

BLACKROCK MUNIVEST FUND INC  
Form N-Q  
January 26, 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 811-05611

Name of Fund: BlackRock MuniVest Fund, Inc. (MVF)

Fund Address: 100 Bellevue Parkway, Wilmington, DE 19809

Name and address of agent for service: Anne F. Ackerley, Chief Executive Officer, BlackRock MuniVest Fund, Inc., 55 East 52<sup>nd</sup> Street, New York, NY 10055

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

Date of fiscal year end: 08/31/2011

Date of reporting period: 11/30/2010

Item 1 Schedule of Investments

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Schedule of Investments November 30, 2010 (Unaudited)

BlackRock MuniVest Fund, Inc. (MVF)  
(Percentages shown are based on Net Assets)

Municipal Bonds	Par (000)	Value
<b>Alabama 2.6%</b>		
Camden IDB Alabama, RB, Weyerhaeuser Co. Project, Series A, 6.13%, 12/01/13 (a)	\$ 2,550	\$ 2,931,786
Prattville IDB Alabama, RB, International Paper Co. Project, Series A, AMT, 4.75%, 12/01/30	6,500	5,574,400
Selma IDB Alabama, Refunding RB, International Paper Co. Project, Series B, 5.50%, 5/01/20	5,000	5,061,800
Selma IDB, RB, Gulf Opportunity Zone, International Paper, 5.80%, 5/01/34	1,850	1,876,695
		15,444,681
<b>Arizona 3.2%</b>		
Maricopa County IDA Arizona, RB, Arizona Charter Schools Project, Series A, 6.75%, 7/01/29	4,100	2,791,772
Maricopa County Pollution Control Corp., Refunding RB, Southern California Edison Co., Series A, 5.00%, 6/01/35	3,400	3,324,826
Phoenix Civic Improvement Corp., RB, Junior Lien, Series A, 5.00%, 7/01/40	2,000	1,939,820
Pima County IDA, RB, Arizona Charter Schools Project, Series E, 7.25%, 7/01/31	2,005	2,013,261
Pima County IDA, Refunding RB: Arizona Charter Schools Project, Series I, 6.10%, 7/01/13 (a)(b)	110	123,443
Arizona Charter Schools Project, Series I, 6.30%, 7/01/13 (a)(b)	230	259,274
Arizona Charter Schools Project, Series O, 5.00%, 7/01/26	1,470	1,215,558
Arizona Charter Schools, Series I, 6.10%, 7/01/24 (b)	380	355,984
Arizona Charter Schools, Series I, 6.30%, 7/01/31 (b)	755	688,281
Charter Schools II, Series A, 6.75%, 7/01/21	920	921,049
Salt Verde Financial Corp., RB, Senior, 5.00%, 12/01/37	5,000	4,420,450
<b>Municipal Bonds</b>	<b>Par (000)</b>	<b>Value</b>
<b>Arizona (concluded)</b>		
State of Arizona, COP, Department of Administration, Series A (AGM),	\$ 650	\$ 661,914

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5.25%, 10/01/28

18,715,632

**California 10.4%**

California HFA, RB, Home Mortgage, Series K, AMT, 5.50%, 2/01/42	3,730	3,792,440
California Health Facilities Financing Authority, Refunding RB, Series A: Catholic Healthcare West, 6.00%, 7/01/34	1,055	1,102,401
St. Joseph Health System, 5.75%, 7/01/39	5,000	5,149,850
California State Public Works Board, RB: Department of Corrections, Series C, 5.50%, 6/01/22	5,000	5,122,450
Department of Corrections, Series C, 5.50%, 6/01/23	6,000	6,113,640
Department of Mental Health, Coalinga, Series A, 5.13%, 6/01/29	10,435	9,926,085
California Statewide Communities Development Authority, RB, Health Facility, Memorial Health Services, Series A, 6.00%, 10/01/23	5,240	5,468,831
Golden State Tobacco Securitization Corp. California, RB, Asset-Backed, Series A-3, 7.88%, 6/01/13 (a)	10,725	12,513,608
Los Angeles Department of Airports, RB, Series A, 5.25%, 5/15/39	1,200	1,211,388
State of California, GO, Various Purpose, 6.50%, 4/01/33	9,700	10,702,010
		61,102,703

**Colorado 1.1%**

Colorado Health Facilities Authority, RB, Catholic Health Initiatives, Series D, 6.25%, 10/01/33	2,500	2,717,575
Colorado Health Facilities Authority, Refunding RB, Evangelical Lutheran, Series A, 5.25%, 6/01/34	3,000	2,852,430

**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)
ARB	Airport Revenue Bonds
ARS	Auction Rate Securities
CAB	Capital Appreciation Bonds
COP	Certificates of Participation
EDA	Economic Development Authority

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FHA	Federal Housing Administration
GO	General Obligation Bonds
HDA	Housing Development Authority
HFA	Housing Finance Agency
HRB	Housing Revenue Bonds
IDA	Industrial Development Authority
IDB	Industrial Development Board
MRB	Mortgage Revenue Bonds
NPFGC	National Public Finance Guarantee Corp.
RB	Revenue Bonds
S/F	Single-Family

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BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2010

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## Schedule of Investments (continued)

**BlackRock MuniVest Fund, Inc. (MVF)**  
 (Percentages shown are based on Net Assets)

Municipal Bonds	Par (000)	Value
<b>Colorado (concluded)</b>		
Colorado Housing & Finance Authority, Refunding RB, S/F Program, Senior Series A-2, AMT:		
6.60%, 5/01/28	\$ 355	\$ 363,162
7.50%, 4/01/31	130	136,448
Regional Transportation District, COP, Series A, 5.38%, 6/01/31 (c)	385	385,708
		6,455,323
<b>Connecticut 0.4%</b>		
Mohegan Tribe of Indians of Connecticut, RB, Public Improvement, Priority Distribution, 6.25%, 1/01/31		
	2,810	2,266,321
<b>District of Columbia 0.2%</b>		
Metropolitan Washington Airports Authority, RB, First Senior Lien, Series A:		
5.00%, 10/01/39	415	417,328
5.25%, 10/01/44	650	663,306
		1,080,634
<b>Florida 6.5%</b>		
County of Miami-Dade Florida, GO, Building Better Communities Program:		
Series B, 6.38%, 7/01/28	4,630	5,196,712
Series B-1, 5.63%, 7/01/38	5,000	5,223,900
County of Miami-Dade Florida, Refunding RB, Miami International Airport:		
AMT (AGC), 5.00%, 10/01/40	10,000	9,297,900
Series A-1, 5.38%, 10/01/41	10,290	10,357,194
Hillsborough County IDA, RB, H. Lee Moffitt Cancer Center Project, Series A, 5.25%, 7/01/37	5,500	5,155,810
Miami-Dade County IDA, RB, Waste Management Inc. Project, Series 1, Mandatory Put Bonds, AMT, 7.00%, 12/01/18 (d)	3,200	3,200,000
		38,431,516
<b>Georgia 2.9%</b>		

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DeKalb County Hospital Authority Georgia, RB, DeKalb Medical Center Inc. Project, 6.13%, 9/01/40	3,570	3,589,100
DeKalb Private Hospital Authority, Refunding RB, Children s Healthcare, 5.25%, 11/15/39	3,335	3,387,326
Monroe County Development Authority Georgia, Refunding RB, Oglethorpe Power Corp.-Scherer, Series A, 6.80%, 1/01/11	4,785	4,805,336
Municipal Electric Authority of Georgia, RB, Series W: 6.60%, 1/01/18	4,565	5,310,373
6.60%, 1/01/18 (e)	250	282,533
		17,374,668

**Hawaii 0.9%**

State of Hawaii, Refunding RB, Series A, 5.25%, 7/01/35	5,000	5,021,900
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Municipal Bonds	Par (000)	Value
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**Idaho 0.00%**

Idaho Housing & Finance Association, Refunding RB, S/F Mortgage, Senior Series E-2, AMT, 6.90%, 1/01/27	\$ 90	\$ 90,153
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**Illinois 11.7%**

Chicago Park District, GO, Harbor Facilities, Series C, 5.25%, 1/01/40	4,675	4,692,952
City of Chicago Illinois, ARB, General, Third Lien, Series B-2, AMT (NPFGC), 6.00%, 1/01/27	17,080	17,660,549
Illinois Finance Authority, RB: Advocate Health Care Network, Series D, 6.50%, 11/01/38	9,700	10,581,827
Community Rehabilitation Providers Facilities, Series A, 6.50%, 7/01/22	2,140	2,062,404
Illinois Finance Authority, Refunding RB, Series A: Northwestern Memorial Hospital, 6.00%, 8/15/39	9,000	9,667,800
OSF Healthcare System, 6.00%, 5/15/39	5,200	5,199,844
Regional Transportation Authority, RB: Series A (AMBAC), 7.20%, 11/01/20	3,290	4,055,089
Series C (NPFGC), 7.75%, 6/01/20	4,000	5,106,720
Village of Hodgkins Illinois, RB, MBM Project, AMT, 6.00%, 11/01/23	10,000	10,004,300
		69,031,485

**Indiana 5.2%**

Indiana Health & Educational Facilities Financing Authority, RB, Clarian	8,980	8,642,082
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Health Obligation, Series A, 5.25%, 2/15/40		
Indiana Transportation Finance Authority, RB, Series A, 6.80%, 12/01/16	7,280	8,226,400
Indianapolis Local Public Improvement Bond Bank, Refunding RB, Series D, 6.75%, 2/01/14	12,875	13,835,604
		<u>30,704,086</u>
<b>Kansas 0.3%</b>		
Sedgwick & Shawnee Counties Kansas, RB, Mortgage-Backed Securities Program, Series A-4, AMT (Ginnie Mae), 5.95%, 12/01/33	1,885	1,966,244
<b>Kentucky 0.5%</b>		
County of Owen Kentucky, RB, Kentucky American Water Co., Series B, 5.63%, 9/01/39	1,000	1,009,190
Kentucky Economic Development Finance Authority, Refunding RB, Owensboro Medical Health System, Series A, 6.38%, 6/01/40	2,000	2,037,780
		<u>3,046,970</u>
<b>Louisiana 0.5%</b>		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp., Series A-1, 6.50%, 11/01/35 (c)	2,615	2,662,436

## Schedule of Investments (continued)

**BlackRock MuniVest Fund, Inc. (MVF)**  
(Percentages shown are based on Net Assets)

Municipal Bonds	Par (000)	Value
<b>Maine 1.2%</b>		
Maine Health & Higher Educational Facilities Authority, RB, Series A, 5.00%, 7/01/39	\$ 5,000	\$ 5,006,700
Portland New Public Housing Authority Maine, Refunding RB, Senior Living, Series A: 5.70%, 8/01/21	775	778,023
6.00%, 2/01/34	1,190	1,141,091
		<u>6,925,814</u>
<b>Maryland 1.5%</b>		
Maryland Community Development Administration, RB, AMT, 5.10%, 9/01/37	1,835	1,821,604
Maryland Community Development Administration, Refunding RB, Residential, Series D, AMT, 4.90%, 9/01/42	3,250	3,115,060
Maryland Health & Higher Educational Facilities Authority, Refunding RB, University of Maryland Medical System: 5.00%, 7/01/34	2,100	2,082,675
5.13%, 7/01/39	2,100	2,110,773
		<u>9,130,112</u>
<b>Massachusetts 6.6%</b>		
Boston Water & Sewer Commission, RB, 9.25%, 1/01/11 (e)	985	992,092
Massachusetts Bay Transportation Authority, Refunding RB, General Transportation System, Series A, 7.00%, 3/01/19	3,010	3,712,925
Massachusetts HFA, HRB, Series A, AMT, 5.20%, 12/01/37	3,000	2,890,500
Massachusetts HFA, RB, S/F, Series 130, AMT, 5.00%, 12/01/32	2,500	2,412,700
Massachusetts HFA, Refunding HRB, Series D, AMT, 4.85%, 6/01/40	3,000	2,787,480
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	6,550	6,288,721
Massachusetts Water Resources Authority, RB, Series A, 6.50%, 7/15/19 (e)	16,000	19,597,760



38,682,178

**Michigan 4.9%**City of Detroit Michigan, RB, Second  
Lien, Series B (AGM):

6.25%, 7/01/36 2,500 2,688,750

7.00%, 7/01/36 1,250 1,415,263

Michigan State Hospital Finance  
Authority, Refunding RB:Henry Ford Health System, Series A,  
5.25%, 11/15/46

7,950 7,072,479

Hospital, Sinai Hospital, 6.70%,  
1/01/26

1,000 970,430

McLaren Health Care, 5.75%,  
5/15/38

7,285 7,480,092

Trinity Health Credit, Series A,  
6.00%, 12/01/20

4,200 4,242,672

**Municipal Bonds****Par  
(000)****Value****Michigan (concluded)**Royal Oak Hospital Finance Authority  
Michigan, Refunding RB, William  
Beaumont Hospital, 8.25%, 9/01/39

\$ 4,100 \$ 4,797,697

28,667,383

**Mississippi 5.4%**County of Lowndes Mississippi,  
Refunding RB, Weyerhaeuser Co.

Project:

Series A, 6.80%, 4/01/22 9,160 10,016,002

Series B, 6.70%, 4/01/22 4,500 4,883,265

Mississippi Business Finance Corp.,  
Refunding RB, System Energy

Resource Inc. Project:

5.88%, 4/01/22 15,000 14,927,550

5.90%, 5/01/22 2,250 2,239,177

32,065,994

**Nevada 0.9%**County of Clark Nevada, RB, Series B,  
5.75%, 7/01/42

5,000 5,204,200

**New Hampshire 0.4%**New Hampshire Health & Education  
Facilities Authority, Refunding RB,Elliot Hospital, Series B, 5.60%,  
10/01/22

2,400 2,453,304

**New Jersey 5.8%**Delaware River Port Authority, RB,  
Series D, 5.00%, 1/01/40

195 196,693

New Jersey EDA, RB, Cigarette Tax:  
5.50%, 6/15/24

9,080 8,793,526

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5.75%, 6/15/29	2,885	2,752,174
5.75%, 6/15/34	3,695	3,464,395
New Jersey EDA, Refunding RB, School Facilities Construction, Series AA, 5.25%, 12/15/33	10,000	10,469,000
New Jersey State Housing & Mortgage Finance Agency, RB, Series AA, 6.38%, 10/01/28	1,450	1,552,979
Tobacco Settlement Financing Corp. New Jersey, RB, 7.00%, 6/01/13 (a)	5,980	6,897,990
		<hr/>
		34,126,757

**New York 3.5%**

Metropolitan Transportation Authority, RB, Series 2008C:		
6.25%, 11/15/23	3,245	3,692,648
6.50%, 11/15/28	14,925	16,860,324
		<hr/>
		20,552,972

**North Carolina 1.4%**

City of Charlotte North Carolina, Refunding RB, Series A, 5.50%, 7/01/34	800	833,224
Gaston County Industrial Facilities & Pollution Control Financing Authority North Carolina, RB, Exempt Facilities, National Gypsum Co. Project, AMT, 5.75%, 8/01/35	4,105	3,213,435

## Schedule of Investments (continued)

**BlackRock MuniVest Fund, Inc. (MVF)**  
(Percentages shown are based on Net Assets)

Municipal Bonds	Par (000)	Value
<b>North Carolina (concluded)</b>		
North Carolina Medical Care Commission, RB, Novant Health Obligation, Series A, 4.75%, 11/01/43	\$ 5,000	\$ 4,444,700
		<u>8,491,359</u>
<b>Ohio 2.0%</b>		
County of Butler Ohio, RB, UC Health, 5.50%, 11/01/40	4,000	3,712,840
Ohio Higher Educational Facility Commission, Refunding RB, Kenyon College Project, 5.25%, 7/01/44	8,000	8,120,000
		<u>11,832,840</u>
<b>Pennsylvania 2.4%</b>		
Chester County IDA, RB, Aqua Pennsylvania Inc. Project, Series A, AMT (NPFGC), 5.00%, 2/01/40	530	510,290
Lycoming County Authority, Refunding RB, Susquehanna Health System Project, Series A, 5.75%, 7/01/39	3,950	3,995,109
Pennsylvania Economic Development Financing Authority, Refunding RB, Aqua Pennsylvania Inc. Project, Series A, AMT, 5.00%, 12/01/34	2,780	2,707,970
Pennsylvania Higher Educational Facilities Authority, Refunding RB, Saint Joseph's University, Series A, 5.00%, 11/01/40	4,500	4,431,150
Philadelphia Authority for Industrial Development, RB: Arbor House Inc. Project, Series E, 6.10%, 7/01/33	1,000	954,040
Rieder House Project, Series A, 6.10%, 7/01/33	1,355	1,292,724
		<u>13,891,283</u>
<b>Puerto Rico 2.8%</b>		
Puerto Rico Sales Tax Financing Corp., RB, First Sub-Series A, 6.38%, 8/01/39	13,000	14,082,250
Puerto Rico Sales Tax Financing Corp., Refunding RB, CAB, Series A (NPFGC),	15,000	2,163,000

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5.70%, 8/01/41 (f)

16,245,250

**South Carolina 1.0%**

County of Georgetown South Carolina, Refunding RB, International Paper Co. Project, Series A, AMT, 5.55%, 12/01/29	1,000	957,030
County of Richland South Carolina, Refunding RB, International Paper Co. Project, AMT, 6.10%, 4/01/23	5,000	5,062,550
		6,019,580

**Texas 12.7%**

Brazos River Authority, Refunding RB, Texas Utility Co., Series, AMT, 7.70%, 4/01/33	3,055	1,130,350
Brazos River Harbor Navigation District, Refunding RB, Dow Chemical Co. Project, Series A7, AMT, 6.63%, 5/15/33	11,460	11,665,478

<b>Municipal Bonds</b>	<b>Par (000)</b>	<b>Value</b>
<b>Texas (concluded)</b>		
City of Houston Texas, RB, Senior Lien, Series A, 5.50%, 7/01/34	\$ 8,335	\$ 8,739,748
Gulf Coast Waste Disposal Authority, Refunding RB, Series A, AMT, 6.10%, 8/01/24	4,000	4,026,000
Harris County Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B: 7.13%, 12/01/31	3,500	3,921,925
7.25%, 12/01/35	5,400	6,034,770
Houston Industrial Development Corp., RB, Senior, Air Cargo, AMT, 6.38%, 1/01/23	1,790	1,700,321
La Vernia Higher Education Finance Corp., RB, KIPP Inc., 6.25%, 8/15/39	925	922,438
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	3,600	3,334,536
Matagorda County Navigation District No. 1 Texas, Refunding RB, CenterPoint Energy Project, 5.60%, 3/01/27 (d)	9,355	9,063,217
North Texas Tollway Authority, Refunding RB, First Tier, Series A, 6.25%, 1/01/39	3,500	3,636,885
Tarrant County Cultural Education Facilities Finance Corp., RB, Scott & White Healthcare, 6.00%, 8/15/45	5,000	5,197,050
Texas Private Activity Bond Surface Transportation Corp., RB, Senior Lien:		

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LBJ Infrastructure Group LLC, LBJ Freeway Managed Lanes Project, 7.00%, 6/30/40	10,000	10,325,100
NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	4,710	4,835,898
		74,533,716
<b>U.S. Virgin Islands 1.4%</b>		
United States Virgin Islands, Refunding RB, Senior Secured, Hovensa Coker Project, AMT, 6.50%, 7/01/21	8,000	8,065,120
<b>Vermont 0.2%</b>		
Vermont Educational & Health Buildings Financing Agency, RB, Developmental & Mental Health, Series A, 6.38%, 6/15/22	1,000	960,180
<b>Virginia 3.1%</b>		
Chesterfield County IDA, Refunding RB, Virginia Electric & Power Co., Series A, 5.88%, 6/01/17	1,425	1,456,891
City of Norfolk Virginia, Refunding RB, Series B (AMBAC), 5.50%, 2/01/31	4,225	4,065,337
City of Portsmouth Virginia, GO, Refunding, Series D, 5.00%, 7/15/34 (c)	3,105	3,190,822
County of Spotsylvania Virginia, RB (AGM), 5.00%, 6/01/37	75	76,796

## Schedule of Investments (continued)

**BlackRock MuniVest Fund, Inc. (MVF)**  
 (Percentages shown are based on Net Assets)

Municipal Bonds	Par (000)	Value
<b>Virginia (concluded)</b>		
Fairfax County EDA, Refunding RB, Goodwin House Inc.:		
5.13%, 10/01/37	\$ 2,000	\$ 1,817,260
5.13%, 10/01/42	7,015	6,265,237
Virginia HDA, Refunding RB, Sub-Series A3, AMT, 5.05%, 7/01/26	1,325	1,344,584
		<u>18,216,927</u>
<b>Washington 4.7%</b>		
Energy Northwest, Refunding RB, Series B, 7.13%, 7/01/16	14,320	18,102,485
Seattle Housing Authority Washington, HRB, Replacement Housing Projects, 6.13%, 12/01/32	2,230	2,078,672
Washington Health Care Facilities Authority, Refunding RB, Catholic Health Initiatives, Series D, 6.38%, 10/01/36	7,000	7,565,320
		<u>27,746,477</u>
<b>West Virginia 0.4%</b>		
West Virginia Hospital Finance Authority, Refunding RB, Charleston, Series A, 5.63%, 9/01/32	2,500	2,547,325
<b>Wisconsin 1.8%</b>		
City of Milwaukee Wisconsin, RB, Senior, Air Cargo, AMT, 6.50%, 1/01/25	1,605	1,537,879
Wisconsin Health & Educational Facilities Authority, MRB, Hudson Memorial Hospital (FHA), 5.70%, 1/15/29	4,500	4,555,620
Wisconsin Health & Educational Facilities Authority, RB, SynergyHealth Inc., 6.00%, 11/15/32	3,040	3,101,134
Wisconsin Housing & EDA, Refunding RB, Series A, AMT, 5.63%, 3/01/31	1,350	1,350,176
		<u>10,544,809</u>
<b>Wyoming 0.8%</b>		
County of Sweetwater Wyoming, Refunding RB, Idaho Power Co.	4,500	4,721,130

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Project, 5.25%, 7/15/26

**Total Municipal Bonds 111.3%** 655,019,462

**Municipal Bonds Transferred to Tender  
Option Bond Trusts (g)**

**Arizona 0.6%**

Phoenix Civic Improvement Corp., RB,  
Junior Lien, Series A, 5.00%, 7/01/34 3,500 3,636,010

**California 5.3%**

Los Angeles Community College District  
California, GO, Election of 2008,  
Series A, 6.00%, 8/01/33 9,586 10,478,192  
University of California, RB, Series O,  
5.25%, 5/15/39 20,000 20,689,400

31,167,592

**Municipal Bonds Transferred to Tender  
Option Bond Trusts (g)**

**Par  
(000)**

**Value**

**Connecticut 2.1%**

Connecticut State Health & Educational  
Facility Authority, RB, Yale University,  
Series Z-3, 5.05%, 7/01/42 \$ 12,000 \$ 12,518,040

**District of Columbia 1.3%**

District of Columbia Water & Sewer  
Authority, RB, Series A, 5.50%,  
10/01/39 7,495 7,878,645

**Florida 4.0%**

County of Miami-Dade Florida, RB,  
Water & Sewer System (AGM), 5.00%,  
10/01/39 14,747 14,825,549  
Miami-Dade County Expressway  
Authority, RB, Series A (AGC), 5.00%,  
7/01/35 8,900 8,751,192

23,576,741

**Illinois 3.4%**

City of Chicago Illinois, Refunding RB,  
Second Lien (AGM), 5.25%, 11/01/33 1,330 1,377,427  
Illinois Finance Authority, RB, University  
of Chicago, Series B, 6.25%, 7/01/38 10,000 11,305,700  
Illinois State Toll Highway Authority, RB,  
Series B, 5.50%, 1/01/33 6,999 7,345,566

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20,028,693

**Kentucky 6.8%**

Kentucky Economic Development Finance Authority, Refunding RB, St. Elizabeth, Series A, 5.50%, 5/01/39	8,003	8,225,050
Kentucky Housing Corp., Refunding RB, Series L, AMT, 5.25%, 1/01/38	7,220	7,324,690
Lexington-Fayette Urban County Airport Board, Refunding RB, Series A, 5.00%, 7/01/27	7,001	7,334,795
Louisville & Jefferson County Metropolitan Government Parking Authority, RB, Series A, 5.38%, 12/01/39	9,195	9,435,817
Louisville & Jefferson County Metropolitan Sewer District, RB, Series A (AGC), 4.25%, 5/15/38	8,003	7,450,462
		39,770,814

**Maryland 0.8%**

Maryland State Transportation Authority, RB, Transportation Facility Project (AGM), 5.00%, 7/01/41	4,710	4,859,778
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**Nevada 2.9%**

Clark County Water Reclamation District, GO, Series B, 5.75%, 7/01/34	15,789	17,100,120
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**New York 5.0%**

New York City Municipal Water Finance Authority, RB:		
Series DD, 5.00%, 6/15/37	24,199	24,716,325
Series FF-2, 5.50%, 6/15/40	4,154	4,451,802
		29,168,127

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2010

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## Schedule of Investments (continued)

**BlackRock MuniVest Fund, Inc. (MVF)**  
 (Percentages shown are based on Net Assets)

Municipal Bonds Transferred to Tender Option Bond Trusts (g)	Par (000)	Value
<b>North Carolina 3.1%</b>		
North Carolina Capital Facilities Finance Agency, Refunding RB: Duke University Project, Series A, 5.00%, 10/01/41	\$ 12,678	\$ 12,941,050
Wake Forest University, 5.00%, 1/01/38	5,000	5,103,100
		<u>18,044,150</u>
<b>Ohio 3.7%</b>		
County of Allen Ohio, Refunding RB, Catholic Healthcare, Series A, 5.25%, 6/01/38	2,870	2,893,505
County of Montgomery Ohio, Refunding RB, Catholic Healthcare, Series A, 5.50%, 5/01/34	5,470	5,728,567
Ohio Higher Educational Facility Commission, Refunding RB, Hospital, Cleveland Clinic Health, Series A, 5.25%, 1/01/33	4,400	4,512,244
State of Ohio, RB, Cleveland Clinic Health, Series B, 5.50%, 1/01/34	8,500	8,888,705
		<u>22,023,021</u>
<b>Oregon 2.2%</b>		
Oregon State Housing & Community Services Department, HRB, Series A, AMT, 4.95%, 7/01/30	13,000	12,791,311
<b>South Carolina 0.6%</b>		
South Carolina State Housing Finance & Development Authority, Refunding RB, Series B-1, 5.55%, 7/01/39	3,259	3,342,977
<b>Texas 8.2%</b>		
Harris County Health Facilities Development Corp., Refunding RB, School Health Care System, Series B, 5.75%, 7/01/27 (e)	20,970	25,091,234
Houston Higher Education Finance Corp., RB, Rice University Project, Series A, 5.00%, 5/15/40	10,000	10,303,783
Texas Department of Housing & Community Affairs, MRB, Series B, AMT (Ginnie Mae), 5.25%, 9/01/32	6,999	7,027,559

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Texas State University Systems, Refunding RB (AGM), 5.00%, 3/15/30	5,667	5,787,741
		<u>48,210,317</u>

**Virginia 1.2%**

Fairfax County IDA Virginia, Refunding RB, Health Care, Inova Health System, Series A, 5.50%, 5/15/35	2,099	2,208,614
Virginia Small Business Financing Authority, Refunding RB, Sentara Healthcare, 5.00%, 11/01/40	5,002	5,080,296
		<u>7,288,910</u>

**Washington 4.4%**

Central Puget Sound Regional Transit Authority, RB, Series A: 5.00%, 11/01/36	5,500	5,614,207
(AGM), 5.00%, 11/01/32	14,007	14,436,025

**Municipal Bonds Transferred to Tender  
Option Bond Trusts (g)**

	<b>Par (000)</b>	<b>Value</b>
<b>Washington (concluded)</b>		
Central Puget Sound Regional Transportation Authority, Washington, RB, Series A, 5.00%, 11/01/34	\$ 5,500	\$ 5,614,208
		<u>25,664,440</u>

**Wisconsin 1.0%**

Wisconsin Health & Educational Facilities Authority, Refunding RB, Froedtert & Community Health Inc., 5.25%, 4/01/39	6,099	6,163,858
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**Total Municipal Bonds Transferred to  
Tender Option Bond Trusts 56.6%**

333,233,544

**Total Long-Term Investments  
(Cost \$960,601,463) 167.9%**

988,253,006

**Short-Term Securities**

**Shares**

FBI Institutional Tax-Exempt Fund, 0.15% (h)(i)	12,827,829	12,827,829
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**Total Short-Term Securities  
(Cost \$12,827,829) 2.2%**

12,827,829

1,001,080,835

<b>Total Investments</b>	
(Cost \$973,429,292*) 170.1%	
<b>Other Assets Less Liabilities</b> 1.8%	10,537,858
<b>Liability for Trust Certificates, Including Interest Expense and Fees Payable</b> (30.5)%	(179,197,533)
<b>Preferred Shares, at Redemption Value</b> (41.4)%	(243,850,520)
<b>Net Assets Applicable to Common Shares</b> 100.0%	<u>\$ 588,570,640</u>

\* The cost and unrealized appreciation (depreciation) of investments as of November 30, 2010, as computed for federal income tax purposes, were as follows:

Aggregate cost	\$ 796,961,997
Gross unrealized appreciation	\$ 41,896,098
Gross unrealized depreciation	(16,832,058)
Net unrealized appreciation	<u>\$ 25,064,040</u>

- (a) US government securities, held in escrow, are used to pay interest on this security as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (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) When-issued security. Unsettled when-issued transactions were as follows:

Counterparty	Value	Unrealized Appreciation
Wells Fargo Bank	\$ 3,190,822	\$ 98,739
JPMorgan Securities, Inc.	\$ 2,662,436	\$ 47,436
Morgan Stanley & Co.	\$ 385,708	\$ 6,587

- (d) Variable rate security. Rate shown is as of report date.
- (e) Security is collateralized by Municipal or US Treasury obligations.
- (f) Represents a zero-coupon bond. Rate shown reflects the current yield as of report date.
- (g) Securities represent bonds transferred to a tender option bond trust in exchange for which the Fund acquired residual interest certificates. These securities serve as collateral in a financing transaction.



## Schedule of Investments (concluded)

BlackRock MuniVest Fund, Inc. (MVF)

- (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 August 31, 2010	Net Activity	Shares Held at November 30, 2010	Income
FFI Institutional Tax-Exempt Fund	4,494,923	8,332,906	12,827,829	\$ 5,706

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

Fair Value Measurements - Various inputs are used in determining the fair value of investments, which are 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)

The inputs or methodologies used for valuing securities are not necessarily an indication of the risk 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 inputs used as of November 30, 2010 in determining the fair valuation of the Fund's investments:

Valuation Inputs	Level 1	Level 2	Level 3	Total
<b>Assets:</b>				
Investments in Securities:				
Long-Term Investments <sup>1</sup>		\$ 988,253,006		\$ 988,253,006
Short-Term Securities	\$ 12,827,829			12,827,829
<b>Total</b>	\$ 12,827,839	\$ 988,253,006		\$ 1,001,080,835

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<sup>1</sup> See above Schedule of Investments for values in each state or political subdivision.

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BLACKROCK MUNIVEST FUND, INC.

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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 MuniVest Fund, Inc.

By: /s/ Anne F. Ackerley  
Anne F. Ackerley  
Chief Executive Officer (principal executive officer) of  
BlackRock MuniVest Fund, Inc.

Date: January 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/ Anne F. Ackerley  
Anne F. Ackerley  
Chief Executive Officer (principal executive officer) of  
BlackRock MuniVest Fund, Inc.

Date: January 26, 2011

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

Date: January 26, 2011