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Multi-Asset Investments and Portfolio Solutions

A (mis)calculated risk:

How focusing on the wrong risk has undermined wealth preservation strategies

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Executive summary

"Rule No. 1: Never lose money. Rule No. 2: Never forget rule No. 1" – Warren Buffett

The world's most successful investor is keenly aware of the power of compounding and how it works both for and against portfolios – positive returns generate future wealth but negative returns are extremely difficult to regain.

These sage words apply to any investment objective. They particularly ring true when it comes to wealth preservation. At the most basic level, wealth preservation strategies should protect against loss; the goal is to ensure that the value of the portfolio today will not be lower in the future. Where it becomes more complicated is in how to measure success. Should the portfolio maintain its value on an inflation-adjusted basis? Should the opportunity cost be calculated, assessing whether higher returns could have been generated at similar risk levels? What happens if there is an unexpected need to withdraw capital?

In this article, we set out to develop a wealth preservation solution that protects against the corrosive effect of inflation while balancing opportunity cost and accommodating the potential need for capital. Examining the six asset classes that have traditionally been touted as wealth preserving, we see that none of these addresses the four pillars that comprise our definition of wealth preservation. The risks in these traditional approaches are unbalanced – so-called "safe" investments fail to maintain purchasing power, while the more aggressive growth assets are too volatile for comfort.

We take a risk-balanced approach, constructing a portfolio based on understanding the asset classes' underlying sensitivities to different types of risk (inflation, interest rates and economic growth). Blending assets that hedge inflation with others that offer consistency or provide long-term growth opportunities, we arrive at a solution that meets our definition of wealth preservation. This diversified portfolio builds on the strengths of each asset class while minimizing the impact where each falls short.

This research underscores the fact that there is no risk-free way to preserve wealth. A deeper understanding of the different types of risk and a balanced approach to investing are key to successfully preserving wealth for all investors.

Introduction

Painful losses from the financial crisis have led to a surge of interest in wealth preservation. Investors, however, are reluctant or unable to turn their backs on additional return. Is it possible to strike an optimal balance between generating sufficient growth to meet current and future demands and protecting the invested capital? This is the conundrum that every investor faces, and it is particularly relevant for investors whose objective is to preserve wealth.

The purpose of this paper is to develop a portfolio solution that achieves both goals. We start with traditional investments touted as wealth preserving and evaluate each one based on a concrete definition of wealth preservation. We use this information on the advantages and shortcomings of traditional investments to design a solution that balances the underlying risks of a portfolio. A crucial tenet of this work is that there is no riskless way to preserve wealth over any time horizon. Wealth preservation is about balancing risks and requiring sufficient returns for all risks taken. We provide intuition as to why this balanced risk approach can be expected to preserve wealth, and we show how it compares with traditional wealth preservation investments.

Defining wealth preservation

Before considering traditional approaches to wealth preservation, we must precisely define what it means to preserve wealth. In the simplest sense, "wealth preservation" should entail that one will have at least as much wealth tomorrow as one has today. Most investors, however, have an investment horizon significantly longer than one day. As the horizon grows, investors should consider two things:

1. The impact of inflation: Is it enough to preserve the dollar value of the capital invested, or should we seek to preserve the purchasing power of that capital, the real value of wealth?
2. The opportunity cost: As the investment horizon grows, so does the opportunity cost of simply preserving capital compared with productively investing that capital.

An example helps to make this clearer. Consider two scenarios in which an investor desires to preserve wealth. In the first scenario, the investment horizon is one day. In the second scenario, the investment horizon is five years. For both scenarios, the investment choices are:

- Earn 1% annually guaranteed, or
- Earn an expected return of 10% annually with a standard deviation of 15%.

The annual rate of inflation is a constant 3% for both scenarios.

In scenario 1, where the investment horizon is one day, inflation has virtually no impact on the outcome; the more volatile investment adds uncertainty, with no discernible difference in the expected outcome. In this scenario, the guaranteed investment seems the most prudent wealth preserving choice.

In scenario 2, where the investment horizon is five years, things are considerably different. The guaranteed investment returns $105 for each $100 invested, but this $105 has a purchasing power of only $90, or a guaranteed 10% erosion in real wealth. With the more volatile investment, there is a better than 90% chance of at least preserving the initial investment of $100 and a better than 80% chance of at least having $100 worth of purchasing power at the end of five years[1].

The numbers here are less important than the message. As the investment horizon lengthens, the most suitable investment option may change. This is an important point. What might be the right solution for each day in isolation may not be the right solution when those very same days are strung together. Inflation may be of little concern over very short horizons, but it is constantly eating away at the real value of accumulated wealth, and so will matter much more over longer horizons.

The opportunity cost of "safe" investments will also grow with the investment horizon. Consider the five-year horizon in our simplified example. The more volatile investment would return $150 or more in purchasing power approximately 40% of the time; in about 90% of the cases, it would return more in purchasing power than the guaranteed investment. Because the distant future is less certain than the near future, the cushion provided by additional return becomes more valuable.

1 This is based on a simulation of 1,000 observations of five years of normally distributed annual returns and certain inflation of 3% annually.

This example helps shape our definition of wealth preservation, which focuses on the impact of inflation and the investment opportunity cost. Our definition of wealth preservation includes four components:

1. An investment time horizon of five years or more.
2. Preservation of wealth and purchasing power of that wealth.
3. Compensation for the longer investment horizon.
4. Stability of returns that accommodates moderate capital withdrawals at interim periods without unduly impacting the portfolio's ability to achieve its longer-term goals.

We will rely on this definition to help investors solve the very real problem of preserving wealth, so it is necessarily concrete and measurable. We do not assume inflation away, nor do we ignore the investment horizon. We recognize that the world is messy and the future is uncertain. The investment horizon may be much shorter than originally anticipated; the need for capital may vary. Our definition calls for an additional return, to provide a cushion for the unanticipated.

Armed with this precise definition, we can now judge any investment in terms of its ability to preserve wealth.

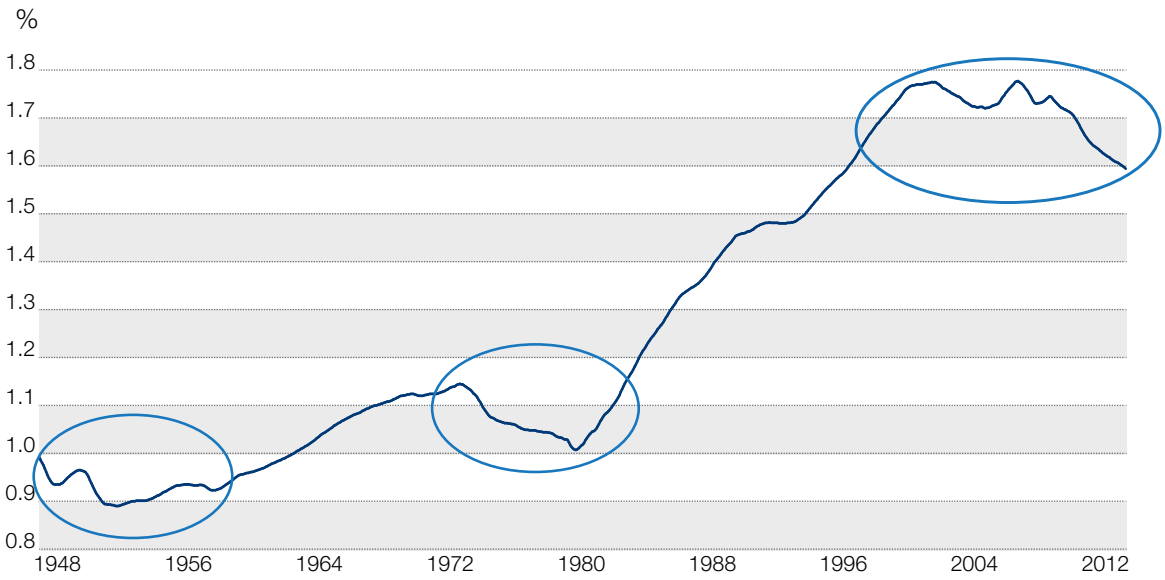
Traditional approaches to wealth preservation

Considering the four components of our definition, traditional approaches have failed to deliver. Before we attempt to design a better solution, we must understand why previous attempts to preserve wealth have failed. We start with the common rationale for each approach; we then explain where each one comes up short and provide some evidence of this shortfall.

Money market and government bonds

Wealth preservation often conjures up visions of very safe investments backed by very large government coffers. Money market investments and government bonds are often thought of as wealth preserving. Low price volatility and positive yields support this view. Where these assets struggle is in their ability to preserve the purchasing power of wealth or to provide sufficient compensation for the length of the investment horizon.

Figure 1: Growth of purchasing power from a money market investment



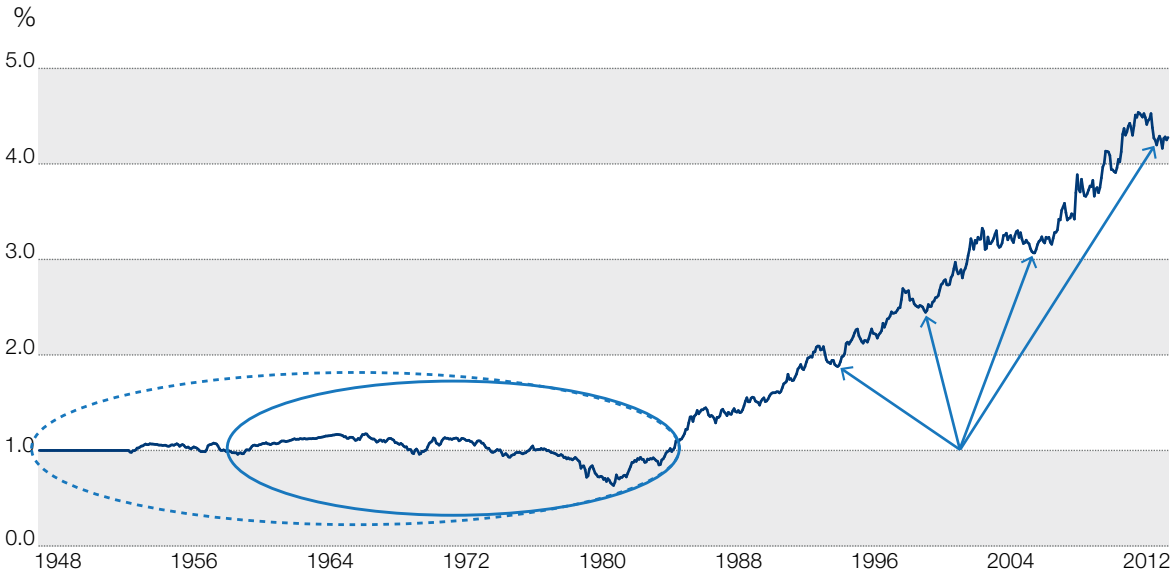
Source: Three-month Treasury bill yields, Federal Reserve Bank of St. Louis, 1/1948 – 5/2014.

Figure 1 plots the growth in purchasing power of a dollar invested in 3-month US Treasury bills[2]. The smoothness of the line is attractive for its consistency. However, the highlighted areas of the graph show long periods where purchasing power was not preserved. For example, $1 invested in mid-2000 would buy only $0.92 of goods by mid-2014. Taking the very long view, $1 invested in Treasury bills at the beginning of 1948 has preserved real wealth but has grown to only $1.60 in purchasing power over more than 65 years.

2 We use US data for simplicity; our conclusions apply directionally to the broader global set of assets and portfolios.

Figure 2 provides a similar snapshot for the growth in purchasing power from investing in 10-year US Treasury bonds. The additional volatility of bonds compared with bills is obvious in the jaggedness of the line (some of the more pronounced drops are highlighted with arrows). Compensation for the additional volatility and the long wait has produced over $4 of purchasing power for each dollar invested. The graph also highlights that, from 1948 to the early 1980s, purchasing power at times fell considerably; over that entire time period, there were no gains.

Figure 2: Growth of purchasing power from a government bond investment



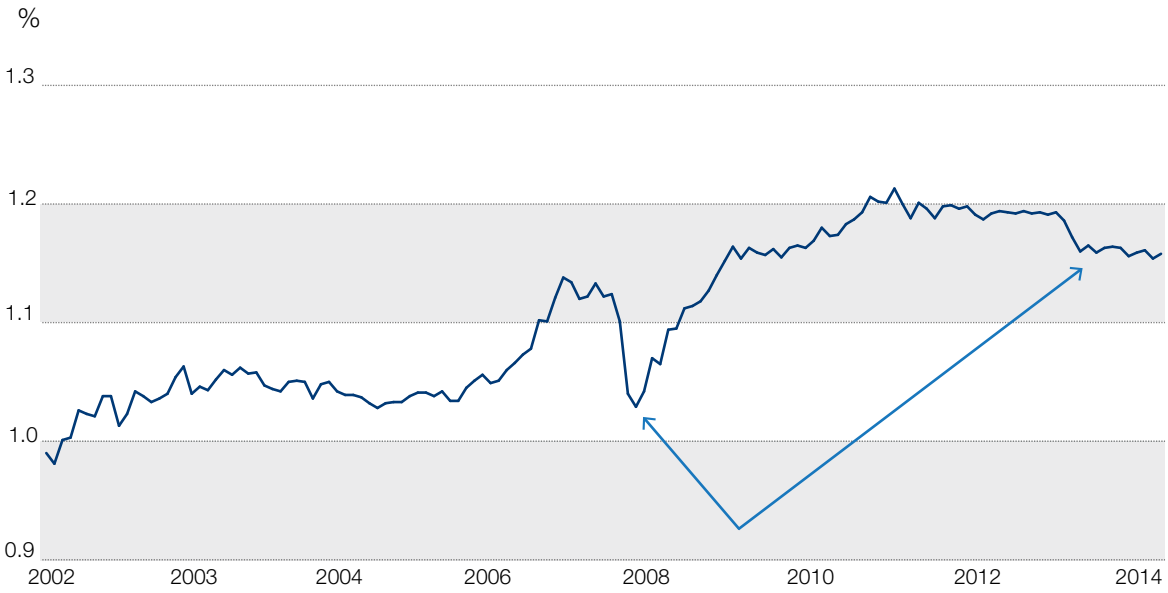
Sources, Schroder: Ten-year constant maturity yield, Federal Reserve Bank of St. Louis, 5/1953 – 1/1976; Bank of America 7–10 Year Total Return 2/1976 – 5/2014.

Index-linked bonds, gold and commodities

The risk of loss of purchasing power from "safe" money market and government bond investments has driven interest in inflation-sensitive assets such as Treasury Inflation-Protected Securities (TIPS), gold and commodities in general. With their government backing and link to realized inflation, TIPS seem a natural fit for real wealth preservation. Gold, long thought to be an inflation hedge and flight-to-quality asset when all else is falling, is often considered the ultimate wealth preserving asset. Gold prices, however, tend to be quite volatile, leading some investors to diversify across a broader basket of commodities including oil, gas, agricultural commodities, and other metals.

While each of these has its merits, they have their drawbacks as well. TIPS do offer inflation protection and are backed by the US government; but prior to maturity, their price is determined by real interest rates, which can vary widely. Two of these periods are highlighted in Figure 3. Also, yields on TIPS can be negative, as we have seen since 2008; if held to maturity, they may fail to preserve the purchasing power of wealth. Over the roughly 12 years for which we have data, an investment in TIPS turned $1 in purchasing power into just under $1.20 in purchasing power.

Figure 3: Growth of purchasing power from an inflation-linked bond investment



Source: Barclays U.S. Government Inflation-Linked Bond 0-5 Years Total Return Index, 10/2002 – 5/2014.

Gold and commodities more broadly may provide inflation protection, but price stability is not their hallmark. Figures 4a and 4b show how purchasing power has evolved for gold and commodities. The volatility of gold is clearly shown in Figure 4a. An investment of $1 in 1968 grew to almost $5 by May of 2014, but the peak purchasing power achieved by the end of 1979 has yet to be recovered. More to the point, $8 invested in January 1980 has purchasing power today of just under $5. Price increases are the only source of return – owners of gold do not receive any coupon, interest or dividend – and there have been very long periods during which the price has moved broadly sideways.

Figure 4b plots the change in purchasing power from a commodity investment. While the volatility of this basket is less than a pure investment in gold, the consistency of returns leaves much to be desired. Purchasing power is also hampered. An investment of $1 more than 20 years ago has fallen to just under $0.75, in terms of its current purchasing power.

Figures 4a and 4b: Growth of purchasing power from gold and commodities investments

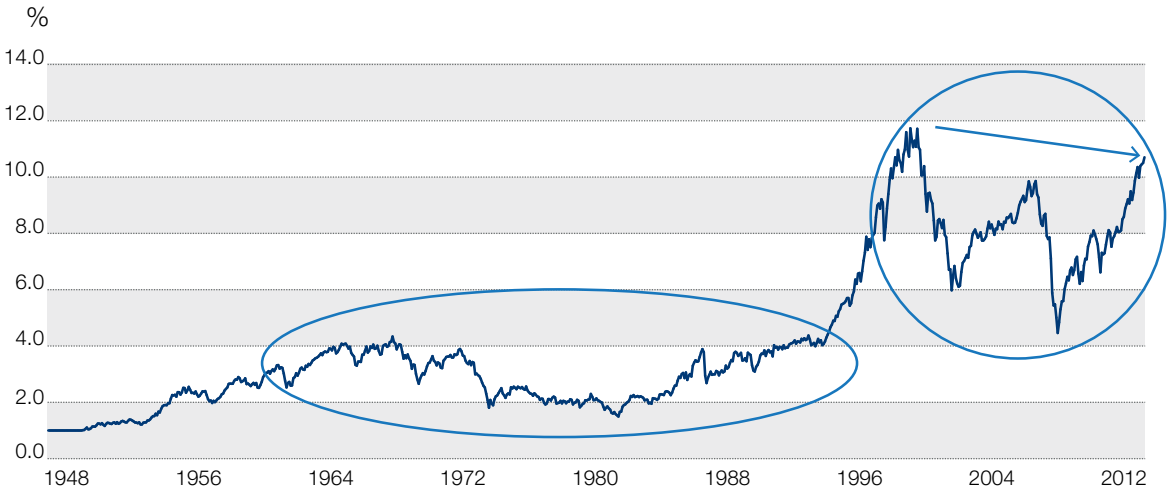
Sources: Gold Fixing Price 3:00 p.m. (London), Federal Reserve Bank of St. Louis, 5/1968 – 5/2014; Bloomberg Commodity Index and Yahoo Finance, 2/1991 – 5/2014.

Equities

Many investors turn to equities in pursuit of wealth preservation, attracted by the potential for growth. Equities also tend to be less volatile than commodities, although far from the stability of returns offered by money markets or government bonds.

Figure 5 plots the growth in purchasing power from an equity investment in the S&P 500. From this perspective, long-term growth has been impressive, as a $1 investment has grown to almost $11 over these 65 years. The path to success has not been smooth or easy. Peak purchasing power of the late 1960s was not achieved again until the early 1990s. More recently, the peak achieved in early 2000 has yet to be recovered, in spite of some spectacular runs and drops. Two recessions over the past 15 years contributed to a meagre 1.6% annualized real return on the S&P 500. Stocks may be sensible for the very long run, but they lack the stability required to preserve wealth.

Figure 5: Growth of purchasing power from an equity investment



Sources: S&P 500 Total Return Index and Yahoo Finance, 2/1950 – 5/2014.

From money markets to equities, no single asset class has been successful in preserving inflation-adjusted value or minimizing the investment opportunity cost. The summary statistics in Figures 6 and 7 provide a direct comparison of these investments. Figure 6 summarizes the nominal performance to help ground this work with the reader, as investors generally have a greater familiarity with nominal returns than with real returns. However, given our concern with the preservation of purchasing power, Figure 7 reveals the real story.

The first row of each table shows the compensation that investors have received for holding each asset (first in nominal terms then in real terms). Given that one of our principles for wealth preservation is consistency of performance in light of the potential need to access wealth at any interim period, the next two rows provide the standard deviation and maximum drawdown (the largest return drop from peak to trough). We also examine the annualized median and worst return over a five-year horizon, to satisfy our ambition of growing capital over a medium-term timeframe. Finally, the last row indicates the number of months of data that were used in this analysis.

Figure 6: Nominal performance of asset classes

	US Money Market	US 10 yr Treasury	TIPS	Gold	Bloomberg Commodity Index	S&P 500
Average arithmetic annual return	4.0%	6.3%	3.7%	9.2%	2.3%	8.4%
Annualized standard deviation	0.9%	6.6%	3.4%	17.8%	14.6%	14.4%
Maximum drawdown	0.0%	-15.2%	-8.0%	-62.1%	-54.5%	-52.6%
Median 5-year return (annualized)	4.4%	6.0%	4.6%	7.6%	1.1%	7.5%
Worst 5-year return (annualized)	0.1%	-0.6%	2.2%	-14.8%	-10.9%	-8.5%
Number of months	797	733	139	553	280	772

Sources: Federal Reserve Economic Data, Yahoo Finance and Schroders. Money markets are 3-month Treasury bills 12/1947 – 05/2014; government bonds are 10-year US Treasury 04/1953 – 05/2014, TIPS 10/2002– 05/2014; gold is 3:00 p.m. London Fixing 04/1968 – 05/2014; equities are S&P 500 Total Returns 01/1950 – 05/ 2014; and commodities are Bloomberg Commodity Index 01/1991 – 05/2014.

Figure 7: Real performance of asset classes

	US Money Market	US 10-year Treasury	TIPS	Gold	Bloomberg Commodity Index	S&P 500
Average arithmetic annual return	0.7%	2.6%	1.3%	4.8%	-0.2%	4.8%
Annualized standard deviation	0.7%	6.6%	3.4%	17.7%	14.6%	14.5%
Maximum drawdown	-12.1%	-46.1%	-9.5%	-84.3%	-54.6%	-65.5%
Median 5-year return (annualized)	0.9%	2.5%	2.0%	3.4%	-1.3%	3.6%
Worst 5-year return (annualized)	-2.3%	-8.7%	-0.1%	-21.0%	-12.4%	-12.7%
Number of months	797	733	139	553	280	772

Sources: Federal Reserve Economic Data, Yahoo Finance and Schroders. Money markets are 3-month Treasury bills 12/1947 – 05/2014; government bonds are 10-year US Treasury 04/1953 – 05/2014, TIPS 10/2002– 05/2014; gold is 3:00 p.m. London Fixing 04/1968 – 05/2014; equities are S&P 500 Total Returns 01/1950 – 05/ 2014; commodities are Bloomberg Commodity Index 01/1991 – 05/2014; and inflation is rolling year-over-year change in the Consumer Price Index for All Urban Consumers: All Items 12/1947 – 05/2014.

Contrasting these two tables, we can see the pronounced effects of inflation on the performance of these asset classes. While this tends to be a concern for most assets, it becomes a very acute problem for nominal bonds. Obscured in Figure 6, the ravages of the 1970s inflation cannot hide here. It is equally clear from the figures that money markets are not immune to the erosive power of inflation. To cite a current example, US-dollar cash rates in real terms are still in a drawdown phase (–13% since 2008), as the US central bank promotes economic growth with low or negative real interest rates. This tactic was also used by central banks following World War II, in an attempt to promote growth while reducing the debt burden.

An ideal asset for wealth preservation would provide a positive real return over any five-year time period and have a low standard deviation and maximum drawdown. None of these assets individually fit the bill.

There is no riskless way to preserve wealth. And as the investment horizon is extended, the risks only increase. Instead of seeking to avoid risk, we must look for those risks that are most likely to provide the mix of capital protection and consistent growth that defines successful wealth preservation.

A risk-balanced approach

Given that there is no risk-free way to achieve our wealth preservation objective, we frame our task as a risk-balancing exercise. The ultimate objective is a portfolio that preserves real purchasing power while minimizing the risk of a significant shortfall.

Despite the fact that no single asset class can meet our wealth preservation needs, all of the asset classes examined tend to have complementary characteristics during most market environments. The next step is to create an optimal blend that harnesses the core strengths of these asset classes while minimizing the weaknesses associated with each. Given the way investors think about wealth preservation, we will look to accomplish three things with any solution: 1) preserve the purchasing power of wealth over a five-year horizon, 2) seek compensation consistent with this timeframe, and 3) deliver performance consistently, as capital may be required prior to that horizon. We will look to preserve purchasing power by addressing inflation protection directly. To provide some cushion for the unexpected and to provide compensation for the investment horizon, we will invest in growth-sensitive assets. And finally, to improve performance consistency, we will seek to balance the exposure of the portfolio to the key return drivers: inflation, interest rates and economic growth.

First, we address the portfolio's ability to preserve purchasing power over time; that is, to hedge inflation. This leads us to inflation-linked bonds and commodities (including gold). Inflation-linked bonds provide protection on the invested capital but remain vulnerable to changes in real rates. Commodities are attractive insofar as they can provide inflation sensitivity in excess of the invested capital and that they are less sensitive to fluctuations in real rates than are inflation-linked bonds. In exchange for these advantages, raw materials are far more sensitive to economic growth and provide less consistency of return over any horizon.

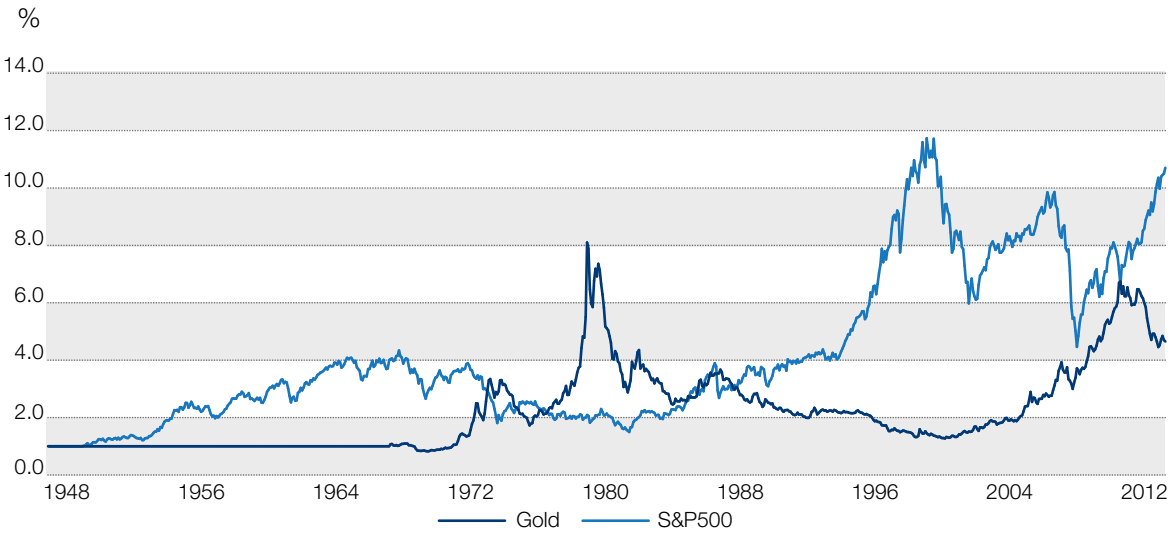
Some combination of real bonds and commodities ought to provide investors with ample inflation protection; in fact, such a combination is likely to over-hedge inflation via the commodities exposure, leaving the investor vulnerable to short-term corrections and thereby exposed to investment horizon risk.

To refine this combintion, we add a "shock absorber" in the form of nominal bonds. This expanded set should continue to offer reasonable inflation-hedging properties, with the commodities exposure likely to offset some of the real value erosion found in nominal bonds. But this portfolio is highly sensitive to interest rate changes.

To help balance some of this interest rate sensitivity, we incorporate growth assets in the form of equities. Growth assets act as stabilizers of interest rate risk in many environments. A strong growth environment leads to an increased demand for capital that, in turn, drives interest rates up. In this scenario, growth-sensitive assets tend to benefit while more interest rate–sensitive assets suffer. As economic growth begins to slow, demand for capital typically wanes and interest rates fall. At this time, growth assets typically suffer and highly interest rate–sensitive assets tend to rally.

The two forces are expected to balance each other out over shorter-term horizons. The nature of the volatility of growth-sensitive assets and interest rate–sensitive assets tend to be very different; hence, risk balancing the allocations to these two assets should lead to more interim consistency. We expect the equity investment to deliver strong real returns over longer horizons, adding a cushion or margin of error to our wealth preservation solution.

Figure 8: Growth of purchasing power from gold and equity investments



Sources: Gold Fixing Price 3:00 p.m. (London), Federal Reserve Bank of St. Louis, 5/1968 – 5/2014; S&P 500 Total Return Index and Yahoo Finance, 2/1950 – 5/2014.

The commodity basket alone is more interesting than space permits for a thorough discussion. For example, consider the growth sensitivities of various components of this basket. The energy complex and industrial metals are highly growth sensitive, while agricultural commodities are much less growth sensitive. Precious metals, especially gold, have strong counter-cyclical properties.

Figure 8 illustrates the complementary relationship between equities and gold. Equities thrive on growth and stability while gold, not being very productive, thrives on fear and a lack of growth[3]. This natural balance makes these two assets attractive partners for a portfolio.

3 Gold thrives on a lack of growth, inflation concerns and low interest rates. Equities prefer strong growth, little concern about inflation, and low interest rates.

Translating insights into a simplified portfolio

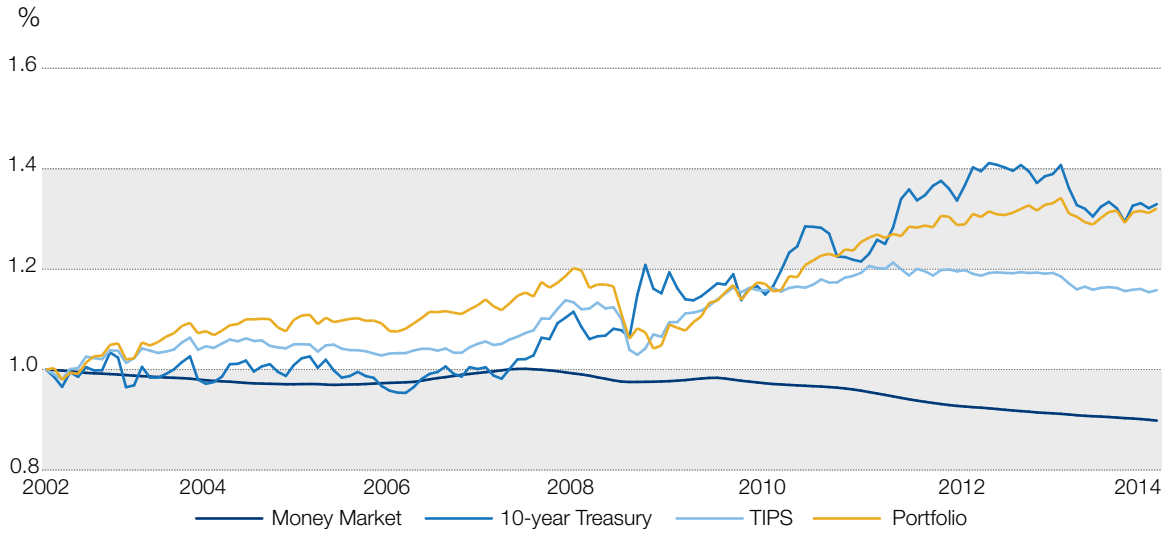
We use diversification to achieve a portfolio that best meets our definition of wealth preservation. Rather than simply charting the performance of asset classes and building a portfolio based on expected returns, we look below the surface to the underlying drivers of risk – inflation, interest rates and economic growth. The fundamental relationships between these risk drivers determine long-term, inflation-adjusted returns.

Taking into account all of these insights on the different risks associated with each asset class and asset class combinations, we can now put together a simplified portfolio that should, in expectation, provide us with a real wealth preservation solution. To help balance the offsetting risks of the assets, we focus on how much risk each brings to the portfolio and allocate smaller amounts of the portfolio to the more risky assets and vice versa. Following this approach, if we start with a portfolio that only includes inflation-linked bonds and commodities, we end up investing approximately $4 in inflation-linked bonds for every $1 that is spent on raw materials. This is the result, in capital terms, of balancing the risks of one set of assets that are four times riskier than the other.

This combination helps us rest easier concerning inflation but provides insufficient growth to compensate for the horizon. To this inflation-sensitive pairing we add an equity investment, again in risk-balanced weighting, with the promise of more return potential. So far we have addressed the first two objectives of this portfolio: to preserve real wealth and to provide compensation for the investment horizon. To achieve the third objective, we will need to add a risk-balanced allocation of Treasury bonds, to complement the growth exposure and to improve performance consistency. The result of this is a portfolio in which just over 40% is invested in inflation-sensitive assets of TIPS and commodities in the ratio discussed earlier. Nominal Treasury bonds account for almost 40%, and the balance is invested in equities.

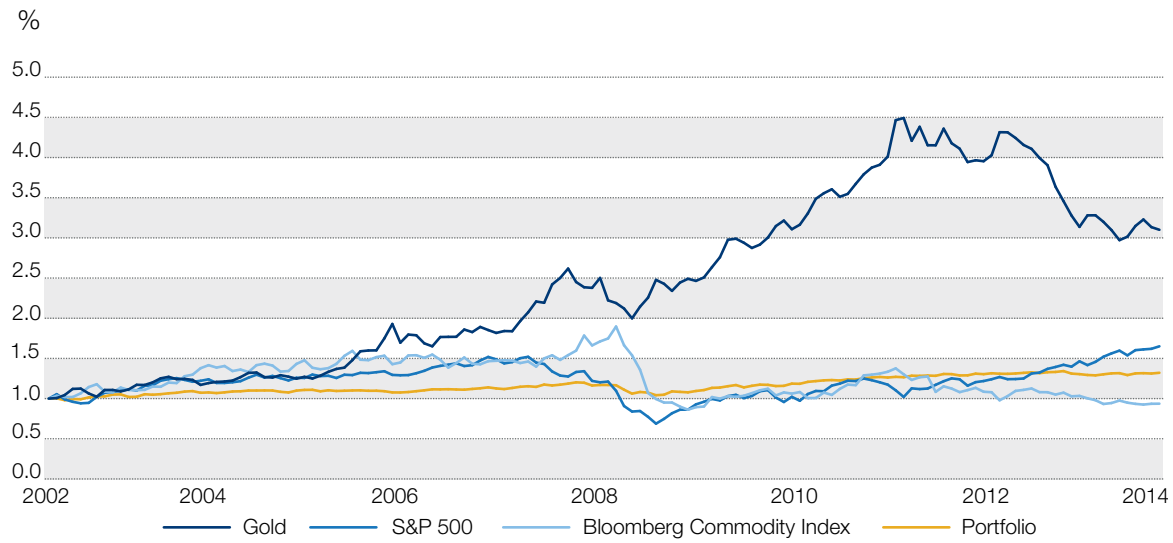
We can see how this simplified wealth preservation portfolio would have performed over the full period of time for which all asset class data is available (Figures 9a and 9b). The asset classes are split among two graphs to maintain an appropriate scale for all of the data.

Figure 9a: Real returns to money market, government bonds, inflation-linked bonds and a blended wealth preservation portfolio



Source: Schroders, 10/2002 – 5/2014.

Figure 9b: Real returns to gold, equities, commodities and a blended wealth preservation portfolio



Source: Schroders, 4/1997 to 5/2014.

Figures 9a and 9b plot the change in purchasing power of each asset and our simplified portfolio that blends real and nominal bonds with commodities and equities. Figure 9a compares the blended portfolio with the "safer" assets while Figure 9b compares the portfolio to the more volatile assets. Figure 9a shows that the blended portfolio is roughly on par with the "safe" assets in terms of volatility and drawdown, while both figures show that the blended portfolio performs admirably in generating returns.

Notice that nominal bonds are an important component of this portfolio. On a stand-alone basis, however, they expose investors to inflation risk, which was made clear over the longer history shown in Figure 7, as the fixed coupons and fixed principal repayment will be worth less in real terms as inflation rises. This will likely be insignificant in high interest rate environments. However, when interest rates are low, as they currently are, the low yields and coupons on nominal bonds provide less of a buffer against inflation risk. Conversely, inflation-linked bonds do protect investors from inflation risk but not against growth risk, because higher real yields negatively impact the returns on inflation-linked bonds.

Figure 10 shows that the blended portfolio delivered returns in line with most "safe" assets but with similar volatility and drawdown; with an annual return of 2.4%, it was also well ahead of inflation. We would prefer to see no drawdown periods, but this is unrealistic given our goals. While the maximum drawdown may appear disappointing, there is a silver lining – the episodes associated with these drawdowns were reasonably short in duration (in the context of our target five-year horizon) and approximately 90% of the invested capital would have always been available for short-term withdrawals.

Figure 10: Real performance of asset classes and the blended portfolio

	US Money Market	US 10 yr Treasury	TIPS	Gold	Bloomberg Commodity Index	S&P 500	Wealth Preservation Portfolio
Average arithmetic annual return	-0.9%	2.5%	1.3%	10.3%	-0.6%	4.4%	2.4%
Annualized standard deviation	0.5%	6.7%	3.4%	14.5%	17.4%	14.5%	4.5%
Maximum drawdown	-10.3%	-9.2%	-9.5%	-33.8%	-54.6%	-62.0%	-13.3%
Median 5-year return (annualized)	-0.2%	3.9%	2.0%	16.6%	-2.7%	-5.1%	2.4%
Worst 5-year return (annualized)	-1.7%	0.4%	-0.1%	4.6%	-12.4%	-11.3%	-0.7%
Analysis period	October 2002 to May 2014 (11 years and 8 months)						

Source: Schroders, 10/2002 – 5/2014. Summary statistics shown are for the entire time period for which all comparative data is available.

Balanced risk
to better preserve wealth

On the surface, the twin goals of wealth preservation may seem at odds or even unattainable on a long-term basis. Traditional approaches failed not because of their exposure to risk but because the risk was not balanced – either they were too conservative and failed to protect purchasing power or because they were too aggressive and experienced unacceptably large swings in value. The solution is to take a risk-aware perspective and find a balanced portfolio that is most likely to succeed in a full range of market environments.

Even a simplified balanced portfolio that includes so-called “risky” assets goes a long way toward addressing the competing desires for capital protection and added returns. Expanding this simplified approach to include exposure to global markets or advanced portfolio techniques may be the next frontier for successful wealth preservation.

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