

BLACKROCK MUNIVEST FUND, INC.

Form N-Q

January 24, 2013

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: 08/31/2013

Date of reporting period: 11/30/2012

Item 1 Schedule of Investments

Schedule of Investments November 30, 2012 (Unaudited)

BlackRock MuniVest Fund, Inc. (MVF)

(Percentages shown are based on Net Assets)

	Par (000)	Value
Municipal Bonds		
Alabama 2.9%		
Alabama State Docks Department, Refunding RB, 6.00%, 10/01/40	\$ 7,610	\$ 9,134,511
Camden IDB Alabama, RB, Weyerhaeuser Co. Project, Series A, 6.13%, 12/01/13 (a)	2,550	2,698,512
Selma IDB, RB:		
Gulf Opportunity Zone, International Paper Co., 5.80%, 5/01/34	1,850	2,119,360
International Paper Co., Series A, 5.38%, 12/01/35	1,000	1,115,100
Selma IDB Alabama, Refunding RB, International Paper Co. Project, Series B, 5.50%, 5/01/20	5,000	5,134,200
		20,201,683
Alaska 0.2%		
Northern Tobacco Securitization Corp., Refunding RB, Asset-Backed, Series A, 5.00%, 6/01/46	1,250	1,059,375
Arizona 3.9%		
Maricopa County IDA Arizona, RB, Arizona Charter Schools Project, Series A, 6.75%, 7/01/29	4,100	2,918,298
Maricopa County Pollution Control Corp., Refunding RB, Southern California Edison Co., Series A, 5.00%, 6/01/35	3,300	3,747,579
Phoenix Civic Improvement Corp., Refunding RB, Junior Lien, Series A, 5.00%, 7/01/40	2,000	2,273,900
Pima County IDA, RB, Charter Schools, Series I, 6.75%, 7/01/21	630	630,699
Pima County IDA, Refunding RB, Arizona Charter, Series I (a)(b):		
6.10%, 7/01/13	110	113,494
6.10%, 7/01/13	370	384,348
6.30%, 7/01/13	230	237,574
6.30%, 7/01/13	740	765,915
Pima County IDA Arizona, ERB, Arizona Charter School Project, Series E, 7.25%, 7/01/31	1,995	1,997,334
Salt River Project Agricultural Improvement & Power Distribution, Refunding RB, Electrical System, Series A, 5.00%, 12/01/31	7,000	8,706,390
Salt Verde Financial Corp., RB, Senior, 5.00%, 12/01/37	5,000	6,026,700
		27,802,231
California 10.4%		
California Health Facilities Financing Authority, RB:		
Scripps Health, Series A, 5.00%, 11/15/40	2,800	3,225,152
	Par (000)	Value
Municipal Bonds		
California (concluded)		
California Health Facilities Financing Authority, RB (concluded):		
Stanford Hospital and Clinics, Series A, 5.00%, 8/15/51	\$ 3,750	\$ 4,302,562
State Joseph Health System, Series A, 5.75%, 7/01/39	5,000	5,871,550
Sutter Health, Series B, 6.00%, 8/15/42	5,600	6,856,192
California Health Facilities Financing Authority, Refunding RB, Catholic Healthcare West, Series A, 6.00%, 7/01/34	1,055	1,272,224
California HFA, RB, Home Mortgage, Series K, AMT, 5.50%, 2/01/42	2,165	2,241,338
California State Public Works Board, RB, Department of Mental Health, Coalinga, Series A: 5.50%, 12/01/13 (a)	6,000	6,313,800
5.13%, 6/01/29	10,435	10,891,323
California Statewide Communities Development Authority, RB:		
Health Facility, Memorial Health Services, Series A, 6.00%, 4/01/13 (a)	4,240	4,322,426
Kaiser Permanente, Series A, 5.00%, 4/01/42	4,170	4,844,539
City of Los Angeles Department of Airports, Refunding RB, Series A, 5.25%, 5/15/39	1,200	1,378,692
Golden State Tobacco Securitization Corp. California, RB, Asset-Backed, Series A-3, 7.88%, 6/01/13 (a)	5,725	5,944,840
Poway Unified School District, GO, CAB, School Facilities Improvement District No. 2007-1, Election of 2008, Series B, 4.85%, 8/01/46 (c)	15,000	2,990,700
State of California, GO, Various Purpose, 6.50%, 4/01/33	9,700	12,458,389
		72,913,727
Colorado 0.9%		
Colorado Health Facilities Authority, RB, Catholic Health Initiatives, Series D, 6.25%, 10/01/33	2,500	3,036,325
Colorado Health Facilities Authority, Refunding RB, Evangelical Lutheran, Series A, 5.25%, 6/01/34	3,000	3,074,430

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Regional Transportation District, COP, Refunding, Series A, 5.38%, 6/01/31	385	449,260
Delaware 0.2%		6,560,015
County of Sussex Delaware, RB, NRG Energy, Inc., Indian River Project, 6.00%, 10/01/40	1,500	1,710,870

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2012

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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 0.2%		
Metropolitan Washington Airports Authority, RB, First Senior Lien, Series A: 5.00%, 10/01/39	\$ 415	\$ 466,485
5.25%, 10/01/44	650	736,755
		1,203,240
Florida 4.9%		
County of Miami-Dade Florida, GO, Building Better Communities Program: Series B, 6.38%, 7/01/28	4,630	5,723,097
Series B-1, 5.63%, 7/01/38	5,000	5,935,950
County of Miami-Dade Florida, Refunding RB Miami International Airport: AMT (AGC), 5.00%, 10/01/40	10,000	10,702,900
Series A-1, 5.38%, 10/01/41	10,290	12,004,417
		34,366,364
Georgia 2.1%		
City of Atlanta Georgia, Refunding RB, General, Series B, AMT, 5.00%, 1/01/29	1,070	1,237,583
DeKalb County Hospital Authority Georgia, Refunding RB, Dekalb Medical Center, Inc. Project, 6.13%, 9/01/40	3,570	4,276,325
DeKalb Private Hospital Authority, Refunding RB, Children s Healthcare, 5.25%, 11/15/39	3,335	3,769,517
Municipal Electric Authority of Georgia, RB, Series W: 6.60%, 1/01/18 (d)	250	258,915
6.60%, 1/01/18	4,530	5,004,654
		14,546,994
Hawaii 0.9%		
Hawaii State Harbor, RB, Series A, 5.25%, 7/01/35	5,000	6,015,250
Illinois 11.3%		
Chicago Illinois Board of Education, GO, Series A, 5.50%, 12/01/39	6,670	8,000,332
Chicago Transit Authority, RB, Sales Tax Receipts Revenue, 5.25%, 12/01/36	2,110	2,483,955
City of Chicago Illinois, ARB, O Hare International Airport, Third Lien, Series B-2, AMT (NPFGC), 6.00%, 1/01/27	17,080	17,931,267
Illinois Finance Authority, RB: Advocate Health Care Network, Series D, 6.50%, 11/01/38	9,700	11,942,349
Community, 6.50%, 7/01/22	655	635,016
	Par (000)	Value
Municipal Bonds		
Illinois (concluded)		
Illinois Finance Authority, Refunding RB: Northwestern Memorial Hospital, Series A, 6.00%, 8/15/39	\$ 9,000	\$ 10,755,900
OSF Healthcare System, Series A, 6.00%, 5/15/39	5,060	5,971,306
Railsplitter Tobacco Settlement Authority, RB, 6.00%, 6/01/28	2,645	3,254,488
Regional Transportation Authority, RB: Series A (AMBAC), 7.20%, 11/01/20	2,765	3,369,650
Series C (NPFGC), 7.75%, 6/01/20	4,000	4,989,240
Village of Hodgkins Illinois, RB, MBM Project, AMT, 6.00%, 11/01/23	10,000	10,016,000
		79,349,503
Indiana 2.4%		
Indiana Health & Educational Facilities Financing Authority, RB, Clarian Health Obligation, Series A, 5.25%, 2/15/40	8,980	9,845,942
Indianapolis Local Public Improvement Bond Bank, Refunding RB, Series D, 6.75%, 2/01/14	7,120	7,354,390
		17,200,332
Iowa 0.1%		
Iowa Tobacco Settlement Authority, RB, Asset-Backed, Series C, 5.63%, 6/01/46	1,000	980,060
Kentucky 1.2%		
County of Owen Kentucky, RB, Kentucky American Water Co., Series B, 5.63%, 9/01/39	1,000	1,099,610
Kentucky Economic Development Finance Authority, RB, Owensboro Medical Health System, Series A:		

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6.38%, 6/01/40	2,000	2,419,100
6.50%, 3/01/45	4,000	4,859,400
		8,378,110
Louisiana 0.8%		
Louisiana Local Government Environmental Facilities & Community Development Authority, RB, Westlake Chemical Corp., Series A-1, 6.50%, 11/01/35	2,615	3,086,014
Parish of Saint Charles Louisiana Gulf Opportunity Zone, RB, Valero Energy Corp. Project, 4.00%, 12/01/40 (e)	2,210	2,453,299
		5,539,313

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		
Maine 1.0%		
Maine Health & Higher Educational Facilities Authority, RB, Series A, 5.00%, 7/01/39	\$ 5,000	\$ 5,555,600
Portland New Public Housing Authority Maine, Refunding RB, Senior Living, Series A, 6.00%, 2/01/34	1,190	1,230,401
		6,786,001
Maryland 1.8%		
Maryland Community Development Administration, RB, AMT, 5.10%, 9/01/37	1,835	1,931,686
Maryland Community Development Administration, Refunding RB, Residential, Series D, AMT, 4.90%, 9/01/42	3,250	3,378,635
Maryland Health & Higher Educational Facilities Authority, Refunding RB:		
Charlestown Community, 6.25%, 1/01/41	2,000	2,338,300
University of Maryland Medical System, 5.00%, 7/01/34	2,100	2,341,290
University of Maryland Medical System, 5.13%, 7/01/39	2,100	2,344,902
		12,334,813
Massachusetts 5.5%		
Massachusetts Bay Transportation Authority, Refunding RB, General Transportation System, Series A, 7.00%, 3/01/19	3,010	3,585,632
Massachusetts Development Finance Agency, RB, Wellesley College, Series J, 5.00%, 7/01/42	2,800	3,372,152
Massachusetts HFA, RB, AMT:		
S/F, Series 130, 5.00%, 12/01/32	2,500	2,618,000
Series A, AMT, 5.20%, 12/01/37	2,865	3,001,861
Massachusetts HFA, Refunding RB, Series C, AMT, 5.35%, 12/01/42	6,550	7,143,365
Massachusetts Water Resources Authority, RB, Series A, 6.50%, 7/15/19 (d)	16,000	19,089,600
		38,810,610
Michigan 3.8%		
City of Detroit Michigan, RB, Second Lien, Series B (AGM), 6.25%, 7/01/36	2,500	2,962,525
City of Detroit Michigan Water Supply System, RB, Second Lien, Series B (AGM), 7.00%, 7/01/36	1,250	1,539,200
Michigan State Hospital Finance Authority, Refunding RB:		
Henry Ford Health System, Series A, 5.25%, 11/15/46	7,950	8,502,445
	Par	
	(000)	Value
Municipal Bonds		
Michigan (concluded)		
Michigan State Hospital Finance Authority, Refunding RB (concluded):		
McLaren Health Care, 5.75%, 5/15/38	\$ 7,285	\$ 8,567,233
Royal Oak Hospital Finance Authority Michigan, Refunding RB, William Beaumont Hospital, 8.25%, 9/01/39	4,100	5,340,291
		26,911,694
Minnesota 0.5%		
Tobacco Securitization Authority Minnesota, Refunding RB, Tobacco Settlement, Series B, 5.25%, 3/01/31	3,000	3,378,030
Mississippi 4.4%		
County of Lowndes Mississippi, Refunding RB, Weyerhaeuser Co. Project:		
Series A, 6.80%, 4/01/22	9,160	10,936,124
Series B, 6.70%, 4/01/22	4,500	5,319,135
Mississippi Business Finance Corp., Refunding RB, System Energy Resource, Inc. Project, 5.88%, 4/01/22	15,000	15,047,100
		31,302,359
Nebraska 1.7%		
Central Plains Energy Project Nebraska, RB, Gas Project No. 3, 5.00%, 9/01/42	6,200	6,892,602
Omaha Nebraska Public Power District, Series B, 5.00%, 2/01/36	4,000	4,734,640
		11,627,242
Nevada 0.8%		
County of Clark Nevada, RB, Series B, 5.75%, 7/01/42	5,000	5,899,700
New Hampshire 0.3%		
	2,145	2,323,271

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

New Jersey 4.8%

New Jersey EDA, RB, Cigarette Tax, 5.75%, 6/15/14 (a)	3,695	4,002,757
New Jersey EDA, Refunding RB: Cigarette Tax, 5.00%, 6/15/25	990	1,160,072
School Facilities Construction, Series AA, 5.25%, 12/15/33	10,000	11,682,800
New Jersey State Housing & Mortgage Finance Agency, RB, Series AA, 6.38%, 10/01/28	1,055	1,142,681

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		
New Jersey (concluded)		
New Jersey Transportation Trust Fund Authority, RB, Transportation System, 5.50%, 6/15/31	\$ 8,000	\$ 9,856,320
Tobacco Settlement Financing Corp. New Jersey, RB, 7.00%, 6/01/13 (a)	5,980	6,183,200
		34,027,830
New York 4.7%		
Metropolitan Transportation Authority, RB, Series 2008C: 6.25%, 11/15/23	3,245	4,174,303
6.50%, 11/15/28	14,925	19,291,309
New York State Thruway Authority, Refunding RB, Series I, 5.00%, 1/01/42	4,215	4,950,602
Port Authority of New York & New Jersey, RB, JFK International Air Terminal, 6.00%, 12/01/36	3,165	3,776,478
Rochester Housing Authority, RB, College Andrews Terrace Apartments, AMT (Ginnie Mae), 4.70%, 12/20/38	1,000	1,039,980
		33,232,672
North Carolina 1.0%		
Gaston County Industrial Facilities & Pollution Control Financing Authority North Carolina, RB, Exempt Facilities, National Gypsum Co. Project, AMT, 5.75%, 8/01/35	4,105	3,848,150
North Carolina Medical Care Commission, Refunding RB, Wakemed, Series A, 4.13%, 10/01/38	2,730	2,901,253
		6,749,403
Ohio 0.5%		
Buckeye Tobacco Settlement Financing Authority, RB, Senior, Series A-2, 6.50%, 6/01/47	1,125	1,091,936
County of Lucas Ohio, Refunding RB, Promedica Healthcare, Series A, 6.50%, 11/15/37	1,915	2,451,947
		3,543,883
Oregon 0.7%		
City of Tigard Washington County Oregon, Refunding RB, Water System: 5.00%, 8/01/37	2,000	2,389,100
5.00%, 8/01/42	2,335	2,787,079
		5,176,179
Pennsylvania 0.9%		
Chester County IDA, RB, Aqua Pennsylvania Inc. Project, Series A, AMT (NPFGC), 5.00%, 2/01/40	540	577,201
	Par (000)	Value
Municipal Bonds		
Pennsylvania (concluded)		
Delaware River Port Authority of Pennsylvania & New Jersey, RB, Series D, 5.00%, 1/01/40	\$ 195	\$ 222,665
Pennsylvania Economic Development Financing Authority, Refunding RB, Aqua Pennsylvania, Inc. Project, Series A, AMT, 5.00%, 12/01/34	2,780	3,151,825
Philadelphia Authority for Industrial Development, RB: Arbor House, Inc. Project, Series E, 6.10%, 7/01/33	1,000	1,026,410
Rieder House Project, Series A, 6.10%, 7/01/33	1,355	1,390,785
		6,368,886
Puerto Rico 2.5%		
Puerto Rico Sales Tax Financing Corp., RB, First Sub-Series A, 6.38%, 8/01/39	13,000	15,154,750
Puerto Rico Sales Tax Financing Corp., Refunding RB, CAB, Series A (NPFGC), 5.42%, 8/01/41 (c)	10,000	2,159,600
		17,314,350
South Carolina 0.9%		
County of Georgetown South Carolina, Refunding RB, International Paper Co. Project, Series A, AMT, 5.55%, 12/01/29	1,000	1,037,570
County of Richland South Carolina, Refunding RB, International Paper Co. Project, AMT, 6.10%, 4/01/23	5,000	5,125,050
		6,162,620
Texas 14.5%		
Brazos River Authority, Refunding RB, Texas Utility Co., Series A, AMT, 7.70%, 4/01/33	3,055	411,997
Brazos River Harbor Navigation District, Refunding RB, Dow Chemical Co. Project, Series A-7, AMT, 6.63%, 5/15/33	11,460	11,605,427
Central Texas Regional Mobility Authority, Refunding RB, Senior Lien:		

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5.75%, 1/01/31	1,000	1,192,170
6.00%, 1/01/41	4,300	5,117,946
Gulf Coast Waste Disposal Authority, Refunding RB, Series A, AMT, 6.10%, 8/01/24	4,000	4,014,720
Harris County Health Facilities Development Corp., Refunding RB, Memorial Hermann Healthcare System, Series B:		
7.13%, 12/01/31	3,500	4,537,470
7.25%, 12/01/35	5,400	6,845,634

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 (concluded)		
La Vernia Higher Education Finance Corp., RB, KIPP, Inc., 6.25%, 8/15/39	\$ 925	\$ 1,087,948
Love Field Airport Modernization Corp., RB, Southwest Airlines Co. Project, 5.25%, 11/01/40	3,600	3,915,504
Matagorda County Navigation District No. 1 Texas, Refunding RB, CenterPoint Energy Project, 5.60%, 3/01/27 (e)	9,355	9,732,942
North Texas Education Finance Corporation, ERB, Uplift Education, Series A, 5.13%, 12/01/42	1,000	1,079,180
North Texas Tollway Authority, Refunding RB, First Tier, Series A, 6.25%, 1/01/39	3,500	4,104,975
San Antonio Public Facilities Corp., Refunding RB, Convention Center Refinancing and Expansion Project, 4.00%, 9/15/42	7,200	7,502,040
Tarrant County Cultural Education Facilities Finance Corp., RB, Scott & White Healthcare, 6.00%, 8/15/45	5,000	6,044,350
Texas Department of Housing & Community Affairs, Refunding RB, Series A, AMT, 5.00%, 7/01/34	1,180	1,181,522
Texas Municipal Gas Acquisition & Supply Corp. III, RB, 5.00%, 12/15/28	5,000	5,612,800
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	12,564,100
NTE Mobility Partners LLC, North Tarrant Express Managed Lanes Project, 6.88%, 12/31/39	4,710	5,809,550
Texas Transportation Commission, Refunding RB, Central Texas Turnpike System, First Tier, Series A, 4.00%, 8/15/38	9,375	9,602,250
		101,962,525
Utah 0.7%		
Utah Transit Authority, Refunding RB, Subordinated Sales Tax, 4.00%, 6/15/39	5,000	5,259,300
Vermont 0.1%		
Vermont Educational & Health Buildings Financing Agency, RB, Developmental & Mental Health, Series A, 6.38%, 6/15/22	420	428,564
	Par (000)	Value
Municipal Bonds		
Virginia 2.9%		
City of Norfolk Virginia, Refunding RB, Series B (AMBAC), 5.50%, 2/01/31 (a)	\$ 3,550	\$ 3,555,254
City of Portsmouth Virginia, GO, Refunding, Series D, 5.00%, 7/15/34	3,105	3,657,286
Fairfax County EDA, Refunding RB, Goodwin House, Inc.: 5.13%, 10/01/37	2,000	2,093,460
5.13%, 10/01/42	6,015	6,277,254
Virginia HDA, Refunding RB, Sub-Series A3, AMT, 5.05%, 7/01/26	1,325	1,427,290
Virginia Small Business Financing Authority, RB, Senior Lien, Elizabeth River Crossing Operation LLC Project, AMT, 6.00%, 1/01/37	2,620	3,067,889
		20,078,433
Washington 4.0%		
Energy Northwest, Refunding RB, Series B, 7.13%, 7/01/16	14,320	17,584,101
Seattle Housing Authority Washington, RB, Replacement Housing Projects, 6.13%, 12/01/32	2,120	2,121,590
Washington Health Care Facilities Authority, Refunding RB, Catholic Health Initiatives, Series D, 6.38%, 10/01/36	7,000	8,718,080
		28,423,771
West Virginia 0.4%		
West Virginia Hospital Finance Authority, Refunding RB, Charleston, Series A, 5.63%, 9/01/32	2,500	2,808,900
Wisconsin 0.4%		
Wisconsin Health & Educational Facilities Authority, RB, SynergyHealth, Inc., 6.00%, 8/01/13 (a)	3,040	3,156,128
Wyoming 0.7%		
County of Sweetwater Wyoming, Refunding RB, Idaho Power Co. Project, 5.25%, 7/15/26	4,500	5,211,585
Total Municipal Bonds 101.9%		717,105,816

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

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Arizona 0.6%

Phoenix Arizona Civic Improvement Corp., RB, Junior Lien, Series A, 5.00%, 7/01/34	3,500	4,230,905
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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 5.1%		
Los Angeles Community College District California, GO, Refunding, Election of 2008, Series A, 6.00%, 8/01/33	\$ 9,586	\$ 12,257,521
University of California, RB, Series O, 5.25%, 5/15/39	20,000	23,892,800
		36,150,321
Connecticut 2.0%		
Connecticut State Health & Educational Facility Authority, RB, Yale University, Series Z-3, 5.05%, 7/01/42	12,000	13,843,680
District of Columbia 1.3%		
District of Columbia Water & Sewer Authority, Refunding RB, Series A, 5.50%, 10/01/39	7,495	8,905,245
Florida 4.5%		
County of Miami-Dade Florida, RB, Water & Sewer System (AGM), 5.00%, 10/01/39	14,747	16,891,877
County of Miami-Dade Florida, Refunding RB, Transit System Sales Tax Revenue, 5.00%, 7/01/42	3,750	4,360,537
Miami-Dade County Expressway Authority, Refunding RB, Series A (AGC), 5.00%, 7/01/35	8,900	10,177,328
		31,429,742
Illinois 3.9%		
City of Chicago Illinois, Refunding RB:		
Sales Tax Revenue, Series A, 5.00%, 1/01/41	4,640	5,365,139
Second Lien (AGM), 5.25%, 11/01/33	1,330	1,571,354
Illinois Finance Authority, RB, University of Chicago, Series B, 6.25%, 7/01/38	10,000	12,658,600
Illinois State Toll Highway Authority, RB, Series B, 5.50%, 1/01/33	6,999	8,042,626
		27,637,719
Kentucky 4.9%		
Kentucky Economic Development Finance Authority, Refunding RB, St. Elizabeth, Series A, 5.50%, 5/01/39	8,003	9,162,514
Kentucky Housing Corp., Refunding RB, Series L, AMT, 5.25%, 1/01/38	5,250	5,553,765
Lexington-Fayette Urban County Airport Board, Refunding RB, Series A, 5.00%, 7/01/27	7,001	8,182,937
Louisville & Jefferson County Metropolitan Government Parking Authority, RB, Series A, 5.38%, 12/01/39	9,195	11,376,146
		34,275,362
	Par (000)	Value
Municipal Bonds Transferred to		
Tender Option Bond (TOB) Trusts (f)		
Maryland 0.8%		
Maryland State Transportation Authority, RB, Transportation Facility Project (AGM), 5.00%, 7/01/41	\$ 4,710	\$ 5,466,756
Nevada 2.8%		
Clark County Water Reclamation District, GO, Series B, 5.75%, 7/01/34	15,789	20,040,833
New York 8.0%		
New York City Municipal Water Finance Authority, Refunding RB:		
Series FF-2, 5.50%, 6/15/40	4,154	5,121,630
Water & Sewer System, Series DD, 5.00%, 6/15/37	24,199	28,421,103
New York City Transitional Finance Authority, RB, 5.00%, 2/01/42	8,898	10,558,410
New York Liberty Development Corp., Refunding RB, World Trade Center Project, 5.75%, 11/15/51	10,000	12,234,100
		56,335,243
North Carolina 2.8%		
North Carolina Capital Facilities Finance Agency, Refunding RB:		
Duke University Project, Series A, 5.00%, 10/01/41	12,678	14,244,427
Wake Forest University, 5.00%, 1/01/38	5,000	5,818,050
		20,062,477
Ohio 3.5%		
County of Allen Ohio, Refunding RB, Catholic Healthcare, Series A, 5.25%, 6/01/38	2,870	3,249,443

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County of Montgomery Ohio, Refunding RB, Catholic Healthcare, Series A, 5.50%, 5/01/34	5,470	6,339,073
Ohio Higher Educational Facility Commission, Refunding RB, Hospital, Cleveland Clinic Health, Series A, 5.25%, 1/01/33	4,400	4,925,316
State of Ohio, RB, Cleveland Clinic Health, Series B, 5.50%, 1/01/34	8,500	9,873,855
		24,387,687
Oregon 2.0%		
Oregon State Housing & Community Services Department, HRB, Series A, AMT, 4.95%, 7/01/30	13,000	14,038,013
South Carolina 0.4%		
South Carolina State Housing Finance & Development Authority, Refunding RB, Series B-1, 5.55%, 7/01/39	2,919	3,178,458

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2012

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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 8.9%		
City of Houston Texas, Refunding RB, Texas Airport System, Senior Lien, Series A, 5.50%, 7/01/34	\$ 8,333	\$ 9,852,990
Harris County Health Facilities Development Corp., Refunding RB, School Health Care System, Series B, 5.75%, 7/01/27 (d)	20,970	28,227,298
Houston Higher Education Finance Corp., RB, Rice University Project, Series A, 5.00%, 5/15/40	10,000	11,803,165
Texas Department of Housing & Community Affairs, MRB, Series B, AMT (Ginnie Mae), 5.25%, 9/01/32	6,072	6,441,429
Texas State University Systems, Refunding RB (AGM), 5.00%, 3/15/30	5,667	6,376,344
		62,701,226
Virginia 2.5%		
Fairfax County IDA Virginia, Refunding RB, Health Care, Inova Health System, Series A, 5.50%, 5/15/35	2,099	2,451,469
Virginia Commonwealth Transportation Board, RB, Capital Projects, 5.00%, 5/15/32	8,001	9,680,600
Virginia Small Business Financing Authority, Refunding RB, Sentara Healthcare, 5.00%, 11/01/40	5,002	5,644,728
		17,776,797
Washington 4.1%		
Central Puget Sound Regional Transit Authority, RB, Series A:		
5.00%, 11/01/34	5,000	5,776,300
5.00%, 11/01/36	6,000	6,931,560
(AGM), 5.00%, 11/01/32	14,007	16,135,859
		28,843,719
Wisconsin 1.0%		
Wisconsin Health & Educational Facilities Authority, Refunding RB, Froedtert & Community Health, Inc., 5.25%, 4/01/39 (g)	6,099	6,892,381
Total Municipal Bonds Transferred to		
		416,196,564
Tender Option Bond (TOB) Trusts 59.1%		
Total Long-Term Investments		
(Cost \$993,629,938) 161.0%		1,133,302,380
	Shares	Value
Short-Term Securities		
FFI Institutional Tax-Exempt Fund, 0.01%, 12/06/12 (h)(i)	6,302,169	\$ 6,302,169
Total Short-Term Securities		
(Cost \$6,302,169) 0.9%		6,302,169
Total Investments (Cost - \$999,932,107*) 161.9%		1,139,604,549
Other Assets Less Liabilities 1.0%		7,138,276
Liability for TOB Trust Certificates, Including Interest Expense and Fees Payable (28.3)%		(198,975,882)
VMTP Shares, at Liquidation Value (34.6)%		(243,800,000)
Net Assets Applicable to Common Shares 100.0%		\$ 703,966,943

* As of November 30, 2012, gross unrealized appreciation and gross unrealized depreciation based on cost for federal income tax purposes were as follows:

Tax cost	\$	804,097,907
Gross unrealized appreciation	\$	143,791,751
Gross unrealized depreciation		(7,141,593)

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Net unrealized appreciation \$ 136,650,158

- (a) US government securities, held in escrow, are used to pay interest on this security, as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (b) Security exempt from registration 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.
- (c) Represents a zero-coupon bond. Rate shown reflects the current yield as of report date.
- (d) Security is collateralized by Municipal or US Treasury obligations.
- (e) Variable rate security. Rate shown is as of report date.
- (f) Securities represent bonds transferred to a TOB in exchange for which the Fund acquired residual interest certificates. These securities serve as collateral in a financing transaction.
- (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 agreements is \$3,048,680.
- (h) Investments in issuers considered to be an affiliate of the Fund during the period ended November 30, 2012, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, as amended, were as follows:

	Shares Held at August 31, 2012	Net Activity	Shares Held at November 30, 2012	Income
Affiliate				
FFI Institutional Tax-Exempt Fund	6,562,755	(260,586)	6,302,169	\$ 448

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2012

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Schedule of Investments (concluded)

BlackRock MuniVest Fund, Inc. (MVF)

(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 Guaranty 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
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
MRB	Mortgage Revenue Bonds
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. 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 and 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)

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 level in the fair value hierarchy within which the fair value measurement falls in its entirety 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 is based on the pricing transparency of the investment 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 other significant accounting policies, please refer to

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the Fund's most recent financial statements as contained in its annual report.

The following table summarizes the Fund's investments categorized in the disclosure hierarchy as of November 30, 2012:

	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Long-Term Investments ¹		\$ 1,133,302,380		\$ 1,133,302,380
Short-Term Securities	\$ 6,302,169			6,302,169
Total	\$ 6,302,169	\$ 1,133,302,380		\$ 1,139,604,549

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

Certain of the Fund's liabilities are held at carrying amount, which approximates fair value for financial reporting purposes. As of November 30, 2012, such liabilities are categorized within the disclosure hierarchy as follows:

	Level 1	Level 2	Level 3	Total
Liabilities:				
TOB trust certificates		\$ (198,856,484)		\$ (198,856,484)
VMTP Shares		(243,800,000)		(243,800,000)
Total		\$ (442,656,484)		\$ (442,656,484)

There were no transfers between levels during the period ended November 30, 2012.

BLACKROCK MUNIVEST FUND, INC.

NOVEMBER 30, 2012

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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

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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 23, 2013

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 23, 2013

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

Date: January 23, 2013