

BLACKROCK MUNIASSETS FUND, INC.

Form N-Q

September 28, 2011

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: 04/30/2012

Date of reporting period: 07/31/2011

Item 1 – Schedule of Investments

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Schedule of Investments July 31, 2011 (Unaudited)

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

	Par (000)	Value
Municipal Bonds		
Alabama 0.7%		
Alabama State Docks Department, Refunding RB, 6.00%, 10/01/40	\$ 2,165	\$ 2,221,571
County of Jefferson Alabama, RB, Series A, 5.25%, 1/01/17	895	850,653
		3,072,224
Alaska 1.0%		
Northern Tobacco Securitization Corp., RB, Asset-Backed, Series A, 5.00%, 6/01/46	6,885	4,544,031
Arizona 3.5%		
Maricopa County IDA Arizona, RB, Arizona Charter Schools Project, Series A, 6.63%, 7/01/20	2,120	1,644,166
Phoenix IDA Arizona, Refunding RB, America West Airlines Inc. Project, AMT, 6.30%, 4/01/23	7,750	6,588,740
Pima County IDA, RB, Arizona Charter School Project, Series E, 7.25%, 7/01/31	2,255	2,259,465
Pima County IDA, Refunding RB, Charter Schools II, Series A, 6.75%, 7/01/31	660	639,956
Salt Verde Financial Corp., RB, Senior: 5.00%, 12/01/32	1,840	1,665,163
5.00%, 12/01/37	1,350	1,208,331
Show Low Improvement District, Special Assessment Bonds, District No. 5, 6.38%, 1/01/15	575	577,944
University Medical Center Corp. Arizona, RB: 6.25%, 7/01/29	820	852,619
6.50%, 7/01/39	500	514,600
		15,950,984
Arkansas 0.4%		
County of Little River Arkansas, Refunding RB, Georgia-Pacific Corp. Project, AMT, 5.60%, 10/01/26	1,740	1,684,598
California 4.0%		
California Statewide Communities Development Authority, Refunding RB:		
American Baptist Homes of the West, 6.25%, 10/01/39	2,175	2,166,191
Senior Living, Southern California, 7.00%, 11/15/29	1,000	1,071,890
Municipal Bonds		
California (concluded)		
California Statewide Communities Development Authority, Refunding RB (concluded): Senior Living, Southern California, 7.25%, 11/15/41	\$ 3,500	\$ 3,728,060
	2,320	2,190,057

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City of Fontana California, Special Tax Bonds, Refunding, Community Facilities District No. 22-Sierra, Series H, 6.00%, 9/01/34		
City of San Jose California, RB, Convention Center Expansion & Renovation Project:		
6.50%, 5/01/36	900	934,785
6.50%, 5/01/42	2,220	2,294,192
State of California, GO, Various Purpose, 6.00%, 3/01/33	5,195	5,675,174
		18,060,349
Colorado 1.4%		
E-470 Public Highway Authority, Refunding RB, CAB, 7.08%, 9/01/35 (a)	3,695	632,954
Plaza Metropolitan District No. 1 Colorado, Tax Allocation Bonds, Tax Increment:		
Public Improvement Fee, 8.00%, 12/01/25	4,850	4,857,372
Subordinate Public Improvement Fee, 8.13%, 12/01/25	1,025	940,212
		6,430,538
Connecticut 1.5%		
Connecticut State Development Authority, RB, AFCO Cargo BDL LLC Project, AMT, 8.00%, 4/01/30	3,450	2,299,149
Mohegan Tribe of Indians of Connecticut, RB, Public Improvement, Priority Distribution:		
6.25%, 1/01/31	4,395	3,525,669
5.25%, 1/01/33 (b)	1,500	1,037,280
		6,862,098

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:

ACA	American Capital Access Corp.
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
HDA	Housing Development Authority
IDA	Industrial Development Authority
MRB	Mortgage Revenue Bonds
NPFGC	National Public Finance Guarantee Corp.
RB	Revenue Bonds
SAN	State Aid Notes
TIF	Tax Increment Financing

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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		
Delaware 1.1%		
County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Project, 6.00%, 10/01/40	\$ 1,000	\$ 1,007,750
Delaware State EDA, RB, Exempt Facilities, Indian River Power, 5.38%, 10/01/45	4,225	3,810,823
		4,818,573
District of Columbia 2.9%		
District of Columbia, RB, Methodist Home District of Columbia, Series A: 7.38%, 1/01/30	1,665	1,670,927
7.50%, 1/01/39	2,725	2,733,693
District of Columbia, Refunding RB, Howard University, Series A, 6.50%, 10/01/41	3,725	3,871,690
District of Columbia Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, 6.50%, 5/15/33	1,785	1,822,521
Metropolitan Washington Airports Authority, RB, CAB, 2nd Senior Lien, Series B (AGC) (a): 6.56%, 10/01/30	7,000	2,159,150
6.77%, 10/01/39	5,000	813,600
		13,071,581
Florida 10.1%		
County of Miami-Dade Florida, Refunding RB, Miami International Airport, Series A-1, 5.38%, 10/01/41	1,065	1,071,433
Greater Orlando Aviation Authority Florida, RB, Special Purpose, JetBlue Airways Corp., AMT, 6.38%, 11/15/26	1,180	1,128,847
Harbor Bay Community Development District Florida, Special Assessment Bonds, Series A, 7.00%, 5/01/33	455	433,979
Hillsborough County IDA, RB, AMT, National Gypsum Co.: Series A, 7.13%, 4/01/30	4,500	4,092,210
Series B, 7.13%, 4/01/30	3,100	2,819,078
Jacksonville Economic Development Commission, RB, Gerdau Ameristeel US Inc., AMT, 5.30%, 5/01/37	2,200	1,891,098
Jacksonville Economic Development Commission, Refunding RB, Florida Proton Therapy Institute, Series A, 6.00%, 9/01/17	1,515	1,553,663
Lakewood Ranch Stewardship District, Special Assessment Bonds, Lakewood Center & New Sector Projects, 8.00%, 5/01/40	1,485	1,474,798
	4,550	4,633,128

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Mid-Bay Bridge Authority, RB, Series A, 7.25%, 10/01/40		
Midtown Miami Community Development District, Special Assessment Bonds, Series A:		
6.00%, 5/01/24	1,305	1,284,329
6.25%, 5/01/37	4,605	4,417,070

	Par (000)	Value
Municipal Bonds		
Florida (concluded)		
Palm Beach County Health Facilities Authority, RB, Acts Retirement Life Community, 5.50%, 11/15/33	\$ 3,500	\$ 3,277,890
Santa Rosa Bay Bridge Authority, RB, 6.25%, 7/01/28 (c)(d)	5,180	1,787,100
Sarasota County Health Facilities Authority, Refunding RB, Village On The Isle Project:		
5.50%, 1/01/27	955	868,868
5.50%, 1/01/32	1,345	1,185,752
Sarasota County Public Hospital District, RB, Sarasota Memorial Hospital Project, Series A, 5.63%, 7/01/39	615	621,427
Sumter Landing Community Development District Florida, RB, Sub-Series B, 5.70%, 10/01/38	3,935	3,091,572
Tampa Palms Open Space & Transportation Community Development District, RB, Capital Improvement, Richmond Place Project, 7.50%, 5/01/18	1,715	1,715,189
Tolomato Community Development District, Special Assessment Bonds, Special Assessment, 6.65%, 5/01/40	4,525	2,750,521
Village Community Development District No. 9, Special Assessment Bonds:		
6.75%, 5/01/31	2,000	2,060,180
7.00%, 5/01/41	3,230	3,353,386
		45,511,518

Georgia 3.3%		
City of Atlanta Georgia, Tax Allocation Bonds, Princeton Lakes Project, 5.50%, 1/01/31	1,035	943,992
Clayton County Development Authority, RB, Delta Air Lines, Series A, 8.75%, 6/01/29	3,365	3,898,218
County of Clayton Georgia, Tax Allocation Bonds, Ellenwood Project, 7.50%, 7/01/33	2,765	2,617,432
DeKalb County Hospital Authority Georgia, RB, Dekalb Medical Center Inc. Project, 6.13%, 9/01/40	2,005	1,982,043
Gainesville & Hall County Development Authority, Refunding RB, Acts Retirement Life Community, Series A-2:		
6.38%, 11/15/29	700	730,338
6.63%, 11/15/39	880	910,201
Rockdale County Development Authority, RB, Visy Paper Project, Series A, AMT, 6.13%, 1/01/34	4,115	3,801,890

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14,884,114

Guam 0.9%

Guam Government Waterworks
Authority, Refunding RB, Water,
6.00%, 7/01/25

1,265

1,265,367

BLACKROCK MUNIASSETS FUND, INC.

JULY 31, 2011

2

Schedule of Investments (continued)

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

	Par (000)	Value
Municipal Bonds		
Guam (concluded)		
Territory of Guam, GO, Series A:		
6.00%, 11/15/19	\$ 615	\$ 610,855
6.75%, 11/15/29	1,075	1,093,952
7.00%, 11/15/39	1,115	1,150,312
		4,120,486
Illinois 5.8%		
City of Chicago Illinois, Refunding RB, American Airlines Inc. Project, 5.50%, 12/01/30		
	7,000	5,528,670
Illinois Finance Authority, RB:		
Roosevelt University Project, 6.50%, 4/01/44		
	4,170	4,281,047
Rush University Medical Center Obligation Group, Series A, 7.25%, 11/01/30		
	2,000	2,235,980
Rush University Medical Center Obligation Group, Series B, 7.25%, 11/01/30		
	1,170	1,308,048
Illinois Finance Authority, Refunding RB:		
CAB Clare Water Tower, Series B, 0.04%, 5/15/50 (a)		
	1,500	5,985
Clare Water Tower, Series A-7, 6.13%, 5/15/41		
	3,500	1,467,515
Friendship Village of Schaumburg, 7.25%, 2/15/45		
	4,000	3,901,640
Primary Health Care Centers Program, 6.60%, 7/01/24		
	1,175	1,030,005
Metropolitan Pier & Exposition Authority, Refunding RB, McCormick Place Expansion Project, CAB, Series B (AGM), 6.25%, 6/15/46 (a)		
	9,860	1,073,557
Railsplitter Tobacco Settlement Authority, RB:		
5.50%, 6/01/23	1,400	1,450,470
6.00%, 6/01/28	710	731,194
Village of Lincolnshire Illinois, Special Tax Bonds, Sedgebrook Project, 6.25%, 3/01/34		
	1,825	1,571,270
Village of Wheeling Illinois, Tax Allocation Bonds, North Milwaukee/Lake-Cook TIF Project, 6.00%, 1/01/25		
	1,465	1,338,732
		25,924,113
Indiana 0.4%		
Vigo County Hospital Authority Indiana, RB, Union Hospital Inc. (b):		
5.70%, 9/01/37	1,055	890,220
5.75%, 9/01/42	1,310	1,097,793
		1,988,013
Kentucky 0.6%		

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Kentucky Economic Development Finance Authority, Refunding RB, Owensboro Medical Health System: Series A, 6.38%, 6/01/40	1,580	1,610,273
	Par (000)	Value
Municipal Bonds		
Kentucky (concluded)		
Kentucky Economic Development Finance Authority, Refunding RB, Owensboro Medical Health System (concluded): Series B, 6.38%, 3/01/40	\$ 1,135	\$ 1,156,746
		2,767,019
Louisiana 1.6%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp. Projects, 6.75%, 11/01/32	5,000	5,221,700
Louisiana Public Facilities Authority, RB, Belle Chasse Educational Foundation Project, 6.75%, 5/01/41	1,855	1,916,271
		7,137,971
Maine 0.7%		
Maine Health & Higher Educational Facilities Authority, RB, Maine General Medical Center, 6.75%, 7/01/41 (e)	2,955	2,935,999
Maryland 2.6%		
Maryland EDC, RB, Transportation Facilities Project, Series A, 5.75%, 6/01/35	3,615	3,542,591
Maryland EDC, Refunding RB, CNX Marine Terminals Inc., 5.75%, 9/01/25	4,110	4,055,173
Maryland Health & Higher Educational Facilities Authority, RB, Washington Christian Academy, 5.50%, 7/01/38 (c)(d)	1,000	399,610
Maryland Health & Higher Educational Facilities Authority, Refunding RB, Doctor s Community Hospital, 5.75%, 7/01/38	3,110	2,678,301
Maryland State Energy Financing Administration, RB, Cogeneration, AES Warrior Run, AMT, 7.40%, 9/01/19	1,110	1,112,353
		11,788,028
Massachusetts 1.0%		
Massachusetts Development Finance Agency, RB, Foxborough Regional Charter School, Series A, 7.00%, 7/01/42	1,025	1,075,471
Massachusetts Development Finance Agency, Refunding RB: Eastern Nazarene College, 5.63%, 4/01/19	40	39,301
Eastern Nazarene College, 5.63%, 4/01/29	80	70,334
Tufts Medical Center, Series I, 6.75%, 1/01/36	1,490	1,558,540

Schedule of Investments (continued)

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

	Par (000)	Value
Municipal Bonds		
Massachusetts (concluded)		
Massachusetts Health & Educational Facilities Authority, RB, Jordan Hospital, Series E, 6.75%, 10/01/33	\$ 2,000	\$ 1,942,760
		4,686,406
Michigan 2.7%		
Advanced Technology Academy, RB, 6.00%, 11/01/37	1,525	1,276,044
County of Wayne Michigan, GO, Building Improvement, Series A, 6.75%, 11/01/39	900	934,128
Monroe County Hospital Finance Authority, Refunding RB, Mercy Memorial Hospital Corp. Obligation, 5.50%, 6/01/35	3,000	2,692,020
Royal Oak Hospital Finance Authority Michigan, Refunding RB, William Beaumont Hospital, 8.25%, 9/01/39	6,310	7,284,832
		12,187,024
Minnesota 0.4%		
City of Minneapolis Minnesota, Refunding RB, Fairview Health Services, Series A, 6.75%, 11/15/32	1,785	1,940,848
Missouri 0.5%		
Kirkwood IDA Missouri, RB, Aberdeen Heights, Series A, 8.25%, 5/15/39	2,315	2,393,340
Nevada 0.2%		
County of Clark Nevada, Special Assessment Bonds, Special Improvement District No. 142, Local Improvement, 6.38%, 8/01/23	960	974,534
New Hampshire 0.4%		
New Hampshire Health & Education Facilities Authority, RB, Catholic Medical Center, 5.00%, 7/01/36	2,000	1,713,100
New Jersey 6.7%		
New Jersey EDA, RB: Cigarette Tax, 5.75%, 6/15/29	3,180	3,151,730
Continental Airlines Inc. Project, AMT, 6.63%, 9/15/12	4,050	4,099,491
Continental Airlines Inc. Project, AMT, 6.25%, 9/15/19	2,000	1,985,400
Continental Airlines Inc. Project, AMT, 6.40%, 9/15/23	1,000	992,840
Continental Airlines Inc. Project, AMT, 6.25%, 9/15/29	4,330	4,133,375
Continental Airlines Inc. Project, AMT, 9.00% 6/01/33 (f)	1,250	1,292,775
	4,000	4,016,640

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New Jersey EDA, Refunding RB, Newark
 Airport Marriott Hotel, 7.00%,
 10/01/14

	Par (000)	Value
Municipal Bonds		
New Jersey (concluded)		
New Jersey Educational Facilities Authority, Refunding RB, University of Medicine & Dentistry, Series B: 7.13%, 12/01/23	\$ 670	\$ 783,933
7.50%, 12/01/32	3,575	4,091,051
New Jersey Health Care Facilities Financing Authority, RB, Pascack Valley Hospital Association, 6.63%, 7/01/36 (c)(d)	3,870	39
New Jersey Health Care Facilities Financing Authority, Refunding RB, St. Joseph s Healthcare System, 6.63%, 7/01/38	4,090	4,140,552
New Jersey Transportation Trust Fund Authority, RB, CAB, Transportation System, Series C (AMBAC), 5.05%, 12/15/35 (a)	6,210	1,314,471
		30,002,297
New York 5.8%		
Chautauqua County Industrial Development Agency, RB, NRG Dunkirk Power Project, 5.88%, 4/01/42	3,695	3,630,707
Dutchess County Industrial Development Agency New York, RB, St. Francis Hospital, Series B, 7.50%, 3/01/29	1,000	978,260
Dutchess County Industrial Development Agency New York, Refunding RB, St. Francis Hospital, Series A, 7.50%, 3/01/29	1,400	1,369,564
Metropolitan Transportation Authority, RB, Series 2008C, 6.50%, 11/15/28	5,685	6,576,067
New York City Industrial Development Agency, RB: American Airlines Inc., JFK International Airport, AMT, 8.00%, 8/01/28 (f)	1,765	1,839,236
British Airways Plc Project, AMT, 7.63%, 12/01/32	4,130	4,179,890
Series C, 6.80%, 6/01/28	860	888,801
Special Needs Facilities Pooled Program, Series C-1, 6.50%, 7/01/24	610	569,527
Special Needs Facilities Pooled Program, Series C-1, 6.63%, 7/01/29	1,100	989,329
New York Liberty Development Corp., Refunding RB, Second Priority, Bank of America Tower at One Bryant Park Project, 6.38%, 7/15/49	1,270	1,306,284
Port Authority of New York & New Jersey, RB, JFK International Air Terminal, 6.00%, 12/01/36	1,340	1,361,507

Schedule of Investments (continued)

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

	Par (000)	Value
Municipal Bonds		
New York (concluded)		
Yonkers Industrial Development Agency New York, RB, Sarah Lawrence College Project, Series A, 6.00%, 6/01/41	\$ 2,090	\$ 2,171,803
		25,860,975
North Carolina 1.6%		
North Carolina Medical Care Commission, RB, First Mortgage, Whitestone, Series A: 7.75%, 3/01/31	1,000	1,022,250
7.75%, 3/01/41	1,420	1,432,723
North Carolina Medical Care Commission, Refunding RB, First Mortgage, Deerfield, Series A, 6.13%, 11/01/38	4,565	4,584,356
		7,039,329
Ohio 1.6%		
Buckeye Tobacco Settlement Financing Authority, RB, Asset-Backed, Senior Series A-2, 5.13%, 6/01/24	3,350	2,736,983
State of Ohio, RB, Ford Motor Co. Project, AMT, 5.75%, 4/01/35	4,880	4,557,286
		7,294,269
Pennsylvania 7.3%		
Allegheny County Hospital Development Authority, Refunding RB, Health System, West Penn, Series A, 5.38%, 11/15/40	5,345	4,494,397
Bucks County IDA, RB, Ann s Choice Inc. Facility, Series A: 6.13%, 1/01/25	1,360	1,290,232
6.25%, 1/01/35	1,550	1,390,815
Cumberland County Municipal Authority, RB, Diakon Lutheran, 6.38%, 1/01/39	6,165	6,246,255
Lancaster County Hospital Authority, RB, Brethren Village Project, Series A: 6.25%, 7/01/26	1,160	1,150,499
6.50%, 7/01/40	1,665	1,628,803
Montgomery County IDA Pennsylvania, MRB, Whitmarsh Continuing Care, 6.13%, 2/01/28	2,330	2,015,683
Pennsylvania Economic Development Financing Authority, RB, National Gypsum Co., Series A, AMT, 6.25%, 11/01/27	3,250	2,719,112
Philadelphia Authority for Industrial Development, RB, AMT: Commercial Development, 7.75%, 12/01/17	8,000	8,006,000

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Subordinate, Air Cargo, Series A, 7.50%, 1/01/25	3,870	3,690,819
		32,632,615
	Par (000)	Value
Municipal Bonds		
Puerto Rico 0.8%		
Puerto Rico Sales Tax Financing Corp., RB, First Sub-Series A, 6.50%, 8/01/44	\$ 2,650	\$ 2,864,253
Puerto Rico Sales Tax Financing Corp., Refunding RB, CAB, First Sub-Series C, 6.52%, 8/01/38 (a)	4,445	732,358
		3,596,611
Rhode Island 0.8%		
Central Falls Detention Facility Corp., Refunding RB, 7.25%, 7/15/35	4,245	3,457,892
Tennessee 0.4%		
Knox County Health Educational & Housing Facilities Board Tennessee, Refunding RB, Covenant, Series A (AGM), 4.70%, 1/01/40 (a)	5,820	1,075,187
Shelby County Health Educational & Housing Facilities Board, RB, Village at Germantown, 6.25%, 12/01/34	600	502,638
		1,577,825
Texas 12.4%		
Bexar County Health Facilities Development Corp., RB, Army Retirement Residence Project, 6.20%, 7/01/45	5,040	5,053,356
Brazos River Authority, Refunding RB, Texas Utility Co., Series, AMT, 7.70%, 4/01/33	5,080	1,855,165
Central Texas Regional Mobility Authority, RB: CAB, 7.48%, 1/01/28 (a)	1,000	345,900
CAB, 7.56%, 1/01/29 (a)	2,000	638,740
CAB, 7.65%, 1/01/30 (a)	1,170	346,858
CAB, 7.71%, 1/01/31 (a)	2,000	547,800
CAB, 7.77%, 1/01/32 (a)	3,500	887,985
CAB, 7.78%, 1/01/33 (a)	3,690	864,567
CAB, 7.79%, 1/01/34 (a)	4,000	872,040
Senior Lien, 5.75%, 1/01/25	675	699,098
Senior Lien, 6.25%, 1/01/46	2,210	2,202,110
City of Houston Texas, RB, Special Facilities, Continental Airlines, Series E, AMT, 6.75%, 7/01/21	4,550	4,551,866
Danbury Higher Education Authority Inc., RB, A.W. Brown Fellowship Charter, Series A (ACA), 5.13%, 8/15/36	1,000	1,164,260
Harris County Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B: 7.13%, 12/01/31	1,500	1,670,295
7.25%, 12/01/35	1,110	1,229,414
Houston Higher Education Finance Corp., RB, Cosmos Foundation, Inc., Series A, 6.88%, 5/15/41	595	624,530
La Vernia Higher Education Finance Corp., RB, KIPP Inc., 6.38%, 8/15/44	860	882,515

Schedule of Investments (continued)

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

	Par (000)	Value
Municipal Bonds		
Texas (concluded)		
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	\$ 2,975	\$ 2,815,540
Matagorda County Navigation District No. 1 Texas, Refunding RB, Central Power & Light Co. Project, Series A, 6.30%, 11/01/29	2,090	2,204,992
North Texas Tollway Authority, RB: CAB, Special Projects System, Series B, 7.55%, 9/01/37 (a)	2,110	378,597
Toll 2nd Tier, Series F, 6.13%, 1/01/31	4,425	4,568,768
Sabine River Authority Texas, Refunding RB, TXU Electric Co. Project, Series A, Mandatory Put Bonds, 5.50%, 5/01/22 (f)	3,230	3,179,257
Tarrant County Cultural Education Facilities Finance Corp., RB, Series A: CC Young Memorial Home, 8.00%, 2/15/38	1,745	1,747,024
Senior Living Center Project, 8.25%, 11/15/44	4,200	4,261,950
Texas Private Activity Bond Surface Transportation Corp., RB: LBJ Infrastructure Group LLC, LBJ Freeway Managed Lanes Project, 7.00%, 6/30/40	4,455	4,736,823
Senior Lien, NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	3,935	4,146,467
Texas State Public Finance Authority, Refunding ERB, KIPP Inc., Series A (ACA): 5.00%, 2/15/28	2,825	2,609,198
5.00%, 2/15/36	850	740,520
		55,825,635
US Virgin Islands 1.1%		
United States Virgin Islands, Refunding RB, Senior Secured, Hovensa Coker Project, AMT, 6.50%, 7/01/21	5,100	5,040,738
Utah 0.9%		
County of Carbon Utah, Refunding RB, Laidlaw Environmental, Series A, AMT, 7.45%, 7/01/17	3,900	3,914,313
Vermont 0.3%		
Vermont Economic Development Authority, Refunding MRB, Wake Robin Corp. Project, Series A (ACA), 6.30%, 3/01/33	1,600	1,471,104

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Virginia 1.5%

Dulles Town Center Community Development Authority, Special Assessment Bonds, Dulles Town Center Project, 6.25%, 3/01/26	3,635	3,634,564
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Municipal Bonds	Par (000)	Value
Virginia (concluded)		
Lexington IDA, Refunding MRB, Kendal at Lexington, Series A, 5.38%, 1/01/28	\$ 40	\$ 34,685
Mosaic District Community Development Authority, Special Assessment Bonds, Series A: 6.63%, 3/01/26	1,485	1,521,383
6.88%, 3/01/36	1,300	1,334,281
		6,524,913

Wisconsin 2.1%

Wisconsin Health & Educational Facilities Authority, RB: New Castle Place Project, Series A, 7.00%, 12/01/31	3,175	2,510,441
Wheaton Franciscan Healthcare, 5.25%, 8/15/34	6,235	5,534,311
Wisconsin Health & Educational Facilities Authority, Refunding RB, St. John's Communities, Inc., Series A: 7.25%, 9/15/29	425	430,984
7.63%, 9/15/39	855	867,628
		9,343,364
Total Municipal Bonds 91.0%		409,029,369

Municipal Bonds Transferred to Tender

Option Bond (TOB) Trusts (g)

District of Columbia 1.7%

District of Columbia Water & Sewer Authority, RB, Series A, 6.00%, 10/01/35	6,681	7,662,986
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Florida 3.3%

County of Miami-Dade Florida, RB, Miami International Airport, Series A, AMT (AGC), 5.25%, 10/01/33	15,000	14,672,100
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Illinois 1.6%

Illinois Finance Authority, RB, Carle Foundation, Series A (AGM), 6.00%, 8/15/41	7,180	7,381,471
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New York 4.8%

New York City Municipal Water Finance Authority, Water & Sewer, RB: Second General Resolution, Series EE, 5.50%, 6/15/43	7,605	8,199,255
Second General Resolution, Series HH, 5.00%, 6/15/31	8,609	9,139,213
New York State Dormitory Authority, ERB, Series F, 5.00%, 3/15/35	4,004	4,081,270
		21,419,738

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 (g)		
Virginia 3.2%		
Virginia HDA, RB, Sub-Series H-1 (NPFGC), 5.38%, 7/01/36	\$ 14,400	\$ 14,407,776
Total Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts 14.6%		65,544,071
Total Long-Term Investments (Cost \$477,999,198) 105.6%		474,573,440
Short-Term Securities	Shares	
FBI Institutional Tax-Exempt Fund, 0.01% (h)(i)	4,808,459	4,808,459
	Par (000)	
Michigan Finance Authority, RB, SAN, Detroit Schools, Series A-1, 6.45%, 2/20/12	\$ 3,400	3,458,310
Total Short-Term Securities (Cost \$8,208,459) 1.8%		8,266,769
Total Investments (Cost \$486,207,657*) 107.4%		482,840,209
Other Assets Less Liabilities 0.4%		1,663,245
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (7.8)%		(35,122,533)
Net Assets 100.0%		\$ 449,380,921

* The cost and unrealized appreciation (depreciation) of investments as of July 31, 2011, as computed for federal income tax purposes, were as follows:

Aggregate cost	\$ 450,957,113
Gross unrealized appreciation	\$ 22,314,087
Gross unrealized depreciation	(25,540,434)
Net unrealized depreciation	\$ (3,226,347)

- (a) Represents a zero-coupon bond. Rate shown reflects the current yield as of report date.
- (b) Security exempt from registration under Rule 144A of the Securities Act of 1933. These securities may be resold in transactions exempt from registration to qualified institutional investors.
- (c) Issuer filed for bankruptcy and/or is in default of interest payments.
- (d) Non-income producing security.
- (e) When-issued security. Unsettled when-issued transactions were as follows:

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Counterparty	Value	Unrealized Appreciation
Bank of America Merrill Lynch	\$ 2,935,999	\$ 73,343

- (f) Variable rate security. Rate shown is as of report date.
- (g) 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.
- (h) 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, 2011	Net Activity	Shares Held at July 31, 2011	Income
FFI Institutional Tax-Exempt Fund	1,560,240	3,248,219	4,808,459	\$ 669

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

Financial futures contracts sold as of July 31, 2011 were as follows:

Contracts	Issue	Exchange	Expiration	Notional Value	Unrealized Depreciation
87	10-Year US Treasury Note	Chicago Board of Trade	September 2011	\$ 10,657,561	\$ (277,251)

Fair Value Measurements - Various inputs are used in determining the fair value of investments and derivative financial instruments. These inputs are categorized in three broad levels for financial reporting purposes as follows:

Level 1 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 and derivative financial instruments)

The categorization of a value determined for investments and derivative financial instruments is based on the pricing transparency of the investment and derivative financial instrument and does not necessarily correspond to the Fund's perceived risk of investing in those securities. For information about the Fund's policy regarding valuation of investments and derivative financial instruments and other significant accounting policies, please refer to the Fund's most recent financial statement as contained in its annual report.

Schedule of Investments (concluded)

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

The following tables summarize the inputs used as of July 31, 2011 in determining the fair valuation of the Fund's investments and derivative financial instruments:

Valuation Inputs	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments ¹		\$ 474,573,440		\$ 474,573,440
Short-Term Securities	\$ 4,808,459	3,458,310		8,266,769
Total	\$ 4,808,459	\$ 478,031,750		\$ 482,840,209

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

Valuation Inputs	Level 1	Level 2	Level 3	Total
Derivative Financial Instruments ²				
Liabilities:				
Interest rate contracts	\$ (277,251)			\$ (277,251)

² Derivative financial instruments are financial futures contracts, which are valued at the unrealized appreciation/depreciation on the instrument.

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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 26, 2011

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 26, 2011

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

Date: September 26, 2011

