



INVESTMENT MANAGEMENT

To: North Carolina Supplemental Retirement Board of Trustees

From: Loren de Mey, Assistant Investment Director

Date: November 27, 2017

Subject: Discussion/Action: TIPS Fund Recommendation for the NC 401k and NC 457 Plans

Background

The Supplemental Retirement Plans Board of Trustees (the "Board") approved the new GoalMaker models for the NC 401k and NC 457 Plans at its September 21, 2017, meeting, which included an allocation to passive Treasury Inflation Protected Securities (TIPS). The Board also approved adding a passive TIPS Fund to the NC 401(k)/457 Plans' core investment lineup. The expected mandate size for the TIPS Fund (expected assets coming from the new asset allocation and glidepath of the new GoalMaker portfolios) is approximately \$490 million.

Recommendation

Investment Management Division (IMD) staff and Mercer recommend hiring BlackRock to manage a passive TIPS separate account, tracking the Bloomberg Barclays 1-10 year TIPS Index, for the NC 401k and 457 Plans.

The key reasons supporting this recommendation include:

1. Strong organization
2. Experienced team and track record managing index strategies
3. Performance and correlation of the strategy with the Consumer Price Index (CPI)

In reviewing potential TIPS Index Funds, Mercer and IMD staff first reviewed the TIPS indices, which included the Bloomberg Barclays TIPS Index, the Bloomberg Barclays 1-10 Year TIPS Index and the Bloomberg Barclays 0-5 Year Index. The various TIPS indices offer different duration, risk, and performance profiles. Likewise, each index has a different historical correlation with the CPI. These risk, performance and correlation profiles can be seen in the table below.

	Duration	Return 5 Yr*	Return 10 Yr*	Correlation with CPI**
Bloomberg Barclays 0-5 Year TIPS Index	2.8 years	0.22%	2.27%	0.78
Bloomberg Barclays 1-10 Year TIPS Index	5.4 years	0.08%	3.27%	0.59
Bloomberg Barclays TIPS Index	7.7 years	0.02%	3.90%	0.41

*ending 9/30/17

**for 10 years ending 6/30/17



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After discussion between Mercer and IMD staff, it was determined to focus on the Bloomberg Barclays 1-10 Year TIPS Index. This index offers a relatively high correlation with the CPI, while providing a performance advantage over the Bloomberg Barclays 0-5 Year TIPS Index (the index with the highest correlation to CPI). While the Bloomberg Barclays TIPS Index shows the highest historical performance over the longer-term, this index also has the lowest correlation to the CPI. In addition, this index also has greater interest rate risk, given its longer duration profile, and may not be the best fit for participants approaching or in retirement. The correlation of the three indices to the CPI over a rolling three-year period can be seen in Appendix A.

Organization

BlackRock was founded in 1988 and is a leading provider of investment management services to institutional and retail clients. The firm provides risk management and advisory services that combine capital markets expertise with internally-developed systems and technology. BlackRock manages \$5.97 trillion across equity, fixed income, real estate, cash management, alternatives, and asset allocation strategies. BlackRock manages \$3.83 trillion in index strategies, \$990 billion of which is fixed income strategies. The firm manages a total of \$49.9 billion in TIPS index strategies.

Strategy

The separate account will seek an investment return that approximates as closely as possible, before expenses, the performance of the Bloomberg Barclays 1-10 Year Government Inflation-Linked Bond Index over the long term. This strategy will incorporate a fully replicated strategy and will seek to own all of the securities in the index (approximately 25 bonds).

Although BlackRock does not currently have a performance track record for the Bloomberg Barclays 1-10 Year Government Inflation-Linked Bond Index, the firm currently manages \$49.9 billion in passive TIPS strategies. Additionally, the specific securities within the Bloomberg Barclays 1-10 Year TIPS Index are also included within the full curve TIPS index (the 1-30 year index). Given BlackRock has been managing replication strategies against the full curve since November 2001 and currently manages \$48.5 billion in this strategy, Staff and Mercer believe BlackRock has the proven ability to manage passive TIPS strategies as well as this specific TIPS mandate.

Fees: 0.025%

Performance of the Bloomberg Barclays 1-10 Yr TIPS Index (as of 9/30/17)

The performance shown below is the historical performance of the Bloomberg Barclays 1-10 year Government Inflation-Linked Bond Index in order to show how this index has performed over time. BlackRock does not have a historical track record managing this specific index.

	YTD	2- YR	5 YR	10 YR
BB 1-10 YR TIPS	1.36%	2.32%	0.08%	3.27%



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Performance of BlackRock's US TIPS Fund (as of 9/30/17)

The performance below shows BlackRock's historical performance managing against the broad-based TIPS Index. Note: this is not the fund IMD staff and Mercer are recommending but is included to show BlackRock's experience managing passive TIPS exposure and tight tracking error.

	YTD	2-YR	5 YR	7 YR
BlackRock	1.77%	2.94%	0.02%	2.62%
BB TIPS Index	1.72%	2.86%	0.02%	2.64%

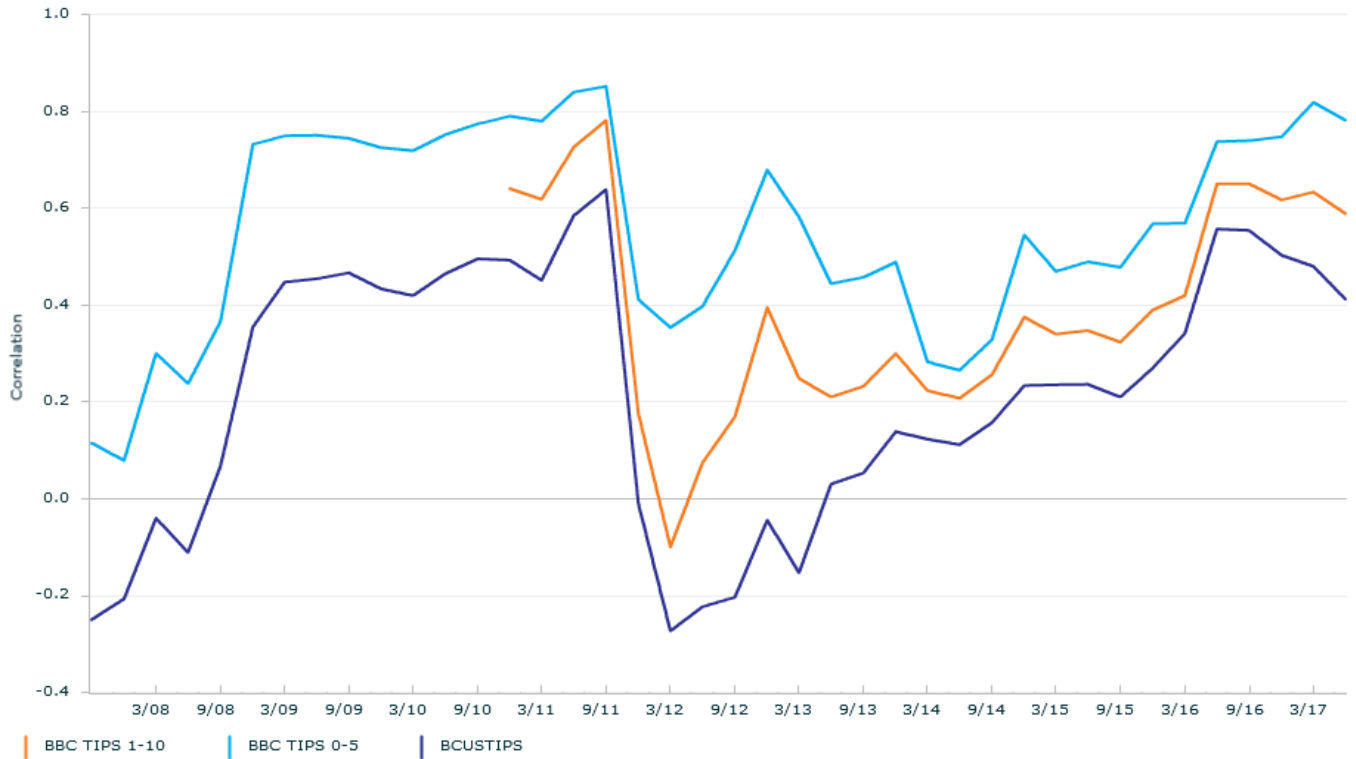


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Appendix A:

Rolling 3 yr Regression Correlation vs. Consumer Price Index in \$US (before fees) over 10 yrs ending June-17
(quarterly calculations)



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Appendix B: Portfolio Manager Biographies

James J. Mauro, Managing Director, is the Deputy Head of San Francisco Core Portfolio Management (Core PM) within Systematic Fixed Income. Mr. Mauro's investment team is responsible for overseeing \$500 billion across US Indexed, iShares and active fixed income funds. Other responsibilities include overseeing the portfolio construction process, risk budgeting and implementation of active risk across Multi-Sector portfolios. Mr. Mauro is a member of the GFI Talent, Inclusion and Diversity Committee and Fixed Income Beta Ex-Co.

Prior to joining BlackRock in 2010, he was a senior portfolio manager at State Street Global Advisors (SSgA), responsible for active, index and ETF Government and Inflation linked strategies. He joined State Street Global Advisors in 1993 and throughout his tenure was responsible for managing a wide variety of fixed income accounts including management of the flagship Aggregate bond index portfolio and subsequent modular multi-sector beta fund design. While at SSgA, Mr. Mauro was integral in helping to build the bond index business, overseeing the first TIPS portfolio and launch of several bond ETFs as the platform expanded.

Mr. Mauro earned a BS degree in business finance from Saint Michaels College in 1992 and an MBA from Boston University in 1997.

Mark Buell, Director, is a member of the North America Core Portfolio Management (Core PM) within Americas Fixed Income Alpha Strategies, where he is responsible for managing institutional index and active US-based Government portfolios, LDI, and iShares funds.

Mr. Buell's service with the firm dates back to 2008, including his years with Barclays Global Investors (BGI), which merged with BlackRock in 2009. At BGI, Mr. Buell worked as a portfolio manager and trader, specializing in rates and Government securities. Prior to joining BGI in 2008, Mr. Buell was an Associate Director at Bear Stearns where he traded Government Bonds from 2001 to 2008.

Mr. Buell earned a BS degree in Finance from the University of Delaware, and an MBA degree, high honors, in Finance and Economics from the University of Chicago in 2002.