

BLACKROCK MUNIVEST FUND, INC.

Form N-Q

January 22, 2016

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: 08/31/2016

Date of reporting period: 11/30/2015

Item 1 Schedule of Investments

Schedule of Investments November 30, 2015 (Unaudited)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Alabama 1.9%		
City of Selma Alabama IDB, RB, Gulf Opportunity Zone, International Paper Co. Project, Series A:		
5.80%, 5/01/34	\$ 1,850	\$ 2,060,585
5.38%, 12/01/35	1,000	1,105,850
State of Alabama Docks Department, Refunding RB, 6.00%, 10/01/40	7,610	8,855,453
		12,021,888
Alaska 0.7%		
City of Anchorage Alaska Electric Revenue, Refunding RB, Series A, 5.00%, 12/01/41		
	3,000	3,367,110
Northern Tobacco Securitization Corp., Refunding RB, Tobacco Settlement, Asset-Backed, Series A, 5.00%, 6/01/46		
	1,250	1,044,450
		4,411,560
Arizona 4.2%		
City of Phoenix Arizona Civic Improvement Corp., Refunding RB, Junior Lien, Series A, 5.00%, 7/01/40		
	2,000	2,224,100
City of Phoenix Arizona IDA, RB, Candeo School, Inc. Project:		
6.63%, 7/01/33	2,245	2,503,197
6.88%, 7/01/44	3,440	3,886,305
City of Phoenix Arizona IDA, Refunding RB (a):		
Basis Schools, Inc. Projects, Series A, 5.00%, 7/01/35		
	600	609,570
Basis Schools, Inc. Projects, Series A, 5.00%, 7/01/45		
	760	760,540
Legacy Traditional School Projects, 5.00%, 7/01/45		
	700	674,849
County of Maricopa Arizona IDA, RB, Arizona Charter Schools Project, Series A, 6.75%, 7/01/29		
	1,180	1,129,449
County of Maricopa Arizona Pollution Control Corp., Refunding RB, Southern California Edison Co., Series A, 5.00%, 6/01/35		
	3,300	3,698,706
	Par	
Municipal Bonds		
Arizona (continued)		
Salt Verde Financial Corp., RB, Senior, 5.00%, 12/01/37		
	\$ 10,725	\$ 11,982,292
		27,469,008
California 6.5%		
California Health Facilities Financing Authority, RB:		
St. Joseph Health System, Series A, 5.75%, 7/01/39		
	5,000	5,686,550
Sutter Health, Series B, 6.00%, 8/15/42		
	5,600	6,699,000
California Health Facilities Financing Authority, Refunding RB, Catholic Healthcare West, Series A, 6.00%, 7/01/34		
	1,055	1,207,405
California HFA, RB, S/F Housing, Home Mortgage, Series K, AMT, 5.50%, 2/01/42		
	225	226,265
City of Los Angeles California Department of Airports, Refunding ARB, Los Angeles International Airport, Series A, 5.25%, 5/15/39		
	1,200	1,342,680
Los Angeles Community College District California, GO, Refunding, Election of 2008, Series A, 6.00%, 8/01/19 (b)		
	9,585	11,285,091
Oakland Unified School District/Alameda County, GO, Series A, 5.00%, 8/01/40		
	1,000	1,108,250
Poway Unified School District, GO, Refunding, CAB, School Facilities Improvement District No. 2007-1, Election of 2008, Series B, 0.00%, 8/01/46 (c)		
	10,000	2,710,300
State of California, GO, Various Purposes, 6.50%, 4/01/33		
	9,675	11,462,069
		41,727,610
Colorado 1.8%		
Colorado Health Facilities Authority, RB, Catholic Health Initiatives, Series D, 6.25%, 10/01/33		
	2,500	2,809,500
Colorado Health Facilities Authority, Refunding RB, Evangelical Lutheran Good Samaritan society Project, 5.00%, 6/01/45		
	7,000	7,491,680

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Copperleaf Metropolitan District No 2, GO, Refunding, 5.75%, 12/01/45	1,000	1,039,410
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BLACKROCK MUNIVEST FUND, INC.

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
Colorado (continued)		
Regional Transportation District, COP, Refunding, Series A, 5.38%, 6/01/31	\$ 385	\$ 439,320
		11,779,910
Delaware 0.4%		
County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Power LLC Project, 6.00%, 10/01/40	2,500	2,816,500
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	458,600
5.25%, 10/01/44	650	721,389
		1,179,989
Florida 8.3%		
City of Jacksonville Florida, Refunding RB, Brooks Rehabilitation Project, 4.00%, 11/01/40	1,770	1,747,928
County of Miami-Dade Florida, GO, Building Better Communities Program:		
Series B, 6.38%, 7/01/28	4,630	5,249,911
Series B-1, 5.63%, 7/01/38	5,000	5,527,300
County of Miami-Dade Florida, Refunding RB, Transit System Sales Surtax, 5.00%, 7/01/42	3,750	4,143,187
County of Miami-Dade Florida Aviation, Refunding ARB, Miami International Airport:		
Series A, AMT (AGC), 5.00%, 10/01/40	10,000	10,527,700
Series A-1, 5.38%, 10/01/41	10,290	11,673,182
County of Miami-Dade Florida Educational Facilities Authority, Refunding RB, University of Miami, Series A, 5.00%, 4/01/45	4,625	5,088,101
County of Miami-Dade Florida Expressway Authority, RB, Toll System, Series A (AGM), 5.00%, 7/01/35	8,900	9,971,026
		53,928,335
Georgia 1.6%		
City of Atlanta Georgia Department of Aviation, Refunding GARB, Series B, AMT, 5.00%, 1/01/29	1,070	1,171,811
	Par	
	(000)	Value
Municipal Bonds		
Georgia (continued)		
County of DeKalb Georgia Hospital Authority, Refunding RB, DeKalb Medical Center, Inc. Project, 6.13%, 9/01/40	\$ 3,570	\$ 3,882,804
DeKalb Private Hospital Authority, Refunding RB, Children's Healthcare, 5.25%, 11/15/39	3,335	3,733,332
Municipal Electric Authority of Georgia, Refunding RB, Series W, 6.60%, 1/01/18	1,790	1,857,769
		10,645,716
Hawaii 0.9%		
State of Hawaii Harbor System, RB, Series A, 5.50%, 7/01/35	5,000	5,684,400
Illinois 12.2%		
City of Chicago Illinois, Refunding RB, Sales Tax Receipts, Series A, 5.00%, 1/01/41	4,640	4,809,638
City of Chicago Illinois Midway International Airport, Refunding GARB, 2nd Lien, Series A, 5.00%, 1/01/41	1,740	1,869,091
City of Chicago Illinois Transit Authority, RB, Sales Tax Receipts, 5.25%, 12/01/36	2,110	2,269,326
City of Chicago Illinois Wastewater Transmission, Refunding RB, 2nd Lien, Series C, 5.00%, 1/01/39	1,000	1,076,310
City of Chicago Illinois Waterworks, Refunding RB, 2nd Lien (AGM), 5.25%, 11/01/33	1,330	1,396,287
County of Cook Illinois Community College District No. 508, GO, University & College Improvements, 5.25%, 12/01/31	5,000	5,662,050
Illinois Finance Authority, RB:		
Advocate Health Care Network, Series D, 6.50%, 11/01/18 (b)	9,700	11,217,953
Disposal Waste Management, Inc., Series A, AMT, 5.05%, 8/01/29	1,000	1,013,730
Memorial Health System, Series A, 5.25%, 7/01/44	1,785	1,935,779
Illinois Finance Authority, Refunding RB, Series A:		
Northwestern Memorial Hospital, 6.00%, 8/15/39	9,000	10,374,300

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OSF Healthcare System, 6.00%, 5/15/39	4,990	5,736,055
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BLACKROCK MUNIVEST FUND, INC.

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
Illinois (continued)		
Illinois State Toll Highway Authority, RB, Series B, 5.00%, 1/01/40 (d)	\$ 10,980	\$ 12,413,549
Railsplitter Tobacco Settlement Authority, RB, 6.00%, 6/01/28	2,645	3,141,995
Regional Transportation Authority, RB:		
Series A (AMBAC), 7.20%, 11/01/20	1,930	2,230,347
Series C (NPFGC), 7.75%, 6/01/20	3,455	3,979,884
Village of Hodgkins Illinois, RB, Metropolitan Biosolids Management LLC Project, AMT, 6.00%, 11/01/23	10,000	10,016,800
		79,143,094
Indiana 1.4%		
City of Valparaiso Indiana, RB, Exempt Facilities, Pratt Paper LLC Project, AMT, 6.75%, 1/01/34	2,250	2,718,743
Indiana Finance Authority, RB, Private Activity Bond, Ohio River Bridges, Series A, AMT, 5.00%, 7/01/40	2,640	2,817,408
Indiana Finance Authority, Refunding RB, Deaconess Health System, Series A, 5.00%, 3/01/39	3,000	3,347,880
		8,884,031
Iowa 1.4%		
Iowa Finance Authority, Refunding RB, Midwestern Disaster Area, Iowa Fertilizer Co. Project, 5.25%, 12/01/25	4,500	4,898,025
Iowa Tobacco Settlement Authority, Refunding RB, Asset-Backed:		
CAB, Series B, 5.60%, 6/01/34	1,500	1,485,015
Series C, 5.63%, 6/01/46	2,500	2,389,325
		8,772,365
Kentucky 2.8%		
County of Owen Kentucky, RB, Kentucky American Water Co. Project, Series B, 5.63%, 9/01/39	1,000	1,088,380
	Par	
Municipal Bonds		
Kentucky (continued)		
Kentucky Economic Development Finance Authority, Refunding RB, Hospital Facilities, St. Elizabeth Medical Center, Inc., Series A, 5.50%, 5/01/39	\$ 8,000	\$ 8,915,360
Lexington-Fayette Urban County Airport Board, Refunding GARB, Series A, 5.00%, 7/01/27	7,000	7,792,820
		17,796,560
Louisiana 3.3%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp. Project, Series A-1, 6.50%, 11/01/35	2,615	3,080,392
Parish of St. Charles Louisiana, RB, Valero Energy Corp., 4.00%, 12/01/40 (e)	2,210	2,354,755
Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, Series A:		
5.25%, 5/15/31	3,420	3,818,430
5.25%, 5/15/32	4,375	4,933,119
5.25%, 5/15/33	4,750	5,265,802
5.25%, 5/15/35	1,500	1,665,990
		21,118,488
Maine 1.0%		
Maine Health & Higher Educational Facilities Authority, RB, Series A, 5.00%, 7/01/39	5,000	5,499,250
Portland Housing Development Corp., Refunding RB, Senior Living, Retirement Facilities, Series A, 6.00%, 2/01/34	1,190	1,193,070
		6,692,320
Maryland 2.9%		
Maryland Community Development Administration, HRB, Series H, AMT, 5.10%, 9/01/37	1,605	1,625,480
Maryland Community Development Administration, Refunding, HRB, Residential, Series D, AMT, 4.90%, 9/01/42	3,250	3,278,470
Maryland Health & Higher Educational Facilities Authority, Refunding RB:		

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Charlestown Community Project, 6.25%, 1/01/41

2,000

2,225,580

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
Maryland (continued)		
Maryland Health & Higher Educational Facilities Authority, Refunding RB (continued):		
Meritus Medical Center Issue, 5.00%, 7/01/40	\$ 6,350	\$ 6,872,287
University of Maryland Medical System, 5.00%, 7/01/34	2,100	2,261,007
University of Maryland Medical System, 5.13%, 7/01/39	2,100	2,255,778
		18,518,602
Massachusetts 3.6%		
Massachusetts Bay Transportation Authority, Refunding RB, General Transportation System, Series A, 7.00%, 3/01/19	1,460	1,545,103
Massachusetts HFA, RB, AMT:		
M/F Housing, Series A, 5.20%, 12/01/37	2,865	2,902,130
S/F Housing, Series 130, 5.00%, 12/01/32	2,125	2,154,878
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	6,550	6,800,800
Massachusetts Water Resources Authority, RB, Series A, 6.50%, 7/15/19 (f)	9,240	10,120,849
		23,523,760
Michigan 3.7%		
City of Detroit Michigan Water Supply System, RB, 2nd Lien, Series B (AGM), 6.25%, 7/01/36	2,500	2,760,775
Michigan State Hospital Finance Authority, Refunding RB, Series A:		
Henry Ford Health System, 5.25%, 11/15/46	7,950	8,244,627
McLaren Health Care, 5.75%, 5/15/18 (b)	7,285	8,131,881
Royal Oak Hospital Finance Authority Michigan, Refunding RB, William Beaumont Hospital, Series V, 8.25%, 9/01/18 (b)	4,100	4,902,944
		24,040,227
Mississippi 5.4%		
County of Lowndes Mississippi, Refunding RB, Solid Waste Disposal & Pollution Control, Weyerhaeuser Co. Project:		
Series A, 6.80%, 4/01/22	9,160	11,378,552
Series B, 6.70%, 4/01/22	4,500	5,541,615
	Par	
Municipal Bonds		
Mississippi (continued)		
Mississippi Business Finance Corp., Refunding RB, System Energy Resource, Inc. Project, 5.88%, 4/01/22	\$ 10,835	\$ 11,050,617
Mississippi Development Bank, Refunding RB, Municipal Energy Agency Of Mississippi, Series A (AGM), 4.00%, 3/01/41 (d)	7,000	6,950,790
		34,921,574
Nebraska 1.0%		
Central Plains Energy Project Nebraska, RB, Gas Project No. 3, 5.00%, 9/01/42	6,200	6,688,932
New Hampshire 0.8%		
New Hampshire Housing Finance Authority, Refunding RB, S/F Housing, Acquisition, Series H, AMT, 5.15%, 1/01/40	4,885	4,959,789
New Jersey 9.1%		
Casino Reinvestment Development Authority, Refunding RB, 5.25%, 11/01/44	1,400	1,404,886
New Jersey EDA, RB:		
Continental Airlines, Inc. Project, Series A, AMT, 5.63%, 11/15/30	1,530	1,712,131
Private Activity Bond, The Goethals Bridge Replacement Project, AMT, 5.13%, 1/01/34	1,050	1,142,232
School Facilities Construction, Series UU, 5.00%, 6/15/40	3,890	3,979,470
The Goethals Bridge Replacement Project, AMT, 5.38%, 1/01/43	10,000	10,692,100
New Jersey EDA, Refunding RB:		
5.25%, 6/15/19 (b)	2,650	3,024,631
5.25%, 12/15/33	7,350	7,603,796
New Jersey Housing & Mortgage Finance Agency, RB, S/F Housing, Series AA, 6.38%, 10/01/28	375	388,961
New Jersey Transportation Trust Fund Authority, RB:		
CAB, Transportation System, Series A, 0.00%, 12/15/38 (c)	7,260	2,047,247

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Transportation Program, Series AA, 5.25%, 6/15/33

8,750

9,268,875

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
New Jersey (continued)		
New Jersey Transportation Trust Fund Authority, RB (continued):		
Transportation Program, Series AA, 5.25%, 6/15/41 (d)	\$ 780	\$ 818,766
Transportation Program, Series AA, 5.00%, 6/15/44	8,075	8,226,568
Transportation System, Series B, 5.50%, 6/15/31	8,000	8,558,240
		58,867,903
New York 7.3%		
Build New York City Resource Corp., Refunding RB, Pratt Paper, Inc. Project, AMT, 5.00%, 1/01/35 (a)	545	580,981
City of New York New York Municipal Water Finance Authority, Refunding RB, Water & Sewer System, Series FF-2, 5.50%, 6/15/40	4,150	4,708,465
County of New York Tobacco Trust IV, Refunding RB, Settlement Pass-Through Turbo, Series A, 6.25%, 6/01/41 (a)	3,500	3,637,165
Erie Tobacco Asset Securitization Corp., Refunding RB, Asset-Backed, Series A, 5.00%, 6/01/45	4,435	4,205,977
Metropolitan Transportation Authority, RB, Series C: 6.25%, 11/15/23	3,245	3,734,151
6.50%, 11/15/28	14,925	17,273,896
New York Liberty Development Corp., Refunding RB, 3 World Trade Center Project (a):		
Class 1, 5.00%, 11/15/44	7,735	7,905,170
Class 2, 5.15%, 11/15/34	460	478,566
Class 2, 5.38%, 11/15/40	1,145	1,202,662
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	3,692,606
		47,419,639
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	4,119,326
	Par	
Municipal Bonds		
	(000)	Value
Ohio 4.9%		
Buckeye Tobacco Settlement Financing Authority, RB, Asset-Backed, Senior Turbo Term, Series A-2, 6.50%, 6/01/47	\$ 1,125	\$ 1,041,806
County of Allen Ohio Hospital Facilities, Refunding RB, Catholic Healthcare Partners, Series A, 5.25%, 6/01/38	2,875	3,199,358
County of Franklin Ohio, RB, Health Care Facilities Improvement, OPRS Communities Obligation Group, Series A, 6.13%, 7/01/40	1,690	1,852,003
County of Lucas Ohio, Refunding RB, Promedica Healthcare, Series A, 6.50%, 11/15/37	1,915	2,355,642
County of Montgomery Ohio, RB, Catholic Health Initiatives, Series D-2, 5.45%, 10/01/38	9,230	10,546,567
County of Montgomery Ohio, Refunding RB, Catholic Health, Series A, 5.50%, 5/01/34	5,470	6,124,759
Ohio Higher Educational Facility Commission, Refunding RB, University of Dayton, Series A, 5.00%, 12/01/44	4,080	4,536,266
State of Ohio, RB, Portsmouth Bypass Project, AMT, 5.00%, 6/30/53	1,585	1,696,695
		31,353,096
Pennsylvania 2.4%		
City of Philadelphia Pennsylvania IDA, RB, Retirement Facilities, Rieder House Project, Series A, 6.10%, 7/01/33	1,275	1,276,428
County of Delaware Pennsylvania IDA, Refunding RB, Covanta Project, 5.00%, 7/01/43	5,000	5,025,200
County of Montgomery Pennsylvania IDA, Refunding RB, Whitmarsh Continuing Care, 5.25%, 1/01/40	2,625	2,631,458
Delaware River Port Authority, RB, Series D, 5.00%, 1/01/40	195	216,787
Pennsylvania Economic Development Financing Authority, RB, Pennsylvania Bridge Finco LP, AMT, 5.00%, 12/31/38	2,565	2,761,505

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BLACKROCK MUNIVEST FUND, INC.

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
Pennsylvania (continued)		
Pennsylvania HFA, RB, Series 118B, 4.05%, 10/01/40 (d)	\$ 3,850	\$ 3,900,589
		15,811,967
Rhode Island 1.0%		
Tobacco Settlement Financing Corp., Refunding RB, Series B, 4.50%, 6/01/45	6,820	6,764,894
South Carolina 0.2%		
County of Georgetown South Carolina, Refunding RB, International Paper Co. Project, Series A, AMT, 5.55%, 12/01/29	1,000	1,000,150
Texas 12.6%		
Brazos River Authority, Refunding RB, Texas Utility Co., Series A, AMT, 7.70%, 4/01/33 (g)(h)	3,055	183,300
Central Texas Regional Mobility Authority, RB, Senior Lien, Series A:		
5.00%, 1/01/40	1,215	1,325,067
5.00%, 1/01/45	3,500	3,790,780
Central Texas Regional Mobility Authority, Refunding RB, Senior Lien:		
5.75%, 1/01/31	1,000	1,134,850
6.00%, 1/01/41	4,300	4,908,536
Series A, 5.00%, 1/01/43	6,925	7,365,984
City of Houston Texas Airport System, Refunding ARB, United Airlines, Inc. Terminal E Project, AMT, 5.00%, 7/01/29	2,665	2,864,982
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	1,005,728
County of Harris Texas Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B (b):		
7.13%, 12/01/18	3,500	4,131,820
7.25%, 12/01/18	5,400	6,394,734
County of Tarrant Texas Cultural Education Facilities Finance Corp., RB, Scott & White Healthcare:		
6.00%, 8/15/20 (b)	370	446,586
6.00%, 8/15/45	4,630	5,469,512
	Par	
	(000)	Value
Municipal Bonds		
Texas (continued)		
County of Tarrant Texas Cultural Education Facilities Finance Corp., Refunding RB, Trinity Terrace Project, 5.00%, 10/01/44	\$ 875	\$ 927,509
La Vernia Higher Education Finance Corp., RB, KIPP, Inc., Series A, 6.25%, 8/15/19 (b)	925	1,093,091
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	3,600	3,935,772
New Hope Cultural Education Facilities Corp., RB, Collegiate Housing Tarleton State University Project, 5.00%, 4/01/35	500	523,870
New Hope Cultural Education Facilities Corp., Refunding RB, 1st Mortgage, Morningside Ministries Project, 6.25%, 1/01/33	1,600	1,780,512
North Texas Education Finance Corp., ERB, Uplift Education, Series A, 5.13%, 12/01/42	1,000	1,049,840
North Texas Tollway Authority, Refunding RB, Series A:		
1st Tier, 6.25%, 1/01/39	3,500	3,956,435
5.00%, 1/01/38	5,000	5,599,950
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	11,996,500
NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	4,710	5,521,062
Texas State University System, RB:		
5.00%, 3/15/16 (b)	5,005	5,074,369
5.00%, 3/15/30	655	664,111
		81,144,900
Vermont 0.0%		
Vermont Educational & Health Buildings Financing Agency, RB, Developmental & Mental Health, Series A, 6.38%, 6/15/22	30	30,632
Virginia 3.2%		
City of Portsmouth Virginia, GO, Refunding, Series D, 5.00%, 7/15/34	3,105	3,533,304

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds		
Virginia (continued)		
County of Fairfax Virginia EDA, Refunding RB, Goodwin House, Inc.:		
5.13%, 10/01/37	\$ 2,000	\$ 2,076,740
5.13%, 10/01/42	6,015	6,231,600
Virginia Small Business Financing Authority, RB, Senior Lien, Elizabeth River Crossings OpCo LLC Project, AMT:		
6.00%, 1/01/37	2,620	3,005,533
5.50%, 1/01/42	5,140	5,663,612
		20,510,789
Washington 4.4%		
Energy Northwest, Refunding RB, Series B, 7.13%, 7/01/16	14,320	14,889,220
Washington Health Care Facilities Authority, RB, Catholic Health Initiatives, Series A, 5.75%, 1/01/45	4,010	4,645,345
Washington Health Care Facilities Authority, Refunding RB, Catholic Health Initiatives, Series D, 6.38%, 10/01/36	7,000	7,897,960
Washington State Housing Finance Commission, RB, Heron s Key, Series A (a):		
6.75%, 7/01/35	265	273,273
7.00%, 7/01/45	590	608,213
		28,314,011
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	2,759,200
Wisconsin 1.0%		
Wisconsin Health & Educational Facilities Authority, Refunding RB, Froedtert & Community Health, Inc., Series C, 5.25%, 4/01/39	6,100	6,592,819
Wyoming 1.2%		
County of Sweetwater Wyoming, Refunding RB, Idaho Power Co. Project, Remarketing, 5.25%, 7/15/26	4,500	5,076,495
	Par	
	(000)	Value
Wyoming (continued)		
Wyoming Community Development Authority, Refunding RB, Series 2 & 3, 4.05%, 12/01/38	\$ 2,555	\$ 2,578,276
		7,654,771
Total Municipal Bonds 114.3%		739,068,755
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	3,886,610
California 3.5%		
University Of California, RB, General, Series O:		
5.25%, 5/15/19 (b)	3,235	3,694,365
5.25%, 5/15/39	16,765	18,769,835
		22,464,200
Connecticut 2.0%		
Connecticut State Health & Educational Facility Authority, RB, Yale University, Series Z-3, 5.05%, 7/01/42	12,000	12,715,800
District of Columbia 1.3%		
District of Columbia Water & Sewer Authority, Refunding RB, Senior Lien, Series A, 5.50%, 10/01/39	7,495	8,308,920
Florida 2.6%		
County of Miami-Dade Florida Water & Sewer System (AGM), 5.00%, 10/01/39	14,747	16,679,698
Illinois 2.9%		

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State of Illinois Finance Authority, RB, University of Chicago, Series B, 6.25%, 7/01/18 (b)	10,000	11,342,400
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BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2015

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds Transferred to Tender Option Bond Trusts (i)		
State of Illinois Toll Highway Authority, RB, Senior Priority, Series B, 5.50%, 1/01/18 (b)	\$ 6,999	\$ 7,577,685
		18,920,085
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	10,433,291
Maryland 0.8%		
State of Maryland Transportation Authority, RB, Transportation Facilities Project (AGM), 5.00%, 7/01/41	4,710	5,120,948
Nevada 2.8%		
County of Clark Nevada Water Reclamation District, GO, Limited Tax, Series B, 5.75%, 7/01/34	15,789	18,151,593
New York 5.9%		
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	24,199	26,449,771
New York Liberty Development Corp., Refunding RB, 4 World Trade Center Project, 5.75%, 11/15/51 (j)	10,001	11,537,895
		37,987,666
North Carolina 2.9%		
North Carolina Capital Facilities Finance Agency, Refunding RB: Duke University Project, Series A, 5.00%, 10/01/41	12,678	13,086,362
Wake Forest University, 5.00%, 1/01/38	5,000	5,503,500
		18,589,862
Ohio 2.2%		
Ohio Higher Educational Facility Commission, RB, Cleveland Clinic Health, Series A, 5.25%, 1/01/33	4,400	4,757,456
	Par	
Municipal Bonds Transferred to Tender Option Bond Trusts (i)		
State of Ohio, RB, Cleveland Clinic Health Obligated Group, Series B, 5.50%, 1/01/34	\$ 8,500	\$ 9,620,640
		14,378,096
Oregon 2.0%		
State of Oregon Housing & Community Services Department, HRB, M/F Housing, Series A, AMT, 4.95%, 7/01/30	12,295	12,943,905
South Carolina 0.2%		
State of South Carolina Housing Finance & Development Authority, Refunding RB, S/F Housing, Series B-1, 5.55%, 7/01/39	1,508	1,534,591
Texas 7.6%		
City of Houston Texas, Refunding RB, Airport System, Senior Lien, Series A, 5.50%, 7/01/34	8,333	9,194,742
City of Houston Texas Higher Education Finance Corp., RB, Rice University Project, Series A, 5.00%, 5/15/40	10,000	11,360,177
County of Harris Texas Health Facilities Development Corp., Refunding RB, School Health Care System, Series B, 5.75%, 7/01/27 (f)	20,970	26,498,321
Texas Department of Housing & Community Affairs, RB, S/F Mortgage, Series B, AMT, 5.25%, 9/01/32	2,013	2,046,779
		49,100,019
Virginia 2.7%		
County of Fairfax Virginia IDA, Refunding RB, Health Care, Inova Health System, Series A, 5.50%, 5/15/35	2,099	2,359,300
Virginia Commonwealth Transportation Board, RB, Capital Projects, 5.00%, 5/15/32	7,999	9,292,242
Virginia Small Business Financing Authority, Refunding RB, Sentara Healthcare, 5.00%, 11/01/40	5,002	5,526,367
		17,177,909
Washington 6.0%		
Central Puget Sound Regional Transit Authority, RB, Series A (b): 5.00%, 11/01/17	5,000	5,404,450

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

	Par	
	(000)	Value
Municipal Bonds Transferred to Tender Option Bond Trusts (i)		
Washington		
Central Puget Sound Regional Transit Authority, RB, Series A (b)(continued):		
5.00%, 11/01/17	\$ 6,000	\$ 6,485,340
(AGM), 5.00%, 11/01/17	14,007	15,140,448
Washington Health Care Facilities Authority, Refunding RB, Seattle Children's Hospital, Series B, 5.00%, 10/01/38	10,000	11,878,400
		38,908,638
Total Municipal Bonds Transferred to Tender Option Bond Trusts 47.6%		307,301,831
Total Long-Term Investments		
(Cost \$958,866,046) 161.9%		1,046,370,586
Short-Term Securities 1.4%	Shares	Value
FFI Institutional Tax-Exempt Fund, 0.02% (k)(l)	8,921,001	\$ 8,921,001
Total Short-Term Securities		
(Cost \$8,921,001) 1.4%		8,921,001
Total Investments (Cost \$967,787,047*) 163.3%		1,055,291,587
Liabilities in Excess of Other Assets (1.8)%		(11,200,053)
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (23.8)%		(153,882,764)
VMTP Shares, at Liquidation Value (37.7)%		(243,800,000)
Net Assets Applicable to Common Shares 100.0%		\$ 646,408,770

* As of November 30, 2015, gross unrealized appreciation and depreciation based on cost for federal income tax purposes were as follows:

Tax cost	\$ 816,118,393
Gross unrealized appreciation	\$ 91,856,893
Gross unrealized depreciation	(6,550,823)
Net unrealized appreciation	\$ 85,306,070

Notes to Schedule of Investments

- (a) 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.
- (b) 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.

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- (c) Zero-coupon bond.
- (d) When-issued security.
- (e) Variable rate security. Rate shown is as of period end.
- (f) Security is collateralized by municipal bonds or U.S. Treasury obligations.
- (g) Non-income producing security.
- (h) Issuer filed for bankruptcy and/or is in default of interest payments.
- (i) Represent bonds transferred to a TOB Trust in exchange of cash and residual certificates received by the Fund. These bonds serve as collateral in a secured borrowing.
- (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 or in the event of a default on the security. In the case of a shortfall or default, the aggregate maximum potential amount the Fund could ultimately be required to pay under the agreements, which expire on November 15, 2019, is \$5,295,502.
- (k) During the period ended November 30, 2015, investments in issuers considered to be an affiliate of the Fund 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, 2015	Net Activity	Shares Held at November 30, 2015	Income
FFI Institutional Tax-Exempt Fund	8,611,512	309,489	8,921,001	\$ 182

- (l) Represents the current yield as of period end.

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

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
ERB	Education Revenue Bonds
GARB	General Airport Revenue Bonds
GO	General Obligation Bonds
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

Derivative Financial Instruments Outstanding as of Period End

Financial Futures Contracts

			Notional	Unrealized
Contracts			Value	Depreciation
(Short)	Issue	Expiration		
(50)	5-Year U.S. Treasury Note	March 2016	\$ 5,933,984	\$ (3,197)
(49)	10-Year U.S. Treasury Note	March 2016	6,195,438	(11,820)
(20)	Long U.S. Treasury Bond	March 2016	3,080,000	(10,498)
(5)	Ultra U.S. Treasury Bond	March 2016	792,187	(2,117)
Total				\$ (27,632)

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

Fair Value Hierarchy as of Period End

Various inputs are used in determining the fair value of investments and derivative financial instruments. These inputs to valuation techniques are categorized into a fair value hierarchy consisting of three broad levels for financial reporting purposes as follows:

Level 1 unadjusted price quotations 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 Funds' own assumptions used in determining the fair value of investments and derivative financial instruments)

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 significant unobservable inputs used by the Global Valuation Committee in determining the price for Fair Valued Investments are typically categorized as level 3.

Changes in valuation techniques may result in transfers into or out of an assigned level within the hierarchy. In accordance with the Fund's policy, transfers between different levels of the fair value hierarchy are deemed to have occurred as of the beginning of the reporting period. The categorization of a value determined for investments and derivative financial instruments is based on the pricing transparency of the investments and derivative financial instruments and is not necessarily an indication of the risks associated with investing in those securities. For information about the Fund's policy regarding valuation of investments and derivative financial instruments, 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:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments ¹		\$ 1,046,370,586		\$ 1,046,370,586
Short-Term Securities	\$ 8,921,001			8,921,001
Total	\$ 8,921,001	\$ 1,046,370,586		\$ 1,055,291,587

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

	Level 1	Level 2	Level 3	Total
Derivative Financial Instruments ¹				
Liabilities:				
Interest rate contracts	\$ (27,632)			\$ (27,632)

¹ 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 period end, such assets and/or liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
Assets:				
Cash pledged for financial futures contracts	\$ 200,500			\$ 200,500
Liabilities:				
TOB Trust Certificates		\$ (153,867,124)		(153,867,124)
VMTP Shares		(243,800,000)		(243,800,000)
Total	\$ 200,500	\$ (397,667,124)		\$ (397,466,624)

During the period ended November 30, 2015, there were no transfers between levels.

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, 2016

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, 2016

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

Date: January 22, 2016