THE RIGHT STUFF

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One of the best books I have read was written by Tom Wolfe in 1979. “The Right Stuff” related the story of the original Mercury 7 astronauts and the famous test pilots who preceded them. Much of the book centered on Chuck Yeager, the first man to break the sound barrier. Yeager was arguably the finest pilot of his time.

In “The Right Stuff” the genius of Chuck Yeager was his acceptance of his situation at any moment. One riveting story in the book detailed how Yeager had control problems with his experimental aircraft and still managed to land safely. Clearly he accepted the reality of his plight and his simple acceptance helped him survive. Yeager’s story offers a valuable lesson for investors: a choice to see the world as it is, not how we might want it to be.

Unfortunately interest rates are so low that from a value standpoint bonds and notes offer a disappointingly low margin of safety.

Today investors are faced with an environment that is not how we want it to be. The problem is interest rates; they are lower than we would like. The ten-year US Treasury Note offers a yield-to-maturity (YTM) of 1.9% per year. The thirty-year US Treasury bond offers a YTM of 2.5%. And these yields are before the effects of inflation.

Yield-to-maturity is vitally important. YTM is the best estimate of the future return from a bond before inflation. So, if the ten-year Treasury note is priced to yield 1.9% to maturity, that yield is your best estimate of your return from this T-Note for the next ten years.

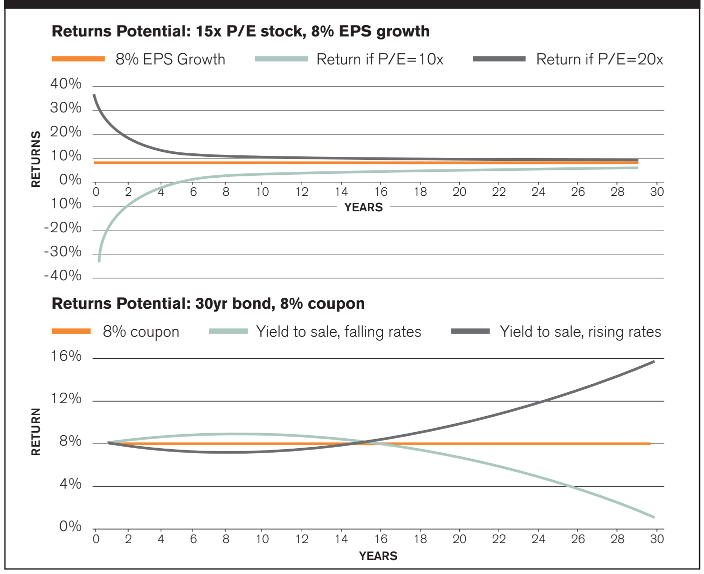
We wish interest rates were higher. High rates makes our mission at DGI a lot easier. Our clients are net lenders, not borrowers. High rates improve the return on the fixed income portion of our clients’ balanced portfolios. High rates simplify the investment challenge for retirees. High rates reduce the unfunded liabilities of our pension fund clients.

Before we delve further into bonds, we need to re-acquaint you with a foundational investment concept known as “margin of safety”. Ben Graham highlighted “margin of safety” as the most important investment principle of all. “Margin of Safety” is easy to understand in our day-to-day lives. If a man chooses to drink to excess and drive his car, he is giving away his and others’ “margin of safety”. This does not mean he is pre-ordained to crash; he just has a higher likelihood of an unfortunate outcome. For those investors who are not concerned about an adequate margin of safety, their investment is not necessarily doomed to failure. They just have higher odds of a poor or catastrophic outcome.

In the case of bonds, especially US Treasury bonds and notes, the principal and interest payments are safe and offer some margin of safety for the investor. Unfortunately interest rates are so low that from a value standpoint bonds and notes offer a disappointingly low margin of safety.

The news gets worse. Bonds are not very good long-term investments, because of “interest-on-interest.” This may seem counterintuitive, but interest earned and reinvested earns future interest payments, or interest-on-interest, which tends to increase the dispersion of bond returns over time. Stocks perform almost exactly in reverse. Stocks have high volatility of returns over the very short-term but the dispersion of returns tends to narrow over long periods of time. The following chart clearly ustrates these behaviors:

EXHIBIT A. RETURNS POTENTIAL



Source: Disciplined Growth Investors’ Internal Research

For those of you who want a more comprehensive explanation of the two charts above, our own Nick Hansen’s analysis is contained in the addendum to this paper.

Even though bonds offer little margin of safety as a standalone investment and are not very good long-term investments, bonds can serve important purposes in a balanced portfolio. They can be a source of stable income which is important for those who are taking regular distributions. Bonds can serve to moderate annual volatility. Typically stocks decline during periods of economic and financial fears; conversely investment-grade bonds do well because of their favored position in the capital structure of most companies. Bonds are also a hedge against the now-famous Black Swan theory, that a low-odds event can have major effects. We like to think of bonds as a source of income and a hedge against unforeseen market events.

The investment challenge today is that bonds are an expensive hedge solely because interest rates are so low. We need to adapt. The first step is to remember the lesson from Chuck Yeager and accept the reality of low rates.

THERE ARE FOUR STEPS WE MUST TAKE:

1. We must budget for low returns from the fixed income side of the portfolio. For the next ten years, 2-4% per year before inflation seems appropriate.
2. We have reduced the exposure to bonds to the minimum acceptable level for each client until interest rates increase to safer levels.
3. We need to communicate with our clients the implications of low interest rates. This paper is an attempt to improve our clients' understanding of low interest rates.
4. We need to make sure each of our clients' portfolios are properly structured so as to balance the need for acceptable long-term returns with a tolerable level of annual volatility.

In today's low rate environment all investors are at risk of trying to stretch imprudently for yields.

WE ARE SEEKING TO AVOID AT LEAST TWO TRAPS:

1. We will not chase yields; that is, we will not seek to invest in lower quality issues to temporarily enhance performance. We thoroughly understand that a borrower who pays a high rate of interest only does so because it cannot qualify for a lower rate.
2. We also understand that transparency in the bond market has been severely compromised by the extensive use of derivatives. In far too many cases it is not possible to figure out the value of the underlying creditworthiness of a bond.

HOW DO WE POSITION THE PORTFOLIO?

> We will maintain tight control over the maturity of our clients' bond portfolios. It is inevitable that interest rates will rise, even if we cannot predict the timing. When interest rates rise the greatest damage is inflicted on holders of longer-term bonds.

> We will maintain broad diversification in our clients' bond portfolios and equal weight the positions. This protects against an adverse credit experience with any one issuer.

THERE IS GOOD NEWS

In contrast to bonds, stocks today offer excellent returns. So the appropriate investment policy is to maximize exposure to stocks and minimize exposure to bonds consistent with client objectives and annual tolerance for volatility.

It is now fifteen years since the Y2K demarcation. There are readily available lessons to be learned about investing in stocks and bonds if we break the fifteen years into the first ten years and the last five. So for our purposes here we will examine the period from the beginning of 2000 (12/31/1999) until the beginning of 2010 (12/31/2009) and then the period from the beginning of 2010 (12/31/2009) until the beginning of 2015 (12/31/2014).

The first decade of the 21st century has been labeled the "lost decade", especially for stocks. The S&P 500, the most widely used index of stock returns, actually lost money (-0.9% per year) for the decade, including reinvested dividends. Bonds provided clearly superior results during the same period, earning over 7% per year. Even money market funds performed spectacularly well, earning 4% per year. The "lost decade" began with a severe bear market in stocks and ended with a severe bear market in stocks.

We want to share with you the performance of our tax-exempt balanced portfolio composite during this "lost decade". In this case we want to break the performance into stocks, bonds and money market funds.

HERE ARE THE NUMBERS:

12.31.99—12.31.09 | Total account annualized total return 6.5%, equities 5.0%, bonds 7.4%, money market funds 3%. Even though our stocks outperformed the S&P 500 we still fell short of bonds and barely beat money market funds.

The investment environment abruptly and violently reversed trend in the middle of 2009. Just prior to this reversal stocks had sold off to levels which offered a once-in-a-generation buying opportunity.

The reversal which occurred in 2009 has continued through the end of 2014. Here is the performance of our tax-exempt balanced account composite from 12/31/2009 until 12/31/2014: Total account 17.3%, equities 21.3%, bonds 5.2%, money market fund 0%.

For those of you who want to check our work on this assertion, we refer you to our investment piece A Once-in-a-Lifetime Opportunity dated 10/31/2008.) This piece can be found on our website, www.dginv.com.

Our readers will note that equity performance is far better than the prior decade and bond performance is noticeably lower. Money market returns dropped from 3% to zero, even though inflation was about 1.5% per year. Total account performance was far higher, 17.3% versus 6.5%.

Let's play this "movie" forward through the end of this decade. If bonds provide 2% per year for the next five years then their return for the decade will be 3.7% per year. If our stocks achieve their hurdle rate of 12% per then they would achieve a 16.5% return for the decade. Assuming short-term interest rates increase slightly for the next five years, money market funds would provide less than 1% for the decade. Total account performance would be vastly better, about 14% per year versus 6.5% for the prior decade.

If interest rates were to increase slightly between now and then to perhaps 3%, bonds would still not offer sufficient returns for most investors. This would not be high enough to lift the funded levels of many institutional pension funds or to satisfy current and future retirement needs of many individuals.

The issue here may be one of perspective. The chart below shows the pattern of long-term interest rates since 1871.

BOND INVESTING is almost exactly opposite stock investing. Suppose we have two portfolios, one invested in three stocks and one in three bonds. If one of the stocks was Apple before it increased in value 100 fold the success or failure of the other two stocks do not matter to the overall success of the portfolio. Conversely in the three bond portfolio, if one bond defaults the other two bonds cannot increase their interest payments to make up for the loss. Only one loss can lead to an adverse outcome.

The chart is striking; it shows that for most of the last 150 years long-term interest rates fluctuated between 2% and 5%. It looks like the period from 1981-1995 was more of an anomaly than a sustainable condition. All investors, including us, must consider the probability that long-term interest rates have returned to a normal condition of 2-4% yields.

EXHIBIT B. LONG-TERM INTEREST RATES

Source: Robert Shiller http://www.econ.yale.edu/~shiller/data.htm

We can also learn much by looking at returns for stocks (represented here by the S&P 500), bonds and short-term investments by decade since 1930. Below is the table showing this data.

EXHIBIT C. CUMULATIVE ASSET CLASS RETURNS BY DECADE

TOTAL	STOCKS	T. BILLS	T. BONDS
1930-39	-8.9%	10.3%	47.5%
1940-49	126.2%	4.8%	28.0%
1950-59	491.9%	21.5%	8.1%
1960-69	110.7%	47.4%	27.1%
1970-79	77.7%	83.4%	69.4%
1980-89	395.0%	132.6%	209.4%
1990-99	425.5%	60.3%	103.7%
2000-09	-9.1%	30.9%	83.5%
2010-14	104.6%	0.8%	33.9%

Sources: Aswath Damodaran and FactSet.

THE TABLE BELOW LEFT OFFERS MANY INTERESTING INSIGHTS. IN OUR OPINION HERE ARE THREE OF THE MOST VALUABLE:

1. Stocks versus Treasury bonds- Stocks beat bonds in every decade except those two decades when stocks lost money. After the decade from 1930-39, Treasury Bonds earned 1.9% per year for the next three decades, while stocks earned 11.1% per year.
2. Treasury Bonds versus T-Bills. T-bonds underperformed T-Bills for three straight decades from 1950-79. The golden age of T-Bonds began in the 1980 decade and lasted for three decades. T-Bonds earned a compound return of 8.5% per year over those thirty years; T-Bills earned 5.4% per year.
3. In the two decades when stocks lost money, each decade began with a severe bear market and then experienced a second severe bear market late in the decade.

All investors, including us, must consider the probability that long-term interest rates have returned to a normal condition of 2-4% yields.

Combining the historical insights contained in Exhibit B and Exhibit C, we can make educated guesses about the capital markets over the next few decades. Bonds are likely to provide normal returns, probably between 2 and 4% per year before inflation. Stocks are the favored asset. After the negative decade from 1930-40, stocks outperformed bonds for six straight decades.

While it is reassuring that Exhibit C suggests stocks are likely to be the preferred asset class for the next several decades, we would be remiss if we did not back up this historical data with intensive research on your portfolio of invested companies. As we have detailed numerous times over the last several years, corporate America and, more importantly, your invested companies have been on a roll with massive innovation across many industries. Valuations are reasonable. Business models are robust. Simply, our individual stock work backs up the forecast that stocks are likely to outperform bonds by a significant margin over the following decades.

For the investor who wants a portfolio with a balance of stocks and bonds, the excellent outlook for stocks combined with normal returns from bonds should provide the basis for sound risk-adjusted performance.

APPENDIX

EQUITY AND FIXED INCOME INVESTMENT RETURNS IN THE LONG-TERM

When considering a long-term investment in a stock or a bond, a crucial difference is worth noting: bonds mature, while stocks do not.

What does this mean? An investment in a bond will eventually be returned to the investor, as stipulated in a contract, while an investment in a stock is perpetual. When an investment in a bond is returned to the investor before the investor has need of the money, it must be reinvested. Because this reinvestment can occur in a variety of rate environments, the long-term return from an investment in bonds becomes more uncertain the longer the investment period the investor faces and, consequently, the more reinvestment events the investor must risk.

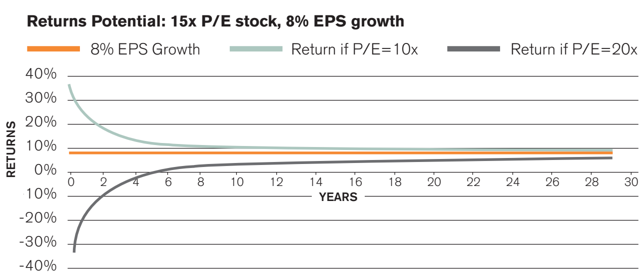
Conversely, a stock investment generally experiences greater volatility in the near-term, since its value is based upon the uncertain future success of the underlying firm. Over time, as the success of the firm either manifests or does not, the uncertainty resolves and the return of the stock converges to the outcome achieved by the firm.

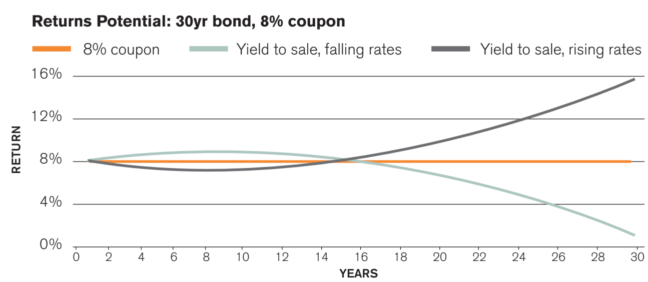
In the charts on the next page, note that the sooner a bond returns capital to the bondholder, that is, the higher the coupon payment, the sooner that bondholder's investment is subject to reinvestment risk. In the case of a stock, as time passes, the returns to the equity holder converge to the fundamental progress experienced by the underlying business.

In the right-hand example, note that that at an 8% coupon and a $100,000 initial investment, the bondholder must reinvest $8,000 per year initially, and must eventually reinvest the $100,000. The total return experienced becomes more and more dependent not on the yield of the initial investment, but on the yield of the reinvestments. Over time, the range of possible returns on the initial investment diverge.

In the case of the stock, imagine that the stock price varies between a P/E multiple of 10x and 20x earnings. If earnings grew by 8% per year, those valuation fluctuations come to impact the overall rate of return less and less as the fundamental growth of the company comes to dominate the returns.

EXHIBIT D. RETURNS POTENTIAL





Source: Disciplined Growth Investors' Internal Research

DISCIPLINED GROWTH INVESTORS
ANNUAL COMPOSITE PERFORMANCE

FEBRUARY 28, 1997 THROUGH DECEMBER 31, 2014

Global Investment Performance Standards

DISCIPLINED GROWTH INVESTORS – BALANCED GROWTH COMPOSITE

YEAR	COMPOSITE PERFORMANCE GROSS of FEES	COMPOSITE PERFORMANCE NET of FEES	S&P 500	NUMBER of PORTFOLIOS in COMPOSITE	COMPOSITE DISPERSION	TOTAL COMPOSITE ASSETS at END of PERIOD ($ in MILLIONS)	COMPOSITE PERCENTAGE of TOTAL FIRM ASSETS	TOTAL FIRM ASSETS at END OF PERIOD ($ in MILLIONS)
1997*	11.4%	10.8%	24.6%	35		$288.8	35.6%	$811.5
1998	6.7%	6.1%	28.6%	28	0.85%	$260.4	37.9%	$686.4
1999	37.3%	36.6%	21.0%	29	2.96%	$303.7	35.2%	$862.2
2000	3.4%	2.8%	-9.1%	32	1.03%	$262.7	32.6%	$804.7
2001	-1.7%	-2.2%	-11.9%	34	1.24%	$257.5	36.6%	$704.1
2002	-13.8%	-14.3%	-22.1%	32	0.95%	$199.8	35.4%	$565.1
2003	34.9%	34.2%	28.7%	34	1.34%	$272.0	31.4%	$866.8
2004	17.4%	16.7%	10.9%	39	0.72%	$317.9	28.9%	$1,098.3
2005	13.0%	12.3%	4.9%	41	0.60%	$352.5	22.9%	$1,540.3
2006	7.3%	6.7%	15.8%	45	0.54%	$370.3	23.1%	$1,603.9
2007	4.6%	4.0%	5.5%	45	0.50%	$353.1	21.0%	$1,683.5
2008	-26.4%	-26.8%	-37.0%	38	1.18%	$235.2	23.6%	$995.9
2009	44.5%	43.5%	26.5%	38	1.95%	$231.3	15.6%	$1,484.5
2010	27.4%	26.6%	15.1%	38	1.03%	$277.7	13.9%	$2,002.2
2011	3.2%	2.6%	2.1%	40	0.33%	$281.5	11.8%	$2,382.6
2012	16.8%	16.0%	16.0%	52	0.58%	$338.3	12.1%	$2,788.0
2013	27.7%	26.9%	32.4%	47	1.39%	$397.6	9.8%	$4,054.4
2014	13.1%	12.3%	13.7%	44	0.53%	$423.2	9.5%	$4,459.7

Disciplined Growth Investors, Inc. (DGI) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. DGI has been independently verified for the period February 28, 1997 through December 31, 2014. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Mid Cap Growth Composite has been examined for the periods February 28, 1997 through December 31, 2014. The verification and performance examination reports are available upon request. GIPS® is a registered trademark of CFA Institute. CFA Institute has not been involved in the preparation or review of this report/advertisement. Benchmark returns are not covered by the report of independent verifiers.

Notes:

1. Disciplined Growth Investors, Inc. (DGI) is an investment adviser registered with the U.S. Securities and Exchange Commission specializing in small cap growth equity, mid cap growth equity and balanced growth portfolio management. DGI was founded in February 1997.
2. Benchmark comparisons are presented using the SP 500. Management considers this index to parallel both associated risk and the investment style represented by the composite.
3. Valuations are computed in U.S. dollars.
4. * DGI was formed February 6, 1997. It is the policy of DGI to include accounts in the composite after the first full month of performance; thus, 1997 only includes performance for the period February 28, 1997, through December 31, 1997.
5. The Balanced Growth Composite was created on February 28, 1997.
6. The dispersion of annual returns is measured by the standard deviation across asset-weighted portfolio returns represented within the composite for the full year.
7. Gross performance results are presented before management and custodial fees but after all trading costs. Performance is based on trade-date valuation and is size weighted. Net performance results are presented before custodial fees but after actual management fees and all trading costs. The management fee schedule is as follows:

   BALANCED GROWTH ACCOUNT FEES
   1.00% on the first $5 million
   0.75% on the next $20 million
   Over $25 million fees are negotiable
8. The historical rates of return should not be relied on as indicative of future results.
9. The balanced composite is approximately 60% equities and 40% fixed-income securities with cash. The composites contain all fully invested, tax-exempt discretionary portfolios in the strategy. Accounts are included in the composite after the first full month of fully invested performance. No alteration of the composite as presented here has occurred because of changes in personnel or other reasons at any time. A complete list of firm composites and performance results is available upon written request.
   A minimum account size of $1 million was removed as of 9/30/2012.
10. DGI's policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.
11. Three-year annualized standard deviation:

Year	DGI Balanced Growth Composite	SP 500 Index
2011	16.76	18.71
2012	14.10	15.09
2013	12.15	11.94
2014	9.52	8.97

ABOUT DISCIPLINED GROWTH INVESTORS

Disciplined Growth Investors is a Minneapolis-based investment management firm specializing in prudently exploiting investment opportunities in publicly held small cap and mid cap growth companies. Founded in 1997, the firm remains employee owned and completely independent.

ABOUT THE AUTHORS

Fred Martin is Disciplined Growth Investors' founder and Chief Investment Officer. Fred has been managing portfolios since 1976 and is the primary architect of the investment philosophy employed by the firm.

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ABOUT DISCIPLINED GROWTH INVESTORS

DISCIPLINED GROWTH INVESTORS IS A MINNEAPOLIS-BASED INVESTMENT MANAGEMENT FIRM SPECIALIZING IN PRUDENTLY EXPLOITING INVESTMENT OPPORTUNITIES IN PUBLICLY HELD SMALL CAP AND MID CAP GROWTH COMPANIES. FOUNDED IN 1997, THE FIRM REMAINS EMPLOYEE OWNED AND COMPLETELY INDEPENDENT.

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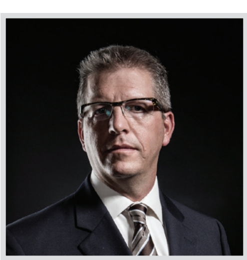

FOR FURTHER INFORMATION ABOUT THIS ARTICLE, RELATED MATERIALS, OR FURTHER INVESTMENT OPTIONS AT DISCIPLINED GROWTH INVESTORS

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