ASSET MANAGEMENT AND FINANCIAL INSTITUTION STRATEGY REPORT

2016-2017 Fiscal Year

Submitted: September 1, 2017
Updated: November 1, 2017

New York State Teachers’ Retirement System
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Financial Highlights (Final)

All figures as of June 30, 2017

- Total assets under management*: $113,338,147,561
- Total assets internally managed: $69,387,082,868 (61%)
- Total assets externally managed – active: $26,659,359,818 (24%)
- Total assets externally managed – passive: $17,291,704,875 (15%)
- Total MWBE assets under external management**: $3,329,044,673 (7.57%)
- Total fees paid to external firms: $254,186,908
- Total fees paid to MWBE firms: $30,646,520 (12.06%)

MWBE Assets Under External Management (by Asset Class)
(As a percentage of externally managed)**

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Market Value</th>
<th>Percent of Externally Managed**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Income</td>
<td>$0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>$1,174,116,173</td>
<td>2.67%</td>
</tr>
<tr>
<td>Public Equities</td>
<td>$1,636,003,043</td>
<td>3.72%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>$518,925,457</td>
<td>1.18%</td>
</tr>
</tbody>
</table>

Breakdown of Private Equity Committed Capital

<table>
<thead>
<tr>
<th></th>
<th># of Firms</th>
<th>Committed Capital</th>
<th>Percent of Committed Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Firms</td>
<td>92</td>
<td>$19,525,078,517</td>
<td>100.00%</td>
</tr>
<tr>
<td>MWBE Firms</td>
<td>14</td>
<td>$2,094,611,390</td>
<td>10.73%</td>
</tr>
</tbody>
</table>

Breakdown of Fees by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Asset Management</th>
<th>Financial Institutions***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fees Paid to All Firms</td>
<td>$248,712,054</td>
<td>$4,512,867</td>
</tr>
<tr>
<td>Total Fees Paid to MWBE Firms</td>
<td>$30,138,571</td>
<td>$507,949</td>
</tr>
<tr>
<td>Percent of Fees Paid to MWBE Firms</td>
<td>12.12%</td>
<td>11.26%</td>
</tr>
</tbody>
</table>

*System net assets as of June 30, 2017 are $115.5 billion, which include assets under management ($113.3 billion), other assets and liabilities.

**Reflects percentage of externally managed assets (active and passive).

***Includes estimated fixed income commissions.
NYSTRS Overview

The New York State Teachers’ Retirement System (“NYSTRS” or the “System”) administers the fund from which New York state public school teachers and administrators (excluding those in New York City) receive retirement benefits, as well as death and disability coverage. NYSTRS is one of the 10-largest public retirement systems in the nation and 30 largest in the world.

A 10-member Board of Trustees representing various constituents manages the System. By law, the Board’s composition is as follows:

- Three teacher members are elected from the membership, one each year, by delegates to the System’s Annual Meeting.
- One NYSTRS retiree is elected (if there is more than one candidate) by a mail vote of all retired members.
- Two school administrators are appointed by the state Commissioner of Education.
- Two present or former school board members, experienced in the fields of finance and investment, are elected by the Board of Regents based on recommendations of the New York State School Boards Association. At least one of these individuals must have experience as an executive of an insurance company.
- One present or former bank executive is elected by the Board of Regents.
- The State Comptroller or a designee.

Board members are elected/appointed to three-year terms (except the Comptroller or a designee) and serve without compensation.

Retirement Board Trustees (as of 9/1/2017)

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Term Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>David P. Keefe</td>
<td>President</td>
<td>Retired Teacher Member Elected by NYSTRS Retirees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2004</td>
</tr>
<tr>
<td>Michael J. Masse</td>
<td>Vice President</td>
<td>Bank Executive Elected by Board of Regents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2009</td>
</tr>
<tr>
<td>Jolene T. DiBrango</td>
<td>Teacher Member</td>
<td>Elected by NYSTRS Delegates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2014</td>
</tr>
<tr>
<td>Paul J. Farfaglia</td>
<td></td>
<td>Teacher Member Elected by NYSTRS Delegates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2009</td>
</tr>
<tr>
<td>Stephen P. Feehan</td>
<td>Insurance Executive</td>
<td>Elected by Board of Regents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2016</td>
</tr>
<tr>
<td>Dr. Phyllis S. Harrington</td>
<td></td>
<td>School Administrator Appointed by Comm’r of Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2010</td>
</tr>
<tr>
<td>Daniel J. Hogarty Jr.</td>
<td>Bank Executive</td>
<td>Elected by Board of Regents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2005</td>
</tr>
<tr>
<td>Dr. L. Oliver Robinson</td>
<td></td>
<td>School Administrator Appointed by Comm’r of Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2010</td>
</tr>
<tr>
<td>Nicholas Smirensky</td>
<td>State Comptroller’s Representative</td>
<td>Elected by NYSTRS Delegates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trustee since 2007</td>
</tr>
<tr>
<td>Vacant Until 11/6/17</td>
<td></td>
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</tr>
</tbody>
</table>
Members of the NYSTRS Board are responsible as fiduciaries to protect the long-term value of the System’s investment portfolio and provide benefit security for NYSTRS members, retirees and beneficiaries. The Board receives counsel from staff, advisory committees and investment consultants to help formulate its investment policy. Board members are entrusted to invest funds at the highest possible long-term rate of return consistent with appropriate levels of diversity and risk. The funds must be invested with the care, skill and diligence that a prudent person familiar with such matters would use to ensure that sufficient assets are on hand to pay promised benefits when they come due. This must be accomplished at the lowest possible cost to participating employers.

**Statistical**

As of June 30, 2017, System net assets totaled $115.5 billion, with total assets under management of nearly $113.3 billion. During the fiscal year ended June 30, 2017, the System’s annual benefit payroll for its approximately 164,000 retirees and beneficiaries was approximately $6.8 billion. About 80% of this total, or over $5.4 billion, is paid to retired members and beneficiaries living in New York state. These payments serve as an important economic stimulus.

The benefits provided by the System are funded by the annual contributions of participating employers and active members, as well as the investment earnings on those contributions. Over the past 20 years, investment returns have accounted for 83% of all NYSTRS income.

Both internal and external checks and balances exist to ensure complete and transparent adherence to all applicable laws, regulations and accounting requirements. Financial information and internal controls are subject to regular audit by the New York State Department of Financial Services and the System’s Internal Audit Department. KPMG LLP, an independent certified public accounting firm, audits the System’s financial statements annually. The System consistently receives favorable audit opinions.

**Investments**

The System’s assets are invested in the most prudent manner possible in order to achieve optimum long-term total returns with an appropriate level of risk. The allocation of assets within the portfolio, as well as the fund’s overall structure, are continuously reviewed and adjusted to achieve these goals.

NYSTRS is committed to a disciplined, risk-controlled investment approach that focuses on thoughtful diversification of assets across a broad spectrum of capital market segments. Assets are invested in order to maximize investment income while limiting risk. This approach has served members and state taxpayers well.

Approximately 61% of the System’s investments are managed internally by the System’s own investment professionals. These investments primarily consist of index-matching domestic equity funds and fixed income instruments. Internal management allows the System to control fees and helps reduce the System’s cost of operation. NYSTRS administers the plan at a very low cost in comparison to the value of the assets managed.
NYSTRS invests the System’s funds in several diverse classes of assets, including equities, bonds and real estate. This diversification helps the System earn the highest possible long-term rate of return within appropriate risk levels. In turn, this enables the System to pay guaranteed benefits to retirees and their beneficiaries at the lowest possible cost to participating employers and the taxpayers that fund them.

Asset classes in which NYSTRS invests include:

- Domestic equity;
- International equity;
- Domestic fixed income;
- Global bonds;
- Real estate; and,
- Private equity.
New York’s MWBE Asset Management and Financial Institution Strategy

Chapter 171 of the Laws of 2010 authorizes NYSTRS, along with the Common Retirement Fund under the sole trusteeship of the State Comptroller, the State Insurance Fund, and the State Deferred Compensation Plan, to implement a strategy to encourage greater utilization of the services of minority- and women-owned business enterprises (“MWBEs”). Any actions taken by NYSTRS must be consistent with its overriding fiduciary responsibilities to NYSTRS members, retirees and beneficiaries.

Among other things, Chapter 171 authorizes NYSTRS to:

- Periodically advertise the existence of the MWBE strategy and make MWBEs aware of possible opportunities to conduct business with NYSTRS.
- Make a report to the Governor, Legislature and the State Chief Diversity Officer on MWBE provision of services to NYSTRS within 60 days after the close of NYSTRS’ fiscal year.
- Work with the State Comptroller, State Insurance Fund and the State Deferred Compensation Plan in creating a database of MWBEs utilized by respective parties.
- Hold an annual conference promoting the strategy in conjunction with the other fiduciary entities.
The System’s seventh annual MWBE conference entitled “Expanding Access, Increasing Opportunities” was held February 16, 2017. The goal was to introduce minority- and women-owned business enterprise investment managers, brokers and professional services providers to NYSTRS and its investment and professional staff. The sessions focused on: fixed income; public equities (asset managers and brokers); private equity; real estate/real estate services; and, professional service providers. Participants left with a greater understanding of the System’s portfolio and investment needs, as well as the abilities and qualifications expected of NYSTRS managers, brokers and professional service providers.

**Planning**

In October 2016, NYSTRS’ MWBE Steering Committee began the process of planning the seventh annual conference. Feedback from the previous six conferences provided NYSTRS’ Steering Committee with a sound basis for planning a seventh successful conference.

Consistent with previous conferences, NYSTRS coordinated the MWBE conference with the Office of the State Comptroller’s (“OSC”) annual emerging managers’ event, which was held on February 17, 2017. This date coincided with the weekend of the annual conference of the New York State Black, Puerto Rican, Hispanic, and Asian Legislative Caucus.

**Outreach**

A “save the date” notice was posted on NYSTRS’ website in December 2016. This information was also communicated to individuals within the NYSTRS database, which is comprised of past conference attendees and additional contacts made through outreach efforts, including attendance at other MWBE events.

**Conference Registration**

Registration for NYSTRS’ 2017 MWBE conference began January 2, 2017. On this date, an email was sent to 647 contacts announcing the start of online registration. Word of our conference spread as the System received numerous inquiries about the event from individuals not contained in our database.

In all, 253 individuals registered online for the conference, with registrant interest broken down by asset class as follows:

- Public Equities (Asset Managers): 90 Registered
- Public Equities (Brokers): 24 Registered
- Private Equity: 62 Registered
- Fixed Income: 37 Registered
- Real Estate: 21 Registered
- Professional Services: 19 Registered

Actual attendance totaled 203 people, including 20 onsite registrations.
Conference Format

The daylong conference began with NYSTRS Executive Director and Chief Investment Officer Thomas K. Lee providing a welcome and overview of the System, followed by a fireside chat with Ariel Investments President Mellody Hobson. Ms. Hobson shared the experiences gained through her journey to her current position with Ariel.

NYSTRS offered six workshops related to public equities (asset managers and brokers), private equity, fixed income, real estate, legal services, and professional service providers. These two-hour workshops were led by NYSTRS’ managing directors and current managers/partners in each asset class and professional service. The conference also gave participants the opportunity to meet and network with the System’s investment, professional services and senior staff.

A conference agenda is included in this report as Appendix A.

Conference Survey

As done previously, an online post-conference survey was sent to all attendees. Questions pertained to conference organization, plenary session speakers, NYSTRS’ staff, and workshop presentations. The response was overwhelmingly favorable, consistent with previous conference evaluations. The majority of the respondents rated their conference experience as excellent.
Advancement of MWBE Guidelines

MWBE Certification

NYSTRS, in cooperation with the Office of the State Comptroller (“OSC”) and the New York State Insurance Fund (“SIF”), utilized the services of Altura Capital Group (“Altura”), a New York State based MWBE, to survey and certify asset managers, financial institutions, and financial and professional service providers to determine which firms qualify as MWBEs. NYSTRS, together with the other fiduciary controlled entities, updated the MWBE certification survey and pursued certifications in which each entity separately invests.

In accordance with the New York statutory provisions and the NYSTRS MWBE Asset Management and Financial Institution Guidelines (“NYSTRS MWBE Guidelines”), NYSTRS certifies firms for reporting purposes who qualify as a traditional MWBE and firms who qualify as substantially owned and/or operated MWBE.

Traditional MWBE

A traditional MWBE is at least fifty-one percent owned by one or more minority group members, and/or by one or more women, in each case, who have significant experience in the relevant area.

Substantially Owned and/or Operated MWBE

A substantially owned and/or operated firm includes firms with at least thirty-three percent ownership and/or operation by members of minority groups and/or women and of the thirty-three percent have at least twenty-five percent ownership by minority group members and/or women. Under substantially owned and/or operated, each individual counted in determining percentage of ownership or operation is counted once.

NYSTRS has an ongoing process to conduct an MWBE certification review of firms doing business with the System for the relevant fiscal year. Consistent with NYSTRS’ MWBE Guidelines, NYSTRS staff worked with OSC to update the certification survey provided to firms for the purposes of outreach in the past fiscal year (July 1, 2016—June 30, 2017). NYSTRS worked with Altura to provide the survey to asset management firms, brokers and professional service providers (areas of accounting, banking, financial advisory, insurance, legal, research, valuation and other financial and professional services) with which NYSTRS currently has a business relationship.

As of June 2017, the System worked with Altura to commence the certification of 288 firms and business entities. As of this writing, Altura continues to make recommendations to NYSTRS for the certification of the MWBE firms providing investment-related functions as per NYSTRS’ MWBE Guidelines and to assess the data provided in response to the certification surveys.
Pursuit of MWBE Guidelines

- NYSTRS’ Public Equities team continued to pursue MWBE relationships through the System’s managers-of-managers program. In addition, they continued to engage in introductory meetings with MWBE managers. In the past fiscal year, the Public Equities team funded over $250 million in investments with MWBE managers.

- NYSTRS’ Fixed Income team’s focus has been on building existing relationships, as well as establishing new ones, through the System’s annual MWBE conference.

- The System’s Fixed Income staff has taken continual proactive steps to split new issue long term bond deals to allow MWBE co-managers to receive a portion.

- In short term bonds, NYSTRS’ Fixed Income staff has worked effectively with our MWBE counterparty firms to steadily increase transactional activity over time.

- NYSTRS’ managing director of Real Estate is a board member of the Pension Real Estate Association (PREA), which partners with the Robert A. Toigo Foundation to grant an annual PREA/Toigo scholarship to minority and women students. The managing director also served on a panel at the Grosvenor Emerging Manager Conference in September 2016.

- NYSTRS’ Private Equity team continually reviews MWBE materials and takes meetings for strategies that fit within our plan. Since the annual MWBE investment conference commenced, NYSTRS has made a number of direct fund investments based on relationships formed in connection with the annual conference. In FYE 2017, there were two new additions to the roster of managers.

- NYSTRS was an exhibitor at the New York State MWBE Forum and System staff participated in the Forum held in October 2016.

- System staff attended the Texas Teachers’ Retirement System Emerging Managers Conference in January 2017 and the OSC MWBE Conference in February 2017.

- NYSTRS’ Private Equity team attended the Consortium East Forum in June 2017.

- Legal staff attended the Chambers Diversity Summit in New York City in June 2017.

- Legal staff identified and retained an MWBE law firm to assist with the review of derivatives transactions.
The following summarizes, by asset class, the status of NYSTRS’ MWBE relationships.

**Domestic and International Equities** ($6.4% of all invested assets as of 6/30/17)

**External Portfolio Management**

NYSTRS hired Ariel Investments to manage an international equity, long-only strategy and funded that initial investment of $125 million in late April 2017. In June 2017, NYSTRS invested an additional $130 million with FIS Group (“FIS”).

Progress Investment Management Company (“Progress”), Leading Edge Investment Advisors (“Leading Edge”), and FIS are MWBE firms serving as managers-of-managers on NYSTRS’ behalf. The programs managed by Progress and Leading Edge are all-cap domestic equity strategies. FIS manages an international equity program for NYSTRS, including investments in developed and emerging markets. Existing contracts with Progress, Leading Edge and FIS were renewed during the period. Each of these programs includes a number of MWBE sub-managers shown below.

As of August 2016, NYSTRS’ Retirement Board authorized a change in the asset allocation to domestic equities, which together with strong equity market performance, necessitated trimming across the domestic equity portfolio, including investments with our managers-of-managers.

Additional details are summarized in the following table and manager list.

<table>
<thead>
<tr>
<th>Emerging Manager Partner</th>
<th>MWBE Status</th>
<th>Program Type</th>
<th>Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ariel Investments</td>
<td>African-American</td>
<td>International Equity</td>
<td>$130,374,142</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct Mandate</td>
<td></td>
</tr>
<tr>
<td>FIS Group</td>
<td>African-American/Women</td>
<td>International Equity</td>
<td>$250,521,920</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager of Managers</td>
<td></td>
</tr>
<tr>
<td>Leading Edge Investment Advisors</td>
<td>Asian-American</td>
<td>Domestic Equity Manager of Managers</td>
<td>$440,543,743</td>
</tr>
<tr>
<td>Progress Investment Management Co.</td>
<td>African American/Women</td>
<td>Domestic Equity Manager of Managers</td>
<td>$814,563,238</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$1,636,003,043</strong></td>
</tr>
</tbody>
</table>

The MWBE sub-managers, within their portfolios, include the following:

- Affinity Investment Advisors
- Ativo Capital Management
- Blackcrane Capital
- Bowling Capital
- Change Global Investment
- Denali Advisors
- Holland Capital Management
- Martin Investment Management
- Mar Vista Investment
- Matarin Capital
- Metis Global Partners
- Nicholas Investment Partners
- Oakbrook Investments
- Phocas Financial Corp.
- Redwood Investments
Brokers

During the fiscal period, NYSTRS continued to add MWBE firms to its approved list of brokers. Currently, 27 of 43 approved brokers are MWBE certified, including four MWBE additions in FY 2016-2017. During the fiscal period, $195,727 of a total $811,114 commission dollars was paid to MWBE brokers. A comparison of the last two fiscal years follows.

Analysis of NYSTRS’ Domestic Equity Commissions
(Percent Paid to MWBE)

<table>
<thead>
<tr>
<th></th>
<th>7/1/16—6/30/17</th>
<th>7/1/15—6/30/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Commissions</td>
<td>$811</td>
<td>$570</td>
</tr>
<tr>
<td>(,000s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid to MWBE (,000s)</td>
<td>$196</td>
<td>$172</td>
</tr>
<tr>
<td>Total MWBE %</td>
<td>24%</td>
<td>30%</td>
</tr>
<tr>
<td>Total # of Approved Brokers</td>
<td>43</td>
<td>40</td>
</tr>
</tbody>
</table>

Approved MWBE Brokers and Year Approved

Blaylock Beal Van, LLC, 2011
Bley Investment Group, Inc., 2011
Cabrera Capital Markets, LLC, 2011
Capital Institutional Services, 2016
CastleOak Securities, L.P., 2011
CAVU Securities, 2016
Cheevers & Co. Inc., 2011
CL King & Associates, 2011
CV Brokerage, 2015
Great Pacific Securities, 2016
Greentree Brokerage, 2016
Harvestons Securities, 2014
Ivy Securities, Inc., 2011
Loop Capital Markets, 2011
M Ramsey King Securities, 2012
Montrose Securities, 2012
North South Capital, LLC, 2011
Penserra Securities, LLC, 2012
Quoin Capital, 2012
Samuel A. Ramirez & Co., 2011
Siebert Cisneros Shank & Co. LLC, 2011
Sturdivant & Co., 2012
Telsey Advisory Group, 2011
The Fig Group, LLC, 2012
Tigress Financial Partners, 2016
Tribal Capital Markets, 2016
Williams Capital Group, 2011

Note: NYSTRS’ approved broker list also includes three brokers that are VBE (Veteran Business Enterprise) or DVBE (Disabled Veteran Business Enterprise) certified: Mischler Financial Group (DVBE, 2011); Drexel Hamilton (DVBE, 2014); and, Vandham Securities (VBE, 2015).
**Fixed Income** (21.6% of System assets as of 6/30/17 – includes internally managed short term and long term bonds, plus externally managed global bonds)

During NYSTRS’ 2016-17 fiscal year, Fixed Income staff continued to establish, develop and strengthen relationships with both new and existing MWBE fixed income counterparties. This was accomplished through outreach at NYSTRS’ 2017 MWBE conference, as well as by regular interaction with approved MWBE counterparties of the System’s internally managed short-term and long-term bond portfolios. This communication helps MWBE firms expand their understanding of System objectives as it relates to fixed income and, over the long term, we expect System relationships with MWBE fixed income firms will continue to progress.

When compared to the prior fiscal year, Fixed Income’s level of transaction activity with MWBE firms increased significantly and since the 2011 fiscal year the overall level of activity is 165.7% higher. The year-over-year increase in transaction activity with MWBE firms was the result of an increase in short-term bond trading driven by higher cash balances, offset by a decline in long-term bond transactions, which was due to the decline of Fixed Income participation in both the corporate bond primary market and agency primary market because of tight credit spreads and overall limited agency new issuance.

During the fiscal year, Fixed Income added one new relationship and there is currently one prospective MWBE counterparty undergoing Fixed Income’s due diligence review. We continue to communicate the objectives and areas of focus in the fixed income area while simultaneously building relationships with the MWBE firms listed below.

<table>
<thead>
<tr>
<th>Firm</th>
<th>MWBE Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy Securities, Inc.**</td>
<td>Hispanic*</td>
</tr>
<tr>
<td>Blaylock Beal Van, LLC</td>
<td>African-American</td>
</tr>
<tr>
<td>Cabrera Capital Markets, LLC</td>
<td>Hispanic</td>
</tr>
<tr>
<td>CL King &amp; Associates</td>
<td>Women</td>
</tr>
<tr>
<td>CastleOak Securities</td>
<td>African-American</td>
</tr>
<tr>
<td>Duncan Williams</td>
<td>Women</td>
</tr>
<tr>
<td>Great Pacific Securities</td>
<td>Hispanic</td>
</tr>
<tr>
<td>Guzman &amp; Company</td>
<td>Hispanic</td>
</tr>
<tr>
<td>Loop Capital Markets, LLC</td>
<td>African-American/Women</td>
</tr>
<tr>
<td>MFR Securities Inc.</td>
<td>Women</td>
</tr>
<tr>
<td>Ramirez &amp; Company</td>
<td>Hispanic/Women</td>
</tr>
<tr>
<td>Siebert Cisneros Shank &amp; Co. LLC</td>
<td>African-American/Women</td>
</tr>
<tr>
<td>Williams Capital Group</td>
<td>African-American/Women</td>
</tr>
</tbody>
</table>

*Can also be classified as a Disabled Veteran Business Enterprise firm, but for the purposes of this report is included only in the MWBE section to avoid double counting.

**New relationship established during the 2016-17 fiscal year.

As the following table illustrates, total Fixed Income estimated commissions paid to MWBE firms increased significantly. The change was driven by short-term commissions...
commissions decreased in the 2017 fiscal year when compared to the previous fiscal year due to NYSTRS’ reduced participation in new issues of corporate and agency debt.

**Analysis of NYSTRS’ Estimated Fixed Income Commissions**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Description</th>
<th>Short-term Bonds</th>
<th>Long-term Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>Total Commissions – MWBE Firms</td>
<td>$241,872</td>
<td>$70,077</td>
</tr>
<tr>
<td>2015-16</td>
<td>Total Commissions – MWBE Firms</td>
<td>$104,517</td>
<td>$88,583</td>
</tr>
<tr>
<td>2014-15</td>
<td>Total Commissions – MWBE Firms</td>
<td>$91,483</td>
<td>$100,362</td>
</tr>
<tr>
<td>2013-14</td>
<td>Total Commissions – MWBE Firms</td>
<td>$133,614</td>
<td>$183,536</td>
</tr>
<tr>
<td>2012-13</td>
<td>Total Commissions – MWBE Firms</td>
<td>$141,139</td>
<td>$105,680</td>
</tr>
<tr>
<td>2011-12</td>
<td>Total Commissions – MWBE Firms</td>
<td>$151,097</td>
<td>$107,121</td>
</tr>
<tr>
<td>2010-11</td>
<td>Total Commissions – MWBE Firms</td>
<td>$66,209</td>
<td>$51,194</td>
</tr>
</tbody>
</table>

For the recently completed fiscal year, estimated commissions paid to MWBE firms represented 19.2% of all commissions paid in the short-term bond category and 3.0% of all commissions paid in the long-term bond category. This compares to the 2015-16 fiscal year when estimated commissions paid to MWBE firms represented 13.4% of all commissions paid in the short-term bond category and 3.5% of all commissions paid in the long-term bond category.

Additionally, Fixed Income has two Disabled Veteran Business Enterprise (DVBE) relationships with the following firms:

- Drexel Hamilton LLC; and,
- Mischler Financial Group.

For the fiscal year ended 2017, Disabled Veteran firm estimated commissions represented 0.9% of short-term bond transaction activity and 0.6% of long-term bond activity. In comparison to the 2015-16 fiscal year this was similar, when estimated commissions from DVBE firms represented 0.6% of short-term bond transaction activity and 0.7% of long-term bond transaction activity.

**Analysis of NYSTRS’ Estimated Fixed Income Commissions – Disabled Veteran Firms**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Description</th>
<th>Short-term Bonds</th>
<th>Long-term Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>Total Commissions – Disabled Veteran</td>
<td>$11,593</td>
<td>$12,681</td>
</tr>
<tr>
<td>2015-16</td>
<td>Total Commissions – Disabled Veteran</td>
<td>$4,268</td>
<td>$16,861</td>
</tr>
<tr>
<td>2014-15</td>
<td>Total Commissions – Disabled Veteran</td>
<td>$4,665</td>
<td>$11,894</td>
</tr>
<tr>
<td>2013-14</td>
<td>Total Commissions – Disabled Veteran</td>
<td>$21,329</td>
<td>$12,404</td>
</tr>
</tbody>
</table>
Real Estate (including mortgages) (14.6% of all invested assets as of 6/30/17)

As of June 30, 2017, existing MWBE asset manager relationships include Adelante Capital Management, managing $342.5 million in public market securities in Real Estate Investment Trusts (REITs) and Real Estate Operating Companies (REOCs); Capri Capital Partners, managing $0.1 million in structured real estate debt; Artemis Real Estate Partners, managing $44.1 million ($100 million in commitments) in two value-add real estate funds; and, Grosvenor Capital Management, managing $132.2 million ($300 million in commitments) in three separate accounts (two equity and one debt) that target a portfolio of fund, direct and co-investments sponsored by emerging managers including MWBE managers.

<table>
<thead>
<tr>
<th>Emerging Manager Partner</th>
<th>MWBE Status</th>
<th>Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelante Capital Management</td>
<td>Hispanic/Asian-American/Women</td>
<td>$342,541,252</td>
</tr>
<tr>
<td>Capri Capital Partners</td>
<td>African-American/Women/Asian</td>
<td>$101,294</td>
</tr>
<tr>
<td>Artemis Capital Partners</td>
<td>Women</td>
<td>$44,060,097</td>
</tr>
<tr>
<td>Grosvenor Capital Management</td>
<td>Hispanic/Asian-American/African-American/Women</td>
<td>$132,222,814</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$518,925,457</td>
</tr>
</tbody>
</table>

Private Equity (7.4% of all invested assets as of 6/30/17)

NYSTRS’ investments in Private Equity are managed externally. In line with its fiduciary obligations to members, retirees and beneficiaries, NYSTRS targets top quartile performance funds for investment.

As of June 30, 2017, private equity investments accounted for approximately $19.5 billion in committed capital. Of this total, the System has committed approximately $2.1 billion to 31 private equity funds which are managed by 14 minority- and women-owned firms. During the fiscal year ended June 30, 2017, NYSTRS closed on four MWBE qualified commitments, totaling $283 million. Subsequent to the fiscal year ended June 30, 2017, NYSTRS has several opportunities in various stages of due diligence.

NYSTRS has a $100 million commitment to The First Capital Access Fund, a separate account established with HarbourVest Horizon. The mandate of the account is to make commitments to MWBE qualified managers with fund sizes of $500 million or less. To date, The First Capital Access Fund is fully committed with 10 commitments totaling $101 million (inclusive of the General Partner commitments). Going forward, NYSTRS’ Private Equity staff will make direct commitments to MWBE qualified funds instead of utilizing a third-party, separately managed account.
Conclusion and Next Steps

NYSTRS continues to work closely with Altura Capital Group and the other fiduciary-controlled entities to review the Altura certification recommendations of business enterprises certified as MWBEs to support NYSTRS’ commitment to “expanding access and increasing opportunities.” We maintain our commitment to provide opportunities to the growing pool of MWBE managers, both through outreach efforts and the pursuit of MWBE guidelines, each of which contributes to NYSTRS’ success as one of the largest public retirement systems in the nation. This effort is undertaken as NYSTRS continues to focus on prudent diversification of investments across a broad spectrum of capital market assets and to seek sound investment opportunities that will contribute to the stability of the portfolio.

NYSTRS will expand and enhance this initiative in the future by convening the 8th annual MWBE conference in February 2018. The conference is the gateway to gaining knowledge about NYSTRS and the introduction to the process for building a partnership as a consultant, vendor or asset manager. To that end, we look forward to providing participants with opportunities to meet with the System’s executive director and chief investment officer, managing directors and investment and professional staff.
Appendix A

7th ANNUAL CONFERENCE FOR INVESTMENTS AND PROFESSIONAL SERVICES
EXPANDING ACCESS, INCREASING OPPORTUNITIES

AGENDA • Thursday, February 16, 2017

8:30 a.m. – 11:00 a.m. Registration
Continental Breakfast

11:00 a.m. – 12:15 p.m. Welcome and Opening Remarks
Yielde Rodriguez Ruoso, Associate General Counsel
Thomas K. Lee, Executive Director & Chief Investment Officer
Keynote: A Fireside Chat
Mildred Hobson, President, Ariel Investments
Thomas K. Lee

12:15 p.m. – 1:15 p.m. Lunch and Networking with Colleagues and NYSTRS Staff

1:15 p.m. – 3:00 p.m. Break/Transition to Workshops

1:30 p.m. – 3:30 p.m. Conference Workshops:
• Public Equities (Asset Managers & Brokers)
• Fixed Income
• Private Equity
• Real Estate
• Professional Services – Real Estate
• Professional Services – Legal
• Professional Services – Financial

3:30 p.m. – 4:00 p.m. Networking
Continue your conversations with colleagues and NYSTRS staff.
Appendix B

NEW YORK STATE TEACHERS’ RETIREMENT SYSTEM
MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES (“MWBE”)

ASSET MANAGEMENT AND FINANCIAL INSTITUTION GUIDELINES
FOR CERTIFICATION, REPORTING AND COOPERATION
WITH OTHER FIDUCIARY-CONTROLLED ENTITIES

I. PURPOSE. In accordance with subdivisions 4, 5, 6, 7, 8 and 9 of section 176 of the Retirement and Social Security Law and section 508-a of the Education Law, the Retirement Board, acting as trustees of the New York State Teachers’ Retirement System (“NYSTRS”), establishes these guidelines for the purpose of increasing the utilization of MWBE Asset Managers, MWBE Financial Institutions and MWBE Financial and Professional Service Firms.

These guidelines shall be implemented in accordance with, and subject to, the Retirement Board’s fiduciary duties and obligations as trustees of NYSTRS to the members, retirees and beneficiaries of NYSTRS and in accordance with, and subject to, such other investment limitations as may be prescribed by the Education Law, the Retirement and Social Security Law and any other law or rule as may be applicable, including but not limited to the regulations of the Commissioner of Insurance.

These guidelines shall relate to the following activities:

A. Contracting with MWBE Asset Managers to invest assets of NYSTRS;

B. Subject to Best Execution:

1. Conducting trades of public equity securities with MWBE Financial Institutions; and

2. Conducting trades of fixed-income securities with MWBE Financial Institutions;

C. Allocating investments of assets of NYSTRS either:

1. Directly through investments in the equities and debt securities of MWBEs; or

2. Indirectly through programs involving MWBE Asset Managers; and

D. Awarding contracts for accounting, banking, financial advisory, insurance, legal, research, valuation and other financial and professional services to MWBE Financial Institutions and other MWBE Professional Service Firms.
II. DEFINITIONS. For the purposes of these guidelines, the following terms are defined as follows:

A. The terms “Asset Manager” and “Asset Management” shall mean the person, or activity by such person, who provides a comprehensive and structured approach to short-term and long-term management of funds of NYSTRS.

B. The term “Best Execution” shall refer to the obligation of Broker or Broker Dealer to ensure the optimal mix of price improvement (getting a better price than is currently quoted), speed and likelihood of execution.

C. The terms “Broker” and “Broker Dealer” shall mean an individual or firm, registered in accord with state or federal law, who acts as an intermediary between a buyer and seller.

D. The term “Business Enterprise” may include, without limitation:
   1. A sole proprietorship;
   2. A partnership;
   3. A limited partnership;
   4. A limited liability partnership;
   5. A limited liability company;
   6. A corporation; or
   7. Another similar entity whether domestic or foreign.

E. The term "MWBE Asset Manager" may include, without limitation:
   1. An Asset Manager in any of the following asset classes:
      a. Public Equity or Fixed Income Securities;
      b. Hedge Funds;
      c. Fund of Hedge Funds;
      d. Private Equity (including Venture Capital);
      e. Fund of Private Equity funds;
      f. Real estate investment funds;
      g. Fund of real estate funds; or
h. Any other asset class for which NYSTRS might engage external asset managers; and

2. An Asset Manager that is:
   a. An MWBE;
   b. A registered Investment Advisor or an Investment Advisor exempt from such registration; and
   c. Certified in a manner consistent with subdivision 3 of section 423-c of the Retirement and Social Security Law.

F. The term "Minority Group Member" shall mean a United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups:

1. Black persons having origins in any of the Black African racial groups;

2. Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American of either Indian or Hispanic origin, regardless of race;

3. Native American or Alaskan native persons having origins in any of the original peoples of North America; or

4. Asian and Pacific Islander persons having origins in any of the Far East Countries, South East Asia, the Indian Subcontinent or the Pacific Islands.

G. The term "MWBE" for the purpose of engaging in business with NYSTRS shall mean:

1. A Business Enterprise:
   a. That is at least fifty-one percent owned by one or more minority group members, or at least fifty-one percent owned by one or more women, who, in each case, have significant experience in asset management, brokerage, other financial services or related professional services such as accounting, valuation or legal services; or
   b. That is substantially owned and/or operated by women or minority group members who have significant experience in asset management, brokerage, other financial services or related professional services such as accounting, valuation or legal services; and

2. A Business Enterprise:
   a. In which such minority or women ownership or operation is real, substantial and continuing;
b. In which such minority or women ownership or operation has and exercises the authority to control independently the day-to-day business decisions of the enterprise;

c. Authorized to do business in this State; and

d. Certified in a manner consistent with subdivision 3 of section 423-c of the Retirement and Social Security Law.

II. The term “Financial and Professional Services” shall include, but not be limited to:

1. Banking;
2. Financial Advisory;
3. Financial Research;
4. Insurance;
5. Law; and

I. The term "MWBE Financial Institution" shall mean:

1. As it relates to brokerage services, a Broker or Broker Dealer that is an MWBE certified in a manner consistent with subdivision 3 of section 423-c of the Retirement and Social Security Law; and

2. As it relates to any other financial services, a Business Enterprise that is an MWBE certified in a manner consistent with subdivision 3 of section 423-c of the Retirement and Social Security Law that provides banking, financial advisory, insurance, financial research, valuation or other financial services.

J. The term “Other Fiduciary-Controlled Entities” shall mean:

1. The New York State Common Retirement Fund;
2. The New York State Insurance Fund; and

III. CERTIFICATION. The Retirement Board hereby establishes and adopts the following certification process for the purpose of identifying and reporting on MWBE firms providing asset management, brokerage or other financial or professional services with or for VYSTRS:
A. Business Enterprises providing asset management, brokerage or other financial or professional services with or for NYSTRS shall be invited to provide the following information:

1. A copy of financial form(s), if any, filed with the federal Securities and Exchange Commission, including, but not limited to, the uniform application for investment advisor registration (ADV) and the uniform application for broker-dealer registration (BD);

2. A copy of application forms and supporting documentation if any, filed with the Division of Minority and Woman-Owned Business Development ("DMWBD") within the New York State Department of Economic Development and any subsequent certification issued by DMWBD or MWBE status;

3. A copy of any form(s) filed with any other state or federal entity for the purpose of seeking certification by such entity as an MWBE, along with any certification issued by such governmental entity of MWBE status, if any;

4. An registration form as the Retirement Board or the Executive Director of NYSTRS, within his or her discretion, may require; and

5. Such other information as any such Business Enterprise may deem relevant to or of assistance in determining whether such Business Enterprise is an MWBE within the meaning of these guidelines.

B. Additionally, Business Enterprises providing asset management, brokerage or other financial or professional services with or for NYSTRS are invited to provide the Retirement Board, the following information relating to any position (held by an owner, officer, manager or employee of the Business Enterprise) that the Retirement Board or the Executive Director of NYSTRS, within his or her discretion, may determine necessary, including, but not limited to, with respect to any managing director, managing principal, principal, operating principal, chief financial officer, operating vice-president, vice-president, partner and owner, or equivalent positions, for the accurate identification of a Business Enterprise as an MWBE:

1. 51%-Owned by Minority Group Members or by Women:
   a. Title;
   b. Position;
   c. Ownership percentage;
   d. History of ownership;
   e. History of ownership percentage;
   f. Ethnicity;
   g. Gender; and
   h. Length of service.

2. MWBEs Substantially Owned or Operated by Minorities or Women:
   a. Title;
b. Position;
c. Ownership percentage;
d. History of ownership

e. History of ownership percentage;
f. Ethnicity;
g. Gender;
h. Length of service; and

i. The role of individual employees and whether such individual will be
performing services with or for NYSTRS and if so, to what extent such
performance will occur.

C. Documentation. All information and documentation shall be provided on a form developed by
NYSTRS and, pursuant to these guidelines, shall be certified as to accuracy by an Owner or
Officer of the Business Enterprise, authorized by the business to make the representations
contained thereon. If a Business Enterprise seeks confidential treatment of proprietary business
information, such information must be clearly labeled as confidential, and denial of release
thereof will occur in accordance with and to the extent permitted by applicable law. The
Retiremen Board or the Executive Director of NYSTRS, or their designees, may make such
inquiries as he, she or they may deem appropriate to determine the accuracy of the information
provided, including, but not limited to, in his, her or their discretion, field visits
and/or other means of substantiation.

D. Certification of MWBE status. Separate determinations of MWBE status shall be made for
Business Enterprises pursuant to subdivisions 1 and 2 of this Paragraph.

1. In determining that a Business Enterprise is at least fifty-one percent owned by one or
more minority group members, or at least fifty-one percent owned by one or more
women, NYSTRS may rely on bona-fide determinations of state or federal government
entities or of the Other Fiduciary-Controlled entities, or on certified filings with the
Federal Securities and Exchange Commission, in addition to the responses submitted by
the Business Enterprise.

2. In determining that a Business Enterprise is substantially owned and/or operated by
women or minority group members, these guidelines interpret the term "substantially"
as meaning at least thirty-three percent (ownership and/or operation). The thirty-three
percent shall include at least twenty-five percent ownership by women or minority
group members. Each individual counted in determining percentage of ownership or
operation may only be counted once (e.g., an owner who is also a senior manager may
not be counted as both).
E. Decertification. Any Business Enterprise previously certified as an MWBE which no longer meets the applicable certification criteria shall be decertified. All Business Enterprises certified as MWBEs must promptly inform the Retirement Board or the Executive Director of NYSTRS, or his or her designee, of any changes in ownership, management and/or control that could impact the entity's MWBE certification.

F. Documentation of determination. In all cases, NYSTRS shall maintain a written record of the reason(s) for its determination and subsequent certification or decertification of an entity's MWBE status.

G. Finality of determination. All determinations relating to MWBE status made under these guidelines are made solely for the purposes of identification and reporting and for no other purpose. All determinations shall be final and not appealable. However, any Business Enterprise that believes it should be certified as an MWBE is welcome to submit information demonstrating that it is eligible for certification as an MWBE.

H. Submission of false information. Any individual who submits false information on behalf of a Business Enterprise and/or any Business Enterprise that submits false information, may be barred from doing business with NYSTRS for a period of time based on the nature and extent of the false information. False submissions shall also be reported to appropriate law enforcement entities.

IV. REPORTING. Within 60 days of the end of each fiscal year commencing with the July 1, 2010-June 30, 2011 fiscal year, NYSTRS shall report to the Governor, Legislature and the Chief Diversity Officer of the State of New York on the participation of MWBE firms providing asset management, brokerage or other financial or professional services for NYSTRS.

A. Such Report shall include:

1. A comparative analysis of such activity relative to such activity with all asset managers, financial institutions and professional service providers for the relevant period; and

2. The progress and success of the efforts undertaken during the plan fiscal year in pursuit of these guidelines.

B. Such Report shall be simultaneously published on the NYSTRS website for not less than 60 days following its release to the Governor, Legislature and the Chief Diversity Officer of the State of New York.

C. Such Report shall separately document the utilization of:

1. Entities that are at least fifty-one percent owned by one or more minority group members or at least fifty-one percent owned by one or more women; and
2. Entities that are substantially owned and/or operated by women or minority group members.

V. COOPERATION WITH OTHER FIDUCIARY-CONTROLLED ENTITIES.

In implementing these guidelines, NYSTRS may, in its discretion, utilize or participate in any MWBE certification process established by any Other Fiduciary-Controlled Entity for the purpose of identifying and reporting on MWBE firms providing Asset Management, Brokage, or other Financial or Professional Services.

A. NYSTRS shall work with the Other Fiduciary-Controlled Entities to create a Database of Business Enterprises certified as MWBEs pursuant to or in a manner consistent with subdivision 3 of section 423-c of the Retirement and Social Security Law.

B. In addition to such advertising as NYSTRS shall implement so that MWBE Asset Managers, MWBE Financial Institutions and other MWBE Professional Service Firms are made aware of the opportunities with NYSTRS, NYSTRS shall periodically, but not less than annually hold a conference to promote the utilization of MWBE Asset Managers, MWBE Financial Institutions and MWBE Financial and Professional Service Firms. Such conference shall be scheduled and coordinated to the extent reasonably practicable with Other Fiduciary-Controlled Entities.

C. NYSTRS shall meet periodically with the Other Fiduciary-Controlled Entities to discuss best practices and to consider such changes to these guidelines as may be appropriate or advisable.