CALL TO ORDER
Tom Cabaniss, Chair of Committee

ROLL CALL
Tom Cabaniss, Chair of Committee

READING OF STATE GOVERNMENT ETHICS ACT CONFLICT OF INTEREST STATEMENT
Tom Cabaniss, Chair of Committee

1. APPROVAL OF MINUTES
Approval of February 21, 2019 Minutes

2. ACTION ITEMS

A. Approval of Internal Audit Plan for Fiscal Year 2020
   (NC State Policy 01.05.1, Appendix 1, I.a.ii)
   Office of Internal Audit
   Cecile Hinson, Chief Audit Officer and Director, Internal Audit

3. INFORMATIONAL REPORTS

A. Internal Audit Update
   (NC State Pol 01.05.1, Appendix 1, I.a.i-viii)
   Office of Internal Audit
   Cecile Hinson, Chief Audit Officer and Director, Internal Audit

B. Legislative, Finance and Budget Update
   (UNC Pol, Ch. 100.1, App 1 (V) Section 502.B (5-6) and 502.C (1-4)), NC State Pol 01.05.1, Appendix 1, I.b)
   Office of External Affairs, Partnerships & Economic Development
   Kevin Howell, Vice Chancellor, External Affairs, Partnerships & Economic Development
   Office of Finance and Administration
   Mary Peloquin-Dodd, Interim Vice Chancellor, Finance and Administration
   Barbara Moses, Associate Vice Chancellor, Budget and Resource Management

C. Associated Entities Review
   (UNC Pol, Ch. 600.2.1.5,) (NC State Policy 01.05.1, Appendix 1, I. a.ix)
   Office of Finance and Administration
   Mary Peloquin-Dodd, Interim Vice Chancellor, Finance and Administration

✓ Denotes full Board approval required
D. University Debt Update 4.3D
   (NC State Pol 01.05.1, Appendix 1, I.b.)
   Finance Division
   Lori Johnson, University Controller, Controller’s Office

E. Enterprise Risk Management and Compliance Update 4.3E
   (UNC Pol. Ch. 1300.9.11) (NC State Pol 01.05.1, Appendix 1, I.c.i, ii)
   Overall Compliance Structure
   Office of General Counsel
   Allison Newhart, General Counsel

4. COMMITTEE DISCUSSION  TAB 4.4

5. ADDITIONAL INFORMATIONAL MATERIALS  TAB 4.5
   A. NC State Investment Fund Performance Review 4.5A
      (UNC Pol Ch. 600.2.4.II.K) (NC State Pol 01.05.1, Appendix 1, l.b, d.i)
   B. NC State Intermediate Term Fund Performance Review 4.5B
      (UNC Pol Ch. 600.2.4.II.K) (NC State Pol 01.05.1, Appendix 1, lb, d.i)

6. CLOSED SESSION  TAB 4.6

ADJOURN
Chair Cabaniss opened the meeting at 3:15 p.m. in Winslow Hall Conference Room. Roll was taken and a quorum was present. Committee members present for the meeting were:

Mr. Tom Cabaniss, Chair
Ms. Jess Errico
Ms. Ann Goodnight
Mr. James Harrell
Ms. Susan Ward

All members of the Committee were reminded of their duty to avoid conflicts of interest and appearances of conflicts of interest under the State Government Ethics Act. It was inquired as to whether there were any known conflicts of interest or appearances of conflict with respect to any matters coming before the Committee at this meeting. There being none, the meeting continued.

The minutes from the November 15, 2018 meeting were presented for approval, and with no changes, Ms. Goodnight made a motion to accept the minutes and Ms. Ward seconded. The minutes were approved.

The Committee reviewed the mid-year status of audit engagements against the Fiscal Year 2019 Audit Plan as of January 25th, which was provided in the pre-materials. 18 engagements have been closed and 27 are in progress. They also heard a report on activities since the last meeting. Completed engagements include: seven investigations, two follow-up audits, 3 consulting projects, and 2 special assignments. Detailed results of two of the investigations were presented and one was discussed at length by the committee due to the nature of the issues involved and the significance of the corrections required.

Mary Peloquin-Dodd and Kevin Howell discussed the biennium budget priorities for the UNC System. The BOG is requesting a total budget increase of 3.27% and 6.18% for fiscal 2020 and 2021 respectively. This amount includes increases for enrollment funding and building reserves. The Legislature is using the rainy day funds and there is anticipation of the Governor’s budget, which is being released next week. There are various legislative priorities that are also being considered for 2019 to improve financial and operating efficiencies, including expanding carryforward authority, reinstating institution authority for certain compensation/classification actions and authority for small capital projects. The Legislature is also working on several technical corrections.

Ms. Peloquin-Dodd gave a brief report on projected revenues and expenses for the current fiscal year, referencing the budget pre-materials. She also reported on interim financials for the first six months of fiscal 2019, indicating that overall performance is consistent with the same time for the prior year. The federal shutdown had minimal impact on campus, however it is taking the federal government longer to catch-up than previous shut downs. There are two upcoming accounting changes that will impact future balance sheets. One relates to recording the liability required to retire capital assets that have regulatory disposal requirements and costs. The other change, in 2021, requires us to account for all leases on the balance sheet. She also pointed out that the pre-materials included the printed University financial report for fiscal year 2018.
Mary provided the required annual report on endowment and investments. NC State had $161.3 million in the Intermediate Term Fund as of December 31, 2018. The committee also heard information related to University’s total endowment compared with other NACUBO survey respondents for fiscal 2018. The University reported a positive return of 11.4% for its $1.3 billion endowment for fiscal 2018. This performance surpassed the NACUBO average of 8.2% for all endowments in the NACUBO survey. The University’s endowment ranked the 88th largest out of 809 survey responses. The five-year average annual return of 9.1% reflects top quartile performance. The per-FTE endowment of $42,313 at June 30, 2018 ranked NC State 9th among its institutional peers, placing NC State between UC Davis and the University of Florida in the rankings. Reference was also made to the Endowment Fund annual report in the pre-materials.

The Committee heard a report for fiscal 2017-2018, “Financial Reporting for Intercollegiate Athletics”, from Julie Phelps. NC State Athletics self-generated 92% of all Athletic revenue for FY17, and is in the 70th percentile of athletics generated revenue compared to other schools in the ACC and in the 38th percentile of the Power Five.

The other 8% 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 530 unduplicated student athletes.

NC State’s athletic expenses for FY17 were $86.9 million and are in the bottom quartile of the ACC, $4.5 million below the Conference median and in the 17th percentile of the Power Five, $18.7 million below the median. Ms. Phelps did note that in FY2018, 21 of 23 teams advanced to the NCAA Championships, an all-time best for NC State.

Expenses increased by about $7 million due to increase in NCAA reporting changes, which now include bowl expenses, salaries and benefits, scholarship costs, travel costs and facility debt payments to campus. She discussed net revenues and provided the Committee with the attached chart (Attachment A) to better show the impact of accounting changes on revenues related to these reporting changes. The Committee was also provided additional financial information including the annual budget for fiscal 2018-2019.

The committee heard a report on Information Technology Security from Marc Hoit. He reported on data breaches in the education sector and the average industry cost of $158 per lost or stolen record. NC State has approximately 175,000 phishing attempts every hour, however less accounts are needing to be disabled because of phishing or data breaches and he attributes this to elevating user awareness and two-factor authentication for all University employees. Cyber threats include phishing, smishing, vishing and ransomware, and all are considered fraud. He also discussed the top five security weaknesses and significant breaches at NC State since 2013. There is no evidence of stolen information in any of the breaches.

Data or Cyber Security Breach is one of the University’s top ten strategic risks for fiscal year 2019 and is a major risk component of IT efforts. Dr. Hoit also discussed long term planning and that cybersecurity is a major part of the planning. There is overlap in federal and state laws, contractual agreements and UNC System Office standards. One of OIT’s major accomplishments is the Data Sensitivity Framework which is used as a model and reference at many other universities.
Dr. Hoit also discussed new initiatives that are underway related to new UNC Policies, endpoint security, two factor authentication for students and raising awareness of cyber security. There was a State IT Audit that was started, but never completed. The university was provided observations for improvements, but no findings were issued.

With no further business, the Committee adjourned at 5:00 p.m.

Submitted by ________________________________

Secretary to the Committee

Approved ________________________________

Chair of the Committee

Attachments
The “peak” in FY 2014 Net Revenue is caused by a material difference in expenditure recognition between the NCAA and NC State Athletics. We record both principal payments on debt and capital costs as expenditures, and in FY 2014, the NCAA did not. As a result, the FY 2014 Net Revenue “surplus” of $6.5M is higher by $4.3M in this graph than in NC State reports. The appearance of a steep decline in FY 2015, 2016, and 2017 is caused by a change in NCAA reporting to include debt principal payments in expenses, the effects of other cash-basis practices in our internal reporting, and a planned $1.8M expenditure of Athletic Department reserves to fund a transition in the Men’s Basketball coaching staff along with coaching changes in four other sports.
Internal Audit Division
AUDIT PLAN
FISCAL YEAR 2020
# NCSU Internal Audit Division
## Fiscal Year 2020 Audit Plan

### Audits

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
</table>
| Administration and Compliance Over Salary Supplements                | • Administration of supplemental salary  
                                                                                                 | • University-wide compliance to requirements                                                       |
| College of Humanities and Social Sciences - Institute for Nonprofits - Business Processes | • Financial business processes, governance, and internal controls  
                                                                                                 | • Efficiency and effectiveness  
                                                                                                 | • Compliance with federal, state, and university requirements                                     |
| Office of Finance and Administration – Facilities – Informal Construction Contracts Award Process | • Compliance with the bid rules for informal construction contracts  
                                                                                                 | • Evaluate trends in award decisions                                                              |
| Poole College of Management - Financial Business Processes           | • Financial business processes, governance, and internal controls  
                                                                                                 | • Efficiency and effectiveness  
                                                                                                 | • Compliance with federal, state, and university requirements                                     
                                                                                                 | • Includes follow-up work on issues found in fiscal year 2019 audit engagements  
                                                                                                 |   • Audit of Expenditures from Special Academic Program Resources  
                                                                                                 |   • Non-Salary Year End Transfer of Expenses                                                      |
| Wilson College of Textiles - Nonwovens Institute - Business Processes | • Financial business processes, governance, and internal controls  
                                                                                                 | • Efficiency and effectiveness  
                                                                                                 | • Compliance with federal, state, and university requirements                                     |

### Information Technology Audits

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
</table>
| Office of Finance and Administration - Facilities - Energy Management Systems - Cyber Security for University Power and Water Systems | • Effectiveness of information technology security and controls  
                                                                                                 | • Comprehensiveness of policies and procedures                                                        |
### Fiscal Year 2019 Engagements Anticipated to be in Progress on July 1, 2019

| College of Agriculture and Life Sciences - Prestage Department of Poultry Science |
| Title IX Governance Processes                                      |
| Office of Finance and Administration - Environmental Health and Public Safety - Security Applications and Technologies - Physical Access Services |

### Investigations

The Audit Plan includes estimated time for initial 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 Years’ Follow-up Anticipated to be in Progress on July 1, 2019

| Campus Enterprises - NC State Dining - Vendor Processes Fraud Risk Assessment |
| Campus Enterprises - NC State Stores - Vendor Processes Fraud Risk Assessment |
| College of Agriculture and Life Sciences - Prestage Department of Poultry Science - Feed Mill Education Unit Investigation [Phase 2] |
| User Controls Over Ultra-Sensitive Data |
### Planned Follow-up

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit of Expenditures from Special Academic Program Resources</td>
<td></td>
</tr>
<tr>
<td>College of Agriculture and Life Sciences - Cooperative Extension Services - Business Process Governance</td>
<td></td>
</tr>
<tr>
<td>College of Engineering - Materials Science and Engineering - Purchasing Investigation</td>
<td></td>
</tr>
<tr>
<td>College of Engineering - Materials Science and Engineering - Vendor Management Investigation</td>
<td></td>
</tr>
<tr>
<td>College of Engineering - Materials Science and Engineering - Investigation of a Faculty Member's Research Administration Activities</td>
<td></td>
</tr>
<tr>
<td>College of Sciences - General Information Technology Controls</td>
<td></td>
</tr>
<tr>
<td>Non-Salary Year End Transfer of Expenses</td>
<td></td>
</tr>
</tbody>
</table>

### Advisory Services

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Insurance Portability and Accountability Act (HIPAA) Security Implementation Project</td>
<td>• Office of Information Technology – Security and Compliance</td>
</tr>
<tr>
<td></td>
<td>• Implementation of recommendations from HIPAA Security Assessment</td>
</tr>
<tr>
<td>Research Administration Systems Replacement – ERA (Enterprise Research Administration)</td>
<td>• Office of Research and Innovation and the Office of Finance and Administration</td>
</tr>
<tr>
<td></td>
<td>• Replacement of multiple legacy systems used for enterprise research administration activities</td>
</tr>
<tr>
<td>Minor Consulting Services</td>
<td>• Requested consultative audit input on projects, new initiatives, or proper handling of problems encountered</td>
</tr>
</tbody>
</table>

NCSU Internal Audit Division
Fiscal Year 2020 Audit Plan (Continued)
## Special Assignments

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
</table>
| University Information Technology (IT) Governance Committees | - Long term, collaborative, independent engagement with IT stakeholders  
- Proactively identify risk  
- Advise decision-makers |
| College Information Technology Maturity Assessment          | - College IT operations  
- Assessment against the Control OBjectives for Information and Related Technology (COBIT) maturity model  
- Risk assessment for future IT general controls audits |

### Continuous Risk Assessment

The Audit Plan includes estimated time for each auditor’s participation in weekly strategic conversations with university leaders, weekly internal risk meetings, and ad hoc risk assessment activities.
NCSU Internal Audit Division
Continuous Risk Assessment and Audit Planning Process

Audit Risk Universe

Current best practices relating to development of the audit universe advise a risk-based internal audit function to consider 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 that mission: governing, doing, and supporting. Risks to these mission-critical activities, and the ways in which those risks are mitigated, are the focus of our continuous Risk Assessment (RA) Process that leads to the development of our Audit Risk Inventory and Annual Audit Plan (see Audit Risk Universe, page 7).

Continuous Risk Assessment Process

Each IAD auditor incorporates risk assessment into all daily activities so that they remain alert to risk indicators, identify new risks for our risk inventory, and maintain situational awareness. Every week, each auditor holds strategic conversations with university leaders to discuss opportunities, challenges, and risks. This facilitates developing a holistic view of the university enterprise and allows for identification of areas of high risk to strategic goals, tactical goals, and related objectives.

The RA process is the core of our approach to engagements and is an objective tool in the development of our risk-based Audit Plans. We use this process to track risk exposures and opportunities for improvement to areas such as:
- Reliability and integrity of research, financial, and operational information
- Effectiveness and efficiency of operations
- Effectiveness of information technology security and compliance
- Detection and prevention of fraud
- Safe-guarding of assets
- Compliance with university and UNC System policies
- Compliance with legal, regulatory, and contractual obligations

Audit Plan Development

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 Audit, Risk Management, and Finance Committee of the Board of Trustees and is implemented at the start of the new fiscal year on July 1 (see Risk Inventory and Audit Plan Development, page 6).
NCSU Internal Audit Division
Continuous Risk Assessment and Audit Planning Process
Risk Inventory and Audit Plan Development

Risk Inventory
- Strategic conversation meetings
- Informal conversations
- Out of scope items from audit fieldwork
- Allegations/hotline
- State & Federal audits
- Trends in higher education

Audit Planning
 Begins in February
List of potential engagements:
- Audits
- Investigations
- Follow-ups
- Advisory Services
- Special Assignments

Mitigated

Risk Ranking
Risk Criteria
- Compliance
- Financial
- Fraud
- Operational
- Reputational
- Security

Likelihood & impact severity analysis
Subjective Analysis
Final score for each potential engagement

Capacity Analysis
Estimate project hours per potential and planned engagements

Audit Plan
Potential engagements with highest risk scores within capacity
Estimate FTE resources

Potential engagements that do not make the plan
Chief Audit Officer and 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 Information Systems Auditor (CISA), and a Certified Fraud Examiner (CFE). 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 began her career at NC State in August 1994 and worked in various departments across campus, including Telecommunications, NCSU Libraries, and Internal Audit until 2007. 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 has a Bachelor of Science in Accounting from East Carolina University. She is a CISA and a 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 CFE.

Staff

Frank J, Dziepak, CIA, CFE
Frank joined the Internal Audit Division on April 2016. He has experience both in the public and private sector beginning his career in health care audit and then as a Reimbursement Manager for a national healthcare provider in Atlanta. After relocating to North Carolina, he worked for the NC Department of Justice as a Medicare Fraud Investigator, the NC Office of the State Auditor as an Investigation Supervisor as well as the Department of Health and Human Services as the Special Investigations Manager. Frank has a Bachelor of Business Administration degree in Accounting from the University of Georgia. He is a Certified Internal Auditor (CIA) and a CFE.
M’Shiela R. Hawthorne, 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. M’Shiela is a 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 CFE. She is also trilingual: speaking English, Spanish, and French.

Seth Miller, CISA, Net+
Seth joined the Internal Audit Division in August 2018 with over 7 years of compliance, audit, and security experience. Seth previously worked for RTI International and SAS. Seth has a Bachelor of Science Degree in Business Administration with a concentration in Marketing from Appalachian State University. Seth holds both CISA and Network Plus (Net+) certifications.

Denise W. Hall
Denise joined the Internal Audit Division as a University Program Specialist in September 2012. Prior, she worked for the NC State Office of General Counsel. Denise is a Certified Paralegal and a graduate of the NC State Equal Opportunity Institute.
<table>
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<tr>
<th>Entity</th>
<th>Total Net Assets June 30, 2018 (in 000's)</th>
<th>Unqualified Audit Opinion</th>
<th>Management Agreement Letter</th>
<th>Signed Operating Agreement</th>
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<td>The North Carolina Agricultural Foundation, Inc.</td>
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<td>NC State Engineering Foundation, Inc.</td>
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<td>North Carolina State University Foundation, Inc.</td>
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<td>North Carolina Tobacco Foundation, Inc.</td>
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<td>Yes</td>
<td>No</td>
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<td>NC State Natural Resources Foundation, Inc.</td>
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<td>North Carolina Veterinary Medical Foundation, Inc.</td>
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<td>North Carolina State University College of Sciences Foundation, Inc.</td>
<td>25,358</td>
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<td>NC State University Alumni Association, Inc.</td>
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<td>NCSU Student Aid Association, Inc.</td>
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<tr>
<td>North Carolina Textile Foundation, Inc.</td>
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<td></td>
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<td>North Carolina State University Club (d)</td>
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<tr>
<td>The NC State Alumni Club, Inc.(d)</td>
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<td>No</td>
<td>Yes</td>
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<tr>
<td><strong>OTHER ENTITIES:</strong></td>
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<tr>
<td>NC State University Partnership Corporation</td>
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<td>Leaders in Innovation and Nonwovens Commercialization, LLC (a, e)</td>
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<td>NC State University Centennial Development, LLC (a, e)</td>
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<tr>
<td>Wolfpack Investor Network, LLC (a, e)</td>
<td>118</td>
<td>N/A</td>
<td>N/A</td>
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</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, 2017
(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 18, 2019

Lori Johnson
University Controller
Debt Outstanding
10 year history

<table>
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<tr>
<th>Year</th>
<th>Millions</th>
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<tr>
<td>2010</td>
<td>$339</td>
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<tr>
<td>2011</td>
<td>$394</td>
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<tr>
<td>2012</td>
<td>$419</td>
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<td>$580</td>
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<tr>
<td>2014</td>
<td>$570</td>
</tr>
<tr>
<td>2015</td>
<td>$560</td>
</tr>
<tr>
<td>2016</td>
<td>$566</td>
</tr>
<tr>
<td>2017</td>
<td>$567</td>
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<tr>
<td>2018</td>
<td>$565</td>
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<tr>
<td>2019</td>
<td>$535</td>
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</table>
Debt Outstanding by Type
June 30, 2019

FY2018 Cost of Funds = 3.55%
Debt Outstanding by Purpose
June 30, 2019

- Athletics
- Campus Recreation
- Centennial Campus
- Energy Savings
- Housing
- Reynolds
- Student Health
- Talley Student Union
- Terry Hospital
- Thompson Theater
Upcoming Borrowing
(Estimates as of March, 2019)

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost (millions)</th>
<th>Debt (millions)</th>
<th>Date</th>
<th>Source of Repayment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carmichael Renovation</td>
<td>$45</td>
<td>$39</td>
<td>2020 or 2021</td>
<td>Student Fees</td>
</tr>
<tr>
<td>Engineering Oval</td>
<td>$154</td>
<td>$15* $17</td>
<td>2020 or 2021</td>
<td>Gifts Energy Savings</td>
</tr>
<tr>
<td>Plant Sciences</td>
<td>$160</td>
<td>$16*</td>
<td>2020 or 2021</td>
<td>Gifts</td>
</tr>
</tbody>
</table>

Commercial Paper is used during the design and construction phase to reduce borrowing costs. It is anticipated that we will borrow permanently in 2020 or 2021 for these projects depending on pledge receipts and construction cash needs.

* Amount dependent on timing and amount of pledge receipts.
2018-2019 Portfolio Changes

• Refunded
  – Refunded 2003B and 2015 - variable rate
  – Terminated two swaps - $5.7 million
  – New 2018 Bonds - fixed rate (2.36%)

• Matured / Called
  – 2008B called two years early - $153k savings
  – 2012 matured 10/1/2018
MARKET COMMENTARY

Global markets experienced heightened volatility in the fourth quarter of 2018, resulting in significant losses for nearly all equity indices. Fears of slowing economic growth and downward forecast adjustments from major corporations led market participants to revise their investment expectations. Trade tensions remained top of mind, as the 90-day tariff truce by the U.S. and China provided only temporary respite. Investors sought safe haven assets such as U.S. Treasury bonds which produced some of the strongest returns during the quarter. The Federal Reserve once again raised its target Fed Funds rate in December following strong fundamental economic data reports (<4% unemployment), but struck a more dovish tone late in the quarter in an attempt to ease investor angst.

Domestic equities, as measured by the S&P 500 Index, were down significantly during the quarter, losing -13.5%. Small cap stocks, as measured by the Russell 2000 Index, fared even worse, posting a loss of -20.2% during the quarter. For the one-year period ended December 31, 2018, large-, mid-, and small-cap stocks all had negative performance, returning -4.8%, -9.1%, and -11.0%, respectively.

International equities, as measured by the MSCI EAFE Index returned -12.5% for the quarter. Over the last year, the index lost nearly 13.8% in value as concerns over an effective Brexit resolution, slowing economic momentum, and the direction of central bank policies injected significant uncertainty across markets.

Emerging markets, as measured by the MSCI Emerging Markets Index, were also negative, but to a lesser degree, losing -7.4% for the quarter. In addition to headwinds mentioned previously, emerging markets also experienced multiple political regime transitions during the period as well as a significant drop in crude oil prices, a major driver of many emerging market economies.

The fourth quarter of 2018 also saw a drop in 10-year Treasury yields as investors shifted from riskier assets to the perceived protection of fixed income. High yield corporate debt, as measured by the Bloomberg Barclays High Yield Corporate Index, was one of the few fixed income indices to post a loss for the period, losing -4.5%. The Treasury yield curve continued to flatten, with portions inverting during the quarter. While longevity between curve inversion and recessions has varied historically, no recession has occurred without first having an inverting yield curve.

Looking ahead, volatility appears to be here to stay. The U.S. and China's 90-day tariff truce is due to expire March 1, 2019, the U.S. government had its longest shut-down in history and central banks across the globe are beginning to dial back by easing monetary policies that emanated from the Great Financial Crisis. Recent pullbacks could prove to have been attractive buying opportunities. However, in volatile times like this, it is important to maintain a long-term focus while keeping abreast of growing downside risks.

FUND PERFORMANCE

The NCSIF (Fund) is a large, diversified investment pool with a long-term perspective. At December 31, 2018 the Fund had $1.0 Billion invested with several managers in a wide variety of asset classes. The largest manager for the Fund, UNCMC, managed 87.1% of the Fund’s assets. The UNC Investment Fund (UNCIF) produced a three-month return of -3.4%, and a 12-month return of 4.0% for the period ended December 31, 2018. The NCSIF employs eight additional private equity managers, who oversee 2.0% of the portfolio. This portion of the Fund produced a three-month and 12-month return of 0.8% and 10.0%, respectively, for the period ended December 31, 2018. The Fund’s Liquid Policy Portfolio (LPP), managed by Blackrock, was another 9.5% of the portfolio. This investment returned -9.8% for the three months and -6.5% for the 12 months ended December 31, 2018. The remaining 1.4% of the portfolio is invested in cash with the State Treasurer’s Short-Term Investment Fund (STIF).

RISK METRICS

<table>
<thead>
<tr>
<th>3 Year Period</th>
<th>Fund</th>
<th>UNCIF</th>
<th>Policy Index</th>
<th>MSCI ACWI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualized Return</td>
<td>6.7%</td>
<td>6.9%</td>
<td>4.5%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Annualized Volatility</td>
<td>4.7%</td>
<td>4.6%</td>
<td>6.0%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Annual Sharpe Ratio (1)</td>
<td>1.45</td>
<td>1.49</td>
<td>0.75</td>
<td>0.62</td>
</tr>
<tr>
<td>Correlation to Global Index</td>
<td>0.89</td>
<td>0.86</td>
<td>0.96</td>
<td>0.99</td>
</tr>
<tr>
<td>Max Drawdown</td>
<td>-4.4%</td>
<td>-4.7%</td>
<td>-8.4%</td>
<td>-14.2%</td>
</tr>
</tbody>
</table>

Note 1: Sharpe Ratio: Excess return per unit of risk

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Second Quarter Fiscal Year 2019
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.

UNC MANAGEMENT CO.
The 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 the University of North Carolina at Chapel Hill and its affiliated institutions, to the constituent institutions of the UNC system and system affiliated foundations, associations, trusts, and endowments. With nearly 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.

HISTORY OF THE FUND
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 UNC Management Company (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 seven private equity managers which includes an allocation for cash to fund capital calls. The transition of assets to UNCMC was completed December 2009.

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Second Quarter Fiscal Year 2019
NC State Intermediate Term Fund

NC State University, Campus Box 7207, Raleigh, NC 27695-7207

Inception Date: July 3, 2014

PERFORMANCE

<table>
<thead>
<tr>
<th>Fund History and Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

**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.

**SECTOR ALLOCATION**

<table>
<thead>
<tr>
<th>Sector Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov. Related</td>
</tr>
<tr>
<td>Sec. Assets</td>
</tr>
<tr>
<td>IG Credit</td>
</tr>
<tr>
<td>Cash</td>
</tr>
<tr>
<td>Municipals</td>
</tr>
<tr>
<td>Foreign</td>
</tr>
</tbody>
</table>

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Second Quarter Fiscal Year 2019