

NUVEEN MASSACHUSETTS PREMIUM INCOME MUNICIPAL FUND
Form N-Q
April 29, 2014

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED MANAGEMENT INVESTMENT
COMPANY

Investment Company Act file number 811-07484

Nuveen Massachusetts Premium Income Municipal Fund
(Exact name of registrant as specified in charter)

Nuveen Investments
333 West Wacker Drive, Chicago, Illinois 60606
(Address of principal executive offices) (Zip code)

Kevin J. McCarthy
Vice President and Secretary
333 West Wacker Drive, Chicago, Illinois 60606
(Name and address of agent for service)

Registrant's telephone number, including area code: 312-917-7700

Date of fiscal year end: 5/31

Date of reporting period: 2/28/14

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (§§ 239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after the close of the first and third fiscal quarters, pursuant to rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b1-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q 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 the 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. § 3507.

Item 1. Schedule of Investments

Portfolio of Investments (Unaudited)

Nuveen Massachusetts Premium Income
Municipal Fund (NMT)
February 28, 2014

| Principal Amount (000) | Description (1) | Optional Call Provisions (2) | Ratings (3) | Value |
|------------------------|---|------------------------------|-------------|--------------|
| | LONG-TERM INVESTMENTS – 153.7% (100.0% of Total Investments) | | | |
| | MUNICIPAL BONDS – 153.7% (100.0% of Total Investments) | | | |
| | Consumer Discretionary – 1.5% (1.0% of Total Investments) | | | |
| \$ 1,425 | Boston Industrial Development Financing Authority, Massachusetts, Senior Revenue Bonds, Crosstown Center Project, Series 2002, 6.500%, 9/01/35 (Alternative Minimum Tax) (4) | 9/14 at 100.00 | Caa3 | \$ 1,029,363 |
| | Education and Civic Organizations – 34.7% (22.6% of Total Investments) | | | |
| 500 | Massachusetts Development Finance Agency, Revenue Bonds, Boston College Issue, Series 2013S, 5.000%, 7/01/38 | 7/23 at 100.00 | AA– | 542,895 |
| 375 | Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Series 2009V-1, 5.000%, 10/01/29 | 10/19 at 100.00 | A1 | 415,924 |
| | Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Tender Option Bond Trust 1163: | | | |
| 995 | 17.464%, 10/01/48 (IF) (5) | 10/23 at 100.00 | A1 | 1,169,593 |
| 305 | 17.361%, 10/01/48 (IF) (5) | 10/23 at 100.00 | A1 | 358,451 |
| 1,000 | Massachusetts Development Finance Agency, Revenue Bonds, Emerson College, Series 2010A, 5.000%, 1/01/40 | 1/20 at 100.00 | BBB+ | 1,005,210 |
| 1,000 | Massachusetts Development Finance Agency, Revenue Bonds, Lesley University Issue Series | 7/21 at 100.00 | AA– | 1,079,780 |

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|-------|--|--------------------|------|-----------|
| | B-1 and B-2, 5.250%, 7/01/33 – AGM Insured Massachusetts Development Finance Agency, Revenue Bonds, Northeastern University, Series 2014A: | | | |
| 415 | 5.000%, 3/01/39 | 3/24 at 100.00 | A2 | 438,941 |
| 700 | 5.000%, 3/01/44 | 3/24 at 100.00 | A2 | 733,992 |
| | Massachusetts Development Finance Agency, Revenue Bonds, Sterling and Francine Clark Art Institute, Series 2011A, 5.000%, 7/01/41 | | | |
| 1,000 | | 7/21 at 100.00 | AA | 1,053,590 |
| | Massachusetts Development Finance Agency, Revenue Bonds, The Broad Institute, Series 2011A, 5.250%, 4/01/37 | | | |
| 2,000 | | 4/21 at 100.00 | AA– | 2,130,720 |
| | Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2007, 5.000%, 9/01/37 – NCFG Insured | | | |
| 1,045 | | 9/17 at 100.00 | A+ | 1,090,186 |
| | Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2012, 5.000%, 9/01/50 | | | |
| 700 | | 9/22 at 100.00 | A+ | 724,766 |
| | Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2002A, 5.750%, 1/01/42 – AMBAC Insured | | | |
| 1,500 | | No Opt. Call | A | 1,740,750 |
| | Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2008A, 5.000%, 1/01/42 – AGC Insured | | | |
| 4,850 | | 1/18 at 100.00 | AA– | 4,966,203 |
| | Massachusetts Development Finance Authority, Revenue Refunding Bonds, Boston University, Series 1999P, 6.000%, 5/15/29 | | | |
| 1,090 | | No Opt. Call | A1 | 1,312,556 |
| | Massachusetts Educational Financing Authority, Educational Loan Revenue, Series 2011J, 5.625%, 7/01/33 (Alternative Minimum Tax) | | | |
| 955 | | 7/21 at 100.00 | AA | 994,508 |
| | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Springfield College, Series 2010, 5.500%, 10/15/31 | | | |
| 1,000 | | 10/19 at 100.00 | Baa1 | 1,077,250 |
| | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Tufts University, Series 2008O, 5.375%, 8/15/38 | | | |
| 350 | | 8/18 at 100.00 | Aa2 | 390,103 |
| | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Wheaton College | | | |
| 530 | | 1/20 at 100.00 | A2 | 546,059 |

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| 210 | Issues, Series 2010F, 5.000%, 1/01/41 Puerto Rico Industrial, Tourist, Educational, Medical and Environmental Control Facilities Fin Authority, Higher Ed Rev and Rev Refunding Bonds, University of the Sacred Heart Project, Series 2012, 4.375%, 10/01/31 University of Massachusetts Building Authority, Senior Lien Project Revenue Bonds, Series 2009-1, 5.000%, 5/01/39 | No Opt. Call | BBB | 152,504 |
| 1,500 | Total Education and Civic Organizations Health Care – 34.0% (22.2% of Total Investments) | No Opt. Call | Aa2 | 1,618,770 |
| 22,020 | Massachusetts Development Finance Agency, Hospital Revenue Bonds, Cape Cod Healthcare Obligated Group, Series 2013, 5.250%, 11/15/41 Massachusetts Development Finance Agency, Revenue Bonds, Berkshire Health Systems, Series 2012G: | | | 23,542,751 |
| 940 | 5.000%, 10/01/29 | 11/23 at 100.00 | A– | 979,132 |
| 895 | 5.000%, 10/01/31 | 10/21 at 100.00 | A– | 941,101 |
| 700 | Massachusetts Development Finance Agency, Revenue Bonds, Milford Regional Medical Center Issue, Series 2014F, 5.750%, 7/15/43 Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2011K-6, 5.375%, 7/01/41 | 10/21 at 100.00 | A– | 729,120 |
| 480 | Massachusetts Development Finance Agency, Revenue Bonds, Southcoast Health System Obligated Group Issue, Series 2013F, 5.000%, 7/01/37 Massachusetts Development Finance Agency, Revenue Bonds, The Lowell General Hospital, Series 2013G, 5.000%, 7/01/44 | 7/23 at 100.00 | BBB– | 500,093 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Partners HealthCare System Inc., Series 2007G, 5.000%, 7/01/32 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B1 Capital Asset Program Converted June 13,2008: | 7/20 at 100.00 | AA | 1,076,000 |
| 300 | 5.375%, 2/01/26 – NPFG Insured | 7/23 at 100.00 | A | 311,784 |
| 1,575 | | 7/23 at 100.00 | BBB+ | 1,560,321 |
| 2,000 | | 7/17 at 100.00 | AA | 2,141,080 |
| 2,300 | | 8/18 at 100.00 | A | 2,560,015 |

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| 770 | 5.375%, 2/01/28 – NPMG Insured Massachusetts Health and Educational Facilities Authority, Revenue Bonds, | 8/18 at 100.00 | A | 847,516 |
| 1,500 | Caregroup Inc., Series B2, Capital Asset Program, Converted June 9, 2009, 5.375%, 2/01/27 – NPMG Insured Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Children’s Hospital, | 8/18 at 100.00 | A | 1,664,940 |
| 1,000 | Series 2009M, 5.500%, 12/01/39 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, | 12/19 at 100.00 | AA | 1,112,080 |
| 1,500 | Dana-Farber Cancer Institute, Series 2008K, 5.000%, 12/01/37 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Emerson Hospital, | 12/18 at 100.00 | A1 | 1,546,605 |
| 935 | Series 2005E, 5.000%, 8/15/35 – RAAI Insured Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Clinic Medical Center, Series 2005C, 5.000%, 8/15/21 – FGIC Insured Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Medical Center, Series 2007D, 5.250%, 8/15/28 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milford Regional Medical Center, Series 2007E, 5.000%, 7/15/32 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milton Hospital Project, Series 2005D, 5.250%, 7/01/30 Massachusetts Health and Educational Facilities Authority, Revenue Bonds, UMass Memorial Health Care, Series 2005D, 5.000%, 7/01/33 Total Health Care Housing/Multifamily – 4.1% (2.7% of Total Investments) Massachusetts Development Finance Authority, Multifamily Housing Revenue Bonds, Emerson Manor Project, Series 2007, 4.800%, 7/20/48 Massachusetts Housing Finance Agency, Housing Revenue Bonds, Series 2003S, 5.050%, 12/01/23 (Alternative Minimum Tax) | 8/15 at 100.00 | N/R | 833,291 |
| 1,000 | | 8/15 at 100.00 | A+ | 1,056,910 |
| 2,000 | | 8/17 at 100.00 | A+ | 2,179,940 |
| 620 | | 7/17 at 100.00 | BBB– | 609,001 |
| 1,000 | | 7/15 at 100.00 | BB+ | 1,000,020 |
| 1,445 | | 7/15 at 100.00 | BBB+ | 1,446,012 |
| 21,960 | | | | 23,094,961 |
| 1,280 | | 7/17 at 100.00 | BB | 1,294,042 |
| 480 | | 6/14 at 100.00 | AA– | 480,374 |

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| 1,000 | Somerville Housing Authority, Massachusetts, GNMA Collateralized Mortgage Revenue Bonds, Clarendon Hill Towers, Series 2002, 5.200%, 11/20/22 | 5/14 at 101.00 | N/R | 1,021,650 |
| 2,760 | Total Housing/Multifamily Housing/Single Family – 2.2% (1.5% of Total Investments) | | | 2,796,066 |
| 1,500 | Massachusetts Housing Finance Agency, Single Family Housing Revenue Bonds, Series 2006-126, 4.625%, 6/01/32 (Alternative Minimum Tax) Industrials – 0.8% (0.5% of Total Investments) | 6/16 at 100.00 | AA | 1,506,120 |
| 115 | Massachusetts Development Finance Agency, Pioneer Valley Resource Recovery Revenue Bonds, Eco/Springfield LLC, Series 2006, 5.875%, 7/01/14 (Alternative Minimum Tax) | No Opt. Call | N/R | 114,515 |
| 400 | Massachusetts Development Finance Agency, Solid Waste Disposal Revenue Bonds, Waste Management Inc., Series 2003, 5.450%, 6/01/14 | No Opt. Call | A– | 405,144 |
| 515 | Total Industrials Long-Term Care – 4.8% (3.1% of Total Investments) | | | 519,659 |
| 185 | Massachusetts Development Finance Agency, Revenue Bonds, Carleton-Willard Village, Series 2010, 5.625%, 12/01/30 | 12/19 at 100.00 | A– | 195,153 |
| 510 | Massachusetts Development Finance Agency, Revenue Bonds, Loomis Communities, Series 2013A, 5.250%, 1/01/26 | 1/23 at 100.00 | BBB– | 517,166 |
| 500 | Massachusetts Development Finance Agency, Revenue Bonds, North Hill Communities Issue, Series 2013A, 6.250%, 11/15/28 | 11/23 at 100.00 | N/R | 503,920 |
| 1,685 | Massachusetts Development Finance Agency, Revenue Bonds, Orchard Cove, Series 2007, 5.250%, 10/01/26 | 4/14 at 102.00 | N/R | 1,686,011 |
| 375 | Massachusetts Industrial Finance Agency, First Mortgage Revenue Bonds, Berkshire Retirement Community, Series 1994B, 4.750%, 7/01/17 | 7/14 at 100.00 | BBB | 375,559 |
| 3,255 | Total Long-Term Care Tax Obligation/General – 14.9% (9.7% of Total Investments) | | | 3,277,809 |
| 500 | Ashland, Massachusetts, General Obligation Bonds, Series 2004, 5.250%, 5/15/23 – AMBAC Insured | 5/15 at 100.00 | Aa2 | 528,465 |
| 300 | | 1/15 at 100.00 | Aaa | 312,090 |

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|-------|---|-----------------|-----|------------|
| 1,000 | Boston, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 1/01/17 Hampden-Wilbraham Regional School District, Hampden County, Massachusetts, General Obligation | 2/21 at 100.00 | Aa3 | 1,054,960 |
| 1,250 | Bonds, Series 2011, 5.000%, 2/15/41 Hudson, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2011, 5.000%, 2/15/32 | 2/20 at 100.00 | AA | 1,345,588 |
| 1,010 | Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 | No Opt. Call | AA+ | 1,283,841 |
| 575 | North Reading, Massachusetts, General Obligation Bonds, Series 2012, 5.000%, 5/15/35 – AMBAC Insured | 5/22 at 100.00 | Aa2 | 626,014 |
| 1,260 | Norwell, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 11/15/20 – FGIC Insured | No Opt. Call | AAA | 1,519,094 |
| 2,000 | Quincy, Massachusetts, General Obligation Bonds, Series 2011, 5.250%, 12/01/38 | 12/20 at 100.00 | Aa2 | 2,164,480 |
| 1,220 | Worcester, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 7/01/19 – FGIC Insured | 7/15 at 100.00 | AA– | 1,294,164 |
| 9,115 | Total Tax Obligation/General Tax Obligation/Limited – 19.0% (12.3% of Total Investments) | | | 10,128,696 |
| 1,500 | Government of Guam, Business Privilege Tax Bonds, Series 2011A: 5.250%, 1/01/36 | 1/22 at 100.00 | A | 1,541,115 |
| 850 | 5.125%, 1/01/42 | 1/22 at 100.00 | A | 863,651 |
| 210 | Martha’s Vineyard Land Bank, Massachusetts, Revenue Bonds, Series 2004, 5.000%, 5/01/26 – 5/14 at 100.00 AMBAC Insured | | A– | 211,487 |
| 975 | Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C, 5.000%, 7/01/26 | 7/18 at 100.00 | AAA | 1,117,662 |
| 385 | Massachusetts Bay Transportation Authority, Senior Lien Sales Tax Revenue Refunding Bonds, Series 2004C, 5.250%, 7/01/21 | No Opt. Call | AAA | 471,818 |
| 1,200 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2008A, 5.000%, 5/01/33 – AGC Insured | 5/18 at 100.00 | AA | 1,298,616 |
| 1,000 | Massachusetts College Building Authority, Project Revenue Refunding Bonds, Series 2003B, 5.375%, 5/01/23 – SYNCORA GTY Insured | No Opt. Call | Aa2 | 1,233,030 |

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|--------|--|-----------------|------|------------|
| 570 | Massachusetts College Building Authority, Revenue Bonds, Refunding Series 2012B, 5.000%, 5/01/37 | 5/22 at 100.00 | AA | 617,441 |
| 1,250 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Senior Series 2013A, 5.000%, 5/15/38 | 5/23 at 100.00 | AA+ | 1,366,125 |
| 380 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2007A, 5.000%, 8/15/37 – AMBAC Insured | 8/17 at 100.00 | AA+ | 408,257 |
| 1,000 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2011B, 5.000%, 10/15/41 | 10/21 at 100.00 | AA+ | 1,076,400 |
| 540 | Massachusetts State, Special Obligation Dedicated Tax Revenue Bonds, Series 2005, 5.000%, 1/01/20 – FGIC Insured | No Opt. Call | A1 | 629,370 |
| 645 | Massachusetts, Transportation Fund Revenue Bonds, Accelerated Bridge Program, Series 2013A, 5.000%, 6/01/38 | 6/21 at 100.00 | AAA | 704,991 |
| 1,300 | Virgin Islands Public Finance Authority, Gross Receipts Taxes Loan Note, Refunding Series 2012A, 5.000%, 10/01/32 | No Opt. Call | BBB+ | 1,313,962 |
| 11,805 | Total Tax Obligation/Limited Transportation – 7.8% (5.1% of Total Investments) | | | 12,853,925 |
| 500 | Massachusetts Port Authority, Airport System Revenue Bonds, Series 2010A, 5.000%, 7/01/30 | 7/20 at 100.00 | AA | 568,720 |
| 1,000 | Massachusetts Port Authority, Special Facilities Revenue Bonds, BOSFUEL Corporation, Series 2007, 5.000%, 7/01/32 – FGIC Insured (Alternative Minimum Tax) | 7/17 at 100.00 | A | 1,018,240 |
| 725 | Massachusetts Port Authority, Special Facilities Revenue Bonds, Delta Air Lines Inc., Series 2001A, 5.000%, 1/01/27 – AMBAC Insured (Alternative Minimum Tax) | 7/14 at 100.00 | N/R | 692,520 |
| 2,530 | Massachusetts Port Authority, Special Facilities Revenue Bonds, US Airways Group Inc., Series 1996A, 5.750%, 9/01/16 – NPMFG Insured (Alternative Minimum Tax) | 9/14 at 100.00 | A | 2,535,313 |
| 470 | Metropolitan Boston Transit Parking Corporation, Massachusetts, Systemwide Senior Lien Parking Revenue Bonds, Series 2011, 5.000%, 7/01/41 | 7/21 at 100.00 | A+ | 493,368 |

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|-------|---|--------------------|---------|-----------|
| 5,225 | Total Transportation U.S. Guaranteed – 21.0% (13.6% of Total Investments) (6) | | | 5,308,161 |
| 2,000 | Boston Water and Sewerage Commission, Massachusetts, General Revenue Bonds, Senior Series 2004A, 5.000%, 11/01/25 (Pre-refunded 11/01/14) | 11/14 at 100.00 | AA+ (6) | 2,065,940 |
| 650 | Boston, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 1/01/17 (Pre-refunded 1/01/15) | 1/15 at 100.00 | N/R (6) | 676,819 |
| 125 | Fall River, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 2/01/21 (Pre-refunded 4/01/14) – AGM Insured | 4/14 at 100.00 | AA– (6) | 125,563 |
| 910 | Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 (Pre-refunded 3/01/17) | 3/17 at 100.00 | N/R (6) | 999,808 |
| 25 | Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C, 5.000%, 7/01/26 (Pre-refunded 7/01/18) | 7/18 at 100.00 | AAA | 29,454 |
| 550 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2004A, 5.000%, 5/01/19 (Pre-refunded 5/01/14) – NPFG Insured | 5/14 at 100.00 | Aa2 (6) | 554,708 |
| 325 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2006A, 5.000%, 5/01/31 (Pre-refunded 5/01/16) – AMBAC Insured | 5/16 at 100.00 | Aa2 (6) | 358,202 |
| 1,745 | Massachusetts Development Finance Authority, Revenue Bonds, Massachusetts College of Pharmacy and Allied Health Sciences, Series 2005D, 5.000%, 7/01/27 (Pre-refunded 7/01/15) – AGC Insured | 7/15 at 100.00 | AA– (6) | 1,857,291 |
| 410 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, CareGroup Inc., Series 1998A, 5.000%, 7/01/25 (Pre-refunded 7/01/21) – NPFG Insured | 7/21 at 100.00 | A (6) | 477,470 |
| 1,300 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2005A, 5.000%, 8/15/20 (Pre-refunded 8/15/15) – AGM Insured (UB) | 8/15 at 100.00 | AA+ (6) | 1,391,767 |
| 750 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2005-11, 4.500%, 8/01/29 (Pre-refunded 8/01/15) | 8/15 at 100.00 | AAA | 796,035 |

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| 1,000 | Massachusetts, General Obligation Bonds, Consolidated Loan, Series 2005A, 5.000%, 3/01/23 (Pre-refunded 3/01/15) – AGM Insured | 3/15 at 100.00 | Aaa | 1,049,150 |
| 1,250 | Massachusetts, General Obligation Bonds, Consolidated Loan, Series 2005C, 5.000%, 9/01/22 (Pre-refunded 9/01/15) | 9/15 at 100.00 | Aaa | 1,341,200 |
| 1,330 | Puerto Rico Electric Power Authority, Power Revenue Refunding Bonds, Series 1989O, 0.000%, 7/01/17 – NPMFG Insured (ETM) | No Opt. Call | AA– (6) | 1,189,658 |
| 1,065 | Puerto Rico, Highway Revenue Bonds, Highway and Transportation Authority, Series 2003AA, 5.500%, 7/01/19 – NPMFG Insured (ETM) | No Opt. Call | Baa1 (6) | 1,305,264 |
| 13,435 | Total U.S. Guaranteed Utilities – 2.4% (1.5% of Total Investments) | | | 14,218,329 |
| 870 | Guam Power Authority, Revenue Bonds, Series 2010A, 5.000%, 10/01/37 – AGM Insured | 10/20 at 100.00 | AA– | 892,298 |
| 750 | Massachusetts Development Finance Agency, Resource Recovery Revenue Refunding Bonds, Covanta Energy Project, Series 2012B, 4.875%, 11/01/42 | 11/17 at 100.00 | BB+ | 705,323 |
| 1,620 | Total Utilities Water and Sewer – 6.5% (4.2% of Total Investments) | | | 1,597,621 |
| 500 | Boston Water and Sewerage Commission, Massachusetts, General Revenue Bonds, Senior Lien Refunding Series 2010A, 5.000%, 11/01/30 | 11/19 at 100.00 | AA+ | 556,355 |
| 60 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2003-9, 5.000%, 8/01/22 | 8/14 at 100.00 | AAA | 60,250 |
| 285 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2004-10, 5.000%, 8/01/26 | 8/14 at 100.00 | AAA | 290,412 |
| 1,000 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2006-12, 4.375%, 8/01/31 (UB) | 8/16 at 100.00 | AAA | 1,024,250 |
| 200 | Massachusetts Water Pollution Abatement Trust, Revenue Bonds, MWRA Loan Program, Series 2002A, 5.250%, 8/01/20 | 8/14 at 100.00 | AAA | 200,884 |
| 1,500 | Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, | 8/17 at 100.00 | AA+ | 1,648,500 |

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| | 5.000%, 8/01/28 – NPFG Insured Massachusetts Water Resources Authority, General Revenue Bonds, Series 2006A, | | | |
| 625 | 4.000%, 8/01/46 | 8/16 at 100.00 | AA+ | 625,631 |
| 4,170 | Total Water and Sewer | | | 4,406,282 |
| \$ 98,805 | Total Long-Term Investments (cost \$100,546,599) | | | 104,279,743 |
| | Floating Rate Obligations – (2.1)% | | | (1,435,000) |
| | MuniFund Term Preferred Shares, at Liquidation Value – (54.0)% (7) | | | (36,645,000) |
| | Other Assets Less Liabilities – 2.4% | | | 1,634,913 |
| | Net Assets Applicable to Common Shares – 100% | | | \$ 67,834,656 |

Fair Value Measurements

Fair value is defined as the price that the Fund would receive upon selling an investment or transferring a liability in an orderly transaction to an independent buyer in the principal or most advantageous market for the investment. A three-tier hierarchy is used to maximize the use of observable market data and minimize the use of unobservable inputs and to establish classification of fair value measurements for disclosure purposes. Observable inputs reflect the assumptions market participants would use in pricing the asset or liability. Observable inputs are based on market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability. Unobservable inputs are based on the best information available in the circumstances. The following is a summary of the three-tiered hierarchy of valuation input levels.

Level 1 – Inputs are unadjusted and prices are determined using quoted prices in active markets for identical securities.

Level 2 – Prices are determined using other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risk, etc.).

Level 3 – Prices are determined using significant unobservable inputs (including management's assumptions in determining the fair value of investments).

The inputs or methodologies used for valuing securities are not an indication of the risks associated with investing in those securities. The following is a summary of the Fund's fair value measurements as of the end of the reporting period:

| | Level 1 | Level 2 | Level 3 | Total |
|------------------------|---------|---------------|---------|---------------|
| Long-Term Investments: | | | | |
| Municipal Bonds | \$ — | \$104,279,743 | \$ — | \$104,279,743 |

Income Tax Information

The following information is presented on an income tax basis. Differences between amounts for financial statement and federal income tax purposes are primarily due to timing differences in recognizing taxable market discount, timing differences in recognizing certain gains and losses on investment transactions and the treatment of investments in inverse floating rate securities reflected as financing transactions, if any. To the extent that differences arise that are permanent in nature, such amounts are reclassified within the capital accounts on the Statement of Assets and Liabilities presented in the annual report, based on their federal tax basis treatment; temporary differences do not require reclassification. Temporary and permanent differences do not impact the net asset value of the Fund.

As of February 28, 2014, the cost of investments was \$99,023,998.

Gross unrealized appreciation and gross unrealized depreciation of investments as of February 28, 2014, were as follows:

| | |
|---|--------------|
| Gross unrealized: | |
| Appreciation | \$ 4,957,101 |
| Depreciation | (1,136,147) |
| Net unrealized appreciation (depreciation) of investments | \$ 3,820,954 |

- (1) All percentages shown in the Portfolio of Investments are based on net assets applicable to common shares unless otherwise noted.
 - (2) Optional Call Provisions: Dates (month and year) and prices of the earliest optional call or redemption. There may be other call provisions at varying prices at later dates. Certain mortgage-backed securities may be subject to periodic principal paydowns.
 - (3) Ratings: Using the highest of Standard & Poor's Group ("Standard & Poor's"), Moody's Investors Service, Inc. ("Moody's") or Fitch, Inc. ("Fitch") rating. Ratings below BBB by Standard & Poor's, Baa by Moody's or BBB by Fitch are considered to be below investment grade. Holdings designated N/R are not rated by any of these national rating agencies.
 - (4) On September 1, 2013, the Fund's Adviser determined it was unlikely that this borrower would fulfill its entire obligation on this security, and therefore reduced the security's interest rate of accrual from 6.500% to 5.200%.
 - (5) Investment, or portion of investment, has been pledged to collateralize the net payment obligations for investments in inverse floating rate transactions.
 - (6) Backed by an escrow or trust containing sufficient U.S. Government or U.S. Government agency securities, which ensure the timely payment of principal and interest. Certain bonds backed by U.S. Government or agency securities are regarded as having an implied rating equal to the rating of such securities.
 - (7) MuniFund Term Preferred Shares, at Liquidation Value as a percentage of Total Investments is 35.1%.
- (ETM) Escrowed to maturity.
- (IF) Inverse floating rate investment.
- (UB) Underlying bond of an inverse floating rate trust reflected as a financing transaction.
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Item 2. Controls and Procedures.

- a. The registrant's principal executive and principal financial officers, or persons performing similar functions, have concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the "1940 Act") (17 CFR 270.30a-3(c))) are effective, as of a date within 90 days of the filing date of this report that includes the disclosure required by this paragraph, based on their evaluation of the controls and procedures required by Rule 30a-3(b) under the 1940 Act (17 CFR 270.30a-3(b)) and Rule 13a-15(b) or 15d-15(b) under the Securities Exchange Act of 1934 (17 CFR 240.13a-15(b) or 240.15d-15(b)).
- b. There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the 1940 Act (17 CFR 270.30a-3(d))) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 3. Exhibits.

File as exhibits as part of this Form a separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2(a) under the 1940 Act (17 CFR 270.30a-2(a)), exactly as set forth below: See EX-99 CERT attached hereto.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Nuveen Massachusetts Premium Income Municipal Fund

By (Signature and Title) /s/ Kevin J. McCarthy
Kevin J. McCarthy
Vice President and Secretary

Date: April 29, 2014

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/ Gifford R. Zimmerman
Gifford R. Zimmerman
Chief Administrative Officer (principal executive officer)

Date: April 29, 2014

By (Signature and Title) /s/ Stephen D. Foy
Stephen D. Foy
Vice President and Controller (principal financial officer)

Date: April 29, 2014