

BLACKROCK MUNIASSETS FUND, INC.

Form N-Q

September 25, 2012

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED MANAGEMENT INVESTMENT COMPANY

Investment Company Act file number 811-07642

Name of Fund: BlackRock MuniAssets Fund, Inc. (MUA)

Fund Address: 100 Bellevue Parkway, Wilmington, DE 19809

Name and address of agent for service: John M. Perlowski, Chief Executive Officer, BlackRock MuniAssets Fund, Inc., 55 East 52nd Street, New York, NY 10055

Registrant's telephone number, including area code: (800) 882-0052, Option 4

Date of fiscal year end: 04/30/2013

Date of reporting period: 07/31/2012

Item 1 – Schedule of Investments

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Schedule of Investments July 31, 2012 (Unaudited)

BlackRock MuniAssets Fund, Inc. (MUA)
(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Alabama 1.3%		
Alabama State Docks Department, Refunding RB, 6.00%, 10/01/40	\$ 2,165	\$ 2,509,776
County of Jefferson Alabama, RB, Series A:		
5.25%, 1/01/17	895	898,052
5.25%, 1/01/19	2,000	2,002,200
5.50%, 1/01/21	1,215	1,219,399
		6,629,427
Alaska 1.4%		
Northern Tobacco Securitization Corp., Refunding RB, Tobacco Settlement, Asset-Backed, Series A:		
4.63%, 6/01/23	1,725	1,719,808
5.00%, 6/01/32	1,500	1,283,820
5.00%, 6/01/46	4,885	3,831,940
		6,835,568
Arizona 3.0%		
Maricopa County IDA Arizona, RB, Arizona Charter Schools Project, Series A, 6.63%, 7/01/20	1,820	1,476,366
Phoenix IDA Arizona, ERB, Great Hearts Academies - Veritas Project:		
6.30%, 7/01/42	500	532,795
6.40%, 7/01/47	425	453,131
Phoenix IDA Arizona, Refunding RB, America West Airlines Inc. Project, AMT, 6.30%, 4/01/23	7,750	6,833,097
Pima County IDA Arizona, ERB, Arizona Charter School Project:		
Series A, 6.75%, 7/01/31	490	491,338
Series E, 7.25%, 7/01/31	2,255	2,265,441
Show Low Improvement District, Special Assessment Bonds, District No. 5, 6.38%, 1/01/15	450	454,302
Tempe IDA, Refunding RB, Friendship Village of Tempe, Series A, 6.25%, 12/01/42	720	775,008
University Medical Center Corp. Arizona, RB:		
6.25%, 7/01/29	820	949,256
6.50%, 7/01/39	500	579,440
		14,810,174
California 4.5%		
California Statewide Communities Development Authority, RB, Series A, 5.00%, 4/01/42	1,745	1,910,042
California Statewide Communities Development Authority, Refunding RB:		
American Baptist Homes of the West, 6.25%, 10/01/39	2,175	2,361,419
Eskaton Properties, Inc., 5.25%, 11/15/34	1,595	1,669,774
Municipal Bonds		Value

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	Par (000)	
California (concluded)		
City of Fontana California, Special Tax Bonds, Refunding RB, Community Facilities District No. 22-Sierra, Series H, 6.00%, 9/01/34	\$ 2,320	\$ 2,362,479
City of San Jose California Hotel Tax Revenue, RB, Convention Center Expansion & Renovation Project:		
6.50%, 5/01/36	900	1,048,761
6.50%, 5/01/42	2,220	2,584,635
Foothill Eastern Transportation Corridor Agency California, Refunding RB, CAB, 6.07%, 1/15/33 (a)	12,450	3,663,911
San Marcos County Unified School District, GO, CAB, Series B (a):		
5.10%, 8/01/40	5,000	1,220,600
5.15%, 8/01/51	12,050	1,659,285
Tobacco Securitization Authority of Southern California, Refunding RB, Series A1-SNR, 5.00%, 6/01/37	4,860	3,886,250
		22,367,156
Colorado 1.2%		
Plaza Metropolitan District No. 1 Colorado, Tax Allocation Bonds, Public Improvement Fee, Tax Increment:		
8.00%, 12/01/25	4,850	5,031,584
Subordinate, 8.13%, 12/01/25	1,025	1,024,898
		6,056,482
Connecticut 1.0%		
Connecticut State Development Authority, RB, AFCO Cargo BDL LLC Project, AMT, 8.00%, 4/01/30 (b)(c)	3,450	2,126,097
Mohegan Tribe of Indians of Connecticut, RB, Public Improvement, Priority Distribution, 5.25%, 1/01/33 (d)	1,500	1,393,485
Mohegan Tribe of Indians of Connecticut, Refunding RB, Public Improvement, Priority Distribution, 6.25%, 1/01/31	1,370	1,370,685
		4,890,267
Delaware 1.0%		
County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Project, 6.00%, 10/01/40	1,000	1,135,530
Delaware State EDA, RB, Exempt Facilities, Indian River Power, 5.38%, 10/01/45	3,625	3,923,990
		5,059,520

Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)
 (Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
District of Columbia 1.3%		
District of Columbia, RB, Methodist Home District of Columbia, Series A:		
7.38%, 1/01/30	\$ 1,665	\$ 1,736,628
7.50%, 1/01/39	1,615	1,683,056
District of Columbia Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, 6.50%, 5/15/33	2,785	3,039,020
		6,458,704
Florida 10.4%		
Greater Orlando Aviation Authority Florida, RB, Special Purpose, JetBlue Airways Corp., AMT, 6.38%, 11/15/26	4,500	4,548,240
Harbor Bay Community Development District Florida, Special Assessment Bonds, Series A, 7.00%, 5/01/33	455	455,223
Hillsborough County IDA, RB, National Gypsum Co., AMT:		
Series A, 7.13%, 4/01/30	4,500	4,502,970
Series B, 7.13%, 4/01/30	1,560	1,560,468
Jacksonville Economic Development Commission, RB, Gerdau Ameristeel US Inc., AMT, 5.30%, 5/01/37	4,500	4,501,170
Jacksonville Economic Development Commission, Refunding RB, Florida Proton Therapy Institute, Series A, 6.00%, 9/01/17	1,365	1,555,322
Lakewood Ranch Stewardship District, Special Assessment Bonds, Refunding, Lakewood Center & New Sector Projects, 8.00%, 5/01/40	1,485	1,629,565
Mid-Bay Bridge Authority, RB, Series A, 7.25%, 10/01/40	4,550	5,743,055
Midtown Miami Community Development District, Special Assessment Bonds, Series A:		
6.00%, 5/01/24	1,240	1,263,126
6.25%, 5/01/37	4,605	4,709,948
Palm Beach County Health Facilities Authority, RB, Acts Retirement Life Community, 5.50%, 11/15/33	3,500	3,812,935
Santa Rosa Bay Bridge Authority, RB, 6.25%, 7/01/28 (b)(c)	5,180	2,007,302
Sarasota County Health Facilities Authority, Refunding RB, Village On The Isle Project, 5.50%, 1/01/27	955	1,009,817
Sumter Landing Community Development District Florida, RB, Sub-Series B, 5.70%, 10/01/38	3,885	3,555,202
Tampa Palms Open Space & Transportation Community Development District, RB, Capital Improvement, Richmond Place	1,520	1,521,702

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Project, 7.50%, 5/01/18

	Par (000)	Value
Municipal Bonds		
Florida (concluded)		
Tolomato Community Development District, Special Assessment Bonds, 6.65%, 5/01/40 (b)(c)	\$ 4,525	\$ 2,037,834
Village Community Development District No. 9, Special Assessment Bonds:		
6.75%, 5/01/31	1,990	2,293,614
7.00%, 5/01/41	3,225	3,726,520
5.50%, 5/01/42	1,380	1,456,052
		51,890,065
Georgia 3.0%		
City of Atlanta Georgia, Tax Allocation Bonds, Princeton Lakes Project, 5.50%, 1/01/31	1,035	1,050,370
Clayton County Development Authority, Refunding RB, Delta Air Lines Inc. Project, Series A, 8.75%, 6/01/29	3,365	4,137,402
County of Clayton Georgia, Tax Allocation Bonds, Ellenwood Project, 7.50%, 7/01/33	2,765	2,866,420
DeKalb County Hospital Authority Georgia, Refunding RB, Dekalb Medical Center Inc. Project, 6.13%, 9/01/40	2,005	2,252,537
Gainesville & Hall County Development Authority, Refunding RB, Acts Retirement Life Community, Series A-2:		
6.38%, 11/15/29	700	801,780
6.63%, 11/15/39	880	1,000,895
Private Colleges & Universities Authority, Refunding RB, Mercer University Project, Series A:		
5.25%, 10/01/27	1,790	1,981,924
5.00%, 10/01/32	855	907,215
		14,998,543
Guam 0.6%		
Guam Government Waterworks Authority, Refunding RB, Water & Wastewater Systems, 6.00%, 7/01/25	1,265	1,304,759
Territory of Guam, GO, Series A:		
6.00%, 11/15/19	615	676,949
7.00%, 11/15/39	1,115	1,259,147
		3,240,855
Illinois 4.7%		
City of Chicago Illinois, Refunding RB, American Airlines Inc. Project, 5.50%, 12/01/30 (b)(c)	7,000	4,550,070
Illinois Finance Authority, RB, Roosevelt University Project, 6.50%, 4/01/44	4,170	4,686,621

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Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)
(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Illinois (concluded)		
Illinois Finance Authority, Refunding RB:		
CAB, Clare Water Tower, Series B, 4.46%, 5/15/50 (a)(b)(c)	\$ 1,500	\$ 283,650
Clare Water Tower, Series A-7, 6.13%, 5/15/41 (b)(c)	3,500	780,430
Friendship Village Of Schaumburg, 7.25%, 2/15/45	4,000	4,402,520
Primary Health Care Centers Program, 6.60%, 7/01/24	1,175	1,183,918
Metropolitan Pier & Exposition Authority, Refunding RB, CAB, McCormick Place Expansion Project, Series B (AGM), 5.16%, 6/15/46 (a)	9,860	1,755,672
Railsplitter Tobacco Settlement Authority, RB:		
5.50%, 6/01/23	1,400	1,633,688
6.00%, 6/01/28	710	826,234
Village of Lincolnshire Illinois, Special Tax Bonds, Sedgebrook Project, 6.25%, 3/01/34	1,800	1,821,150
Village of Wheeling Illinois, Tax Allocation Bonds, North Milwaukee/Lake-Cook TIF Project, 6.00%, 1/01/25	1,465	1,470,772
		23,394,725
Kentucky 1.1%		
Kentucky Economic Development Finance Authority, RB, Owensboro Medical Health System, Series A:		
6.38%, 6/01/40	1,580	1,859,170
6.50%, 3/01/45	2,000	2,370,200
Kentucky Economic Development Finance Authority, Refunding RB, Owensboro Medical Health System, Series B, 6.38%, 3/01/40	1,135	1,335,543
		5,564,913
Louisiana 1.6%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp. Projects, 6.75%, 11/01/32	5,000	5,619,750
Louisiana Public Facilities Authority, RB, Belle Chasse Educational Foundation Project, 6.75%, 5/01/41	1,855	2,132,972
		7,752,722
Maine 0.7%		
Maine Health & Higher Educational Facilities Authority, RB, Maine General Medical Center, 6.75%, 7/01/41	2,955	3,445,855

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	Par (000)	Value
Municipal Bonds		
Maryland 2.6%		
Maryland EDC, RB, Transportation Facilities Project, Series A, 5.75%, 6/01/35	\$ 3,615	\$ 3,941,435
Maryland EDC, Refunding RB, CNX Marine Terminals Inc., 5.75%, 9/01/25	4,785	5,179,619
Maryland Health & Higher Educational Facilities Authority, RB, Washington Christian Academy, 5.50%, 7/01/38 (b)(c)	1,000	400,000
Maryland Health & Higher Educational Facilities Authority, Refunding RB, Doctor s Community Hospital, 5.75%, 7/01/38	3,110	3,364,211
		12,885,265
Massachusetts 0.6%		
Massachusetts Development Finance Agency, RB: Eastern Nazarene College, 5.63%, 4/01/19	35	35,022
Foxborough Regional Charter School, Series A, 7.00%, 7/01/42	1,025	1,207,481
Massachusetts Development Finance Agency, Refunding RB: Eastern Nazarene College, 5.63%, 4/01/29	80	80,010
Tufts Medical Center, Series I, 6.75%, 1/01/36	1,490	1,753,506
		3,076,019
Michigan 3.0%		
City of Detroit Michigan Taxable Capital Improvement, GO, Limited Tax: Series A-1, 5.00%, 4/01/16	650	593,912
Series A-2, 8.00%, 4/01/14	3,185	3,038,299
Monroe County Hospital Finance Authority, Refunding RB, Mercy Memorial Hospital Corp. Obligation, 5.50%, 6/01/35	3,000	3,117,180
Royal Oak Hospital Finance Authority Michigan, Refunding RB, William Beaumont Hospital, 8.25%, 9/01/39	6,310	8,139,332
		14,888,723
Minnesota 0.4%		
City of Minneapolis Minnesota, Refunding RB, Fairview Health Services, Series A, 6.75%, 11/15/32	1,785	2,134,289
Missouri 0.6%		
Kirkwood IDA Missouri, RB, Aberdeen Heights, Series A, 8.25%, 5/15/39	2,315	2,780,292

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Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)
(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Nevada 0.2%		
County of Clark Nevada, Special Assessment Bonds, Special Improvement District No. 142, Local Improvement, 6.38%, 8/01/23	\$ 955	\$ 983,650
New Jersey 6.9%		
New Jersey EDA, RB: Continental Airlines Inc. Project, AMT, 6.25%, 9/15/19	2,000	2,007,980
Continental Airlines Inc. Project, AMT, 6.25%, 9/15/29	4,330	4,347,277
Continental Airlines Inc. Project, AMT, 9.00%, 6/01/33 (e)	1,250	1,319,787
Kapkowski Road Landfill Project, Series 1998B-MB, AMT, 6.50%, 4/01/31	2,250	2,651,760
Patterson Charter School for Science and Technology, Inc. Project, Series A, 6.10%, 7/01/44	1,085	1,134,194
New Jersey EDA, Refunding RB: Cigarette Tax, 5.00%, 6/15/23	995	1,137,126
Newark Airport Marriott Hotel, 7.00%, 10/01/14	4,000	4,019,480
New Jersey Educational Facilities Authority, Refunding RB, University of Medicine & Dentistry, Series B: 7.13%, 12/01/23	670	839,671
7.50%, 12/01/32	3,575	4,479,189
New Jersey Health Care Facilities Financing Authority, RB, Pascack Valley Hospital Association, 6.63%, 7/01/36 (b)(c)	3,870	39
New Jersey Health Care Facilities Financing Authority, Refunding RB: Barnabas Health, Series A, 5.63%, 7/01/37	2,650	2,883,120
St. Joseph's Healthcare System, 6.63%, 7/01/38	4,090	4,820,188
New Jersey Transportation Trust Fund Authority, RB, Transportation System, Series C (AMBAC), 4.77%, 12/15/35 (a)	6,210	2,062,527
Tobacco Settlement Financing Corp. New Jersey, Refunding RB, 4.50%, 6/01/23	3,000	2,853,810
		34,556,148
Municipal Bonds		Value

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	Par (000)	
New York 4.7%		
Chautauqua County Industrial Development Agency, RB, NRG Dunkirk Power Project, 5.88%, 4/01/42	\$ 3,695	\$ 4,150,039
Dutchess County Industrial Development Agency New York, RB, St. Francis Hospital, Series B, 7.50%, 3/01/29	1,000	1,030,150
Dutchess County Industrial Development Agency New York, Refunding RB, St. Francis Hospital, Series A, 7.50%, 3/01/29	1,400	1,442,210
Metropolitan Transportation Authority, RB, Series 2008C, 6.50%, 11/15/28	2,000	2,570,220
New York City Industrial Development Agency, RB:		
American Airlines Inc., JFK International Airport, AMT, 8.00%, 8/01/28 (b)(c)(e)	1,765	1,879,690
British Airways Plc Project, AMT, 7.63%, 12/01/32	4,130	4,244,773
Series C, 6.80%, 6/01/28	860	878,266
Special Needs Facilities Pooled Program, Series C-1, 6.50%, 7/01/24	610	614,837
Special Needs Facilities Pooled Program, Series C-1, 6.63%, 7/01/29	1,100	1,101,760
New York Liberty Development Corp., Refunding RB, Second Priority, Bank of America Tower at One Bryant Park Project, Class 3, 6.38%, 7/15/49	1,270	1,448,626
Port Authority of New York & New Jersey, RB, JFK International Air Terminal, 6.00%, 12/01/36	1,340	1,522,655
Yonkers Industrial Development Agency New York, RB, Sarah Lawrence College Project, Series A, 6.00%, 6/01/41	2,090	2,361,617
		23,244,843
North Carolina 1.5%		
North Carolina Medical Care Commission, Refunding RB, First Mortgage, Series A:		
Deerfield, 6.13%, 11/01/38	4,565	4,977,858
Whitestone, 7.75%, 3/01/31	1,000	1,145,240
Whitestone, 7.75%, 3/01/41	1,420	1,610,181
		7,733,279
Ohio 2.2%		
Buckeye Tobacco Settlement Financing Authority, RB, Asset-Backed, Senior Series A-2, 5.13%, 6/01/24	3,350	2,802,242

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Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)
(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Ohio (concluded)		
County of Hamilton Ohio, RB, Christ Hospital Project, 5.00%, 6/01/42	\$ 1,880	\$ 1,966,085
Southeastern Ohio Port Authority Hospital Facilities, Refunding RB, Refunding & Improvement-Memorial Health System, 6.00%, 12/01/42	935	986,481
State of Ohio, RB, Ford Motor Co. Project, AMT, 5.75%, 4/01/35	4,880	5,043,724
		10,798,532
Oklahoma 0.3%		
Oklahoma Development Finance Authority, Refunding RB, Inverness Village Community, 6.00%, 1/01/32	1,305	1,404,023
Pennsylvania 6.9%		
Allegheny County Hospital Development Authority, Refunding RB, Health System, West Penn, Series A, 5.38%, 11/15/40	3,540	2,890,764
Bucks County IDA, RB, Ann s Choice, Inc. Facility, Series A: 6.13%, 1/01/25	1,360	1,380,019
6.25%, 1/01/35	1,550	1,568,182
Cumberland County Municipal Authority, Refunding RB, Diakon Lutheran, 6.38%, 1/01/39	6,165	6,709,678
Lancaster County Hospital Authority, RB, Brethren Village Project, Series A, 6.25%, 7/01/26	1,160	1,253,902
Montgomery County IDA Pennsylvania, MRB, Whitemarsh Continuing Care, 6.13%, 2/01/28	2,330	2,377,182
Pennsylvania Economic Development Financing Authority, RB, National Gypsum Co., Series A, AMT, 6.25%, 11/01/27	3,250	3,196,375
Philadelphia Authority for Industrial Development, RB, AMT: Commercial Development, 7.75%, 12/01/17	8,000	8,012,560
Subordinate, Air Cargo, Series A, 7.50%, 1/01/25	3,870	3,871,161
Philadelphia Hospitals & Higher Education Facilities Authority, RB, Temple University Health System, Series A, 5.63%, 7/01/42	3,135	3,275,354
		34,535,177
Puerto Rico 2.0%		
Puerto Rico Electric Power Authority, RB, Series A, 5.00%, 7/01/42	2,000	2,058,240
Puerto Rico Public Buildings Authority, Refunding RB, Government Facilities, Series U, 5.25%, 7/01/42	3,790	3,869,135

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	Par (000)	Value
Municipal Bonds		
Puerto Rico (concluded)		
Puerto Rico Sales Tax Financing Corp., RB, First Sub-Series A, 6.50%, 8/01/44	\$ 2,650	\$ 3,163,384
Puerto Rico Sales Tax Financing Corp., Refunding RB, First Sub-Series C, 5.73%, 8/01/38 (a)	4,445	1,023,195
		10,113,954
Rhode Island 0.7%		
Central Falls Detention Facility Corp., Refunding RB, 7.25%, 7/15/35	4,245	3,652,313
Tennessee 0.1%		
Shelby County Health Educational & Housing Facilities Board Tennessee, RB, Village at Germantown, 6.25%, 12/01/34	575	560,430
Texas 12.3%		
Bexar County Health Facilities Development Corp., RB, Army Retirement Residence Project, 6.20%, 7/01/45	5,040	5,629,982
Brazos River Authority, Refunding RB, Texas Utility Co., Series A, AMT, 7.70%, 4/01/33	5,080	546,964
Central Texas Regional Mobility Authority, Refunding RB, CAB (a):		
4.94%, 1/01/28	1,000	471,270
4.98%, 1/01/29	2,000	892,060
5.08%, 1/01/30	1,170	488,604
5.16%, 1/01/31	2,000	782,200
5.25%, 1/01/32	3,500	1,279,110
5.35%, 1/01/33	3,690	1,255,707
5.41%, 1/01/34	4,000	1,275,120
Central Texas Regional Mobility Authority, Refunding RB, Senior Lien:		
5.75%, 1/01/25	675	775,811
6.25%, 1/01/46	2,210	2,562,296
City of Houston Texas, RB, Special Facilities, AMT:		
Continental Airlines, Series E, 6.75%, 7/01/21	4,550	4,567,108
Continental Airlines Inc. Terminal Improvement Projects, 6.63%, 7/15/38	2,890	3,157,990
Clifton Higher Education Finance Corp., ERB, Idea Public Schools:		
5.50%, 8/01/31	955	1,058,923
5.75%, 8/01/41	720	796,356
Harris County Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B:		
7.13%, 12/01/31	1,500	1,822,545
7.25%, 12/01/35	1,110	1,348,062

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Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)

(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Texas (concluded)		
Houston Higher Education Finance Corp., RB, Cosmos Foundation, Inc., Series A, 6.88%, 5/15/41	\$ 595	\$ 734,087
La Vernia Higher Education Finance Corp., RB, KIPP Inc., Series A, 6.38%, 8/15/44	860	1,003,723
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	1,500	1,618,530
Matagorda County Navigation District No. 1 Texas, Refunding RB, Central Power & Light Co. Project, Series A, 6.30%, 11/01/29	2,090	2,427,598
North Texas Education Finance Corp., ERB, Uplift Education, Series A: 5.13%, 12/01/42	745	786,474
5.25%, 12/01/47	1,600	1,691,792
North Texas Tollway Authority, RB, CAB, Special Projects System, Series B, 5.39%, 9/01/37 (a)	2,110	556,449
North Texas Tollway Authority, Refunding RB, Toll Second Tier, Series F, 6.13%, 1/01/31	4,425	4,893,475
Red River Health Facilities Development Corp., First MRB, Eden Home Inc. Project, 7.25%, 12/15/42	2,895	3,077,066
Tarrant County Cultural Education Facilities Finance Corp., RB, Series A: CC Young Memorial Home, 8.00%, 2/15/38	1,745	1,922,990
Senior Living Center Project, 8.25%, 11/15/44	4,200	4,708,662
Texas Private Activity Bond Surface Transportation Corp., RB, Senior Lien: LBJ Infrastructure Group LLC LBJ Freeway Managed Lanes Project, 7.00%, 6/30/40	4,455	5,438,664
NTE Mobility Partners LLC, North Tarrant Express, Managed Lanes Project, 6.88%, 12/31/39	3,000	3,601,980
		61,171,598
Vermont 0.2%		
Vermont EDA, Refunding MRB, Wake Robin Corp. Project, Series A, 5.40%, 5/01/33	770	805,820
Virginia 3.6%		
Dulles Town Center Community Development Authority, Special Assessment Bonds, Dulles Town Center Project, 6.25%, 3/01/26	3,515	3,518,585

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	Par (000)	Value
Municipal Bonds		
Virginia (concluded)		
Fairfax County EDA, Refunding RB, Goodwin House Inc., 5.13%, 10/01/42	\$ 2,500	\$ 2,560,750
Lexington IDA, Refunding MRB, Kendal at Lexington, Series A, 5.38%, 1/01/28	40	40,681
Mosaic District Community Development Authority, RB, Special Assessment, Series A: 6.63%, 3/01/26	1,485	1,658,255
6.88%, 3/01/36	1,300	1,450,098
Virginia Small Business Financing Authority, RB, Senior Lien, Elizabeth River Crossing Project, AMT: 5.25%, 1/01/32	810	876,323
6.00%, 1/01/37	5,705	6,515,738
5.50%, 1/01/42	1,175	1,294,803
		17,915,233
Washington 0.3%		
King County, Washington Public Hospital District No. 4, GO, Refunding, Snoqualmie Valley Hospital, 7.00%, 12/01/40	1,455	1,599,132
Wisconsin 0.8%		
Wisconsin Health & Educational Facilities Authority, RB, New Castle Place Project, Series A, 7.00%, 12/01/31	3,175	2,333,307
Wisconsin Health & Educational Facilities Authority, Refunding RB, St. John's Communities Inc., Series A: 7.25%, 9/15/29	425	488,533
7.63%, 9/15/39	855	991,638
		3,813,478
Total Municipal Bonds 86.7%		432,047,174
Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts (f)		
Colorado 2.5%		
Colorado Health Facilities Authority, Refunding RB, Sisters of Leavenworth, Series A, 5.00%, 1/01/40	11,475	12,504,422
District of Columbia 1.6%		
District of Columbia Water & Sewer Authority, Refunding RB, Series A, 6.00%, 10/01/35	6,681	8,132,857
Florida 3.3%		
County of Miami-Dade Florida, RB, Miami International Airport, Series A, AMT (AGC), 5.25%, 10/01/33	15,000	16,142,250

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Schedule of Investments (continued)

BlackRock MuniAssets Fund, Inc. (MUA)
(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts (f)		
Illinois 3.1%		
City of Chicago Illinois, RB, General Airport, Third Lien, Series A (NPPGC), 5.00%, 1/01/33	\$ 6,510	\$ 6,936,210
Illinois Finance Authority, RB, Carle Foundation, Series A (AGM), 6.00%, 8/15/41	7,180	8,313,291
		15,249,501
Michigan 0.9%		
Detroit Water and Sewerage Department, Refunding RB, Senior Lien, Series A:		
5.00%, 7/01/32	1,613	1,696,137
5.25%, 7/01/39	2,786	2,938,201
		4,634,338
New York 11.6%		
Hudson New York Yards Infrastructure Corp., RB, Series A, 5.75%, 2/15/47	4,520	5,297,307
New York City Municipal Water Finance Authority, Refunding RB, Water & Sewer System, Second General Resolution:		
Series EE, 5.50%, 6/15/43	7,605	9,065,160
Series HH, 5.00%, 6/15/31	8,609	10,124,427
New York Liberty Development Corp., RB, 1 World Trade Center Port Authority Construction, 5.25%, 12/15/43	18,105	20,883,212
New York Liberty Development Corp., Refunding RB, 4 World Trade Center Project, 5.75%, 11/15/51	6,600	7,808,790
New York State Dormitory Authority, ERB, Series F, 5.00%, 3/15/35	4,004	4,356,934
		57,535,830
Washington 1.8%		
City of Bellingham Washington, RB, Water & Sewer, 5.00%, 8/01/40	7,966	9,059,969
Total Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts 24.8%		123,259,167
Total Long-Term Investments (Cost \$518,758,217) 111.5%		555,306,341
Short-Term Securities		
FFI Institutional Tax-Exempt Fund, 0.01% (g)(h)	1,151,560	\$ 1,151,560
Total Short-Term Securities (Cost \$1,151,560) 0.2%		1,151,560
Total Investments (Cost - \$519,909,777*) 111.7%		556,457,901
Other Assets Less Liabilities 1.2%		5,995,745
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (12.9)%		(64,192,427)
Net Assets 100.0%		\$ 498,261,219

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* As of July 31, 2012, gross unrealized appreciation and gross unrealized depreciation based on cost for federal income tax purposes were as follows:

Tax cost	\$ 455,290,739
Gross unrealized appreciation	\$ 57,906,621
Gross unrealized depreciation	(20,888,713)
Net unrealized appreciation	\$ 37,017,908

- (a) Represents a zero-coupon bond. Rate shown reflects the current yield as of report date.
- (b) Issuer filed for bankruptcy and/or is in default of principal and/or interest payments.
- (c) Non-income producing security.
- (d) Security exempt from registration pursuant to Rule 144A under the Securities Act of 1933, as amended. These securities may be resold in transactions exempt from registration to qualified institutional investors.
- (e) Variable rate security. Rate shown is as of report date.
- (f) Securities represent bonds transferred to a TOB in exchange for which the Fund acquired residual interest certificates. These securities serve as collateral in a financing transaction.
- (g) Investments in companies considered to be an affiliate of the Fund during the period, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

Affiliate	Shares Held at April 30, 2012	Net Activity	Shares Held at July 31, 2012	Income
FFI Institutional Tax-Exempt Fund	3,404,970	(2,253,410)	1,151,560	\$ 162

- (h) Represents the current yield as of report date.

Schedule of Investments (concluded)

BlackRock MuniAssets Fund, Inc. (MUA)

Portfolio Abbreviations

To simplify the listings of portfolio holdings in the Schedule of Investments, the names and descriptions of many of the securities have been abbreviated according to the following list:

AGC	Assured Guaranty Corp.
AGM	Assured Guaranty Municipal Corp.
AMBAC	American Municipal Bond Assurance Corp.
AMT	Alternative Minimum Tax (subject to)
CAB	Capital Appreciation Bonds
EDA	Economic Development Authority
EDC	Economic Development Corp.
ERB	Education Revenue Bonds
GO	General Obligation Bonds
IDA	Industrial Development Authority
MRB	Mortgage Revenue Bonds
NPFGC	National Public Finance Guarantee Corp.
RB	Revenue Bonds

Fair Value Measurements - Various inputs are used in determining the fair value of investments. These inputs to valuation techniques are categorized into a disclosure hierarchy consisting of three broad levels for financial reporting purposes as follows:

Level 1 unadjusted price quotations in active markets/exchanges for identical assets and liabilities

Level 2 other observable inputs (including, but not limited to: quoted prices for similar assets or liabilities in markets that are active, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the assets or liabilities (such as interest rates, yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates) or other market-corroborated inputs)

Level 3 unobservable inputs based on the best information available in the circumstances, to the extent observable inputs are not available (including the Fund's own assumptions used in determining the fair value of investments)

Changes in valuation techniques may result in transfers into or out of an assigned level within the disclosure hierarchy. In accordance with the Fund's policy, transfers between different levels of the fair value disclosure hierarchy are deemed to have occurred as of the beginning of the reporting period. The categorization of a value determined for investments is based on the pricing transparency of the investment and is not necessarily an indication of the risks associated with investing in those securities. For information about the Fund's policy regarding valuation of investments and other significant accounting policies, please refer to the Fund's most recent financial statements as contained in its annual report.

The following table summarizes the Fund's investments categorized in the disclosure hierarchy as of July 31, 2012:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term				
Investments ¹		\$ 555,306,341		\$ 555,306,341
Short-Term				
Securities	\$ 1,151,560			1,151,560
Total	\$ 1,151,560	\$ 555,306,341		\$ 556,457,901

¹ See above Schedule of Investments for values in each state or political subdivision.

Certain of the Fund's liabilities are held at carrying amount, which approximates fair value for financial reporting purposes. As of July 31, 2012, such liabilities are categorized within the disclosure hierarchy as follows:

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	Level 1	Level 2	Level 3	Total
Liabilities:				
Bank overdraft		\$ (53)		\$ (53)
TOB trust certificates		(64,149,254)		(64,149,254)
Total		\$ (64,149,307)		\$ (64,149,307)

There were no transfers between levels during the period ended July 31, 2012.

BLACKROCK MUNIASSETS FUND, INC.

JULY 31, 2012

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Item 2 – Controls and Procedures

2(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”)) are effective as of a date within 90 days of the filing of this report based on the evaluation of these controls and procedures required by Rule 30a-3(b) under the 1940 Act and Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended.

2(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) 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

Certifications – Attached hereto

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.

BlackRock MuniAssets Fund, Inc.

By: /s/ John M. Perlowski
John M. Perlowski
Chief Executive Officer (principal executive officer) of
BlackRock MuniAssets Fund, Inc.

Date: September 25, 2012

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: /s/ John M. Perlowski
John M. Perlowski
Chief Executive Officer (principal executive officer) of
BlackRock MuniAssets Fund, Inc.

Date: September 25, 2012

By: /s/ Neal J. Andrews
Neal J. Andrews
Chief Financial Officer (principal financial officer) of
BlackRock MuniAssets Fund, Inc.

Date: September 25, 2012

