Allocating to Manage Risk: A Case Study

By Charles Rotblut, CFA

Article Highlights

- The portfolio of a fictional retired couple concerned about both a stock market correction and rising interest rates is examined.
- The worst post–World War II returns for large- and small-cap stocks, REITs and bonds are used to determine how much the couple could lose.
- Increasing the couple's cash balance and bond holdings allows for withdrawals to be taken during turbulent market conditions without having to sell equities at depressed prices.

Approximately 20 years ago, we published an analysis of a fictional couple's exposure to downside risk called "Re-Examining Risk Tolerance Using Worst-Case Scenarios," *AAII Journal,* May/June 1998.

Written by former *AAII Journal* editor Maria Crawford Scott, the analysis looked to see what would happen to the couple's portfolio should financial markets suffer a severe drop.

More than eight years into the current bull market with interest rates still at historically low levels, an update to the article seemed warranted. The same fictional couple—the Pinkertons—is used, but their portfolio, withdrawal rates and downside risks are updated to the modern day. We also take the liberty of updating the Pinkertons themselves, treating them as being only 10 years into retirement despite the passage of time since the last article.

A Retired Couple Trying to Navigate the Financial Markets

The Pinkertons were fortunate enough to have entered retirement with sources of guaranteed income. They receive a pension and Social Security benefits. Though this money helps them to meet their expenses, neither source is large enough to fully cover all the couple's expenses. Neither spouse is a spendthrift, but there are amenities and activities they truly enjoy. The guaranteed sources of income do give them flexibility to cut back on spending if needed.

The couple has a portfolio of approximately $500,000. They are following the 4% rule for determining how much they can withdraw each year. After adjusting the initial 4% withdrawal amount of their portfolio's balance at the start of retirement for the rate of inflation each year, their current target withdrawal amount is approximately $30,000 this year.

When they retired in 2007, their asset allocation had about 70% of their investment portfolio allocated to stocks: 50% in large-capitalization stocks, 10% in small-cap stocks, 10% in real estate investment trusts (REITs). They considered themselves to have a moderate risk tolerance at the time and tried their best to not be unnerved by the 2007–2009 financial crisis, though it wasn't easy. The Pinkertons found some solace in their 15% allocation to bonds and their 15% allocation to cash, which—along with their pension and Social Security benefits—allowed them to weather the storm. Unfortunately, the solace was not enough to completely calm their nerves and the couple sold a large portion of their stock holdings near the end of 2008. Realizing their mistake, they allocated back into stocks and REITs in 2010 hoping to recoup some of the losses they previously locked in.

Since then, they haven't bothered much with rebalancing or sticking to a specific allocation. Rather, they've mostly let their stock and REIT investments appreciate in value, while targeting their bond and cash allocations first when it comes to taking withdrawals. The Pinkertons have used their equity and REIT funds to supplement the amounts needed for withdrawals when necessary, but given the good performance of their investments, the couple has preferred to withdraw from them as little as possible.

Like many retirees, the Pinkertons are unhappy with the ongoing low level of interest rates. They are also concerned about what might happen to their bond funds should interest rates rise in the future. As such, they've settled on intermediate-term government bonds. These bonds give the Pinkertons a little extra yield, but with less sensitivity to interest rate fluctuations than long-term bonds have. The cash is held in a money market account.

They also realize the mistake they made in panicking during the financial crisis. In hopes of not repeating the same mistake again, the couple has been actively trying to learn more about allocation strategies. Having read AAII founder and chairman Jim Cloonan's book, "Investing at Level3: Higher Returns With Minimal Risk for the Long-Term Individual Investor," and various articles about investing in retirement, the Pinkertons have come to realize that a larger cash cushion could benefit them. Though some upside portfolio returns would be forfeited, a larger cash position would give the couple the flexibility to refrain from withdrawing from their stock and REIT holdings during a bear market. They also see the diversification and yield advantage of having a somewhat larger allocation to bonds.

Furthermore, the Pinkerton's current allocation to cash will be drained if they rely on it first to fund this year's targeted withdrawal amount of $30,000. The couple realizes that if nothing is done right now, they will have no choice but to sell shares from their equity funds for their annual spending withdrawals.

Given these issues as well as the age of the current bull market (even though bull markets do not die of old age), the Federal Reserve's removing of the monetary stimulus that has been in place for the past several years, and general concerns about the macro environment, the Pinkertons feel that it may be time to reassess their allocation. Although they have always understood that stocks, as an asset class, experience less downside the longer they are held, they now fret about exposing themselves to unnecessary financial and behavioral risk should the market experience a substantial drop that may take a seemingly long period of time to recover from.

Table 1. Analyzing and Adjusting the Pinkerton's Portfolio

Current Portfolio	Value ($)	Downside Risk (%)	Downside Value ($)	Allocation (%)	Downside Risk (%)	Weighted Portfolio Risk (%)
Large-Cap Stocks	300,000	−37.0	189,000	60.0	−37.0	−22.2
Small-Cap Stocks	75,000	−33.8	49,650	15.0	−33.8	−5.1
REITs	75,000	−40.4	44,700	15.0	−40.4	−6.1
Intermediate-Term Bonds	25,000	−5.1	23,725	5.0	−5.1	−0.3
Cash (Money Market)	25,000	0.0	25,000	5.0	0.0	0.0
Total	**$500,000**		**$332,075**			
			Total Portfolio Downside Risk −33.7%			
Adjusted Portfolio						
Large-Cap Stocks	245,000	−37.0	154,350	52.1	−37.0	−19.3
Small-Cap Stocks	50,000	−33.8	33,100	10.6	−33.8	−3.6
REITs	50,000	−40.4	29,800	10.6	−40.4	−4.3
Intermediate-Term Bonds	62,500	−5.1	59,313	13.3	−5.1	−0.7
Cash (Money Market)	62,500	0.0	62,500	13.3	0.0	0.0
Total*	**$470,000**		**$339,063**			
			Total Portfolio Downside Risk −27.9%			

**Includes $30,000 withdrawal.*

Downside risk is the worst calendar-year return for each of the respective asset classes per AAII's Guide to the Top Mutual Funds and the 2017 SBBI Yearbook. Downside value is the portfolio dollars allocated to an asset class multiplied by the downside risk. Portfolio risk is the total of the weighted category risks. The adjustments to the portfolio include a $30,000 annual distribution.

A Worst-Case Scenario

A useful exercise for the Pinkertons is to estimate their downside risk with their current allocation, and what it would be were they to adopt a somewhat more conservative allocation. This type of analysis would allow them to determine what level of exposure to equities they are comfortable with.

To conduct the analysis, the couple assumes that their holdings will drop by an amount roughly equal to the worst one-year return for their respective asset categories. They start by looking at the AAII Guide to the Top Mutual Funds, which lists category averages and index returns for the last 10 years. The Pinkerton's home in on 2008, which was the worst year for stocks since World War II. During that year, the S&P 500 index lost 37.0%. Small-cap stocks, as represented by the Russell 2000, fell by 33.8%. (Dartmouth professor Kenneth French's data shows the smallest 30% of exchange-listed stocks as having lost 37.9% in 2008.) REITs, as represented by the real estate sector fund average, lost 40.4% in 2008.

The SBBI Yearbook of performance data (which may be found in some libraries) does not have historical data on REITs prior to the 1970s, but it does have return data on large- and small-cap stocks dating back to 1926. The two asset classes incurred losses of 43.3% and 58.0% in 1931 and 1937, respectively. Such declines occurred during the Great Depression and have not been repeated since. Thus, while these numbers could be used for an even more conservative analysis, the Pinkertons feel that the 2008 financial crisis was severe enough for their analysis.

The couple does consult the 2017 SBBI Yearbook for older data on bonds, given the big decline in interest rates that occurred over the past 30 years. They find their decision to opt for intermediate-term government bonds instead of long-term bonds makes sense from the standpoint of minimizing downside risk. Intermediate-term government bonds lost 5.1% in 1994, their worst year. Long-term government bonds, in contrast, lost 14.9% in 2009.

As previously stated, the Pinkerton's portfolio is currently valued at approximately $500,000. Were a worst-case scenario to occur with stocks, REITs and bonds matching their biggest drops since World War II during the same year, their portfolio would lose 33.7% of its value. More than half of the drop in dollar terms would be due to large-cap stocks. The couple's largest allocation is also the asset class that performed the worst during 2008.

Could the Pinkertons keep their commitment to equities if their portfolio were to drop by this amount? They are currently expecting to withdraw $30,000 from their portfolio, which would completely deplete their current cash balance. This then creates an immediate liquidity problem. In the worst-case scenario, the couple could withdraw spending money from their fixed-income fund, but by the next calendar year, they would need to start selling their equity holdings. Of course, that is similar to the situation they are in today, but currently they would be selling some of their equity holdings at or near market highs; under the worst-case scenario, they could be forced to sell either at market lows or before the equity holdings have had enough time to rebound in price.

In addition, there is the psychological aspect. The Pinkertons panicked near the end of 2008 and their current allocation leaves them with little room for comfort should the market incur another significant drop.

Adjusting Risk to a More Tolerable Level

Given this analysis, the Pinkertons decide to rethink how much of an allocation to equities they are truly comfortable having. They start with a basic premise: How much do they need to fund withdrawals for the next four years? Based on this year's withdrawal of $30,000 and allowing for some inflation, the couple estimates that they will need at least $125,000 to fund those withdrawals. This amount equates to 27% of their portfolio after this year's withdrawal is taken.

Interest rates are still low and they are uncomfortable about keeping that much in cash. They opt instead to keep $62,500 in cash and an additional $62,500 in bonds. This gives them both enough cash to cover more than two years of withdrawals and enough of a cushion in the fixed-income holdings to protect against a bad year.

The Pinkerton's ability to make this judgment comes from Table 1. The table shows the downside risk for each asset category based on the revised allocation. If intermediate-term government bonds repeat their 1994 performance and fall by 5.1%, the Pinkertons would still have enough in those investments to cover two years of withdrawals.

The couple make this change by reducing the stock and REIT exposures to a little more than 70% of their total portfolio. The Pinkertons have options for doing so by tweaking the proportion allocated to small-cap stocks and REITs relative to large caps. They opt for a fairly simple approach using round numbers that puts them close to an allocation of 50% in large-cap stocks, 10% in small caps and 10% in REITs. Setting the allocation to small-cap stocks and REITs any lower would limit their influence on the portfolio's returns and diversification.

This allocation would reduce the portfolio's downside risk under a worst-case scenario to approximately 28%. Though that may seem like it's still a sizeable drop, the cash and fixed-income cushion needs to be taken into consideration. The Pinkertons would now be able to fund four years of withdrawals without touching their equity allocations if needed. Were the stock and REIT holdings to incur a very bad year, the couple would be able to leave those investments untouched, giving them time to rebound in price. Once the equity markets (and REIT prices) do rebound, the Pinkertons would then restore their cash and fixed-income allocations. This is similar to a strategy espoused for retirees by Cloonan in his "Investing at Level3" book (www.level3investing.com).

The pre-funding of withdrawals should also help the Pinkertons from a psychological standpoint. Knowing that their withdrawals for the next four years are covered, they can be less concerned about the short-term impact a market downturn will have on their portfolio.

Why not decrease their more aggressive holdings even further? That would be an alternative approach. However, in their current situation, the Pinkertons are still seeking growth in their portfolio. They also have the guaranteed stream of income from Social Security and their pension, which increases their financial tolerance for risk.

Of course, the next question the Pinkertons must contend with is how to move to the new allocation. This will depend on their asset allocation, meaning the types of accounts the investments are kept in. If everything is in individual retirement accounts (IRAs), Roth IRAs or similar types of accounts, no capital gains taxes will be levied. Such accounts are the best options for making allocation changes. If a significant enough portion of the portfolio or certain investments are in taxable accounts, care must be taken not to trigger too large of a tax bill. Making incremental changes—say, once per calendar quarter or once every six months—would be an option. The downside of incremental changes is that the allocation may not be fully altered in enough time to protect against the next market correction.

The Pinkertons decide that they will shift to a more conservative allocation when they take this year's withdrawal. Doing so alleviates any second-guessing and future procrastination. Though there is a risk of taking money out of equities too soon, the couple would rather incur this risk than chance that a market downturn may occur before they finish shifting their allocation.

They will also fund this year's and next year's withdrawals from their stock and REIT funds. They accomplish this by withdrawing $55,000 out of large-cap stocks (their largest allocation), $25,000 out of small-cap stocks and $25,000 out of REITs. Out of this $105,000 total, $30,000 is taken as a withdrawal and $75,000 is split evenly between cash and bonds. The adjusted portfolio section in Table 1 shows the effect of this change for the first year under the worst-case scenario. Although their commitment to equities is still above the target level, they have managed to reduce their liquidity risk—they could withdraw spending money first from cash, then from the fixed-income fund for four years to ride out a bear market.

Don't Let the Bull Lull You Into Taking Too Much Risk

Major bull markets can cause asset allocation strategies to stray far from their target levels and at the same time cause investors to become overly complacent with their stock holdings—a dangerous combination. Examining your portfolio and seeing how it would fare under worst-case bear market conditions gives you the chance to inject a dose of reality into your portfolio. If you are uncomfortable with what you see, create a plan to put your portfolio back into a balance that is more advantageous to you.

Here are some things to keep in mind when re-examining your downside risk:

- Use the worst-case scenario—the maximum loss for all asset categories—as a guide to how much of a loss you can stomach, as well as any liquidity problems you may run into. The worst returns for a one-year holding period over a long-term time frame are a good guideline.
- When you are withdrawing assets from your savings, make sure you fully understand your liquidity risk—the risk that you may be forced to sell at an inopportune time. You can reduce liquidity risk overall by increasing your investments in cash, which don't face liquidity risk.
- The best way to avoid being overcome by a strong bull market is to rebalance periodically. Rebalancing helps you remain diversified, so that you are not overly dependent on one area of the market for your performance. Furthermore, it provides a discipline in that it forces you to sell "high" and buy "low."
- When you do rebalance, try to do so in the most tax-efficient way possible—for instance, withdrawing spending money from funds to which you are overly committed, or by buying and selling from tax-preferred accounts. ➤

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law, or would be for the fact that there is no corpus,

2. The trust is irrevocable or becomes irrevocable upon the owner's death,
3. The trust's beneficiaries are identifiable from the trust instrument, and
4. The trustee of the trust provides the necessary documents to the IRA custodian or trustee (e.g., the brokerage firm). This documentation must be provided by October 31 of the year following the death of the IRA's owner.

Since a trust cannot be a designated beneficiary, required minimum distributions will be based on the trust's beneficiaries. The trust's beneficiaries will be treated as having been designated beneficiaries in this instance.

Say Bob instructed his broker to name his trust as the beneficiary of his IRA. The trust itself lists Sue as its beneficiary. For estate planning purposes, the IRA goes into the trust. The trust cannot be used for calculating RMDs since it is not allowed to be a designated beneficiary. So instead Sue—the trust's beneficiary—is treated as being the designated beneficiary for purposes of calculating the RMD.

If a second trust is the beneficiary of the first trust and meets the aforementioned rules, the beneficiaries of the second trust will be treated as being designated beneficiaries for purposes of calculating RMDs.

A new inherited IRA account will need to be opened in the name of the original account owner for the benefit of the trust. Note that the beneficiaries of the trust will not be able to open their own inherited IRAs. Rather, they will receive distributions from the trust's trustee.

Questions regarding the trust and the taxes associated with the distributions should be directed to an estate attorney. ➤

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