The Thrift Savings Plan versus The All-Weather Retirement Portfolio (2nd Edition) for Sustainable and Inflation-Proof Retirement Income

By Randy L. Thurman, CPA/PFS, CFP®

Executive Summary

The Thrift Savings Plan (TSP) plan is an impressive retirement plan for government employees in the accumulation phase. In this phase, with the matching benefits for contributing, tax benefits and the low expense ratios, it simply can't be beaten even with limited choices to diversify.

However, in the distribution, or non-accumulation phase, the only benefit remaining is the low expense ratio funds.

This paper explores the TSP in the distribution phase versus The All-Weather Retirement Portfolio (TAWRP) (2nd Edition). It defines the goal in the retirement distribution phase as: How do we invest and diversify the investments in a way that we have maximized the probability that no matter what happens in the outside world, there will be money left at the end of the appropriate time frame.

Common methods of investing in the TSP and TAWRP are tested looking at every 30-, 35-, and 40- year time frame since the great depression.

Based on my research, the TAWRP is superior over even the optimized TSP in every criteria. For example, in the worst-case scenario, the optimized TSP portfolio lasts 22 years versus 40 for TAWRP. Therefore it would seem appropriate to directly roll over the TSP portfolio to an IRA at retirement.

The only exception will be if the participant retires between the ages of 55 and 59 ½ inclusive. The exception is due to the tax rules and how to avoid the 10 percent penalty for early withdrawals (will expand on this later in the paper).

Other areas explored in this paper include:

- New changes in the TSP plan
- Should an advisor be used, the pros and cons

The Goal – Defined

In the accumulation phase the primary goal is return for the risk involved. Controlling volatility is not as important due to the dollar cost averaging effect.

In the distribution phase the goal is vastly different. Controlling volatility is crucial. Uncontrollable events called the "sequencing of return" risk, takes place. The average return rate is not as crucial as the sequencing of those returns. A portfolio that, over 40 years, averages 18% annual return can run out of money while a 6% average return portfolio can survive.

So, what's the goal for a retirement distribution portfolio and the best way to evaluate it? First, I would submit the goal is this: How do we invest and diversify the portfolio in such a way, that we have maximized the probabilities that no matter what happens in the outside world you will be OK financially. Does that sound like a worthy goal?

OK, now how do you test for that? There are several ways, but I prefer this way:

- Look at every 30-, 35- and 40-year time frame since 1930.
- Start with a 5.5% initial distribution and increase by the rate of inflation every year.
- See how many times there would be money left at the end of the period.

Now that's not perfect, but that's a pretty long-time frame, and we've seen a lot of financial storms over that period.

I want at least a 95% success rate, sometimes higher but never less. Fair enough?

The TSP Plan

If someone is a federal government employee, they probably rely on the government's Thrift Savings Plan (TSP) as their primary retirement savings tool. The TSP is designed like a 401(K)-type retirement plan for these workers. In the accumulation phase it is simply outstanding. Employees[1] can invest pre-tax dollars with a match up to 5% of salary. If an employee defers 5% of their salary, the government will match 5%, making a total contribution of 10%.

The TSP is the best choice for an employee investing 5% or less for retirement, with rare exceptions. Beyond 5%, it can be argued for outside investment choices, if tax advantages exist (e.g. pre-tax IRA).

The fund choices also have an impressive expense ratio. A model fund portfolio has about six basis points (100 basis points make up 1%) expense ratio.

Regarding retirement distributions, there are drawbacks. Before I get into that, it would be good to examine some recent legislation on the TSP.

Recent Legislation

On the plus side, recent legislation has improved the TSP plan distribution options for plan participants. These new distribution options started on September 15th, 2019.

Since the old way no longer applies, I'll focus on the new distribution rules.

New Distribution Options

[1] Federal Employee Retirement System (FERS) and Blended Retirement System (BRS) participants only. Also, this is not technically a dollar-for-dollar match. Different levels have different matching amounts. However, at 5% salary reduction, there is a matching amount of 5%.

The TSP Modernization Act of 2019 provides TSP participants with additional options of how and when to withdraw money.

One of the main changes is the frequency of distributions. The change allows participants to choose quarterly or annual instead of monthly payouts from their account. They can also change the amount or schedule payouts that meet their needs. The requirements that participants take out the remaining balance after stopping payouts ended September 2019.

Now participants who are at least 59 ½ years old are allowed to make up to four age-based “on demand” withdrawals each year. This may present opportunities for retirees to rollover portions of their TSP to an IRA to help with wealth transfer strategies, such as Roth conversions or skipping generations with IRA beneficiaries.

The new legislation made several other beneficial changes to the TSP that are helpful from a distribution standpoint:

- There is no limit to the number of partial withdrawals participants can make after they leave their government jobs. The only exception is that no more than one withdrawal can be made every 30 days.

- Participants are allowed to make partial withdrawals while they receive post-separation installment payments.

- If participants make an age-based in-service withdrawal (age 59 ½ or older), they are not prevented from making post-separation partial withdrawals.

- Participants are no longer required to make a full withdrawal election after age 72. IRS mandated required minimum distributions (RMDs) still apply.

- Participants who have Roth and traditional accounts can choose from which one they want to take the withdrawal or the withdrawal ratio. Previously, withdrawals had to be made from these balances on a pro-rata basis.

Some Drawbacks Remain

While the new legislation made some positive changes to the TSP distribution options, it didn't address some of the other TSP problems.

One of the biggest is the investment choices available to participants are limited to just five broad index funds and five lifestyle funds which are age-based asset allocation portfolios. This is an improvement over what it was previously but is severely lacking asset classes that would be beneficial. These include large cap value, large cap growth, small cap value, emerging markets, international bonds, high-yield bonds, etc. The addition of these asset classes would make it possible to build a portfolio with a higher expected return and lower expected risk through proper asset allocation.

Some try to accomplish this better diversification through the life cycle funds. By using these funds, the participant loses control and flexibility. Life cycle funds change allocations, based on age, without regard for other factors. Plus, they are generally designed to be far too conservative based on weathering inevitable financial storms. Some try to offset this by going “farther out” on the life cycle. They simply don’t work well in the accumulation phase or the distribution phase, but they do bring a, “invest it and forget about it” peace of mind.

There is still not an option for account beneficiaries to roll over shares into an inherited IRA. Non-spouse, second beneficiaries must receive the entire TSP balance all at once, and this money is taxed during the year it's distributed. This can push beneficiaries into a higher tax bracket, resulting in a major tax hit for the year. With an inherited IRA, beneficiaries can stretch out the taxes over ten years following the account owner’s death and use tax planning on when to take distributions.

When making distributions, participants still can't choose which investments to distribute. This may be important in volatile years. For example, in 2018 the C fund took a significant hit, so it would probably be better not to sell those cheap shares and take distributions from the fixed account, which would also help rebalance the portfolio.

Speaking of rebalancing, there is still no automatic rebalancing for the TSP. This is a big deal and very disappointing.

Finally, TSP participants still can't take advantage of many beneficial wealth management strategies that can lower taxes. These include Roth IRA conversions, qualified charitable distributions, and penalty-free 72(t) distributions before age 55.

The All-Weather Retirement Portfolio (TAWRP)

TAWRP is a portfolio specifically designed for retirement distributions. It’s been designed, and tested, to weather any storm the financial markets have thrown at us since 1930 with a success ratio of 95% or higher.[2] This test starts with an initial distribution rate of 5.5% and increases with inflation every year.

Advantages
TAWRP has been specifically designed for what’s important — delivering inflation-proof income through financial storms to maximize the probabilities that the investor will have income for their lifetime, regardless of what happens in the outside world.

TAWRP has additional asset classes that improve the expected return and decrease the expected risk through better diversification. More importantly, it is designed to deliver an inflation-proof income, year after year regardless of the markets. This does not mean there will not be negative

[2] A 95% success ratio means that in any 30-, 35- or 40- year time frame since 1930, 95% of the time there was money left at the end of the time frame. And I’m always required to say, past performance is no guarantee of future results.

years. A person should expect two, maybe three, negative years out of ten. However, those negative years are fewer and less severe than the optimized model of the TSP.

TAWRP also has flexibility. If a fund is not performing properly, or worse, has style drift, then it can be replaced.

TAWRP can be set up to automatically rebalance based on a calendar method, percentage difference or both.

As a general rule, TAWRP can benefit from fund selection. Although the benefit is small compared to asset allocation and rebalancing, there is a benefit using the Fi360 method of fund selection[3]. I will examine the actual fund results later in this paper.

Disadvantages

The TAWRP, although low maintenance, is not a "set it and forget it" portfolio. It needs rebalancing and the funds need to be evaluated from time to time.

The expense ratios are going to be higher. Although this does not necessarily translate to a lower return, it is an additional hurdle the fund manager must overcome to justify his existence. Even the index funds, if used, will probably have a higher expense ratio.

The Test

I will look at the TSP versus TAWRP for every 30-, 35- and 40-year time frame since 1930. Since neither of these were around in 1930, proxy data from Morningstar® and Global Financial Data, Inc. will be used.

The initial distribution rate will be 5.5% of the portfolio and increased by the annual inflation rate every year.

I will look at the amount that can be withdrawn from each portfolio with a 95% success rate and how long an initial 5.5% distribution would last in the worst-case scenario[4].

Assumptions

There are many assumptions in this white paper regarding comparing the TSP plan to TAWRP. When evaluating the TSP portfolio, it is assumed:

---

[3] https://www.fi360.com/uploads/CFPI-Final_Report2017.pdf

[4] To have a 95% success rate, instead of 100%, the outlier years of 1937, 1969 and 1973 were excluded. A complete examination, including those years, can be found in *The All-Weather Retirement Portfolio*, 2nd Edition and the 7-year rule to be prepared for even those years.

1. The investor has the most efficient equity to bond mix. This is rare. The proper mix, for most retirees, per research, is a 70% equity, 30% bond mix. Most, from almost 35 years of observation, will either be all in the F fund, all in the G fund, or a 60/40 blend.
2. The investor chooses the proper fixed account. This would be the F fund. The G fund is nothing more than a glorified money market, yielding negative returns historically after inflation.
3. The investor has the most efficient blend in the equity portion, between the US and International. 30% of the equity portion of the portfolio should be international. It is rare indeed to see this blend.
4. The investor rebalances on an annual basis. There is not automatic rebalancing feature in the TSP, and this is big. It is assumed the retiree does this on his own on an annual basis.
5. The investor has the proper mix between large companies and small companies. This ratio also depends on whether or not you have access to small cap value funds which, in the TSP, you do not. For the limited TSP choices, approximately 20% of the equity position (14% of the total portfolio) should be in the S fund.
6. The retiree has the discipline not to make the big mistake of sitting on the sidelines "when things look bad" and sticks to the plan. This is the biggest mistake I see yet, is the least understood and appreciated.

To have all six is like finding a black swan. They exist, but you're probably not going to see one.

Assumptions of the TAWRP are:

1. I was conservative in the analysis and assumed there was no benefit to fund selection. Research indicates, as previously stated, there is a small benefit to the Fi360 method of fund selection.
2. The retiree has the discipline not to make the big mistake of sitting on the sidelines "when things look bad" and sticks to the plan. This behavioral aspect is the biggest mistake I see, yet, is the least understood and appreciated.
3. The investor rebalances on an annual basis. I prefer quarterly rebalancing, but the data is in annual format.

TSP in retirement

When looking at the TSP there are four primary ways people set up the TSP plan in retirement.

1. The G fund
2. The F fund
3. A basic blend of 60% C and 40% F (F is far superior here than the G fund, and most participants are heavier in the G fund, but it is assumed the participants use F here).
4. An optimized blend using the TAWRP portfolio as a guide. This blend would be 30% F fund, 35% C fund, 21% I fund, 14% S fund.

I will test all portfolios looking at every 30-, 35- and 40-year time frame since 1930. Starting with $100,000 and a 5.5% distribution rate and raising by the inflation rate every year. I will look at the success rates, what it would take to be 95% successful, and how long the portfolio will last in the worst-case scenario.

1. **The G Fund**

    This is nothing more than a government money market account, much like T-bills.

    The quickest going broke scenario: 13 years.[5]

	30 Years	35 Years	40 Years
Success Rate[6]	0%	0%	0%
95% Success Initial Distribution Rate[7]	$2230	$1900	$1660
100% Success Initial Distribution Rate[8]	$2180	$1890	$1640
Average Ending Value[9]	$-215,900	$-406,700	$-636,410

2. **The F Fund**

    The F fund is a nice improvement over the G fund, but nowhere near where we want to be. Here are the numbers:

    The quickest going broke scenario: 14 years.

	30 Years	35 Years	40 Years
Success Rate	19.7%	9.8%	2.0%
95% Success Initial Distribution Rate	$2590	$2160	$1820
100% Success Initial Distribution Rate	$2420	$2010	$1660
Average Ending Value	$-188,400	$-484,800	$-976,770

3. **The 60% C fund, 40% F fund.** Sometimes called the Trinity blend.

    This is a vast improvement over the first two, yet few will do so because of the perceived "risk."

    The quickest going broke scenario: 16 years.

	30 Years	35 Years	40 Years
Success Rate	65.6%	55.4%	45.1%
95% Success Initial Distribution Rate	$4220	$4070	$3930
100% Success Initial Distribution Rate	$4080	$3910	$3790

---

[5] Quickest going broke period is looking at all rolling time frames, excluding the worst three, and seeing how long money would last in the fourth worst time frame.
[6] Success rate is the percentage of times the portfolio had money left.
[7] The 95% success initial distribution rate is the maximum distribution that the portfolio can deliver annually and have money left 95% of the time.
[8] The 100% success initial distribution rate is the maximum distribution that the portfolio can deliver and have money left 100% of the time. The 100% success rate means it never failed. This is not a guarantee it can do so in the future.
[9] Average ending value includes the cost of borrowing, at interest-free rates to maintain distributions and the opportunity cost of not being in the portfolio.

Average Ending Value	$132,800	$48,570	$-123,920

4. **Optimum Blend Given TSP Choices. 30% F Fund, 35% C Fund, 21% I fund, 14% S fund.**

   This is the optimum blend for the TSP, given the choices available. I would say less than 1% of the retirees, who stick with the TSP have this blend. It’s so low for two reasons, 1. Very few know how to optimize and 2. Those who do, tend to directly rollover the TSP to an IRA and use funds outside of the TSP.

   The quickest going broke scenario: 22 years.

	30 Years	35 Years	40 Years
Success Rate	88.5%	78.6%	70.6%
95% Success Initial Distribution Rate	$5080	$4900	$4750
100% Success Initial Distribution Rate	$4610	$4450	$4330
Average Ending Value	$419,630	$557,620	$664,180

TAWRP in the Retirement Distribution Phase

This is the portfolio as described in the second edition of *The All-Weather Retirement Portfolio* after the 11th step (the twelfth step is optional). It is as follows:

12% Large Cap Value Fund
23% Large Cap Growth Fund
14% Small Cap Value Fund
15% International Developed Country Equity Fund
6% Emerging Market Fund
30% Intermediate-Term Corporate Bond Fund

This portfolio simply cannot be duplicated using the TSP.

Here are the numbers:

The quickest going broke scenario is 40 years.

	30 Years	35 Years	40 Years
Success Rate	96.7%	96.4%%	96.1%
95% Success Initial Distribution Rate	$5970	$5800	$5560
100% Success Initial Distribution Rate	$5080	$4900	$4770
Average Ending Value	$830,600	$1.3 million	$1.85 million

That a vast improvement over all four of the evaluated TSP plan options.

Does hiring a financial advisor make sense in the distribution phase?

It's worth evaluating if a financial advisor is worth the cost in the distribution phase. I'll tell you right up front that being one, I'm biased. But my engineering training is going to take this in a very organized manner for your consideration.

There is a cost associated with a financial advisor. In my book, *The Worry-Free Retirement Guide to Finding a Trustworthy Financial Advisor,* I lay out, step by step a method for finding a top 2% advisor. I recommend one that has a vested self-interest in you doing well and where you're the boss, not an investment product company. My preference, if I were a retiree, would be to compensate someone so that the better they do and the longer they keep me happy, the more they get paid.

That's why I prefer the percent of assets under management compensation method.

Here's the tough part. Let's say you're being charged 1% to manage your money. That's the cost. What's the benefit? Also, exactly how much of that cost do you allocate to investment advice? A top 2% financial planner will help you in many areas, including, but not limited to, estate planning, tax strategies, insurance issues, social security and investment advice.

How much do you allocate to investment advice? If your advisor helps you save several thousand dollars a year in taxes on how you take the distribution, shouldn't that count towards reducing the cost or increasing the benefit?

For now, let's assume, wrong as it may be, all of the cost is allocated to investment advice. There are five main benefits, some hard to quantify but I will use research from various places to tackle the question.

Here are the five areas:

1. Asset Allocation
2. Fund Selection
3. Rebalancing
4. Behavioral Coaching
5. Other Areas

Let's look at each.

Asset Allocation

This is a big one. Many studies show that 90-95% of the variability of return on portfolios can be attributed to asset allocation.[10]

---

[10] https://www.tandfonline.com/doi/abs/10.2469/faj.v51.n1.1869

Assuming you're comparing the TSP to TAWRP, the anticipated increase in expected return is 1.50% for the same level of risk.[11] And this is versus the optimized model of the TSP that less than 1% of plan participants will have.

Fund Selection

Fund selection is less of a benefit, yet still important. Many simply use index funds and they are outstanding. However, using a fund selection tool, such as the fi360 Fiduciary score®, adds value.

The Center for Financial Planning and Investment evaluated the use of fi360 Fiduciary score®. According to the third-party evaluation, this method increased the annualized returns by 39 basis points a year versus the average mutual fund of the same type. That's not anything you want to do cartwheels down the hall for, but an unexpected improvement over just picking index funds and going down the road.

The problem though with this analysis is that the TSP funds are superior to the average fund. The TSP funds are known and can be evaluated. Although while the lack of flexibility may be troubling, historically these funds have done well.

The best I can do here, and be fair, is to look at actual returns for exactly the same type of fund and compare against funds that have been used and selected by fi360. I'll evaluate an optimum blend and a side by side similar portfolio and compare actual returns.

Doing this, for a 10-year time frame ending February 9th, 2020, the TSP optimized portfolio outperformed a similar portfolio (not TAWRP) by eight basis points per year. Supporting the belief that the TSP funds are excellent.

Rebalancing

Rebalancing is like flossing. People know they need to do it, but few do. Unfortunately, you can't automate rebalancing with the TSP. Most advisors have a system to rebalance automatically without the emotion.

I believe quarterly rebalancing is the most effective manner of rebalancing for retirees making distributions. Vanguard has an outstanding white paper in the *Advisor's Alpha*. This research evaluates various time frames and the benefits of rebalancing have ranged from 26 to 44 basis points.[12]

Behavioral Coaching

The most important area, and the least appreciated, is behavioral coaching. Studies have shown that individual investors tend to bail and sit on the sidelines when things have bottomed out and want to be more aggressive when things are good. Confidence bias runs amok. It's similar to

---

[11] Based on asset allocation report run 2/25/2020 for the time frame of January 1978-January 2020. The report was developed using a propriety investment modeling system from SEI Investment Management Corporation.

[12] https://advisors.vanguard.com/iwe/pdf/ISGQVAA.pdf

when I'm speaking in a room of 100 or so people and I ask how many are better than the average driver. 98-99 hold their hands up. (there's always one or two who know …). Yet if you ask each one who held his hand up about it, everyone will be confident they are correct.

The Vanguard Advisor's Alpha study indicates this area adds 1.50% points.[13] I have seen other studies as high as 6.3% a year[14].

Other Areas [15]

Other areas may apply, for example, spending strategy and the use of tax-efficient funds. If you have after-tax dollars, the benefit runs between 0 and 75 basis points according to that same Vanguard study.

Age Matters Though

If a participant retires between the ages of 55 and 59 ½ inclusive, there is a little-known tax law that states retirees can withdraw from the TSP without incurring the 10% penalty. If the participant rolls over the TSP to an IRA, they cannot use this exemption from the penalty.

If the retiree in this situation intends to take distributions between ages of 55 to 59 ½, she would probably be better served to postpone the rollover to an IRA until age 59 ½.

Conclusion

While the TSP plan is outstanding in the accumulation phase, it loses many of the advantages while retaining the disadvantages in the retirement phase.

TAWRP is superior to the TSP in all metrics evaluated in the retirement distribution phase. It increases the probability for success in 30-, 35- and 40-year time frames. It also has a vastly superior worst-case scenario time frame.

For the participant at retirement, I recommend he directly roll over his TSP plan to an IRA and implement TAWRP.

The exception to the rule would be for the retiree who retires between the ages of 55 and 59 ½ inclusive and will be taking distributions during this time frame. For these participants, I recommend postponing the rollover until age 59 ½.

---

13 https://advisors.vanguard.com/iwe/pdf/ISGQVAA.pdf
14 Behavioral Investment Counseling, Nick Murray, The Nick Murray Company, ©2008, page 14.
15 https://advisors.vanguard.com/iwe/pdf/ISGQVAA.pdf