

PIONEER MUNICIPAL HIGH INCOME TRUST  
Form SC 13G  
February 10, 2009

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

**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934  
(Amendment No. )\***

Pioneer Municipal High Income Trust  
(Name of Issuer)

Auction Preferred Stock  
(Title of Class of Securities)

723763207

723763306

(CUSIP Number)

January 31, 2009

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be filed for the purpose of Section 18 of the Securities Exchange Act of 1934 ( Act ) or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 723763207; 723763306

NAMES OF REPORTING PERSONS

- 1** UBS AG, for the benefit and on behalf of UBS Securities LLC and UBS Financial Services Inc., two-wholly owned subsidiaries of UBS AG to which UBS AG has delegated portions of its performance obligations with respect to the Auction Rate Securities Rights issued by UBS AG to certain clients and pursuant to which the securities reported herein have been purchased from such clients.

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- 2**  
(a)   
(b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

- 4**  
Switzerland

SOLE VOTING POWER

**5**

NUMBER OF 0

SHARED VOTING POWER

**6**

SHARES BENEFICIALLY OWNED BY 1428\*\*

SOLE DISPOSITIVE POWER

**7**

EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

**8**

WITH: 1428\*\*

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

1428\*\*

10

CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

o

11

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

35.35%\*\*\*

12

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

BK

\*\* These amounts reflect UBS AG's combined holdings in the series of auction preferred stock of the issuer identified by the CUSIP number(s) set forth on the cover page of this Schedule 13G.

\*\*\* This calculation reflects a fraction the numerator of which is the total set forth in Item 9 of this cover page and the denominator of which is the aggregate amount of auction preferred stock of all series identified in Item 2(e) of this Schedule 13G, which latter amount is treated herein as a single class of securities in accordance with the Auction Rate Securities Global Exemptive Relief letter issued by the staff of the Securities and Exchange Commission on September 22, 2008 (the Global Relief Letter).

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Item 1(a) Name of Issuer  
Pioneer Municipal High Income Trust

Item 1(b) Address of Issuer's Principal Executive Offices:  
  
Pioneer Municipal High Income Trust  
60 state street 19th floor  
Boston, MA 02109

Item 2(a) Name of Person Filing:  
  
UBS AG

Item 2(b) Address of Principal Business Office:  
  
UBS AG  
Bahnhofstrasse 45  
PO Box CH-8021  
Zurich, Switzerland

Item 2(c) Citizenship or Place of Organization:  
  
Switzerland

Item 2(d) Title of Class of Securities  
  
Auction Preferred Stock

Item 2(e) CUSIP Number(s):  
  
723763207  
723763306

This response lists the CUSIP numbers assigned to every series of auction preferred securities issued by the Issuer, and not redeemed as of January 31, 2009, including series in which UBS AG may not have an ownership position.

Item 3. Type of Person Filing:

UBS AG is classified as a Bank as defined in section 3(a)(6) of the Securities Act of 1933 pursuant to no-action relief granted by the staff of the Securities and Exchange Commission.

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Item 4 (a)-(c)(iv). Ownership:

Items 5-11 of the cover page and Item 2(e) above are incorporated by reference in our response to this Item 4.

Item 5. Ownership of Five Percent or Less of a Class:

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following o.

Item 6. Ownership of More than Five Percent on Behalf of Another Person:

Not applicable

Item 7. Identification and Classification of the Subsidiary That Acquired the Security Being Reported on By the Parent Holding Company:

This statement on Schedule 13G is being filed by UBS AG, for the benefit and on behalf of UBS Securities LLC and UBS Financial Services Inc., two-wholly owned subsidiaries of UBS AG to which UBS AG has delegated portions of its performance obligations with respect to the Auction Rate Securities Rights issued by UBS AG to certain clients and pursuant to which the securities reported herein have been purchased from such clients

Item 8. Identification and Classification of Members of the Group

Not Applicable

Item 9 Notice of Dissolution of Group:

Not Applicable

Item 10. Certification:

By signing below, the undersigned certify that, to the best of their knowledge and belief, (i) the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect, and (ii) that the reporting person(s) identified above are eligible to rely upon the Global Relief Letter with respect to the submission of this Schedule 13G.

CUSIP No. 723763207; 723763306

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

By: /s/ Anthony DeFilippis  
Executive Director  
Central Compliance

By: /s/ Joseph Gallichio  
Managing Director  
ARS Business Management

Date: February 10, 2009