

BLACKROCK MUNIVEST FUND, INC.

Form N-Q

January 22, 2015

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: John M. Perlowski, Chief Executive Officer, BlackRock MuniVest 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: 08/31/2015

Date of reporting period: 11/30/2014

Item 1 Schedule of Investments

Schedule of Investments November 30, 2014 (Unaudited)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

Sounds good

Par

Municipal Bonds

(000)

Value

Alabama 1.8%

City of Selma Alabama IDB, RB, Gulf Opportunity Zone, International Paper Co. Project, Series A:

5.80%, 5/01/34

\$ 1,850 \$ 2,084,820

5.38%, 12/01/35

1,000 1,111,040

State of Alabama Docks Department, Refunding RB, 6.00%, 10/01/40

7,610 8,860,019

12,055,879

Alaska 1.0%

City of Anchorage Alaska Electric Revenue, Refunding RB, Series A, 5.00%, 12/01/41

5,000 5,597,250

Northern Tobacco Securitization Corp., Refunding RB, Tobacco Settlement, Asset-Backed, Series A, 5.00%, 6/01/46

1,250 950,250

6,547,500

Arizona 3.2%

City of Phoenix Arizona Civic Improvement Corp., Refunding RB, Junior Lien, Series A, 5.00%, 7/01/40

2,000 2,135,380

City of Phoenix Arizona IDA, RB, Candeo School, Inc. Project:

6.63%, 7/01/33

2,245 2,507,530

6.88%, 7/01/44

3,440 3,882,625

County of Maricopa Arizona IDA, RB, Arizona Charter Schools Project, Series A, 6.75%, 7/01/29

3,600 3,414,456

County of Maricopa Arizona Pollution Control Corp., Refunding RB, Southern California Edison Co., Series A, 5.00%, 6/01/35

3,300 3,698,772

Salt Verde Financial Corp., RB, Senior, 5.00%, 12/01/37

5,000 5,698,500

21,337,263

California 6.3%

California Health Facilities Financing Authority, RB:

St. Joseph Health System, Series A, 5.75%, 7/01/39

5,000 5,799,600

Sutter Health, Series B, 6.00%, 8/15/42

5,600 6,743,184

Par

Municipal Bonds

(000)

Value

California (concluded)

California Health Facilities Financing Authority, Refunding RB, Catholic Healthcare West, Series A, 6.00%, 7/01/34

\$ 1,055 \$ 1,236,702

California HFA, RB, S/F Housing, Home Mortgage, Series K, AMT, 5.50%, 2/01/42

780 796,099

City of Los Angeles California Department of Airports, Refunding ARB, Los Angeles International Airport, Series A, 5.25%, 5/15/39

1,200 1,365,516

Los Angeles Community College District California, GO, Refunding, Election of 2008, Series A, 6.00%, 8/01/33

9,585 11,525,196

Poway Unified School District, GO, Refunding, CAB, School Facilities Improvement District No. 2007-1, Election of 2008, Series B, 0.00%, 8/01/46 (a)

10,000 2,301,200

State of California, Refunding, GO, Various Purposes, 6.50%, 4/01/33

9,675 11,810,176

41,577,673

Colorado 1.0%

Colorado Health Facilities Authority, RB, Catholic Health Initiatives, Series D, 6.25%, 10/01/33

2,500 2,900,975

Colorado Health Facilities Authority, Refunding RB, Evangelical Lutheran, Series A, 5.25%, 6/01/34

3,000 3,010,860

Regional Transportation District, COP, Refunding, Series A, 5.38%, 6/01/31

385 438,477

6,350,312

Delaware 0.4%

County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Power LLC Project, 6.00%, 10/01/40

2,500 2,840,300

District of Columbia 0.2%

Metropolitan Washington Airports Authority, Refunding RB, Dulles Toll Road, 1st Senior Lien, Series A:

5.00%, 10/01/39

415 446,698

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BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2014

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
Municipal Bonds		
District of Columbia (concluded)		
Metropolitan Washington Airports Authority, Refunding RB, Dulles Toll Road, 1st Senior Lien, Series A (concluded):		
5.25%, 10/01/44	\$ 650	\$ 710,216
		1,156,914
Florida 7.2%		
County of Miami-Dade Florida, GO, Building Better Communities Program:		
Series B, 6.38%, 7/01/28	4,630	5,407,470
Series B-1, 5.63%, 7/01/38	5,000	5,660,400
County of Miami-Dade Florida, Refunding RB, Transit System Sales Surtax, 5.00%, 7/01/42	3,750	4,143,112
County of Miami-Dade Florida Aviation, Refunding ARB, Miami International Airport:		
Series A, AMT (AGC), 5.00%, 10/01/40	10,000	10,347,100
Series A-1, 5.38%, 10/01/41	10,290	11,701,685
County of Miami-Dade Florida Expressway Authority, RB, Toll System, Series A (AGM), 5.00%, 7/01/35	8,900	9,900,716
		47,160,483
Georgia 2.0%		
City of Atlanta Georgia Department of Aviation, Refunding GARB, Series B, AMT, 5.00%, 1/01/29	1,070	1,180,156
County of DeKalb Georgia Hospital Authority, Refunding RB, DeKalb Medical Center, Inc. Project, 6.13%, 9/01/40	3,570	3,909,079
County of Gainesville Georgia & Hall Hospital Authority, Refunding RB, Series A, Northeast Georgia Health System, Inc. Project, 5.50%, 8/15/54 (b)		
	1,430	1,634,118
DeKalb Private Hospital Authority, Refunding RB, Children's Healthcare, 5.25%, 11/15/39	3,335	3,789,827
Municipal Electric Authority of Georgia, Refunding RB, Series W, 6.60%, 1/01/18	2,510	2,672,347
		13,185,527
Hawaii 0.9%		
State of Hawaii Harbor System, RB, Series A, 5.50%, 7/01/35	5,000	5,715,050
	Par	
	(000)	Value
Municipal Bonds		
Illinois 12.7%		
City of Chicago Illinois, GARB, O'Hare International Airport, 3rd Lien, Series B-2, AMT (NPFGC), 6.00%, 1/01/27	\$ 605	\$ 607,783
City of Chicago Illinois, GO, Refunding, Series A, 5.00%, 1/01/36	15,000	15,207,300
City of Chicago Illinois, Refunding RB, Sales Tax Receipts, Series A, 5.00%, 1/01/41	4,640	4,900,397
City of Chicago Illinois Midway International Airport, Refunding ARB, 2nd Lien, Series A, AMT, 5.00%, 1/01/41	1,740	1,871,474
City of Chicago Illinois Transit Authority, RB, Sales Tax Receipts, 5.25%, 12/01/36	2,110	2,383,878
City of Chicago Illinois Waterworks, Refunding RB, 2nd Lien (AGM), 5.25%, 11/01/33	1,330	1,458,584
County of Cook Illinois Community College District No. 508, GO, University & College Improvements, 5.25%, 12/01/31	5,000	5,741,850
Illinois Finance Authority, RB:		
Advocate Health Care Network, Series D, 6.50%, 11/01/18 (c)	9,700	11,260,051
Community Rehabilitation Providers Facilities, Series A, 6.50%, 7/01/22	575	575,351
Disposal Waste Management, Inc., Series A, AMT, 5.05%, 8/01/29	1,000	1,032,390
Memorial Health System, Series A, 5.25%, 7/01/44	1,785	1,943,115
Illinois Finance Authority, Refunding RB, Series A:		
Northwestern Memorial Hospital, 6.00%, 8/15/39	9,000	10,531,890
OSF Healthcare System, 6.00%, 5/15/39	4,990	5,663,850
Railsplitter Tobacco Settlement Authority, RB, 6.00%, 6/01/28	2,645	3,093,936
Regional Transportation Authority, RB:		

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Series A (AMBAC), 7.20%, 11/01/20	2,240	2,651,062
Series C (NPFGC), 7.75%, 6/01/20	4,000	4,756,440

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BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2014

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
Municipal Bonds		
Illinois (concluded)		
Village of Hodgkins Illinois, RB, Metropolitan Biosolids Management LLC Project, AMT, 6.00%, 11/01/23	\$ 10,000	\$ 10,016,000
		83,695,351
Indiana 2.2%		
City of Valparaiso Indiana, RB, Exempt Facilities, Pratt Paper LLC Project, AMT, 6.75%, 1/01/34	2,250	2,563,830
Indiana Finance Authority, RB, Private Activity Bond, Ohio River Bridges East End Crossing Project, Series A, AMT, 5.00%, 7/01/40	2,640	2,792,856
Indiana Health & Educational Facilities Financing Authority, RB, Clarian Health Obligation, Series A, 5.25%, 2/15/40	8,980	9,222,999
		14,579,685
Iowa 1.5%		
Iowa Finance Authority, Refunding RB, Midwestern Disaster Area, Iowa Fertilizer Co. Project, 5.25%, 12/01/25	4,500	4,744,260
Iowa Tobacco Settlement Authority, Refunding RB, Asset-Backed:		
CAB, Series B, 5.60%, 6/01/34	1,500	1,340,370
Series C, 5.63%, 6/01/46	4,500	3,801,195
		9,885,825
Kentucky 2.8%		
County of Owen Kentucky, RB, Kentucky American Water Co. Project, Series B, 5.63%, 9/01/39	1,000	1,106,660
Kentucky Economic Development Finance Authority, Refunding RB, Hospital Facilities, St. Elizabeth Medical Center, Inc., Series A, 5.50%, 5/01/39	8,000	9,067,600
	Par	
Municipal Bonds		
Kentucky (concluded)		
Lexington-Fayette Urban County Airport Board, Refunding GARB, Series A, 5.00%, 7/01/27	\$ 7,000	\$ 7,987,210
		18,161,470
Louisiana 3.2%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp. Project, Series A-1, 6.50%, 11/01/35	2,615	3,133,476
Parish of St. Charles Louisiana, RB, Valero Energy Corp., 4.00%, 12/01/40 (d)	2,210	2,386,292
Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, Series A:		
5.25%, 5/15/31	3,420	3,759,367
5.25%, 5/15/32	4,375	4,852,794
5.25%, 5/15/33	4,750	5,245,852
5.25%, 5/15/35	1,500	1,646,685
		21,024,466
Maine 1.0%		
Maine Health & Higher Educational Facilities Authority, RB, Series A, 5.00%, 7/01/39	5,000	5,439,900
Portland Housing Development Corp., Refunding RB, Senior Living, Retirement Facilities, Series A, 6.00%, 2/01/34	1,190	1,209,100
		6,649,000
Maryland 1.8%		
Maryland Community Development Administration, HRB, Series H, AMT, 5.10%, 9/01/37	1,835	1,872,893
Maryland Community Development Administration, Refunding, HRB, Residential, Series D, AMT, 4.90%, 9/01/42	3,250	3,292,737
Maryland Health & Higher Educational Facilities Authority, Refunding RB:		
Charlestown Community Project, 6.25%, 1/01/41	2,000	2,256,040
University of Maryland Medical System, 5.00%, 7/01/34	2,100	2,286,375

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
Municipal Bonds		
Maryland (concluded)		
Maryland Health & Higher Educational Facilities Authority, Refunding RB (concluded):		
University of Maryland Medical System, 5.13%, 7/01/39	\$ 2,100	\$ 2,281,566
		11,989,611
Massachusetts 4.4%		
Massachusetts Bay Transportation Authority, Refunding RB, General Transportation System, Series A, 7.00%, 3/01/19	3,010	3,272,321
Massachusetts HFA, RB, AMT:		
M/F Housing, Series A, 5.20%, 12/01/37	2,865	2,919,550
S/F Housing, Series 130, 5.00%, 12/01/32	2,500	2,565,275
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	6,550	6,812,458
Massachusetts Water Resources Authority, RB, Series A, 6.50%, 7/15/19 (e)	11,640	13,139,116
		28,708,720
Michigan 3.7%		
City of Detroit Michigan Water Supply System, RB, 2nd Lien, Series B (AGM), 6.25%, 7/01/36	2,500	2,754,625
Michigan State Hospital Finance Authority, Refunding RB, Series A:		
Henry Ford Health System, 5.25%, 11/15/46	7,950	8,246,932
McLaren Health Care, 5.75%, 5/15/38	7,285	8,157,379
Royal Oak Hospital Finance Authority, Refunding RB, William Beaumont Hospital, Series V, 8.25%, 9/01/18 (c)	4,100	5,215,036
		24,373,972
Mississippi 4.9%		
County of Lowndes Mississippi, Refunding RB, Solid Waste Disposal & Pollution Control, Weyerhaeuser Co. Project:		
Series A, 6.80%, 4/01/22	9,160	11,527,310
Series B, 6.70%, 4/01/22	4,500	5,643,540
	Par	
Municipal Bonds		
Mississippi (concluded)		
Mississippi Business Finance Corp., Refunding RB, System Energy Resource, Inc. Project, 5.88%, 4/01/22	\$ 15,000	\$ 15,013,050
		32,183,900
Nebraska 1.0%		
Central Plains Energy Project Nebraska, RB, Gas Project No. 3, 5.00%, 9/01/42	6,200	6,682,546
New Hampshire 0.8%		
New Hampshire Housing Finance Authority, Refunding RB, S/F Housing, Acquisition, Series H, AMT, 5.15%, 1/01/40	5,185	5,300,729
New Jersey 9.0%		
New Jersey EDA, RB:		
Continental Airlines, Inc. Project, Series A, AMT, 5.63%, 11/15/30	1,530	1,657,097
Private Activity Bond, The Goethals Bridge Replacement Project, AMT, 5.13%, 1/01/34	1,050	1,142,600
Private Activity Bond, The Goethals Bridge Replacement Project, AMT, 5.38%, 1/01/43	10,000	10,880,000
School Facilities Construction, Series UU, 5.00%, 6/15/40	3,890	4,218,627
New Jersey EDA, Refunding RB, School Facilities Construction, Series AA, 5.25%, 12/15/33	10,000	10,905,200
New Jersey Housing & Mortgage Finance Agency, RB, S/F Housing, Series AA, 6.38%, 10/01/28	580	603,223
New Jersey Transportation Trust Fund Authority, RB:		
CAB, Transportation System, Series A, 0.00%, 12/15/38 (a)	7,260	2,198,473
Transportation Program, Series AA, 5.25%, 6/15/33	8,750	9,722,388
Transportation Program, Series AA, 5.00%, 6/15/44	8,075	8,598,260

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
Municipal Bonds		
New Jersey (concluded)		
New Jersey Transportation Trust Fund Authority, RB (concluded): Transportation System, Series B, 5.50%, 6/15/31	\$ 8,000	\$ 9,221,840
		59,147,708
New York 4.9%		
City of New York New York Municipal Water Finance Authority, Refunding RB, Water & Sewer System, 2nd General Resolution, Series FF-2, 5.50%, 6/15/40	4,150	4,777,438
Metropolitan Transportation Authority, RB, Series C: 6.25%, 11/15/23	3,245	3,870,084
6.50%, 11/15/28	14,925	17,999,102
New York Liberty Development Corp., Refunding RB, 3 World Trade Center Project, Class 2 (f): 5.15%, 11/15/34	460	476,312
5.38%, 11/15/40 (b)	1,145	1,196,640
Port Authority of New York & New Jersey, ARB, Special Project, JFK International Air Terminal LLC Project, Series 8, 6.00%, 12/01/36	3,165	3,681,591
		32,001,167
North Carolina 0.6%		
County of Gaston North Carolina Industrial Facilities & Pollution Control Financing Authority, RB, Exempt Facilities, National Gypsum Co. Project, AMT, 5.75%, 8/01/35	4,105	4,113,128
Ohio 3.9%		
Buckeye Tobacco Settlement Financing Authority, RB, Asset-Backed, Senior Turbo Term, Series A-2, 6.50%, 6/01/47	1,125	992,498
County of Allen Ohio Hospital Facilities, Refunding RB, Catholic Healthcare Partners, Series A, 5.25%, 6/01/38	2,875	3,202,721
County of Franklin Ohio, RB, Health Care Facilities Improvement, OPRS Communities Obligation Group, Series A, 6.13%, 7/01/40	1,690	1,854,623
County of Lucas Ohio, Refunding RB, Promedica Healthcare, Series A, 6.50%, 11/15/37	1,915	2,356,369
	Par	
Municipal Bonds (000) Value		
Ohio (concluded)		
County of Montgomery Ohio, RB, Catholic Health Initiatives, Series D-2, 5.45%, 10/01/38	\$ 9,230	\$ 10,720,368
County of Montgomery Ohio, Refunding RB, Catholic Health, Series A, 5.50%, 5/01/34	5,470	6,239,574
		25,366,153
Pennsylvania 2.7%		
City of Philadelphia Pennsylvania IDA, RB: Arbor House, Inc. Project, Series E, 6.10%, 7/01/33	980	987,468
Retirement Facilities, Rieder House Project, Series A, 6.10%, 7/01/33	1,315	1,325,020
Commonwealth of Pennsylvania, GO, 1st Series, 5.00%, 6/15/29	5,000	5,892,950
County of Beaver Pennsylvania IDA, Refunding RB, First Energy Nuclear Energy Project, Series B, 3.50%, 12/01/35 (d)	9,085	9,334,474
Delaware River Port Authority, RB, Series D, 5.00%, 1/01/40	195	214,867
		17,754,779
Rhode Island 0.4%		
Tobacco Settlement Financing Corp, RB, Series 2002-A, Class C, 6.25%, 6/01/42	2,500	2,499,725
South Carolina 0.1%		
County of Georgetown South Carolina, Refunding RB, International Paper Co. Project, Series A, AMT, 5.55%, 12/01/29	1,000	1,020,230
Tennessee 0.5%		
Chattanooga-Hamilton County Hospital Authority, Refunding RB, 5.00%, 10/01/39 (b)	3,250	3,495,668
Texas 12.1%		
Brazos River Authority, Refunding RB, Texas Utility Co., Series A, AMT, 7.70%, 4/01/33 (g)(h)	3,055	251,732
Central Texas Regional Mobility Authority, Refunding RB, Senior Lien:		

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5.75%, 1/01/31	1,000	1,153,240
6.00%, 1/01/41	4,300	4,982,066
Series A, 5.00%, 1/01/43	6,925	7,483,917

BLACKROCK MUNIVEST FUND, INC.

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Texas (continued)		
City of Houston Texas Airport System, Refunding ARB, United Airlines, Inc. Terminal E Project, AMT, 5.00%, 7/01/29	\$ 2,665	\$ 2,829,644
County of Harris Texas Cultural Education Facilities Finance Corp., RB, 1st Mortgage, Brazos Presbyterian Homes, Inc. Project, Series B, 7.00%, 1/01/43	850	988,363
County of Harris Texas Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B (c):		
7.13%, 12/01/18	3,500	4,341,470
7.25%, 12/01/18	5,400	6,724,728
County of Tarrant Texas Cultural Education Facilities Finance Corp., RB, Scott & White Healthcare, 6.00%, 8/15/45	5,000	5,976,200
La Vernia Higher Education Finance Corp., RB, KIPP, Inc., Series A, 6.25%, 8/15/39	925	1,051,817
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	3,600	3,855,780
New Hope Cultural Education Facilities Corp., Refunding RB, 1st Mortgage, Morningside Ministries Project, 6.25%, 1/01/33	1,600	1,760,720
North Texas Education Finance Corp., ERB, Uplift Education, Series A, 5.13%, 12/01/42	1,000	1,073,010
North Texas Tollway Authority, Refunding RB, 1st Tier, Series A, 6.25%, 1/01/39	3,500	4,056,150
Texas Private Activity Bond Surface Transportation Corp., RB, Senior Lien:		
LBJ Infrastructure Group LLC, LBJ Freeway Managed Lanes Project, 7.00%, 6/30/40	10,000	12,035,200
NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	4,710	5,564,535
Texas State University System, Refunding, (AGM), 5.00%, 3/15/30	5,660	5,948,717
	Par	
	(000)	Value
Municipal Bonds		
Texas (concluded)		
Texas Transportation Commission, Refunding RB, Central Texas Turnpike System, 1st Tier, Series A, 4.00%, 8/15/38	\$ 9,375	\$ 9,405,469
		79,482,758
Vermont 0.0%		
Vermont Educational & Health Buildings Financing Agency, RB, Developmental & Mental Health, Series A, 6.38%, 6/15/22	30	30,600
Virginia 4.7%		
City of Portsmouth Virginia, GO, Refunding, Series D, 5.00%, 7/15/34	3,105	3,551,841
County of Fairfax Virginia EDA, Refunding RB, Goodwin House, Inc.:		
5.13%, 10/01/37	2,000	2,073,380
5.13%, 10/01/42	6,015	6,211,089
Virginia Commonwealth Transportation Board, RB, Capital Projects, 5.00%, 5/15/32	8,000	9,272,800
Virginia HDA, Refunding RB, S/F Housing, Sub-Series A-3, AMT, 5.05%, 7/01/26	1,325	1,376,264
Virginia Small Business Financing Authority, RB, Senior Lien, Elizabeth River Crossings OpCo LLC Project, AMT:		
6.00%, 1/01/37	2,620	2,971,971
5.50%, 1/01/42	5,140	5,576,900
		31,034,245
Washington 4.4%		
Energy Northwest, Refunding RB, Series B, 7.13%, 7/01/16	14,320	15,829,328
Washington Health Care Facilities Authority, RB, Catholic Health Initiatives, Series A, 5.75%, 1/01/45	4,010	4,662,347

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par	
	(000)	Value
Municipal Bonds		
Washington (concluded)		
Washington Health Care Facilities Authority, Refunding RB, Catholic Health Initiatives, Series D, 6.38%, 10/01/36	\$ 7,000	\$ 8,163,540
		28,655,215
West Virginia 0.4%		
West Virginia Hospital Finance Authority, Refunding RB, Improvement, Charleston Area Medical Center, Inc., Series A, 5.63%, 9/01/32	2,500	2,736,600
Wisconsin 1.0%		
Wisconsin Health & Educational Facilities Authority, Refunding RB, Froedtert & Community Health, Inc., Series C, 5.25%, 4/01/39	6,100	6,691,029
Wyoming 1.3%		
County of Sweetwater Wyoming, Refunding RB, Idaho Power Co. Project, Remarketing, 5.25%, 7/15/26	4,500	5,182,965
Wyoming Community Development Authority, Refunding RB, Series 2 & 3, 4.05%, 12/01/38	3,165	3,223,552
		8,406,517
Total Municipal Bonds 110.0%		723,597,698

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

Arizona 0.6%		
City of Phoenix Arizona Civic Improvement Corp., Refunding RB, Water System, Junior Lien, Series A, 5.00%, 7/01/34	3,500	3,929,030
California 3.5%		
University of California, RB, General, Series O, 5.25%, 5/15/39	20,000	22,694,600
Connecticut 2.0%		
Connecticut State Health & Educational Facility Authority, RB, Yale University, Series Z-3, 5.05%, 7/01/42	12,000	13,058,040

Municipal Bonds Transferred to

	Par	
	(000)	Value
Tender Option Bond Trusts (i)		
District of Columbia 1.3%		
District of Columbia Water & Sewer Authority, Refunding RB, Senior Lien, Series A, 5.50%, 10/01/39	\$ 7,495	\$ 8,441,945
Florida 2.5%		
County of Miami-Dade Florida Water & Sewer System (AGM), 5.00%, 10/01/39	14,747	16,653,001
Illinois 3.0%		
State of Illinois Finance Authority, RB, University of Chicago, Series B, 6.25%, 7/01/18 (c)	10,000	11,913,900
State of Illinois Toll Highway Authority, RB, Senior Priority, Series B, 5.50%, 1/01/33	6,999	7,725,176
		19,639,076
Kentucky 1.6%		
County of Louisville & Jefferson Kentucky Metropolitan Government Parking Authority, RB, River City, Inc., 1st Mortgage, Series A, 5.38%, 12/01/39	9,195	10,605,237
Maryland 0.8%		
State of Maryland Transportation Authority, RB, Transportation Facilities Project (AGM), 5.00%, 7/01/41	4,710	5,212,840
Nevada 2.8%		
County of Clark Nevada Water Reclamation District, GO, Limited Tax, Series B, 5.75%, 7/01/34	15,789	18,595,906
New York 5.8%		
	24,199	26,564,237

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City of New York New York Municipal Water Finance Authority, Refunding RB, Water & Sewer
System, 2nd General Resolution, Series DD, 5.00%, 6/15/37
New York Liberty Development Corp., Refunding RB, 4 World Trade Center Project, 5.75%,
11/15/51 (j)

10,000 11,720,700

38,284,937

North Carolina 2.9%

North Carolina Capital Facilities Finance Agency, Refunding RB:
Duke University Project, Series A, 5.00%, 10/01/41

12,678 13,497,321

BLACKROCK MUNIVEST FUND, INC.

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

Municipal Bonds Transferred to	Par	
Tender Option Bond Trusts (i)	(000)	Value
North Carolina (concluded)		
North Carolina Capital Facilities Finance Agency, Refunding RB (concluded):		
Wake Forest University, 5.00%, 1/01/38	\$ 5,000	\$ 5,580,150
		19,077,471
Ohio 2.2%		
Ohio Higher Educational Facility Commission, RB, Cleveland Clinic Health, Series A, 5.25%, 1/01/33	4,400	4,844,664
State of Ohio, RB, Cleveland Clinic Health Obligated Group, Series B, 5.50%, 1/01/34	8,500	9,641,550
		14,486,214
Oregon 2.1%		
State of Oregon Housing & Community Services Department, HRB, M/F Housing, Series A, AMT, 4.95%, 7/01/30	13,000	13,636,592
South Carolina 0.3%		
State of South Carolina Housing Finance & Development Authority, Refunding RB, S/F Housing, Series B-1, 5.55%, 7/01/39	2,113	2,166,014
Texas 7.7%		
City of Houston Texas, Refunding RB, Airport System, Senior Lien, Series A, 5.50%, 7/01/34	8,333	9,428,984
City of Houston Texas Higher Education Finance Corp., RB, Rice University Project, Series A, 5.00%, 5/15/40	10,000	11,334,665
County of Harris Texas Health Facilities Development Corp., Refunding RB, School Health Care System, Series B, 5.75%, 7/01/27 (e)	20,970	26,675,518
Texas Department of Housing & Community Affairs, RB, S/F Mortgage, Series B, AMT, 5.25%, 9/01/32	2,997	3,079,621
		50,518,788
Municipal Bonds Transferred to		
Tender Option Bond Trusts (i)		
Virginia 1.2%		
County of Fairfax Virginia IDA, Refunding RB, Health Care, Inova Health System, Series A, 5.50%, 5/15/35		
Virginia Small Business Financing Authority, Refunding RB, Sentara Healthcare, 5.00%, 11/01/40	\$ 2,099	\$ 2,375,249
	5,002	5,480,863
		7,856,112
Washington 4.2%		
Central Puget Sound Regional Transit Authority, RB, Series A:		
5.00%, 11/01/34	5,000	5,474,687
5.00%, 11/01/36	6,000	6,558,873
(AGM), 5.00%, 11/01/32	14,007	15,342,472
		27,376,032
Total Municipal Bonds Transferred to		
Tender Option Bond Trusts 44.5%		292,231,835
Total Long-Term Investments		
(Cost \$915,545,670) 154.5%		1,015,829,533
Short-Term Securities		
	Shares	
FFI Institutional Tax-Exempt Fund, 0.03% (k)(l)	24,335,231	24,335,231
Total Short-Term Securities		
(Cost \$24,335,231) 3.7%		24,335,231
Total Investments		1,040,164,764

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(Cost \$939,880,901*)	158.2%	
Other Assets Less Liabilities	0.9%	6,230,351
Liability for TOB Trust Certificates, Including Interest		
Expense and Fees Payable	(22.0%)	(144,973,525)
VMTP Shares, at Liquidation Value	(37.1%)	(243,800,000)
Net Assets Applicable to Common Shares	100.0%	\$ 657,621,590

* As of November 30, 2014, gross unrealized appreciation and depreciation based on cost for federal income tax purposes were as follows:

Tax cost	\$ 797,346,112
Gross unrealized appreciation	\$ 103,265,048
Gross unrealized depreciation	(5,396,511)
Net unrealized appreciation	\$ 97,868,537

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

Notes to Schedule of Investments

(a) Zero-coupon bond.

(b) When-issued security. Unsettled when-issued transactions were as follows:

Counterparty	Value	Unrealized
		Appreciation
Barclays Capital, Inc.	\$ 3,495,668	\$ 38,675
Goldman Sachs & Co.	\$ 1,196,640	\$ 51,640
Merrill Lynch, Pierce, Fenner & Smith, Inc.	\$ 1,634,118	\$ 28,857

(c) U.S. 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.

(d) Variable rate security. Rate shown is as of report date.

(e) Security is collateralized by municipal or U.S. Treasury obligations.

(f) Security exempt from registration pursuant to Rule 144A under the Securities Act of 1933, as amended. These securities may be resold in transactions exempt from registration to qualified institutional investors.

(g) Non-income producing security.

(h) Issuer filed for bankruptcy and/or is in default of principal and/or interest payments.

(i) Represent bonds transferred to a TOB. In exchange for which the Fund received cash and residual interest certificates. These bonds serve as collateral in a financing transaction.

(j) All or a portion of security is subject to a recourse agreement, which may require the Fund to pay the liquidity provider in the event there is a shortfall between the TOB trust certificates and proceeds received from the sale of the security contributed to the TOB trust. In the case of a shortfall, the aggregate maximum potential amount the Fund could ultimately be required to pay under the agreement, which expires on November 15, 2019 is \$5,295,486.

(k) Represents the current yield as of report date.

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(l) Investments in issuers considered to be an affiliate of the Fund during the period ended November 30, 2014, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

	Shares Held		Shares Held	
	at August 31,	Net	at November 30,	
Affiliate	2014	Activity	2014	Income
FBI Institutional Tax-Exempt Fund	13,105,794	11,229,437	24,335,231	\$ 2,626

Financial futures contracts outstanding as of November 30, 2014 were as follows:

Contracts Sold	Issue	Exchange	Expiration	Notional	Unrealized
				Value	Depreciation
(350)	10-Year U.S. Treasury Note	Chicago Board of Trade	March 2015	\$ 44,466,406	\$ (126,271)

Portfolio Abbreviations

AGC	Assured Guarantee Corp.
AGM	Assured Guaranty Municipal Corp.
AMBAC	American Municipal Bond Assurance Corp.
AMT	Alternative Minimum Tax (subject to)
ARB	Airport Revenue Bonds
CAB	Capital Appreciation Bonds
COP	Certificates of Participation
EDA	Economic Development Authority

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2014

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

ERB	Education Revenue Bonds
GARB	General Airport Revenue Bonds
GO	General Obligation Bonds
HDA	Housing Development Authority
HFA	Housing Finance Agency
HRB	Housing Revenue Bonds
IDA	Industrial Development Authority
IDB	Industrial Development Board
M/F	Multi-Family
NPFGC	National Public Finance Guarantee Corp.
RB	Revenue Bonds
S/F	Single-Family

Fair Value Measurements Various inputs are used in determining the fair value of investments and derivative financial instruments. These inputs to valuation techniques are categorized into a disclosure hierarchy consisting of three broad levels for financial reporting purposes. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). Accordingly, the degree of judgment exercised in determining fair value is greatest for instruments categorized in Level 3. The inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, for disclosure purposes, the fair value hierarchy classification is determined based on the lowest level input that is significant to the fair value measurement in its entirety. 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 is not necessarily an indication of the risks associated with investing in those securities. The three levels of the fair value hierarchy are as follows:

Level 1 unadjusted quoted prices in active markets/exchanges for identical assets or liabilities that the Fund has the ability to access

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)

Changes in valuation techniques may result in transfers into or out of an assigned level within the disclosure hierarchy. In accordance with the Fund's policy, transfers between different levels of the fair value disclosure hierarchy are deemed to have occurred as of the beginning of the reporting period. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, please refer to the Fund's most recent financial statements as contained in its annual report.

The following tables summarize the Fund's investments and derivative financial instruments categorized in the disclosure hierarchy as of November 30, 2014:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments ¹		\$ 1,015,829,533		\$ 1,015,829,533
Short-Term Securities	\$ 24,335,231			24,335,231
Total	\$ 24,335,231	\$ 1,015,829,533		\$ 1,040,164,764

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

Level 1	Level 2	Level 3	Total
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Derivative Financial Instruments²

Liabilities:

Interest rate contracts	\$ (126,271)	\$ (126,271)
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² Derivative financial instruments are financial futures contracts, which are valued at the unrealized appreciation/depreciation on the instrument.

Schedule of Investments (concluded)

BlackRock MuniVest Fund, Inc. (MVF)

The Fund may hold assets and/or liabilities in which the fair value approximates the carrying amount for financial reporting purposes. As of November 30, 2014, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
Assets:				
Cash	\$ 1,354,668			\$ 1,354,668
Cash pledged for financial futures contracts	478,000			478,000
Liabilities:				
TOB trust certificates		\$ (144,950,115)		(144,950,115)
VMTP Shares		(243,800,000)		(243,800,000)
Total	\$ 1,832,668	\$ (388,750,115)		\$ (386,917,447)

There were no transfers between levels during the period ended November 30, 2014.

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2014

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

Date: January 22, 2015

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

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

Date: January 22, 2015

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

Date: January 22, 2015