

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 |

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

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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 | | |
| 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 |
|--|-------|-----------|

| 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 |
|---|-------|-----------|

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 |
|---|--------|------------|

Illinois 1.6%

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

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 | |
| FII 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

