Insights from UBS Wealth Management Research – Americas Volume 2

UBS on
retirement planning now

Risk: How much is enough?
A new strategy for moving forward in a changed world

UBS

The three dimensions of retirement planning—increasing savings, adjusting risk levels and resetting goals—must be reevaluated as part of a comprehensive financial plan.

While the global financial crisis that shook markets to their core last autumn may have finally begun to abate, the damage inflicted on investors' portfolios—and their psyches—has proven far more enduring. For all investors but especially those poised to retire, the fallout has resulted in an imbalance among the current value of retirement assets, the projected future retirement needs of investors and the ability to close the gap through additional funding. Investors face difficult choices related to what we've termed the "trilemma," where the three dimensions of retirement planning—increasing savings, adjusting risk levels and resetting goals—must be reevaluated as part of a comprehensive financial plan.

But merely highlighting these dimensions—and the difficult decisions they require an investor to make—may still not be enough to bring portfolios back into balance. Thus, we propose a nontraditional approach toward managing retirement assets that allows investors to match specific segments of their portfolios to clearly defined objectives, which reflect stated needs, wants and wishes.

Segmenting the portfolio in this way allows the investor to help identify how much risk needs to be taken—dialing it up or down as necessary to reach investment goals. While this essential evaluation won't painlessly solve the retirement planning trilemma, it will empower investors to make more enlightened decisions about how much risk they will need to take—and how that risk should be incorporated into their retirement portfolios.

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Confronting risk in a changed world

The gap between how much retirement assets are now worth and how much individuals will need for retirement represents one of the most critical challenges facing investors today. While traditional measures, such as saving more and working longer, can help narrow this gap, they only go so far.

It is crucial to incorporate a disciplined approach that helps identify just how much risk needs to be taken to meet investment goals.

Aim to restore balance
The crisis has resulted in an imbalance among the current value of retirement assets, the projected future retirement needs of investors and the ability to close any difference through additional funding.

Reevaluate the trilemma
The trilemma centers on the three dimensions of retirement planning: savings, investment goal-setting and risk-budgeting.

Reprioritize investment objectives
Whether an objective is termed a "need," a "want" or a "wish" affects the relationship of risk requirements and risk tolerance.

Find an acceptable risk-return trade-off
Greater risk has been associated with greater return—but this was not the case during the last two bear markets. Still, more ambitious return goals can only be achieved with greater portfolio risk.

Consider a nontraditional approach to managing retirement assets
Segment a portfolio into separate buckets of assets aligned with a set of risk-matched objectives. The approach can manage to an acceptable level of losses while retaining the prospect of achieving key goals.

The trilemma of retirement planning

Few were truly prepared for the magnitude of the losses that resulted from the recent financial crisis. Most investors planning for retirement have altered their risk tolerance as they seek to close the gaps that now exist between reduced portfolio values and ambitious retirement objectives. Keep in mind that investors respond differently to this quandary—some are simply too scared to make a move, while others are reducing portfolio risk and scaling back their goals. Then there are those who will dial up risk in an effort to regain their footing. And still others will dial up *too much* risk—at the peril of their portfolios.

It is these choices surrounding the retirement portfolio planning process that we seek to tackle in this report. While we recognize that the notion of simply "de-risking" a portfolio may sound appealing, investors need to understand the potential costs of such a choice. The destruction of wealth that occurred from a combination of a bursting of the real estate bubble, a collapse in commodity prices and an implosion in "risk assets" (those where the return is uncertain) has left most investors scrambling to pick up the pieces. While financial markets have begun to recover, many investors are still reeling from the aftershocks of the crisis and are seeking ways to limit their exposure to further losses. However, such a one-sided focus on risk mitigation leaves them vulnerable to the possibility of failing to meet longer-term goals—which brings us to risk and return. It is impossible to discuss one without the other.

History shows that, over time, portfolios consisting of riskier assets, such as equities, will tend to outperform more conservative portfolios that are heavily invested in bonds and cash. This risk-return interdependence is at the crux of modern portfolio theory (see Figure 1, which includes return data going back to 1926). This chart depicts the so-called "efficient frontier," a set of well-diversified portfolios with progressively higher degrees of risk.

Efficient frontier since 1926

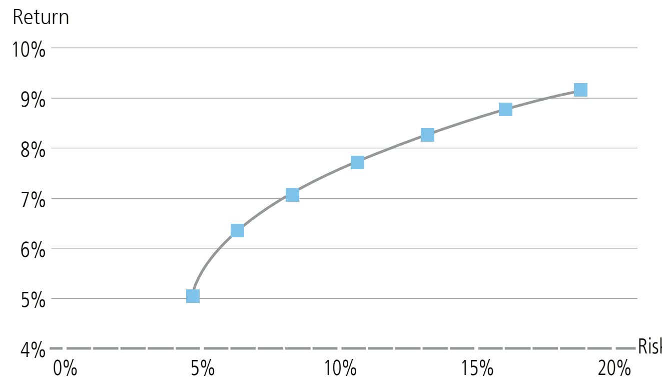

Figure 1: Well-diversified portfolios with increasing risk levels
Source: UBS Wealth Management Research

Clearly, the risk-return kinship reflects a trade-off; over the long term, greater risk has been associated with higher levels of return. And while the two bear markets of the last decade have led to a protracted period during which investors were *not* rewarded for risk-taking, there is no reason to conclude that the risk-return relationship has been invalidated. This we still know to be true: More ambitious return goals can

Some investors are simply too scared to make a move, while others are reducing portfolio risk and scaling back their goals.

only be achieved with greater portfolio risk. Still, while more risk-taking is associated with a greater return on average, it also means that in some adverse scenarios, the investor will be worse off.

This report addresses how investors can strike the right balance between seeking to limit risk on the one hand, while positioning their overall portfolios to achieve a reasonable set of retirement goals on the other. We begin with an analysis of risk in the context of its emotional and psychological impact on investors.

Heightened risk aversion: the roots, the implications

Perhaps nothing captures the ongoing sense of risk aversion better than the large surplus of funds currently sitting in money market accounts. The ratio of assets in money market accounts to the total capitalization of the S&P 500 hovers near all-time highs (see Figure 2). The reluctance of investors to recommit cash to markets has been a subject of

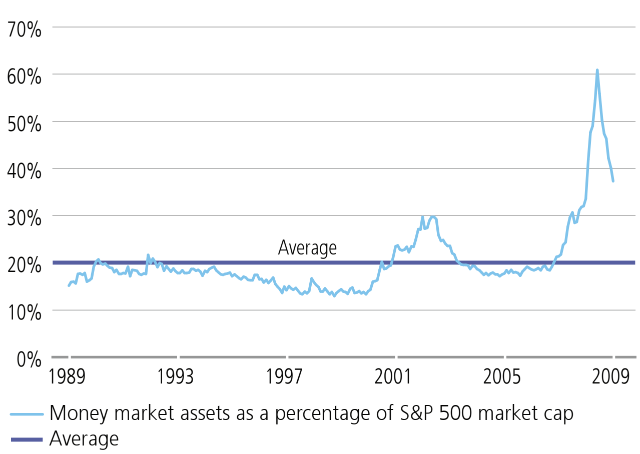

Figure 2: Reluctance to commit cash to markets

Source: Bloomberg, Thomson Financial, UBS Wealth Management Research

considerable debate. One school of thought says this is merely cyclical and that as the recovery process continues, those funds will increasingly be drawn off the sidelines. If this is the case, cash balances will quickly return to "normal" and investors will again view cash as a source of liquidity rather than a store of wealth.

Another school of thought holds that the shift into cash represents a more long-lasting change in behavior as a result of two major market traumas—the bursting of the tech bubble and the recent credit crisis (which caused what has probably been the most traumatic bear market in several generations). The fact that this one-two punch took place in the span of just a decade has compounded its effect on investor psyches.

Therefore, rather than reflexively jumping back into risk assets as evidence of a more sustained turnaround emerges, investors may opt to maintain higher allocations to low-risk holdings. There is some psychological basis within the scientific community to support the view of lingering risk aversion. Researchers have identified a biochemical change they call "memory trace," where the level of trauma suffered as a result of an event will determine its impact on emotional memory. Behavioral finance psychologists have found support for memory trace in the case of once bitten, twice shy investors who exhibit greater defensiveness in the wake of heightened market volatility.

Memory trace: A real life example

Anyone who has ever been involved in a car accident understands the impact that such a traumatic event can have on future behavior. After the accident, a greater awareness of potential threats on the road often leads to a tendency to drive more cautiously and defensively.

While such a reaction is understandable, it can still generate unintended consequences. Entering an expressway at 25 miles per hour, for example, could potentially expose that same driver to other risks, such as forcing other drivers to swerve or brake sharply in an effort to avoid hitting him. It's easy to see that the instinctive desire to reduce risks in the immediate aftermath of a crisis may not turn out to be the safest course of action after all.

However, it would be wrong to characterize the apparent unwillingness of many investors to reenter the equity markets as exclusively the result of psychological forces. There are, in fact, instances when not taking action may be perfectly rational. Consider those investors whose financial positions have deteriorated sharply, and who face significant outlays in the immediate future for which they need to hold liquid assets. This is the case with many of the 75 million Americans migrating toward retirement, for whom holding a larger portion of their assets in cash can make sense in certain circumstances. They may simply be unable to accept the uncertainty that is associated with more volatile risk assets.

The dimensions of retirement planning

With investment portfolios significantly below pre-crisis levels, there is a disconnect among financial goals, the total amount of planned savings and the level of risk-taking within the portfolio of assets. In order to restore balance to their portfolios, investors must make some difficult personal decisions regarding the trilemma's retirement planning dimensions—savings, goals and risk:

- *Savings*. This is essentially a product of how much is earned, how much is saved and how long one works. Absent any material changes in goals, a reduced risk appetite would require that investors

Investors must make some difficult personal decisions regarding the three retirement planning dimensions—savings, goals and risk.

greatly increase savings used to fund their portfolios, both to compensate for the loss of wealth suffered during the crisis and to reflect the lower expected rate of return (see Figure 4).

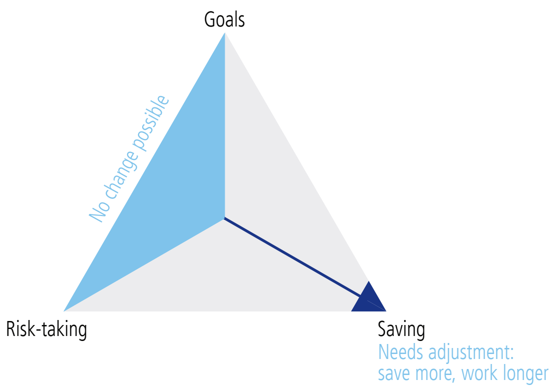

Figure 4: Savings need to be increased
Source: UBS Wealth Management Research

- *Investment goals.* These are determined by the major planned expenses that cannot easily be funded with current earnings and, therefore, must be financed out of the investment portfolio. If additional savings cannot be secured, and investors are unwilling to take on more investment risk, then they must consider scaling back their goals (see Figure 5).

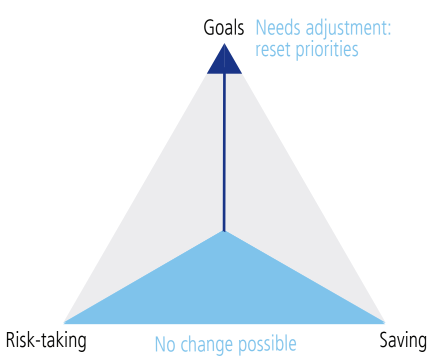

Figure 5: Goals must be scaled back
Source: UBS Wealth Management Research

- *Risk budget.* If additional savings sources cannot be secured *and* investors remain committed to their goals, then they must consider taking on more investment risk as the price of aspiring to reap higher expected returns. And while this option may not be realistic for all investors, it is important to at least consider this course of action with a full understanding of the risk-return retirement planning trade-offs (see Figure 6).

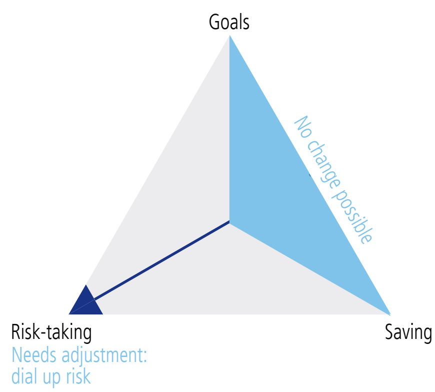

Figure 6: More risk must be taken
Source: UBS Wealth Management Research

Once they understand the trilemma's dimensions, investors, along with their Financial Advisors, must make determinations about how to create a blueprint for retirement planning going forward.

A traditional approach to retirement planning

The traditional approach to restoring balance to a retirement portfolio includes boosting savings, scaling back goals and reassessing risk appetite—keeping in mind, of course, that each aspect comes at a cost.

Adjusting the savings strategy

Where the retirement goals are considered unalterable and risk tolerance is viewed as a given that constrains investor risk budgets, then by default the most viable solution involves boosting the amount of savings that is committed to the investment portfolio.

Some ways to modify the amount of savings include:

- *Increase portfolio payments.* This entails increasing annual household income, cutting back on expenses and/or saving a greater share of earned income.
- *Postpone retirement.* This allows the funding level of the portfolio to be rebuilt over a longer period of time.
- *Make a one-time fund transfer into the portfolio.* This is relevant in cases where the retirement portfolio is only a portion of total wealth.

Addressing retirement goals

There are undoubtedly many instances when the savings strategy cannot be adjusted. Then, either the portfolio goals or the risk budget must be reexamined:

- *Prioritizing goals.* Objectives can be reordered according to whether they are *needs, wants* or *wishes* (see Figure 7). *Needs* incorporates essential elements or mandatory expenses that almost certainly would necessitate funding. *Wants* consists of nonessential yet important items that provide a high level of expected benefits. *Wishes* comprises nonessential, discretionary items that would be funded through surplus assets.

- *Resetting goals.* If low risk tolerance is constraining a portfolio's ability to achieve goals, one option is to reexamine these objectives. It is useful to do this periodically since they may have changed with the passage of time. This may require some resetting of return expectations. The best way to facilitate a rigorous review of investment goals and return expectations is with a comprehensive financial plan.

Reviewing the risk budget

Another means of bringing a retirement plan back on course is to reexamine the investor's willingness and ability to take on additional risk. Here, the concepts of risk tolerance and risk requirements come together.

As we noted earlier, over longer time horizons, higher investment returns can only be achieved by incurring greater investment risk. At the same time, there now seems to be a reduced appetite for risk. Yet the resetting of expectations with regard to longer-term investment goals has only just begun. There is still a disconnect between goals that investors seek to realize and the risk levels they are willing to assume.

Figures 7-9 illustrate the interplay between risk requirements as determined by investment goals (needs, wants and wishes) and risk tolerance.

- *Needs.* The bottom row in Figure 7 reflects the circumstances in which an investor seeks to attain a minimum return objective and has a low risk tolerance level. The solution is a well-diversified, *conservative* portfolio with a lower risk profile.

- *Needs and wants.* An investor who seeks to achieve a moderate set of goals and has a medium risk tolerance level would likely favor a well-diversified *moderate* risk portfolio.

- *Needs, wants and wishes.* The investor who sets a more aggressive return objective and is comfortable with a higher risk tolerance level could achieve the best outcome by building an "efficient," *aggressive* portfolio with a higher risk profile. (Mean-variance efficient portfolios are combinations of assets that maximize expected return for a given level of risk.)

When the risk-reward alignment falls short

Both Figures 8 and 9 show that a reduced risk tolerance restricts the ability to achieve goals. Figure 8 depicts a situation in which an investor seeks to achieve a moderate set of return objectives (the "needs and wants" priority set), but because of the impact from the global financial crisis now identifies with a lower risk tolerance level. Figure 9 shows an even wider gap between "risk objectives" and "risk appetite." In both examples, there is a big discrepancy between what the objectives call for in terms of risk-budgeting and what the risk tolerance levels would permit. In each instance, the probability of meeting the more aggressive objectives with lower risk budgets is exceedingly low.

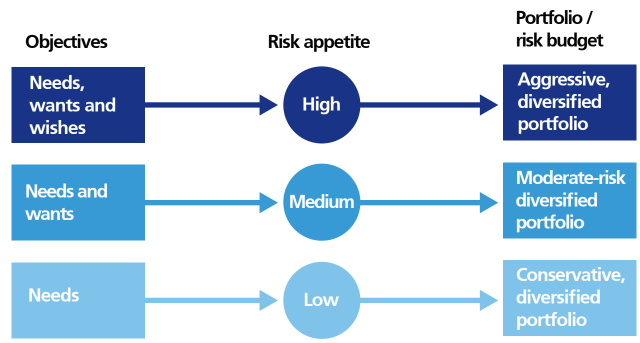

Figure 7: Goal levels reflect risk appetite
Source: UBS Wealth Management Research

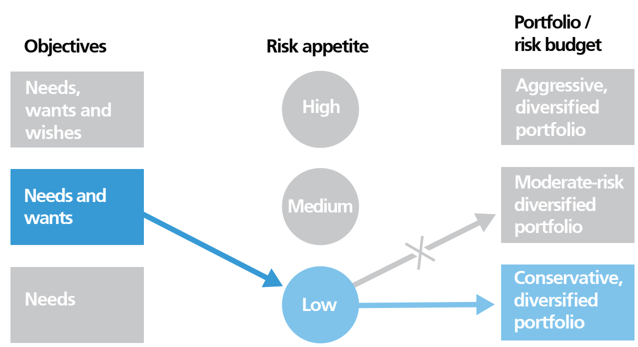

Figure 8: Moderate goal levels and low risk create gap
Source: UBS Wealth Management Research

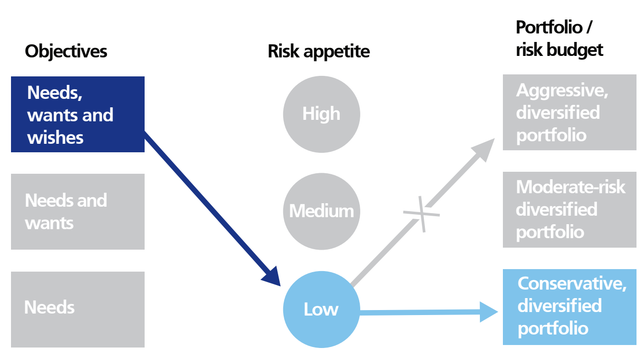

Figure 9: Gap widens between goals and risk appetite
Source: UBS Wealth Management Research

A new approach to integrating risk into a retirement portfolio

Our nontraditional approach to retirement planning is for the investor who is committed to a certain set of goals that appear inconsistent with stated risk tolerance levels. This approach relies on modifying the investment portfolio to bring it in line with the investor's risk needs, but without violating the stated risk tolerance levels.

Keep in mind that for most people the perception of risk is "asymmetrical"; that is, investors usually don't mind taking risk as long as they reap the upside, but understandably seek to avoid downside exposure. As identified by Nobel Prize winner Daniel Kahneman, together with Amos Tversky, the perceived loss of well-being associated with a financial loss is greater than the perceived gain arising from a financial profit of the same magnitude. They argued that it is *loss* aversion—not risk aversion—that is the key driver of many investment decisions.

Once we acknowledge the importance of loss aversion, it is possible to manage to an acceptable level of losses, while retaining the prospect of achieving those goals that would fall under "wishes." One approach is to segment the portfolio into separate buckets of assets that can be closely aligned with a specific set of risk-matched goals.

Figure 10 shows these asset buckets across a risk-return spectrum in a hypothetical portfolio. Every type of asset falls somewhere along this spectrum. Investors could look to segment certain types of assets into larger buckets that are aligned with more specific purposes. In some ways, these buckets can be viewed as a means of targeting assets to meet each of the different levels of objectives set by the investor.

On the far left of the spectrum are the lowest-risk assets with the highest levels of liquidity. This likely includes cash and short-dated government securities. The largest bucket of assets rests in the middle of the spectrum and includes the majority of the individual's financial and physical assets as well as human capital (earnings potential).

On the far right are assets that are higher risk as well as those with little or no liquidity. These could range from speculative-grade securities and private equity to certain types of leveraged instruments. While the spectrum itself is pretty straightforward, the manner in which these different buckets of assets can be modified to manage risk is a bit more involved. As risk appetite changes, the mix of assets will need to be recalibrated to ensure that the portfolio is still on course to meet the investor's retirement goals. It is

Figure 10: Assets are bucketed across a spectrum of risk
Source: UBS Wealth Management Research

here the concept of divvying up assets into buckets to serve specific purposes becomes critical. Let's take a closer look at the buckets themselves as well as the instruments that populate them.

Liquidity bucket: short-term, low risk

The first risk bucket should contain those funds necessary to fulfill the liquidity needs for the individual over some predefined time horizon. The funds in this segment of the portfolio will vary, depending on the personal circumstances of each investor. For those with few liquidity needs and highly stable income sources, this reserve could be modest and include only the funds required for anticipated—and some unanticipated—cash outlays. Those with somewhat less secure income might invest anywhere from six months' to two years' worth of living expenses in this bucket to provide for unforeseen cash needs (i.e., "iron reserve"). For individuals without income other than portfolio assets, this cash reserve could be intended to provide the next three to five years' worth of living expenses (adjusted for inflation). The sole purpose of the investments in the liquidity bucket is to provide a sufficient level of secure, available assets over a long enough time horizon so an investor has a margin of safety in any contingency. Hence, 100% of this bucket of assets needs to be invested in capital-protected securities, such as money market instruments or a short-term laddered Treasury bond portfolio.

Core bucket: the lion's share

The core asset bucket consists of the bulk of the individual's assets, including all investment holdings, pension plan assets, physical property, human capital and business interests, among others. The mix of financial assets—stocks, bonds, mutual funds, hedge funds, etc.—should be held in accordance with the individual's stated risk preference and positioned to maximize the level of return for the degree of risk taken. The investment portfolio must still be integrated into the broader portfolio of assets. If, for example, pension assets are less secure or the risks associated with business interests are high, the risk tolerance for the investment portfolio might be lower. The only way to determine the appropriate level of risk for the financial assets is to implement a comprehensive financial plan that considers an investor's entire array of assets.

Leverage bucket: the risk overlay

The leverage bucket contains a mix of more highly leveraged, less-liquid risk assets that should be utilized as a *risk overlay* on the overall portfolio. For the loss-averse investor, both the size and composition of the first two buckets largely determine just how much risk an individual would need to take within the leverage bucket in order to provide the opportunity to attain significant goals. It should therefore be viewed as the risk overlay, and it offers the investor the opportunity to dial up or dial down risk.

It is essential to keep in mind that the three buckets are interconnected. In particular, if the individual requires a large liquidity reserve, this would call for a more significant ratcheting up of risk within the leverage bucket to generate the required rate of return and a smaller allocation to the core portfolio subset. On the other hand, if the cash requirements are minimal, the risk overlay might include fewer leveraged positions and a larger allocation to the core bucket.

Portfolio efficiency

Portfolios typically consist of some mix of assets across the risk spectrum. The best managed portfolios strive to be efficient, and assets are incorporated in such a way that the mix offers the highest potential return for the lowest possible risk. The integration of all these assets in an optimal mix is then referred to as the core portfolio. As already noted, many individuals have become increasingly risk-averse. They may choose to have more of their assets concentrated on the far left of the risk spectrum, i.e., lower-risk, highly liquid

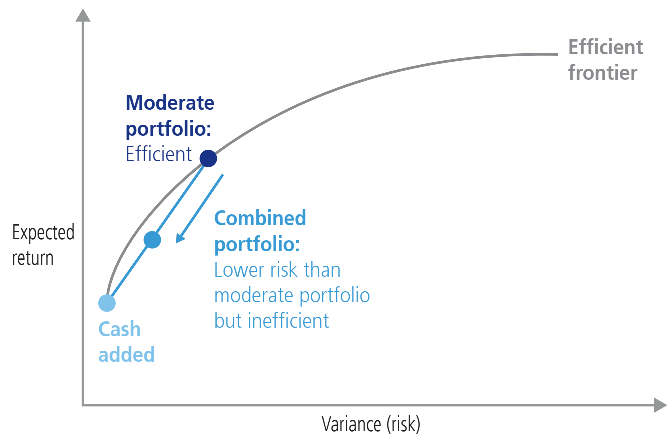

Figure 11: Inefficient: low-risk assets, reduced return
Source: UBS Wealth Management Research

assets. This will entail a sacrifice on two fronts: the expected return on this new, lower-risk portfolio will be lower than on the original portfolio; also, some level of portfolio efficiency is lost, as a smaller portion of the total assets are now invested in the optimal core portfolio (see Figure 11).

How then can the individual still hope to achieve the original goals if the return profile of the overall portfolio is now lower? For certain investors, one way to accomplish this is to incorporate a risk overlay to the portfolio. A risk overlay could include a mix of higher-risk leveraged instruments or options, which provide upside opportunities, but at a definable and limited risk to the overall portfolio (see Figure 12).

The risk overlay is used to modify the investment portfolio to bring it in line with the investor's risk needs, but without violating the stated risk tolerance levels.

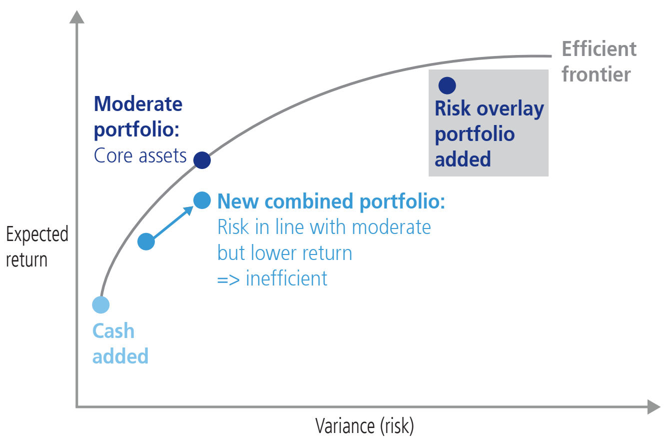

Figure 12: Higher-risk assets but still inefficient
Source: UBS Wealth Management Research

Keep in mind, however, that implementing such a strategy also entails some loss of efficiency when compared with the optimal mean-variant efficient portfolio.

At what cost?

So why would an investor want to adopt such a nontraditional "bucketed" approach if it requires investing in a portfolio that is not efficient? The benefits of the segmented approach are found not so much in characteristics of the resulting portfolios, but in the ability to construct portfolios that address the investor's loss aversion concerns—while still allowing for enough risk-taking to achieve financial goals. The approach can therefore represent an improvement in terms of the investor's overall financial situation.

One challenge for the nontraditional approach is to make sure that the combination of assets in the different buckets is still allocated in a manner that allows for both high efficiency and low cost in the integrated portfolio. There is always the danger of sacrificing portfolio efficiency when the portfolio is broken down into segmented buckets. The spectrum should therefore be viewed as a complementary means of segmenting assets for specific purposes within a well-diversified portfolio—not as a substitute for efficiency.

To be more specific, the share of the overall portfolio allocated to the liquidity and leverage buckets will determine the extent to which the combined portfolio departs from the benchmark of an efficient portfolio.

Typically, the smaller the share of the core bucket, the greater the loss of efficiency. Figure 11 (on page 10) shows a moderate risk portfolio that is inefficient, i.e., there's another portfolio with the same level of risk but a higher expected return. Given the investor's increased cash holdings, achieving a sufficient level of risk and expected return for the overall portfolio would require shifting funds from the core portfolio to a leverage portfolio, as represented in Figure 12. However, in many cases, a leveraged portfolio will not be efficient (relative to a well-diversified portfolio of similar risk). The resulting combined portfolio—with cash position and risk overlay—will usually be inefficient as well.

Bringing the retirement portfolio back into balance

To understand the new approach, consider the circumstances of a 60-year-old investor who has suffered a substantial decline in the value of his investment portfolio and now must address a funding gap.

In this example, we assume the initial "pre-crisis" level of the portfolio was $6.1 million, the 60-year-old individual was planning to retire in five years and the required annual spending objective from this portfolio was $195,000. Further we assume that the investor previously had a "very aggressive" risk tolerance level compatible with a pre-crisis asset mix of 70% stocks and 30% bonds.[1] Based on forward-looking returns from the portfolio of stocks and bonds, using a Monte Carlo simulation,[2] it was projected that the portfolio would achieve the investor's spending objectives with a probability of about 95%.

However, in the immediate aftermath of the market crash, the value of the portfolio fell from the initial level of $6.1 million to just $4.3 million—a decline of about 30%. It is now projected that the probability of meeting the annual retirement income target has fallen to just 59%. But in view of both the magnitude of the losses suffered and the fact that the planned retirement date is just five years away, the individual has expressed a desire to reduce risk exposure. And with a shift from a 70% equity/ 30% bond mix to 50% bond/ 50% cash, the probability of

[1]This asset allocation is based on the most aggressive of the seven investor risk profiles developed by UBS Investment Solutions. Asset allocations differ among investors according to their individual circumstances, risk tolerance, return objectives and time horizon. The hypothetical allocation presented may not be suitable for all investors or investment goals and should not be used as the sole basis of any investment decision.

meeting the income-planning objective is reduced even further to practically zero.

Against this backdrop, the individual has several difficult decisions to make in an effort to bring the portfolio back into balance with planning goals. These include: sharp reductions in the targeted level of post-retirement income; postponement of retirement for several years; and the injection of additional funds into the retirement portfolio. For this example, we assume that the investor has shifted to a 50% bond/50% cash mix as part of a de-risking strategy.

Among the actions to consider:

Revisit goals

Assuming the individual still intends to retire in five years and is unable to secure any additional sources of funding, annual post-retirement income would need to be reduced from $195,000 to $155,000 per year to achieve a 95% probability of meeting plan objectives.

Delay retirement

If the individual is willing to delay retirement for two years, then the targeted annual income would only need to be reduced to $166,500 to achieve a 95% probability of meeting plan objectives.

Increase funding levels

By extending the retirement date by two years and injecting an additional $81,000 per year in supplemental funding, the targeted annual income would drop to just $185,100, with a 95% probability of meeting this spending objective.

Review risk budget

As noted above, one way to bring a retirement portfolio back on track may be to reexamine portfolio risk, which could increase the anticipated annual returns as well as the likelihood of reaching investment goals. Keep in mind, however, that the short time until retirement makes this option much more challenging for the 60-year-old. The greater volatility and wider range of potential outcomes from a larger equity weighting might make it more difficult to achieve specific annual spending targets with a high degree of certainty. So, as noted earlier, the most rational choice for those who face the prospects of significant outlays in the immediate future could well be to hold a higher portion of liquid assets.

[2]Probabilistic analysis, often referred to as "Monte Carlo" simulations, is a tool for evaluating potential future performance of asset allocation strategies. Each simulation is based on estimated forward-looking risk, return and correlation assumptions, all of which are subject to change as a result of market volatility, economic factors and world events. This analysis is not a guarantee, prediction or projection and the results shown can change over time and with each use if any of the underlying assumptions are changed.

Retaining risk exposure to meet more ambitious goals

What's missing from the simple example on the previous pages is any consideration of retirement goals beyond annual spending targets, such as purchasing a second home or charitable gifting.

While maintaining a certain post-retirement spending level is clearly the primary goal of any well-designed plan, it is rarely the only one. Increasingly, individuals seek to secure a family or philanthropic legacy as well. De-risking the portfolio through a shift to a 50% bond/50% cash mix may help address the annual income requirement, but it makes no allowances for goals above and beyond that requirement. It is here that the nontraditional approach to the trilemma can help bridge the gap between de-risking of portfolios and retaining *some* risk exposure to help meet those goals that would fall under "wishes." By incorporating a risk overlay as a supplement to the 50% cash/50% bond mix, the investor can combine more secure annual spending needs with more ambitious goals.

Consider once again the investor whose portfolio has declined from $6.1 million to $4.3 million. He recognizes the trade-offs that he faces and, after reprioritizing his spending objectives, believes he can accept the annual spending objective of $155,000 that comes with the 50% bond/50% cash mix. However, this alternative entails either forgoing more ambitious goals, such as making charitable contributions, or reducing projected expenditures on travel and leisure in retirement. As discussed above, the Monte Carlo simulation indicates that this reduced objective can be achieved in 95% of all cases, whereas the original $195,000 objective has virtually no chance of being achieved.

However, in exchange for a further marginal reduction in spending objectives, the individual could possibly reap a substantially higher upside in certain favorable scenarios through the use of a risk overlay. Specifically, if he is willing to reduce his retirement spending objective by just 5%, to the $147,250 level, approximately $230,000 can then be deployed to a risk overlay strategy. There are many ways such a risk overlay can be structured. Without suggesting this strategy is superior to other alternatives, let's consider a 10-year call option on the S&P 500 stock index that is held to expiration. Investing just $230,000 in such a structure would be expected to generate the following range of outcomes with associated probabilities:[1]

This is clearly a risky strategy as the call option has a nearly two-thirds chance of being worthless after 10 years. However, it also presents the investor with the prospect of returning an amount in excess of $3 million with a probability of 22%. To put this in perspective, if $3 million were reinvested in a 50% cash/50% fixed income portfolio after the 10-year period when this investor turns 70, this would be compatible with an additional annual spending of $124,300 with 95% probability. In other words, annual income would jump from about $147,000 to more than $270,000. Instead of using these funds to supplement annual spending, the investor could elect to use all or a portion of the funds for more ambitious objectives.

Outcome	Probability
$0	65%
$1 - $800,000	3%
$800,000 - $3m	10%
$3m and up	22%

Figure 13: The potential impact of the risk overlay
Source: UBS Wealth Management Research

[1]The payout in the options example was calculated using the following assumption. The investor purchases $230,000 worth of call options on the S&P 500 stock index. The call options have a strike price set at double the current spot price, they expire in 10 years and are held until expiration. The initial call premium is priced with the Black-Scholes formula for European options using the following capital market assumptions: Risk-free rate = 4.8%, equity volatility = 15.4%, dividend yield = 2%. To determine the distribution of final outcomes, one thousand random 10-year runs of the stock index are simulated, assuming normally distributed annual total returns with mean equal to 8.2% and volatility as stated above. The value of the call at expiration is determined as the greater of the excess of the stock price over the strike price and zero.

This strategy is clearly not for everyone. However, it does provide an alternative worth exploring for investors who are both reluctant to fully abandon their "wishes" and who also have the ability to marginally reduce their more basic spending objectives. More broadly, the risk overlay strategy can be viewed as a means of satisfying the desire to de-risk the portfolio, yet also provide the opportunity to make wishes come true. Consider:

- The larger allocation to the liquidity bucket provides more secure short-term funding sources for investors who face the prospects of significant outlays in the immediate future.

- With about 95% of the portfolio in bonds and cash, the portfolio has basically been de-risked. Combining the risk overlay with a more conservative asset mix in the liquidity and core buckets results in a more asymmetrical return profile with a far lower maximum risk level in case of another market meltdown.

- The risk overlay offers some probability that the investor will be able to at least partially realize some wishes, such as charitable contributions and leisure travel.

Not for everyone

There are a number of critical factors an individual must carefully consider before implementing a nontraditional approach that incorporates a leverage, or risk overlay, strategy:

- *The investments within the leverage bucket may include complex and risky instruments with limited liquidity.* While the overlay is intended to complement the overall portfolio in achieving a certain risk balance, investors still need to have a conversation with their Financial Advisors to determine whether or not these individual holdings are appropriate for them.

- *There is no free lunch.* While the liquidity portion of the portfolio will provide some level of insulation from extreme market moves, the risk overlay means the portfolio will still be exposed to potential losses.

- *The risk overlay offers the opportunity to achieve important goals, but, of course, does not ensure a certain income*. As with any options-based strategy, the outcome will ultimately depend on prevailing market conditions at the time the instrument matures, expires or is exercised.

- *The loss of efficiency and potential for lower expected return within the overall portfolio makes the risk overlay strategy a less than optimal approach.* That means investors need to consider the costs of this strategy as opposed to the benefits gained by bringing risk levels in line with risk requirements. For many, the traditional approach may be both more familiar and more appropriate.

It is clear that a segmented portfolio approach that incorporates a risk overlay strategy will not eliminate risk from a client portfolio. Nor is it for everyone. However, such an approach does provide some advantages for those investors seeking to limit overall downside risk from extreme events, while still attempting to achieve a certain set of goals.

By shifting the composition of the portfolio among the three buckets, an investor can fundamentally alter the impact from different market events. Taken to the extreme, a portfolio that consists entirely of cash and an option on the S&P 500 would have significantly different downside risk than a pure stock portfolio in the event of a 60% market crash. So while the bucket approach may not be the most efficient, it might offer the best way to balance the need for returns against the aversion to catastrophic market losses.

Conclusion

Risk is a broad and ever-changing concept. Most investors seized on the destruction in wealth associated with the recent financial crisis as the proxy for risk. This is not surprising given the impact the crisis has had on the financial position of both individuals and institutions. In response, many have elected to dial down portfolio risk by reducing the use of leverage and shifting toward a more conservative asset mix. But as we have addressed in this report, a de-risking within investment portfolios may unintentionally increase the risk that investors may fail to meet their return aspirations, as well as longer-term investment objectives—in particular, their retirement goals.

This suggests that identifying the right balance between risk tolerance and risk requirements is essential. The best way to do this is through a comprehensive financial plan. Once this assessment is completed, investors can consider strategies such as combining low-risk assets with a risk overlay similar to a core-satellite strategy to achieve their investment goals. One such strategy involves splitting the portfolio into separate buckets of all assets that can be viewed as linking to a specific set of risk-matched goals. While this won't painlessly solve the retirement funding trilemma, it will allow investors to make more informed decisions about how much risk they will need to take—and how that risk should be incorporated into retirement portfolios.

About this publication. This report is the second in a series of Thought Leadership (TL) white papers, published by Wealth Management Research – Americas (WMR) in collaboration with others within and outside UBS Wealth Management. TL seeks to provide private clients with the latest, most innovative thinking on a variety of topics relevant to their investing needs.

In drafting this report, WMR worked with other UBS groups. Mark Kordes gave important feedback throughout the process. He and his team were instrumental in performing simulations, the results of which are embedded in the case study. Simeon Hyman provided invaluable feedback in structuring the content. Insights from Tony Roth, Head Private Wealth Management Consulting, helped inform the direction of this report. The authors extend their appreciation to Robin Miranda for her contributions.

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