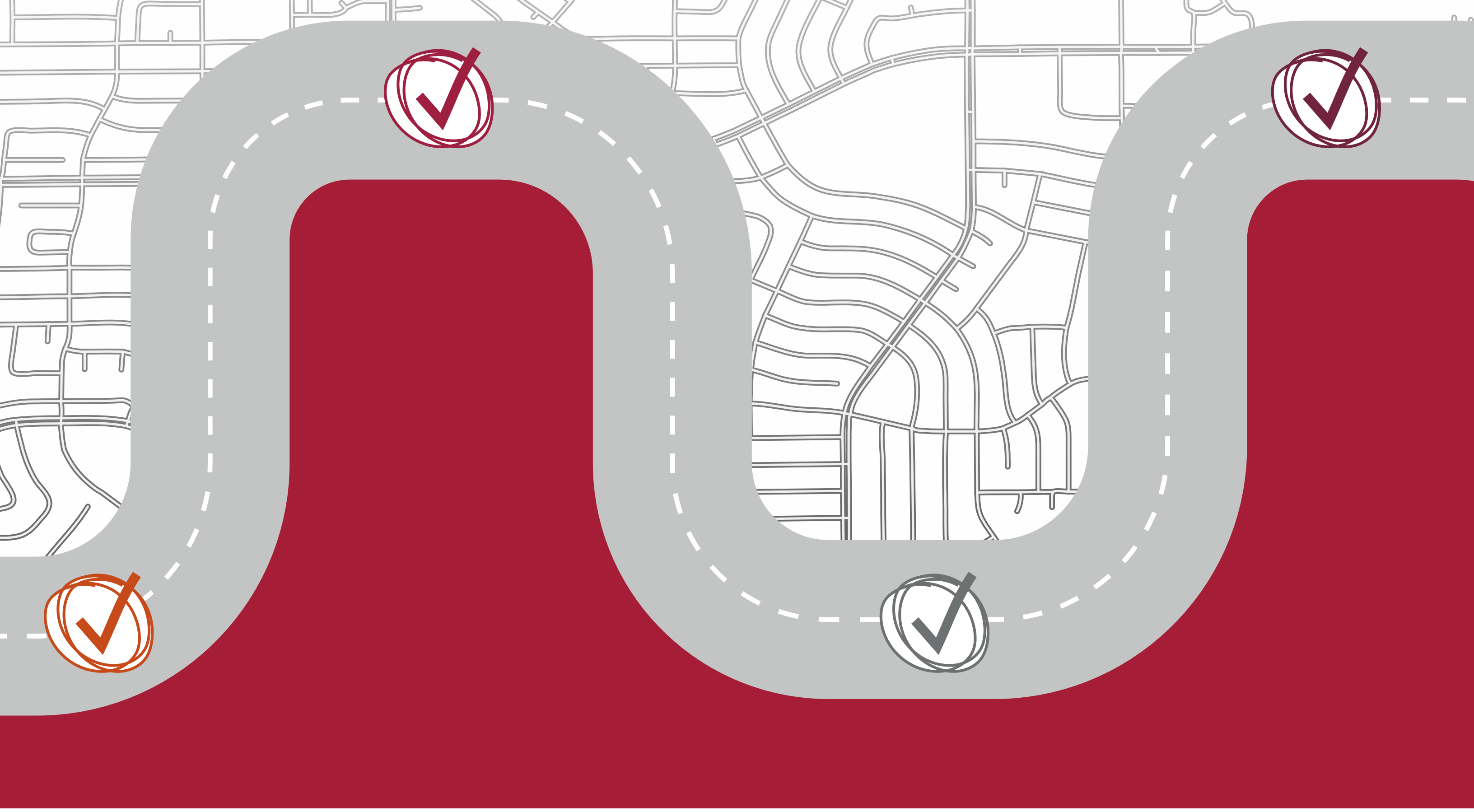
Vanguard's roadmap to financial security:

A framework for decision-making in retirement

Vanguard Research | March 2021



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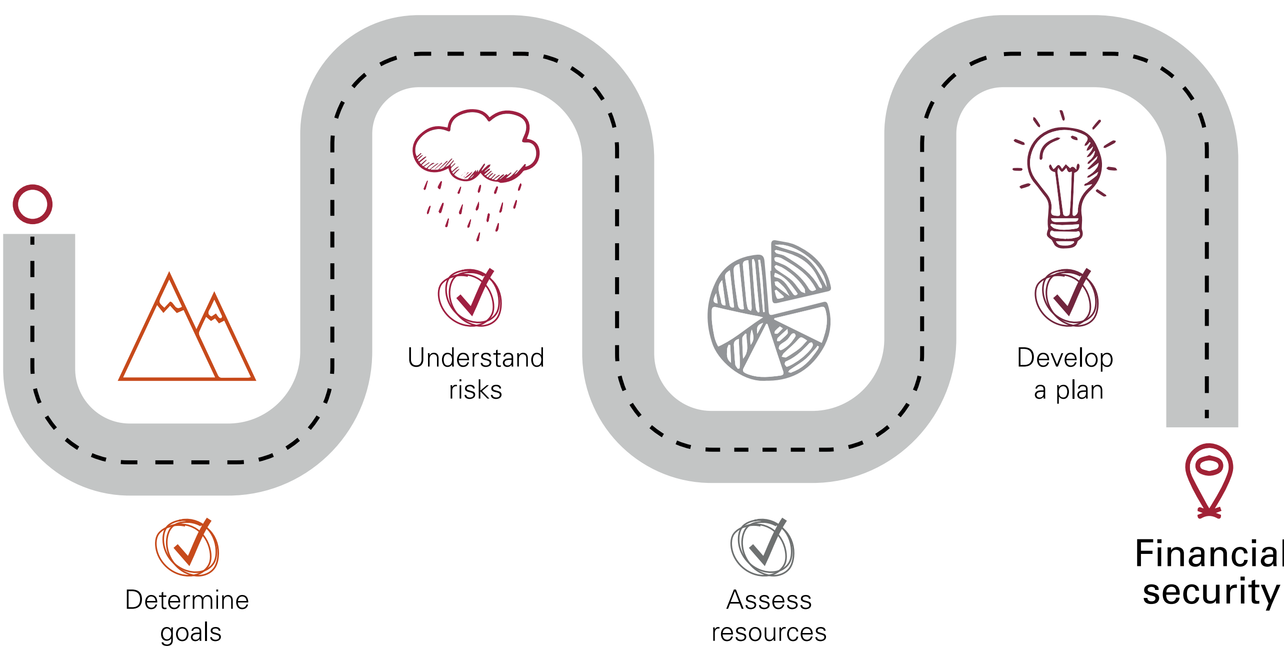
Introduction

Retirement is complex. In the face of often competing goals and numerous risks, the choices can be overwhelming, leaving many retirees unsure of where to begin. To help balance the many decisions to be made, we have constructed a retirement planning framework that allows retirees to capture their unique priorities and use their financial resources in a way that best aligns with achieving their goals and mitigating their risks.

For some retirees, a successful retirement may be defined as continued growth of their asset portfolio. For others, it may mean maintaining a specific level of monthly income. Our framework takes an even broader approach. We base it on the concept of "financial security": the peace of mind that results when retirees feel confident that they will attain all of their financial goals and be able to continue doing so in the future. This framework gives every retiree the opportunity to develop a personalized roadmap (see **Figure 1**) toward financial security.

Figure 1. The roadmap to financial security



Source: Vanguard.

Determine retirement goals

In order to achieve financial security, investors must first establish their retirement goals, which provide a starting point for the planning process. For the purpose of our framework, we identify four goals for retirement:

1. Basic living expenses
2. Contingency reserve
3. Discretionary expenses
4. Legacy

Prioritizing these goals and assigning varying degrees of relative importance to them will put retirees on the road to financial security.

Understand the risks

The next step is to understand and evaluate the potential risks retirees may face. Many of the risks noted in retirement literature can be grouped into five categories: market risk, health risk, longevity and mortality risk, event risk, and tax and policy risk. Individuals will face them in different ways depending on their own unique situations. But addressing them in the context of their potential impact on achieving goals and the resulting implications for allocating financial resources increases the likelihood of a successful retirement.

Assess available financial resources

The role of financial resources in retirement is to help reach the goals that have been set and protect against the risks that could ruin the chances of achieving them. The resources included in our framework are defined benefit pensions, private annuities, asset allocation, spending policy, insurance, work, and housing wealth. Individuals will arrive at retirement with different resources, and some may align better than others with their goals and risk mitigation needs. A thorough assessment of the resources attained or available will ensure the most efficient use of capital.

Develop a plan to achieve goals and mitigate risks

This framework is a powerful tool for understanding retirees' unique priorities and applying their financial resources to best align with their situation. Competing priorities and finite resources require investors and their advisors to assess trade-offs when they arise. Our framework will help retirees understand the choices that need to be made and ensure that their financial decisions will align with what matters most to them.

The sections that follow provide foundational knowledge about the goals, risks, and resources individuals will need in planning for their retirement. This planning framework can be applied regularly throughout retirement and adjusted as needs and circumstances evolve.

Notes: This framework does not directly address the accumulation of assets for retirement. However, setting aside ample savings through a prudent investment strategy is one of the best ways to set a retirement foundation. Specific details regarding tax, regulatory issues, and implementation decisions are not covered here because of the complexities involved at the regional and individual levels. In many cases, financial advice can add significant value by applying local knowledge to an individual situation.

Contents

Notes on risk

All investing is subject to risk, including the possible loss of the money you invest. Past performance is no guarantee of future returns. Investments in bond funds are subject to interest rate, credit, and inflation risk. Diversification does not ensure a profit or protect against a loss in a declining market. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index. Bonds are subject to the risk that an issuer will fail to make payments on time and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. We recommend that you consult a tax or financial advisor about your individual situation. Product guarantees are subject to the claims-paying ability of the issuing insurance company.

IMPORTANT: The projections and other information generated by the Vanguard Capital Markets Model (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from the VCMM are derived from 10,000 simulations for each modeled asset class. Simulations are as of December 2020. Results from the model may vary with each use and over time. For more information, see page 30.

1 Determine retirement goals

Determine retirement goals

To achieve financial security, investors must first establish and prioritize their unique goals for retirement. This provides them with a starting point for the planning process, from which they can then determine the appropriate allocation of resources toward meeting these goals and the potential risks that can derail them.

Although retirement is often thought of as a single goal, we believe in the value of a multi-goal approach. This allows retirees to focus on what is most important to them while also acknowledging trade-offs such as higher discretionary spending early in retirement versus more certainty of meeting goals in later years. Retirement success may look different to each person, but at a high level, most investors share several common goals. We have grouped them, along with associated expenses, as follows:

Less — Ability to take risk — More

1 Basic living expenses

Create a sustainable, base amount of retirement income to cover core nondiscretionary, recurring living expenses, such as:

- Food, housing, clothing, utilities, and transportation
- Recurring health care expenses such as insurance premiums, deductibles, prescription drugs, wellness exams, and other predictable costs

2 Contingency reserve

Maintain a sufficient liquid reserve to address surprise events, such as:

- Extraordinary health care expenses
- Custodial-care expenses
- Unexpected, large, mandatory expenses (such as home repairs)

3 Discretionary spending

Enable a level of spending beyond basic living expenses to maintain a preferred lifestyle, such as:

- Vacations, dining out, and other leisure activities
- Other large, discretionary expenses

4 Legacy

Transfer wealth to heirs or charities

Most retirees should have a clear strategy to meet basic living expenses first and foremost, but after that, each investor may prioritize these goals differently. Our approach encourages them to put their most vital future expenses first and to accept the potential for risk in achieving more aspirational goals. The nature of the goal, the degree of certainty required, and the risk tolerance of the investor will affect how much risk is appropriate to take. Prioritizing the goals that matter most and feeling confident in the ability to meet them will be the primary driver in achieving financial security.

Cash flow goals vs. asset reserve goals

Cash flow goals include basic living and discretionary expenses. They are successfully executed by having a stream of cash flow from various sources including government benefits, annuities, and investment portfolios. The amount and frequency of regular, recurring expenses as compared to less frequent but perhaps larger expenditures should be considered.

Asset reserve goals, such as contingency reserves and legacies, require a pool of assets. Not meant to meet regular spending needs, the pool must have sufficient size and liquidity to cover the potential for very large, less frequent expenses. In many cases, retirees should have a larger reserve than the working population because of their lack of future earnings and the high cost of custodial care and other potential needs.

2 Understand the risks

Once investors have determined their goals, the next step is to understand and evaluate the potential risks they may face. Weighing the possibility and potential impact of each risk will help retirees establish an effective plan to mitigate these risks and keep on track toward financial security.

Retirees face a number of fundamental and personal risks. Past research has discussed them both broadly (Laster, Vrdoljak, and Suri, 2016) and at a more granular level (Pfau, 2012). We've chosen to group them into five categories: market risk, health risk, longevity and mortality risk, event risk, and tax and policy risk (see **Figure 2**). Each has a distinct effect on retirement goals, and the likelihood and level of impact can vary greatly. Investors should identify their personal sensitivity as well as actual exposure to each risk in order to determine the greatest threats to their goals. This will help them to appropriately allocate their resources and put them in the best possible position to meet these goals.

Figure 2. Understand the risks

Source: Vanguard.

Market risk

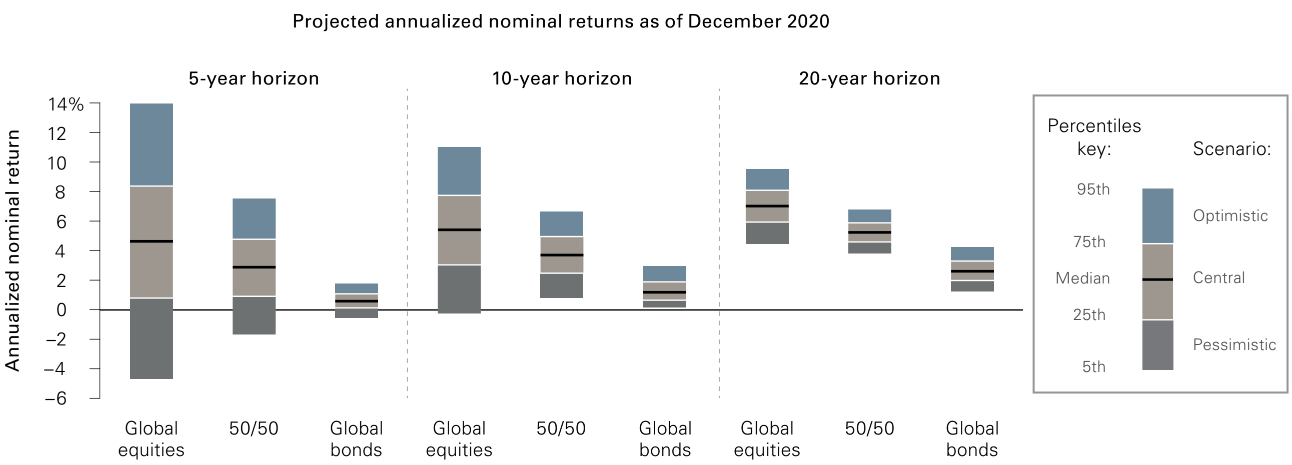
We define market risk as the risk of a loss in a portfolio's purchasing power because of movements in key market variables such as investment returns, inflation, or interest rates. The timing of a market event and the way an individual reacts to it can greatly influence retirement outcomes. A poor reaction can derail a plan. Therefore, investors should focus on the aspects of market risk that can be mitigated through proper investment management, disciplined decision-making, and a long-term outlook.

In most cases, a certain amount of market risk is necessary to meet return objectives and longer-term goals. But balance is needed in targeting higher returns and exposing assets, and ultimately retirement goals, to higher levels of risk. Retirees should identify which goals (such as discretionary spending or legacy as opposed to basic living expenses) may be able to withstand greater levels of market risk.

Market risk has several components:

1. **Investment returns.** Poor investment returns can significantly affect the retiree's ability to meet spending needs, maintain contingency reserve balances, and achieve bequest objectives. A shorter investment horizon can magnify this risk (See **Figure 3**).

Figure 3. Market risk affects near- and long-term objectives



Notes: The figure displays the projected distribution of potential returns over multiple horizons for portfolios of 100% global equities, 100% global bonds, and a 50/50 combination of the two, rebalanced quarterly. The forecast corresponds to the distribution of 10,000 Vanguard Capital Markets Model (VCMM) simulations for annualized nominal returns as of December 2020 in U.S. dollars. Global equities and global bonds represent market-capitalization-weighted broad exposures to these asset classes. Similar exposure can be achieved using the FTSE Global All Cap Index and Bloomberg Barclays Global Aggregate Bond Index as proxies.

Source: Vanguard.

2. **Inflation.** This can erode purchasing power over time, resulting in a lower real portfolio balance than an investor may have planned for.

3. **Interest rates.** In the short term, increases in the level of interest rates can decrease the value of a bond portfolio, which can be problematic for retirees who are spending from their portfolios. Additionally, the costs of retirement income products such as annuities fluctuate with interest rates.

4. **Return volatility.** This is the degree to which returns vary over time. Market swings can be psychologically difficult for investors in retirement. An investor's response to volatility can affect portfolio value over time.

A commonly cited component of market risk in retirement is "sequence-of-return risk." This refers to the potentially damaging effects of poor investment returns early in retirement on the ability to have enough resources later. It is a subcomponent of investment return and return volatility risk, and we will discuss later a number of ways to manage it (see sections on Defined benefit pensions, Private annuities, Asset allocation, and Spending policy).

Health risk

Health risk encompasses both the risk of needing care because of deteriorating health and the risk of not being able to afford it because of a lack of insurance coverage, government benefits, or financial resources. The level of risk can vary depending on genetic and lifestyle factors, the amount of support from government programs, and the availability of employer-provided retiree health benefits or private insurance.

Each individual's health risk falls on a spectrum based on a combination of factors (see **Figure 4**). To understand where they fall on the health risk spectrum, retirees must first determine their personal risk on three levels:

1. **Overall health.** A multidimensional health evaluation includes both physical and cognitive health. Current health can be a valuable starting point in assessing what level and types of care might be needed in the future. Lifestyle and genetics should also be considered.
2. **Available coverage.** Establishing the level of coverage provided by government programs and employer-provided retiree health benefits can help clarify which types and what portion of expenses will have to be paid from other assets or insurance. Certain government programs may provide universal benefits; others depend on an individual's level of assets and income.

   Out-of-pocket health care expenses will typically be a mix of insurance premiums and payments for uninsured expenses. They are paid directly by the retiree and can vary by country and insurance provider. They can be routine or nonroutine and may be related to custodial care.

   Routine expenses:
   - These tend to be relatively stable.
   - They include private insurance premiums and any regular public benefit payments.

   Nonroutine expenses:
   - These are less frequent but are often more costly.
   - They include surgeries or visits to doctors that are not otherwise covered by insurance.

   Custodial-care expenses:
   - These are costs associated with long-term support, commonly referred to as long-term, old-age, or end-of-life care.
   - They can be routine or nonroutine, depending on length of stay and severity of need.
   - They can be substantial out-of-pocket expenses and vary according to the available level of public and private resources.
3. **Level of desired care.** Although public coverage is extensive in some areas, individuals may choose to address some health care needs through private sources. The level of desired care can increase or decrease total health care risk (expense) and the amount of assets needed to address it.

After the above factors have been evaluated, overall health risk can be estimated with greater confidence. The investor can then decide how to cover this risk and optimize potential benefits. Sources can include personal assets in a contingency reserve, public coverage, insurance, or any combination of the three. These resources are explored further in the Resources section of this paper.

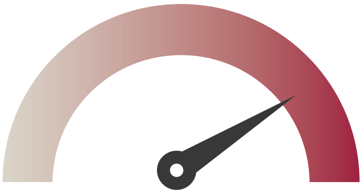
Cognitive decline

The decline of cognitive function with age is a common concern. The probability of dementia or some other form of impairment increases significantly throughout retirement. Studies suggest that about half of individuals in their 80s live with some form of cognitive impairment (Agarwal et al., 2009). The type of decline, as well as the timing, can vary widely, ranging from normal brain aging to dementia. It can derail certain retirement goals, inhibit the use of resources, hurt financial decision-making, and change overall plans. Establishing financial plans in advance of any decline helps ensure the smooth execution of retirement objectives. Products and strategies that provide stable income streams, such as pensions and annuities, can help to address this risk.

Figure 4. Using the health risk framework: A hypothetical example

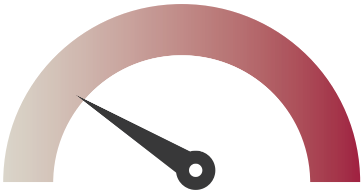
Evaluate overall health

The individual is in good physical health but is experiencing signs of early cognitive decline.



Understand available coverage

The public health care system covers the majority of expenses and provides partial support for custodial care.



Set level of desired care

The individual prefers to use a supplemental private option for certain services and will need to cover the remaining cost of custodial care.

Determine overall health risk and available resources

The individual will need to use public resources, insurance, and personal assets to address this level of risk.

Personal assets	Insurance	Public resources
Routine expenses, including premiums for supplemental private health care options and partial custodial-care insurance	Private health care options and the portion of custodial-care costs not covered by public resources	Health care expenses aside from supplemental private options, and a portion of custodial-care costs

Notes: Spectrums and associated risks vary in weight; not all are equal. This is a hypothetical situation for illustrative purposes only.
Source: Vanguard.

Custodial care

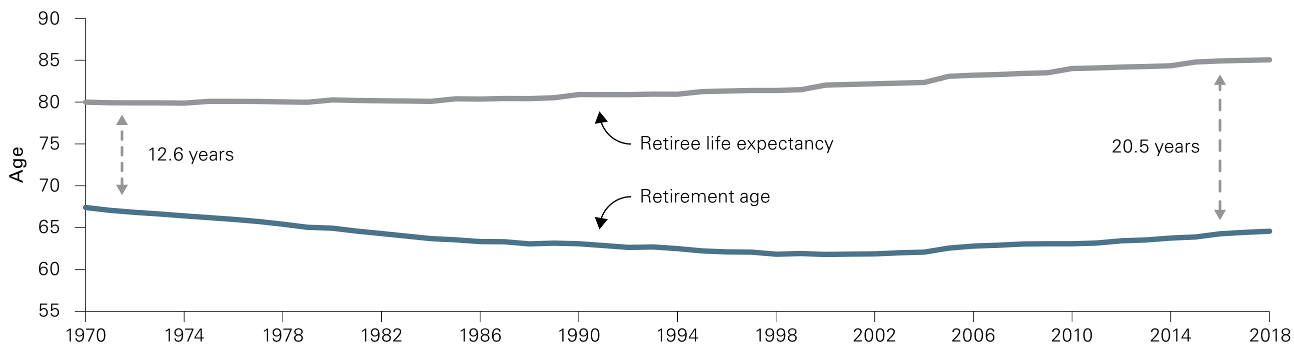
As self-sufficiency declines, whether because of illness, fragility, or cognitive impairment, an extended stay in a custodial-care facility is frequently a part of end-of-life care. This can be one of the largest expenses in retirement, and planning for it is difficult because of uncertainty about how much care will be needed. The total cost is largely determined by the length of time spent in a facility, which can be hard to predict. According to analysis of U.S. data by the Center for Retirement Research, 44% of men and 58% of women will likely use the services of a nursing home. On average, stays are relatively short, but 7% of men and 14% of women will require care of more than three years (Friedberg et al., 2014). Although planning in this area can be a challenge, retirees should know their options if and when the need arises. These include setting aside personal assets (self-insurance), purchasing insurance coverage if a policy is available that meets their needs, or relying on public resources.

Longevity and mortality risk

Longevity risk in retirement is the risk of living longer than planned and potentially outliving one's financial resources. As life expectancies around the world continue to increase (see **Figure 5**), this risk has become larger. Many couples will need financial resources well into their 90s. Although it is difficult to predict any one person's lifespan, in general, planning for beyond one's median life expectancy is prudent.

A number of factors influence longevity. For instance, greater wealth is associated with living longer, whereas smoking and other lifestyle factors are linked to earlier deaths on average. Gender also has an impact; women are likely to live longer than men.

Figure 5. Retirement has been trending longer globally



Note: Data include averages of 28 countries for both genders.
Source: Vanguard calculations, using data from the Organization for Economic Co-operation and Development (OECD).

Mortality risk is the risk associated with having a shorter-than-expected life. This may lead to an unintended bequest or an extended time alone for a surviving spouse or partner. As shown in **Figure 6**, it's typical for both partners in a couple to live until about age 80 and for at least one partner to live to age 89. Although expenses for a one-person household may be lower, income sources can be diminished by the death of a spouse or partner.

By properly managing longevity and mortality risks, retirees can feel more empowered to spend assets set aside for enjoyable discretionary purposes while they are still relatively young and healthy.

Figure 6. Plan beyond the median life expectancy to account for longevity risk

	United States			Canada			United Kingdom			Australia		
Average life expectancy of retirees	Individual	Couple	Surviving partner	Individual	Couple	Surviving partner	Individual	Couple	Surviving partner	Individual	Couple	Surviving partner
25th percentile	77	72	84	79	74	86	78	73	85	80	75	87
Median	**84**	**79**	**90**	**86**	**80**	**91**	**85**	**79**	**89**	**87**	**82**	**91**
75 percentile	91	84	94	92	86	95	90	85	93	92	87	95

Individual Couple Surviving partner

Notes: Life expectancy is for retirees currently age 65. Averages include both genders.
Source: Vanguard calculations, using data from the Human Mortality Database as of February 5, 2021.

Event risk

Event risk can be defined as an unexpected event that has a large financial impact. Among the many surprises that could occur, this risk encompasses those that could derail a retirement plan over the long term (see **Figure 7**).

Figure 7. Plan for the unexpected

Examples of major financial events a retiree may face:

Unplanned family expenses or need for assistance

Extensive home repairs or costs of selling

Other significant expenses

Source: Vanguard.

Event-based expenses in retirement are often unplanned for. Roughly 72% of current retirees report having experienced at least one shock so far in their retirement, according to the *2015 Risks and Process of Retirement Survey* from the Society of Actuaries.

Although it is difficult to anticipate the timing, magnitude, and effect on income of an unexpected financial event, given the high likelihood that one will occur, investors should plan for the necessary liquidity and assets to address this risk.

Tax and policy risk

Tax and policy play a fundamental role in shaping retirement systems around the world. Every region has policies and tax treatments that have ramifications for retirees. These can include rules about public health coverage, public retirement benefits and pensions, taxation of retiree benefits, and estate tax. In many cases, retirement accounts offer tax advantages that provide significantly better outcomes (greater wealth) than other account types.

Although these policies can greatly benefit retirees, they are subject to change and evolve over time. Therefore, it is important to stay focused on controlling what can be controlled and diversifying a portfolio's exposure to different asset classes, accounts, and benefit types. This type of tax planning can be quite complex. Many retirees may greatly benefit from obtaining financial advice when attempting to mitigate this risk and maximize their after-tax returns.

3 Assess available financial resources

The third step in achieving financial security is to assess available resources. Investors approach retirement in a variety of ways, using the resources available to them (Madamba, Utkus, and Ameriks, 2014). Once availability is determined, the use of each resource will then depend on its appropriateness to the specific goal or risk.

In many cases, using one resource to mitigate one risk may actually increase another risk. For example, purchasing an annuity increases income security but decreases liquid reserves in the near term. Because of such potential trade-offs, a good retirement plan will balance its resources and attempt to achieve its highest-priority goals while managing the risks.

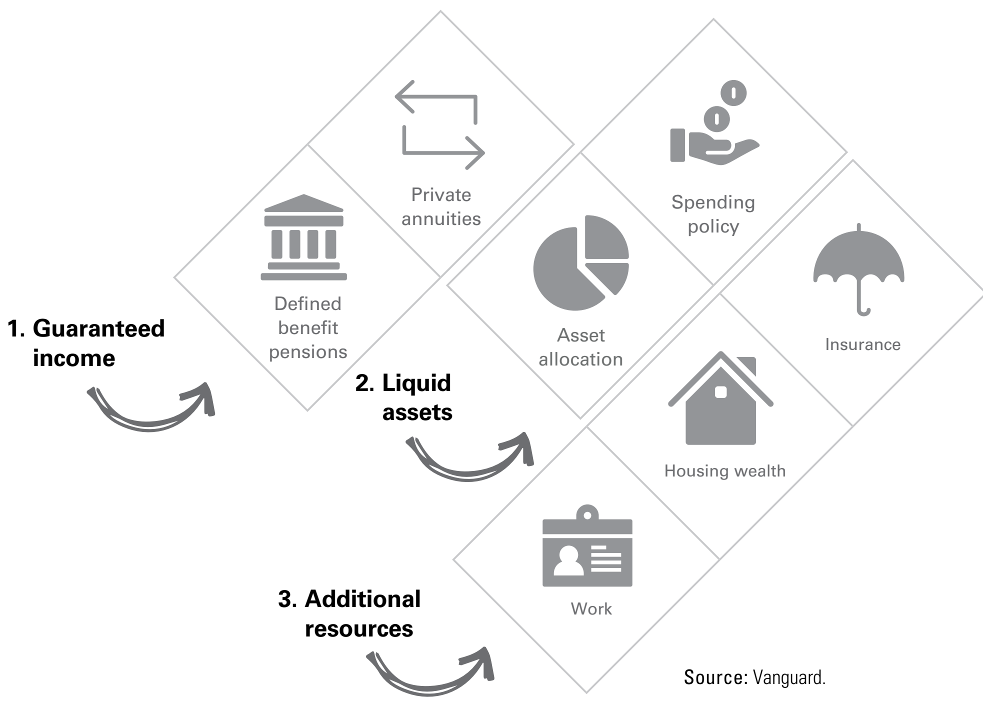
Retirement resources include assets, income, strategies, and products. This section explores seven of them (see Figure 8). Some, such as pensions and some health insurance, may be provided by former employers or through social insurance or government programs. Strategies may involve spending from a liquid savings portfolio or the trade-offs from using such savings to purchase insurance or a guaranteed income stream. Each of these resources can be part of a coherent plan tailored to a retiree's goals, risks, and individual situation.

We group the resources retirees can use into three primary categories:

1. **Guaranteed income.** As a foundation, nearly all retirees will have some form of guaranteed income that includes a government- or employer-provided defined benefit pension. Income annuities also fall into this category.
2. **Liquid assets.** Liquid investment assets include defined contribution assets or any other savings for which the retiree controls the investment decision. Investment strategies are the primary levers that determine the outcomes of these assets. They include asset allocation—how the portfolio is invested, and spending policy—how portfolio assets are converted to income throughout retirement.
3. **Additional resources.** These can supplement guaranteed income and liquid assets. They include insurance, work, and housing wealth.

Although each resource has multiple uses, this section identifies the primary goals and risks that each can be applied to. We also list several key questions to ask when evaluating the use of each resource.

Figure 8. Resources retirees can use to meet goals and mitigate risks



Source: Vanguard.

Defined benefit pensions

Primary goal supported: Basic living expenses
Primary risks mitigated: Market and investment, longevity and mortality

A defined benefit pension is a government or private financial resource with a guaranteed payout that can provide a base level of income to retirees. This can either partially or fully cover basic living expenses. Pensions typically are paid throughout a retiree's lifetime, mitigating the risks associated with longevity. Additionally, they provide generally stable payouts, which can be helpful if retirees are concerned about market and investment risks elsewhere in their portfolios.

To best make use of these pensions, investors should be aware of the rules under which the benefits are provided in order to determine the amount they may receive. From there, they will be able to allocate benefits accordingly. If the amount needed for basic living expenses exceeds the amount of the benefit, the remaining amount will need to be covered by other sources.

Questions to ask include the following:

Government pension

What factors affect the amount of and the strategy for taking this benefit?

- [ ] Marital status
- [ ] Income level
- [ ] Timing
- [ ] Health care coverage
- [ ] Work history
- [ ] Survivor benefits
- [ ] Assets owned

Private pension

- [ ] Is the benefit amount adjusted for inflation?
- [ ] Are there options such as taking a lump sum or annuity?

Government pensions

Some governments pay pensions intended to provide a base level of income in retirement (these include Social Security in the United States, Age Pension in Australia, Old Age Security and the Canadian Pension Plan in Canada, and State Pension in the United Kingdom). These benefits, which often incorporate inflation protection elements and are backed by their governments, represent a core foundation of retirement income for many.

Private annuities

Primary goal supported: Basic living expenses
Primary risks mitigated: Market and investment, longevity and mortality

Income annuities, like defined benefit pensions, can provide a source of stable retirement income to cover basic living expenses and mitigate market and longevity risks (Brown et al., 2001). However, the purchase of income annuities often requires a significant outlay, reducing near-term liquidity and resources that might be needed for contingency reserves. The many types of annuities available offer various features such as survivor benefits or inflation protection; however, these features come at a cost.

To determine whether purchasing an annuity is appropriate, investors should first identify their primary goal in doing so. For example, if the amount of income they will need for basic living expenses is not covered by existing sources of guaranteed income such as government or private pensions, purchasing an annuity to make up the difference could be an effective strategy.

Investors thinking of buying an annuity should consider:

Their personal circumstances

- [ ] What is the primary goal?
- [ ] How much income is needed in retirement?
- [ ] How much of the income need is discretionary and how much is nondiscretionary?
- [ ] What sources of guaranteed income are currently available?
- [ ] Will liquid assets be sufficient to cover other anticipated or emergency expenses?

The product

- [ ] What products are available?
- [ ] What are their key features? Inflation protection? Liquidity benefits?
- [ ] Does the insurance company have a very high credit rating and a strong balance sheet?
- [ ] What are the costs?
- [ ] Is the income payout rate highly competitive?

Asset allocation

Primary goals supported: Contingency reserve, discretionary spending, legacy
Primary risk mitigated: Tax and policy

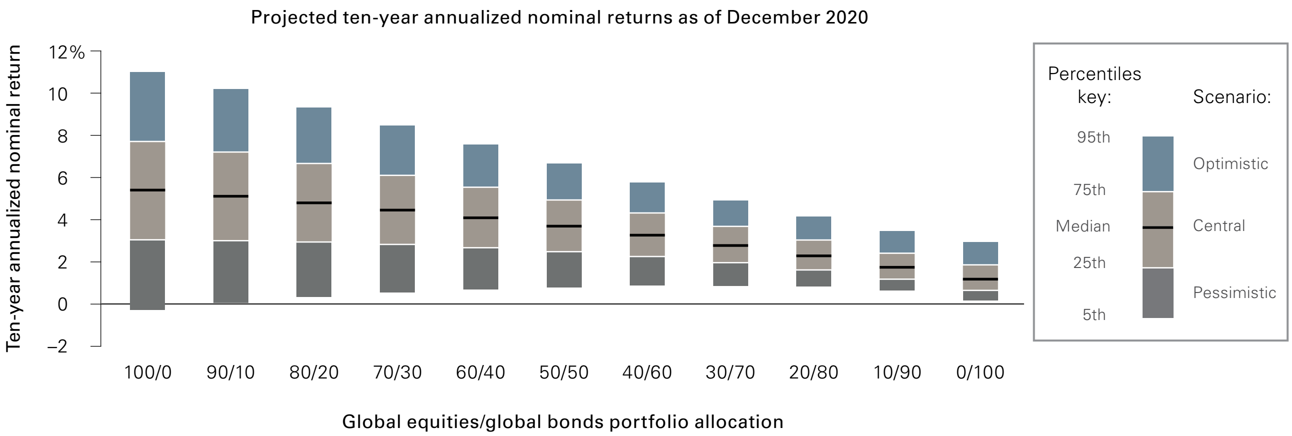
A number of retirement planning decisions relate to the management of the liquid asset portfolio. These assets may be the result of savings accumulated through a defined contribution plan, other savings vehicles, an inheritance, or the sale of a business. Whatever the source of the assets, a successful retirement will depend on appropriate portfolio construction and management decisions.

As demonstrated in a number of studies and confirmed by Scott et al. (2017), investment outcomes are largely determined by the long-term mixture of assets in a portfolio. Therefore, asset allocation is a valuable tool in retirement planning.

Because assets have different rates of return, the asset allocation should align with risk tolerance and the time horizon of goals. It should also be consistent with the other resources used. Asset allocation to maximize legacy wealth, for example, would likely look very different from that designed for a cash flow to cover basic living expenses. Typically, the assets supporting a legacy goal will have a greater capacity for market risk and a higher allocation to equities than those whose purpose is to cover known, recurring expenses.

In an investment portfolio supporting multiple goals with disparate capacities for risk, asset allocation may reflect a blend of objectives. **Figure 9** shows expected return projections for a range of portfolios allocated to global stocks and bonds. Return variability is largely a function of equity risk. Although bonds are associated with lower long-term returns, they may dampen volatility and reduce the risk of loss.

Figure 9. Manage risk appropriately and have reasonable return expectations



Notes: This forecast corresponds to the distribution of 10,000 VCMM simulations for ten-year annualized nominal returns as of December 2020 in U.S. dollars. Global equities and global bonds represent market-capitalization-weighted broad exposures to these asset classes. Similar exposure can be achieved using the FTSE Global All Cap Index and the Bloomberg Barclays Global Aggregate Bond Index as proxies.

Source: Vanguard.

In determining an appropriate asset allocation, seek answers to these questions:

- ☐ What goal(s) is the investment portfolio supporting?
- ☐ What is the time horizon?
- ☐ What is the need, capacity, and tolerance for market risk?
- ☐ How will this asset allocation relate to the other financial resources used?
- ☐ Are there any important tax considerations?

Spending policy

Primary goals supported: Contingency reserve, discretionary spending, legacy
Primary risk mitigated: Tax and policy

Developing and implementing an effective portfolio spending strategy can increase peace of mind and the likelihood of reaching retirement goals.

Four primary levers affect how much a retiree can spend from a portfolio (see **Figure 10** on page 21). These are time horizon, asset allocation, spending flexibility, and degree of desired certainty that the portfolio will not be depleted before the end of the time horizon (Jaconetti et al., 2020).

1. The first lever, time horizon, has a substantial impact. However, it is the one that retirees have the least amount of control over because it is essentially their life expectancy or the length of time they will use their portfolio to meet their spending needs. The longer the retirees' anticipated time horizon, the lower they should consider setting their initial spending rate. Conversely, the shorter the time horizon, the more spending the portfolio will likely be able to sustain.

2. The second lever is asset allocation, or the percentages of the portfolio held in equity and fixed income investments. The more conservative the asset allocation—the higher the percentage held in fixed income investments—the lower the expected return over the time horizon. Therefore, a lower annual spending rate will likely be needed to sustain the portfolio. On the other hand, more aggressive asset allocations will more likely be able to sustain higher spending rates. It is important to keep in mind that the higher the allocation to more aggressive investments, the higher the market risk (as previously discussed).

3. The third lever, spending flexibility, can be defined as the proportion of total expenses that can be attributed to discretionary versus nondiscretionary spending. Simply put, how much does a retiree need to "keep the lights on" after accounting for ongoing income sources such as government pensions or other forms of guaranteed income? Generally speaking, the greater the proportion of expenses that can be eliminated or minimized in any given year, the greater the level of spending flexibility. For example, if leisure and entertainment take up a large portion of each year's expenses, a retiree may be better able to endure a reduction in his or her portfolio-based income.

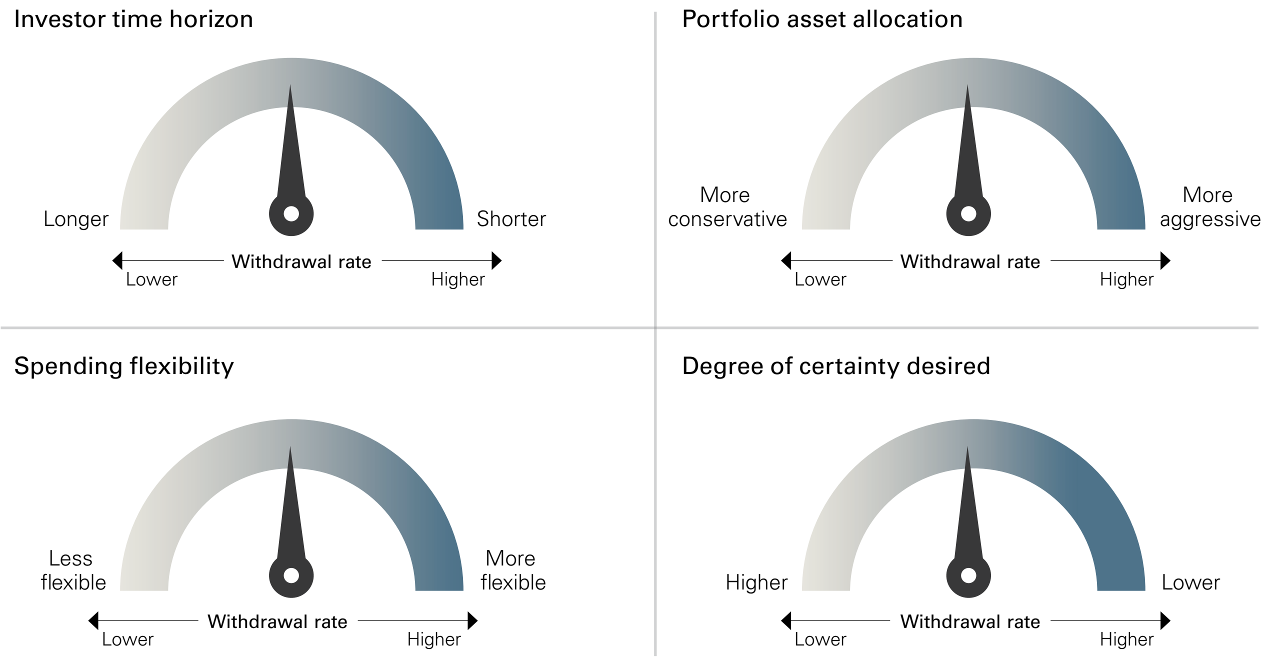
4. The fourth lever, the degree of certainty desired regarding the possibility of prematurely depleting the portfolio, can be defined as the "success rate," or the likelihood that the portfolio will last for the retiree's entire time horizon or life expectancy. The higher the desired degree of certainty, the lower the spending rate.

Tax planning can affect retirement success

Retirement can offer unique challenges and opportunities for tax planning. Savings will often be accumulated in a mix of various taxable and tax-advantaged account types. The order in which they are withdrawn can affect the associated taxes. Some tax-advantaged account types may require distributions throughout retirement.

Developing smart spending strategies can enable greater control of tax costs throughout retirement. Asset location strategies can also add value. Placing assets in account types based on their tax-efficiency can maximize a portfolio's after-tax returns. This can potentially increase the amount of spending the portfolio can support, as well as its longevity (Jaconetti et al., 2020).

Figure 10. Four levers that affect how much to spend from a portfolio



Source: Vanguard.

Questions to help determine an appropriate spending strategy:

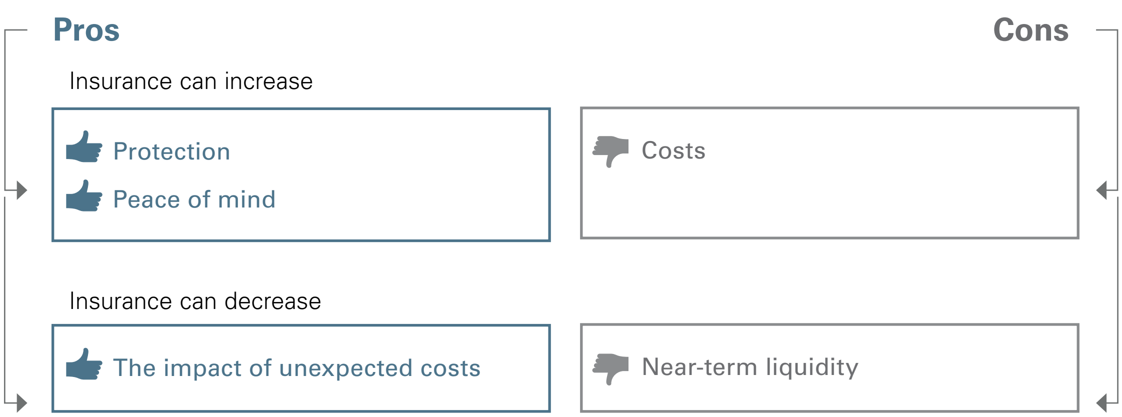
- ☐ How much money is needed from the portfolio?
- ☐ What is the time horizon?
- ☐ What is the portfolio's current asset allocation?
- ☐ What portion of portfolio cash flow is used for nondiscretionary as opposed to discretionary expenses?
- ☐ What is the primary goal of the withdrawal?
- ☐ How stable must income from the portfolio be to meet appropriate goals?

Insurance

Primary goal supported: Contingency reserve
Primary risks mitigated: Health, event

Private insurance can effectively help meet retirement goals and mitigate certain risks. However, because its purchase will reduce the retiree's pool of liquid assets, this trade-off should be thoroughly evaluated (see **Figure 11**).

Figure 11. The trade-offs involved in purchasing insurance



Source: Vanguard.

Government health insurance and benefits can provide a baseline of protection against health risk. Programs offer different levels of support and cover various types of expenses. To determine whether private insurance will also be needed, retirees must understand the types and requirements of government programs available to them.

The three primary types of private insurance used in retirement and requiring the greatest amount of assets and planning are:

Supplemental health insurance. Health risk is one of the largest risks retirees face. The level of health insurance needed can vary greatly by region. For those who have access to public health care, it is also highly dependent on personal preferences for private care. Heath insurance helps cover recurring costs such as doctor's visits and prescription drugs as well as one-time emergency procedures. Longer-term health needs require long-term-care insurance and custodial care.

Long-term-care insurance and custodial care. At some point, as a result of illness, disability, cognitive decline, or simply the realities of reaching an advanced age, many retirees will need access to facilities that provide assistance for daily living. As Allen Hamm argued in the *Journal of Wealth Management* (Hamm, 2009), long-term-care planning should be an essential component of a comprehensive financial and estate plan.

Resources and strategies for covering this expense vary by region. In some areas, long-term-care insurance can address it. However, the costs, availability, and limitation of benefits may make that method less attractive than self-insuring by putting aside a portion of liquid portfolio assets. And individual circumstances such as a preference for private care or the need to preserve assets for a surviving spouse may make insurance more or less of a priority. The decision to purchase long-term-care insurance is highly individualized and should be evaluated against the alternatives of relying on other financial resources or the public system.

Life insurance. Life insurance can be a way to address longevity risk for a surviving spouse or partner. Or it can help investors meet a legacy goal. The decision to use life insurance is highly dependent on personal circumstance; the costs and trade-offs should be thoroughly evaluated.

Determine whether or not using insurance is the right approach for a particular goal or risk:

- [ ] What products are available?
- [ ] What is the risk that the insurance is designed to offset?
- [ ] Is the cost of insurance reasonable and justifiable for the level of protection provided?
- [ ] What other potential trade-offs arise from the use of insurance?
- [ ] Does it make sense to continue existing insurance policies into retirement?
- [ ] Is self-insurance a viable alternative?

Work

Primary goals supported: Basic living expenses, discretionary spending
Primary risk mitigated: Market and investment

The benefits of working past the typical retirement age can be physical and emotional as well as financial (Calvo, 2006). Working longer can increase retirement security, mitigate common risks such as cognitive decline (Rohwedder and Willis, 2010), and help meet a variety of additional goals. It can also enhance the use of other resources (for example, it can delay taking government benefits or depleting financial assets).

The flexibility of this resource makes it attractive to many people. However, they should not depend too much on the availability of work in retirement. Personal or health situations may not allow retirees to work as long as they might like or need to in their desired occupation (Belbase, Sanzenbacher, and Gillis, 2016). They should carefully evaluate the potential trade-offs.

Working is a resource usually used early in retirement, in one of several ways:

1. **Continue working past the typical retirement age.** Working longer will extend the savings horizon and shorten the likely spending horizon, reducing the risk of outliving one's savings. It may also lead to increased pension benefits.
2. **Work part-time.** Easing into retirement by scaling back employment or pursuing part-time work in another field can supplement retirees' income while reducing the stresses associated with full-time employment.
3. **Return to the workforce.** Going back to work after retiring may be financially necessary if plans go off-track. For some, it may simply be desirable.

Understand how continued employment could be a part of the plan:

- [ ] How would a late-stage career change affect retirement planning?
- [ ] Are there physical or practical limitations that could limit continued employment?
- [ ] Are there ways to turn a passion into a paycheck?
- [ ] Are there any other resources that would be positively affected by continued work?

Housing wealth

Primary goal supported: Legacy

Many retirees hold a high proportion of their wealth in home equity. Although traditionally this has been viewed as more of an emergency reserve, as life expectancy rises, some have also begun to use it as a source of retirement income.

Methods of converting housing wealth to income have various costs, tax implications, and associated risks. These are particularly complex for home equity loans, long-term-care bonds, and reverse mortgages.

Many investors and their advisors will need to reconcile these options with their legacy goals. The family home is often the primary bequest asset and is generally valued for both its emotional and financial worth.

Potential ways to use housing wealth in retirement:

1. **Reduced expense from a paid-off home.** Pay off a mortgage to eliminate a monthly payment.
2. **Downsizing.** Sell a home and replace it with one that is more affordable, possibly adding capital to liquid assets.
3. **Home equity loan.** Use home equity as collateral against a loan.
4. **Long-term-care bond.** Use home equity as a bond to pay for long-term-care costs (not available in all regions).
5. **Reverse mortgage.** Draw on home equity through a reverse mortgage line of credit.

Consider how personal circumstances affect how the home can best be used:

- [ ] How important is it to preserve the home for legacy goals?
- [ ] Will a mortgage or home equity loan be paid off prior to entering retirement?
- [ ] Is downsizing a realistic possibility?
- [ ] Can the home be adapted to meet the physical needs of an older retiree?
- [ ] Are there any tax or policy considerations for using the home as a resource in retirement?

4 Develop a plan to achieve goals and mitigate risks

There's no universal formula for building the optimal retirement plan. The right mix of resources should be tailored to each household or individual. It should take into account the relative importance of competing goals and the risks that a retiree may be susceptible or sensitive to. Healthy spouses concerned about outliving their assets may decide to rely more heavily on annuities or work part-time as long as they are able. A wealthy individual motivated to leave a legacy may find it appropriate to concentrate on maximizing the potential of his or her liquid investment portfolio by focusing on asset allocation and spending policy. Others may want to consider the role of family support after they retire.

Figure 12 shows the financial resources described in this paper and how they relate to the goals and risks each helps achieve or mitigate.

Figure 12. Bring it all together

Relative effectiveness: ● High ⊙ Medium ○ Low/not applicable

Goals supported

	Basic living expenses	Contingency reserve	Discretionary spending	Legacy
1. Guaranteed income Pensions/Annuities	●	○	⊙	○
2. Liquid assets Asset allocation/Spending policy	⊙	●	●	●
3. Other resources Life, home, and health insurance	○	●	○	⊙
Work (see Notes below)	●	⊙	●	○
Housing wealth	○	⊙	○	●

Risks mitigated

	Market and investment	Health	Longevity and mortality	Event	Tax and policy
1. Guaranteed income Pensions/Annuities	●	⊙	●	○	○
2. Liquid assets Asset allocation/Spending policy	⊙	⊙	⊙	⊙	●
3. Other resources Life, home, and health insurance	○	●	⊙	●	○
Work	●	⊙	⊙	⊙	○
Housing wealth	○	⊙	○	○	○

Goals:

Basic living expenses: Because of the critical nature of these expenses, highly dependable, inflation-protected resources are preferable.

Contingency reserve: Depending on the individual's risk profile, either insurance or a pool of liquid assets that can act as self-insurance may be appropriate.

Discretionary spending: This type of spending is generally more flexible and thus can tolerate higher degrees of uncertainty. Because it may be constrained by other goals, the objective is best met with adaptable resources.

Legacy: This long-term goal requires assets that can be passed on to heirs or support charitable objectives. Property or liquid assets invested at an appropriate risk level can maximize the value of a bequest.

Risks:

Market and investment: Resources or strategies that can remove or dampen the impact of market volatility are preferable.

Health: Resources such as insurance or self-insurance through other resources that can remove or reduce the impact of health care costs and shocks are best.

Longevity and mortality: Resources to address longevity risk should maintain a consistent, inflation-adjusted payout throughout life with little to no uncertainty. Liquid assets or insurance may offset mortality risk for a surviving partner.

Event: These resources must be reliable and somewhat flexible and liquid. Insurance can also cover this risk.

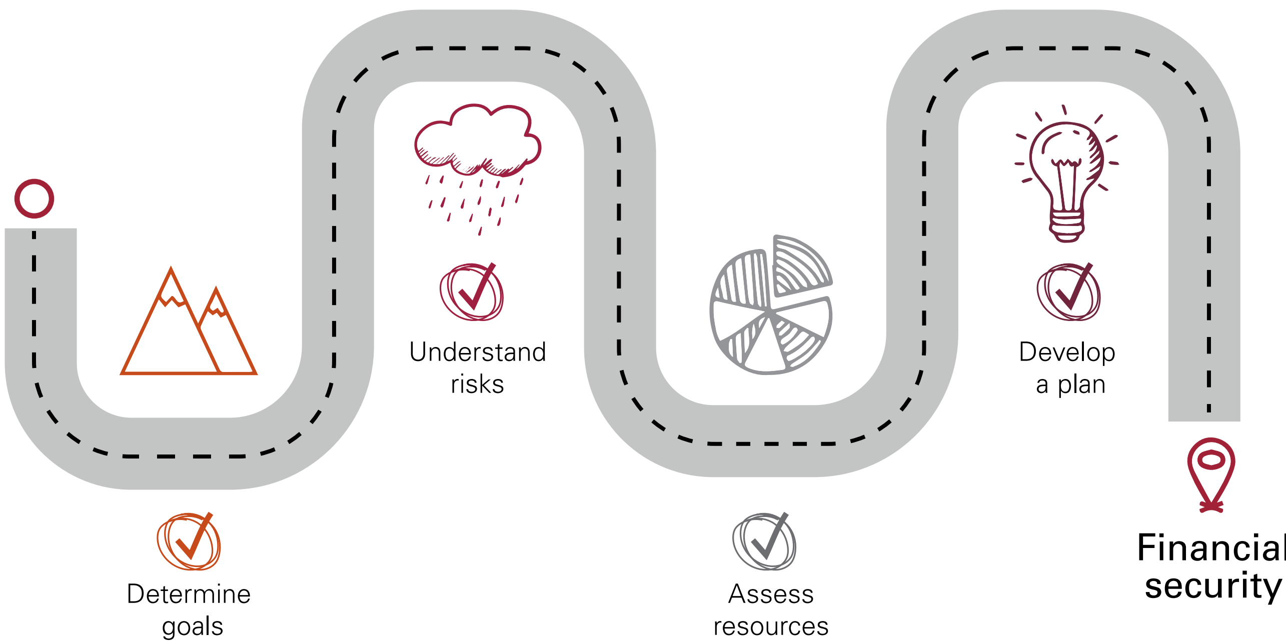
Tax and policy: This risk is best mitigated by resources that have the flexibility to adjust to changing regulatory and tax environments.

Notes: The relative effectiveness of financial resources compares their ability to support a particular goal or mitigate a specific risk and presumes each resource is available (for example "work" assumes the retiree is currently employed). Work is a highly effective resource to meet basic living expenses as long as the individual is willing and able.
Source: Vanguard.

Financial security is central to everyone's retirement, but the strategy most likely to achieve this will depend on each investor's personal circumstances.

Constructing a plan is a necessary component of a successful retirement. Prioritization of goals, evaluation of risks, and an understanding of resources will allow investors to develop a plan. This process, combined with ongoing oversight and evaluation, gives them the best chance to achieve financial security in retirement (see **Figure 13**).

Figure 13. Staying on track provides the best chance of achieving financial security



Source: Vanguard.

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ISGRFS 032021