

2024 Retirement guide

Modern retirement monthly

Authors: Ainsley Carbone, Total Wealth Strategist, CIO Americas, UBS Financial Services Inc. (UBS FS); Justin Waring, Investment Strategist, CIO Americas, UBS Financial Services Inc. (UBS FS); Daniel J. Scansaroli, Head of Portfolio Strategy & UBS Wealth Way Solutions, CIO Americas, UBS Financial Services Inc. (UBS FS); Katie Williams, Wealth Way Discovery Strategist, CIO Americas, UBS Financial Services Inc. (UBS FS)

- In this year's Retirement guide, we discuss what's new with Social Security and Medicare, and provide a few SECURE 2.0 Act reminders to keep in mind this year, such as the indexed qualified charitable distribution (QCD) limit and the new beginning age for required minimum distributions (RMDs).
- The Tax Cuts and Jobs Act (TCJA) of 2017 is scheduled to sunset at the end of 2025, meaning higher tax rates may be on the horizon. To help you take advantage of today's lower rates, we discuss the implications of these changes as well as a few tax planning strategies for your retirement assets.
- In the Appendix, we review Medicare Parts A, B, C, and D and provide a reference guide to the IRS tables for 2024, including tax brackets and gift and estate tax thresholds.



Source: MilosStankovic/E+ via Getty Images

In this report, we provide an update on what's new this year for the retirement planning landscape, including a few SECURE 2.0 Act provisions that become effective this year, as well as Social Security and Medicare updates. And to help you prepare for potentially higher income tax rates if Congress does not extend the 2017 Tax Cuts and Jobs Act tax breaks when they expire in 2026, we review key strategies to help you improve the after-tax growth potential of your retirement assets.

Medicare & Social Security

2024 Medicare Part B premium increase: 6%

The standard monthly premium for Medicare Part B is increasing to USD 174.70 per person this year, up from USD 164.90 per person in 2023.

If your modified adjusted gross income (MAGI) from two years prior is above a certain amount, you'll pay the standard premium as well as an income-related monthly adjustment amount (IRMAA). These income-related surcharges for Part B premiums will also increase by approximately 6%.

There are several other costs that may have changed as well. For instance, premiums for supplemental or Medicare Advantage coverage may see changes that are separate from the increase to Part B premiums. We suggest reviewing changes to your income and coverage, and making sure that you're aware of all the costs you may be exposed to.

2024 cost-of-living adjustment (COLA): 3.2%

Each year, Social Security benefits may be increased based on a measurement of inflation, with the goal of protecting the purchasing power of your benefits. In 2024, Social Security retirement benefits will see an increase of 3.2%.

While the annual benefit increases have historically kept up with the Consumer Price Index (CPI) of broad inflation, many retirees may find that they do not keep pace with their own personal expenditures' inflation.

One reason for this is because the Social Security Administration calculates COLAs using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Since many retirees are not urban dwellers or wage earners, this inflation index likely doesn't capture the spending composition of many retired households.

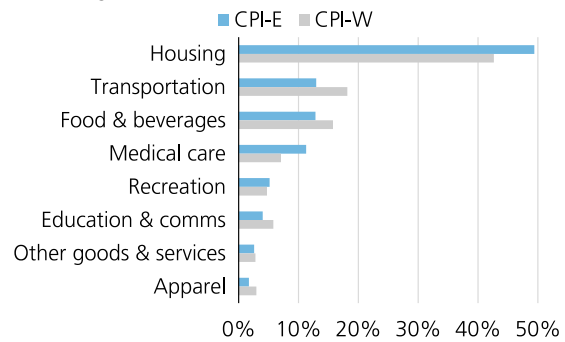
The Bureau of Labor Statistics maintains another price index, known as the Consumer Price Index for the Elderly (CPI-E) specifically developed to track the expenses of households of people age 62 and older.

Looking at the relative importance ratios of components of CPI-E compared to CPI-W, it shows that retirees tend to spend a higher percentage of their consumption on housing and medical care, and a smaller percentage on transportation, education, and apparel.

Periods of high price inflation in housing and medical care can therefore have an exacerbated effect on Social Security's purchasing power.

Figure 1 - Retirees spend differently than pre-retirees

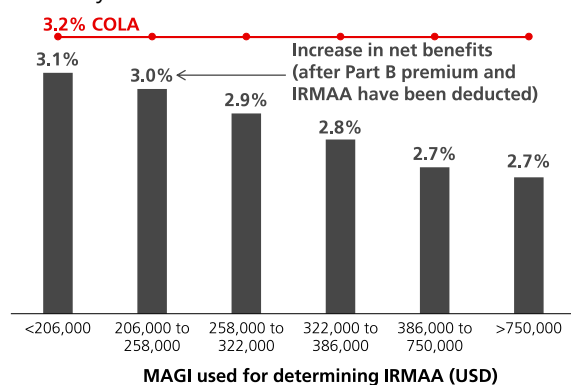
Relative importance of expenditure categories for the Consumer Price Index for the Elderly (CPI-E) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W)



Source: Bureau of Labor Statistics, UBS.

With this in mind, don't assume that this year's COLA will give you a net boost to your spending power. This is particularly important if you have your Medicare Part B premiums directly withheld from your Social Security payments—an increased deduction for Part B premiums means that the 3.2% COLA most likely won't result in an equal increase in your net benefit, especially if you're subject to income-related surcharges for Part B.

Figure 2 - Higher income households won't see as much of an increase to their net Social Security benefits



Source: Centers for Medicare and Medicaid Services, Social Security Administration, UBS.

In order to understand the full extent of the COLA, you'll need to review how all of your income has adjusted relative to all of your expenses. We suggest including this in your next discussion with your financial advisor, who can help you review your financial plan to ensure you're still on track to meet your future spending needs.

Revisiting the SECURE 2.0 Act

In this section of the report, we highlight the SECURE 2.0 Act provisions that are particularly important to individuals with assets held in employer-sponsored retirement plans and IRAs in 2024. Some provisions are subject to additional clarification and interpretation, so please consult with your plan provider, financial advisor, and tax advisor before taking any action in response to the provisions listed below.

RMDs begin at age 73

If you turn 73 in 2024 or later, then you don't have to start taking required minimum distributions (RMDs) until you reach age 73 (prior to the SECURE 2.0 Act, RMDs began at age 72). If you reach age 73 in 2033 or later, then you won't be subject to RMDs until age 75.¹

Birth year	1951 – 1959	1960 or later
Age when RMD begins	73	75

If you turn age 73 in 2024, you have until 1 April 2025 to satisfy your first RMD (2024's RMD) and you have until 31 December 2025 to take your second RMD. Keep in mind that if you were to take both RMDs in 2025, it could push you into a higher tax bracket leading to a higher tax cost as both distributions would be taxable in one tax year.

Holding the bulk of your wealth in tax-deferred accounts could create a "tax time bomb" for your retirement years, when you will be taxed on distributions from those accounts. Instead of sticking to the minimum distributions required by the government, we recommend working with your financial advisor and your tax advisor on a strategy that maximizes your after-tax wealth potential. For more information, see the "Managing taxes on your retirement assets" section.

You can give more to charity through a QCD

Qualified charitable distributions (QCDs) give you and your spouse the opportunity to transfer some of your retirement assets directly to qualified charities without incurring income tax on those dollars, while simultaneously offsetting all or a portion of your RMD that year.²

Thanks to the SECURE 2.0 Act, the annual limit for QCDs has increased for the first time. In 2024, the annual QCD limit has increased to USD 105,000 (up from USD 100,000 in 2023).

The SECURE 2.0 Act also expanded the IRA charitable distributions to allow for a one-time election to transfer

assets via a QCD to a charitable gift annuity (CGA), charitable remainder unitrust (CRUT), or a charitable remainder annuity trust (CRAT).³ This one-time election for QCDs to split-interest entity is limited to USD 53,000 per individual (up from USD 50,000 in 2023).

If QCDs are part of your giving strategy, we suggest revisiting these distributions with your financial advisor to adjust the amount to align with the increased limits this year.

Some 529 assets can be rolled over to a Roth IRA

Beginning this year, the owner of a 529 account that's been opened for more than 15 years can transfer up to USD 35,000 (lifetime limit per beneficiary) from that account to a Roth IRA for the 529's beneficiary (not to the account owner's Roth IRA).

This provision makes it more beneficial to start saving for college education early—the sooner you open the 529 account, the sooner you'll meet the 15-year requirement. It's important to note that amounts contributed to the 529 in the last five years and their earnings are ineligible to be rolled over.

Additionally, the beneficiary must have earned income that year and these rollovers will be subject to Roth IRA annual contribution limits (currently USD 7,000). This means that you can only roll over an amount up to that year's contribution limit, less any other IRA contributions you make that year. However, unlike regular Roth IRA contributions, eligibility to complete this rollover will not be impacted by the beneficiary's income level.

Given these limitations, we don't suggest deliberately overfunding your 529 plan to take advantage of this provision. However, families now have another option to help some of their leftover 529 assets avoid being taxed or penalized upon distribution. Speak with your financial advisor to discuss the various options you may have available for leftover 529 assets. For more information, please see "[How to get the most out of your 529 plan.](#)"

Important update: The provision that subjects catch-up contributions to qualified retirement plans to Roth tax treatment is delayed to 2026. This means you can still make catch-up contributions to your employer-sponsored plan on a pre-tax or Roth basis (if the plan allows). Starting in 2026, catch-up contributions will be subject to Roth tax treatment if your compensation is above USD 145,000 (indexed to inflation).

For more SECURE 2.0 Act reminders, please see the "Summary and next steps" section.

Managing taxes on your retirement assets

The Tax Cuts and Jobs Act (TCJA) is scheduled to sunset at the end of 2025, meaning higher taxes—especially on higher-income Americans—may soon be on the horizon. If the bulk of your wealth is saved in tax-deferred retirement accounts, higher tax rates are likely to have an impact on your after-tax wealth.

Based on our research, there are two parts to managing taxes on your retirement assets:

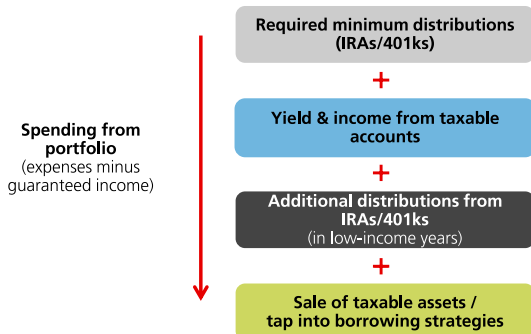
1. During your working years, prioritize your savings based on after-tax growth potential. Ideally, you will be able to spread your investments across a mix of different account types (taxable, tax-deferred, and tax-exempt), which will give you more options for managing the timing of your taxable income and realized capital gains in retirement.

Our [Savings waterfall worksheet](#) provides a good tool for evaluating this on a year-by-year basis, including a summary of the limits for 2024 contributions.

2. In retirement, spread taxable income over time. The income tax system is progressive (you pay an incrementally higher tax rate in years when your annual income is higher), so the key to funding your retirement spending on a tax-efficient basis is to implement a dynamic withdrawal strategy that accounts for your tax bracket and tax rate on a year-by-year basis; the "spending waterfall" shown in Figure 3 summarizes some key considerations.

Figure 3 - A "spending waterfall" can help you manage taxes

Suggested sequence of withdrawals to help improve tax-efficiency



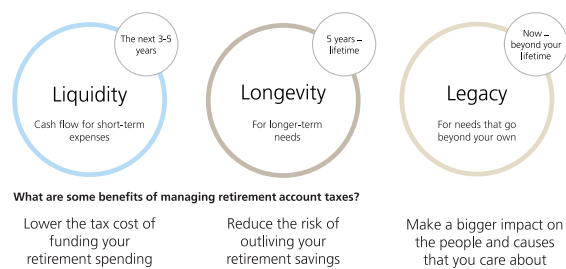
Source: UBS. Note: Assets held in a Health Savings Account (HSA) should be prioritized for qualified medical expenses during retirement. When leftover HSA assets are inherited by a non-spouse beneficiary, they generally lose their tax-exempt status.

The spending waterfall does a good job of helping you to minimize taxes in the current year, but this may defer too much of your taxable income into later years, resulting in larger required minimum distributions (RMDs) and a higher tax burden in the future.

The spending waterfall also implicitly assumes that you will need to spend your IRA distributions, but in many cases you may want to reinvest them for growth, either for your Longevity strategy (lifetime spending needs) or for your Legacy strategy (for inheritance and philanthropy).

Figure 4 - Managing retirement account taxes can help you achieve your goals

The Liquidity, Longevity, Legacy, framework



Source: UBS.

UBS Wealth Way is an approach incorporating Liquidity, Longevity, Legacy, strategies that UBS Financial Services Inc. and our Financial Advisors can use to assist clients in exploring and pursuing their wealth management needs and goals over different timeframes. This approach is not a promise or guarantee that wealth, or any financial results, can or will be achieved. All investments involve the risk of loss, including the risk of loss of the entire investment. Timeframes may vary. Strategies are subject to individual client goals, objectives and suitability.

To enhance the value of the spending waterfall, consider the impact that partial Roth conversions could have on the success of your financial plan.

The fair market value of the amount that you convert will count as taxable income, so Roth conversions in low-tax years are a great way to fund tax-exempt assets that will continue growing, won't be subject to lifetime RMDs, and will pass income tax-free to your beneficiaries. For more information, please see "[Time to consider a partial Roth conversion.](#)"

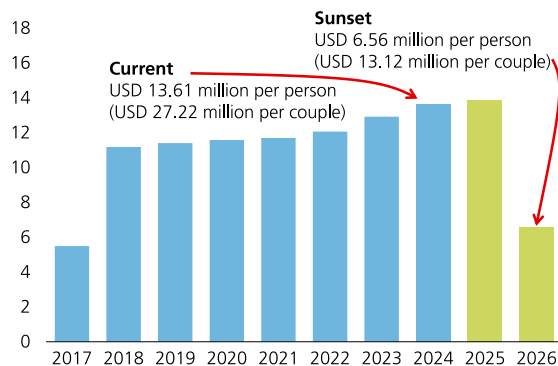
Why you should revisit your estate plan this year

Under current law, an individual can give away USD 13.61 million (USD 27.22 million for married couples) to others during their lifetime or at death without being subject to gift or estate taxes (which have a top tax rate of 40% for amounts over USD 1 million).

Without congressional action, these amounts are set to continue to increase with inflation through 2025, after which they'll decrease back to about USD 5 million per individual (adjusted for inflation) in 2026 when the Tax Cuts and Jobs Act provision sunsets.

Figure 5 - The window for estate planning may be closing...

Lifetime gift and estate tax exemption amounts per individual with projections under current law, y-axis is USD millions



Source: UBS, IRS. Forecasts are scheduled under current law and assume a 2% inflation rate.

We strongly recommend against waiting until 2025 to begin the estate planning conversation. It can take weeks or even months to implement a thoughtful estate plan, and the cost of procrastination could be steep, so make sure you begin the discussion with your financial advisor today. Prior to revisiting your estate plan, consider the questions below:

- When was your estate plan last reviewed? Has anything changed that would require an update to the plan?
- Do you know the tax implications of your current estate plan, now and if the tax law sunsets?
- Are all beneficiary designations current?
- Do you know where your estate documents are located?

For guidance on how to begin sharing the details of your estate plan with your children, please see "[Money talk: Starting a conversation with your heirs.](#)"

Summary and next steps

- SECURE 2.0 Act reminders:
 - If you're turning age 73 this year, work with your financial advisor to determine how and when you will take your first required minimum distribution (RMD).
 - If QCDs are part of your giving strategy, revisit the amount of these distributions to make sure you're taking advantage of the higher limit this year.
 - If you're concerned about overfunding a 529 plan, ask your financial advisor about the various options you may have for leftover 529 assets.
 - Reach out to your employer to see if they have plans to implement any of the voluntary provisions, such as the option to offer matching contributions on a Roth basis or the provision to help you save for retirement if you're paying off student loan debt.
- To prepare for potentially higher income taxes in the future, use our [Savings waterfall worksheet](#) to help spread your assets across various tax treatments. And consider taking advantage of lower-than-normal income tax years by implementing partial Roth conversions, transferring a portion of your Traditional IRA/401(k) to a Roth IRA/401(k).⁴
- Revisit your estate plan to make sure you're taking advantage of the historically high lifetime gift and estate tax exemption limits while you still can.
- Talk to your financial advisor about when you plan to claim Social Security. A smart claiming strategy can help to protect against the risk of outliving your savings, boost resilience against higher inflation, and increase the growth potential of your overall portfolio. You can also enhance the value of your Social Security strategy by staging when you and your spouse claim your benefits. See "[Social Security's spousal and survivor benefits](#)" for details.
- If you're looking to retire before you become eligible for Medicare (age 65), healthcare costs can have a significant impact on how much you will need to have saved for retirement. However, the earlier you estimate the costs, the easier it will be to save for them. For more information, please see "[Planning for healthcare costs in early retirement.](#)"
- As you prepare for your healthcare costs in 2024, be sure to account for the full range of potential healthcare costs, including Medicare Parts A, B, C, and D (see Appendix 1 for more details).

Endnotes

¹ The effective date for when the applicable RMD age will increase to 75 is pending clarification.

² It's important to note that QCDs are only an option if you are at least age 70 1/2, can generally only be done with Traditional IRA assets, and they cannot exceed the annual limit (USD 105,000 in 2024). Another limitation is that, if you are also planning to make deductible contributions to your IRA during any tax year beginning with the year you turn age 70 1/2, that deductible contribution may reduce the portion of QCDs that you're able to exclude from future taxes.

³ There are restrictions on the type of CRUTs and CRATs that can receive a QCD. For instance, they must be funded exclusively by the QCD.

⁴ Not all 401(k) providers allow participants to implement an in-plan Roth conversion. If they do not, you may need to consider rolling your 401(k) into an IRA (if you are eligible) in order to implement the Roth conversion. Please refer to the UBS IRA Rollover Guide, available [here](#), for key considerations prior to deciding whether to roll your 401(k) to an IRA.

Appendix 1: Medicare

Medicare Part A covers stays in nursing facilities and hospitals beginning at age 65 and is free if the retiree paid the Federal Insurance Contributions Act (FICA) tax for 40 quarters. While premiums are free for some retirees, they are still responsible for copayments and deductibles.

The first 60 days of a hospital stay are fully reimbursed after a USD 1,632 deductible; the next 30 days have USD 408 of coinsurance per day of each benefit period, and a USD 816 charge is levied for every "lifetime reserve day" after day 90 for each benefit period (up to 60 days over your lifetime). Beyond the lifetime reserve days, you pay all costs. All in, a three-month stay in a nursing facility or hospital can cost USD 13,872 in out-of-pocket expenses for those enrolled in premium-free Medicare Part A.

Medicare Part B generally covers 80% of the Medicare-approved amounts for covered outpatient care costs, such as doctor visits and diagnostic tests, after the USD 240 deductible is met. The standard Part B premium amount is USD 174.70 per month. If your modified adjusted gross income (MAGI) as reported on your IRS tax return from two years ago is above a certain amount, you'll pay the standard premium amount as well as an income-related monthly adjustment amount (IRMAA). The late-enrollment penalty for Part B is added to one's monthly premium, and can increase by as much as 10% of the standard premium for every year the beneficiary could have been signed up for Part B but failed to do so.

Medicare Part D covers prescription drugs and can be obtained by purchasing a Medicare prescription drug plan or by getting a Medicare Advantage Plan through a health maintenance organization (HMO) or preferred provider organization (PPO) that offers prescription drug coverage. Deductibles vary between plans, but no Medicare drug plan may have a deductible more than USD 545.

Part D premiums can also vary based on the plan you choose. Additionally, if your MAGI is above a certain amount, you are required to pay the Part D IRMAA, even if your employer or a third party (like a retirement system or teachers' union) pays for your Part D plan premiums.

The late-enrollment penalty for Part D is added to your monthly premium and is calculated by multiplying 1% of the "national base beneficiary premium" (USD 34.70 in 2024) by the number of full, uncovered months one was eligible to enroll in Part D and went without other creditable prescription drug coverage. The national base beneficiary premium can fluctuate each year, so the penalty may also change each year.

Outside of the Medicare program, **Medigap** policies are **supplemental insurance policies** sold by private companies and help pay for expenses not covered by Medicare, such as copayments and coinsurance. **Medicare Advantage** (also known as **Part C**) is another way to get Medicare, separate from Original Medicare. These bundled plans can include extra benefits that Original Medicare doesn't cover, such as, vision and dental. For more information, see "[Medicare & You 2024](#)."

Part B and D premiums are subject to an income-related monthly adjustment amount (IRMAA)

Based on modified adjusted gross income (MAGI) from two years prior. Part B and Part D premiums are paid by each spouse.

Income in 2022 (2023 tax return)		2024 Part B premiums		2024 Part D premiums
Individual tax return	Joint tax return	IRMAA	Total monthly premium	Total monthly premium (plan premium + IRMAA)
0 to 103,000	0 to 206,000	0.00	174.70	your plan premium
103,000 to 129,000	206,000 to 258,000	69.90	244.60	your plan premium + 12.90
129,000 to 161,000	258,000 to 322,000	174.70	349.40	your plan premium + 33.30
161,000 to 193,000	322,000 to 386,000	279.50	454.20	your plan premium + 53.80
193,000 to 500,000	386,000 to 750,000	384.30	559.00	your plan premium + 74.20
500,000 and above	750,000 and above	419.30	594.00	your plan premium + 81.00

Source: CMS, UBS.

Appendix 2: Summary of key 2024 tax information

Taxable income tax rates

Marginal tax rate	Single	Head of Household	Married Filing Jointly	Married Filing Separately
10%	0 to 11,600	0 to 16,550	0 to 23,200	0 to 11,600
12%	11,600 to 47,150	16,550 to 63,100	23,200 to 94,300	11,600 to 47,150
22%	47,150 to 100,525	63,100 to 100,500	94,300 to 201,050	47,150 to 100,525
24%	100,525 to 191,950	100,500 to 191,950	201,050 to 383,900	100,525 to 191,950
32%	191,950 to 243,725	191,950 to 243,700	383,900 to 487,450	191,950 to 243,725
35%	243,725 to 609,350	243,700 to 609,350	487,450 to 731,200	243,725 to 365,600
37%	609,350 or more	609,350 or more	731,200 or more	365,600 or more
	Single	Head of Household	Married Filing Jointly	Married Filing Separately
Standard deduction*	14,600	21,900	29,200	14,600
Change from 2023	(up from 13,850)	(up from 20,800)	(up from 27,700)	(up from 13,850)

* For single or head of household taxpayers, the annual standard deduction is increased by USD 1,950 if you are age 65 or older or blind (USD 3,900 if both 65+ and blind). For married taxpayers, the deduction is increased by USD 1,550 for each married taxpayer aged 65 or older or blind (e.g. USD 3,100 if one spouse is both 65+ and blind).

Long-term capital gains tax rates

Maximum tax rate	Single	Head of Household	Married Filing Jointly	Married Filing Separately
0%	0 to 47,025	0 to 63,000	0 to 94,050	0 to 47,025
15%	47,025 to 518,900	63,000 to 551,350	94,050 to 583,750	47,025 to 291,850
20%	518,900 or more	551,350 or more	583,750 or more	291,850 or more
3.8% surtax**	200,000	200,000	250,000	125,000

** Some of your investment income may be subject to a 3.8% surtax. The tax is applied to the lesser of: 1) Your net investment income or 2) The amount that your modified adjusted gross income exceeds these thresholds. Net investment income includes "passive" sources of income such as taxable interest, dividends, realized capital gains, annuities, royalties, and rental income.

Additional Medicare tax

Tax rate	Single	Head of Household	Married Filing Jointly	Married Filing Separately
0.9%	200,000	200,000	250,000	125,000

Note: The 0.9% surtax applies to wages, railroad retirement compensation, and self-employment income over these thresholds.

Social Security

Wage base limit	168,600	Note: The Old-Age, Survivors, and Disability Insurance (OASDI) tax—commonly called “the Social Security tax”—is based on a worker’s earned income. This 12.4% tax (6.2% paid by the employee, 6.2% paid by the employer) only applies to earned income up to the “wage base”. There is also a Medicare withholding tax of 2.9% (1.45% paid by the employee, 1.45% paid by the employer)—this tax applies to all earned income (no wage base limit).
Change from 2023	(up from 160,200)	
Earnings test exemption (below Full Retirement Age)	22,320	Note: For workers receiving Social Security benefits before reaching full retirement age, Social Security applies a “retirement earnings test” and withhold benefits based on “excessive” income in the years leading up to full retirement age. The test only counts earned income, not “passive” income sources such as capital gains, dividends, interest income, or retirement plan distributions.
Change from 2023	(up from 21,240)	
Earnings test exemption (at Full Retirement Age)	59,520	For individuals younger than their full retirement age, Social Security withholds USD 1 for every USD 2 of income exceeding the exemption amount. For individuals attaining full retirement age in the year of the earnings test, Social Security withholds USD 1 for every USD 3 of income exceeding the exemption amount.
Change from 2023	(up from 56,520)	

Gift and estate tax

	Unmarried	Married	
Gift tax annual exclusion	18,000 per recipient	36,000 per recipient	Note: Families should think beyond the federal estate tax when considering estate planning. According to research from the Tax Foundation, 17 states currently impose a state-level estate or inheritance tax (including Maryland, which imposes both types of tax). The top state-level estate tax rate is 20%, and state-level taxes can affect estates as small as USD 1 million.
Change from 2023	(up from 17,000)	(up from 34,000)	
Lifetime unified gift and estate tax exemption	13,610,000	27,220,000	
Change from 2023	(up from 12,920,000)	(up from 25,840,000)	
Maximum federal gift/estate tax rate	40%	40%	

Source: IRS, Tax Foundation, UBS

UBS Chief Investment Office's ("CIO") investment views are prepared and published by the Global Wealth Management business of UBS Switzerland AG (regulated by FINMA in Switzerland) or its affiliates ("UBS"), part of UBS Group AG ("UBS Group"). UBS Group includes Credit Suisse AG, its subsidiaries, branches and affiliates. Additional disclaimer relevant to Credit Suisse Wealth Management follows at the end of this section.

The investment views have been prepared in accordance with legal requirements designed to promote the **independence of investment research**.

Generic investment research – Risk information:

This publication is **for your information only** and is not intended as an offer, or a solicitation of an offer, to buy or sell any investment or other specific product. The analysis contained herein does not constitute a personal recommendation or take into account the particular investment objectives, investment strategies, financial situation and needs of any specific recipient. It is based on numerous assumptions. Different assumptions could result in materially different results. Certain services and products are subject to legal restrictions and cannot be offered worldwide on an unrestricted basis and/or may not be eligible for sale to all investors. All information and opinions expressed in this document were obtained from sources believed to be reliable and in good faith, but no representation or warranty, express or implied, is made as to its accuracy or completeness (other than disclosures relating to UBS). All information and opinions as well as any forecasts, estimates and market prices indicated are current as of the date of this report, and are subject to change without notice. Opinions expressed herein may differ or be contrary to those expressed by other business areas or divisions of UBS as a result of using different assumptions and/or criteria.

In no circumstances may this document or any of the information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes (i) valuation or accounting purposes; (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees. By receiving this document and the information you will be deemed to represent and warrant to UBS that you will not use this document or otherwise rely on any of the information for any of the above purposes. UBS and any of its directors or employees may be entitled at any time to hold long or short positions in investment instruments referred to herein, carry out transactions involving relevant investment instruments in the capacity of principal or agent, or provide any other services or have officers, who serve as directors, either to/for the issuer, the investment instrument itself or to/for any company commercially or financially affiliated to such issuers. At any time, investment decisions (including whether to buy, sell or hold securities) made by UBS and its employees may differ from or be contrary to the opinions expressed in UBS research publications. Some investments may not be readily realizable since the market in the securities is illiquid and therefore valuing the investment and identifying the risk to which you are exposed may be difficult to quantify. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS, into other areas, units, divisions or affiliates of UBS. Futures and options trading is not suitable for every investor as there is a substantial risk of loss, and losses in excess of an initial investment may occur. Past performance of an investment is no guarantee for its future performance. Additional information will be made available upon request. Some investments may be subject to sudden and large falls in value and on realization you may receive back less than you invested or may be required to pay more. Changes in foreign exchange rates may have an adverse effect on the price, value or income of an investment. The analyst(s) responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituencies for the purpose of gathering, synthesizing and interpreting market information.

Different areas, groups, and personnel within UBS Group may produce and distribute separate research products **independently of each other**. For example, research publications from **CIO** are produced by UBS Global Wealth Management. **UBS Global Research** is produced by UBS Investment Bank. **Research methodologies and rating systems of each separate research organization may differ**, for example, in terms of investment recommendations, investment horizon, model assumptions, and valuation methods. As a consequence, except for certain economic forecasts (for which UBS CIO and UBS Global Research may collaborate), investment recommendations, ratings, price targets, and valuations provided by each of the separate research organizations may be different, or inconsistent. You should refer to each relevant research product for the details as to their methodologies and rating system. Not all clients may have access to all products from every organization. Each research product is subject to the policies and procedures of the organization that produces it.

The compensation of the analyst(s) who prepared this report is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking, sales and trading or principal trading revenues, however, compensation may relate to the revenues of UBS Group as a whole, of which investment banking, sales and trading and principal trading are a part. Tax treatment depends on the individual circumstances and may be subject to change in the future. UBS does not provide legal or tax advice and makes no representations as to the tax treatment of assets or the investment returns thereon both in general or with reference to specific client's circumstances and needs. We are of necessity unable to take into account the particular investment objectives, financial situation and needs of our individual clients and we would recommend that you take financial and/or tax advice as to the implications (including tax) of investing in any of the products mentioned herein.

This material may not be reproduced or copies circulated without prior authority of UBS. Unless otherwise agreed in writing UBS expressly prohibits the distribution and transfer of this material to third parties for any reason. UBS accepts no liability whatsoever for any claims or lawsuits from any third parties arising from the use or distribution of this material. This report is for distribution only under such circumstances as may be permitted by applicable law. For information on the ways in which CIO manages conflicts and maintains independence of its investment views and publication offering, and research and rating methodologies, please visit www.ubs.com/research-methodology. Additional information on the relevant authors of this publication and other CIO publication(s) referenced in this report; and copies of any past reports on this topic; are available upon request from your client advisor.

Important Information About Sustainable Investing Strategies: Sustainable investing strategies aim to consider and incorporate environmental, social and governance (ESG) factors into investment process and portfolio construction. Strategies across geographies approach ESG analysis and incorporate the findings in a variety of ways. Incorporating ESG factors or Sustainable Investing considerations may inhibit UBS's ability to participate in or to advise on certain investment opportunities that otherwise would be consistent with the Client's investment objectives. The returns on a portfolio incorporating ESG factors or Sustainable Investing considerations may be lower or higher than portfolios where ESG factors, exclusions, or other sustainability issues are not considered by UBS, and the investment opportunities available to such portfolios may differ.

External Asset Managers / External Financial Consultants: In case this research or publication is provided to an External Asset Manager or an External Financial Consultant, UBS expressly prohibits that it is redistributed by the External Asset Manager or the External Financial Consultant and is made available to their clients and/or third parties.

USA: Distributed to US persons only by UBS Financial Services Inc. or UBS Securities LLC, subsidiaries of UBS AG. UBS Switzerland AG, UBS Europe SE, UBS Bank, S.A., UBS Brasil Administradora de Valores Mobiliarios Ltda, UBS Asesores Mexico, S.A. de C.V., UBS SuMi TRUST Wealth Management Co., Ltd., UBS Wealth Management Israel Ltd and UBS Menkul Degerler AS are affiliates of UBS AG. **UBS Financial Services**

Inc. accepts responsibility for the content of a report prepared by a non-US affiliate when it distributes reports to US persons. All transactions by a US person in the securities mentioned in this report should be effected through a US-registered broker dealer affiliated with UBS, and not through a non-US affiliate. The contents of this report have not been and will not be approved by any securities or investment authority in the United States or elsewhere. UBS Financial Services Inc. is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule") and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule

For country information, please visit ubs.com/cio-country-disclaimer-gr or ask your client advisor for the full disclaimer.

Additional Disclaimer relevant to Credit Suisse Wealth Management

You receive this document in your capacity as a client of Credit Suisse Wealth Management. Your personal data will be processed in accordance with the Credit Suisse privacy statement accessible at your domicile through the official Credit Suisse website <https://www.credit-suisse.com>. In order to provide you with marketing materials concerning our products and services, UBS Group AG and its subsidiaries may process your basic personal data (i.e. contact details such as name, e-mail address) until you notify us that you no longer wish to receive them. You can optout from receiving these materials at any time by informing your Relationship Manager.

Except as otherwise specified herein and/or depending on the local Credit Suisse entity from which you are receiving this report, this report is distributed by Credit Suisse AG, authorised and regulated by the Swiss Financial Market Supervisory Authority (FINMA). Credit Suisse AG is a UBS Group company.

Version D/2023. CIO82652744

© UBS 2024. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.