FEDERAL RETIREMENT THRIFT INVESTMENT BOARD
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THRIFT SAVINGS PLAN

March 13, 2020

MEMORANDUM FOR EXECUTIVE DIRECTOR RAVINDRA DEO

FROM: MIKE JERUE
FINANCIAL ANALYST

THROUGH: SEAN MCCAFFREY
CHIEF INVESTMENT OFFICER SPM 3/18/20

SUBJECT: LIFECYCLE FUNDS 2020 ANNUAL ASSET ALLOCATION REVIEW

SUMMARY

The Office of Investments (OI), with assistance from Mercer Investment Consulting, recently concluded its annual review of the asset allocations of the Lifecycle Funds (L Funds). This memorandum documents OI's approach, findings, and recommendations. In summary, OI recommends the following:

- Maintain 92.50% as the ultimate weight of the G Fund in each L Fund's fixed income allocation, but smooth the increases in the G Fund's weight to make them linear.
- Move the S Fund's share of each L Fund's U.S. equity allocation from its current 22-25% to 16% over five years.
- Maintain 35% as the I Fund's share of each L Fund's overall equity allocation.
- Create the L 2055, L 2060, and L 2065 Funds with the same parameters produced during the 2018 review.
- Continue the transition plan established in 2018, which called for temporary freezes in the overall equity allocations of the L 2030, L 2040, and L 2050 Funds until they intercept the same glide path as L 2055, L 2060, and L 2065.
- Create the glide paths for the other new L Funds (L 2025, L 2035, and L 2045) as interpolations between the existing L Funds.

BACKGROUND

OI Lifecycle Fund Policy and Lifecycle Fund Asset Allocation Procedures direct that "the Agency will conduct a comprehensive review of the Lifecycle Fund asset allocations at least annually, unless exception is given, or as economic conditions require." Further, "the TSP Lifecycle Funds are designed to be a long-term, risk-efficient strategy, and the risk and return objectives of the funds are intended to be consistent with an overall replacement rate (including defined benefit and Social Security) of a substantial portion of pre-retirement income," according to procedures.

OI's 2018 asset allocation review resulted in the following changes to the L Funds, which were approved by the Executive Director (ED) in September 2018:

1. **Age of First Withdrawal:** Based on analysis of participant behavior, the assumed age of first withdrawal increased from 62 to 63. For the purpose of analyzing glide path alternatives, this change was adopted during the 2018 review. For the purpose of assigning new participants to an age-appropriate L Fund, this assumption took effect in January 2019.
2. **Higher Allocation to International Equity:** Analysis showed that allocating a higher allocation to international equity would increase median replacement ratios without increasing the likelihood of significant losses. Therefore, the allocation to international equity as a percentage

of the overall allocation to equity – in other words, the I / (C + S + I) ratio – was increased from 30% to 35%. The new allocation was implemented via a one-time trade on January 4, 2019.

3. **Higher Allocation to Equity in L Income:** Analysis showed that a higher allocation to equity in the L Income Fund would result in better outcomes (i.e., higher replacement ratios and longer expected time until account depletion with an acceptable increase in risk). Therefore, L Income's allocation to equity was increased from 20% to 30%. This change will be phased in over 10 years. The transition began in January 2019 and is currently scheduled to be complete in July 2028. As of January 2020, the L Income Fund has a target equity allocation of 21.50%.
4. **Transition to a More Aggressive Glide Path:** The advent of the Blended Retirement System (BRS) in January 2018 has brought – and will continue to bring – large numbers of young members of the Uniformed Services into the L Funds. Motivated by the belief that participants with long time horizons, whether they are civilian employees or members of the Uniformed Services, benefit from a more aggressive asset allocation, the Agency established a notional L 2055 / L 2060 / L 2065 glide path with the following characteristics: (1) an initial equity allocation of 99% until age 35, (2) a linear descent to 60% equity at age 58, and (3) a linear descent to a terminal allocation of 30% equity at age 63, coincident with being rolled into the L Income Fund. Furthermore, since analysis suggested that participants across the age spectrum would benefit from higher equity allocations, the Agency adopted a transition from the existing L Funds to the notional L 2055 / L 2060 / L 2065 glide path by freezing their respective equity allocations until they intercept the new glide path. Those transitions are still underway. L 2030, L 2040, and L 2050 are currently scheduled to complete their transitions in 2025, 2028, and 2032, respectively.

In light of these significant changes, the looming retirement of the L 2020 Fund, and the introduction of new L Funds in five-year increments in 2020, OI requested a one-year exception to the annual requirement to conduct a study. The ED approved this request in September 2018.

DATA, ASSUMPTIONS, AND APPROACH

Consistent with previous reviews, OI developed profiles of participants for each of the L Funds[1]. These profiles included average values for salary, deferral rate, and account balance. The data set used to generate these profiles included all FERS[2] participants with at least $1 in the L Funds. These profiles reflected the new lineup of L Funds that will be in place on July 1, 2020:

Fund	Birth Years
L 2025	1958-1964
L 2030	1965-1969
L 2035	1970-1974
L 2040	1975-1979
L 2045	1980-1984

[1] In previous reviews, OI has used demographic snapshots as of December 31. However, to accommodate the timeline for this review, OI used TSP demographic data as of October 29, 2019. A subsequent review of data as of December 31, 2019 revealed no material differences between the two data sets.

[2] Although the Uniformed Services participants represent a fast-growing group of L Funds investors, their relatively brief careers and their unique defined benefit plan make it challenging to incorporate their expected outcomes in the analysis. Furthermore, BRS is still relatively new; its short history prevents us from drawing conclusions about participant behavior. Future studies may have the benefit of extensive data sets that would support separate analysis for FERS and BRS participants. In the meantime, however, OI is confident that BRS participants, most of whom are young and will not spend their full careers in the Uniformed Services, are well-served by the L Funds even though their asset allocations are generated from FERS demographic data.

L 2050	1985-1989
L 2055	1990-1994
L 2060	1995-1999
L 2065[3]	2000 or later

Updated data analysis showed that the age of first withdrawal continues to hover around 63. Therefore, OI elected to keep the assumed age of first withdrawal at 63, the same value assumed in the 2018 review. Relaxed restrictions on withdrawals, which were required by the TSP Modernization Act of 2018, took effect in September 2019. The impact of these changes on future withdrawal patterns remains uncertain. In future reviews, OI will continue to analyze behavioral data to determine whether a change in the assumed age of first withdrawal is appropriate.

OI also followed the precedent of the 2018 review by using salary increase assumptions published by the Office of Personnel Management (OPM) in its Civil Service Retirement and Disability Fund Annual Report. These assumptions have two components:

1. A general salary increase that corresponds to adjustments for the cost of living.
2. A merit/longevity increase that is a function of age and service and reflects employees' ascension across pay grades and steps.

Mercer developed a set of capital market assumptions for items such as economic growth, inflation, interest rates, as well as the TSP F, C, S, and I Funds' expected returns, volatilities, and correlations. These assumptions enabled the firm to examine the L Funds' current placement relative to the efficient frontier.

OI and Mercer collaborated to create a set of glide paths for consideration. Mercer's report presents them as follows:

- Current Glide Path
- Group 1: Changes in the Fixed Income Allocation
    - Higher allocation to the F Fund across the glide path
    - Linear trend of the G Fund weight
- Group 2: Changes in the Small/Mid Cap (SMID) Equity Allocation
    - Move SMID to 16% of U.S. equity allocation over five years
    - Move SMID to 20% of U.S. equity allocation over five years
    - Move SMID to 25% of U.S. equity allocation over five years
- Group 3: Increases in the International Equity Allocation
    - Increase I Fund to 40% of overall equity allocation
    - Increase I Fund to 45% of overall equity allocation
- Group 4: Changes in overall equity allocation with "to" approach
    - Move to base over five years (as opposed to the current level-off approach)
    - De-risk earlier (start the decrease in the equity allocation at age 30)
    - De-risk later: (start the decrease in the equity allocation at age 40)
- Group 5: Changes in overall equity allocation with "through" approach
    - 10-year through (reach ultimate allocation at age 73)
    - 10-year through and de-risk earlier: (start the decrease in the equity allocation at age 30)
    - 10-year through and de-risk later: (start the decrease in the equity allocation at age 40)

[3] The L 2065 cohort was too small to yield meaningful statistics. Therefore, OI decided that the L 2065 glide path would mimic that of the L 2060 Fund and that Mercer would not conduct stochastic analysis of the L 2065 Fund.

Using the aforementioned assumptions and profiles of average L Fund investors, Mercer conducted stochastic analysis for all of the glide paths.

ANALYSIS OF OUTCOMES

First, we note that the outcomes of Mercer's simulations pass our checks for reasonableness. As expected, glide paths with higher stock allocations show greater dispersion of replacement ratios and account balances as well as higher probabilities of negative returns in the two years before withdrawal. Similarly, the dispersion of outcomes increases with time to maturity (e.g., the L 2025 Fund's simulated outcomes are very tightly bunched whereas L 2060's show more variance).

We caution against comparisons across L Fund cohorts. As in previous reviews, the outcomes do not account for any retirement savings outside of the three-legged stool of the TSP, the FERS defined benefit, and Social Security. This equates to an assumption that participants will have spent their entire careers in the Federal workforce, which we know is an unrealistic assumption given that the median hire age for new Federal employees has hovered between 33 and 37 in recent years. In reality, there are participants in the L 2025 cohort who have only been Federal employees for a few years and therefore have small TSP balances that bring down the cohort's average. By contrast, the model participant in the L 2060 Fund will experience a full career of contributions and market returns, leading to a significantly larger account balance at retirement.

Comparisons within L Fund cohorts, on the other hand, are valid. These comparisons reveal very few opportunities for easy gains (increases in return without increases in risk, or decreases in risk while maintaining the same return). Furthermore, the scale of the risk/return trade-offs is relatively small. This tight grouping is demonstrated by the L 2040 Fund, whose cohort corresponds to the median participant in terms of age. Among potential L 2040 glide paths, the maximum and minimum values in the 5th percentile replacement ratio (i.e., the measure of risk) are separated by only 40 basis points. The maximum and minimum values of the median replacement ratio (i.e., the measure of return) are separated by only 180 basis points.

Such a small trade-off space suggests that the current glide path leaves little room for enhancing outcomes. Accordingly, OI recommends maintaining most of the L Fund parameters established by the 2018 review, including the following:

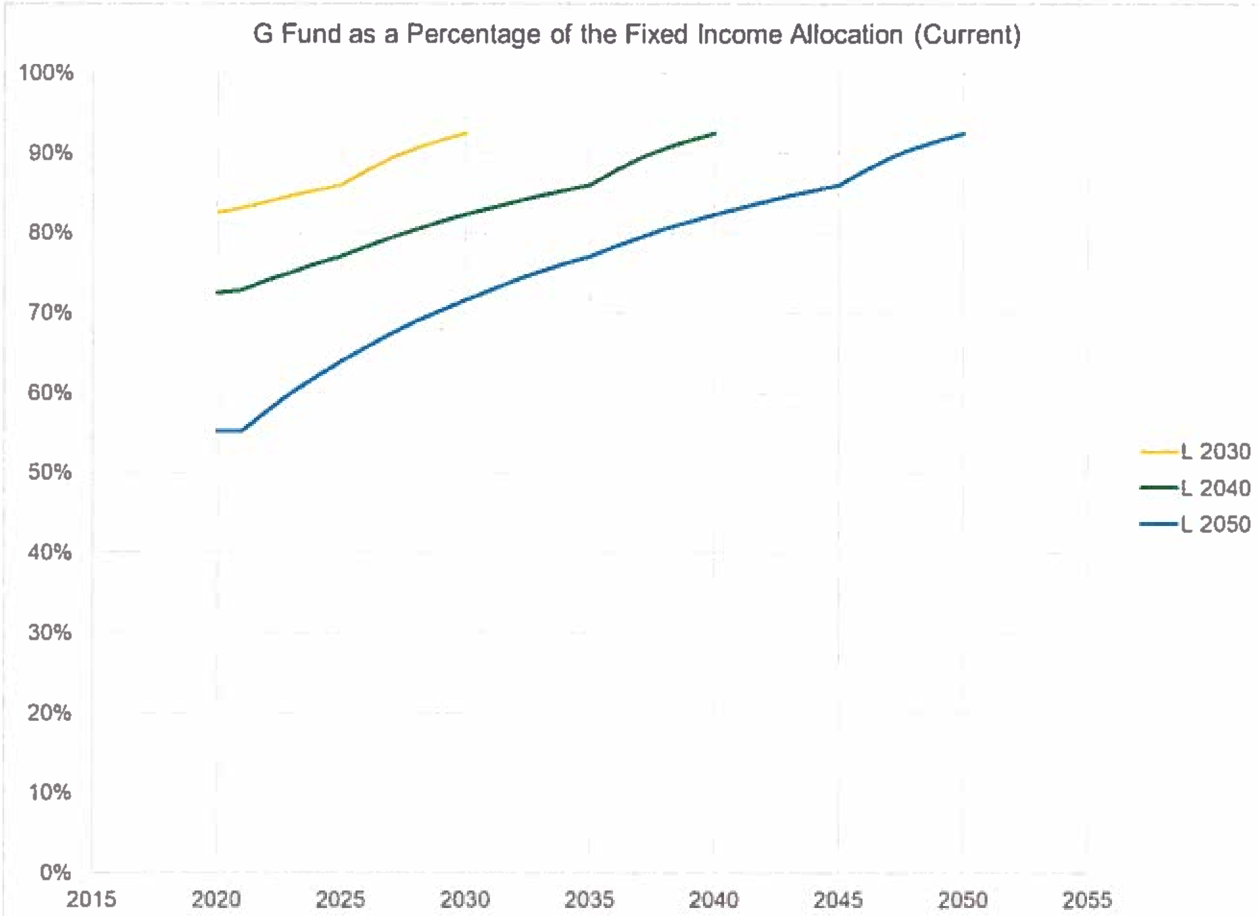
- A target allocation to international equity of 35% of the overall equity allocation.
- A glide path for the new L 2055, L 2060, and L 2065 Funds with an equity allocation of 99% until age 35, followed by a linear decrease to 60% at age 58, and then a final linear decrease to 30% at age 63.
- Temporary freezes in the overall equity allocations of the L 2030, L 2040, and L 2050 Funds until they intercept the L 2055/2060/2065 glide path described above.
- Glide paths for the new L 2025, L 2035, and L 2045 Funds that are interpolations between the glide paths of the existing L Funds.[4]

Although OI recommends keeping most aspects of the L Funds unchanged, it has highlighted two areas for improvement: the G Fund's share of the fixed income allocation and the S Fund's share of the U.S. equity allocation.

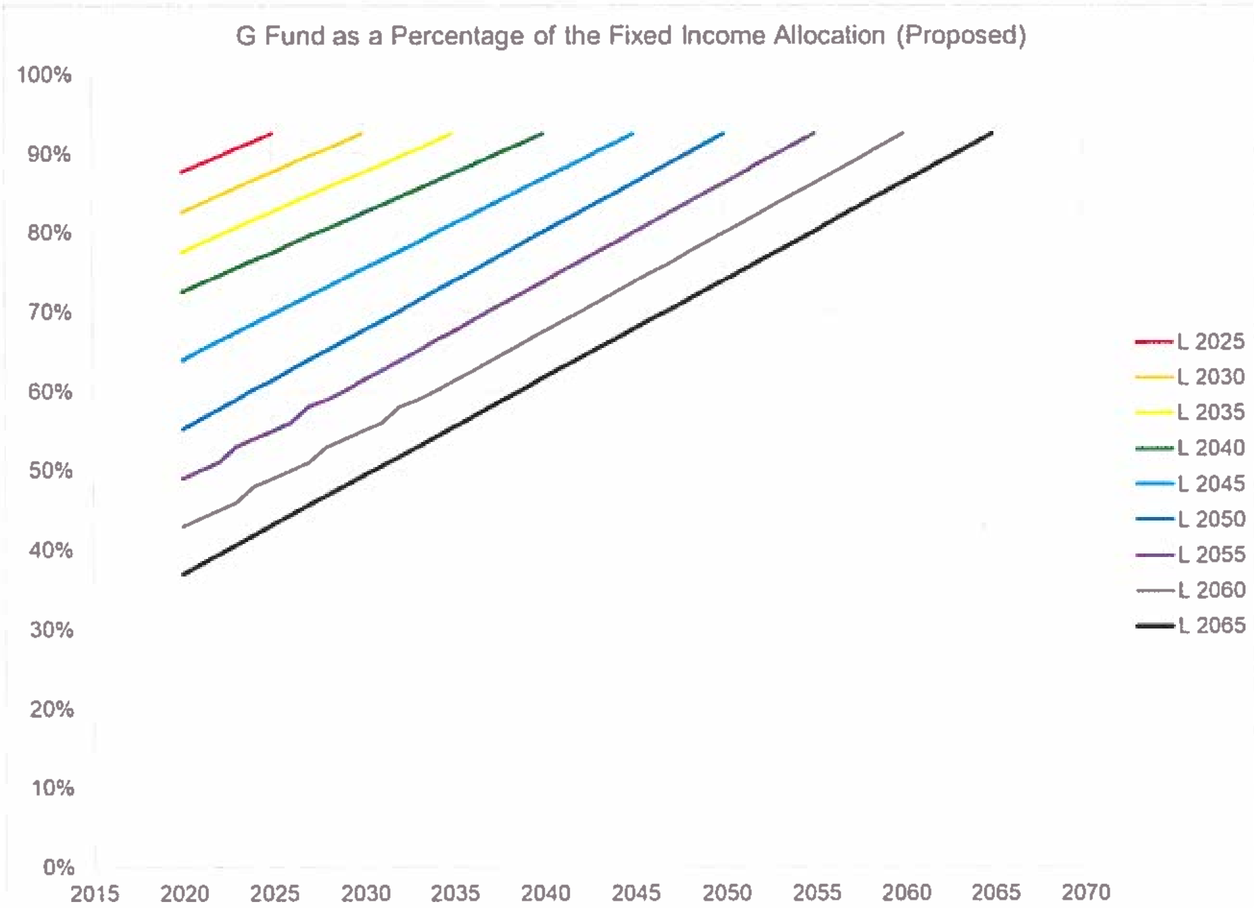
The G Fund's Share of the Fixed Income Allocation

The G Fund's share of the fixed income allocation is currently on a non-linear upward path to 92.50%, as shown in the following chart:

[4] For its stochastic modeling, Mercer used interpolation to create the "current" glide paths for these new L Funds.

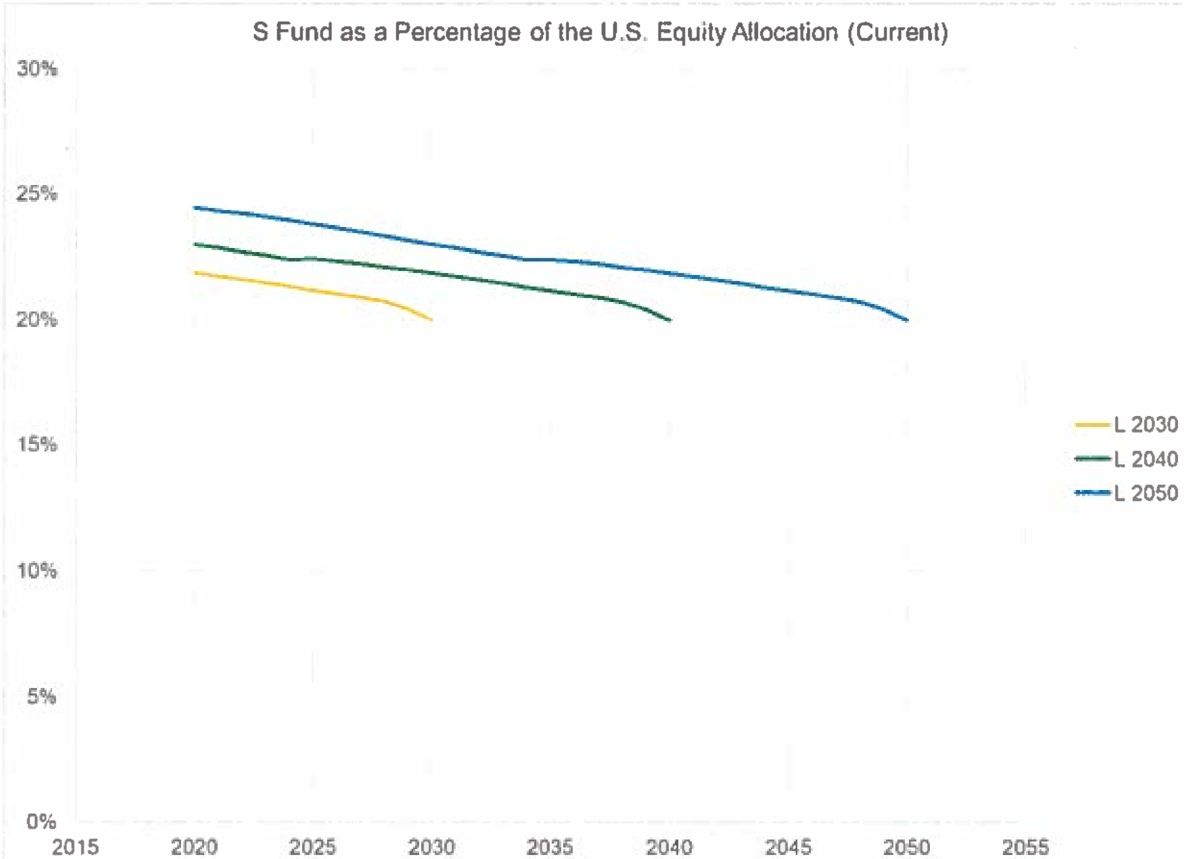


OI recommends making this upward path linear and establishing the L 2055, L 2060, and L 2065 Funds with progressively lower initial allocations to the G Fund, as depicted on the following chart:

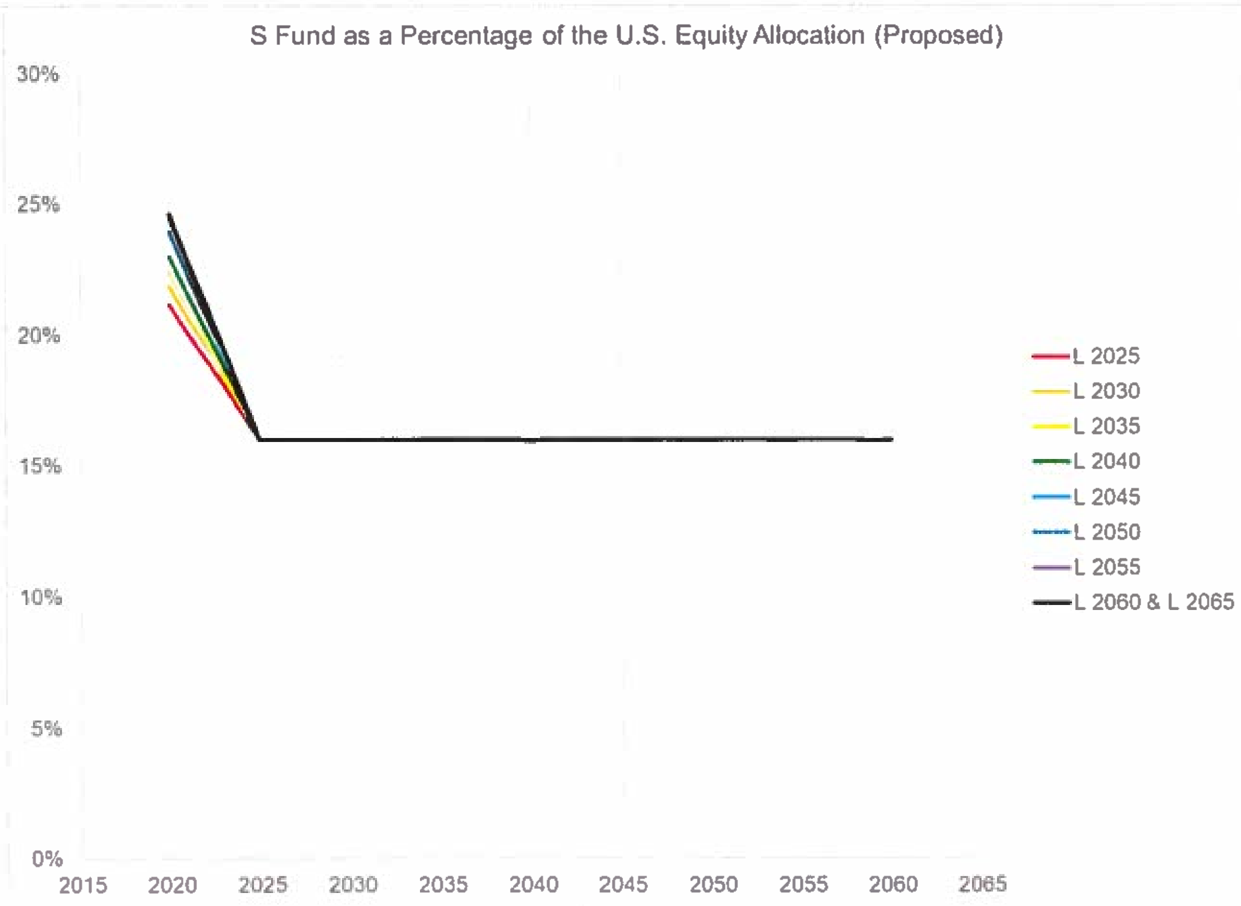


These changes, which were modeled by Mercer as "Linear FI Trend; End @ same G weight," were shown to have no material impact on outcomes. Nevertheless, OI believes the changes would be beneficial. The progressively lower starting points will leave us room to alter our course if we decide that the F Fund becomes a more appealing investment. Mercer currently projects that the F Fund will underperform the G Fund over the next 10 years. If that outlook changes, the lower starting points proposed by OI will facilitate a tilt toward the F Fund, if deemed appropriate.

The S Fund's Share of the U.S. Equity Allocation
The S Fund's share of the U.S. equity allocation is currently on a non-linear downward path to 20%, as shown in the following chart:



Through consultation with Mercer, OI ascertained that small- and mid-cap U.S. equity represents approximately 16% of the market capitalization of all U.S. equity. Having faith in the long-term advantages of allocating assets on the basis of market capitalization, OI recommends moving all L Funds, including the new ones, to an S Fund weight of 16% of the U.S. equity allocation. These proposed paths are depicted on the following chart:



These changes, which were modeled by Mercer as "16% Small/Mid-Cap Weight," were shown to have no material impact on outcomes. The five-year transition reduces the potential for market impact in the rebalance trades. The phased transition also allows us to alter course if small- and mid-cap stocks start to account for a larger share of the U.S. equity market capitalization.

ADDITIONAL CONSIDERATIONS

OI would like to highlight two additional factors that influence decisions related to the L Funds:

To vs. Through

In the defined contribution industry, there appear to be two ways to define the "to vs. through" question:

1. Based on expected retirement age: A fund that attains its terminal asset allocation coincident with a participant's expected retirement age is a "to" fund. A "through" fund does not reach its terminal asset allocation until some number of years later.
2. Based on a target date fund's namesake year. For example a "to" fund with "2030" in its name reaches its terminal asset allocation in 2030. A fund that that does not reach its terminal allocation until after 2030 is a "through" fund. For its part, Mercer subscribes to this definition of "to vs. through."

For most target date funds, the two definitions are synonymous because the funds are constructed around assumed retirement in a given year. The L Funds, on the other hand, are constructed around an assumed first withdrawal that takes place one year after retirement. As participants adjust to recent changes in their TSP withdrawal options, that one-year gap may grow, shrink, or remain unchanged. In the meantime, the fact that the gap exists means that the L Funds are "through" funds under the first definition (albeit with a mere one-year through period) but "to" funds under the second.

Setting aside the question of whether the L Funds should be classified as "to" or "through," we recommend instead looking at two important questions regarding the design of the L Funds:

1. **What is the appropriate allocation to equity in the post-retirement years?** Advocates of a "through" approach argue that more equity in the post-retirement years is necessary to reduce longevity risk. We agree, which is why our 2018 review initiated a 10-year transition that will increase the equity allocation in the L Income Fund from 20% to 30%. At the same time, we acknowledge that a "through" approach is not without costs. Mercer's analysis shows that "through" funds increase the probability of losses in the final two years before retirement, a phenomenon that can drive participants to make suboptimal decisions based on fear and uncertainty.
2. **Does the design of the L Funds support the Agency's overall goal of helping participants make important TSP decisions?** The decision to make a withdrawal is a critical touch point in each participant's TSP experience. The Agency is committed to empowering participants with the information they need to select the most appropriate time and form for their withdrawals. To that end, the very name of the L Income Fund suggests that it is an appropriate source for sustained withdrawals. By contrast, consider the implications of a 10-year "through" approach. The L 2025 Fund would not roll into the L Income Fund until 2035. During those intervening years (2026-2035), an L 2025 investor could legitimately wonder if it is appropriate to begin withdrawing from an L Fund that does not have "Income" in its name.

In summary, Mercer and many other experts in the defined contribution industry regard the L Funds as having a "to" design. Others might argue that the L Funds follow a "through" design, citing OPM data that show 60% of Federal civilians retire before age 63. Regardless of the classification, we are confident that the designs proposed here strike an appropriate balance between risk and return and between simplicity and customization.

Costs

None of the changes proposed here would materially increase Agency administrative costs or investment manager fees, nor would they incur material trading costs. The S Fund's transition to a lower allocation will generate large but manageable rebalancing trades on a quarterly basis.

SUMMARY OF RECOMMENDATIONS

In light of the preceding analysis, OI submits the following proposals for your concurrence:

- Maintain 92.50% as the ultimate weight of the G Fund in each L Fund's fixed income allocation, but smooth the increases in that weight to make them linear.
- Move the S Fund's share of each L Fund's U.S. equity allocation from its current 22-25% to 16% over five years.
- Maintain 35% as the I Fund's share of each L Fund's overall equity allocation.
- Create the L 2055, L 2060, and L 2065 Funds with the same parameters produced during the 2018 review.
- Continue the transition plan established in 2018, which called for temporary freezes in the overall equity allocations of the L 2030, L 2040, and L 2050 Funds until they intercept the same glide path as L 2055, L 2060, and L 2065.
- Create the glide paths for the other new L Funds (L 2025, L 2035, and L 2045) as interpolations between the existing L Funds.

Concur Ravindra Das 3-18-2020

Non-concur

Other