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The economy continues to struggle with the effects of the severest downturn since the Great Depression, with unemployment in particular remaining stubbornly high. Monetary policy makers, tasked with balancing economic growth and low inflation, have signaled a willingness to keep interest rates near zero for as long as needed.

Meanwhile, fiscal authorities have enacted enormous spending programs in an effort to create jobs and foster growth. While these are laudable goals, the increased spending is likely to have long-lasting effects on our government's balance sheet. The most recent budget released by the White House projects a deficit of more than $\$ 1$ trillion for fiscal year 201I. Between 201I and 2020, deficit spending is projected to exceed $\$ 10$ trillion; by 2020, it is projected that $3.5 \%$ of U.S. GDP will be going to interest payments on federal government debt (up from $1.3 \%$ in 2010).

Additional revenues in the form of taxes will be required to support government spending - few are predicting that tax rates will decrease from here. And it remains to be seen whether higher inflation will be a by-product of the federal government printing new dollars that are worth less than the dollars they borrowed.

For investors, it's more important than ever to look beyond the stated, or nominal, returns to what an investment earns after inflation, taxes, and expenses - the real real return. The results of this year's study are consistent with historical results. Two asset classes - common stocks and municipal bonds - have provided the highest real real returns over the past 30-year period.
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## A Study of Real Real Returns

It's easy to get caught up in performance figures. At Thornburg Investment Management, we believe investors should look carefully at total returns, and many investors have seen the value of looking past the nominal figures to the real (post-inflation) data. We've gone beyond stated performance numbers for several asset classes and calculated returns that are adjusted for inflation, taxes, and investment expenses. We call them the real real returns.
$\$ 3,500] \begin{aligned} & \text { Growth of a Hypothetical \$100 } \\ & \text { S\&P } 500 \text { Index from December 31, } 1979 \text { to December 31, } 2009\end{aligned}$


Thornburg Investment Management's real real return study illustrates that a hypothetical \$100 investment in large-cap stocks (as measured by the S\&P 500 Index) would have grown to \$2,440 over the past 30 years - a very impressive nominal return.

However, that figure masks the impact of expenses, taxes on dividends and capital gains, and the insidious erosion of purchasing power caused by inflation. Once these influences are factored in, the real real value of that $\$ 2,440$ is just $\boldsymbol{\$ 4 5 9}$.

Results reflect past performance and do not guarantee future results. The performance of an index is not indicative of any particular investment. Investors may not make direct investments into any index. Sources are provided at the end of this study.

While 2008 was negative for virtually all asset classes, 2009 represented a direct turnaround - only government bonds showed a negative nominal return. Although stocks, commodities, and municipal bonds failed to recover their 2008 losses completely, the economic recovery helped them rebound from the market lows of March 2009. The best-performing asset class on a real real return basis during 2009 was international stocks, followed by U.S. small cap stocks, and U.S. large caps. The results are summarized on the following page.

Investors also witnessed dramatic volatility in 2009. The swings from negative territory in 2008 to positive results in 2009 were some of the biggest in history. From the low point in March 2009 until the end of 2009, the S\&P 500 increased by $67.8 \%$.

Even though equity returns were quite positive in 2009, investors can gain valuable insights by focusing beyond oneyear results. Thornburg's study includes real real returns of all asset classes over both 20- and 30-year time periods. The 30-year perspective is particularly important since it generally encompasses two key periods of an investor's life - 30 years working and accumulating assets in preparation for 30 years of retirement. And, when nominal returns are adjusted for inflation, taxes, and investment expenses, we see a truer picture of which asset classes can contribute to the growth of real wealth over the long term.

Despite the volatility of the past two years, the results of this year's study are consistent with our previous studies. Over the long term, common stocks and municipal bonds generated the highest real real returns. These results underscore the premise that accumulating real wealth and generating real income can best be achieved by focusing on basic investment strategies, rather than short-term trading, market speculating, or searching for the "magic" alternative investment strategy.
the past 80 years. After accounting for inflation, taxes, and investment expenses, their real real returns in 2009 were $18.52 \%$ and $19.14 \%$, respectively. Yet, for the past 10 years (2000-2009), both of these indexes lost value on a real real basis.

It has been argued that the past decade was the lost decade for U.S. stock market returns, and the evidence supports that thesis. However, when looking at 15-, 20- and 30-year periods, stock returns are positive, with both U.S. stocks and municipal bonds outperforming all the other asset classes. It is only within the past five and 10 years that government and corporate bonds have outperformed stocks. Why is this so?

The decade from 2000 to 2009 was marked by two bubbles that burst. The first was the "tech" bubble that began in the late 1990s and started to deflate in early 2000. The second was the real estate bubble that began near the middle of the decade, started deflating in 2006 and 2007, and continues
to search for a floor. Both of these events dramatically affected the stock and bond markets. During the boom-bubble formation years, stocks rapidly ascended, only to fall to lows from which they have not yet recovered. The S\&P 500 Index reached a high in October 2007, but at the end of 2009 was almost $25 \%$ below that level. At year end, the Russell 2000 Index (small cap stocks) was still 24\% below its July 2007 peak.

During much of the decade, the stock markets were highly volatile while the fixed income markets were relatively stable. However, after the real estate bubble popped, economies in the United States and the rest of the world contracted sharply in late 2007 and throughout 2008, spooking investors and driving worldwide interest rates to historic lows, where they remain today. This, combined with a flight to quality, resulted in historic positive returns for government bonds in 2008.

## 2009 in Perspective

In 2009, U.S. common stocks (represented by the S\&P 500 Index and the Russell 2000 Index) generated nominal positive returns of $26.46 \%$ and $27.17 \%$, respectively - well above the large-cap stock long-term average of approximately $9 \%$ over

Erosion of Total Returns Over 30 Years (As of 12/31/2009)


## Real Real Returns

|  | U.S. Large <br> Cap Stocks | U.S. Small <br> Cap Stocks | Int'I <br> Stocks | Municipal <br> Bonds | Long-Term <br> Gov Bonds | Corporate <br> Bonds | Intermediate <br> Gov Bonds | Real <br> Estate* | T-Bills | Commodities |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Inflation |  |  |  |  |  |  |  |  |  |  |

Methodology: The chart above shows how fees, taxes on dividends and capital gains, and inflation erode real wealth. The amount at the far right shows the nominal return of an investment, while the area in gold reflects the amount eaten away by fees (in our example, fees of 50 basis points ( $0.50 \%$ ) were applied to the investment, with the exception of real estate, which includes a one-time $6 \%$ commission). The impact of taxes on income from the investment (either dividend or interest income) are represented by the area in teal. Taxes on capital gains provide a further drag on performance and are represented by the area in green, while the silent tax of inflation, in burgundy, can often turn a positive nominal return into a negative real real return. Sources and descriptions of each index and asset class are provided at the end of this study.
*For the one-year real real return, the $6 \%$ real estate commission was not deducted.
generated a negative $1.27 \%$ real return in 2009 (even without the standard $6 \%$ commission) and could continue to decline in 2010. Its real real return for all periods is basically zero, except for the most recent five years when the bursting bubble resulted in a negative $4.19 \%$ real real return.

The stand-outs in the bond category for 2009 were corporate bonds and municipal bonds. The corporate bond market experienced significant price appreciation as the spreads against Treasuries narrowed from historic gaps in 2008. The 2009 real real return from corporate bonds was $10.51 \%$. Municipal bonds also rebounded in 2009, generating a real real return of $9.93 \%$. While corporate bonds outperformed municipal bonds in 2009, over all longer-term time periods (5, 10, 15, 20 and 30 years), municipal bonds have generated a higher real real return than corporate bonds.

Government bonds were the laggards in 2009. Even though interest rates remained at historic lows, investors abandoned the flight to safety that occurred in 2008 by shedding government bonds from their portfolios and moving back to riskier assets.

Historically, on a before-tax basis, corporate and government bonds have delivered competitive returns. However, these vehicles generally derive a large portion of their returns from interest income, which is taxed at high ordinary rates. An investor's real real return can be significantly impacted by asset location, or how investments are distributed across taxable and tax-deferred accounts. As such, investors should analyze their time horizon, income needs, and tax bracket to determine which vehicles - taxable or tax-deferred - make the most sense for their corporate and government bond allocation.

## Analyze Every Investment for Its Real Real Return

Taxes and inflation remain the investor's two primary obstacles to building long-term wealth. And these variables are likely to have an even greater negative affect on portfolio returns in the future.

The government's deficit-fueled spending spree and growing debt may necessitate an increase in taxes and may very well contribute to an increasing rate of inflation. Over the past 30 years, taxes have averaged around $40 \%$ for investors, while inflation has averaged $3.5 \%$. Looking at the real real returns for stocks and municipal bonds over the past 20 and 30 years, one can see how difficult it is to generate real real returns that exceed $3-4 \%$ on an annualized basis.

It is increasingly probable that investors will face higher taxes on dividends and capital gains (and higher taxes on interest income for very high-net-worth investors), possibly combined with higher inflation due to excessive deficit spending. None of these events is likely to be short-lived.

Investment expenses have also eroded investor returns over time. Even though expenses have steadily decreased over the years, we believe it's reasonable to expect that they will stay about the same in the coming years, especially given the recently passed financial regulatory reform. In fact, they may even rise a bit.

This year's real real return study is consistent with previous results: investors should realistically expect real real

## Investment Priorities by Age



## A Picture of Inflation



The gold area in the graph shows the equivalent of $\$ 100,000$ in 2009 dollars, based on CPI for each year. So, $\$ 8,301$ in 1925 had the same purchasing power as $\$ 100,000$ in 2009. The blue area shows nominal amounts representing no real gain on $\$ 100,000$ starting in 2010 if inflation averages $3.51 \%$, the $30-\mathrm{yr}$ average inflation rate.

Source: Calculated by Thornburg Investment Management using data presented in the Ibbotson SBBI ${ }^{\circledR} 2010$ Yearbook, ©20IO. All rights reserved. Used with permission.
investment returns for common stocks over long periods of time to be no more than 4-5\% and for municipal bonds to be no more than $3-4 \%$. For intermediate- and long-term government and corporate bonds, they should expect even less, especially as interest rates rise in the future from their current historically low levels. If there is increasing inflation in the near future, both commodities and real estate may benefit, but over longer periods of time they have not generated any significantly positive real real returns.

## Sustaining Portfolios in Retirement

How can investors use the results of the real real returns study to help prepare a portfolio for retirement? With advancing longevity, it's fair to assume a 30-year need. That leaves many unanswered questions:

- What returns should an investor assume going forward?
- How can investors generate a desired level of income from their investments?
- How should they manage portfolios during times of extreme volatility? Bear or bull markets? Low returns with greater stability?
- How much can they withdraw each year to provide a high probability a portfolio will survive for an entire 30-year period - or longer?
- Is there a way to preserve some or all investment wealth for future generations?

Many experts have conducted studies to determine a reasonable and safe rate of income withdrawal during retirement. Typically, investors will hold more conservative investments in these years than they did during the accumulation years, but the portfolio must also contain a certain percentage of equities, which can provide growth and the possibility of retaining purchasing power.

The challenge is to not only determine the right asset mix in a portfolio that will generate the desired income but also implement a spending policy that will weather the fluctuations
of various markets. It should be noted that the Thornburg study, covering the past 30 years, includes both extreme bear and bull market environments (2000-2002, 2008-2010), as well as periods of extremely high and low inflation (1979-1981, 1997-1998, 2001-2003). Investors can expect to see more of the same in the next 30 years. The study also covered decades of exceptional stock returns and decades of little or no stock returns.

One of the most significant studies of recent times, conducted by Bill Bengen, CFP, ${ }^{\oplus}$ author of Conserving Client Portfolios During Retirement, used Ibbotson Stocks, Bonds, Bills and Inflation data going back to 1926. Bengen analyzed actual historical returns (as opposed to Monte Carlo simulations) for 50 different 30 -year periods and concluded that the initial maximum safe withdrawal rate from a portfolio allocated $63 \%$ to equities (both large and small capitalization) and $37 \%$ to bonds (intermediate government) was $4.15 \%$, with annual rebalancing of the portfolio and annual increases for inflation. Bengen also concluded that a higher allocation to small caps, less-frequent rebalancing, and active management with added alpha can increase the withdrawal rate. However, these steps may result in an unacceptable level of volatility.

It should be noted that the Bengen study provided no guarantee that portfolio purchasing power would be retained or that real wealth would be created. Since his study only refers to nominal returns, albeit with the income withdrawals adjusted for inflation, the question remains: When assuming real real returns, would Bengen's portfolio maintain its purchasing power?

It is difficult to conclude whether the same portfolio adjusted for inflation, taxes, and expenses would retain its purchasing power. However, after examining the conclusions from Thornburg's studies over the past 20 years, one can see how difficult it is to achieve a real real return greater than 4-5\% over long periods of time. Even with a portfolio comprised of only domestic large-cap equities, the real real return was barely greater than $5 \%$ over 30 years and less than $4 \%$ over the previous 20 years. Surely the level of risk and volatility associated with an all-equity portfolio would be unacceptable for most investors in their retirement years. For comparison purposes, a weighted portfolio of $63 \%$ large-cap stocks and $37 \%$ municipal bonds, but with no rebalancing or income withdrawals, would yield the following results:

30 years $-4.52 \%$ real real return
20 years $-3.78 \%$ real real return
15 years $-4.08 \%$ real real return

## Implications for Baby Boomers

Those that are either recently retired or within the "baby boom" generation have been hit over the past 10 years with two severe bear markets and two recessions. It's possible they will experience similar circumstances in the future. And given the likelihood we'll see both higher taxes and inflation in coming years, the necessity to manage a portfolio with these challenges in mind becomes not only a more important task but also a more difficult one.

Too often there is a search for a "magic" solution that will overcome these challenges. Yet, more often than not, it is a simple strategy that, when given adequate time with continued discipline and persistence, may result in the most favorable results. Considering the need for income in retirement, and the general practice of relying on an investment portfolio for at least a portion of that income, it seems logical that retirees would attempt to preserve their real wealth and purchasing power during these years.

Bengen's study concludes that there must be a significant allocation to equities during retirement to maintain and increase the likelihood that a portfolio will survive for a full 30 years. Thornburg's real real return study confirms that the highest returns come from the more traditional asset classes - common stocks and municipal bonds. Asset classes that have traditionally been associated with inflation protection have not generated significant positive real real returns over long periods of time.

Over the 20 years that Thornburg has conducted this study, the results have been consistent. There is no reason to think that they will change significantly going forward. The two primary unknowns, inflation and tax rates, will remain. Investment expenses will also continue. A simple asset allocation among the highest real real return asset classes, accompanied by a reasonable withdrawal rate and spending policy, may provide investors with the best chance of sustaining their portfolios and preserving wealth going forward.

The Long-Term Winners Remain: Common Stocks \& Municipal Bonds

## Comments

A note on the use of total return: we used so-called total return figures in this study because total return is the standard measure used in the financial community. Total return is really only an adequate measure of the return one could achieve with U.S. Treasury bills, because investors in T-bills effectively roll the entire portfolio every 90 days. There is simply no perfect way to track a hypothetical portfolio, whether it consists of fixed income or equity securities. In addition, similar criticisms can be made of single-family homes: for purposes of this study, we have ignored leverage, tax deductibility, and maintenance costs.* While some details may be unclear, the general picture of real real returns - after inflation, taxes, and expenses - for the different classes of investments is clear and indisputable.

## Important Information

This information should not be considered tax advice. Any tax statements contained herein are not intended to be used, and cannot be used, for the purpose of avoiding tax penalties. Please consult your independent tax advisor as to any tax, accounting, or legal statements made herein.

Statements contained herein are based upon information furnished to us from independent sources. While we do not guarantee their correctness, we believe them to be reliable and have ourselves relied upon them.

The Consumer Price Index (CPI) measures prices of a fixed basket of goods bought by a typical consumer, including food, transportation, shelter, utilities, clothing, medical care, entertainment and other items. The CPI, published by the Bureau of Labor Statistics in the Department of Labor, is based at 100 in 1982 and is released monthly. It is widely used as a cost-of-living benchmark to adjust Social Security payments and other payment schedules, union contracts, and tax brackets. CPI is also known as the cost-of-living index.

## Sources

William P. Bengen, Conserving Client Portfolios During Retirement, FPA Press, 2006.
White House Budget: http://www.whitehouse.gov/omb/budget/overview/
Real real returns were calculated by Thornburg Investment Management using data obtained from the following sources:

Inflation/Consumer Price Index-Urban (CPI-U) and Treasuries data were obtained from the Ibbotson SBBI Classic Yearbook, © 2010. All rights reserved. Used with permission.

Municipal bond, commodity, and real estate data were obtained from Global Financial Data.
Corporate bond data was obtained from Barclays Capital.
Index data for the S\&P 500, MSCI EAFE, and Russell 2000 were obtained from FactSet.
Tax rates were obtained from the Internal Revenue Service. The study applied the highest marginal tax rate in each calendar year allowable per the IRS to compute hypothetical dividend and interest taxes. The study assumes all equity dividends are qualified for the periods covered under The Jobs and Growth Tax Relief Reconciliation Act of 2003.

## Index \& Asset Class Descriptions

Bonds are debt investments in which an investor loans money to an entity (corporate or governmental) which borrows the funds for a defined period of time at a fixed interest rate. Bonds are subject to certain risks including loss of principal, interest rate risk, credit risk, and inflation risk.

The value of a bond will fluctuate relative to changes in interest rates; as interest rates rise, the overall price of a bond falls.

Government bonds, or Treasuries, are negotiable debt obligations of the U.S. government, secured by its full faith and credit and issued at various schedules and maturities. Income from Treasury securities is exempt from state and local, but not federal, taxes. Treasury bill data is based on a one-bill portfolio containing, at the beginning of each month, the bill having the shortest maturity not less than one month. Intermediate government bond data is based on a one-bond portfolio with a maturity near five years. Long-term government bond data is based on a one-bond portfolio with a maturity near twenty years.

Municipal bonds are debt obligations issued by states, cities, counties, and other governmental entities. Municipal bonds offer a predictable stream of income which is free from federal and, in some cases, state and local taxes, but may be subject to the alternative minimum tax. Because of these tax savings, the yield on a muni is usually lower than that of a taxable bond. Higher grade munis have higher degrees of safety with regard to payment of interest and repayment of principal and marketability in the event you must sell before maturity. This study uses Moody's 10 -Year AAA Municipal Bond Index as a general representation of the municipal bond market. The index consists of munis with a AAA credit rating from across the United States.

A corporate bond is a debt security issued by a corporation. Corporate bonds are taxable and have more credit risk compared to Treasuries. This study uses Barclays Capital U.S. Corporate Investment Grade Index, which is a general representation of the investment-grade corporate bond market.

A stock is a share in the ownership of a company. As an owner, investors have a claim on the assets and earnings of a company as well as voting rights with the shares. Compared to bonds, stock investors are subject to a greater risk of loss of principal. Stock prices will fluctuate, and there is no guarantee against losses. Stock investors may or may not receive dividends. Dividends and gains on an investment may be subject to federal, state or local income taxes.

Standard \& Poor's 500 Stock Index is an index consisting of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S\&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large-cap universe.

The Russell 2000 Index measures the performance of the small-cap segment of the U.S. equity universe. The unmanaged index is a subset of the Russell $3000^{\circledR}$ Index representing approximately $10 \%$ of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership. Small-cap stocks are subject to greater volatility than large-cap stocks.

The MSCI EAFE (Europe, Australasia, Far East) Index is an unmanaged index. It is a generally accepted benchmark for major overseas markets. Index weightings represent the relative capitalizations of the major overseas developed markets on a U.S. dollar adjusted basis. The index is calculated with net dividends reinvested in U.S. dollars. There are special risks associated with international investing, including currency fluctuations, government regulation, political developments, and differences in liquidity.

Compared to the other investments in this study, single-family homes are relatively illiquid. Property values can fluctuate and there are no guarantees. Gains on the sale of a property may be taxable at the federal, state, or local level. Real estate data in this study uses the Winans International Real Estate Index, ${ }^{\text {TM }}$ which tracks the prices of new home prices in the United States with Census Bureau data.

A commodity is a physical good - such as food, grain, oil, natural gas, and metals - which is interchangeable with another product of the same type, and which investors buy or sell in an active market, usually through futures contracts. If you buy a futures contract, you are basically agreeing to buy something that a seller has not yet produced for a set price on a specific future date. The futures market is extremely liquid, risky, and complex. Commodity prices can be affected by uncertainties such as weather and war and there are no guarantees against losses. In this study, commodities are represented by the Dow Jones-AIG Commodity Index (DJ-AIGCI), ${ }^{\circledR}$ from 1990 to present. Prior to that, returns are represented by the Dow Jones Futures Price Index. The DJ-AIGCI is designed to be a highly liquid and diversified benchmark for commodities traded on U.S. exchanges. For purposes of this study, it is assumed that commodity exposure is obtained through a vehicle tracking the index and not by purchasing the underlying futures contracts.

The performance of an index is not indicative of the performance of any particular investment. Unless otherwise noted, index returns reflect the reinvestment of income dividends and capital gains, if any, but do not reflect fees, brokerage commissions or other expenses of investing. Investors may not make direct investments into any index.
*For the one-year real real return, the real estate commission was not deducted. For longer periods, a $6 \%$ commission was applied to approximate the economic reality of a typical real estate investment transaction.

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