Semi-Annual VRS Investment Report: May 1997

During 1997 the Virginia Retirement System (VRS) is continuing to address numerous issues concerning how and where pension fund assets are invested. For example, VRS is revising the methodology by which it makes its asset allocation policy decisions. For the first time, the process will systematically consider factors pertaining to the fund’s benefit liabilities, in order to more completely address the risks faced by the pension fund. In the short run under this approach, risk is defined as volatility in asset values, funded status, and contribution rates. Over the long term, risk is defined as the failure to achieve returns greater than the U.S. inflation rate, a factor which has a strong impact on the future value of plan liabilities. The VRS Board will vote on a recommended asset allocation derived from this new process, which could differ from the current allocation, at its May 15, 1997 meeting.

Several investment programs have undergone structural changes over the past year. An international component has been added to the private equity program, with initial investments to be made in Western Europe. The performance benchmark for the international public equity program has been revised, and an active management component is being added to emerging market investments. The real estate investment program is shifting its emphasis towards more specialized, opportunistic investments in which VRS assumes a higher level of property development and leasing risk in return for anticipated higher returns. VRS also expects to better align its interests with those of its real estate investment managers through the use of performance-based fees, and to invest more efficiently. Under this new approach, VRS has committed to invest $448 million using eight managers, with VRS planning to grant each manager substantial, if not total, discretion.

A continuing challenge for VRS is its ability to actually invest funds in the manner envisioned by its asset allocation policy, such that each asset class can make a meaningful contribution to the fund’s overall performance. A consultant to the pension fund recently advised that, unless VRS can invest at least five percent of its assets in an asset class, the expense of investing in that asset class may not be warranted. This report presents information concerning the VRS investment program as of December 31, 1996, including asset allocation, investment performance, and program structure.
VRS Investment Performance (Percent Return) Compared to Benchmarks for Periods Ending 12/31/96

Total Fund Performance

<table>
<thead>
<tr>
<th>Period</th>
<th>Custom Benchmark</th>
<th>1-Year</th>
<th>2-Year</th>
<th>3-Year</th>
<th>4-Year</th>
<th>5-Year</th>
<th>6-Year</th>
<th>7-Year</th>
<th>8-Year</th>
<th>9-Year</th>
<th>10-Year</th>
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<tbody>
<tr>
<td>One-Year</td>
<td></td>
<td>15.7</td>
<td>14.9</td>
<td>13.4</td>
<td>13.4</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
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<tr>
<td>Ten-Year</td>
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</tbody>
</table>

Prior Year's Program Performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual Performance</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>22.5</td>
<td>21.8</td>
</tr>
<tr>
<td>Russell 3000</td>
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<td></td>
</tr>
<tr>
<td>International Equity</td>
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<td>5.7</td>
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<tr>
<td>EAFE 50:50</td>
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<td></td>
</tr>
<tr>
<td>Emerging Markets</td>
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<td>8.1</td>
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<td>IFCIL/T</td>
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<tr>
<td>Fixed Income</td>
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<td>2.2</td>
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<tr>
<td>Lehman VRS</td>
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<tr>
<td>Real Estate</td>
<td>8.5</td>
<td>13.3</td>
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<td>CPIU+5%</td>
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<td>Private Equity</td>
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<tr>
<td>Russell 3000+250 bp</td>
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Prior Three Years' Program Performance

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<tr>
<th>Category</th>
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<th>Benchmark</th>
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<td>Domestic Equity</td>
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<tr>
<td>International Equity</td>
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<td>8.5</td>
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<tr>
<td>EAFE 50:50</td>
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<td></td>
</tr>
<tr>
<td>Fixed Income</td>
<td>6.2</td>
<td>5.5</td>
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<tr>
<td>Lehman VRS</td>
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<tr>
<td>Real Estate</td>
<td>8.1</td>
<td>10.2</td>
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<tr>
<td>CPIU+5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Equity</td>
<td>24.9</td>
<td>21.1</td>
</tr>
<tr>
<td>Russell 3000+250 bp</td>
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</table>

Prior Five Years' Program Performance

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<thead>
<tr>
<th>Category</th>
<th>Actual Performance</th>
<th>Benchmark</th>
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</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
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<td>15.2</td>
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<tr>
<td>Russell 3000</td>
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<td></td>
</tr>
<tr>
<td>International Equity</td>
<td>8.8</td>
<td>8.6</td>
</tr>
<tr>
<td>EAFE 50:50</td>
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<tr>
<td>Fixed Income</td>
<td>7.8</td>
<td>7</td>
</tr>
<tr>
<td>Lehman VRS</td>
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<tr>
<td>Real Estate</td>
<td>5.1</td>
<td>8.1</td>
</tr>
<tr>
<td>CPIU+5%</td>
<td></td>
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</tr>
<tr>
<td>Private Equity</td>
<td>16.4</td>
<td>17.7</td>
</tr>
<tr>
<td>Russell 3000+250 bp</td>
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</tbody>
</table>

Note: Private equity benchmark of Russell 3000 +250 basis points applies to rolling ten-year periods.

Sources: VRS Performance Summary, Rolling Periods Ending December 31, 1996, and Callan Associates.
VRS Oversight Report

The Joint Legislative Audit & Review Commission
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Real Estate Investments by Property Type

- Warehouse 8%
- R&D/Office 1%
- Retail 18%
- Office 33%
- Apartment 32%
- Other 8%

Real Estate Investments by Region

- Domestic Equity 54%
- International Equity 9.8%
- Emerging Market Equity 3.1%
- Alternative Investments 4.8%
- Fixed Income 23.6%
- Real Estate 4.5%
- Cash 0.2%

Note: Targets and ranges refer to percentage of total fund assets to be invested over the long term. In 1996, VRS established short-term, dollar-based targets for alternative investments ($1.2 billion) and real estate ($1 billion). Those targets have been reached.

Source: JLARC staff analysis of VRS asset allocation data as of December 31, 1996.
Domestic Equity Investments, by Sector
- Utilities 6%
- Capital Goods 8%
- Consumer Durables 4%
- Health Care 10%
- Consumer Services 12%
- Basic Industries 9%
- Consumer Non-Durables 12%
- Energy 6%
- Transportation 2%
- Financials 19%
- Technology 12%

Private Equity Investments, by Industry
- Computer 23%
- Consumer 16%
- Medical 14%
- Energy 2%
- Industrial 3%
- Electronics 2%
- Insurance/Finance 8%
- Other 10%
- Pooled 2%

International Equity Investments, by Country
- France 8%
- Germany 6%
- Italy 3%
- Netherlands 5%
- Switzerland 6%
- United Kingdom 17%
- Other Europe 10%
- Australia 2%
- Malaysia 3%
- Japan 31%
- Hong Kong 4%
- Other Pacific 3%
- Emerging Markets 2%

Emerging Market Investments, by Country
- Taiwan 4%
- South Korea 4%
- Other East Asia 6%
- South Africa 8%
- Portugal 5%
- Other Europe, Mid. East, Africa 15%
- Argentina 4%
- Brazil 14%
- Mexico 12%
- Other Latin Amer. 6%
- Malaysia 10%
- Thailand 8%
- Indonesia 3%
- Other Southeast Asia 2%

Fixed Income Investments, by Sector
- Government 43%
- Foreign 3%
- Corporate 30%
- Asset-Backed 4%
- Mortgage 18%
- Other 2%

Fixed Income Investments, by Sector
- Utilities 6%
- Capital Goods 8%
- Consumer Durables 4%
- Health Care 10%
- Consumer Services 12%
- Basic Industries 9%
- Consumer Non-Durables 12%
- Energy 6%
- Transportation 2%
- Financials 19%
- Technology 12%

Investment Management Expenses
- Consulting Fees
- Custodian Fees
- Private Equity
- Real Estate
- Fixed Income
- Public Equity

Note: FY96: 29.45 bp
FY97: 28.27 bp

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Notes: All investment data are as of 12/31/96, except private equity (9/30/96). Some graphics do not total to 100% due to rounding. Sources: VRS and Callan Associates.