AUDIT, RISK MANAGEMENT AND FINANCE COMMITTEE
NORTH CAROLINA STATE UNIVERSITY
April 23, 2020

BOARD OF TRUSTEES
NORTH CAROLINA STATE UNIVERSITY
AGENDA

Audit, Risk Management and Finance Committee
9:00 a.m. – 10:15 p.m., April 23, 2020
Via Zoom

Members: Ed Weisiger, Chair, Ann B. Goodnight, Stan Kelly, Ed Stack, Wendell Murphy, Dewayne Washington

CALL TO ORDER
Chair of Committee

ROLL CALL
Chair of Committee

PUBLIC MEETING REMINDER AND READING OF STATE GOVERNMENT ETHICS ACT
CONFLICT OF INTEREST STATEMENT
Chair of Committee

1. **APPROVAL OF MINUTES**
   Approval of February 27, 2020 Open and Closed Session Minutes

2. **ACTION ITEMS**
   A. Approval of Internal Audit Plan for Fiscal Year 2021
      Office of Internal Audit
      Cecile Hinson, Chief Audit Officer and Director, Internal Audit

3. **INFORMATIONAL REPORTS**
   A. Internal Audit Update
      Office of Internal Audit
      Cecile Hinson, Chief Audit Officer and Director, Internal Audit
   B. Legislative Update
      Office of External Affairs, Partnerships & Economic Development
      Kevin Howell, Vice Chancellor, External Affairs, Partnerships & Economic Development
   C. Finance Update
      Office of Finance and Administration
      Charles Maimone, Vice Chancellor, Finance and Administration
   D. Investment Update
      Office of Finance and Administration
      Mary Peloquin-Dodd, Associate Vice Chancellor, Finance and University Treasurer
   E. Annual Associated Entities Review
      Office of Finance and Administration
      Mary Peloquin-Dodd, Associate Vice Chancellor, Finance and University Treasurer
F. Annual University Debt Update
   Office of Finance and Administration
   Lori Johnson, University Controller, University Controller’s Office

4. COMMITTEE DISCUSSION

5. ADDITIONAL INFORMATIONAL MATERIALS
   A. NC State Investment Fund Performance Review
   B. NC State Intermediate Term Fund Performance Review

ADJOURN
The Audit, Risk Management and Finance Committee of the Board of Trustees of North Carolina State University met February 27, 2020 in the Winslow Conference Room.

Members Present: Dewayne Washington, Acting Committee Chair
Ann Goodnight
Stan Kelly
Wendell Murphy
Ed Stack
Tom Cabaniss, Board Chair

Chair Washington called the meeting to order at 3:15 p.m., and explained that he was acting on behalf of Mr. Weisiger who could not be in attendance. The roll was called and a quorum was present.

Chair Washington reminded those in attendance that this was a public meeting but was not a meeting for public comment. Only those included on the agenda are invited speak. He then read the State Government Ethics Act to remind all members of their duty to report conflicts of interest or appearances of conflict.

Approval of Minutes
The minutes from the November 21, 2019 meeting were presented for approval, and with no changes, they were approved.

Action Items
No action items.

Informational Reports

Internal Audit Update
The Committee heard a review on the status of audit engagements for fiscal 2020 and activities in process since the last meeting: four (4) reports, three (3) audits, and nine (9) consultations are in progress. For fiscal year 2020, four (4) reports have been issued and seven (7) audits are in follow-up. There are also nine (9) audits/consultations that may roll forward into next fiscal year. The results of one audit were discussed in closed session.

Legislative and Finance/Budget Update
The committee was briefed on the NC General Assembly’s single day session on January 14. It was noted that elections this year could have significant impact to the General Assembly.

The committee received the annual budget brochure in pre-materials and heard an overview of the materials represented in it.

An update on interim financials for fiscal year 2020 was also given. Balance sheet performance for the first six months of fiscal 2020 is good. Operating revenues are up modestly, however, expense growth is outpacing revenue growth. NC State’s bond ratings have not changed, but recent rating agency actions at other UNC-system schools reflects the rating agencies’ concern about constrained student revenue growth and flat state support. The Committee was also reminded that links to both the State of North Carolina Auditor’s report and the NC State Annual Financial Report were provided in the pre-materials.
Annual Report on Endowment and Investments
The Board heard its annual report on the performance of the University’s total endowment compared with other universities for fiscal 2019. The University reported a positive return of 7.3% for its $1.4 billion endowment for fiscal 2019. This performance surpassed the NACUBO average of 5.3% for all endowments in the survey. The University’s total endowment ranked the 81st largest out of 786 survey responses. The five-year average annual return of 7.4% reflected top quartile performance. NC State’s endowment per FTE, of $45,566 at June 30, 2019 ranked NC State 8th among its sixteen institutional peers, placing NC State between UC-Davis and Purdue in the rankings.

In addition to long term investments, NC State invests its operating cash in the State Treasurer’s Short-Term Investment Fund, which had a December 31, 2019 market value of $438.9 million, and the NC State Intermediate Term Fund which held $165.3 million at the same time.

Intercollegiate Athletics Finance and Budget Reporting
The Committee heard a report for fiscal 2018-2019, “Financial Reporting for Intercollegiate Athletics”. NC State Athletics self-generated 89% of all Athletic revenue for FY18, and is in the 70th percentile of athletics generated revenue compared to other schools in the ACC and in the 36th percentile of the Power Five.

The other 7% of revenue is funded from student fees in exchange for student tickets to athletic events. NC State’s $232 Student Fee for Operations continues to be the lowest in the UNC System and has not increased since FY13. NC State supports 23 sports and an average of 530 (unduplicated) student athletes.

NC State’s athletic expenses for FY18 were $86.8 million which ranks in the bottom quartile of the ACC, $15.6 million below the Conference median and in the 8th percentile of the Power Five, or $28.6 million below the median. Athletic revenues for fiscal 2019 exceeded expenses by $2 million.

The Committee was also provided additional financial information including the annual budget for fiscal 2019-2020.

Enterprise Risk Management and Compliance Update
Cybersecurity and Technology Risks: A Status Report
A status report of cybersecurity and technology risk was presented to the Committee. Risk includes asset inventory, third party risk assessment and monitoring, and critical vulnerabilities on sensitive systems. NC State has about 57 accounts disabled each month primarily due to phishing. There are approximately 160,880 bad login attempts to university equipment every hour. Security weaknesses such as default and weak credentials as well as unpatched software contribute to these numbers.

NC State saw 447 external notification of cyber threats in 2019. Cybersecurity requires long term planning and actions. Current actions in place include two factor authentication which is already in place for faculty and staff and is now being rolled out to students. Compliance includes overlap in federal and state laws, contractual agreements and UNC System Office standards.

Office of Information and Technology biggest accomplishments in 2019 included achieving 100% compliance with PCI DSS, requiring university-owned endpoints with IT support be in a configuration management system and IT purchase compliance processes. New initiatives are underway to further strengthen cybersecurity.
Closed Session
Tabitha Groelle made a motion that the Committee convene to closed session to plan, conduct and hear a report concerning an audit under N.C. General Statutes 143-318.11(a)(3) to preserve the attorney-client privilege. Mr. Stack moved to convene to closed session, Ms. Goodnight seconded, and with no dissent the Committee convened to closed session at 4:35 p.m.

The Committee reconvened to open session at 4:55 p.m.

Additional Informational Materials
Chair Washington made reference to additional information in the materials under Tab 4.5

Adjournment
With no further business, Chair Washington announced the meeting adjourned at 4:55 p.m.

Submitted by ________________________________

Secretary to the Committee

Approved by ________________________________

Chair of the Committee
Internal Audit Division
Audit Plan
Fiscal Year 2021
# NCSU Internal Audit Division
## Fiscal Year 2021 Audit Plan

## Audits

<table>
<thead>
<tr>
<th>College</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poole College of Management - Financial Business Operations</td>
<td>The objective will be to audit internal controls and governance over the financial business processes, efficiency and effectiveness of processes, and compliance to federal, state, and university requirements. This audit will serve as follow-up to issues found in fiscal year 2019 audit engagements: Audit of Expenditures from Special Academic Resources and the Audit of Non-Salary Year End Transfer of Expenses.</td>
</tr>
<tr>
<td>College of Humanities and Social Sciences - Institute for Nonprofits - Business Operations</td>
<td>The objective will be audit is to review the business operations of the institute including governance, internal controls, efficiency and effectiveness of processes, and compliance to federal, state, and university requirements.</td>
</tr>
<tr>
<td>College of Engineering - Department of Materials Science and Engineering</td>
<td>The objective will be to audit internal controls and governance over the research, financial, and human resources business processes and compliance to federal, state and University requirements. This audit will serve as follow-up to issues found in fiscal year 2019 engagements: College of Engineering - Materials Science and Engineering Investigation, College of Engineering - Materials Science and Engineering - Vendor Management Investigation, and College of Engineering - Materials Science and Engineering - Purchasing Investigation.</td>
</tr>
<tr>
<td>Wilson College of Textiles - Nonwovens Institute - Business Operations</td>
<td>The objective of this audit is to review the business operations of the institute including governance, internal controls, efficiency and effectiveness of processes, compliance to federal, state, and university requirements.</td>
</tr>
</tbody>
</table>

## Information Technology Audits

<table>
<thead>
<tr>
<th>Audits</th>
<th>Objective</th>
</tr>
</thead>
</table>
| Application Programming Interface (API) Audit | The objective of this audit is to:  
  - Identify population of APIs transferring University data outside of PS Enterprise Systems  
  - Identify ultra-sensitive and sensitive data that is being transferred by APIs  
  - Assess controls governing these types of transfers  
  - Assess security of transfers of ultra-sensitive and sensitive data |

## Fiscal Year 2020 Engagements in Progress on July 1, 2020

<table>
<thead>
<tr>
<th>Engagement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Finance and Administration - Environmental Health and Public Safety - Security Applications and Technologies (SAT) - Physical Access Services</td>
<td></td>
</tr>
</tbody>
</table>
The Audit Plan includes estimated time for analysis of allegations reported through the Internal Audit Division Hotline, Ethics Point Hotline, the Office of the State Auditor Hotline, or other internal and external sources and subsequent investigation.

### Prior Year’s Follow-up Audits

The Internal Audit Division performs follow-up activities on all audit issues reported by our office or the Office of the State Auditor. As of March 9, 2020, corrective actions for issues noted in the following audit reports will be assessed/reviewed in fiscal year 2021:

<table>
<thead>
<tr>
<th>Audit Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Controls Over Ultra-Sensitive Data</td>
</tr>
<tr>
<td>Campus Enterprises - NC State Dining - Vendor Processes Fraud Risk Assessment</td>
</tr>
<tr>
<td>Campus Enterprises - NC State Stores - Vendor Processes Fraud Risk Assessment</td>
</tr>
<tr>
<td>College of Agriculture and Life Sciences (CALS) - NC Cooperative Extension (NCCE) - Business Process Governance</td>
</tr>
<tr>
<td>College of Sciences (COS) - General Information Technology (IT) Controls</td>
</tr>
<tr>
<td>College of Agriculture and Life Sciences - Prestage Department of Poultry Science</td>
</tr>
</tbody>
</table>

### Advisory Services

<table>
<thead>
<tr>
<th>Advisory Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Research and Innovation and Office of Finance and Administration - Research Administration Systems Replacement - Enterprise Research Administration Research Enterprise Data System Implementation</td>
<td>Internal Audit is providing advisory and consulting services on the replacement of multiple legacy systems used for enterprise research administration activities.</td>
</tr>
</tbody>
</table>

### Special Assignments

<table>
<thead>
<tr>
<th>Special Assignment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Information Technology (IT) Governance Committees</td>
<td>Chief Audit Officer &amp; Director, Assistant Director, IT Auditor are providing advisory services to various IT governance committees.</td>
</tr>
<tr>
<td>Case Study Development</td>
<td>Development of case studies using business risk intelligence gleaned from internal audit engagements for the Office of Finance and Administration use in University-wide process improvement initiatives.</td>
</tr>
</tbody>
</table>

### Continuous Risk Assessment and Audit Planning

Every week, Internal Audit Division team members visit University faculty and staff to discuss their unit’s strategic plans, goals, and risk posture in relation to the University’s Mission. This includes new and on-going activities related to their academic, research, and outreach missions and potential concerns or emerging risks to both strategic and tactical goals at the unit and university level. This process supports the identification of potential audit and advisory engagements and is used as an objective tool in the development of our Annual Audit Plan.
Audit Risk Universe (see illustration, page 5)
Current best practices relating to development of the audit universe contend that a risk-based internal audit function considers all risks that affect their enterprise, not just the "auditable risks." Specifically, at NCSU, this broader concept of the audit universe begins with the core elements of the NC State Mission: academics, research, and engagement. The NC State Internal Audit Division (IAD) identifies three integral activities necessary for the achievement of our mission:

1) Governing – performed by our university leadership team and the Board of Trustees who set the direction and ethical expectations for university constituents
2) Doing – performed by our faculty, engagement agents, and staff around the globe
3) Supporting – performed by university units through various processes and practices carefully designed to manage risk and ensure the university meets its goals, objectives, and requirements

Risks to these mission-critical activities and the ways in which risks are mitigated are the focus of our Continuous Risk Assessment (RA) Process that leads to the development of our Audit Risk Inventory and Audit Plan.

Continuous Risk Assessment Process (see illustration, page 6)
IAD continuously performs risk assessment activities across the Audit Risk Universe to identify areas of high risk to the university "enterprise" in relation to achieving both its strategic and tactical goals and objectives. The RA process is at the core of our audit and consulting engagements and is used as an objective tool in the development of our risk-based Audit Plans. We use our Audit Risk Inventory to compile and track risk exposures to the university’s governance, operations, and information systems that relate to components such as the:

- Reliability and integrity of research, financial, and operational information
- Effectiveness and efficiency of operations
- Safe-guarding of assets
- Compliance with university and UNC System policies
- Compliance with legal, regulatory, and contractual obligations
- Detection and prevention of fraud
- Effectiveness of information technology security and compliance

Audit Plan Development (see illustration, page 6)
All objective and subjective information and data gathered through our continuous RA process is analyzed when received and at weekly RA staff meetings. This on-going analysis process allows IAD to determine areas that may need immediate attention, areas that are potential near-term or future audits, and areas that we will continue to watch and monitor through our process.

Our Audit Plan reflects the results of our continuous assessment and analysis process as of the end of the first quarter of each calendar year. Each year’s Plan is presented for approval at the regularly scheduled April meeting of the NC State Board of Trustees and is implemented at the start of the new fiscal year on July 1.
NCSU Internal Audit Division
Continuous Risk Assessment and Audit Planning Process
Audit Risk Universe as of March 9, 2020
NCSU Internal Audit Division
Risk Assessment and Audit Planning Process
Continuous Risk Inventory and Audit Plan Development
NCSU Internal Audit Division

Staff Bios

Chief Audit Officer & Director

Cecile M. Hinson, CCEP, CFE, CISA
Cecile joined the Internal Audit Division in February 2001. Prior, she worked for Lockheed Martin and PricewaterhouseCoopers, LLP, in the areas of financial, operational, and information technology auditing. Cecile received her Bachelor of Science in Business with an emphasis in Accounting from Meredith College. She is a Certified Compliance and Ethics Professional (CCEP), a Certified Fraud Examiner (CFE), and a Certified Information Systems Auditor (CISA). She is also a graduate of the NC State Equal Opportunity Institute and holds an Information Technology Audit Certificate from the MIS Training Institute.

Assistant Director

Nancy L. Burgart, CFE, CISA
Nancy re-joined the Internal Audit Division in October 2010 after working as an IT Compliance Auditor in the NC Office of the State Chief Information Officer. Nancy began her career at NC State in August 1994 and worked in various departments across campus, including Telecommunications, NCSU Libraries, and Internal Audit. Nancy has a Bachelor of Science in Accounting from East Carolina University. She is a Certified Information Systems Auditor (CISA) and a Certified Fraud Examiner (CFE).

Audit Manager

Neil Holloway, MBA, CFE, CGFM, PMP
Neil joined the Internal Audit Division in February 2015. Previously, he worked as a financial management consultant for IBM and an auditor for the U.S. Department of Defense, Office of the Inspector General. Neil earned his Bachelor of Science in Accounting from Juniata College in 2007. He earned his Master of Business Administration (MBA) from NC State in 2017. He is a Project Management Professional (PMP), a Certified Government Financial Manager (CGFM), and a Certified Fraud Examiner (CFE).

Staff

M'Shiela R. Hawthorne, CIA, CFE
M'Shiela joined the Internal Audit Division in December 2014. She has over 20 years of accounting experience in various industries including the military. M'Shiela has a Bachelor of Science Degree in Accounting with a concentration in Internal Audit from NC State University. She is a Certified Internal Auditor (CIA) and a Certified Fraud Examiner (CFE).
Sandra J. Soto, CFE
Sandra joined the Internal Audit Division in December 2017. She has over 20 years of accounting experience in various industries. Sandra graduated with honors and has a Bachelor of Science Degree in Accounting with a concentration in Internal Audit from NC State University. She is currently enrolled in the MBA program at NC State. Sandra is a Certified Fraud Examiner (CFE). She is also trilingual, speaking English, Spanish and French.

Seth Miller, CISA, Net+
Seth joined the Internal Audit Division in August 2018. He has over 7 years of compliance and auditing experience in regulated industries. Seth started his career at a non-profit organization (RTI International) focusing on governance, security, and compliance. He then moved to a large private software company (SAS) where he was focused on compliance, operations, and auditing. Seth has a Bachelor of Science Degree in Business Administration with a concentration in Marketing from Appalachian State University. Seth holds both Certified Information Systems Auditor (CISA) and Network Plus (Net+) certifications.
## Review of Audit Reports - University Associated Entities
### Audit, Risk Management and Finance Committee
#### North Carolina State University
#### June 30, 2019

<table>
<thead>
<tr>
<th>INVESTMENT ENTITY:</th>
<th>Total Net Assets June 30, 2019 In 000's</th>
<th>Unqualified Audit Opinion</th>
<th>Management Letter</th>
<th>Signed Operating Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC State Investment Fund, Inc.</td>
<td>$1,261,957</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>FUNDRAISING ENTITIES:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The North Carolina Agricultural Foundation, Inc.</td>
<td>175,251</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State Engineering Foundation, Inc.</td>
<td>151,223</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina State University Foundation, Inc.</td>
<td>460,202</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State Executive Education, LLC (a, b, c)</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina Tobacco Foundation, Inc.</td>
<td>11,203</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State Natural Resources Foundation, Inc.</td>
<td>40,069</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina Veterinary Medical Foundation, Inc.</td>
<td>86,838</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina State University College of Sciences Foundation, Inc.</td>
<td>27,122</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State University Alumni Association, Inc.</td>
<td>45,033</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>NCSU Student Aid Association, Inc.</td>
<td>83,918</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>North Carolina Textile Foundation, Inc.</td>
<td>62,919</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SOCIAL CLUB ENTITIES:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Carolina State University Club (d)</td>
<td>8,497</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>The NC State Alumni Club, Inc.(d)</td>
<td>171</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>OTHER ENTITIES:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC State University Partnership Corporation</td>
<td>161</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Leaders In Innovation and Nonwovens Commercialization, LLC (a, e)</td>
<td>883</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State University Centennial Development, LLC (a, e)</td>
<td>16,651</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State Upfit, LLC (a, e)</td>
<td>2</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Bell Tower Holdings LLC (a, e)</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State CBC Land I, LLC (a, e)</td>
<td>27</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>NC State CC Holdings I, LLC (a, e)</td>
<td>96</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Wolfpack Investor Network, LLC (a, e)</td>
<td>204</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>C2I, LLC (a,e)</td>
<td>42</td>
<td>N/A</td>
<td>N/A</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(a) LLC's are wholly owned by aforementioned entity
(b) Net Assets also included in NCSU Fdn Total Net Assets
(c) Operating Agreement is between LLC and NC State University Foundation
(d) December 31 year end; numbers are as of December 31, 2018
(e) Operating Agreement is between LLC and NC State University Partnership Corporation

N/A - Not applicable
University Debt Update

North Carolina State University
Audit, Risk Management and Finance Committee
April 23, 2020

Lori Johnson
University Controller
Debt Outstanding
10 year history

Millions

$394 $419 $580 $570 $560 $566 $567 $565 $535 $528
Annual Scheduled Debt Service

2010 Energy

Debt Outstanding by Type
June 30, 2020

- Fixed: 81.7%
- Variable: 7.6%
- Energy: 10.7%

FY2019 Cost of Funds = 3.48%
Debt Outstanding by Purpose
June 30, 2020

- Athletics: 32,498,426
- Campus Recreation: 5,821,176
- Centennial Campus: 11,692,960
- Energy Savings: 77,480,999
- Housing: 172,159,227
- Reynolds: 25,867,139
- Student Health: 2,317,243
- Talley Student Union: 91,542,007
- Terry Hospital: 22,415,000
- Thompson Theater: 1,705,910
# Upcoming Borrowing
*(Estimates as of March, 2020)*

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost (millions)</th>
<th>Debt (millions)</th>
<th>Source of Repayment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carmichael Renovation</td>
<td>$45</td>
<td>$40</td>
<td>Student Fees (Chapter 97, 2016 Session Law)</td>
</tr>
<tr>
<td>Engineering Oval</td>
<td>$154</td>
<td>$30*</td>
<td>Gifts Energy Savings (Chapter 275, 2015 Session Law)</td>
</tr>
<tr>
<td>Plant Sciences</td>
<td>$160</td>
<td>$5*</td>
<td>Gifts (Chapter 97, 2016 Session Law)</td>
</tr>
<tr>
<td>Advance Refund 2010B (BAB issue)</td>
<td>$59</td>
<td></td>
<td>Callable 10/1/2020</td>
</tr>
<tr>
<td>Advance Refund 2013A</td>
<td>$114</td>
<td></td>
<td>Callable 10/1/2023</td>
</tr>
</tbody>
</table>

Commercial Paper is used during the design and construction phase to reduce borrowing costs. Current plan is to issue debt in June 2020, dependent on market conditions. Refunding portion will only be done if savings continue to be significant.

* Amount dependent on timing and amount of pledge receipts
Spring 2020 Market Disruptions

– COVID-19: mayhem in the US and global capital markets
– Treasury and Municipal markets reacting to decreased demand
– Federal Reserve intervention largest since the Great Recession
– Federal fiscal stimulus package
– University commercial paper: How it all affects us.
MARKET COMMENTARY

Geopolitical tensions abated during the fourth quarter which led to a strong finish to an already robust 2019 for risk-on assets. Although the US/China trade deal will not officially be signed until mid-January, the apparent willingness of both sides to compromise gave investors hope that a long-term solution could be reached. The Federal Reserve cut its target rate once during the quarter and reiterated its stance on being data dependent now that the yield curve has normalized and is no longer inverted. Economic readings for the domestic economy continue to point to slow but steady growth and unemployment remains at near multi-decade lows. Internationally, the general election victory for the Conservative Party in the United Kingdom provides the country with a more direct path for its withdrawal from the European Union, and positive signals out of Germany provided investors hope that its recession would be short-term in nature.

Domestic equities, as measured by the S&P 500 Index, posted a strong 9.1% gain for the quarter. Small-cap stocks finally outperformed their larger counterparts, with the Russell 2000 Index gaining 9.9%. Mid-cap stocks, as measured by the Russell Mid Cap Index, lagged with a gain of 7.1% for the period. Over the last year, returns across these domestic indices have been significant with the S&P 500 up 31.5%, the Russell Mid Cap Index up 30.5% and the Russell 2000 returning 25.5%.

International equities, as measured by the MSCI EAFE Index, returned 8.2% for the quarter and 22.7% for the year. International returns were boosted by a weaker US dollar, the cooling of trade tensions worldwide, and a more certain Brexit path going forward.

Emerging markets, as measured by the MSCI Emerging Markets Index, was one of the strongest return asset classes for the fourth quarter, with a gain of 11.9%, and a one-year return of 18.9%. Given China’s great influence on investment markets, the phase one trade deal provided a significant tailwind for the index. Additionally, oil prices stabilized and the dollar weakened, a double tailwind for many of the oil-centric economies within the emerging market landscape. However, Chile was a discernable outlier, posting negative returns as massive protests erupted about concerns over inequality.

The fourth quarter of 2019 saw intermediate and long-term rates increase modestly with the 10-year beginning the period at 1.68% and closing at 1.92%. The 20-year Treasury opened at 1.94% before closing 2019 at 2.25%. Front-end rates fell during the period mainly due to the Fed’s rate cut, with the 3-month maturity beginning at 1.88% before closing at 1.55%. As previously mentioned, the yield curve is no longer inverted and has now normalized to a degree, with longer dated maturities out-yielding short-term instruments. From an investment perspective, fixed income returns were mixed for the quarter with longer-dated Treasury instruments posting 400bps+ losses while more credit centric investments, like the Bloomberg Barclays High Yield Corporate Bond Index posted gains of 2.6%.

Subsequent to quarter end, tensions and conflict between the U.S. and Iran increased significantly. Although further escalation seems unlikely at this juncture, oil prices temporarily spiked, highlighting the volatile and uncertain geopolitical environment. On the trade and economic front, the execution of and adherence to the phase one trade deal between the United States and China continues to be investors’ primary focus in 2020. The Fed appears to be on pause and on balance the likelihood of near-term recession has been reduced. We expect slow growth to remain for 2020, but investment markets are not without risks as the current expansion retains its record as the longest in recent history.

FUND PERFORMANCE

The NCSIF (Fund) is a large, diversified investment pool with a long-term perspective. At December 31, 2019 the Fund had $1.1 Billion invested with several managers in a wide variety of asset classes. The largest manager for the Fund, UNCMC, managed 85.1% of the Fund’s assets. The UNC Investment Fund (UNCIF) produced a three-month return of 3.2%, and a 12-month return of 13.7% for the period ended December 31, 2019. The NCSIF employs ten additional private equity managers, who oversee 2.2% of the portfolio. This portion of the Fund produced a three-month and 12-month return of -3.1% and 2.8%, respectively, for the period ended December 31, 2019. The Fund’s Liquid Policy Portfolio (LPP), managed by Blackrock, was another 10.7% of the portfolio. This investment returned 6.3% for the period and 22.7% for the year. International returns were boosted by a weaker US dollar, the cooling of trade tensions worldwide, and a more certain Brexit path going forward.

RISK METRICS

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Second Quarter Fiscal Year 2020
INVESTMENT STRATEGY

The Fund is managed as a broadly diversified portfolio with exposure to seven primary asset classes and many sub-strategies within each asset class. The Fund seeks to diversify exposure to the sub-strategies through the use of multiple investment managers that utilize a variety of investment approaches. The purpose of diversification is to provide reasonable assurance that no single security, class of securities, or investment manager has a disproportionate impact on the Fund's aggregate results. At times, the Fund invests in passive strategies. In working toward the Fund’s investment strategy, through UNCMC, the Fund invests in a number of niche managers that can employ different types of hedging strategies such as short-selling and derivative investing to help reduce the volatility of the Fund. The focus on controlling volatility preserves capital and benefits Fund participants through the power of compounding.

ASSET ALLOCATION

- Long Biased Equity
- Long/Short Equity
- Diversifying
- Fixed Income
- Cash
- Private Equity
- Real Estate
- Private Credit
- Energy & Natural Resources

ALLOCATION BY MANAGER

- UNCIF: 85.1%
- Blackrock LPP: 10.7%
- STIF-NCSIF: 2.0%
- NCSIF Private Assets: 2.2%

HISTORY OF THE FUND

The UNC Management Company (UNCMC) was established on January 1, 2003 as an exempt 501 (c)(3) organization. It is a professionally-staffed asset management company created to provide investment services to a number of the UNC system and affiliated institutions of the UNC system and affiliated foundations, associations, trusts, and endowments. Over 40 employees, UNCMC has two teams, Investment Management and Operations. The Investment Management team manages all public and private investments of the UNCIF. Their responsibilities include evaluating and monitoring investment managers, recommending changes to investment objectives and asset allocation, monitoring risk, and implementing investment decisions approved by the UNCIF's Executive Committee. The Operations Team performs all administrative, legal, compliance, accounting, and performance reporting duties.

The NC State Investment Fund, Inc. (Fund) was established in April 1999 to combine NC State University’s and its affiliated entities’ endowments in an external pooled investment vehicle. The goal of the investment program for the Fund is to provide a real total return from assets invested that will preserve the purchasing power of Fund capital, while generating an income stream to support the spending needs of the University. Effective July 2008, the Fund partnered with UNCMC to invest in the UNC Investment Fund (UNCIF), with the remaining investments committed to a Liquid Policy Portfolio (LPP) of Exchange Traded Funds (ETF’s) and to three private equity managers which includes an allocation for cash to fund capital calls. The transition of assets to UNCMC was completed December 2009.
NC State Intermediate Term Fund

FUND HISTORY AND PHILOSOPHY

As a pooled fund for the collective investment of operating funds, the NC State Intermediate Term Fund (ITF) consists of Participants’ excess cash balances, which are defined as funds not needed for normal operating purposes. Generally, the ITF will not include operating funds needed within the next year, endowed funds or those funds that are specifically excluded by law or contractual agreement.

The decision to invest funds takes into account various factors including duration, credit, concentration, and manager risk, along with total return, suitability, and the experiences, quality and capability of external managers.

The primary investment objectives of the ITF are: 1) Preservation and safety of principal; 2) Liquidity; and 3) Maximization of returns within acceptable levels of risk. Because of current concerns about potential changes in monetary policy and rising interest rates, duration is limited. The investment policy calls for an average weighted maturity between one and five years, with an overall credit rating in general of A+/A as rated by a nationally-recognized rating agency. However, for any mutual funds selected by the ITF, their respective approved investment policy guidelines supersede those of the ITF.

The ITF was established on July 3, 2014 with an initial investment of $122 million. Additional investments were made during FY 2015 and FY 2017, bringing the total invested to $193.83 million. The ITF can be compared with the State Treasurer’s Short-Term Investment Fund (STIF) on both a total return and on an SEC yield basis. In order to provide a buffer for changes in the NAV of the different investments, some of the excess earnings are being used to create a loss reserve. FMV fluctuates on a day-to-day basis.

BlackRock’s SIO was liquidated from the fund on June 30, 2016. Proceeds were invested in Vanguard’s Short Term Fund and DoubleLine’s Total Return Fund on July 1, 2016. Additionally, a small position with PIMCO Income was initiated on November 2, 2016. The ITF’s position in JP Morgan was liquidated on September 27, 2017 and PIMCO Low Duration was liquidated on October 2, 2017. The proceeds from these liquidations were reinvested into Vanguard’s Short Term Fund and PIMCO Income, bringing the total cost basis to $190.4 million.

MANAGERS

Vanguard’s Short Term Fund has a low tracking error and is a low cost portfolio option consisting primarily of investment grade corporates.

PIMCO’s Income Fund is a portfolio of a broad range of intermediate-duration bonds that is actively managed to maximize current income while maintaining a relatively low risk profile.

DoubleLine’s Total Return Fund seeks to maximize total return by exploiting inefficiencies within the subsectors of the mortgage market while maintaining active risk management constraints.

As of December 31, 2019, the ITF has a Market Value of $188,423,539.

PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>QTD</th>
<th>FYTD</th>
<th>1 Year</th>
<th>3 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITF Fund</td>
<td>1.0%</td>
<td>1.8%</td>
<td>6.4%</td>
<td>3.3%</td>
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<tr>
<td>Barclays 1-3 yr</td>
<td>0.5%</td>
<td>1.1%</td>
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<tr>
<td>Barclays Universal 1-5 yr</td>
<td>0.7%</td>
<td>1.5%</td>
<td>5.6%</td>
<td>2.9%</td>
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<tr>
<td>DoubleLine</td>
<td>-0.2%</td>
<td>1.4%</td>
<td>5.8%</td>
<td>3.8%</td>
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<tr>
<td>PIMCO Income</td>
<td>2.5%</td>
<td>2.4%</td>
<td>8.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Vanguard Short Term</td>
<td>0.6%</td>
<td>1.6%</td>
<td>5.9%</td>
<td>3.0%</td>
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STATISTICS

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<thead>
<tr>
<th></th>
<th>Fund</th>
<th>Index (1)</th>
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<tbody>
<tr>
<td>Volatility</td>
<td>1.2%</td>
<td>1.4%</td>
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<tr>
<td>Sharpe Ratio</td>
<td>0.6</td>
<td>0.5</td>
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<tr>
<td>SEC Yield</td>
<td>2.7%</td>
<td>2.2%</td>
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<tr>
<td>Effective Duration</td>
<td>2.2</td>
<td>2.6</td>
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<tr>
<td>FYTD Net Interest &amp; Dividends**</td>
<td>$3,457,738</td>
<td>N/A</td>
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<td>Net Interest &amp; Dividends Since Inception**</td>
<td>$27,781,327</td>
<td>N/A</td>
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*Note of Fund expenses

Manager Allocation

<table>
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<tr>
<th>Manager</th>
<th>Allocation</th>
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</thead>
<tbody>
<tr>
<td>PIMCO Income</td>
<td>24%</td>
</tr>
<tr>
<td>DoubleLine</td>
<td>15%</td>
</tr>
<tr>
<td>Vanguard Short Term</td>
<td>61%</td>
</tr>
</tbody>
</table>

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Second Quarter Fiscal Year 2020