

Kayne Anderson MLP Investment CO
Form N-30B-2
October 30, 2008

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS: This report contains forward-looking statements as defined under the U.S. federal securities laws. Generally, the words believe, expect, intend, estimate, anticipate, project, will and similar expressions identify forward-looking statements, which generally are not historical in nature. Forward-looking statements are subject to certain risks and uncertainties that could cause actual results to materially differ from the Company's historical experience and its present expectations or projections indicated in any forward-looking statements. These risks include, but are not limited to, changes in economic and political conditions; regulatory and legal changes; MLP industry risk; leverage risk; valuation risk; interest rate risk; tax risk; and other risks discussed in the Company's filings with the SEC. You should not place undue reliance on forward-looking statements, which speak only as of the date they are made. The Company undertakes no obligation to update or revise any forward-looking statements made herein. There is no assurance that the Company's investment objectives will be attained.

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KAYNE ANDERSON MLP INVESTMENT COMPANY
SCHEDULE OF INVESTMENTS
AUGUST 31, 2008
(amounts in 000 s)
(UNAUDITED)

Description	No. of Shares/Units	Value
Long-Term Investments 161.1%		
Equity Investments(a) 160.2%		
Midstream MLP(b) 108.8%		
Atlas Pipeline Partners, L.P.	755	\$ 25,765
Copano Energy, L.L.C.	3,429	108,472
Copano Energy, L.L.C. Unregistered, Class E Units(c)(d)	157	4,792
Crosstex Energy, L.P.	2,963	75,470
DCP Midstream Partners, LP	250	6,120
Duncan Energy Partners L.P.	213	3,852
Eagle Rock Energy Partners, L.P.	201	2,857
El Paso Pipeline Partners, L.P.	724	13,372
Enbridge Energy Partners L.P.	1,418	68,851
Energy Transfer Partners, L.P.	3,514	156,375
Enterprise Products Partners L.P.	4,963	146,175
Global Partners LP(e)	1,465	18,210
Hiland Partners, LP	162	7,447
Holly Energy Partners, L.P.	184	6,199
Magellan Midstream Partners, L.P.	3,199	118,937
MarkWest Energy Partners, L.P.	2,190	75,409
Martin Midstream Partners L.P.	352	11,019
ONEOK Partners, L.P.	823	49,429
Plains All American Pipeline, L.P.(f)	3,112	148,275
Regency Energy Partners LP	1,949	48,575
Spectra Energy Partners, LP	241	5,545
Targa Resources Partners LP	445	10,640
TC PipeLines, LP	1,194	40,786
TEPPCO Partners, L.P.	463	14,846
Western Gas Partners LP	722	11,026
Williams Partners L.P.	453	13,745
Williams Pipeline Partners L.P.	303	5,210
		1,197,399
Propane MLP 7.5%		
Ferrellgas Partners, L.P.	375	7,764
Inergy, L.P.	2,841	74,914

82,678

Shipping MLP 2.0%

Capital Product Partners L.P.	113	1,763
K-Sea Transportation Partners L.P.	157	4,022
Navios Maritime Partners L.P.	151	1,891
OSG America L.P.	264	3,170
Teekay LNG Partners L.P.	303	6,892
Teekay Offshore Partners L.P.	254	4,085
		21,823

See accompanying notes to financial statements.

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KAYNE ANDERSON MLP INVESTMENT COMPANY
SCHEDULE OF INVESTMENTS (CONTINUED)
AUGUST 31, 2008
(amounts in 000 s)
(UNAUDITED)

Description	No. of Shares/Units	Value
Coal MLP 6.6%		
Alliance Resource Partners L.P.	145	\$ 6,754
Clearwater Natural Resources, LP Unregistered(c)(g)(h)	3,889	46,667
Clearwater Natural Resources, LP Unregistered, Deferred Participation Units(c)(g)(h)(i)	41	167
Natural Resource Partners L.P.	176	6,107
Penn Virginia Resource Partners, L.P.	517	12,876
		72,571
Upstream MLP(b) 9.1%		
Atlas Energy Resources, LLC	1,566	54,933
BreitBurn Energy Partners L.P.	1,947	32,318
Constellation Energy Partners LLC	717	9,945
Legacy Reserves LP	65	1,306
Pioneer Southwest Energy Partners, L.P.	119	2,221
		100,723
MLP Affiliates(b) 16.3%		
Enbridge Energy Management, L.L.C.(j)	569	28,755
Kinder Morgan Management, LLC(j)	2,708	150,271
		179,026
General Partner MLP(b) 7.8%		
Atlas Pipeline Holdings, L.P.	76	2,263
Buckeye GP Holdings L.P.	173	3,286
CNR GP Holdco, LLC Unregistered(c)(g)(h)(k)	N/A	7,069
Energy Transfer Equity, L.P.	208	6,007
Enterprise GP Holdings L.P.	1,239	36,817
Hiland Holdings GP, LP	140	3,120
Inergy Holdings GP	108	3,520
Magellan Midstream Holdings, L.P.	1,087	24,094
		86,176
Other MLP 2.1%		

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Calumet Specialty Products Partners, L.P.	492	7,034
Exterran Partners, L.P.	702	15,576
		22,610
Total Equity Investments (Cost \$1,329,656)		1,763,006

See accompanying notes to financial statements.

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KAYNE ANDERSON MLP INVESTMENT COMPANY
SCHEDULE OF INVESTMENTS (CONCLUDED)
AUGUST 31, 2008
(amounts in 000 s)
(UNAUDITED)

Description	Interest Rate	Maturity Date	Principal Amount	Value
Fixed Income Investment 0.9%				
Coal MLP 0.9%				
Clearwater Natural Resources, LP(c)(g) (Cost \$10,156)	(1)	12/03/09	\$ 10,130	\$ 10,130
Total Long-Term Investments (Cost \$1,339,812)				1,773,136
Short-Term Investment 0.9%				
Repurchase Agreement 0.9%				
Bear, Stearns & Co. Inc. (Agreement dated 8/29/08 to be repurchased at \$10,266), collateralized by \$10,564 in U.S. Treasury Bonds (Cost \$10,264)	1.980%	09/02/08		10,264
Total Investments 162.0% (Cost \$1,350,076)				1,783,400
Liabilities				
Senior Unsecured Notes				(450,000)
Deferred Taxes				(153,003)
Other Liabilities				(14,254)
Unrealized Depreciation on Interest Rate Swap Contracts				(1,713)
Total Liabilities				(618,970)
Unrealized Appreciation on Interest Rate Swap Contracts				106
Income Tax Receivable				1,202
Other Assets				9,675
Total Liabilities in Excess of Other Assets				(607,987)
Preferred Stock at Redemption Value				(75,000)
Net Assets Applicable to Common Stockholders				\$ 1,100,413

(a) Unless otherwise noted, equity investments are common units/common shares.

(b) Includes Limited Liability Companies.

- (c) Fair valued securities, restricted from public sale (See Notes 2, 3 and 7).
- (d) Security is currently not paying cash distributions but is expected to pay cash distributions or convert to securities which pay cash distributions within the next 12 months.
- (e) Security or a portion thereof is segregated as collateral on interest rate swap contracts.
- (f) The Company believes that it is an affiliate of Plains All American, L.P. (See Note 5 Agreements and Affiliations).
- (g) Clearwater Natural Resources, LP is a privately-held MLP that the Company believes is a controlled affiliate (See Note 5 Agreements and Affiliations).
- (h) Security is non-income producing.
- (i) Holders of Clearwater Natural Resources, LP's deferred participation units are entitled to receive a portion of value realized in a sale or initial public offering by certain of the Partnership's common unitholders.
- (j) Distributions are paid in-kind.
- (k) CNR GP Holdco, LLC is the general partner of Clearwater Natural Resources, LP. The Company owns 83.7% of CNR GP Holdco, LLC and believes it is a controlled affiliate (See Note 5 Agreements and Affiliations)
- (l) Floating rate unsecured working capital term loan. Interest is paid in-kind at a rate of the higher of one year LIBOR or 4.75% plus 900 basis points (13.75% as of August 31, 2008).

See accompanying notes to financial statements.

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KAYNE ANDERSON MLP INVESTMENT COMPANY
STATEMENT OF ASSETS AND LIABILITIES
AUGUST 31, 2008
(amounts in 000 s, except share and per share amounts)
(UNAUDITED)

ASSETS

Investments at fair value:	
Non-affiliated (Cost \$1,150,629)	\$ 1,560,828
Affiliated (Cost \$105,084)	148,275
Controlled (Cost \$84,099)	64,033
Repurchase agreement (Cost \$10,264)	10,264
Total investments (Cost \$1,350,076)	1,783,400
Deposits with brokers	250
Receivable for securities sold	5,433
Interest, dividends and distributions receivable	235
Income tax receivable	1,202
Deferred debt issuance costs and other, net	3,757
Unrealized appreciation on interest rate swap contracts	106
Total Assets	1,794,383

LIABILITIES

Investment management fee payable	6,566
Payable for securities purchased	1,083
Accrued directors' fees and expenses	63
Accrued expenses and other liabilities	6,542
Deferred tax liability	153,003
Unrealized depreciation on interest rate swap contracts	1,713
Senior Unsecured Notes	450,000
Total Liabilities	618,970

PREFERRED STOCK

\$25,000 liquidation value per share applicable to 3,000 outstanding shares (10,000 shares authorized)	75,000
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NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS \$ 1,100,413

NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS CONSIST OF

Common stock, \$0.001 par value (43,858,030 shares issued and outstanding, 199,990,000 shares authorized)	\$ 44
Paid-in capital	850,148
Accumulated net investment loss, net of income taxes less dividends	(99,593)
Accumulated realized gains on investments and interest rate swap contracts, net of income taxes	78,776
Net unrealized gains on investments and interest rate swap contracts, net of income taxes	271,038

NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS	\$ 1,100,413
NET ASSET VALUE PER COMMON SHARE	\$25.09

See accompanying notes to financial statements.

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KAYNE ANDERSON MLP INVESTMENT COMPANY
STATEMENT OF OPERATIONS
FOR THE NINE MONTHS ENDED AUGUST 31, 2008
(amounts in 000 s)
(UNAUDITED)

INVESTMENT INCOME**Income**

Dividends and distributions:

Non-affiliated investments	\$	86,250
Affiliated investments		8,098

Total dividends and distributions		94,348
Return of capital		(84,653)

Net dividends and distributions		9,695
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Interest

Non-affiliated investments		291
Controlled investments		592

Total interest		883
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Total Investment Income		10,578
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Expenses

Investment management fees		20,910
Administration fees		678
Professional fees		575
Reports to stockholders		192
Custodian fees		186
Directors fees		151
Insurance		135
Other expenses		261

Total Expenses Before Interest Expense, Auction Agent Fees and Taxes		23,088
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Interest expense (includes a \$5,528 write-off of debt issuance costs)		29,855
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Auction agent fees		729
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Total Expenses Before Taxes		53,672
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Net Investment Loss Before Taxes		(43,094)
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Deferred tax benefit		15,945
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Net Investment Loss		(27,149)
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REALIZED AND UNREALIZED GAINS/(LOSSES)**Net Realized Gains/(Losses)**

Investments		33,192
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Payments on interest rate swap contracts	(19,550)
Deferred tax expense	(5,047)
Net Realized Gains	8,595
Net Change in Unrealized Gains/(Losses)	
Investments	(217,821)
Payments on interest rate swap contracts	10,266
Deferred tax benefit	76,795
Net Change in Unrealized Losses	(130,760)
Net Realized and Unrealized Losses	(122,165)
NET DECREASE IN NET ASSETS RESULTING FROM OPERATIONS	(149,314)
DIVIDENDS TO PREFERRED STOCKHOLDERS	(3,216)
NET DECREASE IN NET ASSETS APPLICABLE TO COMMON STOCKHOLDERS RESULTING FROM OPERATIONS	\$ (152,530)

See accompanying notes to financial statements.

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