	New York City Industrial Development Agency,	
		7.8%, 1/1/16	2,633,3
5,000,000	AAA/Aaa	New York State Environmental Facilities Corp.,	
		5.0%, 6/15/33	5,221,8
4,500,000	A/NR	Suffolk County New York Industrial Development	
		Agency, 5.0%, 6/1/36	4,660,3
2,000,000	NR/NR	Yonkers Industrial Development Agency Civic	
		Facilities Revenue, 6.15%, 3/1/15	2,010,8
			-----
			\$ 38,526,1
			-----
		North Carolina - 5.8%	
11,350,000	NR/NR	Charlotte North Carolina Special Facilities	
		Revenue, 5.6%, 7/1/27	\$ 11,413,7
7,140,000	NR/NR	Charlotte North Carolina Special Facilities	
		Revenue, 7.75%, 2/1/28	7,633,4
2,000,000	AA+/Aa1	North Carolina Capital Facilities Finance Agency	
		Revenue, 5.0%, 10/1/41	2,095,9
			-----
			\$ 21,143,1
			-----

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

Pioneer Municipal High Income Advantage Trust

Principal Amount	S&P/ Moody's Ratings (unaudited)		Val
\$ 3,800,000	B/NR	Ohio - 2.7% Belmont County Health System Revenue,	



Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

1,000,000	B/NR	5.7%, 1/1/13 Belmont County Health System Revenue,	\$ 3,746,6
		5.8%, 1/1/18	978,0
5,000,000	B-/B3	Cleveland Airport Special Revenue,	5,014,7
		5.375%, 9/15/27	-----
			\$ 9,739,3
			-----
2,045,000	BB/NR	Oklahoma - 1.0% Jackson County Memorial Hospital Authority	
		Revenue, 7.3%, 8/1/15	\$ 2,055,9
1,500,000	B/Caa1	Tulsa Municipal Airport Transportation Revenue,	
		7.35%, 12/1/11	1,505,3
			-----
			\$ 3,561,2
			-----
3,000,000	B+/Ba3	Pennsylvania - 7.1% Allegheny County Hospital Development Authority	
		Revenue, 9.25%, 11/15/22	\$ 3,541,3
500,000	B+/Ba3	Allegheny County Hospital Development Authority	
		Revenue, 9.25%, 11/15/30	591,1
1,000,000	BBB-/NR	Clarion County Hospital Authority Revenue,	
		5.625%, 7/1/21	1,013,2
3,600,000	B/NR	Columbia County Hospital Authority Revenue,	
		5.85%, 6/1/24	3,364,5
3,200,000	NR/NR	Delaware County Industrial Development Authority	
		Revenue, 9.0%, 8/1/31	2,596,0
1,250,000	BBB/Ba2	Hazleton Health Services Authority Hospital	
		Revenue, 6.125%, 7/1/16	1,253,1
3,360,000	NR/Baa3	Montgomery County Higher Education & Health	
		Authority Hospital Revenue, 6.6%, 7/1/10	3,418,8
1,430,000	BB+/NR	Pennsylvania Economic Development Financing	
		Authority Revenue, 5.125%, 6/1/18	1,413,7
1,805,000	BB+/NR	Pennsylvania Economic Development Financing	
		Authority Revenue, 5.3%, 6/1/10	1,810,3
2,330,000	BB+/NR	Pennsylvania Economic Development Financing	
		Authority Revenue, 5.35%, 6/1/11	2,337,4
2,005,000	B-/NR	Scranton-Lackawanna Health & Welfare Authority	
		Revenue, 6.1%, 7/1/11	2,050,2
2,245,000	B-/NR	Scranton-Lackawanna Health & Welfare Authority	
		Revenue, 6.15%, 7/1/12	2,295,6
			-----
			\$ 25,685,7
			-----

The accompanying notes are an integral part of these financial statements. 17

Pioneer Municipal High Income Advantage Trust

-----  
SCHEDULE OF INVESTMENTS 3/31/07

(continued)  
-----

Principal Amount	S&P/ Moody's Ratings (unaudited)	Val
---------------------	---	-----

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

		Rhode Island - 3.9%	
\$ 4,485,000	NR/NR	Central Falls Rhode Island Detention Facilities Revenue, 7.25%, 7/15/35	\$ 5,039,1
8,285,000	BBB/Baa3	Tobacco Settlement Financing Corp., 6.25%, 6/1/42	8,942,0
			-----
			\$ 13,981,2
			-----
		South Carolina - 5.7%	
1,500,000	B-/NR	Connector 2000 Association, Inc., Toll Road Revenue, 5.375%, 1/1/38	\$ 1,394,9
1,600,000	BBB/NR	Loris Community Hospital District, 5.625%, 1/1/29	1,650,8
7,140,000+	BBB+/Baa1	South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34	8,174,8
860,000+	BBB+/Baa1	South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34	980,7
3,000,000+	AAA/NR	South Carolina Jobs Economic Development Authority Revenue, 8.0%, 10/1/31	3,467,5
4,400,000	BBB/Baa3	Tobacco Settlement Revenue Management, 6.375%, 5/15/30	5,118,7
			-----
			\$ 20,787,6
			-----
		Tennessee - 2.4%	
1,000,000	BBB+/Baa2	Johnson City Health & Educational Facilities Board Hospital Revenue, 7.5%, 7/1/33	\$ 1,159,5
7,000,000	NR/Ba2	Knox County Health Educational & Housing Facilities Board Hospital Revenue, 6.5%, 4/15/31	7,348,1
			-----
			\$ 8,507,7
			-----
		Texas - 13.6%	
8,650,000	BB/NR	Brazos River Authority Pollution Control Revenue, 6.75%, 10/1/38	\$ 9,501,4
7,350,000	NR/NR	Gulf Coast Industrial Development Authority, 7.0%, 12/1/36	7,902,0
10,000,000	B-/B3	Houston Texas Airport System Revenue, 6.75%, 7/1/29	10,703,4
1,000,000	NR/NR	IAH Public Facility Corp., 6.0%, 5/1/16	1,000,0
1,000,000	NR/NR	IAH Public Facility Corp., 6.0%, 5/1/21	977,8
1,350,000	NR/NR	IAH Public Facility Corp., 6.125%, 5/1/26	1,314,8
845,000	NR/NR	Lubbock Health Facilities Development Corp., 6.5%, 7/1/26	884,8
2,000,000	NR/NR	Lubbock Health Facilities Development Corp., 6.625%, 7/1/36	2,100,5

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

Pioneer Municipal High Income Advantage Trust

-----  
-----

S&P/  
Moody's

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Principal Amount	Ratings (unaudited)		Val
		Texas - (continued)	
\$ 7,750,000	BBB-/Bal	Matagorda County Navigation District Number 1 Revenue, 5.95%, 5/1/30	\$ 7,964,4
1,885,000 (b)	NR/Ca	Panhandle Texas Regional Housing Finance, 8.125%, 3/1/31	189,7
5,000,000	NR/Baa3	Tomball Hospital Authority, 6.0%, 7/1/25	5,188,5
1,500,000	NR/NR	Willacy County Local Government Corp., 6.0%, 3/1/09	1,519,6
			-----
			\$ 49,247,3
			-----
		Utah - 0.5%	
1,600,000	NR/NR	Spanish Fork Charter School Revenue, 5.7%, 11/15/36 (144A)	\$ 1,648,1
			-----
		Virginia - 0.4%	
1,555,000+	AAA/NR	Pocahontas Parkway Association of Virginia Toll Road Revenue, 5.25%, 8/15/09	\$ 1,618,6
			-----
		Washington - 7.1%	
5,000,000	AAA/Aaa	Port Seattle Washington Special Facilities Revenue, 5.0%, 4/1/31	\$ 5,160,5
5,500,000 (b)	NR/NR	Port Seattle Washington Special Facilities Revenue, 7.25%, 4/1/30	5,502,6
1,385,000	BBB/Baa3	Tobacco Settlement Authority Revenue, 6.5%, 6/1/26	1,516,2
6,960,000 (a)	NR/Aaa	Washington State Economic Development Finance Authority, RIB, 6.1%, 6/1/38 (144A)	8,223,0
5,000,000	NR/NR	Washington State Housing Finance Commission Nonprofit Revenue Bonds, 5.625%, 1/1/27	5,164,0
			-----
			\$ 25,566,4
			-----
		Wisconsin - 0.6%	
1,000,000	NR/NR	Wisconsin State Health & Educational Facilities Authority Revenue, 6.125%, 4/1/24	\$ 1,055,5
1,000,000	NR/NR	Wisconsin State Health & Educational Facilities Authority Revenue, 6.25%, 4/1/34	1,058,1
			-----
			\$ 2,113,6
			-----
		TOTAL TAX-EXEMPT OBLIGATIONS	
		(Cost \$427,158,444)	\$475,381,6
			-----

The accompanying notes are an integral part of these financial statements. 19

Pioneer Municipal High Income Advantage Trust

-----  
SCHEDULE OF INVESTMENTS 3/31/07

(continued)  
-----

S&P/  
Moody's

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Principal Amount	Ratings (unaudited)		Val
		MUNICIPAL COLLATERALIZED DEBT OBLIGATION - 3.6% of Net Assets	
\$ 13,000,000 (d)	NR/NR	Non-Profit Preferred Funding Trust I, Series E, 8.0%, 9/15/37 (144A)	\$ 13,011,3
		TOTAL MUNICIPAL COLLATERALIZED DEBT OBLIGATION (Cost \$13,000,000)	\$ 13,011,3
Shares		TAX-EXEMPT MONEY MARKET MUTUAL FUND - 0.8% of Net Assets	
3,152,545		BlackRock Liquidity Funds MuniFund Portfolio	\$ 3,152,5
		TOTAL TAX-EXEMPT MONEY MARKET MUTUAL FUND (Cost \$3,152,545)	\$ 3,152,5
		TOTAL INVESTMENTS IN SECURITIES - 135.8% (Cost \$443,310,989) (e) (f)	\$ 491,545,5
		OTHER ASSETS AND LIABILITIES - 5.7%	\$ 20,423,2
		PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS PAYABLE - (41.5)%	\$(150,080,2
		NET ASSETS APPLICABLE TO COMMON SHAREOWNERS - 100.0%	\$ 361,888,4

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

Pioneer Municipal High Income Advantage Trust

(144A) Security is exempt from registration under Rule 144A of the Securities Act of 1933. Such securities may be resold normally to qualified institutional buyers in a transaction exempt from registration. At March 31, 2007, the value of these securities amounted to \$65,227,843, or 18.0% of total net assets applicable to common shareowners.

RIB Residual Interest Bonds.

NR Security not rated by S&P or Moody's.

+ Prerefunded bonds have been collateralized by U.S. Treasury securities or U.S. Government Agencies which are held in escrow to pay interest and principal on the tax exempt issue and to retire the bonds in full at the earliest refunding date.

(a) The interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate at March 31, 2007.

(b) Security is in default and is non-income producing.

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

- (c) Debt obligation initially issued at one coupon which converts to a higher coupon at a specific date. The rate shown is the rate at March 31, 2007.
- (d) The interest rate is subject to change periodically. The interest rate shown is the rate at March 31, 2007.
- (e) The concentration of investments by type of obligation/market sector is as follows:

Insured	13.1%
General Obligation	4.6
Revenue Bonds:	
Health Revenue	25.1
Development Revenue	11.6
Airport Revenue	11.4
Tobacco Revenue	9.6
Transportation Revenue	6.1
Facilities Revenue	6.0
Pollution Control Revenue	5.7
Other Revenue	2.1
Housing Revenue	1.8
Education Revenue	1.5
Water Revenue	1.1
Power Revenue	0.3
	----
	100.0%
	=====

- (f) At March 31, 2007, the net unrealized gain on investments based on cost for federal income tax purposes of \$440,347,551 was as follows:

Aggregate gross unrealized gain for all investments in which there is an excess of value over tax cost	\$54,372,846
Aggregate gross unrealized loss for all investments in which there is an excess of tax cost over value	(3,174,895)
	-----
Net unrealized gain	\$51,197,951
	=====

For financial reporting purposes net unrealized gain on investments was \$48,234,513 and cost of investments aggregated \$443,310,989.

Purchases and sales of securities (excluding temporary cash investments) for the year ended March 31, 2007, aggregated \$85,707,843 and \$94,249,595, respectively.

The accompanying notes are an integral part of these financial statements. 21

Pioneer Municipal High Income Advantage Trust

-----  
STATEMENT OF ASSETS AND LIABILITIES 3/31/07  
-----

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

<b>ASSETS:</b>	
Investments in securities, at value (cost \$443,310,989)	\$491,545,502
Receivables -	
Investment securities sold	11,628,396
Interest	9,189,086
Unrealized appreciation on interest rate swaps	1,055,792
Other assets	443,638
Prepaid expenses	40,007
	-----
Total assets	\$513,902,421
	-----
<b>LIABILITIES:</b>	
Dividends payable to common shareowners	\$ 1,591,844
Due to custodian	9,243
Due to affiliate	269,435
Administration fee payable	30,543
Accrued expenses	32,650
	-----
Total liabilities	\$ 1,933,715
	-----
<b>PREFERRED SHARES AT REDEMPTION VALUE:</b>	
\$25,000 liquidation value per share applicable to 6,000 shares including dividends payable of \$80,237	\$150,080,237
	-----
<b>NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:</b>	
Paid-in capital	\$323,671,003
Undistributed net investment income	3,083,246
Accumulated net realized loss on investments and interest rate swaps	(14,156,085)
Net unrealized gain on investments	48,234,513
Net unrealized gain on interest rate swaps	1,055,792
	-----
Net assets applicable to common shareowners	\$361,888,469
	=====
<b>NET ASSET VALUE PER SHARE:</b>	
No par value, (unlimited number of shares authorized)	
Based on \$361,888,469/22,740,627 common shares	\$ 15.91
	=====

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

Pioneer Municipal High Income Advantage Trust

-----  
**STATEMENT OF OPERATIONS**  
 -----

For the Year Ended 3/31/07

<b>INVESTMENT INCOME:</b>	
Interest	\$ 30,485,266
	-----
<b>EXPENSES:</b>	
Management fees	\$ 3,019,562
Administration fees and reimbursement	459,068
Transfer agent fees and expenses	39,158
Auction agent fees	390,422

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Custodian fees	23,272	
Registration fees	23,848	
Professional fees	126,680	
Printing expense	17,071	
Trustees' fees	10,238	
Pricing fees	20,267	
Insurance fees	11,764	
Miscellaneous	17,751	
	-----	
Total expenses		\$ 4,159,101
Less management fees waived and expenses reimbursed by Pioneer Investment Management, Inc.		(47,982)
Less fees paid indirectly		(63)
		-----
Net expenses		\$ 4,111,056
		-----
Net investment income		\$ 26,374,210
		-----
REALIZED AND UNREALIZED GAIN ON INVESTMENTS AND INTEREST RATE SWAPS:		
Net realized gain from:		
Investments	\$ 4,858,790	
Interest rate swaps	651,446	\$ 5,510,236
	-----	-----
Change in net unrealized gain from:		
Investments	\$13,733,640	
Interest rate swaps	(981,568)	\$ 12,752,072
	-----	-----
Net gain on investments and interest rate swaps		\$ 18,262,308
		-----
DISTRIBUTIONS TO PREFERRED SHAREOWNERS FROM NET INVESTMENT INCOME		
		\$ (5,202,891)
		-----
Net increase in net assets applicable to common shareowners resulting from operations		\$ 39,433,627
		=====

The accompanying notes are an integral part of these financial statements. 23

Pioneer Municipal High Income Advantage Trust

-----  
STATEMENTS OF CHANGES IN NET ASSETS  
-----

For the Years Ended 3/31/07 and 3/31/06

	Year Ended 3/31/07	Year Ended 3/31/06
FROM OPERATIONS:		
Net investment income	\$ 26,374,210	\$ 26,621,808
Net realized gain (loss) on investments and interest rate swaps	5,510,236	(13,577,265)
Change in net unrealized gain on investments and interest rate swaps	12,752,072	22,405,597

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Distributions to preferred shareowners from net investment income	(5,202,891)	(3,961,976)
	-----	-----
Net increase in net assets applicable to common shareowners	\$ 39,433,627	\$ 31,488,164
	-----	-----
DISTRIBUTIONS TO COMMON SHAREOWNERS FROM:		
Net investment income (\$0.86 and \$0.99 per share, respectively)	\$ (19,556,939)	\$ (22,481,571)
	-----	-----
Total distributions to common shareowners	\$ (19,556,939)	\$ (22,481,571)
	-----	-----
FROM TRUST SHARE TRANSACTIONS:		
Reinvestment of distributions	\$ -	\$ 630,886
	-----	-----
Net increase in net assets applicable to common shareowners resulting from Trust share transactions	\$ -	\$ 630,886
	-----	-----
Net increase in net assets applicable to common shareowners	\$ 19,876,688	\$ 9,637,479
NET ASSETS APPLICABLE TO COMMON SHAREOWNERS:		
Beginning of year	342,011,781	332,374,302
	-----	-----
End of year	\$ 361,888,469	\$ 342,011,781
	=====	=====
Undistributed net investment income	\$ 3,083,246	\$ 850,071
	=====	=====

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

Pioneer Municipal High Income Advantage Trust

-----  
**FINANCIAL HIGHLIGHTS**  
 -----

	Year Ended 3/31/07	Year Ended 3/31/06	Year Ended 3/31/05	
Per Common Share Operating Performance				
Net asset value, beginning of period	\$ 15.04	\$ 14.64	\$ 14.51	\$
	-----	-----	-----	-----
Increase (decrease) from investment operations: (a)				
Net investment income	\$ 1.16	\$ 1.17	\$ 1.26	\$
Net realized and unrealized gain on investments and interest rate swaps	0.80	0.39	0.18	
Dividends and distributions to preferred shareowners from:				
Net investment income	(0.23)	(0.17)	(0.09)	
Net realized gains	-	-	(0.01)	
	-----	-----	-----	-----
Net increase from investment operations	\$ 1.73	\$ 1.39	\$ 1.34	\$
Dividends and distributions to common shareowners from:				



## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Net investment income	(0.86)	(0.99)	(1.13)
Net realized gains	-	-	(0.09)
Capital charge with respect to issuance of:			
Common shares	-	-	0.01
Preferred shares	-	-	-
	-----	-----	-----
Net increase in net asset value	\$ 0.87	\$ 0.40	\$ 0.13
	-----	-----	-----
Net asset value, end of period(d)	\$ 15.91	\$ 15.04	\$ 14.64
	=====	=====	=====
Market value, end of period(d)	\$ 15.61	\$ 14.99	\$ 14.37
	=====	=====	=====
Total return(e)	10.21%	11.55%	4.07%
Ratios to average net assets of common shareowners			
Net expenses(f)	1.16%	1.16%	1.18%
Net investment income before preferred share dividends	7.47%	7.88%	8.94%
Preferred share dividends	1.47%	1.17%	0.64%
Net investment income available to common shareowners	6.00%	6.71%	8.30%
Portfolio turnover	17%	19%	39%
Net assets of common shareowners, end of period (in thousands)	\$361,888	\$342,012	\$332,374
Preferred shares outstanding (in thousands)	\$150,000	\$150,000	\$150,000
Asset coverage per preferred share, end of period	\$ 85,328	\$ 82,011	\$ 80,396
Average market value per preferred share	\$ 25,000	\$ 25,000	\$ 25,000
Liquidation value, including dividends payable, per preferred share	\$ 25,013	\$ 25,009	\$ 25,000
Ratios to average net assets of common shareowners before waivers and reimbursement of expenses			
Net expenses(f)	1.18%	1.16%	1.19%
Net investment income before preferred share dividends	7.45%	7.88%	8.93%
Preferred share dividends	1.47%	1.17%	0.64%
Net investment income available to common shareowners	5.98%	6.71%	8.29%

The accompanying notes are an integral part of these financial statements. 25

Pioneer Municipal High Income Advantage Trust

---

### FINANCIAL HIGHLIGHTS (continued)

---

- (a) The per common share data presented above is based upon the average common shares outstanding for the periods presented.
- (b) The Trust's common shares were first publicly offered on October 15, 2003.
- (c) Net asset value immediately after the closing of the first public offering was \$14.30.
- (d) 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.
- (e) Total investment return is calculated assuming a purchase of common shares at the current market value on the first day and a sale at the current market value on the last day of the periods reported. Dividends and distributions, if any, are assumed for purposes of this calculation to be

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

reinvested at prices obtained under the Trust's dividend reinvestment plan. Total investment return does not reflect brokerage commissions. Total investment return less than a full period is not annualized. Past performance is not a guarantee of future results.

- (f) Expense ratios do not reflect the effect of dividend payments to preferred shareowners.
- (g) Annualized.

The information above represents the audited operating performance data for a share of common stock outstanding, total investment return, ratios to average net assets of common shareowners and other supplemental data for the periods indicated. This information has been determined based upon financial information provided in the financial statements and market value data for the Trust's common shares.

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

Pioneer Municipal High Income Advantage Trust

---

### NOTES TO FINANCIAL STATEMENTS 3/31/07

---

#### 1. Organization and Significant Accounting Policies

Pioneer Municipal High Income Advantage Trust (the "Trust") was organized as a Delaware statutory trust on August 6, 2003. Prior to commencing operations on October 20, 2003, the Trust 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 Trust may invest in both investment and below investment grade (high-yield) municipal securities with a broad range of maturities and credit ratings. Debt securities rated below investment grade are commonly referred to as "junk bonds" and are considered speculative. These securities involve greater risk of loss, are subject to greater price volatility, and are less liquid, especially during periods of economic uncertainty or change, than higher rated debt securities.

Information regarding the Trust's principal risks is contained in the Trust's original offering prospectus, with additional information included in the Trust's Shareowner reports from time to time. Please refer to those documents when considering the Trust's risks. At times, the Trust's investments may represent industries or industry sectors that are interrelated or have common risks, making it more susceptible to any economic, political, or regulatory developments or other risks affecting those industries and sectors.

The Trust's financial statements have been prepared in conformity with U.S. generally accepted accounting principles that require the management of the Trust to, among other things, make estimates and assumptions that affect the reported amounts of assets and liabilities, and the reported amounts of income, expenses and gains and losses on investments during the reporting year. Actual results could differ from those estimates.

The following is a summary of significant accounting policies followed by the Trust in the preparation of its financial statements, which are consistent with those policies generally accepted in the investment company industry:

##### A. Security Valuation

Security transactions are recorded as of trade date. Securities are valued at prices supplied by independent pricing services, which consider such

factors as Treasury spreads, yields, maturities

Pioneer Municipal High Income Advantage Trust

NOTES TO FINANCIAL STATEMENTS 3/31/07

(continued)

and ratings. Valuations may be supplemented by dealers and other sources, as required. The values of interest rate swaps are determined by obtaining dealer quotations. Securities for which market quotations are not readily available are valued at their fair values as determined by, or under the direction of, the Board of Trustees. At March 31, 2007, there were no securities fair valued. Temporary cash investments are valued at net asset value.

Discount and premium on debt securities are accreted or amortized, respectively, daily on an effective yield to maturity basis and are included in interest income. Interest income, including interest bearing cash accounts, is recorded on an accrual basis.

Gains and losses on sales of investments are calculated on the identified cost method for both financial reporting and federal income tax purposes.

B. Federal Income Taxes

It is the Trust's policy to comply with the requirements of the Internal Revenue Code applicable to regulated investment companies and to distribute all of its taxable income and net realized capital gains, if any, to its shareowners. Therefore, no federal income tax provision is required.

The amounts and characterizations of distributions to shareowners for financial reporting purposes are determined in accordance with federal income tax rules. Therefore, the source of the Trust's distributions may be shown in the accompanying financial statements as either from or in excess of net investment income or net realized gain on investments transactions, or from paid-in capital, depending on the type of book/tax differences that may exist.

At March 31, 2007, the Trust reclassified \$618,795 to increase undistributed net investment income and to increase accumulated net realized loss on investments. The reclassification has no impact on the net asset value of the Trust and presents the Trust's capital accounts on a tax basis.

At March 31, 2007, the Trust had a capital loss carryforward of \$14,156,085 which will expire in 2014, if not utilized.

Pioneer Municipal High Income Advantage Trust

The tax character of distributions paid to common and preferred shareowners

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

during the years ended March 31, 2007 and March 31, 2006 were as follows:

	2007	2006
Distributions paid from:		
Tax exempt income	\$23,734,616	\$26,443,547
Ordinary income	1,025,214	-
Total	\$24,759,830	\$26,443,547

The following shows components of distributable earnings on a federal income tax basis at March 31, 2007.

	2007
Undistributed tax-exempt income	\$ 1,869,583
Undistributed ordinary income	274,297
Capital loss carry forward	(14,156,085)
Dividends payable	(1,672,081)
Unrealized appreciation	51,901,752
Total	\$ 38,217,466

The difference between book basis and tax basis unrealized appreciation is primarily attributable to the difference between book and tax amortization methods for premiums and discounts on fixed income securities, the accrual of income on securities in default and the difference between book and tax accounting for swap agreements.

## C. Automatic Dividend Reinvestment Plan

All common shareowners 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 common shares of the Trust in lieu of cash. Shareowners may elect not to participate in the Plan. Shareowners 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 American Stock Transfer & Trust

29

Pioneer Municipal High Income Advantage Trust

NOTES TO FINANCIAL STATEMENTS 3/31/07

(continued)

Company, the agent for shareowners 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.

Whenever the Trust declares a dividend on common shares payable in cash, participants in the Plan will receive the equivalent in common shares acquired by the Plan Agent either (i) through receipt of additional unissued but authorized common shares from the Trust or (ii) by purchase of outstanding common shares on the New York Stock Exchange or elsewhere. If, on the payment date for any dividend, the net asset value per common 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 common shares. The number of newly issued common shares to be credited to each account will be determined by dividing the dollar amount of the dividend by the net asset value per common 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 common share is greater than the market value ("market discount"), the Plan Agent will invest the dividend amount in common shares acquired in open-market purchases. There are no brokerage charges with respect to newly issued common 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 shareowners from any federal, state or local taxes which may be due on dividends paid in any taxable year. Shareowners holding Plan shares in a brokerage account may not be able to transfer the shares to another broker and continue to participate in the Plan.

## 2. Management Agreement

Pioneer Investment Management, Inc. ("PIM"), a wholly owned indirect subsidiary of UniCredito Italiano S.p.A. ("UniCredito Italiano") manages the Trust's portfolio. Management fees payable under the Trust's Advisory Agreement with PIM are calculated daily at the annual rate of 0.60% of the Trust's average daily managed assets. "Managed assets" is the average daily value of the Trust's total assets minus the sum of the Trust's liabilities, which liabilities exclude debt related

30

Pioneer Municipal High Income Advantage Trust

---

---

to leverage, short-term debt and the aggregate liquidation preference of any outstanding preferred shares. Also, PIM has agreed for the first three years of the Trust's investment operations to limit the Trust's total annual expenses excluding offering costs for common and preferred shares, interest expense, the cost of defending or prosecuting any claim or litigation to which the Trust is a party (together with any amount in judgment or settlement), indemnification expense or taxes incurred due to the failure of the Trust to qualify as a regulated investment company under the Code or any other non-recurring or non-operating expenses to 0.80% of the Trusts average daily managed assets. The dividend on any preferred shares is not an expense for this purpose. For the

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

year ended March 31, 2007, the expense reduction under such arrangements was \$47,982. For the year ended March 31, 2007, the net management fee was equivalent to 0.59% of the Trust's average daily managed assets, which was equivalent to 0.84% of the Trust's average daily net assets attributable to the common shareowners.

In addition, under PIM's management and administration agreements, certain other services and costs are paid by PIM and reimbursed by the Trust. At March 31, 2007, \$269,435 was payable to PIM related to management costs, administrative costs and certain other services and is included in "Due to affiliate" on the Statement of Assets and Liabilities.

The Trust has retained Princeton Administrators, LLC ("Princeton") to provide certain administrative services to the Trust on its behalf. The Trust pays Princeton a monthly fee at an annual rate of 0.07% of the average daily value of the Trust's managed assets, subject to a minimum monthly fee of \$10,000.

### 3. Transfer Agents

Pioneer Investment Management Shareholder Services, Inc. ("PIMSS"), a wholly owned indirect subsidiary of UniCredito Italiano, through a sub-transfer agency agreement with American Stock Transfer & Trust Company provides substantially all transfer agent and shareowner services related to the Trust's common shares at negotiated rates. Deutsche Bank Trust Company Americas ("Deutsche Bank") is the transfer agent, registrar, dividend paying agent and redemption agent with respect to the Trust's Auction Preferred Shares ("APS"). The Trust pays Deutsche Bank an annual fee,

31

Pioneer Municipal High Income Advantage Trust

-----  
NOTES TO FINANCIAL STATEMENTS 3/31/07

(continued)  
-----

as is agreed to from time to time by the Trust and Deutsche Bank, for providing such services.

### 4. Expense Offset Arrangements

The Trust has entered into an arrangement with its custodian whereby credits realized as a result of uninvested cash balances are used to reduce a portion of the Trust's custodian expenses. For the year ended March 31, 2007, the Trust's expenses were reduced by \$63 under such arrangement.

### 5. Interest Rate Swaps

The Trust may enter into interest rate swap transactions to attempt to protect itself from increasing dividend or interest expense on its leverage resulting from increasing short-term interest rates. The cost of leverage may rise with an increase in interest rates, generally having the effect of lower yields and potentially lower dividends to common shareowners. Interest rate swaps can be used to "lock in" the cost of leverage and reduce the negative impact that rising short-term interest rates would have on the Trust's leveraging costs.

An interest rate swap is an agreement between two parties, which involves exchanging floating rate and fixed rate interest payments for a specified period of time. Interest rate swaps involve the accrual of the net interest payments between the parties on a daily basis, with the net amount recorded within the

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

unrealized appreciation/ depreciation of interest rate swaps on the Statement of Assets and Liabilities. Once the interim payments are settled in cash, at the pre-determined dates specified in the agreement, the net amount is recorded as realized gain or loss from interest rate swaps on the Statement of Operations. During the term of the swap, changes in the value of the swap are recognized as unrealized gains and losses by "marking-to market" the market value of the swap based on values obtained from dealer quotations. When the swap is terminated, the Trust will record a realized gain or loss equal to the difference, if any, between the proceeds from (or cost of) closing the contract and the cost basis of the contract. The Trust is exposed to credit risk in the event of non-performance by the other party to the interest rate swap. However, at March 31, 2007 the Trust does not anticipate non-performance by any counterparty. Risk may also arise with regard to market movements in the value of the swap arrangement that do not

32

Pioneer Municipal High Income Advantage Trust

-----  
 -----  
 exactly offset the changes in the related dividend requirement or interest expense on the Trust's leverage.

Under the terms of the agreement entered into by the Trust, the Trust receives a floating rate of interest and pays a fixed rate of interest for the term. Details of the swap agreement outstanding as of March 31, 2007 were as follows:

Counterparty	Termination Date	Notional Amount (000)	Fixed Rate	Floating Rate	Unrealized Appreciation
UBS AG	April 5, 2009	\$75,000	2.665%	1 month BMA	\$1,055,792

### 6. Trust Shares

There are an unlimited number of common shares of beneficial interest authorized. Of the 22,740,627 common shares of beneficial interest outstanding at March 31, 2007, PIM owned 6,981 shares.

Transactions in common shares of beneficial interest for the years ended March 31, 2007 and March 31, 2006 were as follows:

	2007	2006
Shares outstanding at beginning of year	22,740,627	22,698,047
Reinvestment of distributions	-	42,580

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Shares outstanding at end of year	22,740,627 =====	22,740,627 =====
--------------------------------------	---------------------	---------------------

-----

The Trust may classify or reclassify any unissued common shares of beneficial interest into one or more series of preferred shares of beneficial interest. As of March 31, 2007, there were 6,000 APS as follows: Series A - 3,000 and Series B - 3,000.

Dividends on Series A and Series B are cumulative at a rate, which is reset every seven days based on the results of an auction. Dividend rates ranged from 2.94% to 4.05% during the year ended March 31, 2007.

The Trust may not declare dividends or make other distributions on its common shares or purchase any such shares if, at the time of the declaration, distribution or purchase, asset coverage with respect to the outstanding preferred shares would be less than 200%.

33

Pioneer Municipal High Income Advantage Trust

-----

NOTES TO FINANCIAL STATEMENTS 3/31/07

(continued)

-----

The APS are redeemable at the option of the Trust, in whole or in part, on any dividend payment date at \$25,000 per share plus any accumulated or unpaid dividends, whether or not declared. The APS are also subject to mandatory redemption at \$25,000 per share plus any accumulated or unpaid dividends, whether or not declared, if certain requirements relating to the composition of the assets and liabilities of the Trust as set forth in the Agreement and Declaration of Trust are not satisfied.

The holders of APS have voting rights equal to the holders of the Trust's common shares (one vote per share) and will vote together with holders of the common shares as a single class. However, holders of APS are also entitled to elect two of the Trust's Trustees. In addition, the Investment Company Act of 1940, as amended, requires that along with approval by shareowners that might otherwise be required, the approval of the holders of a majority of any outstanding preferred shares, voting separately as a class, would be required to (a) adopt any plan of reorganization that would adversely affect the preferred shares and (b) take any action requiring a vote of security holders, including, among other things, changes in the Trust's subclassification as a closed-end management investment company or changes in its fundamental investment restrictions.

### 7. New Pronouncements

On July 13, 2006, the Financial Accounting Standards Board ("FASB") released FASB Interpretation No. 48 "Accounting for Uncertainty in Income Taxes" ("FIN 48"). FIN 48 provides guidance for how uncertain tax positions should be recognized, measured, presented and disclosed in the financial statements. FIN 48 requires the evaluation of tax positions taken or expected to be taken in the course of preparing the Trust's tax returns to determine whether the tax positions have a "more-likely-than-not" probability of being sustained by the applicable tax authority. Tax positions deemed to not meet the more-likely-than-not threshold would be recorded as a tax benefit or expense in the reporting period in which they are realized. Adoption of FIN 48 is required for fiscal years beginning after December 15, 2006 and is to be applied to all



Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

open tax years as of no later than September 28, 2007. At this time, management is evaluating the implications of FIN 48 and any impact in the financial statements has not yet been determined.

34

Pioneer Municipal High Income Advantage Trust

-----  
-----  
In addition, in September 2006, Statement of Financial Accounting Standards No. 157, Fair Value Measurements ("SFAS 157"), was issued and is effective for fiscal years beginning after November 15, 2007. SFAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. At this time, management is currently evaluating the implications of SFAS 157 and its impact on the Trust's financial statement disclosures, if any, has not been determined.

8. Subsequent Events

Subsequent to March 31, 2007, the Board of Trustees of the Trust declared a dividend from undistributed net investment income of \$0.07 per common share payable April 30, 2007, to shareowners of record on April 16, 2007.

Subsequent to March 31, 2007, dividends declared and paid on preferred shares totaled \$485,460 in aggregate for the two outstanding preferred share series through May 8, 2007.

ADDITIONAL INFORMATION (unaudited)

During the period, there have been no material changes in the Trust's investment objective or fundamental policies that have not been approved by the shareowners. There have been no changes in the Trust's charter or By-Laws that would delay or prevent a change in control of the Trust which have not been approved by the shareowners. There have been no changes in the principal risk factors associated with investment in the Trust. Day-to-day management of the Trust's portfolio is the responsibility of David Eurkus. Mr. Eurkus is supported by the fixed income team. Members of this team manage other Pioneer funds investing primarily in fixed income securities. The portfolio manager and the team also may draw upon the research and investment management expertise of Pioneer's affiliate, Pioneer Investment Management Limited. Mr. Eurkus joined Pioneer as a senior vice president in January 2000 and has been an investment professional since 1969.

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

35

Pioneer Municipal High Income Advantage Trust

-----  
NOTES TO FINANCIAL STATEMENTS 3/31/07

(continued)  
-----

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

## CEO CERTIFICATION DISCLOSURE (unaudited)

The Trust's Chief Executive Officer has submitted to the New York Stock Exchange the annual CEO certification as required by Section 303A.12(a) of the NYSE Listed Company Manual. In addition, the Trust has filed with the Securities and Exchange Commission the certification of its Chief Executive Officer and Chief Financial Officer required by Section 302 of the Sarbanes-Oxley Act.

## IMPORTANT TAX INFORMATION (unaudited)

All of the net investment income distributions paid by Pioneer Municipal High Income Advantage Trust during the taxable year ended March 31, 2007 qualified as tax-exempt interest dividends for federal income tax purposes except the following per share distributions:

	Payable Date	Ordinary Income
Common Shareowners	12/20/2006	\$0.0365
Preferred Shareowners		
Series A	12/5/2006	\$ 17.31
Series A	12/12/2006	\$ 15.24
Series B	12/11/2006	\$ 17.26
Series B	12/18/2006	\$ 15.00

36

Pioneer Municipal High Income Advantage Trust

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Trustees and the Shareowners of  
Pioneer Municipal High Income Advantage Trust:

We have audited the accompanying statement of assets and liabilities of Pioneer Municipal High Income Advantage Trust (the "Trust"), including the schedule of investments, as of March 31, 2007, and the related statement of operations for the year then ended, the statements of changes in net assets for each of the two years in the period then ended, and the financial highlights for each of the periods indicated therein. These financial statements and financial highlights are the responsibility of the Trust's management. Our responsibility is to express an opinion on these financial statements and financial highlights based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements and financial highlights are free of material misstatement. We were not engaged to perform an audit of the Trust's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the

effectiveness of the Trust's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements and financial highlights, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our procedures included confirmation of securities owned as of March 31, 2007, by correspondence with the custodian. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements and financial highlights referred to above present fairly, in all material respects, the financial position of Pioneer Municipal High Income Advantage Trust at March 31, 2007, the results of its operations for the year then ended, the changes in its net assets for each of the two years in the period then ended, and the financial highlights for each of the periods indicated therein, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Boston, Massachusetts  
May 15, 2007

37

Pioneer Municipal High Income Advantage Trust

-----  
RESULTS OF SHAREHOLDER MEETING  
-----

On September 21, 2006, Pioneer Municipal High Income Advantage Trust held its annual meeting of shareowners to elect Class III Trustees. All Class III Trustees were elected. Here are the detailed results of the votes.

Proposal 1 - To elect Class III Trustees.

Nominee	Affirmative	Withheld
Mary K. Bush	21,679,438	352,341
Thomas J. Perna	21,693,730	338,049
Marguerite A. Piret+	5,269	37

+ Elected by Preferred Shares only

38

Pioneer Municipal High Income Advantage Trust

-----  
FACTORS CONSIDERED BY THE INDEPENDENT TRUSTEES IN  
APPROVING THE MANAGEMENT CONTRACT  
-----

The Investment Company Act of 1940 requires that both the Board of Trustees and a majority of the Independent Trustees (collectively "the Trustees"), voting

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

separately, annually approve the Trust's management contract (the "Management Contract"). The Trustees have determined that the terms of the Management Contract are fair and reasonable and that renewal of the contract: (i) will enable the Trust to receive quality investment advisory services at a fee deemed reasonable; and (ii) is in the best interests of the Trust and its shareowners. In making such determinations, the Independent Trustees relied upon the assistance of counsel to the Independent Trustees and counsel to the Trust.

Throughout the year, the Independent Trustees regularly met in executive session, separately from the Interested Trustees of the Trust and any officer of Pioneer Investment Management, Inc., the Trust's adviser (the "Investment Adviser"), or its affiliates. While the Trustees, including the Interested Trustees, act on all major matters relating to the Trust, a significant portion of the activities of the Board of Trustees (including certain of those described herein) is conducted through committees, the members of which are comprised exclusively of Independent Trustees. Such committee meetings are attended by officers of the Trust and/or officers of the Investment Adviser to the extent requested by the members of the committee.

In evaluating the Management Contract, the Trustees conducted a review that was specifically focused upon the renewal of the Management Contract, and also relied upon their knowledge, resulting from their meetings throughout the year, of the Investment Adviser, its services and the Trust. Both in meetings specifically dedicated to renewal of the Management Contract and at other meetings during the course of the year, the Trustees, including the Independent Trustees, received materials relating to the Investment Adviser's investment and management services under the Management Contract. These materials included information on (i) the investment performance of the Trust, a peer group of funds as classified by Morningstar, Inc., an independent evaluation service ("Morningstar") and two indices considered appropriate by the Independent Trustees for this purpose, (ii) the general investment outlook in the markets in which the Trust invests, (iii) the procedures employed to determine the value of each of the Trust's assets, (iv) the Investment Adviser's management of the relationships with the Trust's unaffiliated service providers, (v) the record of compliance with the Trust's investment policies

39

Pioneer Municipal High Income Advantage Trust

-----  
FACTORS CONSIDERED BY THE INDEPENDENT TRUSTEES IN  
APPROVING THE MANAGEMENT CONTRACT

(continued)

-----  
and restrictions and with the Trust's Code of Ethics and the structure and responsibilities of the Investment Adviser's compliance department and (vi) the nature, cost and character of non-investment management services provided by the Investment Adviser and its affiliates, (viii) analyses of the benefits and costs of the use of leverage through the issuance of the Trust's preferred shares and sensitivity analyses based on changes in interest rates and (ix) the discount or premium of the market price of the Trust's common stock relative to its net asset value and measures that are or could be taken to address any discount.

Specifically in connection with the Independent Trustees' review of the Management Contract, the Independent Trustees requested, and the Investment Adviser provided, additional information in order to evaluate the quality of the Investment Adviser's services and the reasonableness of the fee under the Management Contract. Among other items, this information included data or

analyses of (1) investment performance for one year period for the Trust and a peer group of funds selected on the basis of criteria considered appropriate by the Independent Trustees for this purpose, (2) management and other fees incurred by a peer group of funds selected on the basis of criteria considered appropriate by the Independent Trustees for this purpose, (3) the advisory fees of comparable portfolios of other clients of the Investment Adviser, (4) expense ratios for the Trust and a peer group of funds selected on the basis of criteria considered appropriate by the Independent Trustees for this purpose, (5) the overall organization of the Investment Adviser, (6) the Investment Adviser's financial results and condition, including its and certain of its affiliates' profitability in providing services to the Trust, (7) administrative reimbursements paid to the Investment Adviser or affiliates, (8) investment management staffing, and (9) operating expenses paid by the funds to third parties.

The following summarizes factors considered by the Trustees in connection with reviewing the information described above and their renewal of the Trust's Management Contract. The Trustees did not identify any single factor as all-important or controlling, and the summary does not detail all the matters that were considered.

- A. Ancillary Benefits to Shareowners. The Trustees considered the benefits to shareowners of investing in a closed-end fund that is part of an established group of open and closed-end funds. The

40

Pioneer Municipal High Income Advantage Trust

-----

-----

Trustees also noted that the relationship of the market price relative to the Trust's net assets attributed to its common shares was at least comparable to other closed-end funds with similar investment approaches.

- B. Compliance and Investment Performance. The Trustees determined that the Investment Adviser had policies and systems reasonably designed to achieve compliance with the Trust's investment objective and regulatory requirements. The Trustees also reviewed the Trust's absolute investment performance based upon total return, as well as the Trust's performance relative to the performance of both a peer group considered appropriate by the Independent Trustees for this purpose and the Lehman Municipal Bond Index. The Trust's performance, based upon total return, was in the fourth quintile of its Morningstar category peer group for the 12 months ended June 30, 2006. (In all quintile rankings referred to throughout this discussion first quintile is most favorable to the Trust's shareowners. Thus, highest relative performance would be first quintile and lowest relative expenses also would be first quintile.) The Trustees also considered the yield of the Trust, before deduction of expenses, compared to the yield of the index. The Trustees concluded that the Trust underperformed relative to its peers during the short period since its inception.
- C. The Investment Adviser's Personnel and Methods. The Trustees reviewed the background of members of the team responsible for the daily management of the Trust and the Trust's investment objective and discipline. The Independent Trustees also have had discussions with senior management of the Investment Adviser responsible for investment operations and the senior

management of the Investment Adviser's fixed income group. Among other things, the Trustees considered the size, education and experience of the Investment Adviser's investment staff and their use of technology and emphasis on analytics in view of the risk profile of securities in which the Trust invests. The Trustees concluded that the Investment Adviser had the quality and depth of personnel and the well-developed methods essential to perform its duties under the Management Contract.

- D. Nature and Quality of Other Services. The Trustees considered the nature, quality and extent of other services provided to shareowners of the Trust, including administrative and shareowner

41

Pioneer Municipal High Income Advantage Trust

-----  
FACTORS CONSIDERED BY THE INDEPENDENT TRUSTEES IN  
APPROVING THE MANAGEMENT CONTRACT

(continued)

-----  
services performed by the Investment Adviser under the Management Contract. The Trustees also considered the reasonableness of the arrangements for reimbursement of the Investment Adviser's out-of-pocket costs and expenses, including overhead, for certain administrative services that the Investment Adviser is not required to provide under the Management Contract. The Trustees also considered the nature and extent of the other services provided by the Investment Adviser or its affiliates under other contracts, as well as the Investment Adviser's supervision of third party service providers. Based on these considerations, the Trustees concluded that the nature, quality and extent of such services are satisfactory and reliable and serve the shareowners of the Trust well.

- E. Management Fee and Expenses. The Trustees considered the Investment Adviser's fee under the Management Contract relative to the management fees charged by its Morningstar category peer group. The Trust's management fee for the 12 months ended June 30, 2006 was in the third quintile relative to the management fees paid by the other funds in that peer group for the comparable period. The Trustees also considered the Trust's expense ratio for the 12 months ended June 30, 2006 and expense ratios for the comparable period of the peer group of funds selected on the basis of criteria considered appropriate by the Independent Trustees for this purpose using data provided by Strategic Insight Mutual Fund Research and Consulting, LLC, an independent third party. The Trustees found the Trust's expense ratio for the 12 months ended June 30, 2006 (after giving effect to the expense limitation) to be in the third quintile, according to data for the applicable peer group for the most recent fiscal year.
- F. Profitability. The Trustees considered the level of the Investment Adviser's profits with respect to the management of the Pioneer funds, including a review of the Investment Adviser's methodology in allocating certain of its costs to the management of each fund, as well as the financial results realized by the Investment Adviser in connection with the operation of the Trust. They further considered the profits realized by the Investment Adviser and its affiliates from non-fund businesses that may benefit from or be related to the Trust's business. The Trustees considered the Investment Adviser's profit margins in comparison with the limited industry data available. The Trustees concluded that the Investment

Pioneer Municipal High Income Advantage Trust

---

---

Adviser's profits from management of the Pioneer funds, including the financial results derived from the Trust, bear a reasonable relationship to the services rendered and are fair for the management of the Trust.

- G. Economies of Scale. The Trustees considered whether the Trust had appropriately benefited from any economies of scale, and whether there was potential for realization of any further economies of scale. Since the Trust is a closed-end fund and its size is relatively stable at an asset level that was anticipated when the management fee was initially set, the Trustees concluded that economies of scale were not a relevant consideration.
- H. Other Benefits to the Investment Adviser. The Trustees also considered the character and amount of fees paid by the Trust, other than under the Management Contract, for services provided by the Investment Adviser and affiliates. The Trustees further considered the revenues and profitability of the Investment Adviser's businesses other than the Trust business, including the Investment Adviser's institutional investment advisory business. The Trustees considered the intangible benefits that accrue to the Investment Adviser and its affiliates by virtue of its relationship with the Trust and the Pioneer funds as a group. The Trustees concluded that all these types of benefits accruing to the Investment Adviser were reasonable in the context of the overall relationship between the Investment Adviser and the Trust.

Conclusion. In light of the Investment Adviser's overall performance, the Trustees considered it appropriate to continue to retain the management services of the Investment Adviser. Based on their review of the overall nature and quality of services provided by the Investment Adviser and the fees charged by other funds in the Trust's relevant peer group, and taking into account all material factors deemed relevant by the Trustees as well as the advice of independent counsel, the Trustees concluded that the Management Contract with the Trust, including the fee payable thereunder, was fair and reasonable and that its renewal was in the best interests of the Trust and its shareholders. Accordingly, the Trustees voted to approve the continuation of the Management Contract for another year.

Pioneer Municipal High Income Advantage Trust

---

---

TRUSTEES, OFFICERS AND SERVICE PROVIDERS

---

---

Investment Adviser  
Pioneer Investment Management, Inc.

Custodian  
Brown Brothers Harriman & Co.

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Independent Registered Public Accounting Firm  
Ernst & Young LLP

Legal Counsel  
Wilmer Cutler Pickering Hale and Dorr LLP

Transfer Agent  
Pioneer Investment Management Shareholder Services, Inc.

Shareowner Services and Sub-Transfer Agent  
American Stock Transfer & Trust Company

Preferred Share Auction/Transfer Agent and Registrar  
Deutsche Bank Trust Company Americas

Sub-Administrator  
Princeton Administrators, LLC

## Trustees and Officers

The Trust's Board of Trustees provides broad supervision over the Trust's affairs. The officers of the Trust are responsible for the Trust's operations. The Trust's Trustees and officers are listed below, together with their principal occupations during the past five years. Trustees who are interested persons of the Trust within the meaning of the Investment Company Act of 1940 are referred to as Interested Trustees. Trustees who are not interested persons of the Trust are referred to as Independent Trustees. Each of the Trustees may serve as a trustee of each of the 82 U.S. registered investment portfolios for which Pioneer Investment Management, Inc. ("Pioneer") serves as investment adviser (the "Pioneer Funds"). The address for all Interested Trustees and all officers of the Trust is 60 State Street, Boston, Massachusetts 02109.

Proxy Voting Policies and Procedures of the Trust are available without charge, upon request, by calling toll free 1-800-225-6292. Information regarding how the Trust voted proxies relating to portfolio securities during the most recent 12-month period ended June 30 is publicly available to shareowners at [www.pioneerfunds.com](http://www.pioneerfunds.com) and on the SEC's web site at <http://www.sec.gov>.

44

Pioneer Municipal High Income Advantage Trust

-----  
INTERESTED TRUSTEES  
-----

Name and Age	Position Held With the Trust	Length of Service and Term of Office	Principal Occupation During Past Five Years
John F. Cogan, Jr. (80)*	Chairman of the Board, Trustee and President	Class I Trustee since 2003. Term expires in 2007. Elected by Preferred Shares only.	Deputy Chairman and a Director of Pioneer Global Asset Management ("PGAM"); Non-Executive Chairman and a Director of Pioneer Investment Management USA Inc. ("PIM"); Chairman and a Director of



Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Institutional Asset Manag  
(since 2006); Director of  
Alternative Investment Ma  
Limited (Dublin); Preside  
Director of Pioneer Alter  
Investment Management (Be  
Limited and affiliated fu  
of PIOGLOBAL Real Estate  
Fund (Russia) (until June  
Director of Nano-C, Inc.  
Director of Cole Manageme  
(since 2004); Director of  
Counseling, Inc.; Preside  
Director of Pioneer Funds  
Inc. ("PFD") (until May 2  
President of all of the P  
and Of Counsel, Wilmer Cu  
Pickering Hale and Dorr L  
to PIM-USA and the Pione

Daniel K. Kingsbury (48)*	Trustee and Executive Vice President	Class II Trustee since 2007. Term expires in 2008.	Director, CEO and Preside Investment Management USA Pioneer Investment Manage and Pioneer Institutional Management, Inc. (since M Executive Vice President Pioneer Funds (since Marc Director of Pioneer Globa Management S.p.A. (since Head of New Markets Divis Global Asset Management S 2007)
---------------------------	--	--	--

\* Mr. Cogan and Mr. Kingsbury are Interested Trustees because they are an officer or director of the Trust's investment adviser and certain of its affiliates.

Pioneer Municipal High Income Advantage Trust

INDEPENDENT TRUSTEES

Name, Age and Address	Position Held With the Trust	Length of Service and Term of Office	Principal Occupation During Past Five Years
David R. Bock (63) 3050 K Street NW, Washington, DC 20007	Trustee	Class I Trustee since 2005. Term expires in 2007.	Executive Vice President Financial Officer, I-trax (publicly traded health c company) (2004 - present) Federal City Capital Advi (boutique merchant bank) 2004); and Executive Vice

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

and Chief Financial Officer  
 Inc. (internet-based mortgage  
 company) (2000 - 2002)

---

Mary K. Bush (58) 3509 Woodbine Street Chevy Chase, MD 20815	Trustee	Class III Trustee since 2003. Term expires in 2009.	President, Bush International (international financial firm)
--	---------	---	--

---

Margaret B.W. Graham (59) 1001 Sherbrooke Street West, Montreal, Quebec, Canada H3A 1G5	Trustee	Class II Trustee since 2003. Term expires in 2008.	Founding Director, Vice-President, Corporate Secretary, The Group, Inc. (consulting firm) Desautels Faculty of Management McGill University
--	---------	--	---

46

Pioneer Municipal High Income Advantage Trust

---

Name, Age and Address	Position Held With the Trust	Length of Service and Term of Office	Principal Occupation During Past Five Years
Thomas J. Perna (56) 89 Robbins Avenue, Berkeley Heights, NJ 07922	Trustee	Class III Trustee since 2006. Term expires in 2009.	Private investor (2004 - Senior Executive Vice President, Bank of New York (financial securities services) (198
Marguerite A. Piret (58) 200 State Street, 12th Floor, Boston, MA 02109	Trustee	Class III Trustee since 2003. Term expires in 2009. Elected by Preferred Shares only.	President and Chief Executive Officer, Newbury, Piret & Company, (investment banking firm)
Stephen K. West (78) 125 Broad Street,	Trustee	Class I Trustee since 2003. Term expires	Senior Counsel, Sullivan (law firm)

# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

New York, NY 10004

in 2007.

John Winthrop (70) One North Adgers Wharf, Charleston, SC 29401	Trustee	Class II Trustee since 2003. Term expires in 2008.	President, John Winthrop (private investment firm)
---	---------	--	---

47

Pioneer Municipal High Income Advantage Trust

## FUND OFFICERS

Name and Age	Position Held With the Trust	Length of Service and Term of Office	Principal Occupation During Past Five Years
Dorothy E. Bourassa (59)	Secretary	Since 2003. Serves at the discretion of the Board	Secretary of PIM-USA; S President - Legal of Pi Secretary/Clerk of most subsidiaries; and Secre of the Pioneer Funds si 2003 (Assistant Secreta November 2000 to Septem
Christopher J. Kelley (42)	Assistant Secretary	Since 2003. Serves at the discretion of the Board	Vice President and Seni Pioneer since July 2002 President and Senior Co BISYS Fund Services, In 2001 to June 2002); Sen President and Deputy Ge of Funds Distributor, I 2000 to April 2001), an Secretary of all of the Funds since September 2
Christopher P. Harvey (45)	Assistant Secretary	Since 2006. Serves at the discretion of the Board	Partner, Wilmer Cutler Hale and Dorr LLP; and Secretary of all of the Funds since July 2006
Vincent Nave (61)	Treasurer	Since 2003. Serves at the discretion of the Board	Vice President - Fund A Administration and Cont Services of Pioneer; an of all of the Pioneer F
Mark E. Bradley (47)	Assistant Treasurer	Since 2004. Serves at the discretion of the Board	Deputy Treasurer of Pio 2004; Treasurer and Sen President, CDC IXIS Ass Services from 2002 to 2 Assistant Treasurer of Pioneer Funds since Nov
Luis I. Presutti (42)	Assistant Treasurer	Since 2003. Serves at the discretion of the Board	Director of Fund Admini Pioneer; and Assistant all of the Pioneer Fund

48

Pioneer Municipal High Income Advantage Trust

Name and Age	Position Held With the Trust	Length of Service and Term of Office	Principal Occupation During Past Five Years
Gary Sullivan (48)	Assistant Treasurer	Since 2003. Serves at the discretion of the Board	Fund Accounting Manager Accounting, Administration, Controllership Services and Assistant Treasurer of the Pioneer Funds since
Katherine Kim Sullivan (33)	Assistant Treasurer	Since 2003. Serves at the discretion of the Board	Fund Administration Manager Accounting, Administration, Controllership Services 2003; Assistant Vice President Mutual Fund Operations Street Corporation from June 2003 (formerly Deputy Asset Management); Pioneer Accounting, Administration, Controllership Services Accounting Manager from to May 2002); and Assistant Treasurer of all of the Funds since September 2
Teri W. Anderholm (47)	Chief Compliance Officer	Since 2007. Serves at the discretion of the Board	Chief Compliance Officer since December 2006 and Pioneer Funds since January Vice President and Compliance Officer, MFS Investment (August 2005 to December Consultant, Fidelity Investment (February 2005 to July Independent Consultant February 2005)

The outstanding capital stock of PFD, Pioneer and PIMSS is indirectly wholly owned by UniCredito Italiano"), one of the largest banking groups in Italy. Pioneer, the Trust's investment adviser, financial services to mutual funds, institutional and other clients.

49

This page for your notes.

50

-----  
-----  
This page for your notes.

51

-----  
-----  
This page for your notes.

52

-----  
HOW TO CONTACT PIONEER  
-----

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

You can call American Stock Transfer & Trust Company (AST) for:

Account Information 1-800-710-0935

Or write to AST:

For

General inquiries, lost dividend checks,  
change of address, lost stock certificates,  
stock transfer

Write to

American Stock  
Transfer & Trust  
Operations Center  
6201 15th Ave.  
Brooklyn, NY 11219

Dividend reinvestment plan (DRIP)

American Stock  
Transfer & Trust  
Wall Street Station  
P.O. Box 922  
New York, NY 10269-0560

Website

www.amstock.com

For additional information, please contact your investment advisor or visit our web site [www.pioneerinvestments.com](http://www.pioneerinvestments.com).

The Trust files a complete statement of investments with the Securities and Exchange Commission for the first and third quarters for each fiscal year on Form N-Q. Shareowners may view the filed Form N-Q by visiting the Commission's web site at <http://www.sec.gov>. The filed form may also be viewed and copied at the Commission's Public Reference Room in Washington, DC. Information regarding the operations of the Public Reference Room may be obtained by calling

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

1-800-SEC-0330.

The Trust's Chief Executive Officer is required by the New York Stock Exchange's Listing Standards to file annually with the Exchange a certification that he is not aware of any violation by the Trust of the Exchange's Corporate Governance Standards applicable to the Trust. The Trust has filed such certification.

### 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 10(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

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

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 10(a), 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;

(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 10(2)

### ITEM 3. AUDIT COMMITTEE FINANCIAL EXPERT.

(a) (1) Disclose that the registrant's board of trustees 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 Trustees 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 trustees, 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

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

Section 2(a)(19) of the Act (15 U.S.C. 80a-2(a)(19)).

Ms. Marguerite A. Piret, an independent trustee, 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.

#### Audit Fees

Fees for audit services provided to the Trust, including fees associated with the filings to update its Form N-2 and issuance of comfort letters, totaled approximately \$38,545 in 2007 and \$26,335 in 2006.

(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.

#### Audit-Related Fees

Fees for the Trusts audit-related services totaled approximately \$9,285 in 2007 and \$8,500 in 2006, which were related to the issuance of agreed upon procedures report to the rating agencies.

(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.

#### Tax Fees

Fees for tax compliance services, primarily for tax returns, totaled approximately \$7,820 and \$6,800 for 2007 and 2006, respectively.

(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.

#### Other Fees

There were no other services provided to the Trust during the fiscal years ended March 31, 2007 and 2006.

(e) (1) Disclose the audit committee's pre-approval policies and procedures



# Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

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 Pioneer Investment Management, Inc ("PIM"), 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	<ul style="list-style-type: none"> <li>o Accounting research assistance</li> <li>o SEC consultation, registration statements, and reporting</li> <li>o Tax accrual related matters</li> <li>o Implementation of new accounting standards</li> <li>o Compliance letters (e.g. rating agency letters)</li> <li>o Regulatory reviews and assistance regarding financial matters</li> <li>o Semi-annual reviews (if requested)</li> <li>o Comfort letters for closed end offerings</li> </ul>
II. AUDIT-RELATED	Services which are not prohibited under Rule	<ul style="list-style-type: none"> <li>o AICPA attest and agreed-upon procedures</li> <li>o Technology control assessments</li> </ul>

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

SERVICES	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.)	<ul style="list-style-type: none"><li>o Financial reporting control assessments</li><li>o Enterprise security architecture assessment</li></ul>
----------	--	---

---

---

### AUDIT COMMITTEE APPROVAL POLICY

### AUDIT COMMITTEE REPORTING POLICY

---

o "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.

o A summary of all such services and related fees reported at each regularly scheduled Audit Committee meeting.

---

o "One-time" pre-approval for the fund fiscal year within a specified dollar limit for all pre-approved specific service subcategories

o A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.

o 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)

o 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

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

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.	<ul style="list-style-type: none"> <li>o Tax planning and support</li> <li>o Tax controversy assistance</li> <li>o Tax compliance, tax returns, excise tax returns and support</li> <li>o Tax opinions</li> </ul>

AUDIT COMMITTEE APPROVAL POLICY	AUDIT COMMITTEE REPORTING POLICY
<ul style="list-style-type: none"> <li>o "One-time" pre-approval for the fund fiscal year within a specified dollar limit</li> <li>o 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)</li> <li>o 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"</li> </ul>	<ul style="list-style-type: none"> <li>o A summary of all such services and related fees (including comparison to specified dollar limits) reported quarterly.</li> </ul>

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	<ul style="list-style-type: none"> <li>o Business Risk Management support</li> <li>o Other control and regulatory compliance projects</li> </ul>

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 possess unique or superior qualifications to provide these services, resulting in superior value and results for the Fund.

AUDIT COMMITTEE APPROVAL POLICY

AUDIT COMMITTEE REPORTING POLICY

- o "One-time" pre-approval for the fund fiscal year within a specified dollar limit
- o 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)
- o 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"
- o 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.	<ol style="list-style-type: none"> <li>1. Bookkeeping or other services related to the accounting records or financial statements of the audit client*</li> <li>2. Financial information systems design and implementation*</li> </ol>

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

- o 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.

---

---

AUDIT COMMITTEE REPORTING POLICY

- o 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:

- o 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.
- o 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.
- o 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.

Non-Audit Services

Beginning with non-audit service contracts entered into on or after May 6, 2003, the effective date of the new SEC pre-approval rules, the Trusts audit committee is required to pre-approve services to affiliates defined by SEC rules to the

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

extent that the services are determined to have a direct impact on the operations or financial reporting of the Trust. For the years ended March 31, 2007 and 2006, there were no services provided to an affiliate that required the Trusts audit committee pre-approval.

(f) If greater than 50 percent, disclose the percentage of hours expended on the principal accountant's 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 registrant's accountant for services rendered to the registrant, and rendered to the registrant's 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.

The aggregate non-audit fees for the Trust and affiliates, as previously defined, totaled approximately \$17,110 in 2007 and \$15,300 in 2006. These fees include services provided prior to May 6, 2003, the effective date of the pre-approval process.

(h) Disclose whether the registrant's audit committee of the board of trustees has considered whether the provision of non-audit services that were rendered to the registrant's 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 Trust's audit committee of the Board of Trustees 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.

### 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 registrants audit committee as specified in Section 3(a)(58)(B) of the Exchange Act (15 U.S.C. 78c(a)(58)(B)), so state.

The registrant has a separately-designated standing audit committee established in accordance with Section

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

3(a) (58) (A) of the Exchange Act (15 U.S.C. 78c(a) (58) (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 I Investments in securities of unaffiliated issuers as of the close of the reporting period as set forth in 210.12-12 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. DISCLOSURE OF PROXY VOTING POLICIES AND PROCEDURES FOR CLOSED-END MANAGEMENT INVESTMENT COMPANIES.

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.

Proxy Voting Policies and Procedures of  
Pioneer Investment Management, Inc.

VERSION DATED July, 2004

Overview

Pioneer Investment Management, Inc. ("Pioneer") is a fiduciary that owes each of its client's duties of care and loyalty with respect to all services undertaken on the client's behalf, including proxy voting. When Pioneer has been delegated proxy-voting authority for a client, the duty of care requires Pioneer to monitor corporate events and to vote the proxies. To satisfy its duty of loyalty, Pioneer must place its client's interests ahead of its own and must cast proxy votes in a manner consistent with the best interest of its clients. Pioneer will vote all proxies presented in a timely manner.

The Proxy Voting Policies and Procedures are designed to complement Pioneer's investment policies and procedures regarding its general responsibility to monitor the performance and/or corporate events of companies that are issuers of securities held in accounts managed by Pioneer. Pioneer's Proxy Voting Policies summarize Pioneer's position on a number of issues solicited by companies held by Pioneer's clients. The policies are guidelines that provide a general indication on how Pioneer would vote but do not include all potential voting scenarios.

Pioneer's Proxy Voting Procedures detail monitoring of voting, exception votes, and review of conflicts of interest and ensure that case-by-case votes are handled within the context of the overall guidelines (i.e. best interest of client). The overriding goal is that all proxies for US and non-US companies that are received promptly will be voted in accordance with Pioneer's policies or specific client instructions. All shares in a company held by Pioneer-managed accounts will be voted alike, unless a client has given us specific voting instructions on an issue or has not delegated authority to us or the Proxy Voting Oversight Group determines that the circumstances justify a different approach.

Pioneer does not delegate the authority to vote proxies relating to its clients to any of its affiliates, which include other subsidiaries of UniCredito.

Any questions about these policies and procedures should be directed to the Proxy Coordinator.

1

### Proxy Voting Procedures

#### Proxy Voting Service

Pioneer has engaged an independent proxy voting service to assist in the voting of proxies. The proxy voting service works with custodians to ensure that all proxy materials are received by the custodians and are processed in a timely fashion. To the extent applicable, the proxy voting service votes all proxies in accordance with the proxy voting policies established by Pioneer. The proxy voting service will refer proxy questions to the Proxy Coordinator (described below) for instructions under circumstances where: (1) the application of the proxy voting guidelines is unclear; (2) a particular proxy question is not covered by the guidelines; or (3) the guidelines call for specific instructions on a case-by-case basis. The proxy voting service is also requested to call to the Proxy Coordinator's attention specific proxy questions that, while governed by a guideline, appear to involve unusual or controversial issues. Pioneer reserves the right to attend a meeting in person and may do so when it determines that the company or the matters to be voted on at the meeting are strategically important to its clients.

#### Proxy Coordinator

Pioneer's Director of Investment Operations (the "Proxy Coordinator") coordinates the voting, procedures and reporting of proxies on behalf of Pioneer's clients. The Proxy Coordinator will deal directly with the proxy voting service and, in the case of proxy questions referred by the proxy voting service, will solicit voting recommendations and instructions from the Director of Portfolio Management US or, to the extent applicable, investment sub-advisers. The Proxy Coordinator is responsible for ensuring that these questions and referrals are responded to in a timely fashion and for transmitting appropriate voting instructions to the proxy voting service. The Proxy Coordinator is responsible for verifying with the Compliance Department whether Pioneer's voting power is subject to any limitations or guidelines issued by the client (or in the case of an employee benefit plan, the plan's trustee or other fiduciaries).

#### Referral Items

From time to time, the proxy voting service will refer proxy questions to the Proxy Coordinator that are described by Pioneer's policy as to be voted on a case-by-case basis, that are not covered by Pioneer's guidelines or where Pioneer's guidelines may be unclear with respect to the matter to be voted on. Under such certain circumstances, the Proxy Coordinator will seek



a written voting recommendation from the Director of Portfolio Management US. Any such recommendation will include: (i) the manner in which the proxies should be voted; (ii) the rationale underlying any such decision; and (iii) the disclosure of any contacts or communications made between Pioneer and any outside parties concerning the proxy proposal prior to the time that the voting instructions are provided. In addition, the Proxy Coordinator will ask the Compliance Department to review the question for any actual or apparent conflicts of interest as described below under "Conflicts of

2

Interest." The Compliance Department will provide a "Conflicts of Interest Report," applying the criteria set forth below under "Conflicts of Interest," to the Proxy Coordinator summarizing the results of its review. In the absence of a conflict of interest, the Proxy Coordinator will vote in accordance with the recommendation of the Director of Portfolio Management US.

If the matter presents a conflict of interest for Pioneer, then the Proxy Coordinator will refer the matter to the Proxy Voting Oversight Group for a decision. In general, when a conflict of interest is present, Pioneer will vote according to the recommendation of the Director of Portfolio Management US where such recommendation would go against Pioneer's interest or where the conflict is deemed to be immaterial. Pioneer will vote according to the recommendation of its proxy voting service when the conflict is deemed to be material and the Pioneer's internal vote recommendation would favor Pioneer's interest, unless a client specifically requests Pioneer to do otherwise. When making the final determination as to how to vote a proxy, the Proxy Voting Oversight Group will review the report from the Director of Portfolio Management US and the Conflicts of Interest Report issued by the Compliance Department.

#### Conflicts of Interest

A conflict of interest occurs when Pioneer's interests interfere, or appear to interfere with the interests of Pioneer's clients. Occasionally, Pioneer may have a conflict that can affect how its votes proxies. The conflict may be actual or perceived and may exist when the matter to be voted on concerns:

- o An affiliate of Pioneer, such as another company belonging to the UniCredito Italiano S.p.A. banking group (a "UniCredito Affiliate");
- o An issuer of a security for which Pioneer acts as a sponsor, advisor, manager, custodian, distributor, underwriter, broker, or other similar capacity (including those securities specifically declared by PGAM to present a conflict of interest for Pioneer);
- o An issuer of a security for which UniCredito has informed Pioneer that a UniCredito Affiliate acts as a sponsor, advisor, manager, custodian, distributor, underwriter, broker, or other similar capacity; or
- o A person with whom Pioneer (or any of its affiliates) has an existing, material contract or business relationship that was not entered into in the ordinary course of Pioneer's business.
- o Pioneer will abstain from voting with respect to companies directly or indirectly owned by UniCredito Italiano Group, unless otherwise directed by a client. In addition, Pioneer will inform

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

PGAM Global Compliance and the PGAM Independent Directors before exercising such rights.

Any associate involved in the proxy voting process with knowledge of any apparent or actual conflict of interest must disclose such conflict to the Proxy Coordinator and the Compliance Department. The Compliance Department will review each item referred to Pioneer to determine whether an actual or potential conflict of interest with Pioneer exists in connection with the proposal(s) to be voted upon. The review will be conducted by comparing the apparent parties affected by the proxy proposal being

3

voted upon against the Compliance Department's internal list of interested persons and, for any matches found, evaluating the anticipated magnitude and possible probability of any conflict of interest being present. For each referral item, the determination regarding the presence or absence of any actual or potential conflict of interest will be documented in a Conflicts of Interest Report to the Proxy Coordinator.

### Securities Lending

In conjunction with industry standards Proxies are not available to be voted when the shares are out on loan through either Pioneer's lending program or a client's managed security lending program. However, Pioneer will reserve the right to recall lent securities so that they may be voted according to the Pioneer's instructions. If a portfolio manager would like to vote a block of previously lent shares, the Proxy Coordinator will work with the portfolio manager and Investment Operations to recall the security, to the extent possible, to facilitate the vote on the entire block of shares.

### Share-Blocking

"Share-blocking" is a market practice whereby shares are sent to a custodian (which may be different than the account custodian) for record keeping and voting at the general meeting. The shares are unavailable for sale or delivery until the end of the blocking period (typically the day after general meeting date).

Pioneer will vote in those countries with "share-blocking." In the event a manager would like to sell a security with "share-blocking", the Proxy Coordinator will work with the Portfolio Manager and Investment Operations Department to recall the shares (as allowable within the market time-frame and practices) and/or communicate with executing brokerage firm. A list of countries with "share-blocking" is available from the Investment Operations Department upon request.

### Record Keeping

The Proxy Coordinator shall ensure that Pioneer's proxy voting service:

- o Retains a copy of the proxy statement received (unless the proxy statement is available from the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system);
- o Retains a record of the vote cast;
- o Prepares Form N-PX for filing on behalf of each client that is a registered investment company; and
- o Is able to promptly provide Pioneer with a copy of the voting record upon its request.

The Proxy Coordinator shall ensure that for those votes that may require additional documentation (i.e. conflicts of interest, exception votes and case-by-case votes) the following records are maintained:

- o A record memorializing the basis for each referral vote cast;
- o A copy of any document created by Pioneer that was material in making the decision on how to vote the subject proxy; and
- o A copy of any conflict notice, conflict consent or any other written communication (including emails or other electronic communications) to or from the client (or in the case of an employee benefit plan, the plan's trustee or other fiduciaries) regarding the subject proxy vote cast by, or the vote recommendation of, Pioneer.
- o Pioneer shall maintain the above records in the client's file for a period not less than ten (10) years.

#### Disclosure

Pioneer shall take reasonable measures to inform its clients of the process or procedures clients must follow to obtain information regarding how Pioneer voted with respect to assets held in their accounts. In addition, Pioneer shall describe to clients its proxy voting policies and procedures and will furnish a copy of its proxy voting policies and procedures upon request. This information may be provided to clients through Pioneer's Form ADV (Part II) disclosure, by separate notice to the client, or through Pioneer's website.

#### Proxy Voting Oversight Group

The members of the Proxy Voting Oversight Group are Pioneer's: Director of Portfolio Management US, Head of Investment Operations, and Director of Compliance. Other members of Pioneer will be invited to attend meetings and otherwise participate as necessary. The Head of Investment Operations will chair the Proxy Voting Oversight Group.

The Proxy Voting Oversight Group is responsible for developing, evaluating, and changing (when necessary) Pioneer's Proxy Voting Policies and Procedures. The group meets at least annually to evaluate and review these policies and procedures and the services of its third-party proxy voting service. In addition, the Proxy Voting Oversight Group will meet as necessary to vote on referral items and address other business as necessary.

#### Amendments

Pioneer may not amend its Proxy Voting Policies And Procedures without the prior approval of the Proxy Voting Oversight Group and its corporate parent, Pioneer Global Asset Management S.p.A

#### Proxy Voting Policies

Pioneer's sole concern in voting proxies is the economic effect of the proposal on the value of portfolio holdings, considering both the short- and long-term impact. In many instances, Pioneer believes that supporting the company's strategy and voting "for" management's proposals builds portfolio value. In other cases, however, proposals set forth by management

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

may have a negative effect on that value, while some shareholder proposals may hold the best prospects for enhancing it. Pioneer monitors developments in the proxy-voting arena and will revise this policy as needed.

All proxies that are received promptly will be voted in accordance with the specific policies listed below. All shares in a company held by Pioneer-managed accounts will be voted alike, unless a client has given us specific voting instructions on an issue or has not delegated authority to us. Proxy voting issues will be reviewed by Pioneer's Proxy Voting Oversight Group, which consists of the Director of Portfolio Management US, the Director of Investment Operations (the Proxy Coordinator), and the Director of Compliance.

Pioneer has established Proxy Voting Procedures for identifying and reviewing conflicts of interest that may arise in the voting of proxies.

Clients may request, at any time, a report on proxy votes for securities held in their portfolios and Pioneer is happy to discuss our proxy votes with company management. Pioneer retains a proxy voting service to provide research on proxy issues and to process proxy votes.

### Administrative

While administrative items appear infrequently in U.S. issuer proxies, they are quite common in non-U.S. proxies.

We will generally support these and similar management proposals:

- o Corporate name change.
- o A change of corporate headquarters.
- o Stock exchange listing.
- o Establishment of time and place of annual meeting.
- o Adjournment or postponement of annual meeting.
- o Acceptance/approval of financial statements.
- o Approval of dividend payments, dividend reinvestment plans and other dividend-related proposals.
- o Approval of minutes and other formalities.

6

- o Authorization of the transferring of reserves and allocation of income.
- o Amendments to authorized signatories.
- o Approval of accounting method changes or change in fiscal year-end.
- o Acceptance of labor agreements.
- o Appointment of internal auditors.

Pioneer will vote on a case-by-case basis on other routine business; however, Pioneer will oppose any routine business proposal if insufficient information is presented in advance to allow Pioneer to judge the merit of the proposal. Pioneer has also instructed its proxy voting service to

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

inform Pioneer of its analysis of any administrative items inconsistent, in its view, with supporting the value of Pioneer portfolio holdings so that Pioneer may consider and vote on those items on a case-by-case basis.

### Auditors

We normally vote for proposals to:

- o Ratify the auditors. We will consider a vote against if we are concerned about the auditors' independence or their past work for the company. Specifically, we will oppose the ratification of auditors and withhold votes from audit committee members if non-audit fees paid by the company to the auditing firm exceed the sum of audit fees plus audit-related fees plus permissible tax fees according to the disclosure categories proposed by the Securities and Exchange Commission.
- o Restore shareholder rights to ratify the auditors.

We will normally oppose proposals that require companies to:

- o Seek bids from other auditors.
- o Rotate auditing firms, except where the rotation is statutorily required or where rotation would demonstrably strengthen financial disclosure.
- o Indemnify auditors.
- o Prohibit auditors from engaging in non-audit services for the company.

### Board of Directors

On issues related to the board of directors, Pioneer normally supports management. We will, however, consider a vote against management in instances where corporate performance has been very poor or where the board appears to lack independence.

7

### General Board Issues

Pioneer will vote for:

- o Audit, compensation and nominating committees composed of independent directors exclusively.
- o Indemnification for directors for actions taken in good faith in accordance with the business judgment rule. We will vote against proposals for broader indemnification.
- o Changes in board size that appear to have a legitimate business purpose and are not primarily for anti-takeover reasons.
- o Election of an honorary director.

We will vote against:

- o Minimum stock ownership by directors.
- o Term limits for directors. Companies benefit from experienced directors, and shareholder control is better achieved through annual votes.

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

- o Requirements for union or special interest representation on the board.
- o Requirements to provide two candidates for each board seat.

We will vote on a case-by case basis on these issues:

- o Separate chairman and CEO positions. We will consider voting with shareholders on these issues in cases of poor corporate performance.

### Elections of Directors

In uncontested elections of directors we will vote against:

- o Individual directors with absenteeism above 25% without valid reason. We support proposals that require disclosure of director attendance.
- o Insider directors and affiliated outsiders who sit on the audit, compensation, stock option or nominating committees. For the purposes of our policy, we accept the definition of affiliated directors provided by our proxy voting service.

We will also vote against:

- o Directors who have failed to act on a takeover offer where the majority of shareholders have tendered their shares.
- o Directors who appear to lack independence or are associated with very poor corporate performance.

8

We will vote on a case-by case basis on these issues:

- o Re-election of directors who have implemented or renewed a dead-hand or modified dead-hand poison pill (a "dead-hand poison pill" is a shareholder rights plan that may be altered only by incumbent or "dead " directors. These plans prevent a potential acquirer from disabling a poison pill by obtaining control of the board through a proxy vote).
- o Contested election of directors.
- o Prior to phase-in required by SEC, we would consider supporting election of a majority of independent directors in cases of poor performance.
- o Mandatory retirement policies.
- o Directors who have ignored a shareholder proposal that has been approved by shareholders for two consecutive years.

### Takeover-Related Measures

Pioneer is generally opposed to proposals that may discourage takeover attempts. We believe that the potential for a takeover helps ensure that corporate performance remains high.

Pioneer will vote for:

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

- o Cumulative voting.
- o Increase ability for shareholders to call special meetings.
- o Increase ability for shareholders to act by written consent.
- o Restrictions on the ability to make greenmail payments.
- o Submitting rights plans to shareholder vote.
- o Rescinding shareholder rights plans ("poison pills").
- o Opting out of the following state takeover statutes:
  - o Control share acquisition statutes, which deny large holders voting rights on holdings over a specified threshold.
  - o Control share cash-out provisions, which require large holders to acquire shares from other holders.
  - o Freeze-out provisions, which impose a waiting period on large holders before they can attempt to gain control.
  - o Stakeholder laws, which permit directors to consider interests of non-shareholder constituencies.

9

- o Disgorgement provisions, which require acquirers to disgorge profits on purchases made before gaining control.
- o Fair price provisions.
- o Authorization of shareholder rights plans.
- o Labor protection provisions.
- o Mandatory classified boards.

We will vote on a case-by-case basis on the following issues:

- o Fair price provisions. We will vote against provisions requiring supermajority votes to approve takeovers. We will also consider voting against proposals that require a supermajority vote to repeal or amend the provision. Finally, we will consider the mechanism used to determine the fair price; we are generally opposed to complicated formulas or requirements to pay a premium.
- o Opting out of state takeover statutes regarding fair price provisions. We will use the criteria used for fair price provisions in general to determine our vote on this issue.
- o Proposals that allow shareholders to nominate directors.

We will vote against:

- o Classified boards, except in the case of closed-end mutual funds.
- o Limiting shareholder ability to remove or appoint directors. We will support proposals to restore shareholder authority in this area. We will review on a case-by-case basis proposals that

authorize the board to make interim appointments.

- o Classes of shares with unequal voting rights.
- o Supermajority vote requirements.
- o Severance packages ("golden" and "tin" parachutes). We will support proposals to put these packages to shareholder vote.
- o Reimbursement of dissident proxy solicitation expenses. While we ordinarily support measures that encourage takeover bids, we believe that management should have full control over corporate funds.
- o Extension of advance notice requirements for shareholder proposals.
- o Granting board authority normally retained by shareholders (e.g., amend charter, set board size).
- o Shareholder rights plans ("poison pills"). These plans generally allow shareholders to buy additional shares at a below-market price in the event of a change in control and may deter some bids.

10

#### Capital Structure

Managements need considerable flexibility in determining the company's financial structure, and Pioneer normally supports managements' proposals in this area. We will, however, reject proposals that impose high barriers to potential takeovers.

Pioneer will vote for:

- o Changes in par value.
- o Reverse splits, if accompanied by a reduction in number of shares.
- o Share repurchase programs, if all shareholders may participate on equal terms.
- o Bond issuance.
- o Increases in "ordinary" preferred stock.
- o Proposals to have blank-check common stock placements (other than shares issued in the normal course of business) submitted for shareholder approval.
- o Cancellation of company treasury shares.

We will vote on a case-by-case basis on the following issues:

- o Reverse splits not accompanied by a reduction in number of shares, considering the risk of delisting.
- o Increase in authorized common stock. We will make a determination considering, among other factors:
  - o Number of shares currently available for issuance;
  - o Size of requested increase (we would normally approve increases of up to



## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

100% of current authorization);

- o Proposed use of the additional shares; and
- o Potential consequences of a failure to increase the number of shares outstanding (e.g., delisting or bankruptcy).
  - o Blank-check preferred. We will normally oppose issuance of a new class of blank-check preferred, but may approve an increase in a class already outstanding if the company has demonstrated that it uses this flexibility appropriately.
  - o Proposals to submit private placements to shareholder vote.
  - o Other financing plans.

We will vote against preemptive rights that we believe limit a company's financing flexibility.

11

### Compensation

Pioneer supports compensation plans that link pay to shareholder returns and believes that management has the best understanding of the level of compensation needed to attract and retain qualified people. At the same time, stock-related compensation plans have a significant economic impact and a direct effect on the balance sheet. Therefore, while we do not want to micromanage a company's compensation programs, we will place limits on the potential dilution these plans may impose.

Pioneer will vote for:

- o 401(k) benefit plans.
- o Employee stock ownership plans (ESOPs), as long as shares allocated to ESOPs are less than 5% of outstanding shares. Larger blocks of stock in ESOPs can serve as a takeover defense. We will support proposals to submit ESOPs to shareholder vote.
- o Various issues related to the Omnibus Budget and Reconciliation Act of 1993 (OBRA), including:
  - o Amendments to performance plans to conform with OBRA;
  - o Caps on annual grants or amendments of administrative features;
  - o Adding performance goals; and
  - o Cash or cash-and-stock bonus plans.
    - o Establish a process to link pay, including stock-option grants, to performance, leaving specifics of implementation to the company.
    - o Require that option repricings be submitted to shareholders.
    - o Require the expensing of stock-option awards.
    - o Require reporting of executive retirement benefits (deferred compensation, split-dollar life insurance, SERPs, and pension benefits).

- o Employee stock purchase plans where the purchase price is equal to at least 85% of the market price, where the offering period is no greater than 27 months and where potential dilution (as defined below) is no greater than 10%.

12

We will vote on a case-by-case basis on the following issues:

- o Executive and director stock-related compensation plans. We will consider the following factors when reviewing these plans:
- o The program must be of a reasonable size. We will approve plans where the combined employee and director plans together would generate less than 15% dilution. We will reject plans with 15% or more potential dilution.

$$\text{Dilution} = (A + B + C) / (A + B + C + D), \text{ where}$$

A = Shares reserved for plan/amendment,

B = Shares available under continuing plans,

C = Shares granted but unexercised and

D = Shares outstanding.

- o The plan must not:
  - o Explicitly permit unlimited option repricing authority or that have repriced in the past without shareholder approval.
  - o Be a self-replenishing "evergreen" plan, plans that grant discount options and tax offset payments.
- o We are generally in favor of proposals that increase participation beyond executives.
- o We generally support proposals asking companies to adopt rigorous vesting provisions for stock option plans such as those that vest incrementally over, at least, a three- or four-year period with a pro rata portion of the shares becoming exercisable on an annual basis following grant date.
- o We generally support proposals asking companies to disclose their window period policies for stock transactions. Window period policies ensure that employees do not exercise options based on insider information contemporaneous with quarterly earnings releases and other material corporate announcements.
- o We generally support proposals asking companies to adopt stock holding periods for their executives.
  - o All other employee stock purchase plans.
  - o All other compensation-related proposals, including deferred compensation plans, employment agreements, loan guarantee programs and retirement plans.
  - o All other proposals regarding stock compensation plans, including extending the life of a plan, changing vesting restrictions,

repricing options, lengthening exercise periods or accelerating distribution of awards and pyramiding and cashless exercise programs.

13

We will vote against:

- o Pensions for non-employee directors. We believe these retirement plans reduce director objectivity.
- o Elimination of stock option plans.

We will vote on a case-by case basis on these issues:

- o Limits on executive and director pay.
- o Stock in lieu of cash compensation for directors.

Corporate Governance

Pioneer will vote for:

- o Confidential Voting.
- o Equal access provisions, which allow shareholders to contribute their opinion to proxy materials.
- o Proposals requiring directors to disclose their ownership of shares in the company.

We will vote on a case-by-case basis on the following issues:

- o Change in the state of incorporation. We will support reincorporations supported by valid business reasons. We will oppose those that appear to be solely for the purpose of strengthening takeover defenses.
- o Bundled proposals. We will evaluate the overall impact of the proposal.
- o Adopting or amending the charter, bylaws or articles of association.
- o Shareholder appraisal rights, which allow shareholders to demand judicial review of an acquisition price.

We will vote against:

- o Shareholder advisory committees. While management should solicit shareholder input, we prefer to leave the method of doing so to management's discretion.
- o Limitations on stock ownership or voting rights.
- o Reduction in share ownership disclosure guidelines.

14

Mergers and Restructurings

Pioneer will vote on the following and similar issues on a case-by-case basis:

- o Mergers and acquisitions.
- o Corporate restructurings, including spin-offs, liquidations, asset sales, joint ventures, conversions to holding company and conversions to self-managed REIT structure.
- o Debt restructurings.
- o Conversion of securities.
- o Issuance of shares to facilitate a merger.
- o Private placements, warrants, convertible debentures.
- o Proposals requiring management to inform shareholders of merger opportunities.

We will normally vote against shareholder proposals requiring that the company be put up for sale.

#### Mutual Funds

Many of our portfolios may invest in shares of closed-end mutual funds or exchange-traded funds. The non-corporate structure of these investments raises several unique proxy voting issues.

Pioneer will vote for:

- o Establishment of new classes or series of shares.
- o Establishment of a master-feeder structure.

Pioneer will vote on a case-by-case on:

- o Changes in investment policy. We will normally support changes that do not affect the investment objective or overall risk level of the fund. We will examine more fundamental changes on a case-by-case basis.
- o Approval of new or amended advisory contracts.
- o Changes from closed-end to open-end format.
- o Authorization for, or increase in, preferred shares.
- o Disposition of assets, termination, liquidation, or mergers.
- o Classified boards of closed-end mutual funds, but will typically support such proposals.

15

#### Social Issues

Pioneer will abstain on stockholder proposals calling for greater disclosure of corporate activities with regard to social issues. "Social Issues" may generally be described as shareholder proposals for a company to:

- o Conduct studies regarding certain issues of public concern and interest;

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

- o Study the feasibility of the company taking certain actions with regard to such issues; or
- o Take specific action, including ceasing certain behavior and adopting company standards and principles, in relation to issues of public concern and interest.

We believe these issues are important and should receive management attention.

Pioneer will vote against proposals calling for substantial changes in the company's business or activities. We will also normally vote against proposals with regard to contributions, believing that management should control the routine disbursement of funds.

Item 8. 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 registrants portfolio (Portfolio Manager). Also state each Portfolio Managers business experience during the past 5 years.

PORTFOLIO MANAGEMENT

Additional Information About the Portfolio Managers

Other Accounts Managed by the Portfolio Managers. The table below indicates, for each portfolio manager of the fund, information about the accounts other than the fund over which the portfolio manager has day-to-day investment responsibility. All information on the number of accounts and total assets in the table is as of March 31, 2007. For purposes of the table, "Other Pooled Investment Vehicles" may include investment partnerships, undertakings for collective investments in transferable securities ("UCITS") and other non-U.S. investment funds and group trusts, and "Other Accounts" may include separate accounts for institutions or individuals, insurance company general or separate accounts, pension funds and other similar institutional accounts but generally do not include the portfolio manager's personal investment accounts or those which the manager may be deemed to own beneficially under the code of ethics. Certain funds and other accounts managed by the portfolio manager may have substantially similar investment strategies.

Name of Portfolio Manager	Type of Account	Number of Accounts Managed	Total Assets Managed	Number of Accounts Managed for which Advisory Fee is Performance-Base
---------------------------	-----------------	----------------------------	----------------------	---

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

David Eurkus	Other Registered Investment Companies	6	\$2,401,396,000	N/A
	Other Pooled Investment Vehicles	0	\$0	N/A
	Other Accounts	1	\$6,024,000	N/A

Potential Conflicts of Interest. When a portfolio manager is responsible for the management of more than one account, the potential arises for the portfolio manager to favor one account over another. The principal types of potential conflicts of interest that may arise are discussed below. For the reasons outlined below, Pioneer does not believe that any material conflicts are likely to arise out of a portfolio manager's responsibility for the management of the fund as well as one or more other accounts. Although Pioneer has adopted procedures that it believes are reasonably designed to detect and prevent violations of the federal securities laws and to mitigate the potential for conflicts of interest to affect its portfolio management decisions, there can be no assurance that all conflicts will be identified or that all procedures will be effective in mitigating the potential for such risks. Generally, the risks of such conflicts of interests are increased to the extent that a portfolio manager has a financial incentive to favor one account over another. Pioneer has structured its compensation arrangements in a manner that is intended to limit such potential for conflicts of interests. See "Compensation of Portfolio Managers" below.

- o A portfolio manager could favor one account over another in allocating new investment opportunities that have limited supply, such as initial public offerings and private placements. If, for example, an initial public offering that was expected to appreciate in value significantly shortly after the offering was allocated to a single account, that account may be expected to have better investment performance than other accounts that did not receive an allocation of the initial public offering. Generally, investments for which there is limited availability are allocated based upon a range of factors including available cash and consistency with the accounts' investment objectives and policies. This allocation methodology necessarily involves some subjective elements but is intended over time to treat each client in an equitable and fair manner. Generally, the investment opportunity is allocated among participating accounts on a pro rata basis. Although Pioneer believes that its practices are reasonably designed to treat each client in an equitable and fair manner, there may be instances where a fund may not participate, or may participate to a lesser degree than other clients, in the allocation of an investment opportunity.
- o A portfolio manager could favor one account over another in the order in which trades for the accounts are placed. If a portfolio manager determines to purchase a security for more than one account in an aggregate amount that may influence the market price of the security, accounts that purchased or sold the security first may receive a more favorable price than accounts that made subsequent transactions. The less liquid the market for the security or the greater the percentage that the proposed aggregate purchases or sales represent of average daily trading volume, the greater the potential for accounts that make

subsequent purchases or sales to receive a less favorable price. When a portfolio manager intends to trade the same security on the same day for more than one account, the trades typically are "bunched," which means that the trades for the individual accounts are aggregated and each account receives the same price. There are some types of accounts as to which bunching may not be possible for contractual reasons (such as directed brokerage arrangements). Circumstances may also arise where the trader believes that bunching the orders may not result in the best possible price. Where those accounts or circumstances are involved, Pioneer will place the order in a manner intended to result in as favorable a price as possible for such client.

- o A portfolio manager could favor an account if the portfolio manager's compensation is tied to the performance of that account to a greater degree than other accounts managed by the portfolio manager. If, for example, the portfolio manager receives a bonus based upon the performance of certain accounts relative to a benchmark while other accounts are disregarded for this purpose, the portfolio manager will have a financial incentive to seek to have the accounts that determine the portfolio manager's bonus achieve the best possible performance to the possible detriment of other accounts. Similarly, if Pioneer receives a performance-based advisory fee, the portfolio manager may favor that account, whether or not the performance of that account directly determines the portfolio manager's compensation.
- o A portfolio manager could favor an account if the portfolio manager has a beneficial interest in the account, in order to benefit a large client or to compensate a client that had poor returns. For example, if the portfolio manager held an interest in an investment partnership that was one of the accounts managed by the portfolio manager, the portfolio manager would have an economic incentive to favor the account in which the portfolio manager held an interest.
- o If the different accounts have materially and potentially conflicting investment objectives or strategies, a conflict of interest could arise. For example, if a portfolio manager purchases a security for one account and sells the same security for another account, such trading pattern may disadvantage either the account that is long or short. In making portfolio manager assignments, Pioneer seeks to avoid such potentially conflicting situations. However, where a portfolio manager is responsible for accounts with differing investment objectives and policies, it is possible that the portfolio manager will conclude that it is in the best interest of one account to sell a portfolio security while another account continues to hold or increase the holding in such security.

Compensation of Portfolio Managers. Pioneer has adopted a system of compensation for portfolio managers and seeks to align the financial interests of the portfolio managers with both those of shareholders of the accounts the portfolio managers manage, through incentive payments based in part on the relative investment performance of those funds, and also Pioneer through incentive payments based in part on Pioneer's financial performance. Pioneer's compensation arrangements with its portfolio managers are determined on the basis of the portfolio manager's overall services to Pioneer and its affiliates and not on the basis of specific funds or accounts managed by the portfolio manager. The compensation program for all Pioneer portfolio managers includes a base salary (determined by the rank and tenure of the employee) and an annual bonus program, as well as customary benefits that are offered generally to all full-time employees. Base compensation is fixed and normally reevaluated on an annual basis. Pioneer seeks to set base compensation at market rates, taking into account the experience and responsibilities of the portfolio manager. The bonus plan is intended to provide a competitive level of annual bonus

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

compensation that is tied to the portfolio manager achieving superior investment performance and aligns the financial incentives of Pioneer and the investment professional. Any bonus under the plan is completely discretionary, with a maximum annual bonus that may be in excess of base salary. The annual bonus is based upon a combination of the following factors:

- o Quantitative Investment Performance. The quantitative investment performance calculation is based on pre-tax performance of all of the accounts managed by the portfolio manager (which includes the fund and any other accounts managed by the portfolio manager) over a one-year period (20% weighting) and four-year period (80% weighting), measured for periods ending on December 31. The accounts, which include the fund, are ranked against a group of mutual funds with similar investment objectives and investment focus (60%) and a broad-based securities market index measuring the performance of the same type of securities in which the accounts invest (40%), which, in the case of the fund, is the Lehman Brothers Municipal Bond Index and the Lehman Brothers Non-Investment Grade Municipal Bond Index. As a result of these benchmarks, the performance of the portfolio manager for compensation purposes is measured against the criteria that are relevant to the portfolio manager's competitive universe.
- o Qualitative Performance. The qualitative performance component with respect to all of the accounts managed by the portfolio manager includes objectives, such as effectiveness in the areas of teamwork, leadership, communications and marketing, that are mutually established and evaluated by each portfolio manager and management.
- o Pioneer Results and Business Line Results. Pioneer's financial performance, as well as the investment performance of its investment management group, affect a portfolio manager's actual bonus by a leverage factor of plus or minus (+/-) a predetermined percentage.

Certain portfolio managers participate in an incentive plan whereby senior executives or other key employees are granted options in stock of Pioneer Global Asset Management S.p.A., an affiliate of Pioneer, at the then fair value of the underlying stock. These options are generally exercisable within three years.

Share Ownership by Portfolio Managers. The following table indicates as of March 31, 2007 the value, within the indicated range, of shares beneficially owned by the portfolio managers of the fund.

Name of Portfolio Manager	Beneficial Ownership of the Fund*
David Eurkus	A

\*Key to Dollar Ranges

- A. None
- B. \$1 - \$10,000
- C. \$10,001 - \$50,000
- D. \$50,001 - \$100,000
- E. \$100,001 - \$500,000
- F. \$500,001 - \$1,000,000
- G. Over \$1,000,000



## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

### Item 9. 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). Instruction to paragraph (a). Disclose all purchases covered by this Item, including purchases that do not satisfy the conditions of the safe harbor of Rule 10b-18 under the Exchange Act (17 CFR 240.10b-18), made in the period covered by the report. Provide disclosures covering repurchases made on a monthly basis. For example, if the reporting period began on January 16 and ended on July 15, the chart would show repurchases for the months from January 16 through February 15, February 16 through March 15, March 16 through April 15, April 16 through May 15, May 16 through June 15, and June 16 through July 15.

During the period covered by this report, there were no purchases made by or on behalf of the registrant or any affiliated purchaser as defined in Rule 10b-18(a)(3) under the Securities Exchange Act of 1934 (the Exchange Act), of shares of the registrant's equity securities that are registered by the registrant pursuant to Section 12 of the Exchange Act.

### Item 10. 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 7(d)(2)(ii)(G) 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 7(d)(2)(ii)(G) of Schedule 14(A) in its definitive proxy statement, or this Item.

### ITEM 11. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive officer or officers and principal financial officer or officers, or persons performing similar functions, about the effectiveness of the registrant's disclosure controls and procedures (as defined in Rule 30a-2(c) under the Act (17 CFR 270.30a-2(c))) based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of the report that includes the disclosure required by this paragraph.

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

## Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

(b) Disclose whether or not there were significant changes in the registrant's internal controls or in other factors that could significantly affect these controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

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

The registrant's principal executive officer and principal financial officer, however, voluntarily are reporting the following information:

In August of 2006 the registrant's investment adviser enhanced its internal procedures for reporting performance information required to be included in prospectuses. Those enhancements involved additional internal controls over the appropriateness of performance data generated for this purpose. Such enhancements were made following an internal review which identified prospectuses relating to certain classes of shares of a limited number of registrants where, inadvertently, performance information not reflecting the deduction of applicable sales charges was included. Those prospectuses were revised, and the revised prospectuses were distributed to shareholders.

### ITEM 12. EXHIBITS.

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

(a) 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.

(b) A separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2 under the Act (17 CFR 270.30a-2).

Filed herewith.

### SIGNATURES

[See General Instruction F]

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be

Edgar Filing: PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST - Form N-CSR

signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Pioneer Municipal High Income Advantage Trust

By (Signature and Title)\* /s/ John F. Cogan, Jr.  
John F. Cogan, Jr, President

Date May 30, 2007

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/ John F. Cogan, Jr.  
John F. Cogan, Jr., President

Date May 30, 2007

By (Signature and Title)\* /s/ Vincent Nave  
Vincent Nave, Treasurer

Date May 30, 2007

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