Financial Planning Perspectives

Break glass in case of emergency: Managing household liquidity

Saving for an emergency can be just as important as investing for long-term goals. A common rule of thumb suggests that households should have three to six months' worth of expenses set aside for a rainy day. In this paper, we'll explore a more nuanced view of emergency savings and household liquidity. By understanding what we're actually saving for when we talk about emergency savings, we can determine how much is appropriate and how maintaining adequate cash and liquidity reserves fits into a broader financial plan to save for long-term goals. For the purposes of this paper, we define liquidity as the ability to convert an investment into cash quickly and cheaply, and we define emergency savings as a combination of cash and liquidity maintenance.

Three key points to consider when saving for emergencies:

- **Understand financial shocks.**
  Not all emergencies are alike. Spending shocks can include unexpected health care costs, home repairs, or other unwelcome expenses. Income shocks, on the other hand, involve the unexpected loss or reduction of employment income. Planning for both types of emergencies is important and requires different strategies.

- **Set aside cash for common spending shocks.**
  While they are unpredictable, spending shocks are likely to occur on a regular basis. Evaluating your risks and setting aside an appropriate amount of cash in accessible accounts can mitigate the potential harm of unanticipated expenses and help you avoid expensive emergency financing.

- **Balance risks and long-term goals to mitigate income shocks.**
  Holding too much in cash can be a drag on a portfolio's ability to meet long-term financial goals. Choosing whether to save for retirement or build up a contingency fund can be challenging. Strategic planning and creative use of flexible account types can help investors maximize investment opportunities while maintaining a prudent level of liquidity.

Understand financial shocks

Building and maintaining an appropriate reserve of cash and liquidity is an exercise in self-insurance. As with any form of insurance, it's important to understand what you're insuring against. While the specifics will be different for each person or household, we can broadly place financial shocks into one of two categories: spending shocks or income shocks.

Spending shocks

Spending shocks can encompass a wide range of costs that share two defining characteristics: They are unplanned for, and they are unwanted. The shock could be anything from a broken air conditioner to a last-minute flight to attend a family funeral to a toothache that necessitates a root canal.

Survey data can give us some insight into these types of financial shocks. A Pew Charitable Trusts study (2015) showed that households across the income spectrum are susceptible to these spending shocks, with a household having a 60% likelihood of experiencing such a shock over any 12-month period. The typical expense represented around half a month of household expenses across income groups, and the median expense for a shock for those surveyed was about $2,000.

Perhaps not coincidentally, one commonly cited measure of financial fragility is whether a household could come up with an additional $2,000 in the course of a month if necessary. The National Financial Capability Survey found that in 2018, 31% of working-age American respondents were not confident that they could meet such a challenge (FINRA Investor Education Foundation, 2019). The aftereffects of these shocks can be significant: Pew found that households that experienced such a shock typically reported liquid savings of almost $4,000 less than respondents who had not experienced a shock in the past year (Pew Charitable Trusts, 2015). That the decrease in wealth was almost twice the expense of the median shock suggests that the costs of emergency financing can add to the challenge of recovery.

Income shocks

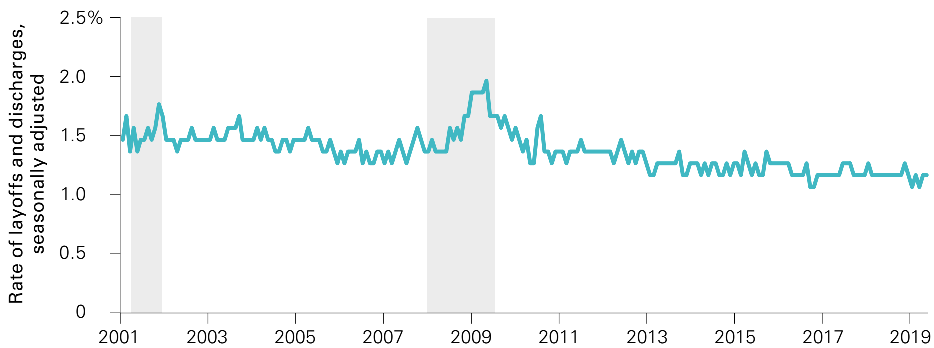
An income shock, such as an unexpected job loss or other reduction in income, is less likely to occur than a spending shock for most households but generally has more severe financial consequences. Data from the Bureau of Labor Statistics show that the rate of layoffs and discharges is influenced by the broader economic environment and generally fluctuates between 1% and 2% per month, as shown in **Figure 1**.

Duration of unemployment is also sensitive to macroeconomic factors. The median duration over the last 30 years has dipped to as low as one month in good times and spiked to as much as six months in the aftermath of the global financial crisis (**Figure 2**).

The goal of a well-planned emergency fund is to turn these potential crises into manageable setbacks. Building a financial cushion and having a plan to deal with unfortunate events can bring a sense of calm to a fraught situation and allow those affected to chart a way forward. Appropriately managing these risks also provides the freedom to invest with a higher risk-return trade-off to build wealth for longer-term goals.

Building a financial cushion and having a plan to deal with unfortunate events can bring a sense of calm to a fraught situation.

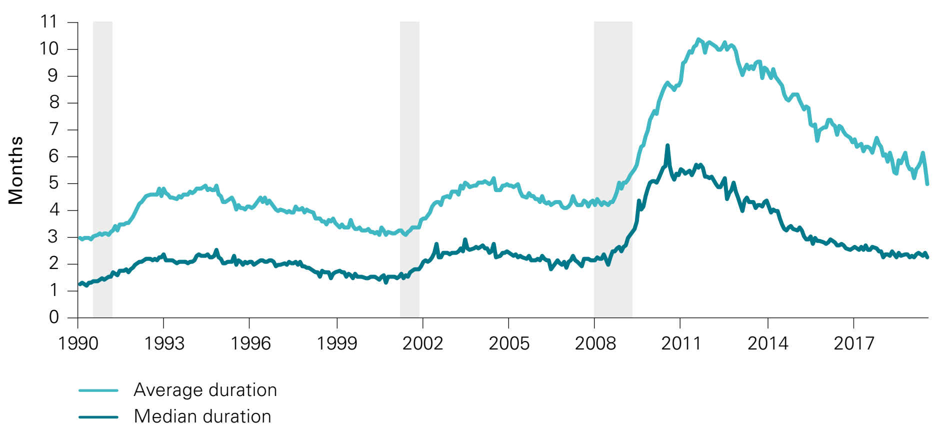
Figure 1. Rate of layoffs and discharges



Note: Gray bars represent recessions.

Source: U.S. Bureau of Labor Statistics, Layoffs and Discharges: Total Nonfarm [JTSLDL], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/JTSLDL, August 9, 2019.

Figure 2. Duration of unemployment



Note: Gray bars represent recessions.

Source: U.S. Bureau of Labor Statistics, Median Duration of Unemployment [UEMPMED], and Average (Mean) Duration of Unemployment [UEMPMEAN], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/UEMPMED and https://fred.stlouisfed.org/series/UEMPMEAN, August 9, 2019.

Safety versus liquidity

While spending shocks are a frequent, inevitable fact of life, income shocks are rarer and, for some, may never occur. Your approach to managing these risks should take these differences into account. The risk of a spending shock should be managed by maintaining a surplus balance of cash or safe, liquid, cash equivalents. This may be satisfied through a savings or checking account, a money market mutual fund in a brokerage account, or a combination of sources.

While spending shocks are a frequent, inevitable fact of life, income shocks are rarer.

For income shocks, assets need to be liquid, or accessible to you at a minimal cost, but not necessarily free from market risks. While some investors who are uniquely exposed to income shocks may choose to have cash set aside, for most investors it is useful to rely on accessible assets invested as appropriate for other long-term financial goals. The accessibility of these assets will vary based on account type and investor demographics, notably age. If tapping distributions from accounts for an emergency would trigger high opportunity costs in the form of taxes and penalties that otherwise wouldn't apply, the accounts should not be considered liquid for emergency savings purposes.

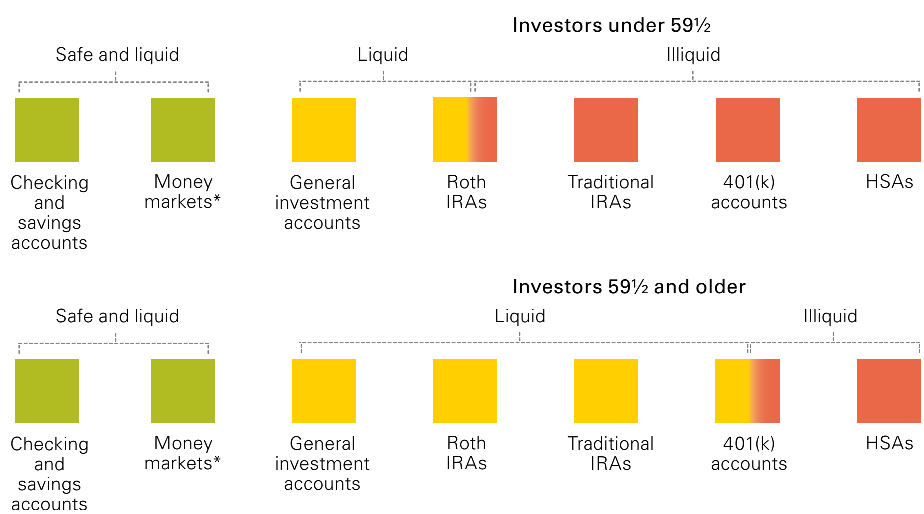
Figure 3 shows how this distinction would look across common account types for investors on either side of age 59½—the age when qualified distributions are allowed for many retirement-focused account types.

Consider your risks and define savings targets

Individual factors and consumption choices can also play a role in someone's susceptibility to these events and in the potential costs. To deal with potential spending shocks, for example, the $2,000, or half a month of household expenses, derived from the Pew survey is a good starting point.

Individual circumstances should still be considered. Someone without health insurance could have substantially higher costs in a medical emergency than someone with robust health insurance coverage. An older, out-of-warranty car is more likely to need an

Figure 3. Know what's accessible to avoid unnecessary costs



* When held in an accessible account type.

Source: Vanguard.

expensive repair than a new lease. Renting an apartment will typically come with fewer expensive surprises than owning a home. Think about where you're exposed to understand how much cash you should set aside for these potential emergencies.

Similarly, the risk, duration, and severity of the consequences of an unexpected job loss can vary by individual, as illustrated in **Figure 4**. While the rule of thumb of holding three to six months' worth of expenses can be a reasonable starting point, it's useful to think through the following dimensions and how they might apply to your situation.

Job stability, skills transferability, and predictability of income

Some industries and positions are more prone to turnover than others. A tenured university professor is less likely to experience an unexpected loss of income than someone working in the service industry, for example. Likewise, income can be less predictable for some professions. Bonuses, contract work, or sales commissions can fluctuate significantly from one period to the next.

Think about where you're exposed to understand how much cash you should set aside for these potential emergencies.

Understanding the drivers of your income can also help to determine liquidity needs. Businesses driven by discretionary consumer spending are more prone to falter in a recession than those driven by other revenue sources. The risks here are not always obvious. Federal employment or contractor jobs funded through federal grants would seem to be fairly stable. However, a 35-day partial government shutdown in December 2018 and January 2019 disrupted the incomes of hundreds of thousands of federal employees and contractors (Congressional Budget Office, 2019).

Skills transferability is another consideration. A sous chef laid off from one restaurant may be able to quickly find another job down the street. Some skills, however, are more specific to a particular industry, employer, or locale. Generally speaking, employees who are longer-tenured and more highly paid will take longer to find an equivalent position with a new employer.

Figure 4. Many factors can affect liquidity needs

	More liquidity needed	Less liquidity needed
Income	Single	Dual
Dependents	Yes	No
Income variability	More	Less
Spending flexibility	Low	High
Job security	Less	Greater
Job skills	Highly specialized	Generalized
Insurance	Less	More
Alternative financing	Low borrowing ability	Alternatives available
Assets	Exposure to market risk	Cash

Source: Vanguard.

The largest factor influencing the length of unemployment may, unfortunately, be out of an employee's control. An analysis of data from the Current Population Survey by FiveThirtyEight demonstrated that the unlucky timing of losing a job amid lousy economic circumstances dwarfed all other factors, such as level of education, industry, or demographic profile (Casselman, 2014). The unpredictable nature of this risk highlights the need to monitor your financial plan for adequate liquidity.

Potential safety nets beyond your own savings should also be considered. Some employers routinely offer severance pay in the event of a layoff. Unemployment compensation may be available for some workers as well. States administer unemployment-compensation programs, so it can be helpful to understand how your state calculates benefits and how long they could be available.

Household structure

Single-earner households will generally require more liquidity than dual-earner households. The extent to which household income depends on a single source also should influence how much liquidity is needed, as should the number of dependents relying on the income source.

Spending flexibility

The mix of discretionary versus nondiscretionary expenses in your budget can be important in understanding emergency savings needs. Your willingness and ability to cut back on discretionary spending when an emergency arises should also be taken into account. If you want to maintain a desired level of consumption regardless of how much income is coming in, you will require a larger liquidity reserve.

Alternative financing

The availability of affordable financing can also affect your emergency savings plan, but it's important to be mindful of the risks of accessing credit in a crisis. Lines of credit may be lowered or withdrawn, or available only at less favorable interest rates. A 401(k) loan, for instance, will generally no longer be available in the event of job loss, and any outstanding 401(k) loan at the time of job loss will typically have to be repaid to avoid taxes and penalties, potentially compounding an already unfortunate situation.

Portfolio structure

The likelihood of job loss, the potential duration of unemployment, and falling portfolio values are all, unfortunately, positively correlated. If you rely on assets that are otherwise invested for long-term goals to be available in an emergency, you may find the value of those assets has declined just when you need them. Therefore, your target for liquid, accessible assets should be higher than that for someone who is setting aside low-risk assets explicitly for insurance against this risk. For example, for a globally diversified portfolio of 50% stocks and 50% bonds, the worst 12-month decline during the global financial crisis was about 27%.[1] To compensate for a potential drawdown of this magnitude, someone with a savings target of $10,000 should have a total of $13,699 ($10,000 ÷ [1 – 27%]) in accessible funds.

1 Vanguard calculations, using data from the Bloomberg Barclays Global Aggregate Bond Index and MSCI All-Country World Index.

Balance emergency savings with other goals

The first step in assessing emergency spending needs is to understand what you already have. Your first source for emergency savings will be anything held in cash accounts above and beyond month-to-month cash-flow needs. Second, look at your other accounts to understand what is accessible and what is not. This will depend somewhat on individual circumstances. Investors who are over age 59½, for example, will have penalty-free access to most of their retirement accounts, while younger investors could face penalties or other roadblocks. For each account and asset, it can be useful to think through what the costs and consequences would be if assets had to be sold in an emergency. Costs include taxes and penalties, as well as the opportunity costs of spending from accounts that are supporting future financial goals.

Some accounts may be more flexible than they first appear. A Roth IRA, for example, while traditionally used for retirement, can also be an option for emergency savings. Contributions to a Roth IRA can be withdrawn without tax or penalty and, if the emergency you're saving for never arises, you'll enjoy tax-free growth and progress toward your long-term retirement goals. A Roth conversion strategy may be beneficial under certain circumstances, and converted assets are available without penalty once the five-year holding period has been satisfied (Dickson, Bruno, and Wong, 2018).[2]

Health savings accounts, or HSAs, are another account to consider. The tax benefits of contributing to HSAs are significant, and withdrawals can be made tax-free to cover unforeseen medical expenses (Kahler, Clarke, and Bruno, 2017). Moreover, medical expenses that occur once an HSA has been opened can be reimbursed at any point in the future, even years or decades down the road. By paying your qualified medical expenses out of pocket and saving your receipts, you can build a store of value that is available to you at any point in the future, tax- and penalty-free.

Other account types are less flexible for emergencies. Employer-sponsored plans such as 401(k) plans may allow loans, but only for active participants. Withdrawals from these accounts may also be possible in the event of a demonstrated hardship, but taxes and penalties will generally apply.

Figure 5, on page 8, provides an overview of various account types and their relative appropriateness for emergency savings purposes.

Be sure to consider your emergency savings in the context of a broader financial plan. For those struggling with credit card or other high-interest debt, it's essential to get this under control first. Remember, the primary benefit of having an emergency reserve is to avoid expensive financing in the first place. Building up a cash reserve while credit card debt compounds is counterproductive. Focus on eliminating high-cost debt before building an emergency fund.

Once cash has been set aside to safeguard against the risk of a spending shock, focus can be shifted to building liquidity to protect against an income shock. For most investors, the risk of unexpected job loss is minimal and saving for this can be balanced against other financial priorities. If an employer matches 401(k) contributions, employees whenever possible should prioritize contributing enough to get the full match. Once you're contributing enough to get the full match, consider a Roth IRA, if you're eligible,[3] for additional savings. This will allow you to continue to save for retirement while building a flexible reserve of liquid savings.

Be sure to consider your emergency savings in the context of a broader financial plan.

2 A separate five-year rule applies for each year a conversion is made. See IRS Publication 590 for details.

3 For 2020, the eligibility to contribute to a Roth IRA begins to phase out at a modified adjusted gross income of $124,000 for single filers and $196,000 for spouses filing jointly.

Some accounts may be more flexible than they first appear.

Figure 5. Use account types flexibly to meet emergency savings needs

Account type	Spending shocks	Income shocks	Considerations
Checking and savings accounts	Best	Use with caution	• Easy access when needed • No market risk • Accessibility makes it easy to spend assets on nonemergencies • Cash drag if savings represent insurance against a low-probability event
Taxable brokerage account	Good	Best	• Flexible investment options • Income-producing assets are taxed from year to year and gains are taxed when positions are sold
Roth IRA	Use with caution	Good	• Flexible investment options • Contributions can be withdrawn tax- and penalty-free • Assets that are withdrawn for an emergency cannot be placed back into the account[4] • Earnings withdrawn prior to retirement age subject to tax and penalty, with some exceptions[5]
Traditional IRA	Use with caution	Use with caution	• Flexible investment options • Taxable distributions • Penalties on distributions before age 59½[6] • Assets that are withdrawn for an emergency cannot be placed back into the account[7]
401(k)	Use with caution[8]	Not recommended	• Loans and hardship withdrawals may be available • Taxes and penalties on non-qualified withdrawals • Loan amounts due or otherwise taxed and penalized upon separation of service • Distributions subject to plan rules
HSA	Use with caution[9]	Not recommended	• Tax-free withdrawals for qualified expenses associated with a medical emergency[10] • Ability to "time-shift" qualified expenses to meet other spending needs • Income taxes and 20% penalty on non-qualified withdrawals[11]

Best Good Use with caution Not recommended

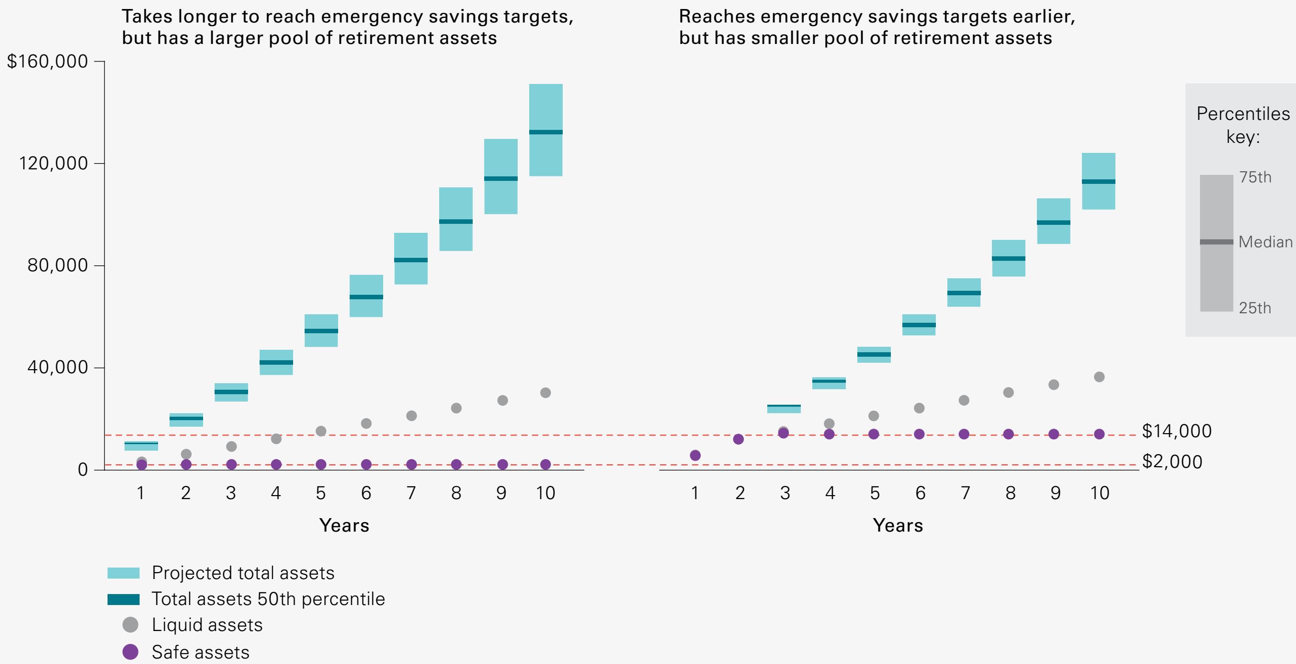
4 An exception applies for rollovers performed within 60 days. See IRS Publication 590 for more information.
5 See IRS Publication 590 for more information.
6 Penalty-free after age 59½, with exceptions to early-withdrawal penalties in some circumstances. See IRS Publication 590 for more information.
7 An exception applies for rollovers performed within 60 days. See IRS Publication 590 for more information.
8 Consult plan administration for details on loan availability and non-penalized withdrawals.
9 Best option for medical emergencies.
10 See IRS Publication 969 for more information.
11 Penalty-free withdrawals available after age 65. See IRS Publication 969 for more information.

Case study: Lucinda is 25, earns $60,000 per year, and has annual expenses of $42,000. While she has recently paid off all her high-interest consumer debt, she is concerned that she doesn't have any savings set aside in the event of an emergency. After considering her risk, she decides that her total liquidity target should equal four months of expenses, or $14,000, with $2,000, or just over half a month's worth of expenses, in cash for spending shocks. Lucinda also wants to start saving for retirement. Her employer offers a 401(k) plan and will match 100% of her contributions up to 5% of her salary. After taxes and expenses, she estimates that she can save $6,000 per year toward financial goals.

Figure 6. Two roads to savings

Scenario 1. Lucinda sets aside $2,000 for spending shocks and uses her remaining savings to build her liquidity fund over time while saving for retirement in her 401(k) and Roth IRA. In this case, the bulk of her "liquid" assets comprise contributions to her Roth IRA that can be withdrawn without tax or penalty. Since these assets will be invested for retirement, she adds a buffer to her target that would allow her to sustain a 20% loss, making her new target $17,500 ($14,000 ÷ [1 – 20%]). She achieves her liquidity target in five to six years and has a median net worth of $129,848 after ten years.

Scenario 2. Lucinda delays saving for retirement until she has her entire emergency savings target set aside in cash. She is able to reach this target in three years but misses out on her employer match during that time, resulting in a projected median net worth that is $21,233 less than Scenario 1 after ten years. While Scenario 1 leaves her less prepared for an emergency in the early years, her larger pool of retirement assets could still be available in a worst-case scenario, although withdrawals would likely be penalized.



Notes: Asset allocation is 70% stocks and 30% bonds for 401(k) and Roth IRA assets. No returns are assumed on cash reserves.

Source: Vanguard calculations, using the Vanguard Capital Markets Model® (VCMM).

IMPORTANT: The projections and other information generated by the 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 VCMM are derived from 10,000 simulations for each modeled asset class. Simulations as of December 31, 2018. Results from the model may vary with each use and over time. For more information, see the appendix on page 11.

Conclusion

Planning for the unexpected can turn a potential crisis into a manageable setback. Everyone's financial picture is unique, so it's important to think through the potential risks you're exposed to and develop strategies that mitigate these risks while balancing financial priorities.

Spending shocks are a fact of life, and maintaining an appropriate cash reserve for them should be a top priority for all investors. It's prudent to have half a month to a month's worth of expenses in cash beyond what's needed for typical monthly cash flows.

Income shocks are less likely but can cause severe financial disruption. Take advantage of the flexibility afforded by certain account types such as Roth IRAs, and understand how savings toward future goals can also help meet liquidity needs.

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Appendix. About the Vanguard Capital Markets Model

IMPORTANT: The projections and other information generated by the Vanguard Capital Markets Model regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More important, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model® is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

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