NUVEEN MASSACHUSETTS PREMIUM INCOME MUNICIPAL FUND
Form N-Q
October 30, 2015

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: 8/31/15

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

Nuveen Massachusetts Premium Income Municipal Fund (NMT)
August 31, 2015 (Unaudited)

Principal Amount (000)	Description (1)	Optional Call Provisions (2)	Ratings (3)	Value
	LONG-TERM INVESTMENTS – 150.0% (100.0% of Total Investments)			
	MUNICIPAL BONDS – 150.0% (100.0% of Total Investments)			
	Consumer Discretionary – 1.3% (0.8% of Total Investments)			
$ 1,905	Boston Industrial Development Financing Authority, Massachusetts, Senior Revenue Bonds, Crosstown Center Project, Series 2002, 6.500%, 9/01/35 (Alternative Minimum Tax) (4), (5)	11/15 at 100.00	Caa3	$ 1,747,594
	Education and Civic Organizations – 42.0% (28.0% of Total Investments)			
	Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Tender Option Bond Trust 163:			
1,880	17.128%, 10/01/48 (IF) (6)	10/23 at 100.00	A1	2,671,536
575	17.028%, 10/01/48 (IF) (6)	10/23 at 100.00	A1	816,793
2,150	Massachusetts Development Finance Agency Revenue Bonds, Lesley University Issue Series B-1 and B-2, 5.250%, 7/01/33 – AGM Insured	7/21 at 100.00	AA	2,407,033
2,200	Massachusetts Development Finance Agency, Revenue Bonds, Boston College Issue, Series 2013S, 5.000%, 7/01/38	7/23 at 100.00	AA–	2,462,658
1,135	Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Series 2005T-1, 5.000%, 10/01/39 – AMBAC Insured	10/15 at 100.00	A1	1,138,746
750			A1	845,483

	Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Series 2009V-1, 5.000%, 10/01/29	10/19 at 100.00		
1,400	Massachusetts Development Finance Agency, Revenue Bonds, Emerson College, Series 2010A, 5.000%, 1/01/40	1/20 at 100.00	BBB+	1,466,472
	Massachusetts Development Finance Agency, Revenue Bonds, MCPHS University Issue, Series 2015H:			
450	3.500%, 7/01/35	7/25 at 100.00	AA–	441,216
190	5.000%, 7/01/37	7/25 at 100.00	AA–	215,561
550	Massachusetts Development Finance Agency, Revenue Bonds, Northeastern University, Series 2012, 5.000%, 10/01/31	No Opt. Call	A2	613,393
	Massachusetts Development Finance Agency, Revenue Bonds, Northeastern University, Series 2014A:			
875	5.000%, 3/01/39	3/24 at 100.00	A2	974,181
1,400	5.000%, 3/01/44	3/24 at 100.00	A2	1,548,904
500	Massachusetts Development Finance Agency, Revenue Bonds, Simmons College, Series 2013J, 5.250%, 10/01/39	No Opt. Call	BBB+	542,430
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Sterling and Francine Clark Art Institute, Series 2011A, 5.000%, 7/01/41	7/21 at 100.00	AA	1,090,050
1,230	Massachusetts Development Finance Agency, Revenue Bonds, Sterling and Francine Clark Art Institute, Series 2015, 5.000%, 7/01/33	7/25 at 100.00	AA	1,406,542
3,000	Massachusetts Development Finance Agency, Revenue Bonds, The Broad Institute, Series 2011A, 5.250%, 4/01/37	4/21 at 100.00	AA–	3,428,880
875	Massachusetts Development Finance Agency, Revenue Bonds, Tufts University, Series 2015Q, 5.000%, 8/15/38	8/25 at 100.00	Aa2	1,002,733
2,095	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2007, 5.000%, 9/01/37 – NPFG Insured	9/17 at 100.00	AA–	2,232,935
1,365	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2012, 5.000%, 9/01/50	9/22 at 100.00	A+	1,491,153
3,000		No Opt. Call	A	3,646,890

	Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2002A, 5.750%, 1/01/42 – AMBAC Insured			
9,950	Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2008A, 5.000%, 1/01/42 – AGC Insured	1/18 at 100.00	AA	10,330,986
	Massachusetts Development Finance Authority, Revenue Refunding Bonds, Boston University, Series 1999P:			
1,090	6.000%, 5/15/29	No Opt. Call	A1	1,322,726
1,000	6.000%, 5/15/59	5/29 at 105.00	A1	1,231,660
35	Massachusetts Educational Finance Authority, Educational Loan Revenue Bonds, Series 2001E, 5.300%, 1/01/16 – AMBAC Insured (Alternative Minimum Tax)	11/15 at 100.00	AA	35,142
350	Massachusetts Educational Financing Authority, Education Loan Revenue Bonds, Series 2008H, 6.350%, 1/01/30 – AGC Insured (Alternative Minimum Tax)	1/18 at 100.00	AA	368,932
795	Massachusetts Educational Financing Authority, Educational Loan Revenue, Series 2011J, 5.625%, 7/01/33 (Alternative Minimum Tax)	7/21 at 100.00	AA	863,298
550	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Emerson Hospital, Series 2005E, 5.000%, 8/15/25 – RAAI Insured	8/15 at 100.00	AA	551,270
1,700	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milton Hospital Project, Series 2005D, 5.250%, 7/01/30	7/15 at 100.00	BB+	1,707,412
255	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Northeastern University, Series 2010A, 4.875%, 10/01/35	10/20 at 100.00	A2	284,348
1,500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Springfield College, Series 2010, 5.500%, 10/15/31	10/19 at 100.00	Baa1	1,624,950
2,030	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Wheaton College Issues, Series 2010F, 5.000%, 1/01/41	1/20 at 100.00	A2	2,223,053
75	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Williams	7/16 at 100.00	AA+	77,483

	College, Series 2007L, 5.000%, 7/01/31			
500	Massachusetts Health and Educational Facilities Authority, Revenue Refunding Bonds, Suffolk University Issue, Series 2009A, 5.750%, 7/01/39	7/19 at 100.00	BBB	559,620
4,000	University of Massachusetts Building Authority, Project Revenue Bonds, Senior Series 2015-1, 5.000%, 11/01/40	11/25 at 100.00	Aa2	4,583,080
1,510	University of Massachusetts Building Authority, Senior Lien Project Revenue Bonds, Series 2009-1, 5.000%, 5/01/39	No Opt. Call	Aa2	1,678,229
51,960	Total Education and Civic Organizations			57,885,778
	Health Care – 31.3% (20.9% of Total Investments)			
1,000	Massachusetts Development Finance Agency Revenue Bonds, Baystate Medical Center Issue, Series 2014N, 5.000%, 7/01/44	7/24 at 100.00	A+	1,096,750
1,000	Massachusetts Development Finance Agency Revenue Bonds, Children's Hospital Issue, Series 2014P, 5.000%, 10/01/46	10/24 at 100.00	AA	1,110,740
1,410	Massachusetts Development Finance Agency, Hospital Revenue Bonds, Cape Cod Healthcare Obligated Group, Series 2013, 5.250%, 11/15/41	11/23 at 100.00	A	1,585,136
	Massachusetts Development Finance Agency, Revenue Bonds, Berkshire Health Systems, Series 2012G:			
895	5.000%, 10/01/29	10/21 at 100.00	A–	983,131
700	5.000%, 10/01/31	10/21 at 100.00	A–	764,078
	Massachusetts Development Finance Agency, Revenue Bonds, CareGroup Issue, Series 2015H-1:			
900	5.000%, 7/01/30 (WI/DD, Settling 9/02/15)	7/25 at 100.00	A–	1,011,852
1,000	5.000%, 7/01/32 (WI/DD, Settling 9/02/15)	7/25 at 100.00	A–	1,113,710
500	5.000%, 7/01/33 (WI/DD, Settling 9/02/15)	7/25 at 100.00	A–	554,670
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Covenant Health System Obligated Group, Series 2012, 5.000%, 7/01/31	7/22 at 100.00	A	1,086,930
1,080	Massachusetts Development Finance Agency, Revenue Bonds, Milford Regional Medical Center Issue, Series 2014F, 5.750%, 7/15/43	7/23 at 100.00	BBB–	1,189,264

155	Massachusetts Development Finance Agency, Revenue Bonds, Northern Berkshire Community Services Inc., Series 2012A, 6.000%, 2/15/43 (4), (5)	11/15 at 103.00	D	8,776
124	Massachusetts Development Finance Agency, Revenue Bonds, Northern Berkshire Community Services Inc., Series 2012B, 0.000%, 2/15/43 (4), (5)	11/15 at 17.59	D	6,986
176	Massachusetts Development Finance Agency, Revenue Bonds, Northern Berkshire Community Services Inc., Series 2012C, 0.000%, 2/15/43 (4), (5)	11/15 at 103.00	D	9,947
2,200	Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2011K-6, 5.375%, 7/01/41	7/20 at 100.00	AA	2,469,148
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2012L, 5.000%, 7/01/36	7/21 at 100.00	AA	1,141,300
820	Massachusetts Development Finance Agency, Revenue Bonds, Southcoast Health System Obligated Group Issue, Series 2013F, 5.000%, 7/01/37	7/23 at 100.00	A–	899,770
	Massachusetts Development Finance Agency, Revenue Bonds, The Lowell General Hospital, Series 2013G:			
1,000	5.000%, 7/01/37	7/23 at 100.00	BBB+	1,061,450
2,200	5.000%, 7/01/44	7/23 at 100.00	BBB+	2,311,078
500	Massachusetts Development Finance Agency, Revenue Bonds, UMass Memorial Health, Series 2011H, 5.500%, 7/01/31	7/21 at 100.00	BBB+	551,355
500	Massachusetts Health and Educational Facilities Authority Revenue Bonds, Quincy Medical Center Issue, Series 2008A, 6.500%, 1/15/38 (4)	1/18 at 100.00	N/R	1,225
945	Massachusetts Health and Educational Facilities Authority, Partners HealthCare System Inc., Series 2007G, 5.000%, 7/01/32	7/17 at 100.00	AA	1,007,332
160	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Baystate Medical Center, Series 2009I, 5.750%, 7/01/36	7/19 at 100.00	A+	180,262
500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Cape Cod Healthcare Obligated Group, Series 2004D, 5.125%, 11/15/35 – AGC Insured	11/19 at 100.00	AA	553,755

	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B1 Capital Asset Program Converted June 13,2008:			
3,380	5.375%, 2/01/26 – NPFG Insured	8/18 at 100.00	AA–	3,741,795
600	5.375%, 2/01/27 – NPFG Insured	8/18 at 100.00	AA–	664,224
770	5.375%, 2/01/28 – NPFG Insured	8/18 at 100.00	AA–	849,087
	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B2, Capital Asset Program, Converted June 9, 2009:			
2,000	5.375%, 2/01/27 – NPFG Insured	8/18 at 100.00	AA–	2,214,080
1,500	5.375%, 2/01/28 – NPFG Insured	8/18 at 100.00	AA–	1,654,065
2,000	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Children's Hospital, Series 2009M, 5.500%, 12/01/39	12/19 at 100.00	AA	2,275,740
2,500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Dana-Farber Cancer Institute, Series 2008K, 5.000%, 12/01/37	12/18 at 100.00	A1	2,731,475
1,600	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Clinic Medical Center, Series 2005C, 5.000%, 8/15/21 – FGIC Insured	11/15 at 100.00	AA–	1,606,288
3,000	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Medical Center, Series 2007D, 5.250%, 8/15/28	8/17 at 100.00	A+	3,182,490
1,495	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milford Regional Medical Center, Series 2007E, 5.000%, 7/15/32	7/17 at 100.00	BBB–	1,520,968
1,980	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, UMass Memorial Health Care, Series 2005D, 5.000%, 7/01/33	11/15 at 100.00	BBB+	1,985,584
40,590	Total Health Care			43,124,441
	Housing/Multifamily – 3.7% (2.5% of Total Investments)			
500	Boston Housing Authority, Massachusetts, Capital Program Revenue Bonds, Series 2008, 5.000%, 4/01/20 – AGM Insured	4/18 at 100.00	AA	549,610
2,510	Massachusetts Development Finance Authority, Multifamily Housing Revenue Bonds, Emerson Manor	7/17 at 100.00	BB–	2,546,495

	Project, Series 2007, 4.800%, 7/20/48			
2,000	Massachusetts Housing Finance Agency, Housing Bonds, Series 2003H, 5.125%, 6/01/43	11/15 at 100.00	AA–	2,001,660
5,010	Total Housing/Multifamily			5,097,765
	Housing/Single Family – 1.6% (1.0% of Total Investments)			
2,150	Massachusetts Housing Finance Agency, Single Family Housing Revenue Bonds, Series 2006-126, 4.625%, 6/01/32 (Alternative Minimum Tax)	6/16 at 100.00	AA	2,159,955
	Long-Term Care – 3.6% (2.4% of Total Investments)			
460	Massachusetts Development Finance Agency, Massachusetts, Berkshire Retirement Community Lennox, Series 2015, 5.000%, 7/01/31	No Opt. Call	A–	511,101
285	Massachusetts Development Finance Agency, Revenue Bonds, Carleton-Willard Village, Series 2010, 5.625%, 12/01/30	12/19 at 100.00	A–	319,707
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Loomis Communities, Series 2013A, 5.250%, 1/01/26	1/23 at 100.00	BBB–	1,099,720
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	546,170
2,410	Massachusetts Development Finance Agency, Revenue Bonds, Orchard Cove, Series 2007, 5.250%, 10/01/26	10/15 at 101.00	N/R	2,435,739
4,655	Total Long-Term Care			4,912,437
	Tax Obligation/General – 15.9% (10.6% of Total Investments)			
2,000	Hampden-Wilbraham Regional School District, Hampden County, Massachusetts, General Obligation Bonds, Series 2011, 5.000%, 2/15/41	2/21 at 100.00	Aa3	2,193,560
1,250	Hudson, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2011, 5.000%, 2/15/32	2/20 at 100.00	AA	1,407,187
1,010	Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21	No Opt. Call	AA+	1,205,748
2,440	Massachusetts State, General Obligation Bonds, Consolidated Loan, Refunding Series 2014C, 5.000%, 8/01/22	No Opt. Call	AA+	2,933,612
1,500		No Opt. Call	AA+	1,802,580

	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2004B, 5.250%, 8/01/21 – AGM Insured			
2,000	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2015C, 5.000%, 7/01/45	7/25 at 100.00	AA+	2,288,860
1,000	Newburyport, Massachusetts, General Obligation Bonds, Municipal Purpose Loan, Refunding Series 2013, 4.000%, 1/15/30	1/23 at 100.00	AAA	1,058,880
1,775	North Reading, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2012, 5.000%, 5/15/35 – AMBAC Insured	5/22 at 100.00	Aa2	1,976,551
1,760	Norwell, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 11/15/20 – FGIC Insured	No Opt. Call	AAA	2,023,032
	Quincy, Massachusetts, General Obligation Bonds, Series 2011:			
1,280	5.125%, 12/01/33	12/20 at 100.00	Aa2	1,453,453
2,000	5.250%, 12/01/38	12/20 at 100.00	Aa2	2,285,420
1,220	Worcester, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 7/01/19 – FGIC Insured	11/15 at 100.00	AA–	1,256,454
19,235	Total Tax Obligation/General			21,885,337
	Tax Obligation/Limited – 21.3% (14.2% of Total Investments)			
	Government of Guam, Business Privilege Tax Bonds, Series 2011A:			
2,000	5.250%, 1/01/36	1/22 at 100.00	A	2,193,600
1,310	5.125%, 1/01/42	1/22 at 100.00	A	1,412,940
	Government of Guam, Business Privilege Tax Bonds, Series 2012B-1:			
400	5.000%, 1/01/37	1/22 at 100.00	A	434,512
1,055	5.000%, 1/01/42	1/22 at 100.00	A	1,134,832
855	Martha's Vineyard Land Bank, Massachusetts, Revenue Bonds, Refunding Green Series 2014, 5.000%, 5/01/33 – BAM Insured	11/24 at 100.00	AA	969,852
1,000	Massachusetts Bay Transportation Authority, Assessment Bonds, Series 2012A, 5.000%, 7/01/41	7/22 at 100.00	AAA	1,131,810
770	Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Refunding Senior Lien Series 2004C, 5.250%, 7/01/21	No Opt. Call	AA+	926,656
975	Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C,	7/18 at 100.00	AA+	1,081,109

	5.000%, 7/01/26			
	Massachusetts College Building Authority, Project Revenue Bonds, Green Series 2014B:			
460	5.000%, 5/01/39	5/24 at 100.00	AA	522,592
1,610	5.000%, 5/01/44	5/24 at 100.00	AA	1,818,656
	Massachusetts College Building Authority, Project Revenue Bonds, Series 2008A,			
2,500	5.000%,	5/18 at 100.00	AA	2,720,775
	5/01/33 – AGC Insured			
	Massachusetts College Building Authority, Project Revenue Refunding Bonds, Series			
1,000	2003B,	No Opt. Call	Aa2	1,233,460
	5.375%, 5/01/23 – SYNCORA GTY Insured			
	Massachusetts College Building Authority, Revenue Bonds, Refunding Series 2012B,			
855	5.000%,	5/22 at 100.00	AA	953,222
	5/01/37			
	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Senior			
1,875	Series	5/23 at 100.00	AA+	2,111,962
	2013A, 5.000%, 5/15/38			
	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series			
1,875	2007A,	8/17 at 100.00	AA+	2,003,400
	5.000%, 8/15/37 – AMBAC Insured			
	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2011B:			
975	5.000%, 10/15/35	No Opt. Call	AA+	1,114,396
1,000	5.000%, 10/15/41	10/21 at 100.00	AA+	1,132,460
	Massachusetts State, Special Obligation Dedicated Tax Revenue Bonds, Series 2005,			
1,070	5.000%,	No Opt. Call	AA–	1,228,467
	1/01/20 – FGIC Insured			
	Massachusetts, Transportation Fund Revenue Bonds, Accelerated Bridge Program, Series			
1,500	2013A,	6/21 at 100.00	AAA	1,712,145
	5.000%, 6/01/38			
	Virgin Islands Public Finance Authority, Gross Receipts Taxes Loan Note, Refunding Series 2012A:			
2,700	5.000%, 10/01/32	No Opt. Call	BBB+	2,907,981
520	5.000%, 10/01/32 – AGM Insured	No Opt. Call	AA	578,542
26,305	Total Tax Obligation/Limited			29,323,369
	Transportation – 9.1% (6.1% of Total Investments)			
	Massachusetts Department of Transportation, Metropolitan Highway System Revenue			
400	Bonds,	1/20 at 100.00	AA+	450,272

	Commonwealth Contract Assistance Secured, Refunding Series 2010B, 5.000%, 1/01/35			
1,000	Massachusetts Port Authority, Airport System Revenue Bonds, Series 2010A, 5.000%, 7/01/30	7/20 at 100.00	AA	1,142,250
1,000	Massachusetts Port Authority, Revenue Bonds, Series 2012B, 5.000%, 7/01/33	7/22 at 100.00	AA	1,138,590
	Massachusetts Port Authority, Revenue Bonds, Series 2014A:			
1,000	5.000%, 7/01/39	7/24 at 100.00	AA	1,133,400
2,500	5.000%, 7/01/44	7/24 at 100.00	AA	2,817,125
	Massachusetts Port Authority, Revenue Bonds, Series 2015A:			
715	5.000%, 7/01/40	7/25 at 100.00	AA	816,330
1,000	5.000%, 7/01/45	7/25 at 100.00	AA	1,136,320
1,400	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	AA–	1,470,154
1,225	Massachusetts Port Authority, Special Facilities Revenue Bonds, Delta Air Lines Inc., Series 2001A, 5.000%, 1/01/27 – AMBAC Insured (Alternative Minimum Tax)	1/16 at 100.00	N/R	1,228,099
730	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+	813,687
330	Virgin Islands Port Authority, Marine Revenue Bonds, Refunding Series 2014B, 5.000%, 9/01/44	9/24 at 100.00	BBB+	354,222
11,300	Total Transportation			12,500,449
	U.S. Guaranteed – 9.1% (6.1% of Total Investments) (7)			
685	Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 (ETM)	3/17 at 100.00	N/R (7)	728,134
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	AA+ (7)	27,917
575	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 (7)	593,423
2,185	Massachusetts Development Finance Agency, Revenue Bonds, Draper Laboratory, Series 2008, 5.875%, 9/01/30 (Pre-refunded 9/01/18)	9/18 at 100.00	Aa3 (7)	2,505,867

1,055	Massachusetts Health and Educational Facilities Authority, Partners HealthCare System Inc., Series 2007G, 5.000%, 7/01/32 (Pre-refunded 7/01/17)	7/17 at 100.00	N/R (7)	1,140,012
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	AA- (7)	471,557
350	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Tufts University, Series 2008O, 5.375%, 8/15/38 (Pre-refunded 8/15/18)	8/18 at 100.00	Aa2 (7)	395,665
515	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Williams College, Series 2007L, 5.000%, 7/01/31 (Pre-refunded 7/01/16)	7/16 at 100.00	N/R (7)	535,286
1,000	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2009A, 5.000%, 3/01/21 (Pre-refunded 3/01/19)	3/19 at 100.00	AA+ (7)	1,132,770
	Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2006-12:			
785	4.375%, 8/01/31 (Pre-refunded 8/01/16)	8/16 at 100.00	Aaa	814,579
1,215	4.375%, 8/01/31 (Pre-refunded 8/01/16)	8/16 at 100.00	AAA	1,260,781
95	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, 5.000%, 8/01/28 (Pre-refunded 8/01/17)	8/17 at 100.00	Aa1 (7)	102,981
1,500	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2006A, 5.000%, 8/01/31 (Pre-refunded 8/01/16) – AMBAC Insured	8/16 at 100.00	AA+ (7)	1,563,795
1,065	Puerto Rico, Highway Revenue Bonds, Highway and Transportation Authority, Series 2003AA, 5.500%, 7/01/19 – NPFG Insured (ETM)	No Opt. Call	A3 (7)	1,239,319
11,460	Total U.S. Guaranteed			12,512,086
	Utilities – 4.2% (2.8% of Total Investments)			
2,580	Guam Power Authority, Revenue Bonds, Series 2010A, 5.000%, 10/01/37 – AGM Insured	10/20 at 100.00	AA	2,881,602
1,265	Massachusetts Clean Energy Cooperative Corporation, Revenue Bonds, Massachusetts Municipal Lighting Plant Cooperative, Series 2013, 5.000%, 7/01/32	7/23 at 100.00	A1	1,431,904

1,510	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+	1,512,643
5,355	Total Utilities			5,826,149
	Water and Sewer – 6.9% (4.6% of Total Investments)			
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+	564,295
565	Guam Waterworks Authority, Water and Wastewater System Revenue Bonds, Refunding Series 2014A, 5.000%, 7/01/29	7/24 at 100.00	A–	625,274
415	Lynn Water and Sewer Commission, Massachusetts, General Revenue Bonds, Series 2003A, 5.000%, 12/01/32 – NPFG Insured	11/15 at 100.00	AA–	416,423
2,300	Massachusetts Clean Water Trust, State Revolving Fund Bonds, Green 18 Series 2015, 5.000%, 2/01/45	2/24 at 100.00	AAA	2,608,752
60	Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2003-9, 5.000%, 8/01/22	11/15 at 100.00	AAA	60,245
400	Massachusetts Water Pollution Abatement Trust, Revenue Bonds, MWRA Loan Program, Series 2002A, 5.250%, 8/01/20	11/15 at 100.00	AAA	401,724
1,000	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2002J, 5.250%, 8/01/19 - AGM Insured	No Opt. Call	AA+	1,157,110
1,405	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, 5.000%, 8/01/28	8/17 at 100.00	AA+	1,508,858
1,000	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2006A, 4.000%, 8/01/46	8/16 at 100.00	AA+	1,001,620
720	Springfield Water and Sewer Commission, Massachusetts, General Revenue Bonds, Refunding Series 2010B, 5.000%, 11/15/30 – AGC Insured	11/20 at 100.00	AA	823,154
	Springfield Water and Sewer Commission, Massachusetts, General Revenue Bonds, Series 2014A:			
185	5.000%, 7/15/22	No Opt. Call	AA–	220,690
150	5.000%, 7/15/23	No Opt. Call	AA–	180,576
8,700	Total Water and Sewer			9,568,721
$ 188,625				206,544,081

Total Long-Term Investments (cost $195,029,984)	
Variable Rate MuniFund Term Preferred Shares, at Liquidation Value – (53.8)% (8)	(74,000,000)
Other Assets Less Liabilities – 3.8%	5,110,637
Net Assets Applicable to Common Shares – 100%	$ 137,654,718

Fair Value Measurements

Fair value is defined as the price that would be received 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 the assumptions market participants would use in pricing the asset or liability. Unobservable 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	$ —	$204,770,778	$1,773,303	$206,544,081

The following is a reconciliation of the Fund's Level 3 investments held at the beginning and end of the measurement period:

	Level 3 Municipal Bonds
Balance at the beginning of period	$ 25,165
Gains (losses):	
Net realized gains (losses)	—
Change in net unrealized appreciation (depreciation)	544
Purchases at cost	—
Sales at proceeds	—
Net discounts (premiums)	—
Transfers into	1,747,594

Transfers (out of)	—
Balance at the end of period	$1,773,303

The valuation techniques and significant unobservable inputs used in recurring Level 3 fair value measurements of assets as of the end of the reporting period, were as follows:

	Market Value	Techniques	Unobservable Inputs	Range
Municipal Bonds	$1,773,303	Expected Recovery	N/A	N/A

The table below presents the transfers in and out of the three valuation levels for the Fund as of the end of the reporting period when compared to the valuation levels at the end of the previous fiscal year. Changes in valuation inputs or methodologies may result in transfers into or out of an assigned level within the fair value hierarchy. Transfers in or out of levels are generally due to the availability of publicly available information and to the significance or extent the Adviser determines that the valuation inputs or methodologies may impact the valuation of those securities.

	Level 1		Level 2		Level 3	
	Transfers In	(Transfers Out)	Transfers In	(Transfers Out)	Transfers In	(Transfers Out)
Municipal Bonds	$ —	$ —	$ —	$(1,747,594)	$1,747,594	$ —

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 August 31, 2015, the cost of investments was $194,898,577.

Gross unrealized appreciation and gross unrealized depreciation of investments as of August 31, 2015, were as follows:

Gross unrealized:	
Appreciation	$12,118,780
Depreciation	(473,276)
Net unrealized appreciation (depreciation) of investments	$11,645,504

(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. Investment, or portion of investment, has been pledged to collateralize the net payment obligations for investments in inverse floating rate transactions.

(4) As of, or subsequent to, the end of the reporting period, this security is non-income producing. Non-income producing, in the case of a fixed-income security, generally denotes that the issuer has (1) defaulted on the payment of principal or interest, (2) is under the protection of the Federal Bankruptcy Court or (3) the Fund's Adviser has concluded that the issue is not likely to meet its future interest payment obligations and has ceased accruing additional income on the Fund's records.

(5) Investment valued at fair value using methods determined in good faith by, or at the discretion of, the Board. For fair value measurement disclosure purposes, investment classified as Level 3.

(6) Investment, or portion of investment, has been pledged to collateralize the net payment obligations for investments in inverse floating rate transactions,

(7) 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.

(8) Variable Rate MuniFund Term Preferred Shares, at Liquidation Value as a percentage of Total Investments is 35.8%.

(ETM) Escrowed to Maturity

(IF) Inverse floating rate investment.

(WI/DD) Investment, or portion of investment, purchased on a when-issued or delayed delivery basis.

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: October 30, 2015

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: October 30, 2015

By (Signature and Title) /s/ Stephen D. Foy

Stephen D. Foy
Vice President and Controller (principal financial officer)

Date: October 30, 2015