

How leverage can be the best option to enhance returns and achieve your goals

Considering a prudent **borrowing strategy**

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Introduction

At a glance

- Especially in an environment of low interest rates, adding leverage to a diversified portfolio can often provide greater portfolio growth potential—and a higher expected return per unit of risk—than simply increasing the allocation to stocks and other risk assets.
- The prudent use of leverage can provide a boost to returns, helping investors to build wealth and achieve their financial goals.
- In this report, we illustrate the potential value of portfolio leverage, provide guidance on identifying a prudent and effective leverage ratio for a portfolio, and outline strategies for implementing and managing leverage.

From 2010 to 2020, a plain-vanilla 60% US stock, 40% US Treasury portfolio (“60/40” for short) delivered an annualized rate of return of 9.5% as rates fell and earnings and valuations grew. Going forward, as a result of low interest rates and fair-to-expensive equity valuations, today’s investors should expect to see lower returns on their investments. Across the next several market cycles, we believe that a plain-vanilla 60/40 portfolio could provide an average return of about 5.6% per year (see Figure 1).

Can investors improve on this return outlook without taking on more risk? Yes, to an extent.

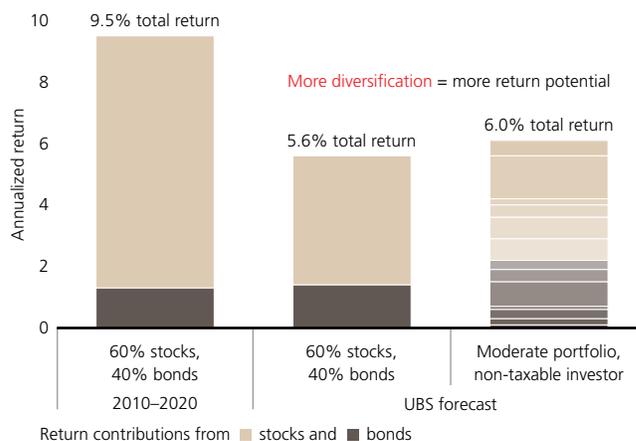
The first step would be to improve the portfolio’s diversification, such as allocating to international asset classes and incorporating corporate bonds. We believe that moving from a simple 60/40 portfolio to our Moderate-risk Strategic Asset Allocation would add about 0.42% per year to expected returns, while also reducing expected portfolio volatility modestly, resulting in a higher ratio of returns to risk (see Figure 1).

To increase the potential return beyond this point, investors will need to take on more risk. There are two main options: increase allocations to risk assets, or use portfolio leverage.

Figure 1

Forward-looking returns are likely to be lower, but diversification can help

Realized returns from 2010–2020, forward-looking return expectations, and return contributions by asset class



	Realized returns, 2010–2020	Equilibrium Capital Market Assumptions (CMAs)	
	60% stocks, 40% bonds	60% stocks, 40% bonds	Moderate portfolio, non-taxable investor
Annualized return	9.5%	5.6%	6.0%
Annualized risk	7.1%	9.4%	8.8%
Risk-adjusted return	1.3	0.6	0.7

Note: Risk-adjusted return is calculated by dividing annualized return by annualized risk (the standard deviation of returns). The 60% stocks, 40% bonds portfolio is invested only in US equities and intermediate US government bonds. The moderate portfolio is globally diversified, including corporate bonds, emerging market stocks, and small- and mid-cap stocks.

Source: MorningstarDirect, UBS, as of February 2021

As we look at today’s historically low interest rate environment, we see an opportunity for investors to more effectively boost portfolio potential returns through a prudent borrowing strategy than by reallocating toward riskier assets.

Increasing allocations to risk assets tends to reduce diversification benefits and increase portfolio volatility. Diversified portfolios can provide investors with shallower drawdowns and faster recovery times than equity-heavy portfolios. When borrowing costs are low, portfolio leverage can be utilized to maintain your current allocation and diversification benefits and potentially boost returns.

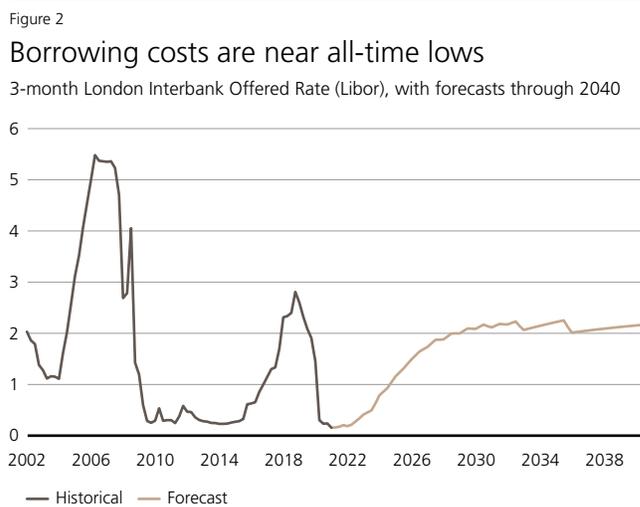
Why consider borrowing now?

Even before the global recession sparked by COVID-19, interest rates were already near record lows. Today, on the heels of unprecedented levels of monetary stimulus, investors have the opportunity to lock in some of the lowest borrowing costs in history (see Figure 2).

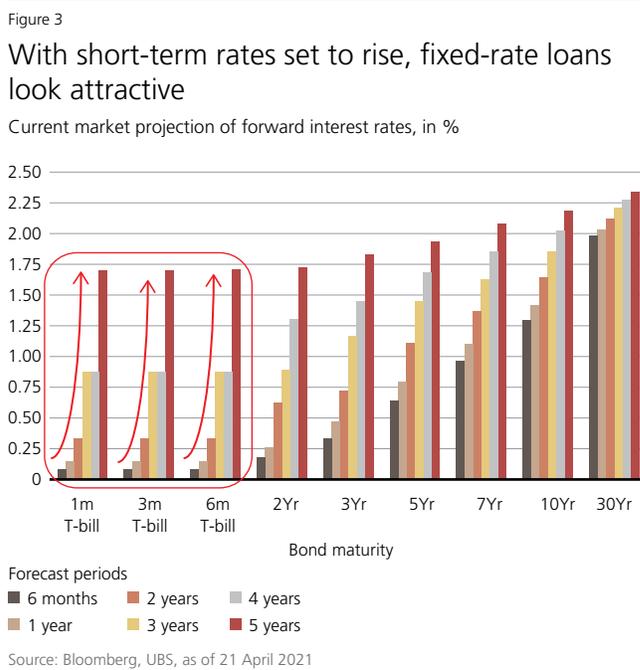
With an equally unprecedented amount of fiscal stimulus also entering the economy—and COVID-19 vaccines allowing for life to begin returning to normal—we expect the current bull market to enjoy solid returns in the years to come.

However, a strengthening economy will also mean that borrowing costs are likely to eventually rise as the market begins to anticipate interest rate hikes from the Federal Reserve and other central banks. In Figure 3 below, we show the current projections for interest rates over the next 5 years, and highlight changes in the 1- to 6-month range, which are the most likely to be affected by interest rate hikes and most likely to influence borrowing cost for variable-rate securities-backed credit lines and other floating-rate loans.

With the global economy on the mend, interest rates are expected to gradually rise over the next several years as fundamentals regain the spotlight. While borrowing strategies can offer some value even at higher borrowing costs, we view the opportunity offered today as particularly attractive for investors looking to potentially boost their portfolio returns. By tapping into your borrowing capacity at historically low rates, the loan proceeds can be invested into your diversified portfolio to increase your invested capital and take advantage of opportunities in higher-returning assets.



Source: Bloomberg, UBS, as of 21 April 2021



Source: Bloomberg, UBS, as of 21 April 2021

Potential advantages of applying leverage

Investors typically attempt to increase expected portfolio returns by trimming their allocation to Treasuries and other low-risk, low-return asset classes in favor of stocks and other risk assets. However, increasing portfolio risk has a declining marginal benefit for expected returns relative to the negative impact of higher expected portfolio volatility. The result is that the expected return per unit of risk—also known as “efficiency”—will begin to decline (see Figure 4, right panel).

While increasing the allocation to stocks offers the potential to enhance returns by taking on more risk, efficiency is not the only sacrifice. Investors would also need to sell parts of their portfolio and potentially realize capital gains, thus incurring capital gains taxes. Additionally, increasing risks tends to degrade much needed diversification benefits that help smooth volatility and mitigate losses.

From a return perspective, bonds can appear to be a dead weight in portfolios these days. With lower interest rates, bonds offer a lower stream of income than they did in the past, and over the long run it’s unlikely that bonds will continue to benefit from price appreciation from falling interest rates.

Even so, fixed income still plays a critical role as a portfolio diversifier. Because interest rates tend to fall (and bond prices rise) during bear markets and other bouts of market volatility, high-quality bonds have the potential to reduce portfolio volatility more than they reduce portfolio return. During bear market environments, interest rates tend to fall and bond prices rise; bonds can therefore provide a “safe haven” during these difficult periods that play an essential role in a portfolio.

Figure 4

Beyond a point, adding to equities increases portfolio risk more than portfolio returns

Historical returns, standard deviations, and return/risk ratios for stock/bond portfolios, from 1945 to today

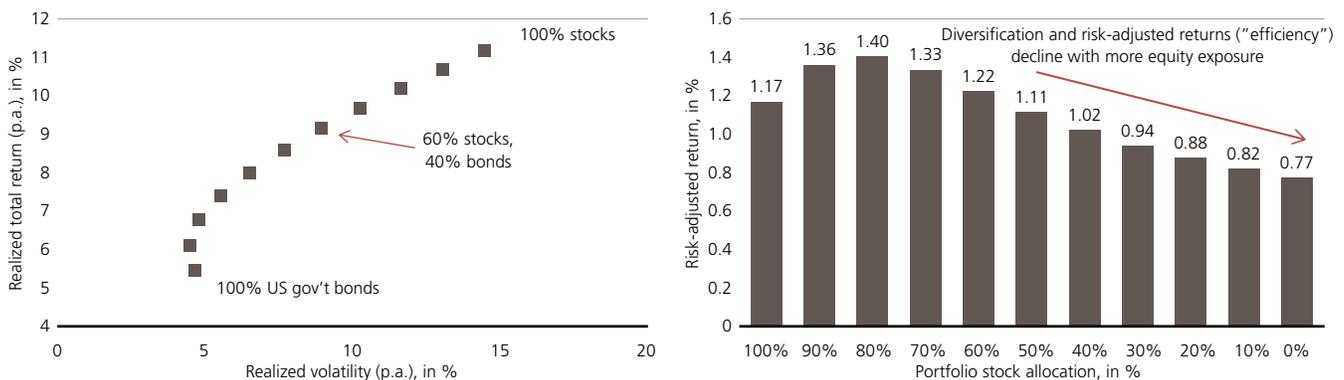


Illustration shows portfolios comprised of US large-cap stocks and intermediate US government bonds.

Note: Risk-adjusted return is calculated by dividing annualized return by annualized risk (the standard deviation of returns).

Source: Morningstar Direct, UBS, as of February 2021

With these factors in mind, keeping a healthy allocation to bonds in a well-diversified portfolio and then applying leverage can help an investor achieve several objectives:

1. **More return potential.** Adjusting portfolio leverage can often be done without the need to sell assets and realize capital gains taxes (a potential cost of changing an unleveraged portfolio’s asset allocation).
2. **Smoother returns.** Keeping the assets invested in a well-diversified asset allocation can result in the smoother compounding of returns, and can mitigate the duration of draw-downs and recovery times.
3. **Better risk-adjusted returns.** When compared to simply adding to stocks and other risk assets, leveraged portfolios can provide the potential for higher returns and more return per unit of risk.

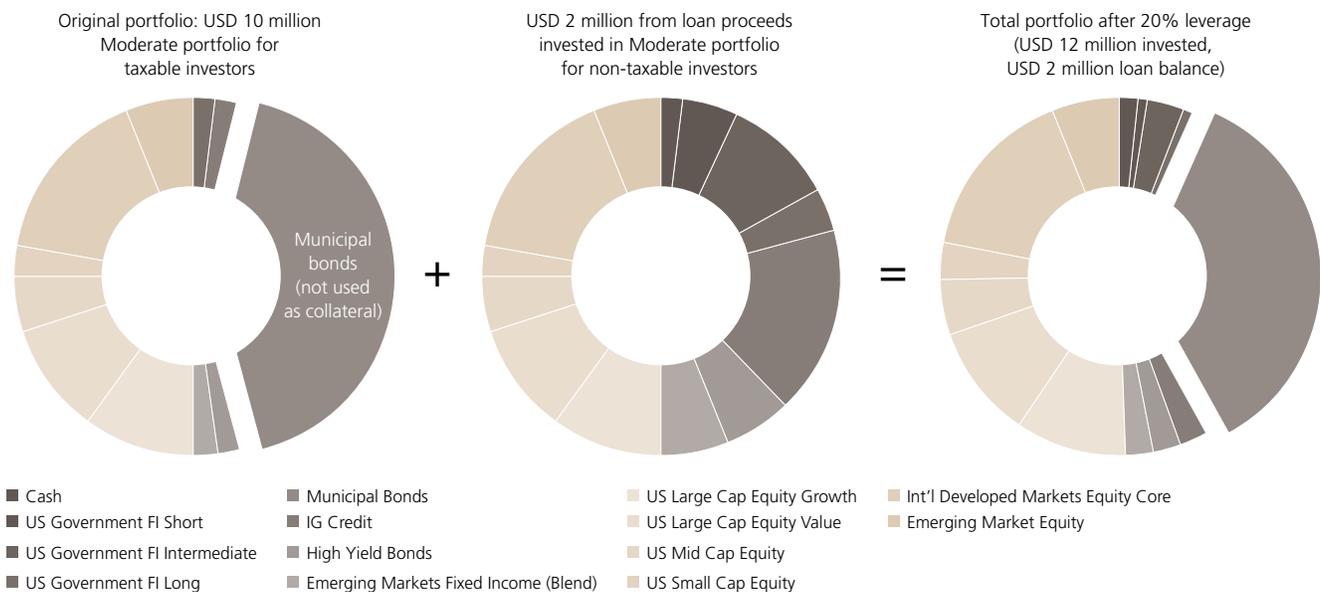
When it comes to implementing portfolio leverage, our primary goal is to enhance after-tax portfolio growth while maintaining diversification. If structured correctly, it may be possible to deduct the interest cost of the portfolio loan from the taxes on your investment returns.

For reasons that we discuss in the **“Municipal bonds and deducting the cost of your loan”** section, investors will need to take special steps to preserve this potential tax deduction. Specifically, they should move municipal bond holdings into a separate account that is not used as collateral for the loan, and make sure that loan proceeds are invested in a portfolio that does not include municipal bonds (e.g. portfolios designed for non-taxable investors). Figure 5 shows how this process would work from an asset allocation perspective.

Figure 5

Applying portfolio leverage in practice

Illustration of implementing portfolio leverage



These example Strategic Asset Allocations do not include nontraditional asset classes. To preserve the potential for interest deductibility, the municipal bonds in the original portfolio should be held in a separate account that is not used as collateral for the loan, and the loan proceeds should not be used to purchase municipal bonds. UBS does not provide tax advice, so please consult a tax professional when considering how to structure your investment portfolio and borrowing strategy.

Source: UBS

In Figure 6, we show the impact on expected risk and return for a variety of investment portfolios based on the UBS Strategic Asset Allocations, with and without adding a modest amount of portfolio leverage.

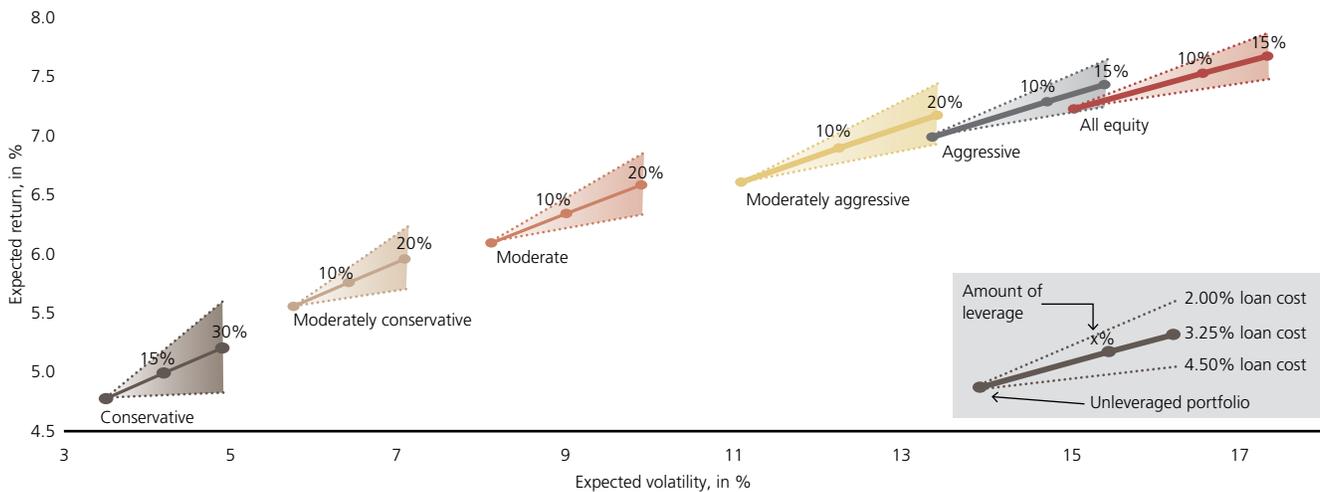
When compared to the unleveraged portfolios, leveraged portfolios offer a superior expected return and risk-adjusted return as long as the future returns of the portfolio exceed the financing costs.

Figure 7 shows how a borrowing cost of 3.25% both significantly enhances returns and results in a more “efficient” (offering a higher return per unit of risk) portfolio than re-positioning an allocation to the next risk portfolio without leverage. As borrowing costs decrease, we would expect both the return enhancement and the “efficiency” opportunity of using leverage to be greater.

Figure 6

Prudent leverage may improve returns more than adding to risk assets

Expected risk and returns after various borrowing costs and amounts of leverage



Source: UBS. Expected return and volatility are based on UBS Equilibrium Capital Market Assumptions.

Figure 7

With a prudent leverage strategy, investors can increase return potential

Expected risk and return statistics, with various amounts of leverage and an annualized borrowing cost of 3.25%

	Conservative			Moderately conservative			Moderate		
	No leverage	15% leverage	30% leverage	No leverage	10% leverage	20% leverage	No leverage	10% leverage	20% leverage
Volatility	3.5%	4.2%	4.9%	5.7%	6.4%	7.1%	8.1%	9.0%	9.9%
Expected return*	4.8%	5.0%	5.2%	5.6%	5.8%	6.0%	6.1%	6.4%	6.6%
Return enhancement		105%	109%		104%	107%		104%	108%
Risk-adjusted return	1.36	1.19	1.06	0.97	0.90	0.85	0.75	0.71	0.67

	Moderately aggressive			Aggressive			All equity		
	No leverage	10% leverage	20% leverage	No leverage	10% leverage	15% leverage	No leverage	10% leverage	15% leverage
Volatility	11.1%	12.2%	13.4%	13.3%	14.7%	15.4%	15.0%	16.6%	17.3%
Expected return*	6.6%	6.9%	7.2%	7.0%	7.3%	7.5%	7.3%	7.6%	7.7%
Return enhancement		104%	109%		104%	106%		104%	106%
Risk-adjusted return	0.60	0.57	0.54	0.53	0.50	0.48	0.48	0.46	0.44

* Expected Returns remove the cost of the loan

Finding the right amount of leverage for your portfolio

To implement leverage, you must borrow funds to add to your investment assets. One way to implement this is to tap into a securities-backed credit line, which uses your investment assets as collateral.

In order to take advantage of the potential benefits of portfolio leverage, it's vital to take steps to avoid margin calls. In the event of a large drawdown, a margin call could result in the forced sale of the leveraged assets, which would lock in losses and challenge a portfolio's ability to participate in a subsequent market recovery with the same proportion as the fall.

With this in mind, we carefully evaluated the risk of each diversified Strategic Asset Allocation, looking at their performance during historical bear markets. Using this data, we were able to identify what level of leverage would have avoided a margin call with a significant buffer during a repeat of the worst historical drawdown, avoiding a margin call until the portfolio would have fully recovered from its losses.

We further narrowed the leverage levels to eliminate any strategy that would push a portfolio above the risk tolerance range identified for a given account risk profile. A moderate-risk investor could theoretically add enough leverage to a moderate portfolio to push their overall risk into an aggressive risk profile, but this would generally not be prudent.

What is a loan-to-value (LTV) ratio?

Like any loan, there is a maximum amount that you can borrow off of a securities-backed credit line, determined by the expected risk of the securities that you own in the accounts you've pledged as collateral.

For example, you may be able to borrow 50% of the asset value of a stock, 70% of the value for a high-yield bond fund, and 90% for a US Treasury fund. These ratios are known as "release rates" (see Appendix). Your credit line approval amount will reflect the weighted average of the release rates and market value of each of the holdings in the accounts that you have pledged as collateral for the loan. If you have more invested in low-risk securities, your credit line approval amount will be higher than if you have a portfolio of high-risk investments, all things being equal.

When you take out a securities-backed loan, the bank will keep an eye on your loan-to-value (LTV) ratio to make sure that your loan doesn't exceed the LTV associated with your approved credit line balance. If your portfolio goes higher, your LTV ratio will fall and your approval amount will rise; if the portfolio falls, your LTV ratio will rise and your approval amount will fall.

If your portfolio's LTV rises above the level approved by the bank, you could be subject to a "margin call," which may require you to add assets to your account or sell investments to pay down the credit line balance. This means that it's important not to draw your entire approval amount from the loan unless you have other resources to pay down the balance.

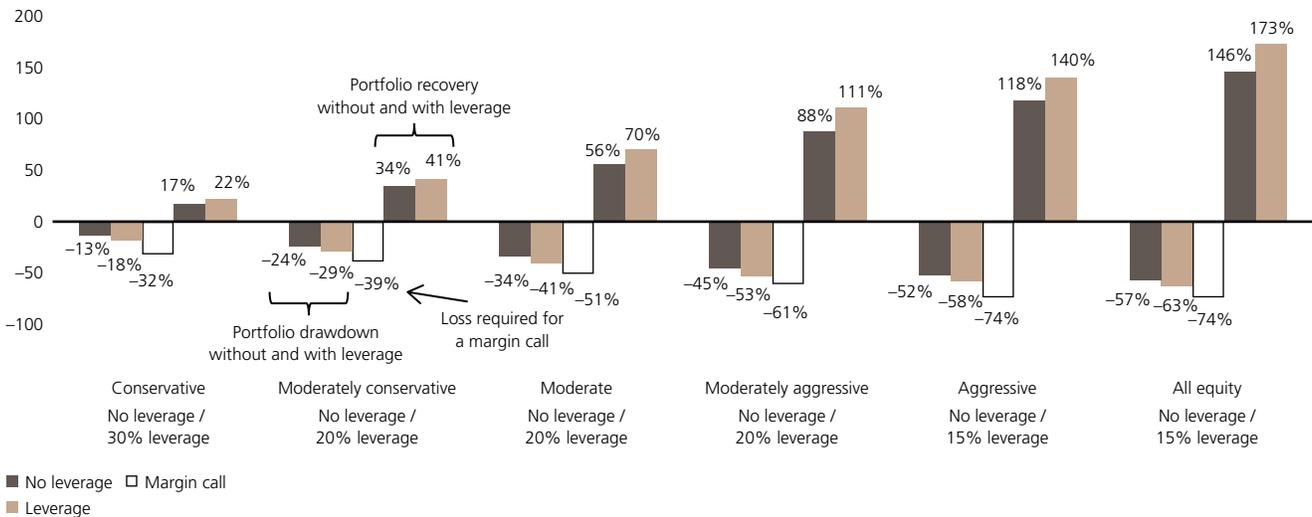
Since leverage enhances both upside and downside moves in the market (see Figure 8), **a key to enhancing returns is being able to stay invested with leverage during a market drawdown so you can proportionately participate in the subsequent market recovery.** This is why avoiding a margin call is critical to a successful borrowing strategy. This also reinforces the power of leverage; by maintaining a diversified portfolio instead of adding to risk assets, you can capture the higher return while reducing the risk of experiencing a large and long-lasting bear market drawdown.

Important note on maximum leverage guidance: In Figure 8, we outline a "Maximum leverage" threshold that is calibrated to maintain a significant buffer from a margin call, based on our analysis of historical drawdowns and margin call thresholds in scenarios where investors employed leverage at the worst possible time, i.e. at a market peak right before a drawdown. For each risk profile, a higher leverage ratio would have resulted in a margin call during the global financial crisis (the worst drawdown since the great depression). Investors should be very cautious about exceeding this threshold, only doing so when there is a dependable source of outside assets or financing that can be relied upon even in the worst market environments.

Figure 8

Keeping a prudent level of leverage helps to avoid margin calls and enhance growth during recovery rallies and bull markets

Historical drawdowns from the global financial crisis, the worst drawdown in modern history, and portfolio returns during the recovery (from trough until the next all-time high)



	Maximum drawdown			LTV		
	Maximum leverage	No leverage	With leverage	Peak-to-trough	Maximum drawdown LTV	Margin call
Conservative	30%	-13%	-18%	4 months 26 days	59%	77%
Moderately conservative	20%	-24%	-29%	1 year 4 months 8 days	54%	63%
Moderate	20%	-34%	-41%	1 year 4 months 6 days	48%	58%
Moderately aggressive	20%	-45%	-53%	1 year 4 months 6 days	44%	55%
Aggressive	15%	-52%	-58%	1 year 4 months 6 days	33%	53%
All equity	15%	-57%	-63%	1 year 4 months 6 days	35%	51%

Source: UBS. This historical analysis uses daily returns on indices that correspond to each broad asset class, and assumes a loan cost of Libor + 2.75%. Past performance is not indicative of future results. Your performance may vary based on implementation and asset allocation differences.

Municipal bonds and deducting the cost of your loan

For an investment loan used to purchase stocks and taxable bonds, you may be able to fully deduct interest costs against your taxable investment income.

A full tax-deduction of interest could dramatically reduce the effective interest cost of an investment loan. For example, assuming the federal top marginal tax rate of 40.8% (37% top marginal rate plus 3.8% for the Net Investment Income Tax), the effective interest rate for a loan could fall from 3.25% to 2.31%.

However, there is a drawback. The tax deduction is only possible if tax-exempt securities such as municipal bonds are not used as collateral for the loan, and are not purchased using the loan proceeds. Municipal bonds will often make up a large percentage of an investor's non-IRA investment assets, and excluding

them from the collateral to back the loan increases the risk that the portfolio could face a margin call, all things being equal. On the other hand, municipal bonds may still be sold to pay down the credit line even if they are not used as collateral.

In our analysis, we assume that municipal bonds are excluded from the collateral, and limit the leverage ratios to manage margin call risk under that assumption, but we also do not adjust the cost of borrowing to reflect a tax deduction. As a result, the potential benefits of leverage may be understated in our analysis.

Speak to your financial advisor and your tax advisor about whether you would be eligible to deduct your investment loan's interest expense by excluding municipal bonds from the collateral backing the loan. If not, then we would recommend keeping your municipal bonds as collateral for the loan in order to provide an even greater buffer against margin calls.

How borrowing can help you achieve your goals

Many investors dislike taking on debt, but it can often be the best option available. To help make this assessment, we recommend that you consider borrowing strategies through the lens of the UBS Wealth Way, which can help you to determine the best solution for meeting your family's unique objectives.

We see four main reasons to consider borrowing strategies:

1. To provide a "bridge loan" or secure liquidity
2. To increase diversification
3. To increase return potential
4. To mitigate taxes

The UBS Wealth Way framework can help to judge whether a particular borrowing strategy's potential rewards outweigh its costs and risks to result in better outcomes or a higher likelihood of successfully meeting your goals. We recommend using the Liquidity, Longevity, Legacy, framework to build a purpose-built investment approach (including portfolio loans and other borrowing resources) across three strategies:

- A **Liquidity** strategy is earmarked to meet your cash flow needs for the next 3–5 years. We recommend funding this strategy with both assets (e.g. cash and bonds) as well as borrowing capacity in order to ensure that you have the resources to finance your spending, even in difficult markets.

Because you don't pay interest until you begin to tap your loan, setting aside borrowing capacity will not drag on your portfolio growth during bull markets the same way that cash and high-quality bonds might.

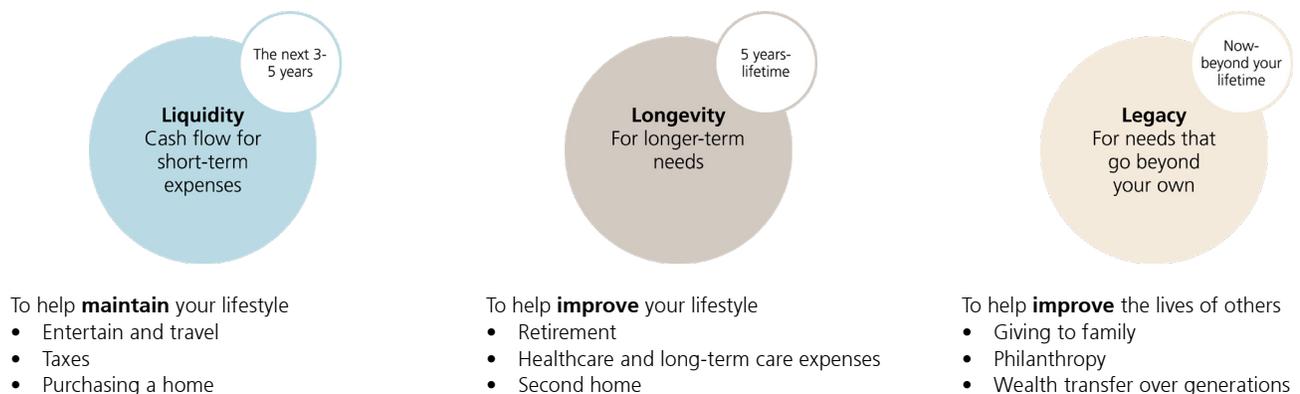
- A **Longevity** strategy consists of resources that you need to meet goals for the rest of your lifetime. When families choose to take out a mortgage to purchase a home, this is an opportunity to use low-cost leverage to make a home purchase more cost-effective. Without leverage, homeowners would miss out on higher investment returns from investing in stocks and balanced portfolios.
- A **Legacy** strategy represents the assets that go beyond your lifetime needs. For these assets, which are often earmarked for future generations and philanthropy, our goal is to maximize the potential for growth and after-tax wealth transfers. Because Legacy strategy assets aren't generally tapped for expenses during your lifetime, they can be very effective collateral for loans. Investors can also use intra-family loans to lend from one entity to another at a preferred interest rate known as the applicable federal rate (AFR). This low-cost loan may offer investors an efficient solution for estate planning and wealth transfer strategies, without needing to liquidate assets and realize capital gains taxes.

For more on this subject, please see our previous report, "[How borrowing can help you meet your goals.](#)"

Figure 9

Borrowing strategies can help you to meet 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.

Borrowing to finance spending

In this paper, we have focused on borrowing from your investment portfolio to add directly to your investment assets. As we discuss in "[How borrowing can help you meet your goals](#)," borrowing strategies can play other roles in helping you achieve financial success. We recommend that investors also consider setting aside borrowing capacity to finance spending, either as an alternative to setting aside large cash holdings that offer limited interest income, or as an alternative to selling investment assets that have greater return potential.

For example, Mark has USD 3,000,000 invested in a Moderately Aggressive portfolio (roughly 70% stocks and 30% bonds). He needs to make a USD 350,000 tax payment, and can choose to raise funds either by liquidating a part of his portfolio, or by tapping into his securities-backed credit line at an interest rate of 2.25%. As shown in the table below, Mark could have approximately USD 15,462 more in his account if he borrows to make the tax payment, and if markets provide an average return over the next year. This analysis doesn't include the impact of realizing capital gains taxes, which could further enhance the value of borrowing, especially if Mark has another source of income to pay down the loan balance.

Market returns are rarely average, but this strategy would have added value in about 75% of 1-year holding periods since 1945, assuming a borrowing cost of 3%. Please see "[Should I borrow to pay taxes?](#)" for more details.

Generally speaking, if you borrow from your securities-backed credit line for spending you may not be able to deduct the loan's interest cost from your taxable investment income. On the other hand, banks will often approve a higher approved credit line balance for loans designated for spending than for loans that are used for investing.

Over the course of several months of spending, you could end up with a similar LTV ratio as directly investing the loan proceeds, but with a lower risk of margin calls due to the higher approved credit line balance.

Figure 10

Borrowing can help you keep your portfolio invested for growth

Portfolio growth, in USD, assuming 6.67% p.a. investment return and 2.25% borrowing cost, following a 1-year investment period

	Option #1 Taxes from portfolio	Option #2 Taxes from loan
Initial portfolio	3,000,000	3,000,000
Credit line	0	350,000
Tax payment	(350,000)	(350,000)
Remaining portfolio value	2,650,000	3,000,000
Return on portfolio	176,695	200,032
Annual loan cost	–	(7,875)
Net investment return	176,695	192,157
Total value added		+15,462

Source: UBS. Expected return is based on UBS Equilibrium Capital Market Assumptions for the Moderately Aggressive Strategic Asset Allocation for taxable investors, without nontraditional asset classes.

How to effectively manage leverage

Rebalancing your loan

One advantage of securities-backed credit lines—as opposed to some other types of debt—is that you can usually pay down the loan balance, or draw additional capital from the credit line, without incurring a transaction cost.

We expect that most investment portfolios will grow faster than the cost of borrowing, most of the time. As a result, it's likely that your LTV ratio will gradually decline over time. If you wish to maintain a consistent LTV ratio, which may help you to boost your long-term expected returns, you can draw additional assets from your loan and add them to your investment account over time. It's important that you do not rebalance your portfolio to an LTV that exceeds your portfolio's maximum recommended leverage ratio, because this could result in a higher risk of margin calls.

Fixed vs. floating rate loan

When you choose how to finance your investment leverage, it's important to consider factors that may lead to rising borrowing costs while you're invested. After falling to historically low levels, short-term interest rates are projected to normalize in the years ahead as the Fed takes its foot off the gas and moves away from the zero lower bound policy.

As such, in today's environment it is a more economically prudent strategy to lock in a fixed rate loan versus a floating rate. A fixed-rate loan may come with a slightly higher borrowing cost than a variable rate loan up front, but can help to protect you against the risk of rising interest rates in the future.

Investors looking to implement portfolio leverage should plan to remain invested for at least five years in order to give their investments a better chance of growing faster than interest costs. With this in mind, a fixed-rate loan with a tenor of five years (or longer, if the planned investment timeframe is longer) would be appropriate.

Another advantage of borrowing at a fixed rate is that irrespective of market conditions, the interest rate remains fixed thus providing stable funding costs until maturity. This will be particularly attractive for borrowers looking to match their asset and liabilities, or who value the clarity and certainty that fixed interest payments can provide—especially in an environment where we expect interest rates to climb higher in the coming years.

Conclusion

- With borrowing costs at historically low levels, portfolio leverage is an increasingly valuable tool in an investor's toolkit.
- Adding leverage to a diversified portfolio can often be preferable to adding stocks, resulting in greater portfolio growth potential and a higher expected return per unit of risk. When executed prudently, portfolio leverage strategies can help investors to enhance portfolio growth potential.
- Investors implementing portfolio leverage should take steps to minimize the risk of margin calls, and review the portfolio to keep the loan-to-value ratio regularly, rebalancing where appropriate to keep the ratio within a safe and consistent range.

Next steps

1. Speak with your financial advisor about your borrowing capacity and the interest rate available for a securities-backed credit line tied to your portfolio.
2. If you are planning to tap into your borrowing capacity, ask your financial advisor whether a fixed-rate loan makes sense for you.
3. Speak with your tax advisor about whether you could deduct the interest on an investment loan from your taxable investment income.
4. Consider whether borrowing might help you fund your spending without realizing capital gains taxes, keeping your portfolio generating growth and income.
5. When seeking a higher return, consider portfolio leverage as an alternative to shifting your allocation from bonds to stocks and other risk assets.

Appendix

Note on municipal bond expected returns

Please note that, throughout this report, we have made a "taxable-equivalent" adjustment to expected returns for municipal bonds. Municipal bond income isn't subject to federal income taxes, so we have adjusted our equilibrium Capital Market Assumptions for municipal bonds to reflect this benefit, assuming that investors will be subject to the 37% top marginal tax rate for taxable income. This adjustment changes our expected return for municipal bonds from 2.8% pre-tax to 4.4% taxable-equivalent, and affects each portfolio proportional to its municipal bond allocation. Therefore, the portfolio returns in this report are estimates on a pre-tax basis.

Release rate assumptions

A release rate, also referred to as an initial lending value, represents the share of an investment's market value that would be counted towards your credit line approval amount. For example, you may be able to borrow 50% of the asset value of a stock, 70% of the value for a high-yield bond fund, and 90% for a US Treasury fund. Your credit line approval amount will reflect the weighted average of the release rates and market value of each of the holdings in the accounts that you have pledged as collateral for the loan. If you have more invested in low-risk securities, your credit line approval amount will be higher than if you have a portfolio of high-risk investments, all things being equal.

The table below includes our assumption for each asset class's release rate, and the weighted average maintenance requirement for each portfolio. For our portfolios designed for taxable investors, we assume that the municipal bond allocations are held in a separate account, not in a collateral account, in order to preserve the potential for interest deductibility. Municipal bonds are often a large allocation in portfolios designed for taxable investors, so excluding them from the loan collateral results in a lower loan approval amount for those portfolios than for the portfolios designed for tax-exempt investors, which do not include an allocation to municipal bonds.

Maintenance requirement assumptions

If the total value of a loan's collateral falls below the maintenance margin requirement (which is to say the loan to value ratio rises above the maximum level supported by its collateral), it triggers a "margin call," prompting the investor to either pledge additional collateral or deposit funds to pay down the loan. In order to manage the risk of a margin call, we take into account the maintenance requirement, which is the minimum amount of collateral required to support a loan balance. If a security on your account has a maintenance requirement of 25%, this means that you must keep at least 25% of the total market value of the securities in your collateral account at all times.

Example

Here is an example to help you understand how maintenance requirements work:

You purchase USD 16,000 worth of securities using USD 8,000 of your cash and USD 8,000 from your securities-backed loan. The securities have a 25% maintenance requirement.

- If the market value of the securities falls to USD 12,000, the equity in your account will fall to USD 4,000 (USD 12,000 market value – USD 8,000 loan balance = USD 4,000 equity). At a 25% maintenance requirement, you must have USD 3,000 of equity in your account (25% maintenance requirement x USD 12,000 market value = USD 3,000 equity requirement). Because you still have USD 4,000 equity, and this is more than the 3,000 maintenance requirement, you do not face a margin call.
- If the market value of the securities falls to USD 10,000, the equity in your account will fall to USD 2,000 (USD 10,000 market value – USD 8,000 loan balance = USD 2,000 equity), which is below the equity required to support the loan (25% maintenance requirement x USD 10,000 market value = USD 2,500 equity requirement). This would trigger a margin call. In these circumstances, you would need to pledge additional collateral, raise funds by selling securities, or deposit funds from another account to pay down the loan balance.

For each portfolio, we calculate the maintenance requirement (and the corresponding LTV ratio) using a weighted average of the portfolio's holdings' maintenance requirements. For example, if the portfolio has a 50% allocation to an asset class with a 25% maintenance requirement, and the other 50% is invested in an asset class with a 50% maintenance requirement, the portfolio's maintenance requirement is 37.5% (50% x 25% + 50% x 50%).

The table below includes our assumption for each asset class's maintenance requirement, and the weighted average maintenance requirement for each portfolio. Higher-risk and less-liquid investments have a higher maintenance requirement. Our estimates are based on a portfolio of exchange-traded fund proxies for each asset class, where available.

These assumptions allow us to run a hypothetical "stress test" for a given portfolio. By simulating a repeat of the market downturn seen during the global financial crisis—the worst drawdown since the great depression—we can assess whether the loan's collateral would have fallen below its maintenance requirement. These stress tests help us to determine the "Maximum leverage" threshold guidance for a portfolio, which we calibrate to maintain a significant buffer from a margin call even during severe market disruptions. Investors should be very cautious about exceeding this threshold, only doing so when there is a dependable source of outside assets or financing that can be relied upon even in the worst market environments.

These figures are only estimates. Actual maintenance requirements for specific clients and accounts are based on many considerations and are subject to adjustment or change at any time at the discretion of the lender. A security may, depending on threshold minimums, market conditions and other factors, be subject to a 100% maintenance requirement.

Figure 11

Maintenance requirements and release rate assumptions

Release rates indicate the share of an investment's market value that would be counted towards your credit line approval amount. Maintenance requirements indicate the minimum amount of collateral required to sustain a loan balance.

Asset class	Release rate	Maintenance requirement
US Cash	50%	4%
US Government FI Short	50%	8%
US Government FI Intermediate	50%	8%
US Government FI Long	50%	16%
Municipal Bonds*	N/A	N/A
US Investment Grade FI	50%	16%
US Corporate High Yield FI	50%	20%
EM Hard Currency FI	50%	20%
EM Local Currency FI	50%	20%
US Large-Cap Growth	50%	50%
US Large-Cap Value	50%	50%
US Mid-Cap	50%	50%
US Small-Cap	50%	50%
Int'l Developed Market Equities	50%	50%
Emerging Market Equities	50%	50%
Hedge Funds	0%	100%

Portfolio	Weighted average release rate*	Maintenance requirement	Maximum leverage threshold	Maximum loan-to-value (LTV) ratio
Conservative - taxable	22%	11%	30%	77%
Conservative - tax-exempt	50%	19%		
Moderately conservative - taxable	22%	18%	20%	63%
Moderately conservative - tax-exempt	50%	26%		
Moderate - taxable	29%	26%	20%	58%
Moderate - tax-exempt	50%	32%		
Moderately aggressive - taxable	39%	36%	20%	55%
Moderately aggressive - tax-exempt	50%	40%		
Aggressive - taxable	47%	44%	15%	53%
Aggressive - tax-exempt	50%	45%		
All equity	50%	49%	15%	51%

*In our analysis, we assume that municipal bonds are held in another account, not used to back the loan. In a market drawdown, these assets could be sold to pay down the loan, but we do not include this capability in our margin call stress test analysis.

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