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BLACKROCK MUNIVEST FUND INC  
 Form N-Q  
 July 27, 2007

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 811-5611

Name of Fund: BlackRock MuniVest Fund, Inc.

Fund Address: P.O. Box 9011  
 Princeton, NJ 08543-9011

Name and address of agent for service: Robert C. Doll, Jr., Chief Executive  
 Officer, BlackRock MuniVest Fund, Inc., 800 Scudders Mill Road,  
 Plainsboro, NJ 08536. Mailing address: P.O. Box 9011, Princeton, NJ  
 08543-9011

Registrant's telephone number, including area code: (609) 282-2800

Date of fiscal year end: 08/31/2007

Date of reporting period: 03/01/07 - 05/31/07

Item 1 - Schedule of Investments

BlackRock MuniVest Fund, Inc.  
 Schedule of Investments as of May 31, 2007 (Unaudited) (in Thousands)

State	Face Amount	Municipal Bonds
Alabama - 3.9%	\$ 2,550	Camden, Alabama, IDB, Exempt Facilities Revenue Bonds (Weyerhae Series A, 6.125% due 12/01/2024
	3,500	Huntsville, Alabama, Health Care Authority Revenue Bonds, Serie 6/01/2011 (a)
	5,000	Huntsville, Alabama, Health Care Authority Revenue Bonds, Serie 6/01/2012 (a)
	6,500	Prattville, Alabama, IDB, Environmental Improvement Revenue Bon Paper Company Projects), AMT, Series A, 4.75% due 12/01/2030
	5,000	Selma, Alabama, IDB, Environmental Improvement Revenue Refundin Paper Company Project), Series B, 5.50% due 5/01/2020
Arizona - 1.9%	4,100	Maricopa County, Arizona, IDA, Education Revenue Bonds (Arizona Project 1), Series A, 6.75% due 7/01/2029
	2,100	Pima County, Arizona, IDA, Education Revenue Bonds (Arizona Cha Series E, 7.25% due 7/01/2031
	500	Pima County, Arizona, IDA, Education Revenue Bonds (Arizona Cha Series I, 6.10% due 7/01/2024
	1,000	Pima County, Arizona, IDA, Education Revenue Bonds (Arizona Cha

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		Series I, 6.30% due 7/01/2031
	560	Pima County, Arizona, IDA, Education Revenue Refunding Bonds (A
		Project II), Series A, 6.75% due 7/01/2011 (a)
	1,005	Pima County, Arizona, IDA, Education Revenue Refunding Bonds (A
		Project II), Series A, 6.75% due 7/01/2021
	1,545	Pima County, Arizona, IDA, Education Revenue Refunding Bonds (A
		Project), Series O, 5% due 7/01/2026
-----		
California - 22.4%	9,290	California HFA, Home Mortgage Revenue Bonds, AMT, Series E, 4.7
	18,850	California Health Facilities Financing Authority Revenue Bonds
		Series A, 5.25% due 4/01/2039
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Portfolio Abbreviations

To simplify the listings of BlackRock MuniVest Fund, Inc.'s portfolio holdings in the Schedule of Investments, we have abbreviated the names of many of the securities according to the list below.

AMT	Alternative Minimum Tax (subject to)
DRIVERS	Derivative Inverse Tax-Exempt Receipts
EDA	Economic Development Authority
GO	General Obligation Bonds
HDA	Housing Development Authority
HFA	Housing Finance Agency
IDA	Industrial Development Authority
IDB	Industrial Development Board
IDR	Industrial Development Revenue Bonds
M/F	Multi-Family
PCR	Pollution Control Revenue Bonds
RIB	Residual Interest Bonds
S/F	Single-Family
VRDN	Variable Rate Demand Notes

BlackRock MuniVest Fund, Inc.

Schedule of Investments as of May 31, 2007 (Unaudited)

(in Thousands)

State	Face Amount	Municipal Bonds
-----		
	\$ 10,665	California State, GO, 5.50% due 4/01/2014 (a)
	10	California State, GO, 5.50% due 4/01/2030
	5,000	California State Public Works Board, Lease Revenue Bonds (Depart
		Series C, 5.50% due 6/01/2022
	6,000	California State Public Works Board, Lease Revenue Bonds (Depart
		Series C, 5.50% due 6/01/2023
	11,075	California State Public Works Board, Lease Revenue Bonds (Depart
		- Coalinga State Hospital), Series A, 5.125% due 6/01/2029
	11,250	California State, Various Purpose, GO, 5.50% due 11/01/2033
	5,240	California Statewide Communities Development Authority, Health
		(Memorial Health Services), Series A, 6% due 10/01/2023
	1,250	Chula Vista, California, IDR (San Diego Gas and Electric Compan
		due 12/01/2027
	10,725	Golden State Tobacco Securitization Corporation of California,
		Revenue Bonds, Series A-3, 7.875% due 6/01/2013 (a)
	3,750	Golden State Tobacco Securitization Corporation of California,

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	1,425	Revenue Bonds, Series A-4, 7.80% due 6/01/2013 (a) Golden State Tobacco Securitization Corporation of California,
	13,900	Revenue Bonds, Series A-5, 7.875% due 6/01/2013 (a) Golden State Tobacco Securitization Corporation of California,
	14,800	Revenue Bonds, Series B, 5.375% due 6/01/2010 (a) Golden State Tobacco Securitization Corporation of California,
	3,300	Revenue Refunding Bonds, Senior Series A-1, 5.125% due 6/01/204 Golden State Tobacco Securitization Corporation of California,
		Revenue Refunding Bonds, Senior Series A-1, 5.75% due 6/01/2047
Colorado - 1.1%	2,500	Colorado HFA, Revenue Refunding Bonds (Adventist Health System/ Series D, 5.125% due 11/15/2029
	560	Colorado HFA, Revenue Refunding Bonds (S/F Program), AMT, Senio due 5/01/2028
	200	Colorado HFA, Revenue Refunding Bonds (S/F Program), AMT, Senio due 4/01/2031
	3,000	Colorado Health Facilities Authority Revenue Bonds (Lutheran Me Series A, 5.25% due 6/01/2034
Connecticut - 0.5%	2,810	Mohegan Tribe Indians Gaming Authority, Connecticut, Public Imp Refunding Bonds (Priority Distribution), 6.25% due 1/01/2031
Florida - 4.8%	6,000	Highlands County, Florida, Health Facilities Authority, Hospita (Adventist Health System), Series C, 5.25% due 11/15/2036
	11,460	Highlands County, Florida, Health Facilities Authority, Hospita Bonds (Adventist Health System), Series G, 5.125% due 11/15/203
	10,320	Orange County, Florida, Health Facilities Authority, Hospital R (Adventist Health System), 5.625% due 11/15/2012 (a)

BlackRock MuniVest Fund, Inc.

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(in Thousands)

State	Face Amount	Municipal Bonds
Georgia - 3.4%	\$ 1,100	Gainesville, Georgia, Redevelopment Authority, Educational Faci Refunding Bonds (Riverside Military Academy), 5.125% due 3/01/2
	250	Georgia Municipal Electric Authority, Power Revenue Refunding B due 1/01/2018 (e)
	4,600	Georgia Municipal Electric Authority, Power Revenue Refunding B due 1/01/2018
	250	Georgia Municipal Electric Authority, Power Revenue Refunding B due 1/01/2010 (e)
	4,390	Milledgeville-Baldwin County, Georgia, Development Authority Re College and State University Foundation), 5.50% due 9/01/2014 (
	3,500	Milledgeville-Baldwin County, Georgia, Development Authority Re College and State University Foundation), 5.625% due 9/01/2014
	4,785	Monroe County, Georgia, Development Authority, PCR, Refunding (C Corporation-Scherer), Series A, 6.80% due 1/01/2011
Idaho - 0.1%	330	Idaho Housing Agency, S/F Mortgage Revenue Refunding Bonds, AM due 1/01/2027
Illinois - 11.5%	5,000	Chicago, Illinois, O'Hare International Airport, General Airpor Bonds, Third Lien, AMT, Series A, 5.75% due 1/01/2019 (c)

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11,200	Chicago, Illinois, O'Hare International Airport Revenue Bonds, Series B-2, 6% due 1/01/2029 (n)
75	Chicago, Illinois, S/F Mortgage Revenue Bonds, AMT, Series C, 7
10,000	Hodgkins, Illinois, Environmental Improvement Revenue Bonds (Management LLC Project), AMT, 6% due 11/01/2023
2,140	Illinois Development Finance Authority Revenue Bonds (Community Providers Facilities), Series A, 6.50% due 7/01/2022
1,365	Illinois Development Finance Authority, Revenue Refunding Bonds (Rehabilitation Providers Facilities), Series A, 6% due 7/01/201
455	Illinois HDA, Revenue Refunding Bonds (M/F Program), Series 5,
2,695	Illinois State Finance Authority, Revenue Bonds (Community Reha Facilities), 4.625% due 7/01/2027
13	Kane and De Kalb Counties, Illinois, Community Unit School Dist DRIVERS, Series 283, 7.313% due 2/01/2018 (f)(m)
1,005	McLean and Woodford Counties, Illinois, Community Unit School D GO, Refunding, 6.25% due 12/01/2014 (i)
845	McLean and Woodford Counties, Illinois, Community Unit School D GO, Refunding, 6.375% due 12/01/2016 (i)
18,550	Metropolitan Pier and Exposition Authority, Illinois, Dedicated Refunding Bonds (McCormick Place Expansion Project), Series B,

BlackRock MuniVest Fund, Inc.

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State	Face Amount	Municipal Bonds
	\$ 3,500	Regional Transportation Authority, Illinois, Revenue Bonds, Ser 11/01/2020 (h)
	4,000	Regional Transportation Authority, Illinois, Revenue Bonds, Ser 6/01/2020 (f)
	1,870	Will County, Illinois, School District Number 122 (New Lenox EL Series A, 6.50% due 11/01/2010 (a)(i)
	505	Will County, Illinois, School District Number 122 (New Lenox EL Series A, 6.50% due 11/01/2013 (i)
Indiana - 9.0%	16,350	Indiana Health and Educational Facilities Financing Authority, (Clarian Health Obligation), Series A, 5.25% due 2/15/2040
	6,500	Indiana Health and Educational Facilities Financing Authority, Refunding Bonds (Clarian Health Obligation), Series B, 5% due 2
	4,290	Indiana State, HFA, S/F Mortgage Revenue Refunding Bonds, Serie 1/01/2017 (j)
	8,195	Indiana Transportation Finance Authority, Highway Revenue Bonds 12/01/2016
	15,335	Indianapolis, Indiana, Local Public Improvement Bond Bank, Reve Series D, 6.75% due 2/01/2014
Kansas - 0.6%	3,805	Sedgwick and Shawnee Counties, Kansas, S/F Mortgage Revenue Bon Securities Program), AMT, Series A-4, 5.95% due 12/01/2033 (d)
Kentucky - 3.5%	20,100	Louisville and Jefferson County, Kentucky, Metropolitan Governm Revenue Refunding Bonds (Norton Healthcare, Inc.), 5.25% due 10
Louisiana - 3.1%	6,220	Louisiana Public Facilities Authority, Hospital Revenue Bonds ( Missionaries of Our Lady Health System, Inc.), Series A, 5% due
	11,660	Louisiana Public Facilities Authority, Hospital Revenue Bonds (

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Missionaries of Our Lady Health System, Inc.), Series A, 5.25%		
Maine - 0.3%	775	Portland, Maine, Housing Development Corporation, Senior Living Housing Development Corporation Project), Series A, 5.70% due 8/1/2019
	1,190	Portland, Maine, Housing Development Corporation, Senior Living Housing Development Corporation Project), Series A, 6% due 2/01/2019
Maryland - 2.0%	9,030	Maryland State Community Development Administration, Department of Community Development, Residential Revenue Refunding Bonds, AMT, due 9/01/2037
	3,250	Maryland State Community Development Administration, Department of Community Development, Residential Revenue Refunding Bonds, AMT, due 9/01/2042
Massachusetts - 8.1%	2,035	Boston, Massachusetts, Water and Sewer Commission Revenue Bonds
	3,010	Massachusetts Bay Transportation Authority, Revenue Refunding Bonds (Transportation System), Series A, 7% due 3/01/2019
	3,955	Massachusetts State, HFA, Housing Revenue Refunding Bonds, AMT, due 6/01/2040
	30,000	Massachusetts State Water Resource Authority Revenue Bonds, Series A, due 7/15/2019 (e)
	3,480	Massachusetts State Water Resource Authority, Revenue Refunding Bonds, due 8/01/2010 (a) (f)

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State	Face Amount	Municipal Bonds
Michigan - 8.6%	\$ 2,500	Delta County, Michigan, Economic Development Corporation, Environmental Revenue Refunding Bonds (Mead Westvaco-Escanaba), Series A, 6.25% due 11/15/2025
	3,715	Macomb County, Michigan, Hospital Finance Authority, Hospital Revenue Refunding Bonds (Clemens General Hospital), Series B, 5.75% due 11/15/2025
	4,250	Macomb County, Michigan, Hospital Finance Authority, Hospital Revenue Refunding Bonds (Clemens General Hospital), Series B, 5.875% due 11/15/2034
	1,900	Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Crittenton Hospital), Series A, 5.625% due 3/01/2027
	3,125	Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Obligated Group), Series A, 5% due 7/15/2025
	2,000	Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Obligated Group), Series A, 5% due 7/15/2037
	5,500	Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Obligated Group), 5% due 11/15/2031
	3,650	Michigan State Hospital Finance Authority Revenue Bonds (Mid-Michigan), Series A, 5% due 4/15/2036
	9,000	Michigan State Hospital Finance Authority Revenue Bonds (Trinity), Series A, 5% due 12/01/2031
	3,000	Michigan State Hospital Finance Authority, Revenue Refunding Bonds (System), Series A, 5.25% due 11/15/2032
	10,600	Michigan State Hospital Finance Authority, Revenue Refunding Bonds (System), Series A, 5% due 11/15/2038
	1,000	Michigan State Hospital Finance Authority, Revenue Refunding Bonds, 6.70% due 1/01/2026

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Minnesota - 1.5%	7,235	Minneapolis, Minnesota, Health Care System Revenue Bonds (Allin Series A, 5.75% due 11/15/2032
	1,405	Saint Cloud, Minnesota, Health Care Revenue Refunding Bonds (Sa Obligation Group), Series A, 6.25% due 5/01/2017 (i)
Mississippi - 6.2%	9,160	Lowndes County, Mississippi, Solid Waste Disposal and PCR, Refu Company Project), Series A, 6.80% due 4/01/2022
	4,500	Lowndes County, Mississippi, Solid Waste Disposal and PCR, Refu Company Project), Series B, 6.70% due 4/01/2022
	20,705	Mississippi Business Finance Corporation, Mississippi, PCR, Ref Resources Inc. Project), 5.875% due 4/01/2022
Missouri - 0.5%	2,600	Missouri State Development Finance Board, Infrastructure Facili Bonds (Branson), Series A, 5.50% due 12/01/2032
	220	Missouri State Housing Development Commission, S/F Mortgage Rev Loan), AMT, Series A, 7.50% due 3/01/2031 (d)

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State	Face Amount	Municipal Bonds
Montana - 1.0%	\$ 6,000	Forsyth, Montana, PCR, Refunding (Portland General Electric Com due 5/01/2033
Nebraska - 0.1%	285	Nebraska Investment Finance Authority, S/F Housing Revenue Bond due 9/01/2028 (d) (k)
Nevada - 0.2%	1,140	Nevada Housing Division Revenue Bonds (Multi-Unit Housing), AMT 10/01/2017 (b)
	5	Nevada Housing Division Revenue Bonds (S/F Program), AMT, Serie 10/01/2012 (j)
New Hampshire - 0.5%	2,675	New Hampshire Health and Education Facilities Authority, Revenue (Elliot Hospital), Series B, 5.60% due 10/01/2022
New Jersey - 6.1%	9,080	New Jersey EDA, Cigarette Tax Revenue Bonds, 5.50% due 6/15/202
	2,885	New Jersey EDA, Cigarette Tax Revenue Bonds, 5.75% due 6/15/202
	2,855	New Jersey EDA, Cigarette Tax Revenue Bonds, 5.50% due 6/15/203
	6,695	New Jersey EDA, Cigarette Tax Revenue Bonds, 5.75% due 6/15/203
	5,980	Tobacco Settlement Financing Corporation of New Jersey, Asset-B 7% due 6/01/2013 (a)
	7,500	Tobacco Settlement Financing Corporation of New Jersey, Revenue Series 1A, 5% due 6/01/2041
New Mexico - 0.6%	3,300	Farmington, New Mexico, PCR, Refunding (Public Service Company Juan Project), Series A, 5.80% due 4/01/2022
New York - 1.9%	400	Metropolitan Transportation Authority, New York, Dedicated Tax Refunding Bonds, VRDN, Series B, 3.82% due 11/01/2022 (i) (l)
	1,125	New York City, New York, City Transitional Finance Authority Re Series 283, 8.40% due 11/15/2015 (m)
	965	New York City, New York, GO, Refunding, Series A, 6.375% due 5/
	6,480	New York City, New York, GO, Series F, 5.25% due 1/15/2033

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	20	New York City, New York, GO, Series I, 6.25% due 4/15/2017 (n)
	400	New York State Local Government Assistance Corporation, Revenue Sub-Lien, VRDN, Series 4V, 3.73% due 4/01/2022 (i) (l)
	1,200	Triborough Bridge and Tunnel Authority, New York, General Purpose Bonds, VRDN, Series C, 3.70% due 1/01/2032 (h) (l)
-----		
North Carolina - 0.7%	4,105	Gaston County, North Carolina, Industrial Facilities and Pollution Authority, Revenue Bonds (National Gypsum Company Project), AMT
-----		
Ohio - 0.6%	2,500	Ohio HFA, Mortgage Revenue Refunding Bonds, AMT, Series A, 4.90%
	1,000	Richland County, Ohio, Hospital Facilities Revenue Refunding Bond System), 5.25% due 11/15/2036
-----		
Oklahoma - 1.0%	5,750	Oklahoma Development Finance Authority, Revenue Refunding Bonds System), 5% due 2/15/2038
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Pennsylvania - 4.1%	2,440	Pennsylvania State Higher Education Assistance Agency Revenue Bonds Acquisition, 6.125% due 12/15/2010 (a) (c)

BlackRock MuniVest Fund, Inc.

Schedule of Investments as of May 31, 2007 (Unaudited)

(in Thousands)

State	Face Amount	Municipal Bonds
	\$ 6,250	Pennsylvania State Higher Educational Facilities Authority Revenue Bonds (University of Pennsylvania Medical Center Health System), Series A, 6% due 12/01/2011 (a)
	1,000	Philadelphia, Pennsylvania, Authority for Industrial Development Revenue Bonds (Arbor House Inc. Project), Series E, 6.10% due 7/01/2011 (a)
	1,355	Philadelphia, Pennsylvania, Authority for Industrial Development Revenue Bonds (Rieder House Project), Series A, 6.10% due 7/01/2011 (a)
	9,280	Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Bonds (Healthcare System), Series B, 7.125% due 12/01/2011 (a)
	1,340	Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Bonds (Guthrie Healthcare System), Series A, 6.25% due 12/01/2011 (a)
	410	Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Bonds (Guthrie Healthcare System), Series A, 6.25% due 12/01/2018
-----		
South Carolina - 2.1%	1,000	Georgetown County, South Carolina, Environmental Improvement Revenue Bonds (International Paper Company Project), AMT, Series A, 5.55% due 11/01/2032
	3,500	Lexington County, South Carolina, Health Services District Inc. Refunding and Improvement Bonds, 5.50% due 11/01/2032
	2,450	Medical University Hospital Authority, South Carolina, Hospital Refunding Bonds, 6.50% due 8/15/2012 (a)
	5,000	Richland County, South Carolina, Environmental Improvement Revenue Bonds (International Paper), AMT, 6.10% due 4/01/2023
-----		
South Dakota - 0.4%	2,605	South Dakota State Health and Educational Facilities Authority (Sanford Health), 5% due 11/01/2040
-----		
Tennessee - 1.6%	2,000	McMinn County, Tennessee, IDB, Solid Waste Revenue Bonds (Recycling Newsprint), AMT, 7.40% due 12/01/2022
	6,500	Shelby County, Tennessee, Health, Educational and Housing Facilities Revenue Refunding Bonds (Methodist Healthcare), 6.50% due 9/01/2032
-----		
Texas - 14.1%	7,290	Austin, Texas, Convention Center Revenue Bonds (Convention Entertainment Center), 5.50% due 11/01/2032

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	Tier, Series A, 6.70% due 1/01/2011 (a)
3,055	Brazos River Authority, Texas, PCR, Refunding (TXU Energy Compa Series A, 7.70% due 4/01/2033
3,345	Brazos River, Texas, Harbor Navigation District, Brazoria Count Chemical Company Project), Series B-2, 4.95% due 5/15/2033
11,460	Brazos River, Texas, Harbor Navigation District, Brazoria Count Revenue Refunding Bonds (Dow Chemical Company Project), AMT, Se 5/15/2033
3,000	Gregg County, Texas, Health Facilities Development Corporation, Bonds (Good Shepherd Medical Center Project), 6.875% due 10/01/

BlackRock MuniVest Fund, Inc.

Schedule of Investments as of May 31, 2007 (Unaudited)

(in Thousands)

State	Face Amount	Municipal Bonds
	\$ 10,250	Guadalupe-Blanco River Authority, Texas, Sewage and Solid Waste Revenue Bonds (E. I. du Pont de Nemours and Company Project), A 4/01/2026
	6,000	Gulf Coast Waste Disposal Authority, Texas, Revenue Refunding B Paper Company), AMT, Series A, 6.10% due 8/01/2024
	5,500	Harris County-Houston Sports Authority, Texas, Revenue Refundin Series G, 5.75% due 11/15/2020 (c)
	1,790	Houston, Texas, Industrial Development Corporation Revenue Bond 6.375% due 1/01/2023
	1,875	Mansfield, Texas, Independent School District, GO, Refunding, 6
	155	Mansfield, Texas, Independent School District, GO, Refunding, 6
	9,355	Matagorda County, Texas, Navigation District Number 1, Revenue (Centerpoint Energy Project), 5.60% due 3/01/2027
	5,225	Midway, Texas, Independent School District, GO, Refunding, 6.12
	2,700	Port Corpus Christi, Texas, Revenue Refunding Bonds (Celanese P 6.45% due 11/01/2030
	5,000	Red River Authority, Texas, PCR, Refunding (Celanese Project), due 11/01/2030
	3,930	Sabine River Authority, Texas, PCR, Refunding (TXU Electric Com Energy Company LLC), Series C, 5.20% due 5/01/2028
Vermont - 0.2%	1,000	Vermont Educational and Health Buildings Financing Agency, Deve Health Revenue Bonds (Howard Center for Human Services), Series 6/15/2022
Virginia - 0.6%	1,425	Chesterfield County, Virginia, IDA, PCR (Virginia Electric and Series A, 5.875% due 6/01/2017
	2,250	Fairfax County, Virginia, EDA, Residential Care Facilities, Mon Refunding Bonds (Goodwin House, Inc.), 5.125% due 10/01/2042
Washington - 4.6%	3	Energy Northwest, Washington, Electric Revenue Refunding Bonds, 7.811% due 7/01/2018 (h) (m)
	2,370	Seattle, Washington, Housing Authority Revenue Bonds (Replaceme 6.125% due 12/01/2032
	407	Washington State, GO, Trust Receipts, Class R, Series 6, 7.84%
	7,800	Washington State Housing Financing Commission, S/F Program Reve Series 2A, 4.70% due 12/01/2038 (d) (k)
	14,320	Washington State Public Power Supply System, Revenue Refunding Number 1), Series B, 7.125% due 7/01/2016

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Wisconsin - 1.7%	1,765	Milwaukee, Wisconsin, Revenue Bonds (Air Cargo), AMT, 6.50% due
	5,000	Wisconsin State Health and Educational Facilities Authority, MO (Hudson Memorial Hospital), 5.70% due 1/15/2029 (j)
	3,040	Wisconsin State Health and Educational Facilities Authority Rev (SynergyHealth Inc.), 6% due 11/15/2032

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State	Face Amount	Municipal Bonds
U.S. Virgin Islands - 1.5%	\$ 8,000	Virgin Islands Government Refinery Facilities, Revenue Refunding Project), AMT, 6.50% due 7/01/2021
Total Municipal Bonds (Cost - \$778,208) - 136.6%		
Municipal Bonds Held in Trust (r)		
Illinois - 7.5%	14,000	Chicago, Illinois, O'Hare International Airport, General Airport Bonds, Third Lien, AMT, Series A, 5.75% due 1/01/2020 (c)
	17,080	Chicago, Illinois, O'Hare International Airport Revenue Bonds, Series B-2, 6% due 1/01/2027 (c)
	2,975	Kane and De Kalb Counties, Illinois, Community Unity School Dis 5.75% due 2/01/2018 (f)
	2,710	Kane and De Kalb Counties, Illinois, Community Unity School Dis 5.75% due 2/01/2019 (f)
	4,780	Kane and De Kalb Counties, Illinois, Community Unity School Dis 5.75% due 2/01/2021 (f)
Massachusetts - 3.4%	20,000	Massachusetts State School Building Authority, Dedicated Sales Series A, 5% due 8/15/2030 (i)
New York - 7.2%	13,500	New York City, New York, City Transitional Finance Authority Re Tax Secured, Series B, 6.25% due 11/15/2018
	26,750	New York State Dormitory Authority, State University Educational Refunding Bonds, Series 1989, 6% due 5/15/2010 (a) (c)
Oregon - 1.2%	6,610	Portland, Oregon, Sewer System Revenue Bonds, Series A, 5.75% d
Texas - 6.3%	20,970	Harris County, Texas, Health Facilities Development Corporation Bonds (School Health Care System), Series B24, 6.80% due 7/01/202
	12,500	San Antonio, Texas, Electric and Gas Revenue Bonds, Series A,
Washington - 8.7%	11,660	Energy Northwest, Washington, Electric Revenue Refunding Bonds Station), Series A, 5.75% due 7/01/2018 (c)
	7,015	Energy Northwest, Washington, Electric Revenue Refunding Bonds Station), Series B, 6% due 7/01/2018 (h)
	14,700	Energy Northwest, Washington, Electric Revenue Refunding Bonds Series B, 6% due 7/01/2017 (c)
	15,385	Washington State, Various Purpose, GO, Series B, 6% due 1/01/20
Total Municipal Bonds Held in Trust (Cost - \$199,204) - 34.3%		

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(in Thousands)

Shares Held	Short-Term Securities
8,700	Merrill Lynch Institutional Tax-Exempt Fund, 3.60% (p) (q)
	Total Short-Term Securities (Cost - \$8,700) - 1.4%
	Total Investments (Cost - \$986,112*) - 172.3%
	Liabilities in Excess of Other Assets - (0.4%)
	Liability for Trust Certificates, Including Interest Expense
	Preferred Stock, at Redemption Value - (55.5%)
	Net Assets Applicable to Common Stock - 100.0%

\* The cost and unrealized appreciation (depreciation) of investments as of May 31, 2007, as computed for federal income tax purposes, were as follows:

Aggregate cost	\$ 892,469
	=====
Gross unrealized appreciation	\$ 50,603
Gross unrealized depreciation	(2,485)
	-----
Net unrealized appreciation	\$ 48,118
	=====

- (a) Prerefunded.
- (b) FNMA Collateralized.
- (c) MBIA Insured.
- (d) FNMA/GNMA Collateralized.
- (e) Escrowed to maturity.
- (f) FGIC Insured.
- (g) Radian Insured.
- (h) AMBAC Insured.
- (i) FSA Insured.
- (j) FHA Insured.
- (k) FHLMC Collateralized.
- (l) Security may have a maturity of more than one year at time of issuance, but has variable rate and demand features that qualify it as a short-term security. The rate disclosed is that currently in effect. This rate changes periodically based upon prevailing market rates.
- (m) The rate disclosed is that currently in effect. This rate changes periodically and inversely based upon prevailing market rates.
- (n) XL Capital Insured.
- (o) GNMA Collateralized.

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BlackRock MuniVest Fund, Inc.

Schedule of Investments as of May 31, 2007 (Unaudited)

(in Thousands)

- (p) Investments in companies considered to be an affiliate of the Fund, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, were as follows:

Affiliate	Net Activity	Dividend Income
Merrill Lynch Institutional Tax-Exempt Fund	8,278	\$259

- (q) Represents the current yield as of May 31, 2007.
- (r) Securities represent underlying bonds transferred to a separate securitization trust established in a tender option bond transaction in which the Fund may have acquired the residual interest certificates. These securities serve as collateral in a financing transaction.
- o Forward interest rate swaps outstanding as of May 31, 2007 were as follows:

	Notional Amount	Unrealized Appreciation
Pay a fixed rate of 3.595% and receive a floating rate based on 1-Week Bond Market Association Rate		
Broker, JPMorgan Chase Expires June 2017	\$ 17,250	\$ 307
Pay a fixed rate of 3.7575% and receive a floating rate based on 1-Week Bond Market Association Rate		
Broker, JPMorgan Chase Expires July 2017	\$ 25,000	141
Pay a fixed rate of 3.769% and receive a floating rate based on 1-Week Bond Market Association Rate		
Broker, Goldman Sachs, Inc. Expires August 2017	\$ 18,000	92
Pay a fixed rate of 3.662% and receive a floating rate based on 1-Week Bond Market Association Rate		
Broker, JPMorgan Chase Expires August 2017	\$ 25,000	331
Total		\$ 871 =====

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- 2(a) - The registrant's certifying officers have reasonably designed such disclosure controls and procedures to ensure material information relating to the registrant is made known to us by others particularly during the period in which this report is being prepared. The registrant's certifying officers have determined that the registrant's disclosure controls and procedures are effective based on our evaluation of these controls and procedures as of a date within 90 days prior to the filing date of this report.
- 2(b) - There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the Act (17 CFR 270.30a-3(d)) that occurred during the last fiscal quarter of the period covered by this report that has materially affected, or is 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/ Robert C. Doll, Jr.

-----  
Robert C. Doll, Jr.  
Chief Executive Officer  
BlackRock MuniVest Fund, Inc.

Date: July 24, 2007

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/ Robert C. Doll, Jr.

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Robert C. Doll, Jr.  
Chief Executive Officer  
BlackRock MuniVest Fund, Inc.

Date: July 24, 2007

By: /s/ Donald C. Burke

-----  
Donald C. Burke  
Chief Financial Officer  
BlackRock MuniVest Fund, Inc.

Date: July 24, 2007