

Schwab Center for Financial Research

# Nearing Retirement? Assess Downside Risk, Upside Potential

A white paper by  
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Now may be a time to focus on a portfolio's downside risk, especially for investors who are nearing retirement, and at the same time look for growth potential. U.S. stock and bond markets have risen in value significantly over the past seven years and, while growth has slowed, U.S. equity markets recently touched all-time highs. Investors who are transitioning into retirement don't have the time to recover from a prolonged dip in the market. Traditional asset allocation is one way to limit risk. A slightly different approach combines diversification with lower-volatility investments, creating a floor for a portfolio. Purchasing insurance products, such as annuities, can bolster the defense. In this wide-ranging conversation, Rob Williams shares details on how investors can reduce their downside risk.

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Rob Williams focuses on fixed income and income-planning issues, including key topics of interest to individual investors seeking to increase income from their portfolios. Williams also provides analysis of bonds, fixed income strategies, and other income-oriented issues.

This white paper is part of a continuing series of timely and actionable Investing Ideas provided by the experts at Schwab Center for Financial Research (SCFR). The guidance provided through Investing Ideas will rotate over time as market conditions change and as SCFR's point of view evolves.

### Executive Summary

- Downside risk is critical to investing, especially for investors between ages 55–70 who may be nearing retirement and may not have 20-plus years to recoup potential losses.
- The best time to buy income protection is when volatility is low and markets are high.
- Once the downside protection is in place, you can take risk for growth potential.

## Could you describe this idea?

U.S. stock and bond markets have risen in value significantly since the 2008 recession. We believe the positive trend, for most asset classes, will continue. However, we also expect volatility to increase at times.

The goal is to reduce volatility on the downside for money that's needed for retirement without significantly reducing upside. How can you do this at a reasonable cost?

When select markets perform well for a sustained period, it is a good time to consider downside risk and focus on protecting the downside of your portfolio. This may allow you to take risk more comfortably in the rest of your portfolio.

One way to limit risk is through traditional asset allocation. We propose a slightly different approach, where you think about diversification, but also use lower volatility investments or investments with protections to create a “floor” under your portfolio. Using certain types of insurance products, such as “hedges,” or “risk pooling,” could add protection to portfolios. This is particularly true for investors who are nearing or in retirement.

## Who would benefit most from this idea?

The idea is relevant for all investors, but it is most relevant for investors who are in pre-retirement (ages 55–70) or are receiving distribution from their retirement portfolio. If you have a longer time horizon, aren't at or nearing the point where you need money from your portfolio soon, or have a higher risk capacity and risk tolerance, you may still want to review your asset allocation and investments. But the risk of volatility or watching your downside may be less relevant because you still have time to manage volatility and potentially recover. You may be more focused on growth rather than downside protection or risk management.

## Can you explain why the idea is particularly relevant now?

At Charles Schwab, we are generally bullish on the current cycle for U.S. equities, and for a well-diversified portfolio invested for the long term. However, a few factors are worth considering for those with less stomach for volatility or a desire to take advantage of recent gains to build in downside protection:

- The Standard & Poor's 500 Index is up over 242% (over 18% annualized) since the market bottom in March 2009.
- Yields in all fixed income sectors are close to record lows, limiting potential for capital appreciation and income generation in bonds. The U.S. Federal Reserve's quantitative easing (QE) program ended in October 2014, and the Fed increased the federal funds rate for the first time in 2015 since lowering it to zero in December 2008
- More Americans are nearing the point where accumulation is not the only objective for investments. Protecting parts of the portfolio to prepare for distribution, while not giving up potential for growth, are important considerations for the transition to, and life in, retirement.

### S&P 500® returns



Source: Schwab Center for Financial Research. The bolded numbers show annual total return for the S&P 500 Index.

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By many measures,  
sentiment has  
improved, but risks  
remain.

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Britain's recent "Brexit" vote, negative interest rates in many developed countries, and uncertainty about global growth have led to sharp market dips and rebounds, increasing risk in our view.

We expect the possibility of increased volatility, at times, in many markets as the Fed shifts U.S. monetary policy and headwinds from Europe and global markets continue. A focus on risk capacity—timing for when investors need to tap assets—and/or strategies to manage volatility are warranted.

## Why is market risk particularly important for clients nearing retirement?

When saving for retirement, time is on your side. If you save regularly, a falling market helps, provided your portfolio has time to recover. You purchase more shares with the same dollar amount and the share prices will likely eventually rise. Dollar-cost-averaging generally works over time. There's also time to potentially recover from a down market. Over the past five decades, it took the S&P 500 an average of just over three years to recover from a downturn. Even in the 2000–2002 and 2008 downturns, markets recovered, as did investors who were diversified and stayed on course.

Average time to recovery for the S&P 500

Period	Peak-to-trough decline of the S&P 500	Recovery date	Time to recovery
February 1966 to October 1966	−22%	May 1967	1 year 3 months
November 1968 to May 1970	−36%	March 1972	3 years 6 months
January 1973 to October 1974	−48%	July 1980	7 years 7 months
November 1980 to August 1982	−27%	November 1982	2 years
August 1987 to December 1987	−34%	July 1989	1 year 11 months
July 1990 to October 1990	−20%	February 1991	7 months
March 2000 to October 2002	−49%	June 2007	7 years 3 months
October 2007 to March 2009	−57%	March 2013	5 years 5 months
Average	−34%		3 years 2 months

Source: Schwab Center for Financial Research with data provided by Bloomberg. The periods show where the S&P 500 fell 20% or more over a period of at least three months. The time to recovery is the amount of time it took the S&P 500 index to rise to its prior peak after it fell 20% or more over at least three months. **Past performance does not guarantee future results.**

Withdrawals from a portfolio—or the possibility of the need to take returns out of a portfolio soon—have the opposite effect. To withdraw money from a portfolio in a down market, or change course because of a correction, is dollar-cost-averaging backward. You sell more shares to support spending, and have fewer left to potentially recover.

## Is this what people call sequence of returns risk? If so, can you explain why it's important?

Yes, sequence of returns risk is the risk that markets don't perform well when you are taking withdrawals from your portfolio. A period of sharply negative returns in your portfolio can have a more negative effect on your portfolio when you begin to take withdrawals. This is a critical—and increasingly discussed—issue to consider when managing portfolios. Modern Portfolio Theory (MPT) and other strategies that work well when saving and accumulating don't work as well when taking cash from portfolios.

The table on the next page illustrates what is meant by sequence of returns risk. As a hypothetical example, the left-side illustration—"no withdrawals"—in the table on the next page shows a portfolio with no additions or withdrawals, starting with \$1 million in portfolio value, for 20 years. In the "poor early years" scenario, the portfolio returns -15% each year for three years in a row at the beginning of the 2-year period, and then returns 10% per year each year thereafter. In the "poor later years" scenario, the portfolio starts with the same amount, but returns 10% per year in the first 17 years of the 20-year period, and then returns -15% each year in the last three years of the 20-year period. The average annual return for both "poor early" and "poor later" portfolios is the same. The ending balances in both scenarios are also the same.

The story changes significantly if withdrawals are taken from the portfolio. The right-side illustration—"annual withdrawals"—shows the impact of a \$50,000 (5% of the initial portfolio) withdrawal, increased every year thereafter by 2%, to increase withdrawals with inflation. The ending balance in the "poor early years" and "poor late years" portfolio are significantly different. Both portfolios experience the same average annual returns over the time period. Both take the same withdrawals. The "poor early years" example runs out of money in year 18. The "poor later years" portfolio ends with over \$1,300,000—more than it started with. The impact of poor early years, in other words, is significant.

The impact of sequence of return risks on withdrawals

This chart shows sequence of returns risk on a hypothetical portfolio with a starting value of \$1 million.

Year	Withdrawal (\$)	Poor Early Years		Poor Late Years	
		Return	Ending Portfolio Balance	Return	Ending Portfolio Balance
0			\$1,000,000		\$1,000,000
1	\$50,000	-15%	807,500	10%	1,045,000
2	51,250	-15%	642,813	10%	1,093,125
3	52,531	-15%	501,739	10%	1,144,653
4	53,845	10%	492,684	10%	1,199,889
5	55,191	10%	481,243	10%	1,259,169
6	56,570	10%	467,139	10%	1,322,858
7	57,985	10%	450,070	10%	1,391,361
8	59,434	10%	429,700	10%	1,465,119
9	60,920	10%	405,657	10%	1,544,619
10	62,443	10%	377,536	10%	1,630,393
11	64,004	10%	344,885	10%	1,723,028
12	65,604	10%	307,208	10%	1,823,166
13	67,244	10%	263,960	10%	1,931,514
14	68,926	10%	214,538	10%	2,048,847
15	70,649	10%	158,278	10%	2,176,018
16	72,415	10%	94,450	10%	2,313,964
17	74,225	10%	22,247	10%	2,463,712
18	76,081	10%	59,217	-15%	2,029,487
19	77,983	10%	150,920	-15%	1,658,778
20	\$79,933	10%	(\$253,938)	-15%	\$1,342,019
Avg.		5.8%		5.8%	

Source: Schwab Center for Financial Research.

Loss aversion is also generally higher as you near your objective. The stakes, simply, are higher. A study from economists Amos Tversky and Daniel Kahneman found that the average investors fear losses two times more than they appreciate gains. In short, losses hurt more than it feels good to gain. Other studies, however, from AARP and others find that retirees are five times more averse to losses than gains. The stakes—emotionally and quantitatively—are higher.

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Investors can consider other strategies to manage downside risk, especially if time horizon and the ability to weather market volatility are major concerns.

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The stakes are also higher if you bail out of a well-laid plan because of an unanticipated market crisis. Think 2008. Investors with protections may have felt more comfortable sticking with their investment plan compared with those who did not have protections. The drop in markets in 2008–2009 was painful. But investors who abandoned their investments at market lows and didn't hold the investments when they recovered likely took the biggest hit.

Our research argues that this period—the years just prior to and early in retirement—is when asset allocation and risk management are most important. At this point, retirement portfolios must not only grow, but also be available to fund withdrawals to support spending. You can seek to manage these risks on your own or you can add protections.

## What steps can Schwab clients take to lessen the impact of volatility and sequence of returns and “watch their downside”?

Asset allocation is the most traditional approach to managing investment risk. Modern Portfolio Theory (MPT)—pioneered by Harry Markowitz with the publication of a seminal paper in 1952 and popularized by others, and the foundation of most attempts to balance potential risk and reward in portfolios today—suggests risk management through diversification. When one investment moves down in value, the intent is that others will move up, or stay stable, reducing risk in portfolios. This strategy has worked well, over time, and is the foundation of most portfolio management.

However, correlation of most asset classes often rises, in particular during periods of market stress. In 2008 and early 2009, for example, most asset classes fell in tandem. Among the few negatively correlated investments were long-term U.S. Treasury bonds, which can be quite volatile on their own, and cash investments. Investors can consider other strategies to manage downside risk, especially if time horizon and the ability to weather market volatility are

major concerns—as they should be for most investors nearing the point where they will draw from their portfolios.

## Can you discuss strategies to manage this risk?

One approach is to use protective option strategies and other hedging strategies. This can be expensive and complex, however, to apply and manage. Since early 2012, annual volatility has been averaging below its long-term average in the U.S. equity markets, as measured by the CBOE Volatility Index (VIX).

### CBOE VIX Index



Source: Bloomberg

However, even during periods of low volatility, put options on individual equity positions or broad-market indices can be expensive, especially over longer time periods. Traditional insurance products are another alternative.

## Describe how insurance might help in more detail, please?

Investments or products with insurance features can add protections.

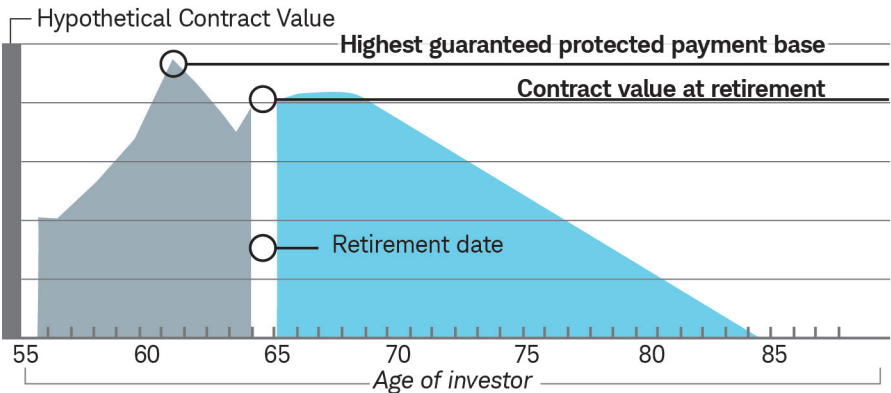
“Insurance” in more general terms could include over-the-counter or exchange traded options, long-term Treasuries or cash. It can also include true insurance products (e.g., annuities or other products that combine investments with insurance features). You may not ultimately end up needing insurance.

But if downside risk is critical to the health of your portfolio—and financial plans—as it is for savers nearing retirement, there are situations under which insurance strategies make sense.

For investors nearing retirement, living benefit riders (e.g., guaranteed lifetime withdrawal benefits, or GLWBs) in variable annuities are one example of insurance protection added to traditional investments that provides protection for future income payments. Living benefit riders also provide protection, for an annual fee, if you need and want to stay invested in the market for growth potential and to keep up with inflation but may not do so as comfortably without some form of protection.

A GLWB rider for a variable annuity can be thought of as adding insurance to a portfolio of investments. The rider helps investors to pool risk with other investors and transfer some of the risk to an insurance company in exchange for the annual rider cost, e.g., 0.6% base annuity fee and between 0.8% (individual life) and 1.0% (joint life) for the GLWB rider for a representative solution on the Schwab platform.

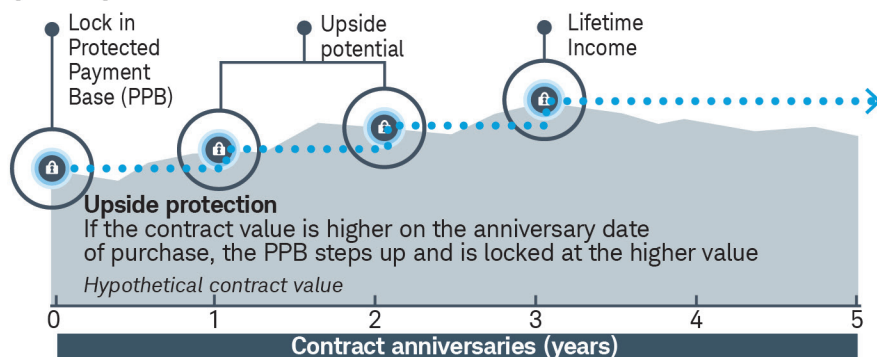
The illustration shows how GLWB riders work on portfolios of funds held in a variable annuity, represented by the contract value. The contract value is equal to the value of the investments held in the annuity.



Source: Schwab Center for Financial Research.

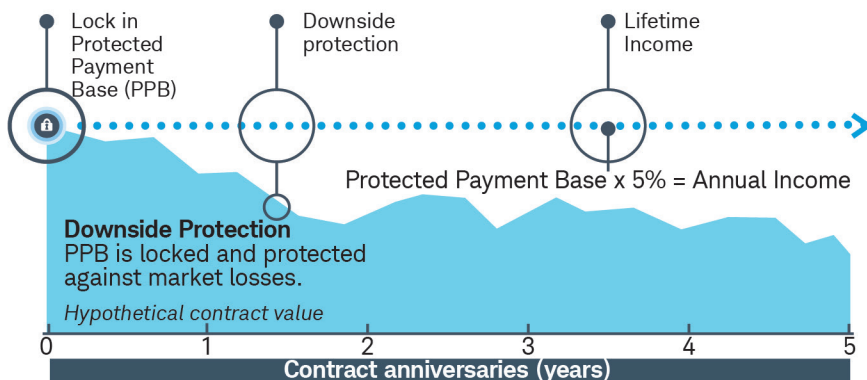
The investor holds underlying investment options, called subaccounts. The optional GLWB rider adds protection, guaranteeing a minimum level of annual withdrawals for life based on the protected payment base (PPB). If the value of the investments falls, the PPB is locked in at a high-water mark, determined (typically) on an annual anniversary date. If the value of the investment rises, the locked-in payment base can rise but cannot fall.

## Upside potential...



Source: Schwab Center for Financial Research. Details will vary, depending on the product selected, so be sure to understand the details of the specific product before investing. Withdrawals prior to age 59½ may be subject to a 10% federal tax penalty. Withdrawals prior to age 59½ will reduce the Protected Payment Base and future withdrawals.

## ...with downside protection for income in down markets



Source: Schwab Center for Financial Research. Details will vary, depending on the product selected, so be sure to understand the details of the specific product before investing.

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If the market falls, the owner of a living benefit rider has protection for future income, rather than having to rely on markets only.

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When the investor chooses to begin withdrawals, the guaranteed withdrawal amount is based on a percentage of a guaranteed protected payment base (to typically 4.5%–5%).

The annual withdrawals are paid for life, as long as the rider is in place, even if the contract value falls to zero. It is important to note that the protected payment base under the GLWB is not a contract value and cannot be withdrawn like a cash value. Your actual contract value will deplete with each withdrawal, though payments will continue for life even if the contract becomes fully depleted. Purchasers retain access to any remaining contract value and can take a lump sum withdrawal, at their option (tax penalties may apply prior to age 59½ and excess withdrawals will reduce future income). Like traditional insurance, there is an annual fee for the protection. Also, you may not end up needing the protection. But if the market falls, the owner has protection for future income, rather than having to rely on markets only.

If the value of the assets rises and the contract value is equal to or exceeds the protected payment base, under more permissive contracts, the purchaser may have an option to cancel and cash out of the annuity as he or she enters or moves through retirement. If the value of the assets falls, the purchaser has a value income stream—and benefited from income protection. If the contract value is equal to or close to the protected benefit base, you may choose to cancel the rider. You can cash out contract value and cancel the rider, depending on the contract. Be sure to ask about the details when considering specific products or contracts.

Fixed immediate annuities (also known as single premium immediate annuities, or SPIAs) mitigate investment risk for the purpose of generating future income by transferring the risk entirely to an insurer. In exchange, you may receive higher guaranteed income initially than you would from a variable annuity with GLWB. But you also give up access to your contract value, and, generally, unless you purchase a fixed immediate annuity with a cost of living adjustment, the potential for income to grow.

## Annuities have a bad reputation for some investors. Why would we suggest them?

Annuities won't make sense for everyone. But they are, in our view, worth considering as one form of protection. A negative reputation and high fees are reasons annuities won't make sense for everyone.

If you discuss annuities with an advisor, ask these two questions: How is the advisor compensated and how should the annuity fit into and support the rest of your plan? These factors are important before considering whether annuities add needed protection. They are most useful as a tool to add what most investments don't—insurance to help manage market risk, for the purpose of delivering future income.

Annuities are tools, and are best viewed as such. Some tools do things that others do not. Variable annuities with GLWBs combine insurance with investments, generally to provide downside protection. Whether they make sense for you will depend on how comfortable, and able, you are at managing these risks without insurance.

## How much does protection cost in the current markets?

As mentioned earlier, for protection of the value of an investment, you could use protective option strategies. One example is a protective long put option, where you purchase a put option for a specified expiration date and exercise price. A protective put can help protect a substantial portion of the value of your investment if the market falls.

In a well-diversified equity portfolio that closely approximates the securities in a broad based market index (let's call it XYZ), an example would be the purchase of an XYZ put option with an expiration date approximately 1 year in the future and a strike price close to or at the current index level. Consider the price of an exchange traded put option on the XYZ index on July 6, 2016 expiring 1 year later. If the strike price was 2100 (notional value \$210,000), and the current XYZ Index level was 2098, it would be very realistic that the price of the option was approximately \$159.00.

Since standard exchange traded options have a multiplier of 100, for \$15,900 (excluding commission charges), you could provide substantial protection to a \$210,000 equity portfolio that approximates the XYZ Index. The cost to do so is approximately 7.6% of the value of your investment (\$15,900 divided by \$210,000).

It may be helpful to understand how a protective put option works, to understand the comparison. The price of the put option will generally move in the opposite direction of the underlying index: As the index price rises, the value of the put generally will decline, so that, at expiration, if the index is higher than 2100, the put will expire worthless. You would then have to decide whether you'd like to purchase another option, with a new expiration date. Alternatively, should the value of the index fall below the strike price, the put may either be sold or exercised. In our example, we're using an index option.

Exercise of the option would result in a cash transaction. If you use put options overlying individual securities, you will have the opportunity to exercise by selling the securities for the strike prices of the put options used. In this case, you should consider that you may need to re-invest proceeds of the securities sold, which would incur additional commission costs and could result in reinvestment at a higher price.

Depending on the price paid for the put and the amount by which the underlying index or stock falls below the strike price, losses at expiration should be offset by gains in the put price (less commissions and the cost of the option). Remember also that purchasing, selling, and exercising options, involve commissions. These commissions, combined with the cost of protective puts, will all raise your breakeven prices for underlying securities. You might consider the purchase of a protective put over a one-year time horizon to be expensive. This approach may also be difficult to implement if you have a more complicated portfolio.

Let's compare this to a GLWB rider in a variable annuity, for the purpose of protecting future income, if future income is the main objective for your investments. The GLWB rider may be useful, depending on the contract, if your goal is to protect future income from a bear market.

To do this, you use a variable annuity to invest in a mix of stocks and bonds held in a variable annuity with a living benefit insurance rider. But it's helpful to look at the cost, if you want protection.

The cost of such a variable annuity and rider varies widely based on product and contract. Some may cost 3% or more, with all fees included. A lower-cost contract might cost between 1.4% and 2.0%. This includes a base annuity fee and typically 0.8% or more for the GLWB rider. There will be underlying investment expenses also, though purchased mutual funds or individual investments include an investment expense also, so we don't include that

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Insurance and protective investment strategies are designed to protect against the events that may not be expected but are possible.

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expense in order to price the cost of insurance only. This compares to the 7.2% for the protective index put option strategy example described above.

There are important differences between the put option strategy and GLWB insurance rider. The put option strategy protects the value of the investment portfolio. The GLWB protects a minimum amount of future annual income. The rider guarantees that that income is based on the value of your original investment, and no less, if the market falls, or at higher value one-year from the purchase of the contract if the market rises, and at every one year anniversary date (typically) thereafter. The protection continues for as long as you own the rider.

It's worth considering the cost relative to other choices, if—it's important to note, again—your primary goal is to protect future income. In this case, if your primary objective is to deliver future income, the GLWB may be less expensive than a protective put option strategy is to protect the value of your portfolio.

## What other actions could an investor consider?

Insurance is one choice, but there are other strategies that investors can consider to manage downside risk. Traditional asset allocation is one strategy. Adding lower volatility assets, subject to the investor's personal needs, rather than a generic asset allocation model, is another.

In other words, focus on personal "risk capacity," not just risk tolerance. Determine how much money you might need from your portfolio in the near term. Whatever that amount may be, allocate that sum to lower-risk, lower-volatility investments. Then, invest the rest based on your risk tolerance.

### Here is an example:

Fred and Nancy, age 65 and 63, are preparing for retirement. Fred and Nancy have \$1 million in investable assets for retirement. They need \$50,000 a year

from their investments. They expect to receive \$25,000 per year from Social Security. A representative could suggest two to four years of assets dedicated to more stable investments—short-term bonds and cash investments—before taking on more investment risk.

Fred and Nancy discuss with their financial consultant a desire for having \$150,000 in cash investments and either individual CDs or bonds or short-term bond funds. This leaves \$850,000 for other investments. After considering the reserve for liquidity and short-term needs, the portfolio might look like this:

Investment	Amount (\$)	Amount (%)
Cash	\$50,000	<div></div> 5%
Short-term bonds	\$100,000	<div></div> 10%
Intermediate-term bonds	\$200,000	<div></div> 20%
High-yield bonds	\$50,000	<div></div> 5%
U.S. stocks	\$450,000	<div></div> 45%
International stocks	\$150,000	<div></div> 15%
Total	\$1,000,000	<div></div> 100%

This portfolio is roughly equivalent to a traditional 60/40 (moderate) portfolio, but with a financial consultant-led discussion based on objectives in the short and long term first, to make sure you have money when you need it, rather than focusing only on the more emotional factors that apply when you consider your risk tolerance.

## How do low interest rates factor into downside protection?

One of the most frequent questions we have been asked over the past several years is, “Why would I include cash investments or short-term bonds in a portfolio with rates so low?” Cash and short-term investments are a cushion for liquidity, not just a diversifier for a portfolio.

Cash and short-term bond funds or bond ladders are investments and strategies to manage investments, but they are also planning and risk-management tools. This is a shift in language that is not always appreciated by individual investors—and therefore, a timely and compelling story for Schwab clients.

Short-term bonds and cash provide liquidity and help manage interest rate risk, while intermediate-term bonds and non-traditional bonds (e.g., high-yield bonds, emerging market bonds, non-U.S. international developed bonds) serve different roles not just for diversification, but also for liquidity and/or income over a known time horizon. Liquidity is especially important to fund spending or emergencies, and to allow a higher level of risk-taking, potentially, in the rest of the portfolio intended for the longer term.

The idea isn't to reduce your upside potential. It's to provide a floor to manage volatility or cash flows in the short term. That then allows you to take an appropriate level of risk in the rest of your portfolio.

## What are the risks involved with this investing idea?

One risk is the possibility that you may not need protections. If investments in your portfolio continue to rise, continuing the trend of performance without heightened volatility or dips in value, then riskier (higher beta) assets will typically outperform strategies that include insurance or that include lower-volatility assets.

The classic wager from Pascal comes to mind, however, when considering the upside, and downside, here: “If we take risks that exceed our capacity to manage them, is getting all of the upside with the risk that comes if we end up being right as impactful as the implications if we are wrong?” Investing isn’t auto racing. If you have a limited time horizon, you want to stay on the track and keep moving steadily in the direction you want to go. But also watch your downside. Few people who purchase insurance expect to need it. But it may add comfort and help pool and protect against risks that are difficult or expensive to manage otherwise.

If markets continue to perform well, there is often a cost to “downside protection” in fees for insurance products or lost opportunity. But insurance and protective investment strategies are designed to protect against the events that may not be expected but are possible. For these risks, it makes sense—under any conditions—to watch and consider your downside first. Then invest with more comfort for growth potential.

## Important Disclosures

**Variable annuities are sold by prospectus only. You can request a prospectus by calling 1-888-311-4887 or by visiting [schwab.com/](http://schwab.com/) annuity. Before purchasing a variable annuity, you should carefully read the prospectus and consider the investment objectives and all risks, charges, and expenses associated with the annuity and its investment options.**

Variable annuities are long-term investment vehicles designed for retirement purposes. The value of a variable annuity may be more or less than the premiums paid and it is possible to lose money.

Variable annuities offer tax deferral on potential growth. Withdrawals prior to age 59½, however, may be subject to a 10% Federal tax penalty in addition to applicable income taxes. Variable annuities are also subject to a number of fees including mortality and risk expense charges, administrative fees, premium taxes, investment management fees, and charges for additional optional features. Although there are no surrender charges on the variable annuities offered by Schwab, such charges do apply in the early years of many contracts.

A Guaranteed Lifetime Withdrawal Benefit (GLWB) is an optional rider available for an additional cost. Withdrawals in excess of the specified annual amount may permanently and significantly reduce future income. Certain contracts may limit you to a pre-specified selection of investment options when you elect the GLWB.

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Options carry a high level of risk and are not suitable for all investors. Certain requirements must be met to trade options through Schwab. Please read the Options Disclosure Document titled Characteristics and Risks of Standardized Options before considering any option transaction. Call Schwab at 1-800-435-4000 for a current copy. Supporting documentation for any claims or statistical information is available upon request.

Investing involves risks, including loss of principal. Hedging and protective strategies generally involve additional costs and do not assure a profit or guarantee against loss.

Commissions, taxes and transaction costs are not included in this discussion, but can affect final outcome and should be considered. Please contact a tax advisor for the tax implications involved in these strategies.

All expressions of opinion are subject to change without notice in reaction to shifting market, economic or geopolitical conditions.

Asset allocation strategies do not ensure a profit and do not protect against losses in declining markets. Indices are unmanaged; do not incur management fees, costs, or expenses; and cannot be invested in directly.

Fixed income securities are subject to increased loss of principal during periods of rising interest rates. Fixed income investments are subject to various other risks including changes in credit quality, market valuations, liquidity, prepayments, early redemption, corporate events, tax ramifications and other factors.

High-yield bonds and lower-rated securities are subject to greater credit risk, default risk and liquidity risk.

International investments are subject to additional risks such as currency fluctuation, geopolitical risk and the potential for liquid markets. Examples provided are for illustrative purposes only and not intended to be reflective of results you should expect to attain.

### Index definitions

**The S&P 500 Composite Index is a market capitalization-weighted index of 500 of the most widely held U.S. companies in the industrial, transportation, utility, and financial sectors.**

**The CBOE S&P 500 Volatility Index® (VIX®) is a measure of market expectations of near-term volatility conveyed by S&P 500 stock index option prices.**

The logo for Charles Schwab, featuring the word "charles" in a script font and "SCHWAB" in a bold, sans-serif font, both in white on a blue square background.