

PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST

Form NSAR-B

May 28, 2010

PAGE 1
000 B000000 03/31/2010
000 C000000 1258943
000 D000000 N
000 E000000 NF
000 F000000 Y
000 G000000 N
000 H000000 N
000 I000000 6.1
000 J000000 A
001 A000000 PIONEER MUNICIPAL HIGH INCOME ADVANTAGE TRUST
001 B000000 811-21409
001 C000000 6177427825
002 A000000 60 STATE STREET
002 B000000 BOSTON
002 C000000 MA
002 D010000 02109
003 000000 N
004 000000 N
005 000000 N
006 000000 N
007 A000000 N
007 B000000 0
007 C010100 1
007 C010200 2
007 C010300 3
007 C010400 4
007 C010500 5
007 C010600 6
007 C010700 7
007 C010800 8
007 C010900 9
007 C011000 10
008 A000001 PIONEER INVESTMENT MANAGEMENT, INC.
008 B000001 A
008 C000001 801-8255
008 D010001 BOSTON
008 D020001 MA
008 D030001 02109
010 A000001 PIONEER INVESTMENT MANAGEMENT, INC.
010 B000001 801-8255
010 C010001 BOSTON
010 C020001 MA
010 C030001 02109
010 A000002 PRINCETON ADMINISTRATORS, LLC
010 C010002 PRINCETON
010 C020002 NJ
010 C030002 08543
010 C040002 9095
011 A000001 PIONEER FUNDS DISTRIBUTOR, INC.
011 B000001 8-12345678
011 C010001 BOSTON
PAGE 2
011 C020001 MA
011 C030001 02109
011 C040001 1820
011 A000002 UBS INVESTMENT BANK
011 B000002 8-022651
011 C010002 STAMFORD

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011 C020002 CT
011 C030002 06901
011 A000003 RBC CAPITAL MARKETS CORP.
011 B000003 8-045411
011 C010003 MINNEAPOLIS
011 C020003 MN
011 C030003 55402
011 C040003 4422
011 A000004 MERRILL LYNCH & CO.
011 B000004 8-7221
011 C010004 NEW YORK
011 C020004 NY
011 C030004 10281
011 C040004 1201
011 A000005 JANNEY MONTGOMERY SCOTT, LLC
011 B000005 8-462
011 C010005 PHILADELPHIA
011 C020005 PA
011 C030005 19103
011 C040005 1675
011 A000006 WACHOVIA CAPITAL MARKETS, LLC
011 B000006 8-99999
011 C010006 RICHMOND
011 C020006 VA
011 C030006 23219
012 A000001 PIONEER INVEST. MGMT. SHAREHOLDER SER. INC.
012 B000001 85-01359
012 C010001 BOSTON
012 C020001 MA
012 C030001 02109
012 A000002 AMERICAN STOCK TRANSFER & TRUST CO.
012 B000002 85-00000
012 C010002 BROOKLYN
012 C020002 NY
012 C030002 11219
012 A000003 DEUTSCHE BANK TRUST COMPANY AMERICAS (PREF.)
012 B000003 85-00000
012 C010003 NEW YORK CITY
012 C020003 NY
012 C030003 10005
013 A000001 ERNST & YOUNG, LLP
013 B010001 BOSTON
013 B020001 MA
013 B030001 02116
013 B040001 5072
PAGE 3
015 A000001 BROWN BROTHERS HARRIMAN & CO.
015 B000001 C
015 C010001 BOSTON
015 C020001 MA
015 C030001 02109
015 E010001 X
018 000000 Y
019 A000000 Y
019 B000000 57
019 C000000 PIONEERFDS
020 C000001 0
020 C000002 0
020 C000003 0
020 C000004 0
020 C000005 0
020 C000006 0

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| 020 | C000008 | 0 |
| 020 | C000009 | 0 |
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| 022 | A000001 | BLACKROCK INVESTMENTS, INC. |
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| 022 | D000001 | 0 |
| 022 | A000002 | BARCLAYS CAPITAL, INC. |
| 022 | C000002 | 19168 |
| 022 | D000002 | 5579 |
| 022 | A000003 | MCPAHAN SECURITIES CO. L.P. |
| 022 | B000003 | 06-1229141 |
| 022 | C000003 | 0 |
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| 022 | A000004 | JEFFERIES & CO., INC. |
| 022 | B000004 | 95-2622900 |
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| 022 | A000005 | PIPER JAFFRAY & CO. |
| 022 | B000005 | 41-0983246 |
| 022 | C000005 | 5822 |
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| 022 | A000006 | WELLS FARGO ADVISORS, LLC |
| 022 | B000006 | 54-0796506 |
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| 022 | A000007 | B.C. ZIEGLER AND CO. |
| 022 | B000007 | 39-0727640 |
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| 022 | A000008 | HERBERT J. SIMS & CO., INC. |
| 022 | B000008 | 13-5213180 |
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| | PAGE | 4 |
| 022 | A000009 | RAYMOND JAMES & ASSOCIATES, INC. |
| 022 | B000009 | 59-1237041 |
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| 022 | A000010 | CITIGROUP GLOBAL MARKETS, INC. |
| 022 | B000010 | 11-2418191 |
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| 026 | D000000 | Y |
| 026 | E000000 | N |
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| 026 | G010000 | N |
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| 026 | H000000 | N |
| 027 | 000000 | N |
| 045 | 000000 | Y |
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| 047 | 000000 | Y |
| 048 | 000000 | 0.600 |
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| 051 | 000000 | N | |
| 052 | 000000 | N | |
| | PAGE | 5 | |
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| 054 | B000000 | Y | |
| 054 | C000000 | Y | |
| 054 | D000000 | N | |
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| 060 | B000000 | Y | |
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| 062 | I000000 | 0.0 | |
| 062 | J000000 | 0.0 | |
| 062 | K000000 | 0.0 | |

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| | | |
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| 062 | L000000 | 3.0 |
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| 063 | B000000 | 20.1 |
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| 064 | B000000 | Y |
| 065 | 000000 | N |
| 066 | A000000 | N |
| 067 | 000000 | N |
| 068 | A000000 | N |
| | PAGE | 6 |
| 068 | B000000 | N |
| 069 | 000000 | N |
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| 070 | A020000 | N |
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| 070 | B020000 | N |
| 070 | C010000 | Y |
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| 070 | D010000 | N |
| 070 | D020000 | N |
| 070 | E010000 | Y |
| 070 | E020000 | N |
| 070 | F010000 | N |
| 070 | F020000 | N |
| 070 | G010000 | Y |
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| 070 | O010000 | Y |
| 070 | O020000 | N |
| 070 | P010000 | Y |
| 070 | P020000 | N |
| 070 | Q010000 | N |
| 070 | Q020000 | N |
| 070 | R010000 | N |
| 070 | R020000 | N |
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| 072 | B000000 | 30730 |
| 072 | C000000 | 0 |
| 072 | D000000 | 0 |

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| | |
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| 072 E000000 | 0 |
| 072 F000000 | 2428 |
| 072 G000000 | 408 |
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| 072 I000000 | 12 |

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| | |
|-------------|-------|
| 072 J000000 | 13 |
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| 072 L000000 | 35 |
| 072 M000000 | 13 |
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| 072BB000000 | 7488 |
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| 074 H000000 | 0 |
| 074 I000000 | 8500 |
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| 074 M000000 | 48 |
| 074 N000000 | 433528 |
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| 074 P000000 | 229 |
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| 074 R010000 | 0 |
| 074 R020000 | 0 |
| 074 R030000 | 0 |
| 074 R040000 | 1743 |
| 074 S000000 | 150005 |
| 074 T000000 | 281551 |

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| | |
|-------------|-------|
| 074 U010000 | 22995 |
| 074 U020000 | 0 |
| 074 V010000 | 12.24 |
| 074 V020000 | 0.00 |

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| | | |
|-----|---------|----------------------------|
| 074 | W000000 | 0.0000 |
| 074 | X000000 | 8794 |
| 074 | Y000000 | 0 |
| 075 | A000000 | 0 |
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| 077 | B000000 | Y |
| 077 | C000000 | N |
| 077 | D000000 | N |
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| 077 | G000000 | N |
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| 080 | C000000 | 45000 |
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| 081 | B000000 | 57 |
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| 087 | A010000 | COMMON STOCK |
| 087 | A020000 | 723762100 |
| 087 | A030000 | MAV |
| 087 | B010000 | PREFERRED STOCK - SERIES A |
| 087 | B020000 | 723762209 |
| 087 | C010000 | PREFERRED STOCK - SERIES B |
| 087 | C020000 | 723762308 |
| 088 | A000000 | N |
| 088 | B000000 | N |
| 088 | C000000 | N |
| 088 | D000000 | Y |

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SIGNATURE MARY KELLERMANN
TITLE ACCOUNTING MANAGER