

**The Financial Contribution of Oil and Natural Gas Company
Investments To Major Public Pension Plans in Seventeen States,
Fiscal Years 2005 – 2009**

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The Financial Contribution of Oil and Natural Gas Company Investments To Major Public Employee Pension Plans in Seventeen States, 2005 – 2009

Executive Summary

This report examines the financial impact of investments in oil and natural gas companies on the overall performance of the two largest public employee pension funds in each of seventeen states. The data show these investments strongly out-performed the other assets of those funds. From 2005 to 2009, spanning years of both vigorous expansion and deep recession, the share of the funds' returns attributable to oil and natural gas investments was, on average, 3.4 times greater than their share of the funds' assets.

Table ES-1. Total Assets, Oil and Natural Gas Assets, and Returns on Those Assets, Two Largest Pension Funds in Seventeen States, 2005 – 2009

State	Total Assets (Billions)	Oil and Natural Gas Assets (Billions)	Oil and Natural Gas Assets as a Share of Total Assets	Returns from Oil and Natural Gas Assets as a Share of All Returns	Ratio of Oil and Natural Gas Asset Returns to Their Share of Total Assets
CA	\$338.90	\$15.20	4.40%	17.10%	3.9 to 1
FL	\$81.70	\$4.00	4.80%	18.80%	3.9 to 1
IL	\$47.60	\$2.20	4.70%	17.90%	3.8 to 1
IN	\$18.50	\$0.90	4.90%	27.50%	5.6 to 1
IA	\$13.70	\$0.40	3.10%	10.60%	3.4 to 1
MI	\$52.80	\$2.50	4.80%	12.20%	2.5 to 1
MN	\$28.90	\$1.60	5.50%	17.80%	3.2 to 1
MO	\$32.60	\$1.10	3.30%	9.20%	2.8 to 1
NE	\$6.50	\$0.30	4.90%	22.00%	4.5 to 1
NH	\$4.30	\$0.20	4.50%	22.80%	5.1 to 1
NM	\$20.90	\$1.00	4.70%	19.00%	4.0 to 1
NY	\$217.00	\$11.90	5.50%	21.10%	3.8 to 1
ND	\$3.30	\$0.10	4.30%	15.80%	3.7 to 1
OH	\$138.30	\$6.10	4.40%	11.60%	2.6 to 1
PA	\$86.20	\$2.90	3.40%	8.60%	2.5 to 1
SC	\$17.80	\$0.40	2.20%	22.90%	10.4 to 1
WV	\$6.60	\$0.20	3.70%	19.40%	5.2 to 1
Total/Average	\$1,115.60	\$51.00	4.60%	15.70%	3.4 to 1

- The covered membership of the two largest plans in the seventeen states totals 8.9 million current and former workers, accounting for nearly half (48.1 percent) of all those covered in the United States by state and local government pension plans.
- The two largest public pension funds account for roughly 60% of the total membership and assets of all public employee pension programs in those states.
- The level and extent of the funds' investments in oil and natural gas assets vary greatly across the seventeen states, from \$400 million by the two largest plans in South Carolina, representing 2.2%

of total assets, to \$11.9 billion by the two largest plans in New York, representing 5.5% of total assets.

- On average, the share of these funds' combined returns attributable to their oil and natural gas assets was 3.4 times greater than those assets' share of the funds' total assets.
- Across the seventeen states, this ratio ranged from a low of 2.5 to 1 to a high of 10.4 to 1.
- On average, \$1 invested in U.S. oil and natural gas stocks by the two largest plans in these states in FY 2005 was worth \$1.42 in FY 2009, with a range across the seventeen states of \$1.40 to \$1.48. By contrast, \$1 invested in FY 2005 in all other assets by the two largest plans in these states was worth an average of \$1.06 in FY 2009, with a range of \$1.00 to \$1.17.¹
- The average rate of return on investments by these funds in oil and natural gas stocks was seven times greater than the average return on their investments in all other assets. This ratio ranged from a low of 2.7 to 1 to a high of 40 to 1.²

¹ See Table 2.

² *Ibid.*

The Financial Contribution of Oil and Natural Gas Company Investments To Major Public Pension Plans in Seventeen States, Fiscal Years 2005 – 2009³

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I. Introduction and Summary of Results

This report examines the financial impact of investments in oil and natural gas companies on the overall performance of state public employee pension funds.⁴ Many pension funds face daunting challenges today to prepare to meet their future obligations. In this study, we analyze an aspect of a traditional investment approach for meeting this challenge by charting the impact over five years of investments in oil and natural gas companies by the two largest public pension funds in seventeen states. These states cover roughly half of all U.S. public state and local employees and more than one-third of all public state and local pension fund assets. We found that over the period from FY 2005 to FY 2009, spanning years of vigorous expansion and deep recession, these funds' oil and natural gas assets accounted for an average of 4.6 percent of their total assets and contributed 15.7 percent of their total returns. Therefore, the share of these funds' combined returns attributable to their oil and natural gas assets was 3.4 times greater than those assets' share of the funds' total assets.

The seventeen states examined here include large and small states from every region of the country: California (CA), Florida (FL), Illinois (IL), Indiana (IN), Iowa (IA), Michigan (MI), Minnesota (MN), Missouri (MO), Nebraska (NE), New Hampshire (NH), New Mexico (NM), New York (NY), North Dakota (ND), Ohio (OH), Pennsylvania (PA), South Carolina (SC), and West Virginia (WV).

In each state, we analyze the portfolio and performance of the two largest public pension systems, which in all cases are the pension program for public teachers and other public school employees, and the fund for state government employees. The members of these plans in each state include current workers, former workers and retirees covered by the plans. The covered membership of the two largest plans in the seventeen states totals 8.9 million current and former workers, accounting for roughly half (48.1 percent) of all those covered in the United States by state and local government pension plans. (Table 1, below) The two largest plans in these seventeen states also account for some 60 percent of the total membership and assets of all public employee pension programs in those states. These plans hold combined assets of \$1,115.6 billion, including \$51.0 billion in oil and natural gas company assets, or 4.6 percent of the total;

³ The authors wish to acknowledge the assistance of Lisa Hamilton, as well as research support from the American Petroleum Institute. The analysis and conclusions are solely those of the authors.

⁴ We use "oil and gas company holdings" synonymously with "energy sector holdings" in this report, as oil and gas companies comprise 98 percent of the value of the S&P Energy Sector Index and the vast majority of energy sector holdings in the public employee pension funds examined here. The current S&P 500 Energy Sector Index is comprised of 60.3 percent integrated oil & gas companies; 17.8 percent oil & gas exploration and production firms; 14.1 percent oil and gas equipment and services firms; 2.7 percent oil and gas storage and transportation companies; .20 percent oil and gas drilling firms; and 1.3 percent oil & gas refining & marketing. Coal and consumable fuels account for the remaining 1.9 percent of the Index.

and their total \$1,116 billion in assets account for 36.7 percent of a total of \$3.0 trillion in all state and local government pension fund assets. The level and extent of the funds' investments in oil and natural gas assets vary greatly across the seventeen states -- for example, \$100 million in those assets and 4.3 percent of the total assets of the two largest plans in North Dakota, \$400 million (2.2 percent) of the total assets of the two largest plans in South Carolina, \$15.2 billion (4.4 percent) invested in oil and natural gas assets by California's two largest plans, and 5.5 percent of the total assets of the two largest plans in New York and Minnesota.

Table 1. Membership, Assets, and Oil and Natural Gas Holdings of the Two Largest Pension Funds in Seventeen States, Annual Average, FYs 2005 – 2009⁵

State	Membership	Total Assets (Billions)	Oil and Natural Gas Assets (Billions)	Oil and Natural Gas Assets as a Share of Total Assets
CA	2,121,473	\$338.9	\$15.2	4.4%
FL	644,324	\$81.7	\$4.0	4.8%
IL	470,949	\$47.6	\$2.2	4.7%
IN	371,370	\$18.5	\$0.9	4.9%
IA	164,609	\$13.7	\$0.4	3.1%
MI	555,050	\$52.8	\$2.5	4.8%
MN	361,430	\$28.9	\$1.6	5.5%
MO	229,120	\$32.6	\$1.1	3.3%
NE	82,566	\$6.5	\$0.3	4.9%
NH	63,102	\$4.3	\$0.2	4.5%
NM	200,389	\$20.9	\$1.0	4.7%
NY	1,226,401	\$217.0	\$11.9	5.5%
ND	43,903	\$3.3	\$0.1	4.3%
OH	1,378,179	\$138.3	\$6.1	4.4%
PA	650,556	\$86.2	\$2.9	3.4%
SC	230,971	\$17.8	\$0.4	2.2%
WV	127,284	\$6.6	\$0.2	3.7%
Total	8,921,676	\$1,115.6	\$51.0	4.6%

Our analysis found that the public pension funds examined here achieved five-year cumulative returns averaging 42 percent on their oil and natural gas investments, compared to five-year average returns of 6 percent for the same funds' non-oil and natural gas holdings. (Table 2, below) From state to state, the five-year returns on the plans' oil and natural gas investments ranged from 40 percent to 49 percent, compared to five-year returns of zero to seventeen percent for the same funds' non-oil and natural gas investments. While the returns on oil and natural gas investments were relatively uniform across the seventeen states, larger differences in the returns on other assets, by state, reflected several factors. Part of those differences can be traced to different asset allocations in the portfolios of the seventeen states. For example, some states had relatively large holdings in lower-return fixed income assets, and others had significant investments in alternative assets with highly variable returns, such as hedge funds and private equity funds. The asset allocations of these portfolios for each state are

⁵ Comprehensive Annual Financial Reports of different retirement systems. For details of sources, see Tables CA-1, FL-1, IL-1, IN-1, IA-1, MI-1, MN-1, MO-1, NE-1, NH-1, NM-1, NY-1, ND-1, OH-1, PA-1, SC-1 and WV-1.

provided in the Appendix. Another part of the differences in the returns on non-oil and natural gas assets across the seventeen states reflects differences in the timing of their fiscal years. New York State's fiscal year, for example, ends on March 31, so that the returns in FY 2009 did not take account of the partial recovery in equity values later that year.

Table 2. Returns on All Assets and Oil and Natural Gas Assets of the Two Largest Pension Funds in Seventeen States, FYs 2005 – 2009⁶

State	Return on \$1 Invested in US Oil and Natural Gas Stocks	Return on \$1 Invested in All Other Assets
CA	\$1.41	\$1.04
FL	\$1.41	\$1.06
IL	\$1.41	\$1.02
IN	\$1.41	\$1.03
IA	\$1.41	\$1.15
MI	\$1.49	\$1.17
MN	\$1.41	\$1.06
MO	\$1.41	\$1.10
NE	\$1.41	\$1.02
NH	\$1.41	\$1.05
NM	\$1.41	\$1.02
NY	\$1.40	\$1.01
ND	\$1.41	\$1.02
OH	\$1.48	\$1.11
PA	\$1.48	\$1.15
SC	\$1.41	\$1.00
WV	\$1.41	\$1.07
Average	\$1.42	\$1.06

Table 2, above, provides a summary measure of the performance of the oil and natural gas assets held by these public pension funds from FY 2005 to FY 2009, relative to those funds' other investments. By this measure, the oil and natural gas investments outperformed other investments by seven-to-one, based on the 42 percent average five-year return on their oil and natural gas holdings compared to a 6 percent average five-year return on their other holdings. This comparison is valid, with certain caveats: The allocations of non-oil and natural gas investments among other asset classes varied greatly across the states, and the five-year period ended in a depressed stock market.

An alternative performance measure for these oil and natural gas investments is the ratio of those investments' share of all gains relative to their share of all assets. This measure is more focused on the performance of the oil and natural gas assets, and less influenced by the different asset allocations across states and the impact of the timing of fiscal years on the value of different categories of assets. Using this approach, we found that the share of these funds' returns attributable to their oil and natural gas investments was, on average, 3.4 times greater than those investments' share of the funds' total assets. (Table 3, below) These ratios still varied

⁶ Comprehensive Annual Financial Reports of different retirement systems. For details of sources, see Tables CA-2, FL-2, IL-2, IN-2, IA-2, MI-2, MN-2, MO-2, NE-2, NH-2, NM-2, NY-2, ND-2, OH-2, PA-2, SC-2 and WV-2.

greatly across the seventeen states, ranging from 2.5-to-1 to 10.4-to-1. For example, the oil and natural gas investments by South Carolina's two largest public pension plans accounted for just 2.2 percent of those funds' total assets (Table 1, above) while contributing 22.9 percent of those funds' total gains, for a ratio of 10.4 to 1. (Table 3, below) By contrast, oil and gas assets held by Pennsylvania's two largest public pension funds accounted for 3.4 percent of the funds' total assets while contributing 8.6 percent of their total returns, for a ratio of 2.5 to 1.

Table 3. Returns on All Assets and Oil and Natural Gas Assets of the Two Largest Pension Funds in Seventeen States, FYs 2005 – 2009⁷

State	Returns from Oil and Natural Gas Investments (\$ millions)	Returns from All assets (\$ millions)	Returns from Oil and Natural Gas Investments as a Share of All Returns	Ratio of Oil and Natural Gas Stocks' Share of Returns to their Share of Assets (Table 3, column 4 / Table 1, column 5)
CA	\$12,584.1	\$73,383.7	17.1%	3.9 to 1
FL	\$3,114.8	\$16,565.3	18.8%	3.9 to 1
IL	\$1,756.3	\$9,808.1	17.9%	3.8 to 1
IN	\$781.5	\$2,839.5	27.5%	5.6 to 1
IA	\$345.8	\$3,251.7	10.6%	3.4 to 1
MI	\$1,819.9	\$14,983.8	12.2%	2.5 to 1
MN	\$1,169.6	\$6,584.0	17.8%	3.2 to 1
MO	\$568.5	\$6,180.4	9.2%	2.8 to 1
NE	\$241.9	\$1,097.7	22.0%	4.5 to 1
NH	\$167.7	\$735.5	22.8%	5.1 to 1
NM	\$661.4	\$3,478.6	19.0%	4.0 to 1
NY	\$8,902.5	\$42,239.4	21.1%	3.8 to 1
ND	\$111.8	\$706.3	15.8%	3.7 to 1
OH	\$4,643.0	\$40,730.2	11.6%	2.6 to 1
PA	\$2,519.3	\$29,378.8	8.6%	2.5 to 1
SC	\$364.3	\$1,593.2	22.9%	10.4 to 1
WV	\$172.4	\$886.8	19.4%	5.2 to 1
Totals and Averages	\$39,924.8	\$254,443.0	15.7%	3.4 to 1

We also estimate the impact of oil and natural gas investments on the returns of all public employee pension programs in each state, using aggregate data collected by the Census Bureau. This analysis of statewide public pension systems is not as complete as the prior analysis based on the two largest plans in each state. In particular, the Census Bureau has not yet issued 2009 data on statewide public pension systems. Since oil and natural gas shares declined in 2009, as did overall markets, the FYs 2005-2008 data provide a less complete picture of the performance of oil and natural gas stocks, compared to other investments, over a business cycle. In some

⁷ Comprehensive Annual Financial Reports of different retirement systems, and authors' calculations. For details of sources, see Tables CA-2, FL-2, IL-2, IN-2, IA-2, MI-2, MN-2, MO-2, NE-2, NH-2, NM-2, NY-2, ND-2, OH-2, PA-2, SC-2 and WV-2.

cases, such as New York, Illinois and Minnesota, the fiscal years end on March 31 or June 30, so FY 2008 data do not include the sharp declines in both the latter part of 2008 and 2009.

With these significant caveats, the analysis of the Census data reinforces the detailed analysis of the major public pension funds in these states. (Table 4, below) Based on statewide data, oil and natural gas investments significantly out-performed the rest of the portfolios of the statewide public pension systems of these seventeen states over the fiscal years 2005 to 2008.

Table 4. Cumulative Returns from All Assets and from Oil and Natural Gas Investments By Statewide Public Employee Pension Plans, Seventeen States, FYs 2005-2008⁸

State	Cumulative Capital Gains/Losses for All Assets (\$ millions)	Cumulative Capital Gains/ Losses on Oil and Natural Gas Assets (\$ millions)	Oil and Natural Gas Assets As a Share of All Assets (Average)	Returns from Oil and Natural Gas Investments as a Share of All Returns
CA	\$224,206.8	\$24,290.4	4.1%	10.8%
FL	\$49,471.0	\$7,100.7	4.9%	14.4%
IL	\$48,394.6	\$5,029.6	3.9%	10.6%
IN	\$9,318.7	\$1,289.3	4.8%	13.8%
IA	\$9,125.9	\$823.6	3.3%	9.0%
MI	\$28,446.4	\$3,298.9	5.0%	11.6%
MN	\$18,802.8	\$1,985.2	3.9%	10.6%
MO	\$17,756.8	\$1,583.6	2.8%	8.9%
NE	\$3,211.8	\$512.9	5.1%	15.9%
NH	\$1,824.6	\$241.7	4.2%	13.2%
NM	\$6,668.6	\$982.3	4.5%	14.7%
NY	\$137,780.9	\$12,820.0	3.8%	9.3%
ND	\$1,469.4	\$119.6	3.2%	8.1%
OH	\$63,770.1	\$7,135.0	4.6%	11.2%
PA	\$51,837.7	\$3,420.7	3.1%	6.6%
SC	\$7,321.7	\$669.5	2.2%	9.1%
WV	\$1,958.4	\$254.6	3.9%	13.0%
Total	\$681,366.2	\$71,557	3.8%	9.5%

These data show, for example, that the oil and natural gas assets of California state public pension plans generated 10.8 percent of their returns while accounting for an average of 4.1 percent of their assets over the four years, a ratio of 2.6 to 1. Across the seventeen states, the total, cumulative net capital gains from oil and natural gas investments by state public pension plans totaled \$71.6 billion over FYs 2005-2008, or 9.5 percent of the those funds' total cumulative net capital gains of \$681.4 billion. Since oil and natural gas assets accounted for an average of 3.8 percent of the total assets of the public pension plans of these 17 states over this period, the ratio of the oil and natural gas assets' share of total returns to their share of total assets was 2.5 to 1 over this period. This is lower than the 3.4 to 1 ratio found for the two largest plans in each state. (Table 3, above) The difference mainly reflects the different time

⁸ Comprehensive Annual Financial Reports of different retirement systems, and authors' calculations. For details of sources, see Tables CA-4, FL-4, IL-4, IN-4, IA-4, MI-4, MN-4, MO-4, NE-4, NH-4, NM-4, NY-4, ND-4, OH-4, PA-4, SC-4 and WV-4.

periods: Again, the data for all pension plans do not include the FY 2009 fiscal year, including in most cases the sharp market declines in late 2008 and the first half of 2009, when overall assets fell to an even greater degree than oil and natural gas investments.

Finally, we can calculate the return in FY 2008 on \$1 in FY 2005 invested in oil and natural gas stock by the public pension plans of these seventeen states, compared to the return in FY 2008 on \$1 invested in 2005 in all other assets by those public pension plans. These calculations are based on the allocation of the total assets of each state’s public pension plans and the average returns for each of various assets classes over this period. These calculations do not cover the sharp market declines in all assets in late 2008 and 2009, and therefore represent the relative returns during a period of strong growth and rising oil and natural gas prices. With these caveats, the data show that \$1 invested in FY 2005 in oil and natural gas stocks by the public pension plans in these seventeen states was worth \$2.43 in FY 2008, a return of 143 percent. (Table 5, below) By contrast, \$1 invested in FY 2005 in all other assets by the public pension plans in the seventeen states was worth an average of \$1.28 in FY 2008, a return of 28 percent. Over this four-year period, therefore, the return on oil and natural gas investments by state public pension plans was 5.1 times greater than those plans’ average returns on their other investments.

Table 5. Returns on All Assets and the Oil and Natural Gas Assets of Statewide Public Employee Pension Systems in Seventeen States, FYs 2005 – 2008⁹

State	Return in FY 2008 on \$1 Invested in FY 2005 in Oil and Natural Gas Stocks	Return in FY 2008 on \$1 Invested in FY 2005 in All Other Assets
CA	\$2.48	\$1.32
FL	\$2.48	\$1.26
IL	\$2.48	\$1.30
IN	\$2.48	\$1.19
IA	\$2.48	\$1.34
MI	\$1.75	\$1.22
MN	\$2.48	\$1.29
MO	\$2.48	\$1.25
NE	\$2.48	\$1.20
NH	\$2.48	\$1.25
NM	\$2.48	\$1.23
NY	\$2.31	\$1.34
ND	\$2.48	\$1.34
OH	\$2.48	\$1.34
PA	\$2.48	\$1.50
SC	\$2.48	\$1.17
WV	\$2.48	\$1.23
Average	\$2.43	\$1.28

⁹ Comprehensive Annual Financial Reports of different retirement systems, and authors’ calculations. For details of sources, see Tables CA-2, FL-2, IL-2, IN-2, IA-2, MI-2, MN-2, MO-2, NE-2, NH-2, NM-2, NY-2, ND-2, OH-2, PA-2, SC-2 and WV-2.

II. Methodology

This study has estimated the financial impact of oil and gas company stocks on the returns achieved by the major public pension plans in the seventeen states of California, Florida, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Ohio, Pennsylvania, South Carolina, and West Virginia, over the five-year period from FY 2005 to FY 2009. For each state, we selected the two largest state pension funds, covering public school employees and state government employees. Across the seventeen states analyzed here, these two public pension plans account for some 60 percent of the total assets and membership of all public pension plans in those states. The public pension plans in each state follow broadly similar investment strategies. For our estimates of the contribution of oil and natural gas company stocks to all public pension plan in a state, we apply the energy holdings as a share of the total assets and the annual returns of those holdings for the two largest pension plans to the aggregate holdings of all of a state's public pension assets.

For each state, we collected five years of investment data from the Comprehensive Annual Financial Reports (CAFRs) of the two largest public pension funds, including their total assets, asset allocations across classes of financial instruments, holdings by sector (including energy), and annual returns by asset class and sector. The asset allocations are reported for U.S. equities, international equities, fixed income securities, and other asset classes (cash, short-term instruments, real estate and alternative investments), in dollar amounts and as percentages of total assets. When a fund did not report its investments in the oil and natural gas sector, we use the energy sector's share in the S&P 500 to estimate the pension fund's holdings of oil and natural gas stocks. For example, energy companies accounted for 9.3 percent of the value of the S&P 500 index in 2005, 9.8 percent in 2006, 12.9 percent in 2007, 13.3 percent in 2008, and 11.5 percent in 2009.¹⁰ We also use each fund's reported exposure to the oil and natural gas sector and the S&P 500 Energy Sector as a proxy for oil and gas company holdings and the return of the funds' oil and gas company holdings. The S&P 500 Energy Sector is comprised almost entirely of oil and gas companies, with oil and gas companies accounting for 98.1 percent of the current S&P Energy Sector.¹¹

To estimate the holdings and returns for all public employee pension plans in a state, we use aggregate data reported by the U.S. Census Bureau on each state, including total assets, asset allocations, memberships, and benefits. Since the Census Bureau does not report oil and natural gas sector holdings by state, we apply the share of total holdings in oil and natural gas stocks for the state's largest pension plan in each year to the state-wide level. If a state's two largest public pension plans do not report their oil and natural gas sector holdings, we apply the share of oil and natural gas stocks in the S&P 500 and the returns of the S&P 500 Energy Sector.

¹⁰ The domestic equity benchmark for public pension fund systems is typically based on a blend of several index benchmarks, such as the S&P 500, the Russell 3000, and the Wilshire 5000. Since the returns of financial indices are highly correlated over time, our results are not biased by our reliance on the S&P's index.

¹¹ Again, the breakdown of the current S&P Energy Index: 60.3 percent integrated oil & gas companies; 17.75 percent oil & gas exploration and production; 14.11 percent oil and gas equipment and services; 2.66 percent oil and gas storage and transportation; 1.96 percent oil and gas drilling; and 1.29 percent oil & gas refining & marketing. Coal and consumable fuels account for 1.92 percent of the Index.

In calculating the contribution of oil and natural gas stocks to each plan's assets and returns, we first estimate the plan's annual capital gains and losses based on its annual returns and assets. Next, we estimate the capital gains and losses of the plan's oil and natural gas sector holdings each year based on its oil and natural gas assets and the annual return of the S&P 500 Energy Sector Index. Finally, we use the fund's total capital gains and losses each year and the capital gains and losses of its oil and natural gas sector holdings to estimate the contribution of oil and natural gas sector companies to the fund's overall returns.¹²

One important caveat in comparing the investment performance of these states, noted earlier, is that data are reported for each state's fiscal year, which differs from state to state. For example, the fiscal year ends on June 30 in Illinois, March 31 in New York, September 30 in Michigan, and December 31 in Ohio. These differences have significant effects on asset performance in FYs 2008 and 2009, including the performance of oil and gas company assets in those years. The aggregate data for all public employee pension plans reported by the Census Bureau covers only FYs 2005-2008. Thus, the data for states with fiscal years that end relatively early in the year do not include the sharp drops in the second half of 2008. Similarly, the data for the two largest pension plans in states with fiscal years that end relatively early do not include the recovery of equity value in the second half of 2009. Nevertheless, the patterns hold across all seventeen states: The returns on investments in oil and gas companies held by state public pension plans significantly outperform the average returns on their other investments.

The remainder of this study provides the analysis, state by state, of the impact of oil and natural gas company investments on the performance of state public employee pension funds.

III. California

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in California, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$338.9 billion and a combined average of 2,121,473 members, including current retirees, current employees, and former or inactive employees. (Table CA-1, below) The two plans held oil and natural gas investments averaging \$15.2 billion or 4.4 percent of the plans' assets. The two plans represent 66 percent of all members and 58 percent of all assets of all California public employee retirement plans.

¹² The funds do not report dividends by company or sector, so we could not separately track dividend. However, following standard economic analysis, the value of a company's dividends is reflected in its stock price.

Table CA-1. California's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009¹³

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	2,121,473	\$338.861	\$15.178	4.4%
PSERS	643,371	\$145.140	\$6.659	4.6%
SERS	1,478,102	\$213.721	\$8.519	4.0%

The cumulative rate of return on the assets of these two large plans was 8 percent for the five years. (Table CA-2, below) Their oil and natural gas assets produced a 41 percent return over the period, while the return on the rest of the portfolios was just about 4 percent. The two plans generated gains of \$73.4 billion over this period, including nearly \$12.6 billion in gains from investments in oil and natural gas stocks. As a result, oil and natural gas assets which represented 4.4 percent of the two plans' total assets provided 17.1 percent of their total gains.

Table CA-2. California's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and Oil and Natural Gas Investments, FYs 2005-2009¹⁴

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.41	\$1.04	\$73,383.7	\$12,584.1	17.1%
PSERS	\$1.10	\$1.41	\$1.04	\$33,799.2	\$4,920.4	14.6%
SERS	\$1.08	\$1.41	\$1.04	\$39,584.5	\$7,663.7	19.4%

All California Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all California public employee retirement programs, we use annual Census Bureau data on public employee retirement systems by state. Once again, the available data cover only FYs 2005 to 2008, as the FY 2009 data have not yet been published. Since the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data show that all public employee retirement plans in California over this four-year period covered 983,194 retirees and beneficiaries, 1,746,771 active employees, and 489,943 inactive employees. The monthly benefit of the retirees under these pension plans averaged \$2,092. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in California for FYs 2005-2008. (Table CA-3, below)

¹³ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

¹⁴ *Ibid.*

**Table CA-3. All California Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008¹⁵**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	39.2%	3.6%	19.3%	24.5%	17.1%
2006	100.0%	38.4%	3.8%	21.5%	21.2%	18.9%
2007	100.0%	37.7%	4.9%	20.9%	18.7%	22.7%
2008	100.0%	30.2%	4.0%	21.2%	21.9%	26.8%
<i>In millions of US dollars</i>						
2005	\$513,611.1	201,104.2	18,702.7	98,937.9	125,974.7	87,594.4
2006	\$562,972.3	216,200.7	21,187.7	120,904.8	119,549.7	106,317.1
2007	\$660,298.8	248,996.2	32,120.5	137,963.5	123,344.4	149,994.6
2008	\$617,944.2	186,410.9	24,792.6	130,870.6	135,194.2	165,468.5

These data show that the overall performance of California public pension plans from July 2004 to June 2008 (the California fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. This largely reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 24 percent, while the value of the system's oil and gas assets fell 43 percent. (Appendix, Tables A-CA-3 and A-CA-6) The four-year data show that \$1.00 invested in the California public employees' retirement system in July 2004 grew to \$1.42 in June 2008, while \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.32 in 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 19.1 percent to negative 5.1 percent for all assets and from 21.4 percent to 36.5 percent for oil and natural gas assets. (Table CA-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$24.3 billion of the system's net \$224.2 billion in returns over the period. Thus, oil and natural gas investments representing 4.1 percent of total system holdings contributed 10.8 percent of the gains over this period.

¹⁵ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

Table CA-4. All California Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008¹⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in FY 2005	Return on \$1 in Oil & Natural Gas Assets Invested in FY 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in FY 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.3%	36.5%	1.12	1.36	1.07	63,174.2	6,826.4
2006	11.8%	20.3%	1.26	1.64	1.19	66,430.7	4,293.7
2007	19.1%	24.5%	1.50	2.04	1.40	126,117.1	7,867.6
2008	-5.1%	21.4%	1.42	2.48	1.32	(31,515.2)	5,302.7
Total						\$224,206.8	\$24,290.4

IV. Florida

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in Florida, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$81.7 billion and a combined average of 644,324 members, including current retirees, current employees, and former or inactive employees. (Table FL-1, below) The two plans held oil and natural gas-sector investments averaging \$4.0 billion or 4.8 percent of the plans' total assets. The two plans represent more than 60 percent of all members and 57 percent of all assets of Florida public employee retirement plans.

Table FL-1. Florida's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009¹⁷

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	644,324	\$81.744	\$3.960	4.8%
PSERS	448,246	\$56.880	\$2.756	4.8%
SERS	196,078	\$24.864	\$1.204	4.8%

The cumulative rate of return on the assets of these two large plans was about 11 percent over the five years. (Table FL-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was about 6 percent. The two plans generated total gains of \$16.6 billion in this period, including \$3.1 billion in gains

¹⁶ *Ibid.*

¹⁷ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

from investments in oil and natural gas stocks. Therefore, oil and natural gas investments which represented 4.8 percent of the two plans' total assets contributed 18.8 percent of their total gains.

Table FL-2. Florida's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009¹⁸

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.11	\$1.41	\$1.06	\$16,565.3	\$3,114.8	18.8%
PSERS	\$1.11	\$1.41	\$1.06	\$11,521.7	\$2,168.3	18.8%
SERS	\$1.11	\$1.41	\$1.06	\$5,043.6	\$946.5	18.8%

All Florida Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Florida public employee retirement programs, we use annual Census Bureau data on public employee retirement systems by state. Once again, the available data cover only FYs 2005 to 2008, as the FY 2009 data have not yet been published. Since the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data show that all public employee retirement plans in Florida over this four-year period covered 304,496 retirees and beneficiaries, 677,008 active employees, and 82,076 inactive employees. The monthly benefit of the retirees under these pension plans averaged \$1,481. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in California for FYs 2005-2008. (Table FL-3, below)

Table FL-3. All Florida Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008¹⁹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	47.9%	4.5%	15.6%	19.3%	17.2%
2006	100.0%	50.9%	5.0%	16.9%	19.2%	12.9%
2007	100.0%	42.8%	5.5%	11.3%	18.3%	27.5%
2008	100.0%	35.1%	4.7%	16.2%	32.0%	16.7%
<i>In millions of US dollars</i>						
2005	\$131,376.3	62,894.3	5,849.2	20,493.7	25,411.5	22,576.8
2006	\$135,805.7	69,167.7	6,778.4	22,988.2	26,066.5	17,583.2
2007	\$155,871.3	66,776.1	8,614.1	17,665.5	28,547.0	42,882.8
2008	\$148,579.3	52,104.5	6,929.9	24,008.0	47,581.1	24,885.7

¹⁸ *Ibid.*

¹⁹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data show that the overall performance of Florida public pension plans from July 2004 to June 2008 (the Florida fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. As with California, this reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined 19 percent, while the value of the system's oil and gas assets fell 43 percent. (See Tables A-FL-3 and A-FL-6) The four-year data show that that \$1.00 invested in the Florida public employees' retirement system in July 2004 grew to \$1.38 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.28 in FY 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 18.1 percent to negative 4.4 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table FL -4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$7.1 billion of the system's net \$49.5 billion in returns over the period. Thus, oil and natural gas investments representing 4.9 percent of total system holdings contributed 14.4 percent of the gains over this period.

Table FL-4. All Florida Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008²⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in FY 2005	Return on \$1 in Oil & Natural Gas Assets Invested in FY 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in FY 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.2%	36.5%	\$1.10	\$1.36	\$1.04	\$13,400.4	\$2,134.9
2006	10.6%	20.3%	\$1.22	\$1.64	\$1.14	\$14,395.4	\$1,373.6
2007	18.1%	24.5%	\$1.44	\$2.04	\$1.33	\$28,212.7	\$2,110.0
2008	-4.4%	21.4%	\$1.38	\$2.48	\$1.26	(\$6,537.5)	\$1,482.2
Total						\$49,471.0	\$7,100.7

V. Illinois

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee pension plans in Illinois, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$47.6 billion and a combined average of 470,949 members, including current retirees, current employees, and former or inactive employees. (Table IL-1, below) The two plans held oil and natural gas-sector investments

²⁰ *Ibid.*

averaging \$2.17 billion or 4.7 percent of their total assets. The two plans represent 36 percent of all members and 37 percent of all assets of Illinois public employee pension plans.

Table IL-1. Illinois's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009²¹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	470,949	\$47.587	\$2.166	4.7%
PSERS	343,309	\$36.633	\$1.590	4.3%
SERS	127,640	\$10.954	\$0.576	5.2%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years. (Table IL-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was just about 2 percent. The two plans generated gains of \$9.8 billion over this period, including nearly \$1.8 billion in gains from their investments in oil and natural gas stocks. Thus, oil and natural gas investments representing 4.7 percent of the plans' total assets contributed 17.9 percent of the plans' gains.

Table IL-2. Illinois's Two Largest Public Employee Pension Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009²²

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.41	\$1.02	\$9,808.1	\$1,756.3	17.9%
PSERS	\$1.08	\$1.41	\$1.03	\$7,762.9	\$1,299.5	16.7%
SERS	\$1.07	\$1.41	\$1.01	\$2,045.2	\$456.8	22.3%

All Illinois Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Illinois public employee retirement programs, we use annual Census Bureau data on public employee retirement systems by state. Once again, the available data cover only FYs 2005 to 2008, as the FY 2009 data have not yet been published. Since the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data show that all public employee retirement plans in Illinois over this four-year period covered 374,583 retirees and beneficiaries, 632,214 active employees, and 314,744 inactive employees. The monthly benefit of the retirees under these pension plans averaged

²¹ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

²² *Ibid.*

\$2,059. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in Illinois for FYs 2005-2008. (Table IL-3, below)

**Table IL-3. All Illinois Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008²³**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	40.7%	3.9%	10.7%	24.9%	23.7%
2006	100.0%	39.9%	3.8%	11.1%	23.3%	25.6%
2007	100.0%	37.7%	3.4%	14.1%	23.0%	25.2%
2008	100.0%	35.0%	4.2%	18.4%	25.2%	21.4%
<i>In millions of US dollars</i>						
2005	\$120,512.1	49,067.9	4,700.0	12,923.6	29,988.6	28,532.0
2006	\$126,956.3	50,684.9	4,824.3	14,124.9	29,599.5	32,547.0
2007	\$140,141.8	52,875.4	4,764.8	19,724.1	32,211.3	35,331.1
2008	\$130,176.1	45,522.7	5,467.4	23,938.8	32,797.7	27,916.9

These data show that the overall performance of Illinois public pension plans from July 2004 to June 2008 (the Illinois fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. As we will see, this reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 23 percent, while the value of the system's oil and gas assets fell more than 40 percent. (See Tables IL-7 and IL-10, below) The four-year data show that that \$1.00 invested in the Illinois public employees' retirement system in July 2004 grew to \$1.40 in June 2008. For this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in FY 2005 would have grown to \$1.30 in FY 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 19.2 percent to negative 5.0 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table IL-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$5.03 billion of the system's net \$48.4 billion in returns over the period. Thus, oil and natural gas investments representing 3.8 percent of total system holdings contributed 10.4 percent of the gains over this period.

²³ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

Table IL-4. All Illinois Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008²⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.8%	36.5%	\$1.11	\$1.36	\$1.05	\$13,015.3	\$1,715.5
2006	11.8%	20.3%	\$1.24	\$1.64	\$1.18	\$14,980.8	\$977.6
2007	19.2%	24.5%	\$1.48	\$2.04	\$1.41	\$26,907.2	\$1,167.1
2008	-5.0%	21.4%	\$1.40	\$2.48	\$1.30	(\$6,508.8)	\$1,169.4
Total						\$48,394.6	\$5,029.6

VI. Indiana

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in Indiana, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$18.5 billion and a combined average of 371,370 members, including current retirees, current employees, and former or inactive employees. (Table IN-1, below) The two plans held oil and natural gas-sector investments averaging \$908 million or 4.9 percent of the plans' total assets. The two plans represent more than 95 percent of all members and 69 percent of all assets of all Indiana public employee retirement plans.

Table IN-1. Indiana's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009²⁵

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	371,370	\$18.488	\$0.908	4.9%
PSERS	156,361	\$4.710	\$0.233	4.9%
SERS	215,009	\$13.778	\$0.675	4.8%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years. (Table IN-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was about 3 percent. The two plans generated total gains of \$2.8 billion over this period, including nearly \$782 million in

²⁴ *Ibid.*

²⁵ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

gains from investments in oil and natural gas stocks: Oil and natural gas investments which represented 4.9 percent of the two plans' total assets contributed 27.5 percent of their total gains.

Table IN-2. Indiana's Two Largest Public Employee Pension Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009²⁶

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.41	\$1.03	\$2,839.5	\$781.5	27.5%
PSERS	\$1.10	\$1.41	\$1.05	\$781.2	\$185.9	23.8%
SERS	\$1.05	\$1.41	\$1.01	\$2,058.3	\$595.6	28.9%

All Indiana Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Indiana public employee retirement programs, we use Census Bureau data on public employee retirement systems. Once again, the available data cover only FYs 2005 to 2008, as the FY 2009 data have not yet been published. Since the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data show that all public employee retirement plans in Indiana over this four-year period covered 106,222 retirees and beneficiaries, 231,833 active employees, and 50,935 inactive employees. The monthly benefit of the retirees under these pension plans averaged \$1,161. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in Indiana for 2005-2008. (Table IN-3, below)

Table IN-3. All Indiana Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008²⁷

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	49.4%	4.6%	0.4%	28.4%	21.8%
2006	100.0%	43.8%	4.3%	4.2%	30.9%	21.0%
2007	100.0%	35.6%	4.6%	4.1%	24.3%	36.1%
2008	100.0%	42.2%	5.6%	5.3%	27.1%	25.4%
<i>In millions of US dollars</i>						
2005	\$23,610.1	11,670.9	1,085.4	83.7	6,713.8	5,141.8
2006	\$27,672.1	12,130.7	1,188.8	1,168.8	8,555.3	5,817.2
2007	\$32,281.5	11,492.5	1,482.5	1,312.8	7,831.2	11,644.8
2008	\$24,095.1	10,163.8	1,351.8	1,279.2	6,532.6	6,119.5

²⁶ *Ibid.*

²⁷ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data show that the overall performance of Indiana public pension plans from July 2004 to June 2008 (the Indiana fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. This largely reflects differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 18 percent, while the value of the system's oil and gas assets fell 43 percent. (Appendix, Tables A-IN-3 and A-IN-6) The four-year data show that that \$1.00 invested in the Indiana public employees' retirement system in July 2004 grew to \$1.33 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.19 in 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 18.2 percent to negative 7.6 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table IN-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$1.29 billion of the system's net \$9.32 billion in returns over the period. Thus, oil and natural gas investments representing 4.8 percent of total system holdings contributed 13.8 percent of the gains over this period.

Table IN-4. All Indiana Public Employee Pension Plans, Returns and Gains For All Assets and for Oil and Natural Gas Investments, FYs 2005-2008²⁸

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.8%	36.5%	\$1.10	\$1.36	\$1.04	\$2,313.8	\$396.2
2006	10.7%	20.3%	\$1.22	\$1.64	\$1.14	\$2,960.9	\$240.9
2007	18.2%	24.5%	\$1.44	\$2.04	\$1.34	\$5,875.2	\$363.1
2008	-7.6%	21.4%	\$1.33	\$2.48	\$1.19	(\$1,831.2)	\$289.1
Total						\$9,318.7	\$1,289.3

VII. Iowa

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in Iowa, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over the five years, the two plans had total assets averaging \$13.7 billion and a combined average of 164,609 members. (Table IA-1, below) The two plans held oil and natural gas-sector investments averaging \$434 million or 3.1 percent of the plans' assets. The two plans represent over 51 percent of members and 56 percent of assets of all Iowa public employee retirement plans.

²⁸ *Ibid.*

Table IA-1. Iowa’s Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009²⁹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	164,609	\$13.658	\$0.434	3.1%
PSERS	126,835	\$10.524	\$0.334	3.1%
SERS	37,774	\$3.134	\$0.100	3.1%

The cumulative return on the assets of these two large plans was about 19 percent for the five years. (Table IA-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was about 15 percent. The two plans generated total gains of \$3.25 billion over this period, including nearly \$355 million from investments in oil and natural gas stocks; Oil and natural gas investments which represented 3.1 percent of the two plans’ total assets, then, contributed 10.6 percent of the two plans’ total gains.

Table IA-2. Iowa’s Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009³⁰

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.19	\$1.41	\$1.15	\$3,251.7	\$345.8	10.6%
PSERS	\$1.19	\$1.41	\$1.15	\$2,510.6	\$266.4	10.6%
SERS	\$1.19	\$1.41	\$1.15	\$741.1	\$79.4	10.7%

All Iowa Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on all Iowa public employee retirement programs, we use annual Census data on public employee retirement systems by state. Since the available data cover only FYs 2005 to 2008, and the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The data show that public employee retirement plans in Iowa over this four-year period covered 87,924 retirees and beneficiaries, 169,164 active employees, and 63,796 inactive employees, and paid an average monthly benefit of \$1,028. The Census data also show the allocation of assets for all retirement plans in Iowa for FYs 2005-2008. However, the asset classifications for Iowa used by the Census are not compatible with individual public teacher and state employee funds in Iowa. Since these two accounted for more than 65 percent of the Iowa state public pension system, in numbers of retirees and active employees, and over 50 percent of the total assets of

²⁹ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors’ estimates.

³⁰ *Ibid.*

the system, we use the asset allocations of the two largest funds to estimate the economic performance of the overall public pension system in Iowa. (Table IA-3, below)

**Table IA-3. All Iowa Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008³¹**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	33.3%	3.1%	14.6%	34.4%	17.7%
2006	100.0%	30.7%	3.0%	15.6%	33.1%	20.6%
2007	100.0%	29.7%	3.8%	15.6%	32.5%	22.1%
2008	100.0%	24.8%	3.3%	14.4%	35.0%	25.8%
<i>In millions of US dollars</i>						
2005	\$21,550.4	\$7,176.3	\$667.4	\$3,146.4	\$7,413.3	\$3,814.4
2006	\$23,449.9	\$7,199.1	\$705.5	\$3,658.2	\$7,761.9	\$4,830.7
2007	\$27,240.6	\$8,095.9	\$1,044.4	\$4,260.4	\$8,864.1	\$6,020.2
2008	\$25,662.5	\$6,372.0	\$847.5	\$3,695.4	\$8,974.2	\$6,620.9

These data show, as expected, that the overall performance of Iowa public pension plans from July 2004 to June 2008 (the Iowa fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. This reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 16 percent, while the value of the system's oil and gas assets fell 43 percent. (See Appendix, Tables A-IA-3 and A-IA-6) The four-year data show that \$1.00 invested in the Iowa public employees' retirement system in July 2004 grew to \$1.42 in June 2008. In this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had held no oil and natural gas stocks, \$1.00 invested in FY 2005 would have grown to \$1.34 in FY 2008.

Even without data from mid-2008 on, the annual returns fluctuated over the four years, ranging from 16.3 percent to negative 1.3 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table IA-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$824 million of the system's net \$9.126 billion in returns over the period. Thus, oil and natural gas investments representing 3.3 percent of total system holdings contributed 9.0 percent of the gains over this period.

³¹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

Table IA-4. All Iowa Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008³²

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	11.3%	36.5%	\$1.11	\$1.37	\$1.07	\$2,424.4	\$243.6
2006	11.1%	20.3%	\$1.24	\$1.64	\$1.19	\$2,605.3	\$142.9
2007	16.3%	24.5%	\$1.44	\$2.04	\$1.36	\$4,437.5	\$255.8
2008	-1.3%	21.4%	\$1.42	\$2.48	\$1.34	(\$341.3)	\$181.3
Total						\$9,125.9	\$823.6

VIII. Michigan

The Two Largest Public Pension Plans

The public employee retirement plans in Michigan publish annual data on their investment portfolios and performance. We collected those data for the fiscal years 2005-2009 for the State's two largest public employees retirement plans, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS). Over this five-year period, these two plans had assets averaging \$52.8 billion and an average of 555,050 members, including current retirees, current employees, and former or inactive employees. (Table MI-1, below) These two plans held oil and natural gas-sector investments averaging \$2.54 billion or 4.8 percent of their total assets. The two plans represent 75 percent of all members and 60 percent of all assets of all Michigan public employee retirement plans.

Table MI-1. Michigan's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009³³

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	555,050	\$52.831	\$2.542	4.8%
PSERS	470,328	\$42.413	\$2.041	4.8%
SERS	84,722	\$10.408	\$0.501	4.8%

The cumulative rate of return on the assets of these two large plans was about 23 percent for the five years, 2005 to 2009. (Table MI-2, below) By contrast, the S&P 500 Energy Sector produced a 49 percent return over the same period. The two plans, therefore, generated total gains of nearly \$15 billion over this period, including \$1.8 billion in gains from their investments

³² *Ibid.*

³³ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

in oil and natural gas stocks. As a result, oil and natural gas investments which represented 4.8 percent of the two plans' total assets contributed 12.15 percent of the two plans' total gains.

Table MI-2. Michigan's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009³⁴

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.23	\$1.49	\$1.17	\$14,983.8	\$1,819.9	12.1%
PSERS	\$1.23	\$1.49	\$1.17	\$12,034.9	\$1,465.7	12.2%
SERS	\$1.22	\$1.49	\$1.17	\$2,948.9	\$354.2	12.0%

All Michigan Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Michigan public employee retirement programs, we use the annual Census Bureau data on public employee retirement systems by state. The available data cover only 2005 to 2008; and since the returns on all investments fell sharply in 2009, the four years of aggregate data cannot be strictly compared to the five years of data on the large plans. The available data show, for example, that all public employee retirement plans in Michigan over this four-year period covered about 287,000 retirees and beneficiaries, 422,000 active employees, and nearly 33,000 inactive employees. The monthly benefit of the retirees under these public employee pension plans averaged \$1,521. The Census Bureau data also show the allocation of total assets by asset-class for all public employee retirement plans in Michigan for the fiscal years 2005-2008. (Table MI-3, below)

Table MI-3. All Michigan Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008³⁵

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	45.3%	4.8%	9.3%	18.8%	26.6%
2006	100.0%	41.9%	4.6%	10.0%	17.0%	31.1%
2007	100.0%	40.1%	5.3%	9.3%	16.2%	34.4%
2008	100.0%	39.4%	5.1%	6.3%	18.0%	36.3%
<i>In millions of US dollars</i>						
2005	\$74,130.0	\$33,580.9	\$3,558.2	\$6,894.1	\$13,936.4	\$19,718.6
2006	\$89,201.6	\$37,375.5	\$4,103.3	\$8,920.2	\$15,164.3	\$27,741.7
2007	\$105,084.2	\$42,138.8	\$5,569.5	\$9,772.8	\$17,023.6	\$36,149.0
2008	\$85,646.5	\$33,744.7	\$4,368.0	\$5,395.7	\$15,416.4	\$31,089.7

³⁴ *Ibid.*

³⁵ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

With these data, we find that \$1.00 invested in the Michigan public employees' retirement system in October 2004 grew to \$1.31 in September 2008 (fiscal year ends September 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.75. If the system had not held oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.22 in 2008.

Annual returns fluctuated substantially over the four years, ranging from 17.2 percent to negative 12.3 percent for all assets and from 44.2 percent to negative 16.7 percent for oil and natural gas assets. (Table MI-4, below) Although these years are less representative without 2009, we estimate that oil and natural gas investments contributed \$3.3 billion of the system's net \$28.5 billion in returns over the period. Thus, oil and natural gas investments representing about 5 percent of total system holdings contributed 11.6 percent of their gains over this period.

Table MI-4. All Michigan Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008³⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 10/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 10/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 10/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
10/2004			\$1.00	\$1.00	\$1.00		
2005	12.8%	44.2%	\$1.13	\$1.44	\$1.06	\$9,488.6	\$1,571.0
2006	12.8%	2.4%	\$1.27	\$1.48	\$1.20	\$11,417.8	\$100.1
2007	17.2%	42.3%	\$1.49	\$2.10	\$1.38	\$18,074.5	\$2,356.4
2008	-12.3%	-16.7%	\$1.31	\$1.75	\$1.22	(\$10,534.5)	(\$728.6)
Total						\$28,446.4	\$3,298.9

IX. Minnesota

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of Minnesota's two largest public employee retirement plans, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over this period, these two plans had assets averaging \$28.9 billion and an average of 361,430 members, including current retirees, current employees, and former or inactive employees. (Table MN-1, below) These two plans held oil and natural gas-sector investments averaging \$1.61 billion or 5.5 percent of their total assets. The two plans represent more than 54 percent of all members and 57 percent of all assets of all Minnesota public employee retirement plans.

³⁶ *Ibid.*

Table MN-1. Minnesota’s Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009³⁷

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	361,430	\$28.911	\$1.609	5.5%
PSERS	156,122	\$17.078	\$0.950	5.5%
SERS	205,308	\$11.833	\$0.659	5.5%

The cumulative rate of return on the assets of these two large plans was about 13 percent over the years, 2005 to 2009. (Table MN-2, below) By contrast, the plans’ oil and gas assets produced a 41 percent return over the same period. The two plans generated total gains of nearly \$6.6 billion over this period, including \$1.17 billion in gains from their investments in oil and natural gas stocks. As a result, oil and natural gas investments which represented 5.5 percent of the two plans’ total assets contributed 17.8 percent of the two plans’ total gains.

Table MN-2. Minnesota’s Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009³⁸

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.13	\$1.41	\$1.06	\$6,584.0	\$1,169.6	17.8%
PSERS	\$1.13	\$1.41	\$1.06	\$4,019.5	\$702.4	17.5%
SERS	\$1.13	\$1.41	\$1.06	\$2,564.5	\$467.2	18.2%

All Minnesota Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Minnesota public employee retirement programs, we use annual Census data on public employee retirement systems by state. The available data cover FYs 2005 to 2008; and since the returns on all investments and on oil and natural gas investments in particular fell sharply in the second half of 2008 and 2009, the four fiscal years of aggregate data cannot be strictly compared to the five years of data on the two large plans. The data do show that public employee retirement plans in Minnesota in this four-year period covered about 153,470 retirees and beneficiaries, 299,769 active employees, and 215,391 inactive employees. The monthly benefit of retirees under these public employee pension plans averaged \$1,691. The Census data also show the allocation of total assets by asset-class for all public employee retirement plans in Minnesota for FYs 2005-2008. (Table MN-3, below)

³⁷ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors’ estimates.

³⁸ *Ibid.*

**Table MN-3. All Minnesota Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008³⁹**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	17.6%	3.9%	5.0%	9.1%	68.3%
2006	100.0%	17.7%	3.8%	5.6%	8.4%	68.3%
2007	100.0%	17.5%	3.4%	6.5%	8.7%	67.3%
2008	100.0%	16.0%	4.2%	5.9%	9.1%	69.1%
<i>In millions of US dollars</i>						
2005	\$47,274.5	\$8,297.1	\$1,843.7	\$2,385.2	\$4,284.6	\$32,307.7
2006	\$52,089.6	\$9,204.4	\$1,979.4	\$2,922.2	\$4,368.3	\$35,594.8
2007	\$54,103.4	\$9,471.2	\$1,839.5	\$3,520.3	\$4,692.2	\$36,419.7
2008	\$51,269.6	\$8,191.0	\$2,153.3	\$3,004.0	\$4,657.8	\$35,416.8

With these data, we see that \$1.00 invested in the Minnesota public employees' retirement system in July 2004 grew to \$1.40 in June 2008 (fiscal year ends June 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$2.48. If the system had held no oil and natural gas stocks, \$1.00 invested in FY 2005 would have grown to \$1.29 in FY 2008. (Table MN-4, below) Annual returns fluctuated over the years, ranging from 18.3 percent to negative 5.0 percent for all assets and from 20.3 percent to negative 36.5 percent for oil and natural gas assets. Although these years are less representative without the second half of 2008 and 2009, we estimate that oil and natural gas investments contributed nearly \$2.0 billion of the system's net \$18.8 billion in returns over the period. Thus, oil and natural gas investments representing 3.85 percent of all system holdings contributed 10.6 percent of all gains..

**Table MN-4. All Minnesota Public Employee Retirement Plans, Returns and Gains
For All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁴⁰**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.7%	36.5%	\$1.11	\$1.36	\$1.05	\$5,058.4	\$672.9
2006	12.3%	20.3%	\$1.24	\$1.64	\$1.18	\$6,407.0	\$401.1
2007	18.3%	24.5%	\$1.47	\$2.04	\$1.40	\$9,900.9	\$450.6
2008	-5.0%	21.4%	\$1.40	\$2.48	\$1.29	(\$2,563.5)	\$460.6
Total						\$18,802.8	\$1,985.2

³⁹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

⁴⁰ *Ibid.*

X. Missouri

The Two Largest Public Pension Plans

The retirement plans for public employees in Missouri (MO) publish annual data on their investment portfolios and performance. We collected data for FYs 2005-2009 for the State's two largest public employees' pension plans, the Public School Retirement System of Missouri (PSRS) and the Missouri State Employees' Retirement System (MOSERS). Over this period, these plans had assets averaging \$32.6 billion and an average of 230,000 members, including retirees, current employees and former employees. (Table MO-1, below) The plans held oil and natural gas investments averaging \$1.1 billion, 3.3 percent of total assets. The two plans represent 50 percent of all members and 59 percent of all assets of Missouri public employee retirement plans.

Table MO-1. Missouri's Two Largest Public Employee Retirement Plans: Total Assets and Oil and Natural Gas Assets, FYs 2005-2009⁴¹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as Share of All Assets
Total or Average	229,120	\$32.564	\$1.089	3.3%
PSRS	128,445	\$25.388	\$0.856	3.4%
MOSERS	100,675	\$7.176	\$0.233	3.2%

The overall rate of return on the assets of these two large plans was about 16 percent over the five years, FYs 2005-2009. (Table MO-2, below) In contrast, S&P 500 Energy Sector produced a 41 percent return over the same period. The two plans generated total gains of more than \$6 billion over this period, including nearly \$600 million in gains from their investments in oil and natural gas stocks. As a result, oil and natural gas investments representing 3.3 percent of the two plans' total assets contributed 9.2 percent of their total gains.

Table MO-2. Missouri's Two Largest Public Employee Retirement Plans: Rates of Return and Gains Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁴²

	Return on \$1 invested in Plans	Return on \$1 Invested in Oil and Natural Gas Stocks	Return on \$1 of Non- Oil and Natural Gas Investments	Total Gains by Plans (\$ million)	Gains from Oil and Natural Gas Investments (\$ million)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.16	\$1.41	\$1.10	\$6,180.4	\$568.5	9.2%
PSRS	\$1.08	\$1.41	\$1.03	\$4,094.8	\$417.2	10.2%
MOSERS	\$1.23	\$1.41	\$1.18	\$2,085.6	\$151.3	7.3%

⁴¹ Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁴² Comprehensive Annual Financial Report; S&P's; and authors' estimates.

All Missouri Public Employee Retirement Programs

The Census Bureau issues annual aggregate data on public employee retirement systems by state, but data covering only FYs 2005 – 2008 are currently available. Since the returns on all investments and oil and natural gas investments in particular fell sharply in 2009, the aggregate data by state cannot be strictly compared to the data on the large plans covering the additional year. The available data for FYs 2005-2008 show that public employee retirement plans in Missouri covered some 133,000 retirees and beneficiaries, 273,000 active employees, and nearly 52,000 inactive employees. The monthly benefit of all retirees under these plans averaged \$1,655. The Census Bureau data also provide the allocation of total assets by asset-class, 2005-2008. (Table MO-3, below)

**Table MO-3. All Missouri Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008⁴³**

Fiscal Year	Total	U.S. Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	34.2%	2.7%	15.8%	28.6%	21.4%
2006	100.0%	31.5%	2.8%	16.8%	32.3%	19.5%
2007	100.0%	33.0%	2.6%	20.6%	26.8%	19.6%
2008	100.0%	29.2%	3.2%	18.1%	23.9%	28.9%
<i>In millions of US dollars</i>						
2005	\$49,739.0	\$17,009.9	\$1,360.8	\$7,843.4	\$14,226.2	\$10,659.4
2006	\$57,538.3	\$18,126.2	\$1,631.4	\$9,641.4	\$18,564.9	\$11,205.8
2007	\$60,235.4	\$19,905.3	\$1,592.4	\$12,411.1	\$16,117.4	\$11,801.5
2008	\$53,412.7	\$15,572.1	\$1,712.9	\$9,647.2	\$12,773.8	\$15,419.6

We further found that \$1.00 invested in Missouri public employees' retirement plans in July 2004 grew to \$1.33 in June 2008 (the fiscal year ends on June 30). During this period, \$1.00 invested in the S&P Energy Sector grew to \$2.48. If the Missouri plans had not invested in oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.25 in 2008. As in other states, annual returns over the four years fluctuated widely, from 16.6 percent to negative 4.6 percent for all assets, and from 36.5 percent to 20.3 percent for oil and natural gas investments. (Table MO-4, below) Although these years are less representative without 2009 data, we estimate that oil and natural gas assets contributed \$1.6 billion of the system's total \$17.8 billion in returns over this period: Oil and natural gas investments representing 2.9 percent of total system holdings generated 8.9 percent of the gains over this period.

⁴³ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Table MO-4. All Missouri Public Employee Retirement Plans, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2008⁴⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.2%	36.5%	\$1.09	\$1.37	\$1.05	\$4,576.0	\$496.7
2006	9.8%	20.3%	\$1.20	\$1.64	\$1.15	\$5,638.8	\$330.5
2007	16.6%	24.5%	\$1.40	\$2.04	\$1.34	\$9,999.1	\$390.0
2008	-4.6%	21.4%	\$1.33	\$2.48	\$1.25	(\$2,457.0)	\$366.4
Total						\$17,756.8	\$1,583.6

XI. Nebraska

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of Nebraska's two largest public employee retirement plans, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$6.5 billion and a combined average of 82,566 members, including current retirees, current employees, and former or inactive employees. (Table NE-1, below) The two plans held oil and natural gas-sector investments averaging \$322 million or 4.7 percent of their total assets. The two plans represent more than 76 percent of all members and nearly 66 percent of all assets of Nebraska public pension plans.

Table NE-1. Nebraska's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009⁴⁵

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	82,566	\$6.485	\$0.322	4.9%
PSERS	69,988	\$6.047	\$0.300	4.9%
SERS	12,578	\$0.438	\$0.022	4.9%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years. (Table NE-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was just 2 percent. The two plans generated total gains of \$1.1 billion over this period, including nearly \$242 million in gains

⁴⁴ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁴⁵ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

from their investments in oil and natural gas stocks. Hence, oil and natural gas investments representing 4.9 percent of the plans' total assets contributed 22.0 percent of their total gains.

Table NE-2. Nebraska's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁴⁶

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.41	\$1.02	\$1,097.7	\$241.9	22.0%
PSERS	\$1.09	\$1.41	\$1.03	\$1,055.9	\$236.2	23.5%
SERS	\$1.06	\$1.41	\$1.54	\$41.8	\$5.7	13.7%

All Nebraska Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all Nebraska public employee retirement programs, we use the available Census Bureau data on public employee retirement systems by state, covering only FYs 2005 to 2008. As noted for other states, the four years of aggregate data by state cannot be strictly compared to the five years of data for the large plans. The available Census data do show that all public employee retirement plans in Nebraska covered 21,698 retirees and beneficiaries, 64,621 active employees, and 21,783 inactive employees. The average monthly benefit was \$1,579. The Census Bureau data appear to use different asset allocation definitions than the individual public pension funds in Nebraska. We use the asset allocation of the largest public pension fund in Nebraska (public teachers) to estimate the economic impacts of the entire state. (Table NE-3, below)

Table NE-3. All Nebraska Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008⁴⁷

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	46.6%	4.3%	20.6%	29.7%	3.1%
2006	100.0%	46.0%	4.5%	22.4%	27.3%	4.3%
2007	100.0%	46.6%	6.0%	23.5%	25.3%	4.6%
2008	100.0%	42.7%	5.7%	19.9%	31.3%	6.1%
<i>In millions of US dollars</i>						
2005	\$8,280.5	\$3,858.7	\$358.9	\$1,705.8	\$2,459.3	\$256.7
2006	\$9,565.4	\$4,400.1	\$431.2	\$2,142.7	\$2,611.4	\$411.3
2007	\$11,371.1	\$5,298.9	\$683.6	\$2,672.2	\$2,876.9	\$523.1
2008	\$10,467.8	\$4,469.8	\$594.5	\$2,083.1	\$3,276.4	\$638.5

⁴⁶ *Ibid.*

⁴⁷ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data show that the overall performance of Nebraska public pension plans from July 2004 to June 2008 (the Nebraska fiscal year ends June 30) was stronger than that of the two largest plans from FY 2005 to FY 2009. Once again, this reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 23 percent, while the value of the system's oil and gas assets fell more than 40 percent. (See Appendix, Tables A-NE-3 and A-NE-10) The four-year data show that that \$1.00 invested in the Nebraska public employees' retirement system in July 2004 grew to \$1.40 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had held no oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.30 in June 2008.

Even without data from mid-2008 on, the annual returns fluctuated sharply over the four years, ranging from 17.7 percent to negative 5.8 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table NE-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed \$513 million of the system's net \$3.2 billion in returns over the period. Thus, oil and natural gas investments representing 5.1 percent of total system holdings contributed 16.0 percent of the gains over this period.

Table NE-4. All Nebraska Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁴⁸

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.8%	36.5%	\$1.10	\$1.37	\$1.04	\$811.5	\$131.0
2006	10.4%	20.3%	\$1.21	\$1.64	\$1.14	\$994.8	\$87.4
2007	17.7%	24.5%	\$1.43	\$2.04	\$1.30	\$2,012.7	\$167.4
2008	-5.8%	21.4%	\$1.34	\$2.48	\$1.20	(\$607.1)	\$127.2
Total						\$3,211.8	\$512.9

XII. New Hampshire

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in New Hampshire, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$4.3 billion and a combined membership averaging 62,103, including current retirees, current employees, and former or inactive employees. (Table NH-1, below) The two plans held oil and natural gas-sector

⁴⁸ *Ibid.*

investments averaging \$193 million or 4.5 percent of the plans' total assets. The two plans represent 82.0 percent of all members and nearly 75 percent of all assets of all New Hampshire public employee retirement plans.

Table NH-1. New Hampshire's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009⁴⁹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	63,102	\$4.310	\$0.193	4.5%
PSERS	25,604	\$1.750	\$0.078	4.5%
SERS	37,498	\$2.560	\$0.115	4.5%

The cumulative rate of return on the assets of these two large plans was 10 percent for the five years. (Table NH-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was 5 percent. The two plans generated total gains of \$735.5 million over this period, including nearly \$168 million in gains from their investments in oil and natural gas stocks. Thus, oil and natural gas investments which represented 4.5 percent of the two plans' total assets contributed 22.8 percent of their total gains.

Table NH-2. New Hampshire's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁵⁰

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.10	\$1.41	\$1.05	\$735.5	\$167.7	22.8%
PSERS	\$1.10	\$1.41	\$1.05	\$289.2	\$67.2	23.2%
SERS	\$1.10	\$1.41	\$1.05	\$446.3	\$100.5	22.5%

All New Hampshire Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all New Hampshire public employee retirement programs, we use annual Census Bureau data on public employee retirement systems. As the available data cover only FYs 2005 to 2008, and the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. However, the available data show that all public employee retirement plans in New Hampshire over this four-year period covered 21,328 retirees and beneficiaries, 52,745 active employees, and 2,881 inactive employees. The monthly benefit under these plans

⁴⁹ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

⁵⁰ *Ibid.*

averaged \$1,350. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in New Hampshire for FYs 2005-2008. (Table NH-3, below)

**Table NH-3. All New Hampshire Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008⁵¹**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	43.1%	4.8%	12.7%	16.0%	28.2%
2006	100.0%	43.2%	5.2%	14.4%	15.8%	26.5%
2007	100.0%	38.8%	3.1%	16.9%	20.7%	23.6%
2008	100.0%	37.4%	3.7%	18.0%	24.9%	19.7%
<i>In millions of US dollars</i>						
2005	\$4,914.3	\$2,119.8	\$235.3	\$622.1	\$784.9	\$1,387.5
2006	\$5,296.3	\$2,288.5	\$274.6	\$764.7	\$837.7	\$1,405.4
2007	\$6,744.5	\$2,613.7	\$211.7	\$1,142.4	\$1,396.0	\$1,592.5
2008	\$6,098.1	\$2,283.7	\$226.1	\$1,095.9	\$1,517.2	\$1,201.3

These data show that the overall performance of New Hampshire public pension plans from July 2004 to June 2008 (the New Hampshire fiscal year ends June 30) was stronger than that of the two largest plans from FY 2005 to FY 2009. This reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined more than 23 percent, while the value of the system's oil and gas assets fell more than 40 percent. (See Appendix, Tables A-NH-3 and A-NH-6) The four-year data show that \$1.00 invested in the New Hampshire public employees' retirement system in July 2004 grew to \$1.34 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had held no oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.25 in 2008.

Even without data from mid-2008 on, the annual returns fluctuated sharply over the four years, ranging from 16.0 percent to negative 4.6 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table NH-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed nearly \$242 million of the system's net \$1.8 billion in net gains over the period. Thus, oil and natural gas investments representing 4.2 percent of total system holdings contributed 13.2 percent of the gains over this period.

⁵¹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

Table NH-4. All New Hampshire Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁵²

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.1%	36.5%	\$1.10	\$1.36	\$1.04	\$496.3	\$85.9
2006	10.0%	20.3%	\$1.21	\$1.64	\$1.13	\$529.6	\$55.7
2007	16.0%	24.5%	\$1.40	\$2.04	\$1.34	\$1,079.1	\$51.9
2008	-4.6%	21.4%	\$1.34	\$2.48	\$1.25	(\$280.5)	\$48.4
Total						\$1,824.6	\$241.7

XIII. New Mexico

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in New Mexico, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$20.9 billion and a combined average membership of 200,389, including current retirees, current employees, and former or inactive employees. (Table NM-1, below) The two plans held oil and natural gas-sector investments averaging nearly \$1.0 billion or 4.7 percent of the two plans' total assets. The two plans report that they represent 98 percent of all members; but using different classifications, the Census data suggest that they account for 31 percent of all assets of all New Mexico public employee retirement plans. The different classification systems cannot be reconciled.

Table NM-1. New Mexico's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, 2005-2009⁵³

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	200,389	\$20.856	\$0.985	4.7%
PSERS	121,915	\$9.515	\$0.436	4.6%
SERS	78,474	\$11.341	\$0.549	4.8%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years. (Table NM-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was just about 2 percent.

⁵² *Ibid.*

⁵³ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

The two plans generated total gains of nearly \$3.5 billion over this period, including \$661 million in gains from their investments in oil and natural gas stocks. As a result, oil and natural gas investments which represented 4.7 percent of the two plans' total assets contributed 19.0 percent of the two plans' total gains.

Table NM-2. New Mexico's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁵⁴

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.41	\$1.02	\$3,478.6	\$661.4	19.0%
PSERS	\$1.13	\$1.41	\$1.08	\$1,968.9	\$355.1	18.0%
SERS	\$1.02	\$1.41	\$0.94	\$1,509.7	\$306.3	20.3%

All New Mexico Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all New Mexico public employee retirement programs, we use the annual Census Bureau data on public employee retirement systems by state, covering only FYs 2005 to 2008. Since the returns on all investments and on oil and natural gas investments fell sharply in late 2008 and 2009, the four years of aggregate data cannot be strictly compared to the five years of data on the large plans. The data do show that all public employee retirement plans in New Mexico covered 23,786 retirees and beneficiaries, 51,503 active employees, and 3,184 inactive employees. The monthly benefit under these pension plans averaged \$1,774. The data also show the allocation of assets for public employee retirement plans in New Mexico for FYs 2005-2008. (Table NM-3, below)

Table NM-3. All New Mexico Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008⁵⁵

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	44.5%	4.1%	19.7%	26.8%	9.0%
2006	100.0%	41.9%	4.1%	23.5%	26.2%	8.5%
2007	100.0%	41.8%	5.4%	24.3%	24.7%	9.3%
2008	100.0%	32.7%	4.4%	22.0%	19.2%	26.1%
<i>In millions of US dollars</i>						
2005	\$18,980.3	\$8,450.3	\$785.9	\$3,742.2	\$5,080.5	\$1,707.3
2006	\$20,236.7	\$8,473.9	\$830.4	\$4,747.8	\$5,304.6	\$1,710.4
2007	\$23,119.9	\$9,660.3	\$1,246.2	\$5,610.2	\$5,700.8	\$2,148.6
2008	\$23,821.7	\$7,800.6	\$1,037.5	\$5,249.8	\$4,562.2	\$6,209.0

⁵⁴ *Ibid.*

⁵⁵ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data further show that the overall performance of New Mexico public pension plans from July 2004 to June 2008 (the state’s fiscal year ends June 30) was stronger than that of the two largest plans from FY 2005 to FY 2009. This reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined by 17 percent to 24 percent, while the value of the system’s oil and gas assets fell 43 percent. (See Appendix, Tables A-NM-3 and A-NM-6) The four-year data show that that \$1.00 invested in the New Mexico public employees’ retirement system in July 2004 grew to \$1.34 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.23 in 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 18.1 percent to negative 7.4 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table NM-4) Although this period is less representative without the second half of 2008 and the first half of 2009, when oil and natural gas shares fell sharply, we estimate that oil and natural gas assets contributed \$982 million of the system’s net \$6.7 billion in returns in the period. Thus, oil and natural gas assets representing 4.5 percent of total system holdings contributed 14.7 percent of its gains for this period.

Table NM-4. All New Mexico Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁵⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.9%	36.5%	\$1.10	\$1.36	\$1.04	\$1,879.1	\$286.8
2006	11.7%	20.3%	\$1.23	\$1.64	\$1.16	\$2,367.7	\$168.3
2007	18.1%	24.5%	\$1.45	\$2.04	\$1.34	\$4,184.7	\$305.2
2008	-7.4%	21.4%	\$1.34	\$2.48	\$1.23	(\$1,762.8)	\$221.9
Total						\$6,668.6	\$982.3

XIV. New York

The Two Largest Public Pension Plans

We collected data on the portfolios and performance of New York State’s two largest public employees retirement plans, the Public School Employees’ Retirement System (PSERS) and the State Employees’ Retirement System (SERS), covering FYs 2005-2009. Over this five-year period, the two plans had assets averaging more than \$217 billion and an average of 1,226,401 members, including current retirees, current employees, and former or inactive employees. (Table NY-1, below) The two plans held oil and natural gas-sector investments

⁵⁶ *Ibid.*

averaging nearly \$11.9 billion or 5.5 percent of their total assets. The two plans represent about 54 percent of all members and 60 percent of all assets of all New York public employee retirement plans.

Table NY-1. New York Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009⁵⁷

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	1,226,401	\$217.046	\$11.869	5.5%
PSERS	276,677	\$88.449	\$5.554	6.2%
SERS	949,724	\$128.597	\$6.315	4.9%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years, FYs 2005 to 2009. (Table NY-2, below) By contrast, the S&P 500 Energy Sector produced a 40 percent return over the same period. The two plans generated total gains of \$42.2 billion over this period, including \$8.9 billion in gains from their investments in oil and natural gas stocks. As a result, oil and natural gas investments which represented 5.5 percent of the two plans' total assets contributed 21.1 percent of the two plans' total gains.

Table NY-2. New York's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁵⁸

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.08	\$1.40	\$1.01	\$42,239.4	\$8,902.5	21.1%
PSERS	\$1.10	\$1.41	\$1.02	\$18,862.7	\$4,537.6	24.1%
SERS	\$1.06	\$1.38	\$1.01	\$23,376.7	\$4,364.9	19.5%

All New York Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all New York public employee retirement programs, we use the available Census data on public employee retirement systems by state, covering FYs 2005 to 2008. Since the returns on oil and natural gas investments fell particularly sharply in much of 2008 and 2009 (the state's fiscal year ends March 31), the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data do show that public employee retirement plans in New York State over this four-year period covered about 747,303 retirees and beneficiaries, nearly 1.2 million active employees, and 131,791 inactive employees. The monthly benefit of the retirees under these public employee pension plans averaged \$2,090. The Census data also

⁵⁷ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

⁵⁸ *Ibid.*

show the allocation of total assets by asset-class for all public employee retirement plans in New York for fiscal years FYs 2005-2008. (Table NY-3, below)

**Table NY-3. All New York Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008⁵⁹**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	52.6%	3.9%	12.2%	20.8%	14.4%
2006	100.0%	52.7%	3.8%	13.4%	19.5%	14.4%
2007	100.0%	49.7%	3.4%	10.9%	18.9%	20.4%
2008	100.0%	43.9%	4.2%	13.1%	20.7%	22.4%
<i>In millions of US dollars</i>						
2005	\$311,670.4	\$163,867.5	\$12,155.1	\$37,921.3	\$64,899.4	\$44,982.2
2006	\$343,678.0	\$181,024.9	\$13,059.8	\$46,021.6	\$67,014.6	\$49,616.9
2007	\$403,969.9	\$200,955.9	\$13,735.0	\$43,946.1	\$76,464.4	\$82,603.5
2008\$	\$392,759.7	\$172,262.7	\$16,495.9	\$51,319.7	\$81,299.7	\$87,877.6

With these data, we see that \$1.00 invested in the New York public employees' retirement system in April 2004 grew to \$1.44 in March 2008 (fiscal year ends March 31). (Table NY-4, below) Over this period, \$1.00 invested in the S&P Energy Sector grew to \$2.31. If the system had not held oil and natural gas stocks, \$1.00 invested in April 2004 would have grown to \$1.34 by March 31, 2008.

Annual returns fluctuated over the four years, ranging from 2.6 percent to 14.6 percent for all assets and from 13.9 percent to 45.4 percent for oil and natural gas assets. These years are not representative without the last three quarters of 2008 and 2009. With that caveat, we estimate that oil and natural gas investments contributed \$12.8 billion of the system's net \$137.8 billion in returns. (Table NY-4, below) Thus, oil and natural gas investments representing about 3.8 percent of total system holdings contributed 9.3 percent of their gains over this period.

⁵⁹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

Table NY-4. All New York Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁶⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 4/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 4/2004	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 4/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
4/2004			\$1.00	\$1.00	\$1.00		
2005	8.5%	45.4%	\$1.09	\$1.45	\$1.03	\$26,492.0	\$5,515.4
2006	14.6%	17.2%	\$1.24	\$1.70	\$1.18	\$50,177.0	\$2,251.8
2007	12.6%	13.9%	\$1.40	\$1.94	\$1.33	\$50,900.2	\$1,914.2
3/2008	2.6%	19.0%	\$1.44	\$2.31	\$1.34	\$10,211.8	\$3,138.6
Total						\$137,780.9	\$12,820.0

XV. North Dakota

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in North Dakota, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five years, the two plans had total assets averaging \$3.3 billion and a combined average of 43,903 members, including current retirees, current employees, and former or inactive employees. (Table ND-1, below) The two plans held oil and natural gas-sector assets averaging \$143 million or 4.3 percent of the plans' total assets. The two plans represent almost 92 percent of all members and 89 percent of all assets of the state's public employee pension plans.

Table ND-1. North Dakota's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, 2005-2009⁶¹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	43,903	\$3.312	\$0.143	4.3%
PSERS	17,348	\$1.672	\$0.070	4.1%
SERS	26,555	\$1.640	\$0.073	4.4%

The cumulative rate of return on the assets of these two large plans was about 8 percent for the five years. (Table ND-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was 3 percent. The two plans generated total gains of \$706 million over this period, including nearly \$112 million from

⁶⁰ *Ibid.*

⁶¹ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

their investments in oil and natural gas stocks. Thus, oil and natural gas investments which represented 4.3 percent of the two plans' total assets contributed 15.3 percent of their gains.

Table ND-2. North Dakota's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁶²

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.07	\$1.41	\$1.02	\$706.3	\$111.8	15.8%
PSERS	\$1.05	\$1.41	\$1.00	\$368.2	\$55.5	15.1%
SERS	\$1.08	\$1.41	\$1.03	\$338.1	\$56.3	16.6%

All North Dakota Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all North Dakota public employee retirement programs, we use the available Census Bureau data on public employee retirement systems by state, covering only FYs 2005 to 2008. Since the returns on all investments and on oil and natural gas investments in particular fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. However, the available data do show that all public employee retirement plans in North Dakota over this four-year period covered 13,089 retirees and beneficiaries, 29,473 active employees, and 5,410 inactive employees. The average monthly benefit of the retirees under these pension plans was \$1,057. The Census data also show the allocation of assets by asset-class for all public employee retirement plans in North Dakota for FYs 2005-2008. (Table ND-3, below)

Table ND-3. All North Dakota Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008⁶³

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	29.3%	2.7%	18.0%	19.7%	33.0%
2006	100.0%	28.1%	2.8%	16.1%	24.5%	31.2%
2007	100.0%	28.1%	3.6%	18.5%	19.4%	33.9%
2008	100.0%	28.2%	3.7%	18.2%	18.3%	35.4%
<i>In millions of US dollars</i>						
2005	\$3,184.7	\$932.7	\$86.7	\$573.0	\$627.7	\$1,051.3
2006	\$3,653.8	\$1,026.4	\$100.6	\$589.5	\$896.4	\$1,141.5
2007	\$4,180.3	\$1,176.5	\$151.8	\$773.6	\$811.8	\$1,418.4
2008	\$3,791.1	\$1,068.1	\$142.1	\$689.9	\$692.4	\$1,340.9

⁶² *Ibid.*

⁶³ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data show that the overall performance of North Dakota public pension plans from July 2004 to June 2008 (the state’s fiscal year ends June 30) was significantly stronger than that of the two largest plans from FY 2005 to FY 2009. This reflects the differences in the two time periods: In FY 2009, from July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined by 24 percent to 27 percent, and the value of the system’s oil and gas assets fell 43 percent. (See Appendix, Tables A-ND-3 and A-ND-6) The four-year data show that that \$1.00 invested in the North Dakota public employees’ retirement system in July 2004 grew to \$1.44 in June 2008. Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.34 in 2008.

Even without data from mid-2008 on, the annual returns fluctuated significantly over the four year period, ranging from 19.0 percent to negative 5.6 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table ND-4, below) Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed nearly \$120 million of the system’s net \$1.47 billion in returns over the period. Thus, oil and natural gas investments representing 3.4 percent of total system holdings contributed 8.4 percent of the gains over this period.

Table ND-4. All North Dakota Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁶⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil & Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gain from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	14.1%	36.5%	\$1.14	\$1.36	\$1.10	\$449.0	\$31.7
2006	12.0%	20.3%	\$1.28	\$1.64	\$1.23	\$438.5	\$20.4
2007	19.0%	24.5%	\$1.52	\$2.04	\$1.45	\$794.3	\$37.2
2008	-5.6%	21.4%	\$1.44	\$2.48	\$1.34	(\$212.3)	\$30.4
Total						\$1,469.4	\$119.6

XVI. Ohio

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of Ohio’s (OH) two largest public employees’ retirement plans, the State Teachers Retirement System of Ohio (STRS) and the Ohio Public Employees Retirement System (OPERS) for the five fiscal years 2005-2009.⁶⁵ Over this period, the two plans had combined assets of some \$138 billion and an average of nearly 1.4 million members, including retirees, current employees, and former or

⁶⁴ *Ibid.*

⁶⁵ The two plans use different fiscal years; so, we set aside the difference to calculate their memberships and assets.

inactive employees. (Table OH-1, below) The two plans held investments of \$6.1 billion in the oil and natural gas sector, or 4.4 percent of their total assets. The two plans represent 89 percent of all members and 90 percent of all assets held by Ohio public employee retirement plans.

Table OH-1. Ohio's Two Largest Public Employee Retirement Plans: Total Assets and Oil and Natural Gas Assets, Annual Average, FYs 2005-2009⁶⁶

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as Share of All Assets
Total or Average	1,378,179	\$138.3	\$6.1	4.4%
STRS	469,382	\$66.8	\$2.8	4.2%
OPERS	908,797	\$71.5	\$3.3	4.6%

The return on the assets of these two large plans averaged 18 percent for the FYs 2005 - 2009. (Table OH-2, below) By contrast, the S&P 500 Energy Sector produced a 48 percent return for the same period.⁶⁷ The plans produced gains of \$40.7 billion in this period, including \$4.6 billion from investments in oil and natural gas stocks. Thus, oil and natural gas investments representing 4.4 percent of the two plans' assets contributed 11.4 percent of their gains.

Table OH-2. Ohio's Two Largest Public Employee Retirement Plans: Rates of Return and Gains Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁶⁸

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (\$ millions)	Gains from Oil and Natural Gas Investments (\$ millions)	Gain from Oil and Natural Gas as Share of All Gains
Total	\$1.18	\$1.48	\$1.11	\$40,730.2	\$4,643.0	11.6%
STRS	\$1.15	\$1.41	\$1.09	\$17,659.9	\$2,200.8	12.5%
OPERS	\$1.20	\$1.54	\$1.13	\$23,070.3	\$2,442.2	10.6%

All Ohio Public Employee Retirement Programs

The Census Bureau issues annual data on Ohio public employee retirement plans, including members, benefits, and the value and distribution of their assets. Once again, only the data for 2005–2008 are available; and these aggregate data for four years cannot be strictly compared to five years of data on the two largest plans. The available data, however, show that public employee retirement plans in Ohio covered 370,000 retirees and beneficiaries, 700,000 active employees, and nearly 500,000 inactive employees; and their average monthly benefit was \$1,906 over this period. The Census Bureau also provides data on the allocation of these plans' assets by asset-class, covering FYs 2005-2008. (Table OH-3)

⁶⁶ Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁶⁷ STRS fiscal year ends on June 30 and OPERS' fiscal year ends on December 31; thus, the returns of the S&P 500 oil and natural gas sector are different for the two funds.. For example, from July 1, 2009 to December 31, 2009, the S&P 500 Oil and natural gas Sector increased by 14.8 percent.

⁶⁸ Comprehensive Annual Financial Report; S&P's; and authors' estimates.

**Table OH-3. All Ohio Public Employee Retirement Plans:
Assets and Asset Allocations, FYs 2005-2008⁶⁹**

Fiscal Year	Total	U.S. Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	42.9%	4.0%	19.4%	21.1%	16.6%
2006	100.0%	41.9%	4.1%	20.5%	22.7%	14.8%
2007	100.0%	40.9%	5.3%	21.9%	22.1%	15.1%
2008	100.0%	37.4%	5.0%	22.2%	22.0%	18.5%
<i>In millions of US dollars</i>						
2005	136,819.2	\$58,741.1	\$5,462.9	\$26,490.6	\$28,897.6	\$22,689.8
2006	149,874.3	\$62,865.8	\$6,160.9	\$30,705.3	\$34,089.2	\$22,214.0
2007	166,416.4	\$68,054.5	\$8,779.0	\$36,483.0	\$36,784.1	\$25,094.8
2008	163,876.4	\$61,246.6	\$8,145.8	\$36,304.4	\$35,975.8	\$30,349.6

We calculate that \$1.00 invested in Ohio public employee retirement plans in January 2005 grew to \$1.46 in June 2008. (Table OH-4, below) Over this period, \$1.00 invested in the S&P Energy Sector grew to \$2.48. If the Ohio plans had not invested in oil and natural gas, \$1.00 invested in January 2005 would have grown to \$1.34 in 2008. Over these four years, annual returns fluctuated from 21.2 percent to negative 5.4 percent for all assets, and from 36.5 percent to 20.3 percent for oil and natural gas assets. Although these years are less representative without 2009 data, the System's oil and natural gas assets produced \$7.14 billion of the System's total returns of \$63.8 billion. Thus, oil and natural gas investments representing 4.6 percent of the System's total holdings contributed 11.2 percent of its gains over this period.

**Table OH-4. All Ohio Public Employee Retirement Plans,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2008⁷⁰**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 1/2005	Return on \$1 Invested in Oil and Natural Gas in 1/2005	Return on \$1 of All Assets but Oil and Natural Gas Invested in 1/2005	Capital Gains from all Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
1/2005			\$1.00	\$1.00	\$1.00		
2005	12.3%	36.5%	\$1.12	\$1.36	\$1.07	\$16,760.4	\$1,993.9
2006	13.7%	20.3%	\$1.28	\$1.64	\$1.21	\$20,577.7	\$1,248.5
2007	21.2%	24.5%	\$1.55	\$2.04	\$1.44	\$35,346.8	\$2,150.3
2008	-5.4%	21.4%	\$1.46	\$2.48	\$1.34	(\$8,914.9)	\$1,742.2
Total						\$63,770.1	\$7,135.0

⁶⁹ U.S. Census' State & Local Government Employee Retirement Systems; and authors' estimates; Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁷⁰ *Ibid.*

XVII. Pennsylvania

The Two Largest Public Pension Plans

The retirement plans for public employees in Pennsylvania (PA) publish annual data on their investment portfolios and performance. We collected those data for the two largest Pennsylvania public employees' retirement plans, the Pennsylvania Public School Employees' Retirement System (PSERS) and the Pennsylvania State Employees' Retirement System (SERS), for the fiscal years 2005-2009.⁷¹ Over this period, the two plans had combined assets averaging \$86.4 billion and membership averaging 650,556 people. (Table PA-1, below) The plans held \$2.9 billion in oil and natural gas stocks, 3.4 percent of their total assets. The two plans account for 70 percent of members and 80 percent of the assets of all Pennsylvania public pension plans.

Table PA-1. Pennsylvania's Two Largest Public Employee Retirement Plans: Total Assets and Oil and Natural Gas Assets, FYs 2005-2009⁷²

	Total Members	Total Assets (billions)	Oil and Natural Gas Assets (billions)	Oil and Natural Gas Assets as Share of All Assets
Total	650,556	\$86.244	\$2.934	3.4%
PSERS	434,618	\$57.444	\$2.097	3.5%
SERS	215,938	\$28.800	\$0.837	2.8%

The overall rate of return for the assets held by these two large plans averaged 18 percent for the five fiscal years 2005 - 2009. (Table PA-2, below) In contrast, S&P 500 Energy Sector produced around 48 percent return over the same period.⁷³ The two plans generated total gains of nearly \$29.4 billion over this period, including \$2.52 billion in gains from their investments in oil and natural gas stocks. As a result, oil and natural gas investments representing around 3.4 percent of the two plans' total assets contributed 8.6 percent of the two plans' gains.

Table PA-2. Pennsylvania's Two Largest Public Employee Retirement Plans: Rates of Return and Gains Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁷⁴

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (\$ millions)	Gains from Oil and Natural Gas Investments (\$ millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.18	\$1.48	\$1.15	\$29,378.8	\$2,519.3	8.6%
PSERS	\$1.14	\$1.41	\$1.12	\$18,156.1	\$1,764.0	9.7%
SERS	\$1.22	\$1.54	\$1.19	\$11,222.7	\$755.3	6.7%

⁷¹ The two plans use different fiscal years; so we set aside the difference to calculate their memberships and assets.

⁷² Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁷³ Since the PSERS fiscal year ends on June 30 and the SERS fiscal year ends on December 31, the returns of the S&P 500 Oil and natural gas Sector associated with the funds' fiscal years are different. For example, from July 1, 2009 and December 31, 2009, the S&P 500 Oil and natural gas Sector increased by 14.8 percent.

⁷⁴ Comprehensive Annual Financial Report; S&P's; and authors' estimates.

All Pennsylvania Public Employee Retirement Programs

The Census Bureau annual aggregate data on Pennsylvania public employee retirement systems, once again, cover only FYs 2005 – 2008. Since the returns on all investments and oil and natural gas stocks in particular fell sharply in 2009, these four years of aggregate data cannot be strictly compared to the five years of data on the two largest public employee pension plans. However, the available data show that public employee retirement plans in Pennsylvania covered 350,000 retirees and beneficiaries, 500,000 active employees, and nearly 100,000 inactive employees. The monthly benefit of all retirees averaged \$1,760. The Census data also show the allocation of the plans' investments for FYs 2005-2008. (Table PA-3, below) The largest asset class held by Pennsylvania public employee pension plans was "other assets," including cash, short-term instruments, real estate and alternative investments, which averaged 32.5 percent of the plans' total assets over the four years. U.S. equities accounted for an average of 28.2 percent of total assets, and U.S. oil and natural gas stocks represented 3.1 percent of their total portfolios.

**Table PA-3. All Pennsylvania Public Employee Retirement Plans:
Assets and Asset Allocations, FYs 2005-2008⁷⁵**

Fiscal Year	Total	U.S. Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	32.3%	3.0%	18.1%	20.7%	28.9%
2006	100.0%	33.5%	3.3%	19.8%	20.3%	26.3%
2007	100.0%	31.8%	4.1%	23.9%	18.7%	25.6%
2008	100.0%	15.0%	2.0%	19.1%	16.5%	49.3%
<i>In millions of US dollars</i>						
2005	\$95,165.4	\$30,778.9	\$2,862.4	\$17,210.5	\$19,718.4	\$27,457.6
2006	\$103,314.2	\$34,588.2	\$3,389.6	\$20,500.0	\$21,005.4	\$27,220.6
2007	\$118,310.0	\$37,639.5	\$4,855.5	\$28,271.4	\$22,081.5	\$30,317.5
2008	\$117,173.2	\$17,564.9	\$2,336.1	\$22,437.8	\$19,363.5	\$57,806.9

We calculate that \$1.00 invested by Pennsylvania public employee pension plans in July 2004 grew to \$1.55 in July 2009 (the state's fiscal year ends on June 30). (Table PA-4, below) Over this period, \$1.00 invested in the S&P Energy Sector grew to \$2.48. If these plans had not invested in oil and natural gas stocks, \$1.00 invested in FY 2005 would have grown to \$1.50 in FY 2008.

Over the four years, the annual returns on the System's assets fluctuated substantially, from 22.9 percent to negative 2.8 percent for all assets, and from 20.3 percent to 36.5 percent for oil and natural gas assets. (Table PA-4, below) Although these years are less representative without 2009, oil and natural gas investments by public employee pension plans represented \$3.4 billion of their total \$52 billion in returns for this period. Oil and natural gas assets representing 3.1 percent of total holdings contributed 6.6 percent of the gains in this period.

⁷⁵ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Table PA-4. All Pennsylvania Public Employee Retirement Plans, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2008⁷⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.9%	36.5%	\$1.13	\$1.36	\$1.09	\$12,247.8	\$1,044.8
2006	15.3%	20.3%	\$1.30	\$1.64	\$1.25	\$15,765.7	\$686.9
2007	22.9%	24.5%	\$1.60	\$2.04	\$1.52	\$27,128.5	\$1,189.3
2008	-2.8%	21.4%	\$1.55	\$2.48	\$1.50	(\$3,304.3)	\$499.7
Total						\$51,837.7	\$3,420.7

XVIII. South Carolina

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in South Carolina, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over this period, the two plans had assets averaging \$17.8 billion and a combined average membership of 230,971, including current retirees, current employees, and former or inactive employees. (Table SC-1, below) The two plans held oil and natural gas-sector investments averaging \$394 million or 2.2 percent of their assets. The two plans represent 48 percent of all members and 58 percent of all assets in all South Carolina public employee retirement plans.

Table SC-1. South Carolina's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, 2005-2009⁷⁷

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	230,971	\$17.819	\$0.394	2.2%
PSERS	128,385	\$9.903	\$0.219	2.2%
SERS	102,586	\$7.916	\$0.175	2.2%

The cumulative rate of return on the assets of these two large plans was just 1 percent for the five fiscal years. (Table SC-2, below) Over this period, the oil and natural gas assets produced a 41 percent return over this period while the cumulative return on the rest of their portfolios was about zero. The two plans generated gains of \$1.6 billion in this period, including \$364 million from investments in oil and natural gas stocks. Thus, oil and natural gas

⁷⁶ *Ibid.*

⁷⁷ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

investments which represented 2.2 percent of the two plans' assets contributed 22.9 percent of their gains.

Table SC-2. South Carolina's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁷⁸

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.01	\$1.41	\$1.00	\$1,593.2	\$364.3	22.9%
PSERS	\$1.01	\$1.41	\$1.00	\$878.1	\$202.1	23.0%
SERS	\$1.01	\$1.41	\$1.00	\$715.1	\$162.2	22.7%

All South Carolina Public Employee Retirement Programs

To estimate the impact of oil and natural gas stocks on the returns on all South Carolina public employee retirement programs, we use the available annual Census Bureau data on public employee retirement systems, covering as yet only FYs 2005 to 2008. Since the returns on all investments fell sharply in late 2008 and 2009, the four years of aggregate data by state cannot be strictly compared to the five years of data on the large plans. The available data do show that all public employee retirement plans in South Carolina over this four-year period covered 108,091 retirees and beneficiaries, 211,175 active employees, and 157,900 inactive employees. The average monthly benefit for retirees under these plans was \$1,392. The Census data also show the allocation of assets by asset-class for public employee pension plans in South Carolina.

Table SC-3. All South Carolina Public Employee Retirement Plans: Asset Allocations, FYs 2005-2008⁷⁹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	17.4%	1.6%	--	38.4%	44.3%
2006	100.0%	20.6%	2.0%	--	34.8%	44.5%
2007	100.0%	18.4%	2.4%	--	22.9%	58.7%
2008	100.0%	20.5%	2.7%	--	20.4%	59.1%
<i>In millions of US dollars</i>						
2005	\$29,637.9	\$5,142.8	\$478.3	--	\$11,376.8	\$13,118.2
2006	\$30,247.2	\$6,240.1	\$611.5	--	\$10,535.5	\$13,471.6
2007	\$33,515.5	\$6,166.0	\$795.4	--	\$7,666.5	\$19,683.0
2008	\$30,254.3	\$6,192.6	\$823.6	--	\$6,175.9	\$17,885.7

⁷⁸ *Ibid.*

⁷⁹ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

These data show, as expected, that the overall performance of South Carolina public pension plans from July 2004 to June 2008 (the state's fiscal year ends June 30) was stronger than that of the two largest plans from FY 2005 to FY 2009. This mainly reflects the differences in the two time periods: From July 1, 2008 to June 30, 2009, the value of all assets held by these funds declined about 19 percent, while the value of the system's oil and gas assets fell 43 percent. (See Appendix, Tables A-SC-3 and A-SC-6) The four-year data show that \$1.00 invested in the South Carolina public employees' retirement system in July 2004 grew to \$1.24 in June 2008. (Table SC-4, below) Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If the system had not held oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.17 in June 2008.

Even without data from mid-2008 on, returns fluctuated significantly over the four years, ranging from 13.4 percent to negative 2.6 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. Although this period is less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed nearly \$670 million of the system's \$7.32 billion in net returns over the period. Thus, oil and natural gas investments representing 2.2 percent of total system holdings contributed 9.1 percent of its gains over this period.

Table SC-4. All South Carolina Public Employee Retirement Plans, Returns and Gains for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁸⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	7.0%	36.5%	\$1.07	\$1.36	\$1.05	\$2,074.7	\$174.6
2006	5.1%	20.3%	\$1.12	\$1.64	\$1.09	\$1,542.6	\$123.9
2007	13.4%	24.5%	\$1.28	\$2.04	\$1.23	\$4,491.1	\$194.8
2008	-2.6%	21.4%	\$1.24	\$2.48	\$1.17	(\$786.6)	\$176.2
Total						\$7,321.7	\$669.5

XIX. West Virginia

The Two Largest Public Pension Plans

We collected data on the investment portfolios and performance of the two largest public employee retirement plans in West Virginia, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS), for fiscal years 2005-2009. Over these five fiscal years, the two plans total assets averaged \$6.55 billion, and their combined membership averaged 127,284. (Table WV-1, below) The two plans held oil and natural gas

⁸⁰ *Ibid.*

investments averaging \$242 million or 3.7 percent of the plans' assets. The two plans represent more than 80 percent of the total assets of all West Virginia public employee retirement plans.

Table WV-1. West Virginia's Two Largest Public Employee Retirement Plans: Members, Total Assets and Oil and Natural Gas Assets, Annual Average, 2005-2009⁸¹

	Total Members	Total Assets (\$ billions)	Oil and Natural Gas Assets (\$ billions)	Oil and Natural Gas Assets as a Share of All Assets
Total	127,284	\$6,548	\$0.242	3.7%
PSERS	57,195	\$2.835	\$0.100	3.5%
SERS	70,089	\$3.713	\$0.142	3.8%

The cumulative rate of return on the assets of these two large plans was 11 percent for the five fiscal years. (Table WV-2, below) Their oil and natural gas assets produced a 41 percent return over this period, while the return on the rest of their portfolios was 7 percent. The two plans generated total gains of \$887 million over this period, including \$172 million in gains from their investments in oil and natural gas stocks. Therefore, oil and natural gas investments which represented 3.7 percent of the two plans' total assets contributed 19.4 percent of their total gains.

Table WV-2. West Virginia's Two Largest Public Employee Retirement Plans: Rates of Return and Gains, Overall and from Oil and Natural Gas Investments, FYs 2005-2009⁸²

	Return on \$1 invested in Plans	Return on \$1 invested in Oil and Natural Gas Stocks	Return on \$1 invested in Non-Oil and Natural Gas Investments	Total Gains by Plans (millions)	Gains from Oil and Natural Gas Investments (millions)	Gains from Oil and Natural Gas as Share of All Gains
Total	\$1.11	\$1.41	\$1.07	\$886.8	\$172.4	19.4%
PSERS	\$1.10	\$1.41	\$1.06	\$178.7	\$55.6	31.1%
SERS	\$1.12	\$1.41	\$1.08	\$708.1	\$116.8	16.5%

All West Virginia Public Employee Retirement Programs

To estimate the impact of oil and natural gas investments on all West Virginia public employee retirement programs, we start with the available, annual Census Bureau data on public employee retirement systems by state, covering FYs 2005 to 2008. This period excludes the sharp decline in the returns on all investments in late 2008 and 2009, and thus those aggregate data cannot be strictly compared to the data on the two large plans. In addition, these Census data for West Virginia use different definitions of assets and their allocation than reported by the state's two large funds. Since those two funds (teachers and state employees) account for more than 80 percent of the assets of all public pension plans in West Virginia, we use the sum of those two funds to estimate the performance of all state public pension plans. (Table WV-3, below) The state-wide asset allocations and returns are weighted averages of the two funds.

⁸¹ Comprehensive Annual Financial Report of Public Schools Employees Retirement Systems and State Employees Retirement System and authors' estimates.

⁸² *Ibid.*

**Table WV-3. All West Virginia Public Employee Retirement Plans:
Asset Allocations, FYs 2005-2008⁸³**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	40.5%	3.8%	20.0%	39.5%	0.0%
2006	100.0%	36.9%	3.6%	19.3%	43.8%	0.0%
2007	100.0%	33.9%	4.4%	19.4%	46.7%	0.0%
2008	100.0%	28.4%	3.8%	24.7%	35.9%	11.0%
<i>In millions of US dollars</i>						
2005	\$4,998.6	\$2,022.4	\$188.1	\$999.9	\$1,976.4	-
2006	\$5,775.4	\$2,132.3	\$209.0	\$1,113.5	\$2,529.6	-
2007	\$7,927.3	\$2,684.9	\$346.4	\$1,538.7	\$3,703.6	-
2008	\$7,282.0	\$2,066.6	\$274.9	\$1,797.0	\$2,617.4	\$801.0

These data show that the overall performance of West Virginia public pension plans from July 2004 to June 2008 (the state fiscal year ends June 30). These four-year data show that \$1.00 invested by the West Virginia public employees' retirement system in July 2004 grew to \$1.32 in June 2008. (Table WV-4, below) Over this period, \$1.00 invested in oil and gas stocks grew to \$2.48. If these plans had not held oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.23 in June 2008. Even without the data from mid-2008 on, the annual returns fluctuated significantly over the four years, ranging from 17.5 percent to negative 7.1 percent for all assets and from 20.3 percent to 36.5 percent for oil and natural gas assets. Although these years are less representative without the second half of 2008 and the first half of 2009, we estimate that oil and natural gas investments contributed about \$255 million of the system's net gains of \$1.96 billion over the period. Thus, oil and natural gas investments representing 3.9 percent of total system holdings contributed 13.0 percent of its gains over this period.

**Table WV-4. All West Virginia Public Employee Retirement Plans, Returns and Gains
for All Assets and for Oil and Natural Gas Investments, FYs 2005-2008⁸⁴**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil & Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets But Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.7%	36.5%	\$1.11	\$1.36	\$1.06	\$533.3	\$68.6
2006	9.5%	20.3%	\$1.21	\$1.64	\$1.15	\$550.7	\$42.3
2007	17.5%	24.5%	\$1.42	\$2.04	\$1.34	\$1,387.9	\$84.8
2008	-7.1%	21.4%	\$1.32	\$2.48	\$1.23	(\$513.5)	\$58.8
Total						\$1,958.4	\$254.6

⁸³ U.S. Census' State & Local Government Employee Retirement Systems; Comprehensive Annual Financial Report; and authors' estimates.

⁸⁴ *Ibid.*

XX. Conclusion

The long-term solvency of the public employee pension funds of state and local governments has become a matter of great importance. The economic difficulties of recent years have reduced or slowed the growth of the state and local government revenues required to fund these plans. In addition, the statutory benefits owed to current retirees and the large numbers of baby boom public workers nearing retirement entail legal obligations that exceed current and projected capacities of the funds in many states. These pressures call for serious, new analysis of the investment performance and strategies of state public employee retirement systems.

This study has focused on one element of the investment performance and strategies of these systems in seventeen states -- the rates of return and net capital gains and losses associated with investments in oil and natural gas stocks, compared to investments in other U.S. equities, international equities, fixed-income instruments, and other classes of alternative assets such as hedge funds, real estate, private equity and cash balances. We tracked the financial performance of these different classes of assets over five years, spanning fiscal years 2005 – 2009, for the two largest public employee pension plans in seventeen states. These years covers periods of strong growth and severe recession, and the seventeen states include large and small jurisdictions from every region of the country.

The findings are striking and consistent. On average, \$1 invested in U.S. oil and natural gas stocks by the two largest plans in each of these states in FY 2005 was worth \$1.42 in FY 2009, with a range across the seventeen state of \$1.40 to \$1.48. By contrast, \$1 invested in all other assets by these two largest plans in FY 2005 was worth an average of \$1.06 in FY 2009, with a range of \$1.00 to \$1.17. On average, therefore, the average rate of return on investments by these funds in oil and natural gas stocks was seven times as great as the average return on their investments in all other assets.

The superior performance of these investments in oil and natural gas stocks also can be expressed in terms of their contribution to the total returns of the states' two largest plans, relative to their share of those funds' total assets. Oil and natural gas stocks represented an average of 4.6 percent of the total assets of these funds, ranging from 2.2 percent to 5.5 percent. However, oil and natural gas stocks accounted for an average of 15.7 percent of the total returns achieved by these funds, ranging from 8.6 percent to 27.5 percent. Therefore, on average, oil and natural gas assets accounted for a 3.4 times greater share of the returns achieved by these large funds than their share of those funds' assets. Across the seventeen states, this ratio ranged from a low of 2.5 to 1 to a high of 10.4 to 1.

Many factors influence the investment strategies and asset allocations of state and local public employee pension plans. This analysis, however, spanning years of expansion and recession, finds conclusively that in recent years, investments in U.S. oil and natural gas equities have provided state and local public employee pension plans consistently stronger returns than the average returns of their other assets.

References

California Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

California Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Florida State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Florida State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Illinois Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Illinois State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Indiana Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Indiana State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Iowa Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Iowa State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Michigan Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Michigan State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Minnesota Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Minnesota State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Missouri Public School Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Missouri State Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Nebraska State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Nebraska State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New Hampshire State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New Hampshire State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New Mexico State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New Mexico State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New York State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

New York State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

North Dakota State Public School Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

North Dakota State & Local Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Ohio State Teachers Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Ohio Public Employees Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Pennsylvania Public School Employees’ Retirement System (2005-2009) “Comprehensive Annual Financial Report.”

Pennsylvania State Employees' Retirement System (2005-2009) "Comprehensive Annual Financial Report."

South Carolina State Public School Teachers Retirement System (2005-2009) "Comprehensive Annual Financial Report."

South Carolina State & Local Retirement System (2005-2009) "Comprehensive Annual Financial Report."

Standard & Poor's.

U.S. Census' State & Local Government Employee Retirement Systems.

West Virginia Public School Teachers Retirement System (2005-2009) "Comprehensive Annual Financial Report."

West Virginia State & Local Retirement System (2005-2009) "Comprehensive Annual Financial Report."

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Appendix:

Background Data on the Two Largest Public Employee Retirement Plans in Seventeen States

California

California Public School Employees' Retirement System

The California Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership consists of retirees and beneficiaries; current employees, both vested and non-vested; and inactive employees entitled to benefits at some time. Members (including retirees, current and inactive employees) averaged 812,938 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$3,829.

**Table A-CA-1. California Public School Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009⁸⁵**

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	201,241	450,282	124,394	775,917	\$3,535
2006	207,846	453,365	133,601	794,812	\$3,600
2007	215,641	455,693	141,450	812,784	\$3,835
2008	223,968	461,378	147,997	833,343	\$4,015
2009	232,617	459,009	156,207	847,8330	\$4,158
Average	216,263	455,945	140,730	812,938	\$3,829

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 40.0 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.5 percent of total assets over this period.

⁸⁵ Public School Employees Retirement System, Comprehensive Annual Financial Report.

**Table A-CA-2. California Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009⁸⁶**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	42.8%	4.0%	21.0%	24.4%	11.8%
2006	100.0%	42.0%	4.1%	23.0%	22.0%	13.0%
2007	100.0%	41.0%	5.3%	21.0%	23.0%	15.0%
2008	100.0%	38.0%	5.1%	19.8%	19.2%	23.0%
2009	100.0%	36.3%	4.2%	17.9%	21.8%	24.0%
<i>In millions of US dollars</i>						
2005	\$129,600.0	\$55,468.8	\$5,158.6	\$27,216.0	\$31,622.4	\$15,292.8
2006	\$143,800.0	\$60,396.0	\$5,918.8	\$33,074.0	\$31,636.0	\$18,694.0
2007	\$171,900.0	\$70,479.0	\$9,091.8	\$36,099.0	\$39,537.0	\$25,785.0
2008	\$161,500.0	\$61,370.0	\$8,162.2	\$31,977.0	\$31,008.0	\$37,145.0
2009	\$118,900.0	\$43,148.8	\$4,962.1	\$21,318.8	\$25,920.2	\$28,512.2

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.10 in June 2009 (the fiscal year ends on June 31). Over this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in 2004 would have grown to \$1.04 in 2009. We next estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled nearly \$33.8 billion, including \$4.9 billion in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 4.4 percent of its total assets, provided 14.6 percent of its total gains.

**Table A-CA-3. California Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009⁸⁷**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	11.1%	36.5%	\$1.11	\$1.36	\$1.06	\$14,372.6	\$1,882.9
2006	13.2%	20.3%	\$1.26	\$1.64	\$1.19	\$18,996.0	\$1,199.4
2007	21.0%	24.5%	\$1.52	\$2.04	\$1.41	\$36,150.6	\$2,227.0
2008	-3.7%	21.4%	\$1.47	\$2.48	\$1.34	(\$5,959.4)	\$1,745.7
2009	-25.0%	-43.0%	\$1.10	\$1.41	\$1.04	(\$29,760.7)	\$(2,134.7)
Total						\$33,799.2	\$4,920.4

⁸⁶ *Ibid.*, S&P's; and authors' estimates.

⁸⁷ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

California State Employees' Retirement System

The California State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members include retirees and beneficiaries currently receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The monthly pension payments to qualified retirees and beneficiaries averaged \$2,156 per-month over this period.

Table A-CA-4. California State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009⁸⁸

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	368,176	789,195	227,787	1,385,158	\$1,944
2006	382,841	807,589	241,306	1,431,736	\$2,048
2007	395,450	822,624	264,276	1,482,350	\$2,160
2008	408,026	836,914	289,219	1,534,159	\$2,260
2009	422,691	821,133	313,284	1,557,108	\$2,369
Average	395,437	815,491	267,174	1,478,102	\$2,156

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 34.6 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 2.4 percent and 5.2 percent of the System's total assets over this period.

Table A-CA-5. California State Employees' Retirement System, Asset Allocation, FYs 2005-2009⁸⁹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	40.3%	3.7%	20.5%	28.8%	10.5%
2006	100.0%	40.4%	4.0%	21.5%	24.8%	13.3%
2007	100.0%	40.4%	5.2%	19.7%	24.6%	15.4%
2008	100.0%	31.2%	4.1%	20.5%	25.3%	23.0%
2009	100.0%	20.8%	2.4%	22.9%	28.1%	28.2%
<i>In millions of US dollars</i>						
2005	\$188,926.0	\$76,042.7	\$7,072.0	\$38,786.5	\$54,354.0	\$19,742.8
2006	\$209,871.0	\$84,808.9	\$8,311.3	\$45,101.3	\$52,027.0	\$27,933.8
2007	\$249,582.0	\$100,756.3	\$12,997.6	\$49,192.6	\$61,322.3	\$38,310.8
2008	\$236,854.0	\$73,874.8	\$9,825.3	\$48,507.7	\$59,947.7	\$54,523.8
2009	\$183,370.0	\$38,141.0	\$4,386.2	\$41,991.7	\$51,527.0	\$51,710.3

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.08 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have barely grown, to \$1.04 in June 2009. We next estimate the

⁸⁸ State Employees Retirement System, Comprehensive Annual Financial Report.

⁸⁹ *Ibid.*, and S&P's; and authors' estimates.

capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$39.6 billion, including nearly \$7.7 billion in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for about 4.4 percent of the System's total assets, provided 19.4 percent of the System's total gains.

Table A-CA-6. California State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009⁹⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.3%	36.5%	\$1.12	\$1.36	\$1.07	\$23,237.9	\$2,581.2
2006	11.8%	20.3%	\$1.26	\$1.64	\$1.19	\$24,764.8	\$1,684.3
2007	19.1%	24.5%	\$1.50	\$2.04	\$1.39	\$47,670.2	\$3,183.6
2008	-5.1%	21.4%	\$1.42	\$2.48	\$1.32	(\$12,079.6)	\$2,101.5
6/2009	-24.0%	-43.0%	\$1.08	\$1.41	\$1.04	(\$44,008.8)	\$(1,886.9)
Total						\$39,584.5	\$7,663.7

Florida

Florida Public School Employees' Retirement System

The Florida Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership consists of retirees and beneficiaries; current employees, both vested and non-vested; and inactive employees entitled to benefits at some time. Members (including retirees, current and inactive employees) averaged 448,246 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$1,316.

Table A-FL-1. Florida Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009⁹¹

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	110,021	315,736	n/a	425,757	\$1,239
2006	116,370	325,288	n/a	441,658	\$1,277
2007	121,969	332,416	n/a	454,385	\$1,313
2008	126,662	336,597	n/a	463,259	\$1,353
2009	132,779	323,390	n/a	456,169	\$1,398
Average	121,560	326,685	n/a	448,246	\$1,316

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share, averaging 43.0 percent of all holdings. Investments in oil and gas companies are

⁹⁰ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁹¹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.8 percent of total assets over this period.

Table A-FL-2. Florida Public School Employees' Retirement System, Asset Allocation, FYs 2005-2009⁹²

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	51.0%	4.7%	19.0%	21.7%	8.3%
2006	100.0%	50.4%	4.9%	19.5%	21.3%	8.8%
2007	100.0%	42.9%	5.5%	16.4%	22.9%	17.8%
2008	100.0%	35.5%	4.7%	18.7%	27.6%	18.2%
2009	100.0%	35.2%	4.0%	20.5%	26.1%	18.2%
<i>In millions of US dollars</i>						
2005	\$52,837.7	\$26,947.2	\$2,506.1	\$10,039.2	\$11,465.8	\$4,385.5
2006	\$57,108.2	\$28,782.5	\$2,820.7	\$11,136.1	\$12,164.0	\$5,025.5
2007	\$65,631.8	\$28,156.0	\$3,632.1	\$10,763.6	\$15,029.7	\$11,682.5
2008	\$61,340.5	\$21,775.9	\$2,896.2	\$11,470.7	\$16,930.0	\$11,164.0
2009	\$47,484.1	\$16,714.4	\$1,922.2	\$9,734.2	\$12,393.4	\$8,642.1

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.11 in June 2009 (fiscal year ends on June 31). Over this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in 2004 would have grown to \$1.06 in 2009. We next estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$11.5 billion, including nearly \$2.2 billion in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, accounting for 4.8 percent of its total assets, provided 18.8 percent of its total gains.

Table A-FL-3. Florida Public School Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009⁹³

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.2%	36.5%	\$1.10	\$1.37	\$1.04	\$5,378.9	\$914.7
2006	10.6%	20.3%	\$1.22	\$1.64	\$1.14	\$6,030.6	\$571.5
2007	18.1%	24.5%	\$1.44	\$2.04	\$1.33	\$11,859.7	\$889.5
2008	-4.4%	21.4%	\$1.37	\$2.48	\$1.26	(\$2,711.2)	\$619.5
2009	-19.0%	-43.0%	\$1.11	\$1.41	\$1.06	(\$9,036.2)	(\$826.9)
Total						\$11,521.7	\$2,168.3

⁹² *Ibid.*, S&P's; and authors' estimates.

⁹³ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Florida State Employees' Retirement System

The Florida State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members include retirees and beneficiaries currently receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. Monthly pension payments to qualified retirees and beneficiaries averaged \$1,217 per-month over this period.

Table A-FL-4. Florida State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009⁹⁴

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	49,884	139,969	n/a	189,853	\$1,126
2006	52,727	141,354	n/a	194,081	\$1,169
2007	55,371	141,372	n/a	196,743	\$1,215
2008	57,881	141,154	n/a	199,035	\$1,263
2009	60,400	140,280	n/a	200,680	\$1,310
Average	55,253	140,826	n/a	196,078	\$1,217

The state employees' pension system's investments are diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 43.0 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 4.0 percent and 5.5 percent of the System's total assets over this period.

Table A-FL-5. Florida State Employees' Retirement System, Asset Allocation, FYs 2005-2009⁹⁵

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	51.0%	4.7%	19.0%	21.7%	8.3%
2006	100.0%	50.4%	4.9%	19.5%	21.3%	8.8%
2007	100.0%	42.9%	5.5%	16.4%	22.9%	17.8%
2008	100.0%	35.5%	4.7%	18.7%	27.6%	18.2%
2009	100.0%	35.2%	4.0%	20.5%	26.1%	18.2%
<i>In millions of US dollars</i>						
2005	\$23,561.3	\$12,016.3	\$1,117.5	\$4,476.7	\$5,112.8	\$1,955.6
2006	\$25,095.5	\$12,648.1	\$1,239.5	\$4,893.6	\$5,345.3	\$2,208.4
2007	\$28,417.7	\$12,191.2	\$1,572.7	\$4,660.5	\$6,507.7	\$5,058.4
2008	\$26,354.4	\$9,355.8	\$1,244.3	\$4,928.3	\$7,273.8	\$4,796.5
2009	\$20,889.4	\$7,353.1	\$845.6	\$4,282.3	\$5,452.1	\$3,801.9

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.11 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have grown to only \$1.06 in June 2009. We next estimate the capital

⁹⁴ State Employees Retirement System, Comprehensive Annual Financial Report.

⁹⁵ *Ibid.*, and S&P's; and authors' estimates.

gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$5.044 billion, including nearly \$947 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for 4.8 percent of the System's total assets, provided 18.8 percent of the System's total gains.

Table A-FL-6. Florida State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009⁹⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.2%	36.5%	\$1.10	\$1.37	\$1.04	\$2,398.5	\$407.9
2006	10.6%	20.3%	\$1.22	\$1.64	\$1.14	\$2,650.1	\$251.1
2007	18.1%	24.5%	\$1.44	\$2.04	\$1.33	\$5,135.1	\$385.1
2008	-4.4%	21.4%	\$1.37	\$2.48	\$1.26	(\$1,164.9)	\$266.2
6/2009	-19.0%	-43.0%	\$1.11	\$1.41	\$1.06	(\$3,975.3)	(\$363.8)
Total						\$5,043.6	\$946.5

Illinois

Illinois Public School Employees' Retirement System

The Illinois Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership consists of retirees and beneficiaries; current employees, both vested and non-vested; and inactive employees entitled to benefits at some time. Members (retirees, current and inactive employees) averaged 343,309 over FYs 2005-2009, and the monthly pension payments paid out averaged \$3,324.

Table A-IL-1. Illinois Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009⁹⁷

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	82,572	155,850	87,328	325,750	\$3,043
2006	85,103	159,272	81,218	325,593	\$3,173
2007	89,236	160,317	94,879	344,432	\$3,344
2008	91,462	165,572	98,550	355,584	\$3,461
2009	94,424	169,158	101,606	365,188	\$3,597
Average	88,559	162,034	92,716	343,309	\$3,324

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 38.1 percent of total holdings. Investments in energy companies,

⁹⁶ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

⁹⁷ Public School Employees Retirement System, Comprehensive Annual Financial Report.

more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.3 percent of total assets over this period.

**Table A-IL-2. Illinois Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009⁹⁸**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	44.4%	4.1%	17.5%	24.1%	14.0%
2006	100.0%	41.8%	4.1%	19.4%	23.3%	15.5%
2007	100.0%	40.1%	5.2%	22.0%	18.6%	19.3%
2008	100.0%	33.2%	4.4%	21.4%	17.2%	28.2%
2009	100.0%	31.2%	3.6%	19.1%	18.6%	31.1%
<i>In millions of US dollars</i>						
2005	\$34,898.0	\$15,508.7	\$1,442.3	\$6,107.2	\$8,410.4	\$4,871.8
2006	\$37,580.0	\$15,708.4	\$1,539.4	\$7,290.5	\$8,756.1	\$5,824.9
2007	\$42,231.0	\$16,934.6	\$2,184.6	\$9,290.8	\$7,855.0	\$8,150.6
2008	\$39,495.0	\$13,112.3	\$1,743.9	\$8,451.9	\$6,793.1	\$11,137.6
2009	\$28,961.0	\$9,035.8	\$1,039.1	\$5,531.6	\$5,386.7	\$9,006.9

Using the public school pension system's returns, \$1.00 invested in the System in July 2004 grew to \$1.08 in June 2009 (fiscal year ends on June 31). (Table A-IL-3, below) In this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas, \$1.00 invested in 2004 would have grown to \$1.03 in 2009. We next estimate the capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas. For this period, the System's gains totaled \$7.8 billion, including \$1.3 billion from investments in oil and natural gas. The System's oil and natural gas investments, which accounted for 3.8 percent of all assets, provided 16.7 percent of its gains.

**Table A-IL-3. Illinois Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009⁹⁹**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.8%	36.5%	\$1.11	\$1.36	\$1.05	\$3,769.0	\$526.4
2006	11.8%	20.3%	\$1.24	\$1.64	\$1.17	\$4,434.4	\$312.0
2007	19.2%	24.5%	\$1.48	\$2.04	\$1.37	\$8,108.4	\$535.1
2008	-5.0%	21.4%	\$1.40	\$2.48	\$1.29	(\$1,974.8)	\$373.0
2009	-22.7%	-43.0%	\$1.08	\$1.41	\$1.03	(\$6,574.1)	(\$447.0)
Total						\$7,762.9	\$1,299.5

⁹⁸ *Ibid.*, S&P's; and authors' estimates.

⁹⁹ Public School Employee Retirement System, Comprehensive Annual Financial Report; S&P's; authors' estimates.

Illinois State Employees' Retirement System

The Illinois State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members include retirees and beneficiaries currently receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The monthly pension payments to retirees and beneficiaries averaged \$2,251 per-month in this period.

Table A-IL-4. Illinois State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁰⁰

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	54,828	69,163	4,672	128,663	\$2,091
2006	54,868	68,075	4,605	127,548	\$1,974
2007	55,262	67,699	4,606	127,567	\$2,183
2008	56,111	66,237	4,702	127,050	\$2,434
2009	57,009	65,599	4,672	127,370	\$2,574
Average	55,634	67,355	4,651	127,640	\$2,251

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 46.2 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 4.6 percent and 6.7 percent of the System's total assets over this period.

Table A-IL-5. Illinois State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁰¹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	51.0%	4.7%	9.0%	26.0%	14.0%
2006	100.0%	51.0%	5.0%	10.0%	23.0%	16.0%
2007	100.0%	52.0%	6.7%	11.0%	20.0%	17.0%
2008	100.0%	37.0%	4.9%	17.0%	18.0%	28.0%
2009	100.0%	40.0%	4.6%	17.0%	18.0%	25.0%
<i>In millions of US dollars</i>						
2005	\$10,902.0	\$5,560.0	\$517.1	\$981.2	\$2,834.5	\$1,526.3
2006	\$11,316.0	\$5,771.2	\$565.6	\$1,131.6	\$2,602.7	\$1,810.6
2007	\$12,552.0	\$6,527.0	\$842.0	\$1,380.7	\$2,510.4	\$2,133.8
2008	\$11,315.0	\$4,186.6	\$556.8	\$1,923.6	\$2,036.7	\$3,168.2
2009	\$8,684.0	\$3,473.6	\$399.5	\$1,476.3	\$1,563.1	\$2,171.0

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.07 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have barely grown, to \$1.01 in June 2009. We next estimate the

¹⁰⁰ State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁰¹ *Ibid.*, and S&P's; and authors' estimates.

capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$2.045 billion, including nearly \$457 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, accounting for about 5.2 percent of the System's total assets, provided 22.3 percent of the System's total gains. (Table IL-6)

Table A-IL-6. Illinois State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁰²

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.1%	36.5%	\$1.10	\$1.36	\$1.04	\$1,101.1	\$188.7
2006	11.0%	20.3%	\$1.22	\$1.64	\$1.14	\$1,244.8	\$114.6
2007	17.1%	24.5%	\$1.43	\$2.04	\$1.29	\$2,146.4	\$206.2
2008	-6.2%	21.4%	\$1.34	\$2.48	\$1.22	(\$701.5)	\$119.1
6/2009	-20.1%	-43.0%	\$1.07	\$1.41	\$1.01	(\$1,745.5)	(\$171.8)
Total						\$2,045.2	\$456.8

Indiana

Indiana Public School Employees' Retirement System

The Indiana Public School Employees' Retirement System provides pension benefits for all public school employees. The System's membership consists of retirees and beneficiaries, current employees, and inactive employees entitled to benefits at some time. Membership averaged 156,361 over FYs 2005-2009, and monthly pension payments averaged \$1,412.

Table A-IN-1. Indiana Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁰³

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	38,512	73,923	37,302	149,737	\$1,314
2006	39,849	73,350	38,215	151,414	\$1,395
2007	41,253	75,833	43,425	160,511	\$1,405
2008	42,817	76,256	43,337	162,410	\$1,449
2009	44,492	74,343	38,897	157,732	\$1,495
Average	41,385	74,741	40,235	156,361	\$1,412

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 43.9 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and

¹⁰² State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁰³ Public School Employees Retirement System, Comprehensive Annual Financial Report.

benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.9 percent of total assets over this period.

**Table A-IN-2. Indiana Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁰⁴**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	57.2%	5.3%	19.6%	21.5%	1.7%
2006	100.0%	45.6%	4.5%	20.3%	23.2%	10.9%
2007	100.0%	45.7%	5.9%	21.2%	20.8%	12.3%
2008	100.0%	37.8%	5.0%	22.5%	23.4%	16.3%
2009	100.0%	33.1%	3.8%	19.3%	29.8%	17.8%
<i>In millions of US dollars</i>						
2005	\$4,041.0	\$2,311.5	\$215.0	\$792.0	\$868.8	\$68.7
2006	\$4,521.0	\$2,061.6	\$202.0	\$917.8	\$1,048.9	\$492.8
2007	\$5,501.0	\$2,514.0	\$324.3	\$1,166.2	\$1,144.2	\$676.6
2008	\$5,252.0	\$1,985.3	\$264.0	\$1,181.7	\$1,229.0	\$856.1
2009	\$4,235.9	\$1,402.1	\$161.2	\$817.5	\$1,262.3	\$754.0

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.10 in June 2009 (the fiscal year ends on June 31). Over this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.05 in FY 2009. We also estimate the annual capital gains and losses of the public school pension system's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$781 million, including nearly \$186 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 4.9 percent of its assets, generated 23.8 percent of its net gains.

**Table A-IN-3. Indiana Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁰⁵**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.1%	36.5%	\$1.09	\$1.37	\$1.02	\$367.7	\$78.5
2006	11.2%	20.3%	\$1.21	\$1.64	\$1.14	\$506.4	\$40.9
2007	17.9%	24.5%	\$1.43	\$2.04	\$1.31	\$984.7	\$79.4
2008	-6.0%	21.4%	\$1.34	\$2.48	\$1.22	(\$315.1)	\$56.5
2009	-18.0%	-43.0%	\$1.10	\$1.41	\$1.05	(\$762.5)	(\$69.4)
Total						\$781.2	\$185.9

¹⁰⁴ *Ibid.*, S&P's; and authors' estimates.

¹⁰⁵ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Indiana State Employees' Retirement System

The Indiana State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members include retirees and beneficiaries currently receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The monthly pension payments to qualified beneficiaries averaged \$2,316.50 per-month in this period.

**Table A-IN-4. Indiana State Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁰⁶**

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	57,121	141,428	10,531	209,080	\$2,189.3
2006	58,283	140,563	11,552	210,398	\$2,264.3
2007	60,332	138,863	14,789	213,984	\$2,333.9
2008	62,424	140,146	15,450	218,020	\$2,327.8
2009	65,099	147,792	10,670	223,561	\$2,467.0
Average	60,652	141,758	12,598	215,009	\$2,316.5

The state employees' pension system's investments are diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 42.6 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 3.1 percent and 6.2 percent of the System's total assets over this period.

**Table A-IN-5. Indiana State Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁰⁷**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	49.5%	4.6%	21.8%	28.5%	0.3%
2006	100.0%	49.2%	4.8%	24.8%	25.4%	0.6%
2007	100.0%	48.0%	6.2%	28.2%	22.2%	1.6%
2008	100.0%	39.3%	5.2%	28.0%	25.4%	7.3%
2009	100.0%	27.0%	3.1%	23.5%	33.0%	16.5%
<i>In millions of US dollars</i>						
2005	\$12,435.3	\$6,156.7	\$572.6	\$2,704.7	\$3,537.8	\$36.1
2006	\$13,694.9	\$6,737.9	\$660.3	\$3,396.3	\$3,478.5	\$82.2
2007	\$16,114.3	\$7,734.9	\$997.8	\$4,544.2	\$3,577.4	\$257.8
2008	\$14,851.0	\$5,836.4	\$776.2	\$4,158.3	\$3,772.2	\$1,084.1
2009	\$11,795.1	\$3,184.7	\$366.2	\$2,771.8	\$3,892.4	\$1,946.2

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.05 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have barely grown, to \$1.01 in June 2009. We next estimate the

¹⁰⁶ State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁰⁷ *Ibid.*, and S&P's; and authors' estimates.

capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$2.058 billion, including nearly \$596 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for about 4.8 percent of the System's total assets, provided 28.9 percent of the System's total gains.

Table A-IN-6. Indiana State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁰⁸

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.8%	36.5%	\$1.10	\$1.37	\$1.04	\$1,218.7	\$209.0
2006	10.7%	20.3%	\$1.22	\$1.64	\$1.14	\$1,465.4	\$133.8
2007	18.2%	24.5%	\$1.44	\$2.04	\$1.31	\$2,932.8	\$244.4
2008	-7.6%	21.4%	\$1.33	\$2.48	\$1.20	(\$1,128.7)	\$166.0
6/2009	-20.6%	-43.0%	\$1.05	\$1.41	\$1.01	(\$2,429.8)	(\$157.6)
Total						\$2,058.3	\$595.6

Iowa

Iowa Public School Employees' Retirement System

The Iowa Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership, including retirees and beneficiaries, and current employees both vested and non-vested, averaged 126,835 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$1,502.

Table A-IA-1. Iowa Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁰⁹

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	39,277	79,392	n/a	118,669	\$1,335
2006	42,642	84,600	n/a	127,242	\$1,445
2007	43,951	85,493	n/a	129,444	\$1,570
2008	45,223	86,761	n/a	131,984	\$1,552
2009	46,171	86,183	n/a	132,354	\$1,610
Average	43,453	84,486	n/a	126,835	\$1,502

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 27.8 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and

¹⁰⁸ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁰⁹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

benchmarks. Equity investments in oil and natural gas companies accounted for an average of 3.1 percent of total assets over this period.

**Table A-IA-2. Iowa Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹¹⁰**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	33.3%	3.1%	14.6%	34.4%	17.7%
2006	100.0%	30.7%	3.0%	15.6%	33.1%	20.6%
2007	100.0%	29.7%	3.8%	15.6%	32.5%	22.1%
2008	100.0%	24.8%	3.3%	14.4%	35.0%	25.8%
2009	100.0%	21.2%	2.4%	13.4%	35.7%	29.8%
<i>In millions of US dollars</i>						
2005	\$9,249.0	\$3,079.9	\$286.4	\$1,350.3	\$3,181.6	\$1,637.1
2006	\$10,572.2	\$3,245.7	\$318.1	\$1,649.3	\$3,499.4	\$2,177.9
2007	\$11,994.0	\$3,564.6	\$459.8	\$1,875.9	\$3,902.8	\$2,650.7
2008	\$11,555.2	\$2,869.2	\$381.6	\$1,664.0	\$4,040.9	\$2,981.2
2009	\$9,247.9	\$1,957.8	\$225.1	\$1,235.5	\$3,301.5	\$2,755.9

Using the public school pension system's annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.19 in June 2009 (the fiscal year ends on June 31). During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.154 in 2009. We also estimate the annual capital gains and losses for the public school pension system's entire portfolio and the portion invested in oil and natural gas stocks. In this period, the System's net gains totaled \$2.51 billion, including \$266 million in net gains from investments in oil and natural gas stocks. The System's oil and natural gas investments, which accounted for 3.1 percent of total assets, provided 10.6 percent of its total gains.

**Table A-IA-3. Iowa Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹¹¹**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	11.3%	36.5%	\$1.11	\$1.37	\$1.07	\$1,040.5	\$104.5
2006	11.1%	20.3%	\$1.24	\$1.64	\$1.19	\$1,174.6	\$64.4
2007	16.3%	24.5%	\$1.44	\$2.04	\$1.36	\$1,953.8	\$112.6
2008	-1.3%	21.4%	\$1.42	\$2.48	\$1.34	(\$153.7)	\$81.6
2009	-16.3%	-43.0%	\$1.19	\$1.41	\$1.15	(\$1,504.6)	(\$96.9)
Total						\$2,510.6	\$266.4

¹¹⁰ *Ibid.*, S&P's; and authors' estimates.

¹¹¹ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Iowa State Employees' Retirement System

The Iowa State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members averaged 37,774 over the FYs 2005-2009. The monthly pension payments to qualified retirees and beneficiaries averaged \$1,785 per-month over this period.

Table A-IA-4. Iowa State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹¹²

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	11,977	24,209	n/a	36,186	\$1,560
2006	12,568	24,935	n/a	37,503	\$1,463
2007	12,891	25,076	n/a	37,967	\$1,936
2008	13,514	25,927	n/a	39,441	\$1,901
2009	13,794	25,747	n/a	39,541	\$2,067
Average	12,949	25,179	n/a	37,774	\$1,785

The state employees' pension system's investments are quite well diversified. Domestic equities accounted for the largest share of assets, averaging 27.9 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 2.4 percent and 3.8 percent of the System's total assets over this period.

Table A-IA-5. Iowa State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹¹³

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	33.3%	3.1%	14.6%	34.4%	17.7%
2006	100.0%	30.7%	3.0%	15.6%	33.1%	20.6%
2007	100.0%	29.7%	3.8%	15.6%	32.5%	22.1%
2008	100.0%	24.8%	3.3%	14.4%	35.0%	25.8%
2009	100.0%	21.2%	2.4%	13.4%	35.7%	29.8%
<i>In millions of US dollars</i>						
2005	\$2,820.3	\$939.2	\$87.3	\$411.8	\$970.2	\$499.2
2006	\$3,116.1	\$956.6	\$93.7	\$486.1	\$1,031.4	\$641.9
2007	\$3,518.0	\$1,045.5	\$134.9	\$550.2	\$1,144.7	\$777.5
2008	\$3,453.1	\$857.4	\$114.0	\$497.2	\$1,207.5	\$890.9
2009	\$2,762.8	\$584.9	\$67.3	\$369.1	\$986.3	\$823.3

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.19 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have grown to \$1.15 in June 2009. We next estimate the capital gains

¹¹² State Employees Retirement System, Comprehensive Annual Financial Report.

¹¹³ *Ibid.*, and S&P's; and authors' estimates.

and losses of the System's assets and the portion invested in oil and natural gas stocks. For this period, the System's net gains were \$741 million, including \$79.4 million from investments in oil and natural gas. Oil and natural gas investments, which accounted for 3.1 percent of the System's total assets, provided 10.7 percent of its total gains.

Table A-IA-6. Iowa State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹¹⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	11.3%	36.5%	\$1.11	\$1.37	\$1.07	\$317.3	\$31.9
2006	11.1%	20.3%	\$1.24	\$1.64	\$1.19	\$346.2	\$19.0
2007	16.3%	24.5%	\$1.44	\$2.04	\$1.36	\$573.1	\$33.0
2008	-1.3%	21.4%	\$1.42	\$2.48	\$1.34	(\$45.9)	\$24.4
6/2009	-16.3%	-43.0%	\$1.19	\$1.41	\$1.15	(\$449.5)	(\$28.9)
Total						\$741.1	\$79.4

Michigan

Michigan Public School Employees' Retirement System

The Michigan Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership averaged 470,328 over FYs 2005-2009, and the monthly pension payments averaged \$1,538.

Table A-MI-1. Michigan Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹¹⁵

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	151,706	316,151	16,806	484,663	\$1,453
2006	157,163	305,445	15,739	478,347	\$1,500
2007	162,844	295,984	14,999	473,827	\$1,542
2008	167,265	278,642	14,312	460,219	\$1,580
2009	171,922	268,208	14,454	454,584	\$1,617
Average	162,180	292,886	15,262	470,328	\$1,538

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 44.5 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and

¹¹⁴ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹¹⁵ Michigan Public School Employees Retirement System, Comprehensive Annual Financial Report.

benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.8 percent of total assets over this period.

**Table A-MI-2. Michigan Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹¹⁶**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	48.5%	4.8%	12.3%	16.4%	22.8%
2006	100.0%	48.4%	4.6%	12.2%	16.3%	23.1%
2007	100.0%	47.0%	5.3%	11.3%	16.4%	25.3%
2008	100.0%	42.1%	5.1%	8.9%	17.2%	31.8%
2009	100.0%	36.5%	4.1%	12.6%	18.8%	32.1%
<i>In millions of US dollars</i>						
2005	\$42,205.9	\$20,469.9	\$2,025.3	\$5,191.3	\$6,921.8	\$9,623.0
2006	\$43,145.6	\$20,882.5	\$1,984.7	\$5,263.8	\$7,032.7	\$9,966.6
2007	\$48,938.4	\$23,001.0	\$2,593.7	\$5,530.0	\$8,025.9	\$12,381.4
2008	\$41,339.6	\$17,404.0	\$2,108.3	\$3,679.2	\$7,110.4	\$13,146.0
2009	\$36,437.5	\$13,299.7	\$1,493.9	\$4,591.1	\$6,850.3	\$11,696.4

Using the public school pension system's annual returns, we calculate that \$1.00 invested in the System in October 2004 grew to \$1.23 in September 2009 (fiscal year ends September 30). In this period, \$1.00 invested in the S&P Energy Sector grew to \$1.49. If the System had not invested in oil and natural gas, \$1.00 invested in 2004 would have grown to \$1.17 in 2009. We also estimate the capital gains and losses of the public school pension system's portfolio and its oil and natural gas stocks. Over this period, the System's net gains totaled more than \$12 billion, including nearly \$1.5 billion in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 4.8 percent of its total assets, provided 12.2 percent of its total gains. (Table A-MI-3)

**Table A-MI-3. Michigan Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹¹⁷**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 10/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 10/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 10/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
10/2004			\$1.00	\$1.00	\$1.00		
2005	12.8%	44.2%	\$1.13	\$1.44	\$1.06	\$5,402.4	\$894.4
2006	12.8%	2.4%	\$1.27	\$1.48	\$1.20	\$5,522.6	\$48.4
2007	17.2%	42.3%	\$1.49	\$2.10	\$1.38	\$8,417.4	\$1,097.4
2008	-12.3%	-16.7%	\$1.31	\$1.75	\$1.22	(\$5,084.8)	(\$351.7)
2009	-6.1%	-14.9%	\$1.23	\$1.49	\$1.17	(\$2,222.7)	(\$222.9)
Total						\$12,034.9	\$1,465.7

¹¹⁶ *Ibid.*, S&P's; and authors' estimates.

¹¹⁷ Michigan Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Michigan State Employees' Retirement System

The Michigan State Employees' Retirement System provides retirement, survivor and disability benefits to the state government employees. The System's total membership includes averaged 84,722 over this period, and the average monthly pension payment to qualified retirees and beneficiaries was \$1,427 per-month over FYs 2005-2009.

Table A-MI-4. Michigan State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹¹⁸

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	45,801	33,770	7,200	86,771	\$1,360
2006	45,980	32,575	7,217	85,772	\$1,394
2007	46,886	30,864	6,663	84,413	\$1,425
2008	48,078	28,568	6,912	83,558	\$1,460
2009	49,029	27,455	6,613	83,097	\$1,497
Average	47,155	30,646	6,921	84,722	\$1,427

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 44.6 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 4.1 percent and 5.3 percent of the System's total assets over this period.

Table A-MI-5. Michigan State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹¹⁹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	48.9%	4.8%	11.8%	16.0%	23.3%
2006	100.0%	48.5%	4.6%	12.3%	16.3%	22.9%
2007	100.0%	47.3%	5.3%	11.5%	16.6%	24.6%
2008	100.0%	41.9%	5.1%	9.0%	16.7%	32.4%
2009	100.0%	36.6%	4.1%	12.9%	18.4%	32.1%
<i>In millions of US dollars</i>						
2005	\$10,058.9	\$4,918.8	\$482.8	\$1,187.0	\$1,609.4	\$2,343.7
2006	\$10,835.9	\$5,255.4	\$498.5	\$1,332.8	\$1,766.3	\$2,481.4
2007	\$12,041.2	\$5,695.5	\$638.2	\$1,384.7	\$1,998.8	\$2,962.1
2008	\$10,183.3	\$4,266.8	\$519.3	\$916.5	\$1,700.6	\$3,299.4
2009	\$8,920.2	\$3,264.8	\$365.7	\$1,150.7	\$1,641.3	\$2,863.4

Using the System's reported annual returns, we calculate that \$1.00 invested in the System in October 2004 grew to \$1.23 in September 2009 (the fiscal year ends on September 30). During this period, \$1.00 invested in the S&P Energy Sector grew to \$1.49. If the System had not invested in oil and natural gas stocks, \$1.00 invested in October 2004 would have grown to \$1.17 in FY 2009. We next estimate the annual capital gains and losses of the System's assets and the portion invested in oil and

¹¹⁸ Michigan State Employees Retirement System, Comprehensive Annual Financial Report.

¹¹⁹ *Ibid.*, and S&P's; and authors' estimates.

natural gas stocks. Over this period, the System's net gains totaled nearly \$3 billion, including \$354 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for about 4.8 percent of the System's total assets, provided 12.0 percent of the System's total gains.

Table A-MI-6. Michigan State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹²⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 10.2004	Return on \$1 in Oil and Natural Gas Assets Invested in 10/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 10/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
10/2004			\$1.00	\$1.00	\$1.00		
2005	12.8%	44.2%	\$1.13	\$1.44	\$1.06	\$1,287.5	\$213.2
2006	12.8%	2.4%	\$1.27	\$1.48	\$1.20	\$1,387.0	\$12.2
2007	17.2%	42.3%	\$1.49	\$2.10	\$1.38	\$2,071.1	\$270.0
2008	-12.3%	-16.7%	\$1.31	\$1.75	\$1.22	(\$1,252.5)	(\$86.6)
2009	-6.1%	-14.9%	\$1.23	\$1.49	\$1.17	(\$544.1)	(\$54.6)
Total						\$2,948.9	\$354.2

Minnesota

Minnesota Public School Employees' Retirement System

The Minnesota Public School Employees' Retirement System provides pension benefits for all public school employees in the State. Its membership averaged 156,122 over FYs 2005-2009, and its monthly pension payments averaged \$2,468.

Table A-MN-1. Minnesota Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹²¹

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	38,957	74,552	29,031	142,540	\$2,424
2006	44,683	79,164	33,729	157,576	\$2,422
2007	46,538	77,694	35,550	159,782	\$2,465
2008	46,981	76,515	34,283	157,779	\$2,524
2009	50,208	77,162	35,563	162,933	\$2,507
Average	45,473	77,017	33,631	156,122	\$2,468

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 48.5 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and

¹²⁰ Michigan State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹²¹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

benchmarks. Equity investments in oil and natural gas companies accounted for an average of 5.5 percent of total assets over this period.

**Table A-MN-2. Minnesota Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹²²**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	50.6%	4.7%	15.0%	24.1%	10.4%
2006	100.0%	48.1%	4.7%	15.6%	23.4%	12.9%
2007	100.0%	49.5%	6.4%	16.4%	22.8%	11.4%
2008	100.0%	49.5%	6.6%	16.4%	22.8%	11.4%
2009	100.0%	44.6%	5.1%	16.3%	22.3%	16.8%
<i>In millions of US dollars</i>						
2005	\$15,900.0	\$8,037.5	\$747.5	\$2,377.1	\$3,831.9	\$1,653.6
2006	\$17,760.0	\$8,542.6	\$837.2	\$2,761.7	\$4,155.8	\$2,291.0
2007	\$19,860.0	\$9,830.7	\$1,268.2	\$3,247.1	\$4,518.2	\$2,264.0
2008	\$18,050.0	\$8,934.8	\$1,188.3	\$2,951.2	\$4,106.4	\$2,057.7
2009	\$13,820.0	\$6,163.7	\$708.8	\$2,252.7	\$3,081.9	\$2,321.8

Using the public school pension System's reported returns, we calculate that \$1.00 invested in July 2004 grew to \$1.13 in June 2009 (the fiscal year ends on June 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.06 in FY 2009. We also estimate the capital gains and losses of the public school pension system's portfolio and for the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled more than \$4 billion, including some \$700 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 5.5 percent of its total assets, provided 17.1 percent of its total gains.

**Table A-MN-3. Minnesota Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹²³**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.7%	36.5%	\$1.11	\$1.36	\$1.04	\$1,701.3	\$272.8
2006	12.3%	20.3%	\$1.24	\$1.64	\$1.17	\$2,184.5	\$169.7
2007	18.3%	24.5%	\$1.47	\$2.04	\$1.34	\$3,634.4	\$310.6
2008	-5.0%	21.4%	\$1.40	\$2.48	\$1.23	(\$902.5)	\$254.2
2009	-18.8%	-43.0%	\$1.13	\$1.41	\$1.06	(\$2,598.2)	(\$304.9)
Total						\$4,019.5	\$702.4

¹²² *Ibid.*, S&P's; and authors' estimates.

¹²³ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Minnesota State Employees' Retirement System

The Minnesota State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's membership in this period averaged 205,358, excluding inactive employees still enrolled in the system. The monthly pension for qualified retirees and beneficiaries averaged \$1,079 per-month over this period.

Table A-MN-4. Minnesota State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹²⁴

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	56,650	142,303	n/a	198,953	\$1,061
2006	59,078	144,244	n/a	203,322	\$1,065
2007	61,436	146,226	n/a	207,662	\$1,076
2008	63,880	143,562	n/a	207,442	\$1,090
2009	66,059	143,353	n/a	209,412	\$1,103
Average	61,421	143,938	n/a	205,358	\$1,079

The state employees' pension system's investments are well diversified: Domestic equities accounted for the largest share, averaging 48.5 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 4.7 percent and 6.6 percent of the System's total assets over this period.

Table A-MN-5. Minnesota State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹²⁵

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	50.6%	4.7%	15.0%	24.1%	10.4%
2006	100.0%	48.1%	4.7%	15.6%	23.4%	12.9%
2007	100.0%	49.5%	6.4%	16.4%	22.8%	11.4%
2008	100.0%	49.5%	6.6%	16.4%	22.8%	11.4%
2009	100.0%	44.6%	5.1%	16.3%	22.3%	16.8%
<i>In millions of US dollars</i>						
2005	\$10,728.1	\$5,423.1	\$504.3	\$1,603.9	\$2,585.5	\$1,115.7
2006	\$11,798.0	\$5,674.8	\$556.1	\$1,834.6	\$2,760.7	\$1,521.9
2007	\$13,727.8	\$6,795.3	\$876.6	\$2,244.5	\$3,123.1	\$1,565.0
2008	\$12,760.6	\$6,316.5	\$840.1	\$2,086.4	\$2,903.0	\$1,454.7
2009	\$10,152.7	\$4,528.1	\$520.7	\$1,654.9	\$2,264.0	\$1,705.7

Using the System's annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.13 in June 2009 (the fiscal year ends on June 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in FY 2005 would have grown to \$1.06 by FY 2009. We next estimate the capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net

¹²⁴ State Employees Retirement System, Comprehensive Annual Financial Report.

¹²⁵ *Ibid.*, and S&P's; and authors' estimates.

gains totaled nearly \$2.6 billion, including \$467 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for 5.5 percent of the System's total assets, provided 18.2 percent of the System's total gains.

Table A-MN-6. Minnesota State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, 2005-2009¹²⁶

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.7%	36.5%	\$1.11	\$1.36	\$1.04	\$1,147.9	\$184.1
2006	12.3%	20.3%	\$1.24	\$1.64	\$1.17	\$1,451.1	\$112.7
2007	18.3%	24.5%	\$1.47	\$2.04	\$1.34	\$2,512.2	\$214.7
2008	-5.0%	21.4%	\$1.40	\$2.48	\$1.23	(\$638.0)	\$179.7
2009	-18.8%	-43.0%	\$1.13	\$1.41	\$1.06	(\$1,908.7)	(\$224.0)
Total						\$2,564.5	\$467.2

Missouri

Public School Retirement System of Missouri (PSRS)

The Public School Retirement System of Missouri provides pension benefits covering all public school employees in the State. The System's membership includes retirees and beneficiaries receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The average membership over the years FYs 2005-2009 was 128,445.

Table A-MO-1. Public School Retirement System of Missouri, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹²⁷

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	36,321	73,850	11,692	121,863	n/a
2006	38,110	75,539	11,753	125,402	n/a
2007	39,828	77,121	11,607	128,556	n/a
2008	41,738	78,436	11,580	131,754	n/a
2009	43,746	79,335	11,570	134,651	n/a
Average	39,949	76,856	11,640	128,445	n/a

The System's investments are well diversified. U.S. equities accounted for the largest share of assets, averaging 36.3 percent of all assets. Investments in the oil and natural gas sector are estimated based on the System's asset allocation and benchmarks. Those oil and natural gas investments accounted for between 3.0 percent and 3.8 percent of the System's total assets over this period.

¹²⁶ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹²⁷ Public School Retirement System of Missouri.

**Table A-MO-2. Public School Retirement System of Missouri,
Asset Allocation, FYs 2005-2009¹²⁸**

Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	39.7%	3.2%	17.6%	30.6%	12.1%
2006	100.0%	38.5%	3.5%	20.4%	27.9%	13.2%
2007	100.0%	36.9%	3.0%	21.6%	23.7%	17.8%
2008	100.0%	34.2%	3.8%	19.5%	20.9%	25.4%
2009	100.0%	32.3%	3.6%	17.8%	27.0%	22.9%
<i>In millions of US dollars</i>						
2005	\$23,594.2	\$9,366.9	\$749.4	\$4,152.6	\$7,219.8	\$2,854.9
2006	\$25,458.9	\$9,801.7	\$882.2	\$5,193.6	\$7,103.0	\$3,360.6
2007	\$29,116.9	\$10,744.1	\$859.5	\$6,289.2	\$6,900.7	\$5,182.8
2008	\$27,268.4	\$9,325.8	\$1,025.8	\$5,317.3	\$5,699.1	\$6,926.2
2009	\$21,501.8	\$6,945.1	\$764.0	\$3,827.3	\$5,805.5	\$4,923.9

Using the Missouri Public School Retirement System's reported returns, we find that \$1.00 invested in July 2004 grew to \$1.08 in June 2009 (the fiscal year ends on June 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.03 in June 2009. We also estimate the capital gains and losses from this portfolio: The System's net gains totaled nearly \$4.1 billion, including \$553.5 million from oil and natural gas investments. These oil and natural gas investments, accounting for 3.4 percent of total assets, provided 13.5 percent of all gains.

**Table A-MO-3. Public School Retirement System of Missouri,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹²⁹**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.2%	36.5%	\$1.09	\$1.37	\$1.05	\$2,170.7	\$273.5
2006	9.8%	20.3%	\$1.20	\$1.64	\$1.14	\$2,495.0	\$178.7
2007	16.6%	24.5%	\$1.40	\$2.04	\$1.34	\$4,833.4	\$210.5
2008	-4.6%	8.1%	\$1.33	\$2.48	\$1.24	(\$1,254.3)	\$83.1
2009	-19.3%	-43.0%	\$1.08	\$1.41	\$1.03	(\$4,149.8)	(\$328.7)
Total						\$4,098.8	\$553.5

¹²⁸ Public School Retirement System of Missouri, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹²⁹ Public School Retirement System of Missouri, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Missouri State Employees' Retirement System

The Missouri State Employees' Retirement System provides retirement, survivor and disability benefits retired employees of the state government. The System's membership averaged almost 101,000 persons over this period. The pension payments to qualified retirees and beneficiaries averaged \$940 per-month over this period.

Table A-MO-4. Missouri State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹³⁰

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	26,117	56,336	14,789	97,242	\$941
2006	27,450	54,887	15,829	98,166	\$914
2007	29,129	54,763	16,578	100,470	\$945
2008	30,572	54,943	17,123	102,638	\$926
2009	32,100	55,454	17,304	104,858	\$973
Average	29,074	55,277	16,325	100,675	\$940

The System's investments are well diversified across and within asset classes. Domestic equities and fixed-income instruments were the two largest classes of investment assets, accounting for an average of 28.3 percent and 29.3 percent, respectively, of the total portfolio. Investments in the energy sector, more than 98 percent in oil and gas companies, were calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 3.2 percent of the System's total assets over this period.

Table A-MO-5. Missouri State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹³¹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	28.7%	2.7%	21.4%	29.4%	20.5%
2006	100.0%	28.5%	2.8%	23.1%	28.9%	19.5%
2007	100.0%	27.7%	3.6%	23.9%	28.1%	20.3%
2008	100.0%	28.3%	3.8%	15.9%	30.9%	24.9%
2009	100.0%	28.3%	3.3%	19.2%	29.4%	23.1%
<i>In millions of US dollars</i>						
2005	\$6,475.6	\$1,855.9	\$172.6	\$1,386.4	\$1,903.3	\$1,330.1
2006	\$7,037.9	\$2,005.8	\$196.6	\$1,625.8	\$2,034.0	\$1,372.4
2007	\$8,123.3	\$2,250.1	\$290.3	\$1,941.5	\$2,282.6	\$1,649.0
2008	\$8,020.0	\$2,269.7	\$301.9	\$1,275.2	\$2,478.2	\$1,997.0
2009	\$6,225.0	\$1,761.7	\$202.6	\$1,195.2	\$1,830.2	\$1,438.0

Using the System's reported returns, \$1.00 invested in the Missouri State Employees' Retirement System in July 2004 grew to \$1.23 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and gas

¹³⁰ Missouri State Employees' Retirement System, Comprehensive Annual Financial Report.

¹³¹ Missouri State Employees' Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

stocks, \$1.00 invested in 2004 would have grown to \$1.18 in 2009. We also estimate the annual capital gains and losses from the System's total assets and from the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled nearly \$2.1 billion, including nearly \$151 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for 3.2 percent of the System's total assets, provided 7.3 percent of its total gains.

Table A-MO-6. Missouri State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹³²

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.6%	36.5%	\$1.13	\$1.37	\$1.09	\$817.9	\$63.0
2006	11.5%	20.3%	\$1.26	\$1.64	\$1.21	\$809.4	\$39.8
2007	18.7%	24.5%	\$1.49	\$2.04	\$1.42	\$1,519.1	\$71.1
2008	1.6%	8.1%	\$1.51	\$2.48	\$1.42	\$128.3	\$64.6
2009	-19.1%	-43.0%	\$1.23	\$1.41	\$1.18	(\$1,189.0)	(\$87.2)
Total						\$2,085.6	\$151.3

Nebraska

Nebraska Public School Employees' Retirement System

The Nebraska Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership averaged 69,988 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$1,382.

Table A-NE-1. Nebraska Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹³³

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	13,052	36,042	16,924	66,018	\$1,206
2006	13,727	36,414	17,755	67,896	\$1,295
2007	14,408	37,152	17,705	69,265	\$1,397
2008	15,339	37,832	18,995	72,166	\$1,493
2009	15,949	39,231	19,413	74,593	\$1,518
Average	14,495	37,334	18,158	69,988	\$1,382

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets, averaging 43.1 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and

¹³² *Ibid.*

¹³³ Public School Employees Retirement System, Comprehensive Annual Financial Report.

benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.9 percent of total assets over this period.

**Table A-NE-2. Nebraska Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹³⁴**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	46.6%	4.3%	20.6%	29.7%	3.1%
2006	100.0%	46.0%	4.5%	22.4%	27.3%	4.3%
2007	100.0%	46.6%	6.0%	23.5%	25.3%	4.6%
2008	100.0%	42.7%	5.7%	19.9%	31.3%	6.1%
2009	100.0%	33.4%	3.8%	28.8%	31.8%	6.0%
<i>In millions of US dollars</i>						
2005	\$5,393.0	\$2,513.1	\$233.7	\$1,111.0	\$1,601.7	\$167.2
2006	\$5,974.0	\$2,748.0	\$269.3	\$1,338.2	\$1,630.9	\$256.9
2007	\$7,024.0	\$3,273.2	\$422.2	\$1,650.6	\$1,777.1	\$323.1
2008	\$6,578.0	\$2,808.8	\$373.6	\$1,309.0	\$2,058.9	\$401.3
2009	\$5,265.0	\$1,758.5	\$202.2	\$1,516.3	\$1,674.3	\$315.9

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.09 in June 2009 (the fiscal year ends on June 31). (Table A-NE-3, below) During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in 2004 would have grown to \$1.03 in 2009. We also estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. In this period, the System's net gains totaled some \$1.0 billion, including \$236 million in net gains from oil and natural gas investments. Those oil and natural gas investments, accounting for 4.9 percent of its total assets, provided 23.5 percent of its total gains.

**Table A-NE-3. Nebraska Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹³⁵**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.8%	36.5%	\$1.10	\$1.37	\$1.04	\$528.5	\$85.3
2006	10.4%	20.3%	\$1.21	\$1.64	\$1.14	\$621.3	\$54.6
2007	17.7%	24.5%	\$1.43	\$2.04	\$1.30	\$1,243.2	\$103.4
2008	-5.8%	21.4%	\$1.34	\$2.48	\$1.20	(\$381.5)	\$79.9
2009	-19.1%	-43.0%	\$1.09	\$1.41	\$1.03	(\$1,005.6)	(\$87.0)
Total						\$1,005.9	\$236.2

¹³⁴ *Ibid.*, S&P's; and authors' estimates.

¹³⁵ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Nebraska State Employees' Retirement System

The Nebraska State Employees' Retirement System for state government employees had an average of 12,578 members over this period. The monthly pension payments to qualified retirees and beneficiaries averaged \$938 per-month.

Table A-NE-4. Nebraska State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹³⁶

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	n/a	n/a	n/a	n/a	n/a
2006	n/a	n/a	n/a	n/a	n/a
2007	263	9,051	1,314	10,628	\$903
2008	329	10,878	1,679	12,886	\$927
2009	420	11,323	2,477	14,220	\$983
Average	337	10,417	1,823	12,578	\$938

The state employees' pension system's investments are well diversified, with domestic equities accounting for an average of 43.1 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 3.8 percent and 6.0 percent of the System's total assets over this period.

Table A-NE-5. Nebraska State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹³⁷

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	46.6%	4.3%	20.6%	29.7%	3.1%
2006	100.0%	46.0%	4.5%	22.4%	27.3%	4.3%
2007	100.0%	46.6%	6.0%	23.5%	25.3%	4.6%
2008	100.0%	42.7%	5.7%	19.9%	31.3%	6.1%
2009	100.0%	33.4%	3.8%	28.8%	31.8%	6.0%
<i>In millions of US dollars</i>						
2005	\$322.0	\$150.1	\$14.0	\$66.3	\$95.6	\$10.0
2006	\$356.0	\$163.8	\$16.0	\$79.7	\$97.2	\$15.3
2007	\$421.0	\$196.2	\$25.3	\$98.9	\$106.5	\$19.4
2008	\$624.0	\$266.4	\$35.4	\$124.2	\$195.3	\$38.1
2009	\$469.0	\$156.6	\$18.0	\$135.1	\$149.1	\$28.1

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.06 in June 2009 (the fiscal year ends on December 31). During this period, \$1.00 invested in oil and gas stocks grew to \$1.54. If the System had not invested in oil and natural gas stocks, \$1.00 invested in January 2005 would have remained worth \$1.00 in June 2009. We also estimate the capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$41 million, including \$5.7 million in net gains from investments in

¹³⁶ State Employees Retirement System, Comprehensive Annual Financial Report.

¹³⁷ *Ibid.*, and S&P's; and authors' estimates.

the oil and natural gas sector. The oil and natural gas investments, which accounted for 4.9 percent of the System's total assets, provided 13.6 percent of the System's total gains.

Table A-NE-6. Nebraska State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹³⁸

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 1/2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 1/2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
1/2005			\$1.00	\$1.00	\$1.00		
2005	10.8%	33.3%	\$1.11	\$1.33	\$1.05	\$34.8	\$4.7
2006	6.4%	22.2%	\$1.18	\$1.63	\$1.11	\$22.7	\$3.6
2007	15.1%	32.4%	\$1.36	\$2.16	\$1.23	\$63.7	\$8.2
2008	7.9%	-35.9%	\$1.46	\$1.38	\$1.39	\$49.1	(\$12.7)
6/2009	-27.4%	11.3%	\$1.06	\$1.54	\$1.00	(\$128.5)	\$2.0
Total						\$41.8	\$5.7

New Hampshire

New Hampshire Public School Employees' Retirement System

The New Hampshire Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership averaged 25,604 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$1,628.

Table A-NH-1. New Hampshire Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹³⁹

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	5,904	18,474	n/a	24,378	\$1,537
2006	6,141	18,719	n/a	24,860	\$1,576
2007	6,928	18,477	n/a	25,405	\$1,615
2008	7,654	18,509	n/a	26,163	\$1,674
2009	8,507	18,709	n/a	27,216	\$1,736
Average	7,027	18,578	n/a	25,604	\$1,628

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 45.2 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.5 percent of total assets over this period. (Table A-NH-2)

¹³⁸ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹³⁹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

**Table A-NH-2. New Hampshire School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁴⁰**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	51.2%	5.7%	10.1%	23.1%	15.6%
2006	100.0%	50.0%	6.0%	12.0%	23.6%	14.4%
2007	100.0%	44.5%	3.6%	15.8%	28.2%	11.5%
2008	100.0%	40.3%	4.0%	17.1%	32.5%	10.1%
2009	100.0%	39.9%	3.2%	19.3%	32.3%	8.5%
<i>In millions of US dollars</i>						
2005	\$1,646.2	\$842.9	\$93.8	\$166.3	\$380.3	\$256.8
2006	\$1,633.6	\$816.8	\$98.0	\$196.0	\$385.5	\$235.2
2007	\$2,030.7	\$903.7	\$73.1	\$320.8	\$572.7	\$233.5
2008	\$1,903.9	\$767.3	\$76.2	\$325.6	\$618.8	\$192.3
2009	\$1,534.6	\$612.3	\$49.1	\$296.2	\$495.7	\$130.4

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.10 in June 2009 (the fiscal year ends on June 31). During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.05 in June 2009. We also estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$289 million, including about \$67 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 4.5 percent of its total assets, provided 23.2 percent of its total gains.

**Table A- NH-3. New Hampshire Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁴¹**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.1%	36.5%	\$1.10	\$1.37	\$1.02	\$166.3	\$34.2
2006	10.0%	20.3%	\$1.21	\$1.64	\$1.11	\$163.4	\$19.9
2007	16.0%	24.5%	\$1.40	\$2.04	\$1.33	\$324.9	\$17.9
2008	-4.6%	21.4%	\$1.34	\$2.48	\$1.24	(\$87.6)	\$16.3
2009	-18.1%	-43.0%	\$1.10	\$1.41	\$1.05	(\$277.8)	(\$21.1)
Total						\$289.2	\$67.2

¹⁴⁰ *Ibid.*, S&P's; and authors' estimates.

¹⁴¹ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

New Hampshire State Employees' Retirement System

The New Hampshire State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members averaged 37,498 over this period, including retirees and beneficiaries currently receiving benefits, and current employees including those vested and non-vested. The monthly pension payments to qualified retirees and beneficiaries averaged \$909 over this period.

Table A-NH-4. New Hampshire State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁴²

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	9,973	26,414	n/a	36,387	\$843
2006	10,373	26,764	n/a	37,137	\$875
2007	10,859	26,474	n/a	37,333	\$906
2008	11,580	26,507	n/a	38,087	\$948
2009	12,192	26,352	n/a	38,544	\$975
Average	10,995	26,502	n/a	37,498	\$909

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 45.2 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 3.2 percent and 6.0 percent of the System's total assets over this period.

Table A-NH-5. New Hampshire State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁴³

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	51.2%	5.7%	10.1%	23.1%	15.6%
2006	100.0%	50.0%	6.0%	12.0%	23.6%	14.4%
2007	100.0%	44.5%	3.6%	15.8%	28.2%	11.5%
2008	100.0%	40.3%	4.0%	17.1%	32.5%	10.1%
2009	100.0%	39.9%	3.2%	19.3%	32.3%	8.5%
<i>In millions of US dollars</i>						
2005	\$2,444.0	\$1,251.3	\$139.3	\$246.8	\$564.6	\$381.3
2006	\$2,433.3	\$1,216.7	\$146.0	\$292.0	\$574.3	\$350.4
2007	\$2,979.4	\$1,325.8	\$107.3	\$470.7	\$840.2	\$342.6
2008	\$2,769.6	\$1,116.2	\$110.8	\$473.6	\$900.1	\$279.7
2009	\$2,172.5	\$866.8	\$69.5	\$419.3	\$701.7	\$184.7

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.10 in June 2009 (the fiscal year ends on June 30). In this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have grown to \$1.05 in June 2009. We also estimate the capital gains

¹⁴² State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁴³ *Ibid.*, and S&P's; and authors' estimates.

and losses of the System's assets and the portion invested in oil and natural gas stocks. For this period, the System's gains totaled \$446.3 million, including \$100.5 million from the oil and natural gas sector. Oil and natural gas investments, accounting for 4.5 percent of the System's total assets, provided 22.5 percent of the System's total gains.

Table A-NH-6. New Hampshire State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁴⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.1%	36.5%	\$1.10	\$1.37	\$1.02	\$246.8	\$50.8
2006	10.0%	20.3%	\$1.21	\$1.64	\$1.11	\$243.3	\$29.6
2007	16.0%	24.5%	\$1.40	\$2.04	\$1.33	\$476.7	\$26.3
2008	-4.6%	21.4%	\$1.34	\$2.48	\$1.24	(\$127.4)	\$23.7
6/2009	-18.1%	-43.0%	\$1.10	\$1.41	\$1.05	(\$393.2)	(\$29.9)
Total						\$446.3	\$100.5

New Mexico

New Mexico Public School Employees' Retirement System

The New Mexico Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership averaged 121,915 over FYs 2005-2009, and monthly pension payments averaged \$1,527.

Table A-NM-1. New Mexico Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁴⁵

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	26,100	63,362	25,428	114,890	\$1,466
2006	28,539	61,829	29,950	120,318	\$1,472
2007	29,969	62,687	29,942	122,598	\$1,523
2008	31,192	63,698	29,982	124,872	\$1,566
2009	32,497	63,822	30,576	126,895	\$1,606
Average	29,659	63,080	29,176	121,915	\$1,527

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 40.1 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.5 percent of total assets over this period.

¹⁴⁴ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁴⁵ Public School Employees Retirement System, Comprehensive Annual Financial Report.

Table A-NM-2. New Mexico Public School Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁴⁶

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	46.2%	4.3%	21.0%	26.3%	6.5%
2006	100.0%	46.1%	4.5%	22.2%	25.3%	6.4%
2007	100.0%	41.2%	5.3%	19.9%	26.3%	12.6%
2008	100.0%	37.0%	4.9%	18.0%	29.0%	16.0%
2009	100.0%	30.0%	3.5%	17.0%	37.0%	16.0%
<i>In millions of US dollars</i>						
2005	\$8,288.5	\$3,826.0	\$355.8	\$1,743.1	\$2,183.2	\$536.3
2006	\$9,289.2	\$4,282.3	\$419.7	\$2,062.2	\$2,350.2	\$594.5
2007	\$11,612.6	\$4,784.4	\$617.2	\$2,310.9	\$3,054.1	\$1,463.2
2008	\$10,321.5	\$3,819.0	\$507.9	\$1,857.9	\$2,993.2	\$1,651.4
2009	\$8,062.3	\$2,418.7	\$278.1	\$1,370.6	\$2,983.0	\$1,290.0

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.13 in June 2009 (the fiscal year ends on June 31). During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.08 in June 2009. We also estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled nearly \$1.97 billion, including nearly \$355 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 4.5 percent of its total assets, provided 18.0 percent of its total gains.

Table A-NM-3. New Mexico Public School Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁴⁷

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.9%	36.5%	\$1.10	\$1.36	\$1.04	\$817.2	\$129.9
2006	12.3%	20.3%	\$1.23	\$1.64	\$1.16	\$1,142.6	\$85.0
2007	17.6%	24.5%	\$1.45	\$2.04	\$1.34	\$2,043.8	\$151.2
2008	-6.2%	21.4%	\$1.36	\$2.48	\$1.24	(\$639.9)	\$108.6
2009	-17.3%	-43.0%	\$1.13	\$1.41	\$1.08	(\$1,394.8)	(\$119.7)
Total						\$1,968.9	\$355.1

¹⁴⁶ *Ibid.*, S&P's; and authors' estimates.

¹⁴⁷ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

New Mexico State Employees' Retirement System

The New Mexico State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members averaged 78,474 over this period, and the monthly pension payments averaged \$1,774 per-month.

Table A-NM-4. New Mexico State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁴⁸

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	21,528	47,799	3,297	72,624	\$1,618
2006	22,699	51,699	3,209	77,607	\$1,705
2007	23,844	51,645	3,235	78,724	\$1,776
2008	24,910	52,507	3,162	80,579	\$1,849
2009	25,950	53,866	3,018	82,834	\$1,923
Average	23,786	51,503	3,184	78,474	\$1,774

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 42.9 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 4.1 percent and 5.8 percent of the System's total assets over this period.

Table A-NM-5. New Mexico State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁴⁹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	45.3%	4.2%	20.5%	33.8%	0.4%
2006	100.0%	41.6%	4.1%	27.3%	30.9%	0.2%
2007	100.0%	40.8%	5.3%	29.8%	27.1%	2.3%
2008	100.0%	36.2%	4.8%	26.5%	26.8%	10.5%
2009	100.0%	50.8%	5.8%	18.9%	16.0%	14.3%
<i>In millions of US dollars</i>						
2005	\$10,198.3	\$4,622.9	\$429.9	\$2,088.6	\$3,441.9	\$44.9
2006	\$11,125.8	\$4,622.7	\$453.0	\$3,039.6	\$3,440.1	\$23.4
2007	\$13,464.9	\$5,499.0	\$709.4	\$4,016.6	\$3,646.3	\$303.0
2008	\$12,258.4	\$4,441.2	\$590.7	\$3,247.2	\$3,288.9	\$1,281.0
2009	\$9,656.9	\$4,901.8	\$563.7	\$1,826.1	\$1,548.0	\$1,380.9

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to just \$1.02 in June 2009 (the state's fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have fallen to \$0.94 in June 2009. We also estimate the capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$1.51 billion, including \$306 million in net gains

¹⁴⁸ State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁴⁹ *Ibid.*, and S&P's; and authors' estimates.

from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for about 4.8 percent of the System's total assets, provided 20.3 percent of the System's total gains.

Table A-NM-6. New Mexico State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁵⁰

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	9.9%	36.5%	\$1.10	\$1.36	\$1.04	\$1,004.5	\$156.9
2006	11.7%	20.3%	\$1.23	\$1.64	\$1.16	\$1,306.2	\$91.8
2007	18.1%	24.5%	\$1.45	\$2.04	\$1.34	\$2,434.4	\$173.8
2008	-7.4%	21.4%	\$1.34	\$2.48	\$1.22	(\$907.1)	\$126.3
6/2009	-24.1%	-43.0%	\$1.02	\$1.41	\$0.94	(\$2,328.3)	(\$242.5)
Total						\$1,509.7	\$306.3

New York

New York Public School Employees' Retirement System

The New York Public School Employees' Retirement System provides pension benefits for all public school employees in the State. Its membership of retirees and beneficiaries and current employees, both vested and non-vested averaged a total of 276,677 members (Data are not available on inactive members. The monthly pension payments paid to its qualified retirees and beneficiaries averaged \$3,596.

Table A-NY-1. New York Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁵¹

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	7,182	260,356	n/a	267,538	\$3,783
2006	7,281	264,410	n/a	271,691	\$3,660
2007	6,900	270,045	n/a	276,945	\$3,684
2008	6,330	274,901	n/a	281,231	\$3,815
2009	5,644	280,338	n/a	285,982	\$3,038
Average	6,667	270,010	n/a	276,677	\$3,596

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 55.4 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 6.2 percent of total assets over this period.

¹⁵⁰ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁵¹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

**Table A-NY-2. New York Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁵²**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	68.8%	6.4%	10.3%	12.7%	8.2%
2006	100.0%	58.3%	5.7%	12.1%	12.7%	16.9%
2007	100.0%	55.8%	7.2%	13.6%	12.5%	18.1%
2008	100.0%	49.0%	6.5%	13.3%	17.2%	20.6%
2009	100.0%	45.3%	5.2%	12.1%	20.7%	21.8%
<i>In millions of US dollars</i>						
2005	\$83,668.2	\$57,572.1	\$5,354.2	\$8,584.4	\$10,651.0	\$6,860.8
2006	\$90,048.6	\$52,516.3	\$5,146.6	\$10,868.9	\$11,463.2	\$15,200.2
2007	\$103,370.5	\$57,660.0	\$7,438.1	\$14,058.4	\$12,931.6	\$18,720.4
2008	\$94,148.0	\$46,094.9	\$6,130.6	\$12,474.6	\$16,212.3	\$19,366.2
2009	\$71,009.0	\$32,195.5	\$3,702.5	\$8,606.3	\$14,698.9	\$15,508.4

Using the public school pension System's reported returns, \$1.00 invested in April 2004 grew to \$1.10 in March 2009 (state's fiscal year ends on March 31). For this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. Without any oil and natural gas stocks, \$1.00 invested in April 2004 would have grown to \$1.02 in March 2009. We also estimate the system's capital gains and losses. In this period, the System's net gains totaled \$18.8 billion, including \$4.5 billion from oil and natural gas stocks. Oil and natural gas investments, accounting for 6.2 percent of System assets, provided 24.1 percent of its gains.

**Table A-NY-3. New York Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁵³**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 4/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 4/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 4/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
4/2004			\$1.00	\$1.00	\$1.00		
2005	10.6%	36.5%	\$1.11	\$1.36	\$1.02	\$8,868.8	\$1,954.3
2006	11.8%	20.3%	\$1.24	\$1.64	\$1.14	\$10,625.7	\$1,043.0
2007	19.3%	24.5%	\$1.48	\$2.04	\$1.33	\$19,950.5	\$1,821.9
2008	-6.4%	21.4%	\$1.38	\$2.48	\$1.22	(\$6,025.5)	\$1,311.2
3/2009	-20.5%	-43.0%	\$1.10	\$1.41	\$1.02	(\$14,556.8)	(\$1,592.8)
Total						\$18,862.7	\$4,537.6

New York State Employees' Retirement System

The New York State Employees' Retirement System has an average of nearly 950,000 members over this period; and the monthly pension averaged \$1,464 per-month.

¹⁵² *Ibid.*, S&P's; and authors' estimates.

¹⁵³ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; authors' estimates.

**Table A-NY-4. New York State Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁵⁴**

Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	306,531	508,856	103,554	918,941	\$1,359
2006	313,837	513,016	104,973	931,826	\$1,407
2007	321,113	519,203	107,720	948,036	\$1,456
2008	328,726	528,435	112,684	969,845	\$1,518
2009	336,273	530,023	113,677	979,973	\$1,582
Average	321,296	519,907	108,522	949,724	\$1,464

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 44.0 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, accounted for between 3.6 percent and 5.6 percent of the System's total assets over this period.

**Table A-NY-5. New York State Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁵⁵**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	59.8%	5.6%	13.9%	18.8%	7.5%
2006	100.0%	48.7%	4.8%	14.3%	20.6%	16.4%
2007	100.0%	42.2%	5.4%	16.1%	21.7%	20.0%
2008	100.0%	38.0%	5.1%	16.0%	23.8%	22.2%
2009	100.0%	31.5%	3.6%	12.4%	33.5%	22.6%
<i>In millions of US dollars</i>						
2005	\$85,116.0	\$50,899.4	\$4,733.6	\$11,831.1	\$16,001.8	\$6,383.7
2006	\$140,453.0	\$68,400.6	\$6,703.3	\$20,084.8	\$28,933.3	\$23,034.3
2007	\$154,575.6	\$65,230.9	\$8,414.8	\$24,886.7	\$33,542.9	\$30,915.1
2008	\$153,877.7	\$58,473.5	\$7,777.0	\$24,620.4	\$36,622.9	\$34,160.9
2009	\$108,960.0	\$34,322.4	\$3,947.1	\$13,511.0	\$36,501.6	\$24,625.0

Using the System's reported returns, \$1.00 invested in April 2004 grew to \$1.06 in March 2009 (the state's fiscal year ends on March 31). In this period, \$1.00 invested in the S&P Energy Sector grew to \$1.38. If the System had not invested in oil and natural gas stocks, \$1.00 invested in April 2004 would have grown to \$1.01 in March 2009. We also estimate the System's annual capital gains and losses. In this period, the System's net gains totaled \$22.4 billion, including \$4.4 billion from investments in oil and natural gas. The oil and natural gas, assets, which accounted for about 4.9 percent of the System, provided 19.5 percent of its gains.

¹⁵⁴ State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁵⁵ *Ibid.*, and S&P's; and authors' estimates.

**Table A-NY-6. New York State Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁵⁶**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 4/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 4/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 4/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
4/2004			\$1.00	\$1.00	\$1.00		
2005	8.5%	45.4%	\$1.09	\$1.45	\$1.00	\$7,243.4	\$2,147.9
2006	14.6%	17.2%	\$1.24	\$1.70	\$1.16	\$20,492.1	\$1,155.8
2007	12.6%	13.9%	\$1.40	\$1.94	\$1.29	\$19,445.6	\$1,172.8
2008	2.6%	19.0%	\$1.44	\$2.31	\$1.32	\$3,939.3	\$1,479.7
3/2009	-26.4%	-40.3%	\$1.06	\$1.38	\$1.01	(\$28,743.6)	(\$1,591.2)
Total						\$22,376.7	\$4,364.9

North Dakota

North Dakota Public School Employees' Retirement System

The North Dakota Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership consists of retirees and beneficiaries; current employees, both vested and non-vested; and inactive employees entitled to benefits at some time. Members (including retirees, current and inactive employees) averaged 17,348 over FYs 2005-2009, and the monthly pension payments paid to its qualified retirees and beneficiaries averaged \$1,423.

**Table A-ND-1. North Dakota Public School Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁵⁷**

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	5,586	9,801	1,545	16,932	\$1,309
2006	5,893	9,585	1,552	17,030	\$1,383
2007	6,077	9,599	1,581	17,257	\$1,434
2008	6,317	9,561	1,688	17,566	\$1,477
2009	6,466	9,707	1,782	17,955	\$1,514
Average	6,068	9,651	1,630	17,348	\$1,423

The public school pension fund's investments are well diversified. Domestic equities accounted for the largest share of assets averaging 38.1 percent of total holdings. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 4.1 percent of total assets over this period.

¹⁵⁶ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁵⁷ Public School Employees Retirement System, Comprehensive Annual Financial Report.

**Table A-ND-2. North Dakota Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁵⁸**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	39.0%	3.6%	27.0%	17.0%	15.0%
2006	100.0%	38.0%	3.7%	22.0%	24.0%	16.0%
2007	100.0%	38.0%	4.9%	25.0%	21.0%	16.0%
2008	100.0%	35.0%	4.7%	21.0%	26.0%	18.0%
2009	100.0%	31.0%	3.6%	20.0%	31.0%	18.0%
<i>In millions of US dollars</i>						
2005	\$1,515.9	\$591.2	\$55.0	\$409.3	\$257.7	\$227.4
2006	\$1,705.4	\$648.0	\$63.5	\$375.2	\$409.3	\$272.9
2007	\$2,015.1	\$765.7	\$98.8	\$503.8	\$423.2	\$322.4
2008	\$1,829.5	\$640.3	\$85.2	\$384.2	\$475.7	\$329.3
2009	\$1,291.5	\$400.4	\$46.0	\$258.3	\$400.4	\$232.5

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.05 in June 2009 (the fiscal year ends on June 31). During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in 2004 would have been worth \$1.00 in 2009. We also estimate the annual capital gains and losses of the system's total assets and the portion held in oil and natural gas stocks. In this period, the System's net gains totaled \$370 million, including \$55 million from investments in oil and natural gas stocks. The System's oil and natural gas assets, representing 4.1 percent of the total, provided 16.7 percent of the gains.

**Table A-ND-3. North Dakota Public School Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁵⁹**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	13.4%	36.5%	\$1.13	\$1.37	\$1.08	\$202.5	\$20.1
2006	14.8%	20.3%	\$1.30	\$1.64	\$1.24	\$252.2	\$12.9
2007	20.0%	24.5%	\$1.56	\$2.04	\$1.46	\$403.8	\$24.2
2008	-7.5%	21.4%	\$1.44	\$2.48	\$1.33	(\$137.4)	\$18.2
2009	-27.3%	-43.0%	\$1.05	\$1.41	\$1.00	(\$353.0)	(\$19.8)
Total						\$368.2	\$55.5

¹⁵⁸ *Ibid.*, S&P's; and authors' estimates.

¹⁵⁹ Public School Employee Retirement System, Comprehensive Annual Financial Report; S&P's; authors' estimates.

North Dakota State Employees' Retirement System

The North Dakota State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System's members include retirees and beneficiaries currently receiving benefits, current employees including those vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The monthly pension payments averaged \$825 per-month over this period.

Table A-ND-4. North Dakota State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁶⁰

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	5,278	17,745	3,196	26,219	\$769
2006	5,540	17,887	1,876	25,303	\$796
2007	5,824	18,299	1,860	25,983	\$825
2008	6,103	19,042	1,996	27,141	\$855
2009	6,416	19,686	2,025	28,127	\$880
Average	5,832	18,532	2,191	26,555	\$825

The state employees' pension system's investments are well diversified across and within asset classes. Domestic equities accounted for the largest share of assets, averaging 38.5 percent of all assets. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 3.7 percent and 5.3 percent of the System's total assets over this period.

Table A-ND-5. North Dakota State Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁶¹

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	40.4%	3.8%	16.0%	33.2%	10.4%
2006	100.0%	41.0%	4.0%	14.6%	33.3%	11.1%
2007	100.0%	41.0%	5.3%	16.3%	31.4%	11.3%
2008	100.0%	37.7%	5.0%	13.9%	35.7%	12.7%
2009	100.0%	32.4%	3.7%	12.1%	44.0%	11.5%
<i>In millions of US dollars</i>						
2005	\$1,473.2	\$595.2	\$55.4	\$235.7	\$489.1	\$153.2
2006	\$1,632.2	\$669.2	\$65.6	\$238.3	\$543.5	\$181.2
2007	\$1,932.8	\$792.5	\$102.2	\$315.1	\$606.9	\$218.4
2008	\$1,809.2	\$682.1	\$90.7	\$251.5	\$645.9	\$229.8
2009	\$1,352.0	\$438.1	\$50.4	\$163.6	\$594.9	\$155.5

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.08 in June 2009 (the fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have barely grown, to \$1.03 in June 2009. We next estimate the

¹⁶⁰ State Employees Retirement System, Comprehensive Annual Financial Report.

¹⁶¹ *Ibid.*, and S&P's; and authors' estimates.

capital gains and losses of the System’s assets and the portion invested in oil and natural gas stocks. Over this period, the System’s net gains totaled \$338.1 million , including nearly \$56.3 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for about 5.2 percent of the System’s total assets, provided 16.4 percent of the System’s total gains.

Table A-ND-6. North Dakota State Employees’ Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁶²

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 2005	Return on \$1 in Oil and Natural Gas Assets Invested in 2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	14.1%	36.5%	\$1.14	\$1.37	\$1.09	\$207.3	\$20.2
2006	12.0%	20.3%	\$1.28	\$1.64	\$1.21	\$195.9	\$13.3
2007	19.0%	24.5%	\$1.52	\$2.04	\$1.41	\$366.5	\$25.0
2008	-5.6%	21.4%	\$1.43	\$2.48	\$1.31	(\$101.3)	\$19.4
6/2009	-24.4%	-43.0%	\$1.08	\$1.41	\$1.03	(\$330.2)	(\$21.7)
Total						\$338.1	\$56.3

Ohio

The State Teachers Retirement System of Ohio

The State Teachers Retirement System of Ohio provides pension benefits for all Ohio public school employees. The number of retirees and beneficiaries averaged 470,000 persons over this period, and the monthly pension payments paid to them averaged \$2,793.

Table A-OH-1. State Teachers Retirement System of Ohio, Membership Classes and Monthly Benefit Payments, 2005-2009¹⁶³

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	115,395	NA	NA	454,692	\$2,557
2006	119,184	NA	NA	461,624	\$2,677
2007	122,934	NA	NA	469,475	\$2,796
2008	126,506	NA	NA	476,287	\$2,911
2009	129,659	NA	NA	486,333	\$3,025
Average	122,736	NA	NA	469,682	\$2,793

The assets of the Ohio State Teachers Retirement System are well diversified. Domestic equities accounted for the largest share of assets, representing 37.3 percent of total assets over this period. Investments in oil and natural gas companies are estimated based on the System’s asset allocation and

¹⁶² State Employees Retirement System, Comprehensive Annual Financial Report; S&P’s; and authors’ estimates.

¹⁶³ State Teachers Retirement System of Ohio, Comprehensive Annual Financial Report.

benchmarks. These oil and natural gas investments averaged 4.2 percent of total assets, ranging from 3.7 percent to 4.9 percent. (Table A-OH-2, below)

**Table A-OH-2. State Teachers Retirement System of Ohio,
Asset Allocation, FYs 2005-2009¹⁶⁴**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	44.2%	4.1%	19.1%	21.5%	15.2%
2006	100.0%	39.3%	3.9%	22.8%	22.7%	15.3%
2007	100.0%	37.8%	4.9%	22.3%	22.0%	17.9%
2008	100.0%	33.4%	4.4%	21.5%	20.9%	24.3%
2009	100.0%	31.8%	3.7%	21.0%	20.1%	27.2%
<i>In millions of US dollars</i>						
2005	\$59,636.8	\$26,359.5	\$2,451.4	\$11,390.6	\$12,821.9	\$9,064.8
2006	\$67,388.0	\$26,483.5	\$2,595.4	\$15,330.8	\$15,297.1	\$10,276.7
2007	\$79,599.2	\$30,104.4	\$3,883.5	\$17,774.5	\$17,511.8	\$14,208.5
2008	\$72,590.3	\$24,208.9	\$3,219.8	\$15,606.9	\$15,171.4	\$17,603.1
2009	\$54,736.5	\$17,378.8	\$1,998.6	\$11,467.3	\$11,002.0	\$14,888.3

Using the System's reported returns, \$1.00 invested in the Ohio State Teachers Retirement System in July 2004 grew to \$1.15 in June 2009 (the plan's fiscal year ends on June 30). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and gas stocks, \$1.00 invested in July 2004 would have grown to \$1.09 in June 2009. We also estimate the capital gains and losses of the Ohio teachers' pension plans' total assets and the portion invested in oil and natural gas stocks. In this period, the System's net gains totaled nearly \$17.7 billion, including \$2.2 billion in net gains from investments in oil and natural gas stocks. The oil and natural gas investments accounted for 4.2 percent of the System's total assets and provided 12.5 percent of its total gains.

**Table A-OH-3. State Teachers Retirement System of Ohio, Returns and Gains
for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁶⁵**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.3%	36.5%	\$1.12	\$1.36	\$1.07	\$7,305.5	\$894.8
2006	13.7%	20.3%	\$1.28	\$1.64	\$1.21	\$9,252.4	\$526.0
2007	21.2%	24.5%	\$1.55	\$2.04	\$1.45	\$16,906.9	\$951.2
2008	-5.4%	8.1%	\$1.46	\$2.48	\$1.35	(\$3,948.9)	\$688.7
2009	-21.7%	-43.0%	\$1.15	\$1.41	\$1.09	(\$11,855.9)	(\$859.8)
Total						\$17,659.9	\$2,200.8

¹⁶⁴ *Ibid.*, S&P's; and authors' estimates.

¹⁶⁵ State Teachers Retirement System of Ohio, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Ohio Public Employees Retirement System

The Ohio Public Employees Retirement System provides retirement, survivor and disability benefits to Ohio state government employees. The System's membership averaged almost 909,000 people over FYs 2005-2009, including retirees and beneficiaries, current employees vested and non-vested, and inactive employees entitled to benefits but not yet receiving them. The monthly pension payments averaged \$1,621 over this period.

Table A-OH-4. Ohio Public Employees Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁶⁶

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	151,758	381,413	327,864	861,035	\$1,471
2006	156,747	381,464	346,697	884,908	\$1,545
2007	161,348	382,177	364,823	908,348	\$1,620
2008	166,516	374,002	395,445	935,963	\$1,696
2009	171,955	365,229	416,548	953,732	\$1,774
Average	161,665	376,857	370,275	908,797	\$1,621

The System's investments are diversified across and within asset classes. Domestic equities are for the largest class of assets, averaging 41 percent of the portfolio over this period. Investments in the oil and natural gas sector, calculated based on the System's asset allocation and benchmarks, accounted for an average of 4.6 percent of its total assets over this period.

Table A-OH-5. Ohio Public Employees Retirement System, Asset Allocation, FYs 2005-2009¹⁶⁷

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	44.1%	4.1%	20.2%	26.5%	9.2%
2006	100.0%	43.8%	4.3%	20.3%	27.7%	8.2%
2007	100.0%	40.7%	5.3%	21.4%	28.2%	9.7%
2008	100.0%	36.1%	4.8%	18.8%	31.4%	13.6%
2009	100.0%	40.0%	4.6%	22.7%	25.7%	11.6%
<i>In millions of US dollars</i>						
2005	\$69,191.9	\$30,513.6	\$2,837.8	\$13,976.8	\$18,335.8	\$6,365.7
2006	\$77,848.7	\$34,089.9	\$3,340.8	\$15,795.5	\$21,564.1	\$6,399.2
2007	\$83,032.1	\$33,794.1	\$4,359.4	\$17,777.2	\$23,390.1	\$8,070.7
2008	\$58,718.8	\$21,215.1	\$2,821.6	\$11,056.8	\$18,437.7	\$8,009.3
2009	\$68,562.1	\$27,452.2	\$3,157.0	\$15,556.7	\$17,599.9	\$7,953.2

Using the annual returns reported by the Ohio Public Employees Retirement System, we calculate that \$1.00 invested by the System in January 2005 grew to \$1.20 in December 2009 (the plan's fiscal year ends on December 31). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.54. If the System had not invested in oil and natural gas stocks, \$1.00 invested in 2005 would have grown to \$1.13 in 2009. We also estimate the annual capital gains and losses of this System's total assets and of the

¹⁶⁶ Ohio Public Employees Retirement System, Comprehensive Annual Financial Report.

¹⁶⁷ *Ibid.*, S&P's; and authors' estimates.

portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$23.1 billion, including \$2.44 billion in net gains from investments in the oil and natural gas sector. The oil and natural gas assets of the Ohio State Employees Retirement System accounted for 4.6 percent of its total assets, and yet provided 10.6 percent of the System's total gains.

**Table A-OH-6. Ohio Public Employees Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁶⁸**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 1/2005	Return on \$1 in Oil and Natural Gas Assets Invested in 1/2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 1/2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
1/2005			\$1.00	\$1.00	\$1.00		
2005	9.0%	33.3%	\$1.09	\$1.33	\$1.04	\$6,227.3	\$946.0
2006	14.7%	22.2%	\$1.25	\$1.63	\$1.18	\$11,443.8	\$742.1
2007	8.5%	32.4%	\$1.36	\$2.16	\$1.24	\$7,082.6	\$1,411.7
2008	-26.9%	-35.9%	\$0.99	\$1.38	\$0.93	(\$15,807.1)	(\$1,013.9)
2009	20.6%	11.3%	\$1.20	\$1.54	\$1.13	\$14,123.8	\$356.3
Total						\$23,070.3	\$2,442.2

Pennsylvania

Pennsylvania Public School Employees' Retirement System

The Pennsylvania Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's membership consists of retirees and beneficiaries receiving benefits, current vested and non-vested employees, and inactive employees not yet receiving benefits due them. The System, however, reports only current retirees and beneficiaries and current employees, which averaged 434,618 for FYs 2005-2009. The average monthly pension for retirees and beneficiaries was \$1,749 over this period.

**Table A-PA-1. Pennsylvania Public School Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁶⁹**

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	156,519	255,465	NA	411,984	\$1,612
2006	161,813	263,350	NA	425,163	\$1,686
2007	168,026	264,023	NA	432,049	\$1,748
2008	173,540	272,690	NA	446,230	\$1,830
2009	177,963	279,701	NA	457,664	\$1,871
Average	167,572	267,046	NA	434,618	\$1,749

¹⁶⁸ Ohio Public Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁶⁹ Pennsylvania Public School Employees' Retirement System, Comprehensive Annual Financial Report.

The Public School Employees' Retirement System's investments are well diversified. Domestic equities' share declined sharply in 2009 while "Other Assets" increased. Investments in oil and natural gas stocks are based on the System's asset allocation and benchmarks. The plan's I.S. equity investments in oil and natural gas accounted for an average of 3.6 percent of the System's total assets over this period.

Table A-PA-2. Pennsylvania Public School Employees' Retirement System, Assets and Asset Allocation, FYs 2005-2009¹⁷⁰

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	42.5%	4.0%	19.0%	22.0%	16.5%
2006	100.0%	39.6%	3.9%	22.8%	21.7%	15.9%
2007	100.0%	32.0%	4.1%	28.3%	20.5%	19.2%
2008	100.0%	29.1%	3.9%	22.5%	20.8%	27.6%
2009	100.0%	16.4%	1.9%	16.0%	28.6%	39.0%
<i>In millions of US dollars</i>						
2005	\$52,739.7	\$22,414.4	\$2,084.5	\$10,020.5	\$11,602.7	\$8,702.1
2006	\$58,719.3	\$23,252.8	\$2,278.8	\$13,388.0	\$12,742.1	\$9,336.4
2007	\$68,526.5	\$21,928.5	\$2,828.8	\$19,393.0	\$14,047.9	\$13,157.1
2008	\$63,892.2	\$18,592.6	\$2,472.8	\$14,375.7	\$13,289.6	\$17,634.3
2009	\$43,343.9	\$7,108.4	\$817.5	\$6,935.0	\$12,396.4	\$16,904.1

Using the returns reported by the Pennsylvania Public School Employees Retirement System, \$1.00 invested in July 2004 grew to \$1.14 in June 2009 (the System's fiscal year ends June 30). For this period, \$1.00 invested in the S&P Energy Sector grew to \$1.41. If the System had not invested in oil and gas stocks, \$1.00 invested in July 2004 would have grown to \$1.12 in June 2009. We also estimate the System's capital gains and losses. In this period, the System's net gains on all assets totaled \$18.2 billion, including \$2.1 billion in gains from investments in oil and natural gas stock. The oil and natural gas investments, accounting for 3.5 percent of the System's total assets, provided 11.5 percent of its gains.

Table A-PA-3. Pennsylvania Public School Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁷¹

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	12.9%	36.5%	\$1.13	\$1.36	\$1.07	\$6,787.6	\$760.8
2006	15.3%	20.3%	\$1.30	\$1.64	\$1.24	\$8,960.6	\$461.8
2007	22.9%	24.5%	\$1.60	\$2.04	\$1.51	\$15,713.1	\$692.9
2008	-2.8%	8.1%	\$1.55	\$2.48	\$1.46	(\$1,801.8)	\$528.9
2009	-26.5%	-43.0%	\$1.14	\$1.41	\$1.12	(\$11,503.5)	(\$351.7)
Total						\$18,156.1	\$2,092.7

¹⁷⁰ *Ibid.*, S&P's; and authors' estimates.

¹⁷¹ Pennsylvania Public School Employees' Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

Pennsylvania State Employees' Retirement System

The Pennsylvania State Employees' Retirement System provides retirement, survivor and disability benefits to employees of the state government. The System reports its membership for retirees and beneficiaries currently receiving benefits, and current employees including those vested and non-vested. These two categories totaled an average of nearly 216,000 over this period. Monthly pension payments to qualified retirees and beneficiaries averaged \$1,418.

Table A-PA-4. Pennsylvania State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁷²

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	101,179	109,981	NA	211,160	\$1,318
2006	102,060	110,972	NA	213,032	\$1,352
2007	107,130	109,610	NA	216,713	\$1,437
2008	108,146	110,866	NA	219,012	\$1,470
2009	109,639	110,107	NA	219,746	\$1,510
Average	105,631	110,307	NA	215,932	\$1,418

The Pennsylvania State Employees' Retirement System's investments are diversified across and within asset classes. Here, too, investments in equities – domestic and international, including oil and natural gas stocks -- declined in recent years, while holdings of “other assets” rose sharply. The System's investments in the oil and natural gas sector are calculated based on the asset allocation and benchmarks. These equity investments in oil and natural gas companies accounted for between 1.7 percent and 3.5 percent of the System's total assets, averaging 2.8 percent of those assets over the period.

Table A-PA-5. Pennsylvania State Employees' Retirement System, Assets and Asset Allocation, FYs 2005-2009¹⁷³

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	34.0%	3.2%	20.9%	16.0%	29.1%
2006	100.0%	35.8%	3.5%	20.5%	15.3%	28.4%
2007	100.0%	24.9%	3.2%	20.3%	13.8%	41.0%
2008	100.0%	19.6%	2.6%	13.7%	14.3%	52.4%
2009	100.0%	14.5%	1.7%	10.9%	11.8%	62.8%
<i>In millions of US dollars</i>						
2005	\$28,805.2	\$9,793.8	\$910.8	\$6,020.3	\$4,608.8	\$8,382.3
2006	\$32,100.5	\$11,492.0	\$1,126.2	\$6,580.6	\$4,911.4	\$9,116.5
2007	\$35,542.2	\$8,850.0	\$1,141.7	\$7,215.1	\$4,904.8	\$14,572.3
2008	\$22,907.4	\$4,489.9	\$597.2	\$3,138.3	\$3,275.8	\$12,003.5
2009	\$24,644.2	\$3,573.4	\$410.9	\$2,686.2	\$2,908.0	\$15,476.6

Using the annual returns reported by the State Employees' Retirement System, we calculate that \$1.00 invested by the System in January 2005 grew to \$1.22 in December 2009 (the System's fiscal year ends on December 31). Over this period, \$1.00 invested in the S&P Energy Sector grew to \$1.54. If the

¹⁷² Pennsylvania State Employees' Retirement System, Comprehensive Annual Financial Report.

¹⁷³ *Ibid.*, S&P's; and authors' estimates.

System had not invested in any oil and natural gas stocks, \$1.00 invested in January 2005 would have grown to \$1.19 in December 2009. We also estimate the annual capital gains and losses of the System's assets and of the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled more than \$11.2 billion, including \$755 million in net gains from its investments in oil and natural gas companies. These oil and natural gas investments accounted for 2.8 percent of the System's total assets and provided 6.7 percent of the System's total gains.

Table A-PA-6. Pennsylvania State Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁷⁴

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 1/2005	Return on \$1 in Oil and Natural Gas Assets Invested in 1/2005	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 1/2005	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
1/2005			\$1.00	\$1.00	\$1.00		
2005	14.5%	33.3%	\$1.15	\$1.33	\$1.10	\$4,176.8	\$303.6
2006	16.4%	22.2%	\$1.33	\$1.63	\$1.28	\$5,264.5	\$250.2
2007	17.2%	32.4%	\$1.56	\$2.16	\$1.49	\$6,113.3	\$369.7
2008	-28.7%	-35.9%	\$1.11	\$1.38	\$1.08	(\$6,574.4)	(\$214.6)
2009	9.1%	11.3%	\$1.22	\$1.54	\$1.19	\$2,242.6	\$46.4
Total						\$11,222.7	\$755.3

South Carolina

South Carolina Public School Employees' Retirement System

The South Carolina Public School Employees' Retirement System provides pension benefits for all public school employees in the State. The System's reported membership consists of retirees and beneficiaries, and current employees, both vested and non-vested. The System does not report inactive employees, and the other two categories averaged 128,385 members over FYs 2005-2009. The average monthly pension payment paid to qualified retirees and beneficiaries averaged \$1,579 in this period.

Table A-SC-1. South Carolina Public School Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁷⁵

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	42,317	79,659	n/a	121,976	\$1,505
2006	43,516	81,578	n/a	125,094	\$1,553
2007	45,203	83,356	n/a	128,559	\$1,590
2008	46,805	85,569	n/a	132,374	\$1,623
2009	48,432	85,491	n/a	133,923	\$1,623
Average	45,255	83,131	n/a	128,385	\$1,579

¹⁷⁴ Pennsylvania State Employees' Retirement System, Comprehensive Annual Financial Report; and authors' estimates; S&P's; and authors' estimates.

¹⁷⁵ Public School Employees Retirement System, Comprehensive Annual Financial Report.

The public school pension fund's investments are diversified, but in a very different pattern from most pension plans. There are no investments in international equities, and U.S. stocks accounted for an average of just 19.2 percent of the fund's assets. However, fixed-income instruments averaged 41.4 percent of all System assets, and "other assets" averaged 39.4 percent of the portfolio. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for less than 2.2 percent of total assets over this period.

Table A-SC-2. South Carolina Public School Employees' Retirement System, Asset Allocation, FYs 2005-2009¹⁷⁶

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	20.2%	1.9%	--	48.4%	31.4%
2006	100.0%	24.2%	2.4%	--	40.5%	35.2%
2007	100.0%	17.3%	2.2%	--	48.8%	34.0%
2008	100.0%	23.4%	3.1%	--	36.7%	39.8%
2009	100.0%	10.8%	1.2%	--	32.6%	56.7%
<i>In millions of US dollars</i>						
2005	\$9,962.4	\$2,009.4	\$186.9	--	\$4,825.8	\$3,128.2
2006	\$10,106.2	\$2,448.7	\$240.0	--	\$4,097.1	\$3,557.4
2007	\$11,027.9	\$1,903.4	\$245.5	--	\$5,376.1	\$3,749.5
2008	\$10,285.2	\$2,405.7	\$320.0	--	\$3,777.8	\$4,097.6
2009	\$8,133.5	\$874.4	\$100.6	--	\$2,647.5	\$4,611.7

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to just \$1.01 in June 2009 (the System's fiscal year ends on June 31). During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have been worth \$1.00 in June 2009. We also estimate the annual capital gains and losses of the public school pension system's total assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$878 million, including \$202 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 2.2 percent of its total assets, provided 23.0 percent of its total gains.

¹⁷⁶ *Ibid.*, S&P's; and authors' estimates.

Table A-SC-3. South Carolina Public School Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁷⁷

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains From Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	7.0%	36.5%	\$1.07	\$1.37	\$1.04	\$699.4	\$68.2
2006	5.1%	20.3%	\$1.13	\$1.64	\$1.09	\$518.4	\$48.6
2007	13.4%	24.5%	\$1.28	\$2.04	\$1.23	\$1,472.2	\$60.1
2008	-2.6%	21.4%	\$1.24	\$2.48	\$1.17	(\$263.3)	\$68.4
2009	-19.0%	-43.0%	\$1.01	\$1.41	\$1.00	(\$1,548.6)	(\$43.3)
Total						\$878.1	\$202.1

South Carolina State Employees' Retirement System

The South Carolina State Employees' Retirement System provides retirement, survivor and disability benefits to state government employees. The System reports membership among current retirees and beneficiaries and active employees, totaling an average of 102,586 over this period, but does not report "inactive" workers who left jobs working for the State but still are entitled to some coverage. The average pension benefit paid out over this period was \$1,487.

Table A-SC-4. South Carolina State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁷⁸

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	45,605	53,098	n/a	98,703	\$1,426
2006	46,713	53,360	n/a	100,073	\$1,469
2007	48,492	53,971	n/a	102,463	\$1,494
2008	50,325	55,053	n/a	105,378	\$1,521
2009	51,965	54,347	n/a	106,312	\$1,523
Average	48,620	53,966	n/a	102,586	\$1,487

The state employees' pension system's investments are also allocated unlike most other state pension systems, but just like the state teachers' pension plan: No holdings of international equities, low holdings of U.S. equities, and large holdings of both fixed-income instruments and "other assets" that range from cash accounts to hedge funds. Investments in the energy sector, more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 1.2 percent and 3.1 percent of total assets.

¹⁷⁷ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁷⁸ State Employees Retirement System, Comprehensive Annual Financial Report.

**Table A-SC-5. South Carolina State Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁷⁹**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	20.2%	1.9%	--	48.4%	31.4%
2006	100.0%	24.2%	2.4%	--	40.5%	35.2%
2007	100.0%	17.3%	2.2%	--	48.8%	34.0%
2008	100.0%	23.4%	3.1%	--	36.7%	39.8%
2009	100.0%	10.8%	1.2%	--	32.6%	56.7%
<i>In millions of US dollars</i>						
2005	\$8,061.6	\$1,626.0	\$151.2	--	\$3,905.0	\$2,531.3
2006	\$8,084.8	\$1,958.9	\$192.0	--	\$3,277.6	\$2,845.8
2007	\$8,789.3	\$1,517.0	\$195.7	--	\$4,284.8	\$2,988.4
2008	\$8,187.7	\$1,915.1	\$254.7	--	\$3,007.3	\$3,262.0
2009	\$6,456.6	\$694.1	\$79.8	--	\$2,101.6	\$3,660.9

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.01 in June 2009 (the System's fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have been worth \$1.00 five years later, in June 2009. We also estimate the capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled \$715 million, including \$162 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for 2.2 percent of the System's total assets, provided 22.7 percent of its total gains.

**Table A-SC-6. South Carolina State Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁸⁰**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	7.0%	36.5%	\$1.07	\$1.37	\$1.04	\$565.9	\$55.2
2006	5.1%	20.3%	\$1.13	\$1.64	\$1.09	\$414.7	\$38.9
2007	13.4%	24.5%	\$1.28	\$2.04	\$1.23	\$1,173.4	\$47.9
2008	-2.6%	21.4%	\$1.24	\$2.48	\$1.17	(\$209.6)	\$54.5
6/2009	-19.0%	-43.0%	\$1.01	\$1.41	\$1.00	(\$1,229.3)	(\$34.3)
Total						\$715.1	\$162.2

¹⁷⁹ *Ibid.*, and S&P's; and authors' estimates.

¹⁸⁰ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

West Virginia

West Virginia Public School Employees' Retirement System

The West Virginia Public School Employees' Retirement System provides pension benefits for all public school employees in the State. Its membership consists of retirees and beneficiaries; current employees, both vested and non-vested; and inactive employees entitled to benefits at some time. Those members averaged 57,195 over FYs 2005-2009, and the monthly pension payments paid to qualified retirees and beneficiaries averaged \$1,250.

**Table A-WV-1. West Virginia Public School Employees' Retirement System,
Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁸¹**

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	26,332	17,939	n/a	n/a	\$1,137
2006	29,062	19,208	2,931	51,201	\$1,190
2007	29,738	21,016	2,836	53,590	\$1,251
2008	30,290	21,405	2,731	54,426	\$1,307
2009	30,913	35,844	2,807	69,564	\$1,366
Average	29,267	23,082	2,826	57,195	\$1,250

The public school pension fund's investments are well diversified. Domestic equities and fixed income instruments accounted for the largest shares of assets, averaging 31.7 percent and 39.8 percent, respectively. Investments in energy companies, more than 98 percent in oil and gas companies, are estimated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for an average of 3.5 percent of total assets over this period.

**Table A-WV-2. West Virginia Public School Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁸²**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	39.9%	3.7%	19.3%	40.8%	0.0%
2006	100.0%	35.0%	3.4%	18.0%	47.0%	0.0%
2007	100.0%	29.0%	3.7%	14.0%	57.0%	0.0%
2008	100.0%	30.0%	4.0%	29.0%	30.0%	11.0%
2009	100.0%	24.4%	2.8%	26.4%	24.3%	24.9%
<i>In millions of US dollars</i>						
2005	\$1,598.2	\$637.4	\$59.3	\$308.7	\$652.1	-
2006	\$2,079.4	\$727.8	\$71.3	\$374.3	\$977.3	-
2007	\$3,638.2	\$1,055.1	\$136.1	\$509.4	\$2,073.8	-
2008	\$3,347.6	\$1,004.3	\$133.6	\$970.8	\$1,004.3	\$368.2
2009	\$3,513.0	\$857.2	\$98.6	\$927.4	\$853.7	\$874.7

Using the public school pension system's reported annual returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.10 in June 2009 (the fund's fiscal year ends on June 31).

¹⁸¹ Public School Employees Retirement System, Comprehensive Annual Financial Report.

¹⁸² *Ibid.*, S&P's; and authors' estimates.

During this period, \$1.00 invested in energy stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in July 2004 would have grown to \$1.06 in June 2009. We also estimate the annual capital gains and losses of the public school pension system's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled an estimated \$179 million, including nearly \$56 million in net gains from investments in the oil and natural gas sector. The System's oil and natural gas investments, which accounted for 3.5 percent of its total assets, provided 31.1 percent of its total gains.

Table A-WV-3. West Virginia Public School Employees' Retirement System, Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁸³

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 of Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.6%	36.5%	\$1.11	\$1.36	\$1.06	\$169.4	\$21.6
2006	9.6%	20.3%	\$1.21	\$1.64	\$1.16	\$199.6	\$14.5
2007	17.4%	24.5%	\$1.42	\$2.04	\$1.35	\$633.1	\$33.3
2008	-7.7%	21.4%	\$1.31	\$2.48	\$1.21	(\$257.8)	\$28.6
2009	-16.1%	-43.0%	\$1.10	\$1.41	\$1.06	(\$565.6)	(\$42.4)
Total						\$178.7	\$55.6

West Virginia State Employees' Retirement System

The West Virginia State Employees' Retirement System covers state government employees. Its' average membership over this period was 70,089; and the average monthly pension it provided to qualified retirees and beneficiaries was \$916.

Table A-WV-4. West Virginia State Employees' Retirement System, Membership Classes and Monthly Benefit Payments, FYs 2005-2009¹⁸⁴

Fiscal Year	Retirees and Beneficiaries	Active Employees	Inactive Employees	Total	Average Monthly Benefit Payments
2005	19,364	36,256	-	n/a	\$819
2006	21,404	35,360	12,778	69,542	\$856
2007	20,684	35,716	13,567	69,967	\$901
2008	21,171	35,486	14,547	71,204	\$945
2009	18,796	35,712	15,135	69,643	\$1,057
Average	20,284	35,706	14,007	70,089	\$916

The state employees' pension system's investments are well diversified across and within asset classes. Fixed income instruments accounted for the largest share of assets, averaging 37.7 percent of all assets, followed by domestic equities at an average of 33.7 percent. Investments in the energy sector,

¹⁸³ Public School Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

¹⁸⁴ State Employees Retirement System, Comprehensive Annual Financial Report.

more than 98 percent in oil and gas companies, are calculated based on the System's asset allocation and benchmarks. Equity investments in oil and natural gas companies accounted for between 2.9 percent and 4.9 percent of the System's total assets, and averaged 3.8 percent over this period.

**Table A-WV-5. West Virginia State Employees' Retirement System,
Asset Allocation, FYs 2005-2009¹⁸⁵**

Fiscal Year	Total	US Stocks: All Sectors	US Oil and Natural Gas Stocks	International Equities	Fixed Income	Other Assets
<i>As percentage of total assets</i>						
2005	100.0%	40.7%	3.8%	20.3%	38.9%	0.0%
2006	100.0%	38.0%	3.7%	20.0%	42.0%	0.0%
2007	100.0%	38.0%	4.9%	24.0%	38.0%	0.0%
2008	100.0%	27.0%	3.6%	21.0%	41.0%	11.0%
2009	100.0%	24.8%	2.9%	26.6%	28.8%	19.8%
<i>In millions of US dollars</i>						
2005	\$3,400.4	\$1,384.9	\$128.8	\$691.3	\$1,324.3	-
2006	\$3,696.0	\$1,404.5	\$137.6	\$739.2	\$1,552.3	-
2007	\$4,289.1	\$1,629.8	\$210.3	\$1,029.4	\$1,629.8	-
2008	\$3,934.4	\$1,062.3	\$141.3	\$826.2	\$1,613.1	\$432.8
2009	\$3,243.8	\$804.5	\$92.5	\$862.8	\$934.2	\$642.3

Using the System's reported returns, we calculate that \$1.00 invested in the System in July 2004 grew to \$1.12 in June 2009 (the System's fiscal year ends on June 30). During this period, \$1.00 invested in the System's oil and gas stocks grew to \$1.41. If the System had not invested in oil and natural gas stocks, \$1.00 invested in June 2004 would have grown to \$1.08 in June 2009. We also estimate the capital gains and losses of the System's assets and the portion invested in oil and natural gas stocks. Over this period, the System's net gains totaled some \$708 million, including nearly \$117 million in net gains from investments in the oil and natural gas sector. The oil and natural gas investments, which accounted for 3.8 percent of the System's total assets, provided 16.5 percent of the System's total gains.

**Table A-WV-6. West Virginia State Employees' Retirement System,
Returns and Gains for All Assets and Oil and Natural Gas Investments, FYs 2005-2009¹⁸⁶**

Fiscal Year	Annual Return on All Assets	Annual Return on Oil and Natural Gas Stocks	Return on \$1 of All Assets Invested in 7/2004	Return on \$1 in Oil and Natural Gas Assets Invested in 7/2004	Return on \$1 of Non-Oil and Natural Gas Assets Invested in 7/2004	Capital Gains from All Assets (millions)	Capital Gains from Oil and Natural Gas Investments (millions)
7/2004			\$1.00	\$1.00	\$1.00		
2005	10.7%	36.5%	\$1.11	\$1.36	\$1.06	\$363.8	\$47.0
2006	9.5%	20.3%	\$1.21	\$1.64	\$1.15	\$351.1	\$27.9
2007	17.6%	24.5%	\$1.43	\$2.04	\$1.33	\$754.9	\$51.5
2008	-6.5%	21.4%	\$1.33	\$2.48	\$1.24	(\$255.7)	\$30.2
6/2009	-15.6%	-43.0%	\$1.12	\$1.41	\$1.08	(\$506.0)	(\$39.8)
Total						\$708.1	\$116.8

¹⁸⁵ *Ibid.*, and S&P's; and authors' estimates.

¹⁸⁶ State Employees Retirement System, Comprehensive Annual Financial Report; S&P's; and authors' estimates.

