

BLACKROCK MUNIVEST FUND, INC.

Form N-Q

January 27, 2014

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: 08/31/2014

Date of reporting period: 11/30/2013

Item 1 Schedule of Investments

Schedule of Investments November 30, 2013 (Unaudited)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Alabama 2.7%		
Alabama State Docks Department, Refunding RB, 6.00%, 10/01/40	\$ 7,610	\$ 8,425,944
Selma Alabama IDB, RB, Gulf Opportunity Zone, International Paper Co. Project, Series A: 5.80%, 5/01/34	1,850	1,891,625
5.38%, 12/01/35	1,000	972,600
Selma Alabama IDB, Refunding RB, International Paper Co. Project, Series B, 5.50%, 5/01/20	5,000	5,022,200
		16,312,369
Alaska 0.1%		
Northern Tobacco Securitization Corp., Refunding RB, Tobacco Settlement, Asset-Backed, Series A, 5.00%, 6/01/46	1,250	846,050
Arizona 2.2%		
City of Phoenix Arizona Civic Improvement Corp., Refunding ARB, Junior Lien, Series A, 5.00%, 7/01/40	2,000	2,013,300
County of Maricopa Arizona IDA, RB, Arizona Charter Schools Project, Series A, 6.75%, 7/01/29	3,600	3,003,984
County of Maricopa Arizona Pollution Control Corp., Refunding RB, Southern California Edison Co., Series A, 5.00%, 6/01/35	3,300	3,379,068
Salt Verde Financial Corp., RB, Senior, 5.00%, 12/01/37	5,000	4,810,700
		13,207,052
California 9.1%		
California Health Facilities Financing Authority, RB:		
St. Joseph Health System, Series A, 5.75%, 7/01/39	5,000	5,538,350
Sutter Health, Series B, 6.00%, 8/15/42	5,600	6,401,304
California Health Facilities Financing Authority, Refunding RB, Catholic Healthcare West, Series A, 6.00%, 7/01/34	1,055	1,148,135
California HFA, RB, S/F Housing, Home Mortgage, Series K, AMT, 5.50%, 2/01/42	1,460	1,500,457
	Par	
Municipal Bonds		
California (concluded)		
California State Public Works Board, LRB, Department of Mental Health, Coalinga, Series A, 5.13%, 6/01/14 (a)	\$ 10,435	\$ 10,694,205
City of Los Angeles California Department of Airports, Refunding RB, Los Angeles International Airport, Series A, 5.25%, 5/15/39	1,200	1,271,544
Los Angeles Community College District California, GO, Refunding, Election of 2008, Series A, 6.00%, 8/01/33	9,585	10,993,803
Poway Unified School District, GO, Refunding, CAB, School Facilities Improvement District No. 2007-1, Election of 2008, Series B, 6.20%, 8/01/46 (b)	10,000	1,360,300
San Diego Community College District California, GO, Election of 2006, 5.00%, 8/01/43	4,285	4,509,663
State of California, GO, Various Purposes, 6.50%, 4/01/33	9,675	11,485,773
		54,903,534
Colorado 1.0%		
Colorado Health Facilities Authority, RB, Catholic Health Initiatives, Series D, 6.25%, 10/01/33	2,500	2,783,725
Colorado Health Facilities Authority, Refunding RB, Evangelical Lutheran, Series A, 5.25%, 6/01/34	3,000	2,977,650
Regional Transportation District, COP, Refunding, Series A, 5.38%, 6/01/31	385	406,814
		6,168,189
Delaware 0.4%		
County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Project, 6.00%, 10/01/40	2,500	2,564,700
District of Columbia 0.2%		
Metropolitan Washington Airports Authority, Refunding RB, 1st Senior Lien, Series A: 5.00%, 10/01/39	415	413,182
5.25%, 10/01/44	650	656,130
		1,069,312

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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		
Florida 7.3%		
County of Miami-Dade Florida, GO, Building Better Communities Program:		
Series B, 6.38%, 7/01/28	\$ 4,630	\$ 5,327,278
Series B-1, 5.63%, 7/01/38	5,000	5,487,800
County of Miami-Dade Florida, Refunding RB, Transit System Sales Surtax, 5.00%, 7/01/42	3,750	3,815,325
County of Miami-Dade Florida Aviation, Refunding ARB, Miami International Airport:		
Series A, AMT (AGC), 5.00%, 10/01/40	10,000	9,711,700
Series A-1, 5.38%, 10/01/41	10,290	10,576,473
County of Miami-Dade Florida Expressway Authority, RB, Toll System, Series A (AGM), 5.00%, 7/01/35	8,900	9,099,983
		44,018,559
Georgia 2.0%		
City of Atlanta Georgia Department of Aviation, Refunding GARB, Series B, AMT, 5.00%, 1/01/29	1,070	1,098,858
County of DeKalb Georgia Hospital Authority, Refunding RB, DeKalb Medical Center, Inc. Project, 6.13%, 9/01/40	3,570	3,538,299
DeKalb Private Hospital Authority, Refunding RB, Children's Healthcare, 5.25%, 11/15/39	3,335	3,392,929
Municipal Electric Authority of Georgia, Refunding RB, Series W:		
6.60%, 1/01/18 (c)	110	110,598
6.60%, 1/01/18	3,645	3,945,676
		12,086,360
Hawaii 0.9%		
State of Hawaii Harbor System, RB, Series A, 5.50%, 7/01/35	5,000	5,361,650
Illinois 12.1%		
City of Chicago Illinois, GARB, O'Hare International Airport, 3rd Lien, Series B-2, AMT (NPFGC), 6.00%, 1/01/27		
	4,580	4,596,900
City of Chicago Illinois, Refunding RB, Sales Tax, Series A, 5.00%, 1/01/41	4,640	4,619,306
City of Chicago Illinois Board of Education, GO, Series A, 5.50%, 12/01/39	6,240	6,071,770
	Par	
Municipal Bonds		
	(000)	Value
Illinois (concluded)		
City of Chicago Illinois Transit Authority, RB, Sales Tax Receipts, 5.25%, 12/01/36	\$ 2,110	\$ 2,152,812
City of Chicago Illinois Waterworks, Refunding RB, 2nd Lien, Water Project (AGM), 5.25%, 11/01/33	1,330	1,358,834
County of Cook Illinois Community College District No. 508, GO, University & College Improvements, 5.25%, 12/01/31	5,000	5,157,050
Illinois Finance Authority, RB:		
Advocate Health Care Network, Series D, 6.50%, 11/01/38	9,700	10,896,883
Community Rehabilitation Providers Facilities, Series A, 6.50%, 7/01/22	615	589,619
Disposal Waste Management, Inc. Series A, AMT, 5.05%, 8/01/29	1,000	1,013,630
Illinois Finance Authority, Refunding RB, Series A:		
Northwestern Memorial Hospital, 6.00%, 8/15/39	9,000	10,045,980
OSF Healthcare System, 6.00%, 5/15/39	4,990	5,362,154
Railsplitter Tobacco Settlement Authority, RB, 6.00%, 6/01/28	2,645	2,879,532
Regional Transportation Authority, RB:		
Series A (AMBAC), 7.20%, 11/01/20	2,500	2,936,575
Series C (NPFGC), 7.75%, 6/01/20	4,000	4,814,640
Village of Hodgkins Illinois, RB, Metropolitan Biosolids Management LLC Project, AMT, 6.00%, 11/01/23	10,000	10,005,500
		72,501,185
Indiana 3.1%		
City of Valparaiso Indiana, RB, Exempt Facilities, Pratt Paper LLC Project, AMT, 6.75%, 1/01/34	2,250	2,261,903
Indiana Finance Authority, RB, Ohio River Bridges East End Crossing Project, Series A, AMT:		
5.00%, 7/01/40	2,640	2,388,408
5.00%, 7/01/44	1,525	1,351,165

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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		
Indiana (concluded)		
Indiana Health & Educational Facilities Financing Authority, RB, Clarian Health Obligation, Series A, 5.25%, 2/15/40	\$ 8,980	\$ 9,025,708
Indianapolis Local Public Improvement Bond Bank, Refunding RB, Series D, 6.75%, 2/01/14	3,670	3,710,150
		18,737,334
Iowa 0.1%		
Iowa Tobacco Settlement Authority, Refunding RB, Asset-Backed, Series C, 5.63%, 6/01/46	1,000	750,820
Kentucky 3.5%		
County of Owen Kentucky, RB, Kentucky American Water Co. Project, Series B, 5.63%, 9/01/39	1,000	1,015,850
Kentucky Economic Development Finance Authority, RB, Owensboro Medical Health System, Series A, 6.50%, 3/01/45	4,000	4,191,800
Kentucky Economic Development Finance Authority, Refunding RB, Hospital Facilities, St. Elizabeth Medical Center, Inc., Series A, 5.50%, 5/01/39	8,000	8,417,440
Lexington-Fayette Urban County Airport Board, Refunding GARB, Series A, 5.00%, 7/01/27	7,000	7,560,000
		21,185,090
Louisiana 3.1%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp. Projects, Series A-1, 6.50%, 11/01/35	2,615	2,802,548
Parish of St. Charles Louisiana, RB, Valero Energy Corp., 4.00%, 12/01/40 (d)	2,210	2,185,359
Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, Series A:		
5.25%, 5/15/31	3,420	3,381,422
5.25%, 5/15/32	4,375	4,303,819
5.25%, 5/15/33	4,750	4,653,527
	Par	
Municipal Bonds		
Louisiana (concluded)		
Tobacco Settlement Financing Corp., Refunding RB, Asset-Backed, Series A (concluded):		
5.25%, 5/15/35	\$ 1,500	\$ 1,462,275
		18,788,950
Maine 1.4%		
Maine Health & Higher Educational Facilities Authority, RB:		
Eastern Maine Medical Center, 5.00%, 7/01/43	2,500	2,406,525
Series A, 5.00%, 7/01/39	5,000	5,082,600
Portland Housing Development Corp., Refunding RB, Senior Living, Retirement Facilities, Series A, 6.00%, 2/01/34	1,190	1,193,237
		8,682,362
Maryland 1.9%		
Maryland Community Development Administration, HRB, Residential, Series H, AMT, 5.10%, 9/01/37	1,835	1,840,303
Maryland Community Development Administration, Refunding, HRB, Residential, Series D, AMT, 4.90%, 9/01/42	3,250	3,147,495
Maryland Health & Higher Educational Facilities Authority, Refunding RB:		
Charlestown Community Project, 6.25%, 1/01/41	2,000	2,088,140
University of Maryland Medical System, 5.00%, 7/01/34	2,100	2,112,096
University of Maryland Medical System, 5.13%, 7/01/39	2,100	2,086,581
		11,274,615
Massachusetts 6.0%		
Massachusetts Bay Transportation Authority, Refunding RB, General Transportation System, Series A, 7.00%, 3/01/19	3,010	3,421,046
Massachusetts HFA, RB, AMT:		
M/F Housing, Series A, 5.20%, 12/01/37	2,865	2,841,707

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S/F Housing, Series 130, 5.00%, 12/01/32	2,500	2,506,900
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	6,550	6,492,753

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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		
Massachusetts (concluded)		
Massachusetts School Building Authority, RB, Dedicated Sales Tax, Senior Series A, 5.00%, 5/15/43	\$ 4,500	\$ 4,717,665
Massachusetts Water Resources Authority, RB, Series A, 6.50%, 7/15/19 (c)	13,855	16,020,259
		36,000,330
Michigan 4.0%		
City of Detroit Michigan, RB, Water Supply System, 2nd Lien, Series B (AGM):		
6.25%, 7/01/36	2,500	2,540,500
7.00%, 7/01/36	1,250	1,306,175
Michigan State Hospital Finance Authority, Refunding RB, Series A:		
Henry Ford Health System, 5.25%, 11/15/46	7,950	7,565,220
McLaren Health Care, 5.75%, 5/15/38	7,285	7,920,908
Royal Oak Hospital Finance Authority, Refunding RB, William Beaumont Hospital, Series V, 8.25%, 9/01/39	4,100	4,909,586
		24,242,389
Mississippi 5.0%		
County of Lowndes Mississippi, Refunding RB, Solid Waste Disposal & Pollution Control Weyerhaeuser Co. Project:		
Series A, 6.80%, 4/01/22	9,160	10,150,471
Series B, 6.70%, 4/01/22	4,500	4,940,460
Mississippi Business Finance Corp., Refunding RB, System Energy Resource, Inc. Project, 5.88%, 4/01/22	15,000	14,928,450
		30,019,381
Missouri 1.8%		
City of Kansas City Missouri, Refunding ARB, General Improvement, Series A, AMT, 5.25%, 9/01/25	10,000	10,731,500
Nebraska 1.0%		
Central Plains Energy Project Nebraska, RB, Gas Project No. 3, 5.00%, 9/01/42	6,200	5,935,322
	Par	
Municipal Bonds		
	(000)	Value
Nevada 0.9%		
County of Clark Nevada Airport System, ARB, Series B, 5.75%, 7/01/42	\$ 5,000	\$ 5,391,050
New Hampshire 1.0%		
New Hampshire Housing Finance Authority, Refunding RB, S/F Housing, Acquisition, Series H, AMT, 5.15%, 1/01/40	5,895	5,852,910
New Jersey 7.9%		
New Jersey EDA, RB:		
Cigarette Tax, 5.75%, 6/15/14 (a)	3,695	3,807,402
The Goethals Bridge Replacement Project, AMT, 5.13%, 1/01/34	1,050	1,031,215
The Goethals Bridge Replacement Project, AMT, 5.38%, 1/01/43	11,355	11,117,340
The Goethals Bridge Replacement Project, AMT, 5.63%, 1/01/52	2,000	1,970,540
New Jersey EDA, Refunding RB, School Facilities Construction, Series AA, 5.25%, 12/15/33	10,000	10,539,600
New Jersey Housing & Mortgage Finance Agency, RB, S/F Housing, Series AA, 6.38%, 10/01/28	795	834,345
New Jersey Transportation Trust Fund Authority, RB:		
Transportation Program, Series AA, 5.25%, 6/15/33	8,750	9,282,350
Transportation System, Series B, 5.50%, 6/15/31	8,000	8,618,080
		47,200,872
New York 6.5%		
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	4,422,738
Metropolitan Transportation Authority, RB, Series C:		
6.25%, 11/15/23	3,245	3,824,103
6.50%, 11/15/28	14,925	17,424,788
	8,900	9,256,534

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New York City Transitional Finance Authority Future Tax Secured, RB, Fiscal 2012, Sub-Series E-1,
5.00%, 2/01/42

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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		
New York (concluded)		
Port Authority of New York & New Jersey, ARB, JFK International Air Terminal LLC Project, Series 8, 6.00%, 12/01/36	\$ 3,165	\$ 3,402,312
Rochester Housing Authority, RB, Andrews Terrace Apartments, M/F Housing, AMT (Ginnie Mae), 4.70%, 12/20/38	1,000	959,540
		39,290,015
North Carolina 0.6%		
County of Gaston Industrial Facilities & Pollution Control Financing Authority, RB, Exempt Facilities, National Gypsum Co. Project, AMT, 5.75%, 8/01/35	4,105	3,577,672
Ohio 3.8%		
Buckeye Tobacco Settlement Financing Authority, RB, Asset-Backed, Senior Turbo Term, Series A-2, 6.50%, 6/01/47	1,125	928,181
County of Allen Ohio Hospital Facilities, Refunding RB, Catholic Healthcare Partners, Series A, 5.25%, 6/01/38	2,875	2,919,275
County of Franklin Ohio, RB, Health Care Facilities Improvement, OPRS Communities, Series A, 6.13%, 7/01/40	1,690	1,655,693
County of Lucas Ohio, Refunding RB, Promedica Healthcare, Series A, 6.50%, 11/15/37	1,915	2,159,297
County of Montgomery Ohio, RB, Catholic Health Initiatives, Series D-2, 5.45%, 10/01/38	9,230	9,392,909
County of Montgomery Ohio, Refunding RB, Catholic Health Initiatives, Series A, 5.50%, 5/01/34	5,470	5,979,695
		23,035,050
Pennsylvania 0.4%		
Delaware River Port Authority, RB, Series D, 5.00%, 1/01/40	195	199,822
Philadelphia Pennsylvania IDA, RB: Arbor House, Inc. Project, Series E, 6.10%, 7/01/33	1,000	1,000,230
Rieder House Project, Series A, 6.10%, 7/01/33	1,355	1,355,312
		2,555,364
	Par	
	(000)	Value
Municipal Bonds		
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	\$ 1,013,220
County of Richland South Carolina, Refunding RB, International Paper Co. Project, AMT, 6.10%, 4/01/23	5,000	5,002,400
		6,015,620
Texas 13.1%		
Brazos River Authority, Refunding RB, Texas Utility Co., Series A, AMT, 7.70%, 4/01/33	3,055	91,619
Central Texas Regional Mobility Authority, Refunding RB, Senior Lien: 5.75%, 1/01/31	1,000	1,035,210
6.00%, 1/01/41	4,300	4,374,089
Series A, 5.00%, 1/01/43	6,925	6,249,051
County of Harris Texas Cultural Education Facilities Finance Corp., RB, Brazos Presbyterian Homes, Inc. Project, Series B, 7.00%, 1/01/43 (e)	850	853,893
County of Harris Texas Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B (a): 7.13%, 12/01/18	3,500	4,496,800
7.25%, 12/01/18	5,400	6,970,590
County of Matagorda Texas Navigation District No. 1, Refunding RB, CenterPoint Energy Project, 5.60%, 3/01/27 (d)	9,355	9,460,244
County of Tarrant Texas Cultural Education Facilities Finance Corp., RB, Scott & White Healthcare, 6.00%, 8/15/45	5,000	5,643,150
La Vernia Higher Education Finance Corp., RB, KIPP, Inc., Series A, 6.25%, 8/15/39	925	980,333
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	3,600	3,538,692
	1,600	1,611,456

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New Hope Cultural Education Facilities Corp., Refunding RB, 1st Mortgage, Morningside Ministries
Project, 6.25%, 1/01/33

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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 (concluded)		
North Texas Education Finance Corp., ERB, Uplift Education, Series A, 5.13%, 12/01/42	\$ 1,000	\$ 930,910
North Texas Tollway Authority, Refunding RB, 1st Tier, Series A, 6.25%, 1/01/39	3,500	3,860,885
San Antonio Public Facilities Corp., Refunding RB, Convention Center Refinancing & Expansion Project, 4.00%, 9/15/42	5,575	4,706,136
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	10,934,100
NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	4,710	5,091,322
Texas Transportation Commission, Refunding RB, Central Texas Turnpike System, 1st Tier, Series A, 4.00%, 8/15/38	9,375	7,728,656
		78,557,136
Utah 0.7%		
Utah Transit Authority, Refunding RB, Subordinated Sales Tax, 4.00%, 6/15/39	5,000	4,244,700
Vermont 0.0%		
Vermont Educational & Health Buildings Financing Agency, RB, Developmental & Mental Health, Series A, 6.38%, 6/15/22	30	30,425
Virginia 4.0%		
City of Portsmouth Virginia, GO, Refunding, Series D, 5.00%, 7/15/34	3,105	3,231,187
County of Fairfax Virginia EDA, Refunding RB, Goodwin House, Inc.: 5.13%, 10/01/37	2,000	1,987,600
5.13%, 10/01/42	6,015	5,983,181
Virginia Commonwealth Transportation Board, RB, Capital Projects, 5.00%, 5/15/32	8,000	8,548,800
Virginia HDA, Refunding RB, S/F Housing, Sub-Series A-3, AMT, 5.05%, 7/01/26	1,325	1,357,025
	Par	
	(000)	Value
Municipal Bonds		
Virginia (concluded)		
Virginia Small Business Financing Authority, RB, Senior Lien, Elizabeth River Crossings OpCo LLC Project, AMT, 6.00%, 1/01/37	\$ 2,620	\$ 2,697,735
		23,805,528
Washington 4.8%		
Energy Northwest, Refunding RB, Series B, 7.13%, 7/01/16	14,320	16,712,586
Washington Health Care Facilities Authority, RB, Catholic Health Initiatives, Series A, 5.75%, 1/01/45	4,010	4,156,164
Washington Health Care Facilities Authority, Refunding RB, Catholic Health Initiatives, Series D, 6.38%, 10/01/36	7,000	7,832,930
		28,701,680
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	2,564,525
Wisconsin 1.0%		
Wisconsin Health & Educational Facilities Authority, Refunding RB, Froedtert & Community Health, Inc., Series C, 5.25%, 4/01/39	6,100	6,241,947
Wyoming 1.4%		
County of Sweetwater Wyoming, Refunding RB, Idaho Power Co. Project, Remarketing, 5.25%, 7/15/26	4,500	4,812,795
Wyoming Community Development Authority, Refunding RB, Series 2 & 3, 4.05%, 12/01/38	3,805	3,331,696
		8,144,491
Total Municipal Bonds 116.4%		700,596,038

Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts (f)**Arizona 0.6%**

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City of Phoenix Arizona Civic Improvement Corp., Refunding RB, Water System, Junior Lien, Series A, 5.00%, 7/01/34	3,500	3,699,290
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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 Transferred to Tender Option Bond (TOB) Trusts (f)		
California 3.5%		
University of California, RB, General, Series O, 5.25%, 5/15/39	\$ 20,000	\$ 21,314,200
Connecticut 2.1%		
Connecticut State Health & Educational Facility Authority, RB, Yale University, Series Z-3, 5.05%, 7/01/42	12,000	12,833,640
District of Columbia 1.3%		
District of Columbia Water & Sewer Authority, Refunding RB, Senior Lien, Series A, 5.50%, 10/01/39	7,495	8,011,670
Florida 2.5%		
County of Miami-Dade Florida Water & Sewer System, RB, (AGM), 5.00%, 10/01/39	14,747	14,993,552
Illinois 3.1%		
Illinois Finance Authority, RB, University of Chicago, Series B, 6.25%, 7/01/38	10,000	10,998,200
Illinois State Toll Highway Authority, RB, Senior Priority, Series B, 5.50%, 1/01/33	6,999	7,546,955
		18,545,155
Kentucky 1.7%		
County of Louisville & Jefferson Kentucky Metropolitan Government Parking Authority, RB, River City, Inc., 1st Mortgage, Series A, 5.38%, 12/01/39	9,195	9,932,623
Maryland 0.8%		
Maryland State Transportation Authority, RB, Transportation Facilities Project (AGM), 5.00%, 7/01/41	4,710	4,889,828
Nevada 3.0%		
County of Clark Nevada Water Reclamation District, GO, Limited Tax, Series B, 5.75%, 7/01/34	15,789	17,874,233
New York 6.0%		
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	25,204,923
	Par	
Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts (f)		
	(000)	Value
New York (concluded)		
New York Liberty Development Corp., Refunding RB, 4 World Trade Center Project, 5.75%, 11/15/51 (g)	\$ 10,000	\$ 10,656,300
		35,861,223
North Carolina 3.0%		
North Carolina Capital Facilities Finance Agency, Refunding RB:		
Duke University Project, Series A, 5.00%, 10/01/41	12,678	12,946,755
Wake Forest University, 5.00%, 1/01/38	5,000	5,216,300
		18,163,055
Ohio 2.3%		
Ohio Higher Educational Facility Commission, RB, Cleveland Clinic Health, Series A, 5.25%, 1/01/33	4,400	4,545,024
State of Ohio, RB, Cleveland Clinic Health Obligated Group, Series B, 5.50%, 1/01/34	8,500	9,013,230
		13,558,254
Oregon 2.2%		
State of Oregon Housing & Community Services Department, HRB, M/F Housing, Series A, AMT, 4.95%, 7/01/30	13,000	13,135,553
South Carolina 0.4%		
South Carolina State Housing Finance & Development Authority, Refunding RB, S/F Housing, Series B-1, 5.55%, 7/01/39	2,504	2,575,956
Texas 9.2%		
City of Houston Texas, Refunding RB, Airport System, Senior Lien, Series A, 5.50%, 7/01/34	8,333	9,117,152
City of Houston Texas Higher Education Finance Corp., RB, Rice University Project, Series A, 5.00%, 5/15/40	10,000	10,560,878
County of Harris Texas Health Facilities Development Corp., Refunding RB, School Health Care System, Series B, 5.75%, 7/01/27 (c)	20,970	25,924,162

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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 Transferred to Tender Option Bond (TOB) Trusts (f)		
Texas (concluded)		
Texas Department of Housing & Community Affairs, RB, S/F Mortgage, Series B, AMT (Ginnie Mae), 5.25%, 9/01/32	\$ 3,897	\$ 3,944,704
Texas State University System, Refunding RB, (AGM), 5.00%, 3/15/30	5,667	5,987,609
		55,534,505
Virginia 1.2%		
County of Fairfax Virginia IDA, Refunding RB, Health Care, Inova Health System, Series A, 5.50%, 5/15/35	2,099	2,223,052
Virginia Small Business Financing Authority, Refunding RB, Sentara Healthcare, 5.00%, 11/01/40	5,002	5,067,535
		7,290,587
Washington 4.4%		
Central Puget Sound Regional Transit Authority, RB, Series A:		
5.00%, 11/01/34	5,000	5,241,550
5.00%, 11/01/36	6,000	6,289,860
	Par	
Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts (f)		
Washington (concluded)		
Central Puget Sound Regional Transit Authority, RB, Series A (concluded):		
(AGM), 5.00%, 11/01/32	\$ 14,007	\$ 14,673,495
		26,204,905
Total Municipal Bonds Transferred to Tender Option Bond (TOB) Trusts		47.3%
Total Long-Term Investments		284,418,229
(Cost \$944,026,991) 163.7%		985,014,267
Short-Term Securities		
	Shares	
FFI Institutional Tax-Exempt Fund, 0.03% (h)(i)	6,295	6,295
Total Short-Term Securities		6,295
(Cost \$6,295) 0.0%		6,295
Total Investments		985,020,562
(Cost \$944,033,286*) 163.7%		10,023,399
Other Assets Less Liabilities 1.6%		(149,513,893)
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (24.8%)		(243,800,000)
VMTP Shares, at Liquidation Value (40.5%)		\$ 601,730,068
Net Assets Applicable to Common Shares 100.0%		\$ 601,730,068

* As of November 30, 2013, gross unrealized appreciation and depreciation based on cost for federal income tax purposes were as follows:

Tax cost	\$ 797,170,529
Gross unrealized appreciation	\$ 54,808,415
Gross unrealized depreciation	(16,431,037)
Net unrealized appreciation	\$ 38,377,378

Notes to Schedule of Investments

- (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) Represents a zero-coupon bond. Rate shown reflects the current yield as of report date.
- (c) Security is collateralized by municipal or US Treasury obligations.
- (d) Variable rate security. Rate shown is as of report date.
- (e) When-issued security. Unsettled when-issued transactions were as follows:

Counterparty	Value	Unrealized Appreciation
BB&T Securities LLC	\$ 853,893	\$ 570

Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

- (f) Represent bonds transferred to a TOB. In exchange the Fund acquired residual interest certificates. These bonds serve as collateral in a financing transaction.
- (g) 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.
- (h) Investments in issuers considered to be an affiliate of the Fund during the period ended November 30, 2013, for purposes of Section 2(a)(3) of the 1940 Act were as follows:

Affiliate	Shares Held at August 31, 2013	Net Activity	Shares Held at November 30, 2013	Income
FFI Institutional Tax-Exempt Fund	6,144,050	(6,137,755)	6,295	\$ 728

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

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 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
Ginnie Mae	Government National Mortgage Association
GO	General Obligation Bonds
HDA	Housing Development Authority
HFA	Housing Finance Agency
HRB	Housing Revenue Bonds
IDA	Industrial Development Authority
IDB	Industrial Development Board
LRB	Lease Revenue Bonds
M/F	Multi-Family
NPFGC	National Public Finance Guarantee Corp.
RB	Revenue Bonds
S/F	Single-Family

Financial futures contracts as of November 30, 2013 were as follows:

Contracts Sold	Issue	Exchange	Expiration	Notional Value	Unrealized Appreciation
(120)	10-Year US Treasury Note	Chicago Board of Trade	December 2013	\$ 15,196,875	\$ 42,994

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Schedule of Investments (continued)

BlackRock MuniVest Fund, Inc. (MVF)

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 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 the Fund's 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.

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. 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. 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, 2013:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments ¹		\$ 985,014,267		\$ 985,014,267
Short-Term Securities	\$ 6,295			6,295
Total	\$ 6,295	\$ 985,014,267		\$ 985,020,562

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

	Level 1	Level 2	Level 3	Total
Derivative Financial Instruments²				
Assets:				
Interest rate contracts	\$ 42,994			\$ 42,994

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)

Certain of the Fund's assets and/or liabilities are held at carrying amount, which approximates fair value for financial reporting purposes. As of November 30, 2013, 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	\$ 482,000			\$ 482,000
Liabilities:				
Bank overdraft		\$ (11,994)		(11,994)
TOB trust certificates		(149,472,655)		(149,472,655)
VMTP Shares		(243,800,000)		(243,800,000)
Total	\$ 482,000	\$ (393,284,649)		\$ (392,802,649)

There were no transfers between levels during the period ended November 30, 2013.

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2013

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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 24, 2014

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 24, 2014

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

Date: January 24, 2014