Equity Collars as an Alternative to Asset Allocation

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Abstract: *Interested parties have examined the performance of portfolios based on asset allocation. However, very little, if any, research exists in the area of asset allocation versus equity collars to determine which approach is more effective in controlling client investment risk. This research examines the performance of a typical debt-equity portfolio across several types of asset-allocation schemes where the performance is measured on a risk/return basis. The allocation strategies are compared to the results of an equity collar approach that limits upside potential returns to +20% and downside risk or loss to -10%. In addition, areas such as using collars to manage systematic risk, replicating debt, and the impact of investment decisions on client risk versus regret are examined.*

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Introduction

In a recent *BusinessWeek* article, author Adrienne Carter featured an investment firm named Summit Portfolio Advisors. The unique aspect of the article was that it focused on the firm's use of option collars to manage risk.[1] A collar is an option strategy that uses both puts and calls simultaneously. The strategy utilizes buying a put option, which gives the investor the right to sell the underlying equity shares at a stated exercise price. This provides the investor with known downside protection. To offset the cost of the put, a call option is sold. With the call option, one must sell the underlying shares at a predetermined or exercise price. Hence, the term "collar" refers to the stated range set by the options (puts and calls) in which the return on the underlying stock investment can travel.

For example, if the investor owns 100 shares of Google at $473/share, a collar could be established by buying one put contract expiring on Jan. 19, 2009 at a strike price of $470 for $54.20, while simultaneously selling one call option with the same expiration date at $550 for $55.90. In this case, the maximum upside for the stock is $77 and the downside is limited to $3.00 for virtually zero cost to the investor. A collar of this form is referred to as a "zero-cost collar" since the cost of the put is offset by the income from selling the call.

Several other articles also deal with the equity collar and its use in managing risk. Welch looks at the equity collar as a means of protecting against single-stock risk. In particular, the article reviews some of the financial strategies available to investors that have a concentrated equity position in a particular firm.[2] Opiela illustrates how the

equity collar can be useful in managing risk in the context of executive compensation.[3] Here, an executive may be required to hold a concentrated position in the company's stock. The equity collar is viewed as a way of protecting against a downturn in the firm's value. The collar is used in this case to offset the cost of a put option on the shares by writing a call option. Thus, the executive is willing to forgo some upside movement in value for the lower cost of the downside protection. McGee addresses equity collars and how a cost-benefit analysis can be used to explain their performance to clients. McGee also states how one should structure a collar and the corresponding IRS implications. The author then states how the approach can be used to collar a portfolio of several stocks.[4]

While the February 2006 *BusinessWeek* article provided an excellent explanation of the Summit Portfolio Advisors' strategy, it was of interest for a different reason. The interest was in determining how useful the strategy would be for the professional financial planner. Like Summit Portfolio Advisors, the financial planner is very much interested in protecting his or her client's return performance relative to the risk the client is willing to accept. However, traditional risk-return analysis is generally more focused on establishing efficient portfolios using asset allocation. The most common allocation strategy would have a client invest a certain percentage of his or her investment dollar in equities and the remainder in debt.[5] The percentage split chosen is a function of the risk that is most appropriate for the client at this particular time.

Professor Basu presents an excellent approach to setting the allocation percentages and establishing the retirement needs of the client. His June 2005 article in the *Journal of Financial Counseling and Planning* provides a description of how to establish the financial needs at different stages in an investor's investment cycle. His "age-banding" approach provides significant insight into the many factors that determine the percentage split between asset categories.[6] The idea behind this new approach is that individuals undergo various changes in lifestyles during retirement that last for finite, or age-banded, periods. For example, people spend more time and money on leisurely activities early on in retirement, while health care needs dominate the latter years.

The costs associated with these lifestyles also change at differential inflation rates than from the basic inflation rate. While the basic inflation rate is about 3%, the U.S. Census Bureau noted that annual recreation costs increased at 7.14% through most of the 1990s.[7] Health care costs also increased by much higher rates than the basic rate. For example, both prescription drug and outpatient care costs increased by as much as nearly 15% over the last decade. Since the traditional model bundles all costs (including leisure, health care, basic living, etc.) and extrapolates at the basic rate, it tends to underestimate retirement expenses. The traditional model's "static" approach to retirement can have dangerous implications since it may lead to underfunded retirement plans, especially those earmarked for the critical years.

If an age-banding approach to retirement planning was used in conjunction with a collar strategy, the retirement portfolio will considerably ease the uncertainties involved in the structuring of appropriate retirement income distribution plans. Any reduction in this uncertainty is highly desirable by both planners and their clients.

Interested parties in both the academic and investment communities have examined the performance of portfolios based on asset allocation. However, very little, if any, research has been done in the area of asset allocation versus equity collars to determine which approach is more effective in controlling client investment risk.

In an attempt to explore these issues, this research examines the performance of a typical debt-equity portfolio across several types of asset allocation schemes where the performance is measured on a risk/return basis and discussed in the context of the efficient frontier. The allocation strategies are then compared to the results of an equity collar approach that limits upside potential returns to +20% and downside risk or loss to –10%. These results are presented in both statistical and graphical forms. The notion of risk versus regret is also provided. Finally, a discussion of the collar as a potential substitute for debt and equity at different stages of the investment cycle is presented. This is followed by the Summary and Conclusion section.

Types of Allocation Strategies

While investors may be viewed as a homogeneous group in certain aspects, their individual risk tolerances

and preferences may lead them to make very different investment choices. Some may choose all equities, all debt, or any static combination in between. In addition, the investor could also choose from a series of dynamic strategies that address changing allocation values of their risky portfolios.[8] That is, they must decide if they wish to rebalance their portfolios in some way or simply buy and hold certain assets. If one decides to rebalance the portfolio in response to changes in asset values and therefore readjust the mix, the timing and the cost of these changes becomes an issue.

A fundamental strategy available to the multiasset group investor is constant mix. The dynamic nature of this strategy is exhibited in the changing proportions of each asset group as the value of the entire portfolio varies with changing market conditions; hence, the term "constant mix."

Given a desired 70%/30% equity/debt split, a constant-mix strategy would indicate that the investor wishes to hold 70% of the portfolio value in equity regardless of the value of the total portfolio. The dynamic aspect occurs when the two portfolio components generate different rates of return. For example, if $10,000 was invested—$7,000 in equities and $3,000 in bonds—no adjustment would be necessary if both components experienced a 10% return over the holding period. In this case, the portfolio value would rise to $11,000—70% or $7,700 in equities and 30% or $3,300 in bonds. As the different asset groups experience different return patterns, trading would occur in order to restore the desired 70%/30% allocation. The asset group experiencing the greater return would need to have some portion of its total liquidated or reduced in order to bring the slower growing asset group back up to the established mix. Using our $10,000 investment, we now consider the scenario where stocks go down 20% and debt remains flat (i.e., the holding period return is 0%). The total portfolio value would now equal $8,600. The equity portion would be valued at $5,600 and the debt would be $3,000. The portfolio has not only decreased but now deviates from the desired proportions. Bonds now represent 35% of the total portfolio value. Consequently, debt must be sold and equities purchased so that each comprises the original 70%/30% split. Here debt would be reduced by $420 and equities increased by the same amount.

Since transaction costs can be significant for dynamic strategies, the investor must not only determine a desired mix but also a "trading rule." The trading rule dictates under what conditions the portfolio will be rebalanced. These rules can be complex, but they usually entail some floor or ceiling level that a particular asset group can reach relative to the other assets comprising the portfolio. Typically, buy-and-hold strategies will outperform a constant mix (taking transaction costs into account) when the assets move in the same direction for the holding period. However, when the asset group experiences a series of reversals, the constant mix provides the greater portfolio return. This occurs because the investor is buying more of the asset at depressed levels when its proportion declines. As the market for that asset reverses itself, the investor now has a greater portion of his or her investment in the asset than the buy-and-hold counterpart. Clearly, both strategies require a risk assessment expressed in terms of a specific asset mix. Market movements will influence both strategies. Constant mix, however, is influenced both by the cost of rebalancing and by whether or not reversals are part of the overall volatility of the market. Consequently, in some cases, the returns provided by the two strategies can be quite similar; yet at other times, due to the nature of the market's volatility and the cost of rebalancing, it can be very different.

Neither strategy clearly defines the magnitude of the potential loss to the investor. If the constant mix is selected, it inherently assumes that investors of all age groups can sustain the decline and wait for the asset group to reverse itself.

Performance in a Mean Variance Framework

With asset-allocation strategies, risk was taken into account simply by separating the asset categories into various percentage splits (e.g., 70/30 equity/debt). The assumption is that the lower the percentage in equity, the lower the risk. However, if one wished to take risk into account directly, one approach would be to examine the efficient frontier of portfolios comprised of the asset groups. In order to generate the efficient frontier,

several steps must be taken. First, the correlation between the asset categories must be computed. Table 1 shows the correlation, along with the corresponding average annual returns and standard deviations for each asset class. In addition, the portfolio standard deviations and mean returns are computed across the various percentage splits and are provided in Table 2. That is, the range of the asset mix varied from 100% equity with zero debt to zero equity with 100% debt. The minimum risk portfolio for each combination of assets determined the percentage split among the combinations. The efficient frontier is presented as one approach. However, the financial planner, in conjunction with the client, may utilize alternative methods to determine the appropriate allocation across asset classes.

Having established a series of allocations and the basic statistics describing the return series for the S&P 500 and the five-year Treasury notes, a +20/–10 collar was examined. The summary statistics for the return series are presented in Table 3. The historic returns for both the S&P 500 and the debt portfolio are utilized to capture the return patterns that occurred since 1926. The frequency distributions of returns for these series are provided in Table 4. In addition, a graphical display is presented in Figure 1. The Jarque-Bera test was applied to the distributions to determine whether they could be characterized as normal distributions. The results, presented in Table 5, indicate that only two of the return distributions satisfied the test for normality. They are the S&P 500 and the stock/debt mix. The tests presented in Table 5 also show that the majority of the distributions exhibit negative skewness, indicating that the negative returns were dominant. If subsets of the period were tested or if daily, weekly, or monthly return data were used, the distributions would likely exhibit different characteristics.

Although collars did not exist throughout the entire time frame, the purpose of this analysis is to see what results would have been derived if zero cost collars could have been established at the beginning of each calendar with one year LEAP options on the S&P 500 index. The resulting return patterns for the collared index were then compared to various asset-allocated portfolios. Using zero-cost collars allows for the elimination of any additional investment on the part of the client. Here, the cost of the put providing the downside protection is offset by the income from the sale of the call. Therefore, the overall cost of the strategy is consistent with the asset-allocated portfolio.

Other cost components related to the collar strategy such as the tax treatment and transaction costs should be considered. When applying the collar approach in a taxable account, special consideration needs to be given to the possible application of tax rules that disallow long-

TABLE 1

Descriptive Statistics for Return Series Using 1926 to 2005 Annual Returns (1926-1990 Data Hidden)

	S&P 500 Index	Five-Year Treasury Notes
1991	30.5	15.3
1992	7.6	7.2
1993	10.1	11.2
1994	1.3	-5.1
1995	37.6	16.1
1996	23.0	2.1
1997	33.4	8.4
1998	28.6	10.2
1999	21.0	-1.8
2000	-9.1	12.6
2001	-11.9	7.6
2002	-22.1	13.0
2003	28.7	2.4
2004	10.9	3.2

TABLE 2

Composition of the Minimum Variance Portfolios

Standard Deviation	Expected Return	% in S&P 500	% in Treasury Notes
0.202	0.123	1.00	0.00
0.164	0.110	0.81	0.19
0.136	0.100	0.66	0.34
0.109	0.090	0.52	0.48
0.085	0.080	0.37	0.63
0.065	0.070	0.23	0.77
0.056	0.055	0.00	1.00

TABLE 3

Performance of the Collar Relative to Asset Allocation Using 1926 to 2005 Annual Returns

	Return Data			Combined Portfolios		
	S&P 500 Index	Five-Year Treasury Notes	Collar Strategy +20/–10	52% S&P 500 48% Debt	20% S&P 500 80% Debt	52% S&P 500 48% Collar
Arithmetic mean	12.3	5.5	8.9	8.8	6.7	10.5
Geometric mean	10.4	5.3	8.4	8.5	6.6	9.5
Standard deviation	20.2	5.7	12.1	10.9	6.2	15.9
Maximum return	54.0	29.1	20.0	28.9	27.6	37.7
Minimum return	-43.4	-5.1	-10.0	-23.7	-10.5	-27.3

Assumptions:
1) All collars are for one year and zero cost; the cost of the put option is offset by the proceeds of the call.
2) The management and trading costs for both the collar strategy and stock/bond mix are equal.

term capital gains. However, since there is no definitive tax ruling on the issue relating to married puts, the possible tax implications cannot be formally stated. The tax issue would not be a factor for those investment plans that were tax exempt. With regard to transaction costs, they will vary by size of trade and type of broker. At a discount broker an equity trade would cost about $7 per trade and options $7 plus $1.25 per contract. If you assume a $50 stock and a LEAP option collar where the stock is either sold or exercised at expiration, the round trip commission for both stock and options on a $10,000 transaction would be approximately $35. For a $30,000 transaction it would be $45 and for $100,000 it would be approximately $80. If one views the collar as insurance against a serious downturn, the marginal transaction cost seems to be reasonable.

TABLE 4

Frequency Distribution of Returns 1926 to 2005

	Frequency Counts		
Return %	S&P 500	Five-Year Notes	+20/–10 Collar
–30	2	0	00
–25	1	0	0
–20	2	0	0
–15	0	0	0
–10	5	0	10
0	13	8	13
10	11	58	11
15	7	8	7
20	8	4	39
25	9	1	0
30	4	1	0
35	9	0	0
40	4	0	0
45	2	0	0
50	1	0	0
55	2	0	0

While equity-indexed annuities (EIAs) also provide insurance against downside risk, they are not the same as an equity collar. The EIA is an insurance product and, in many cases, is not registered with the Securities and Exchange Commission. A typical EIA is one where the insurance company will provide a return based on the return of a particular equity index such as the S&P 500. The insurance company may also provide a guaranteed minimum return, thereby protecting against downside risk.

However, even with a guaranteed return the investor can still lose money with an EIA. One possible way is if the guarantee is based on a total dollar amount that is less than the amount of the total payments made during the accumulation period. A loss may also occur if the investor must cancel the annuity before the breakeven period, which may take several years. In addition, should one decide to cancel early there may be a surrender charge and/or tax penalties. In some cases, the investor may even lose the interest income from the

annuity if it is not held to maturity.

In an excellent article by McCann and Luo, the authors examine the investment value of an EIA. They found that simple portfolios comprised of both Treasury securities and the S&P 500 index outperformed the EIA 97% of the time.[9] The EIA is not liquid and was found to have sales commissions as high as 10%–12%. Because of these findings, the equity collar was not compared to the EIA but rather to the superior portfolios comprised of the S&P 500 index and Treasury bonds.

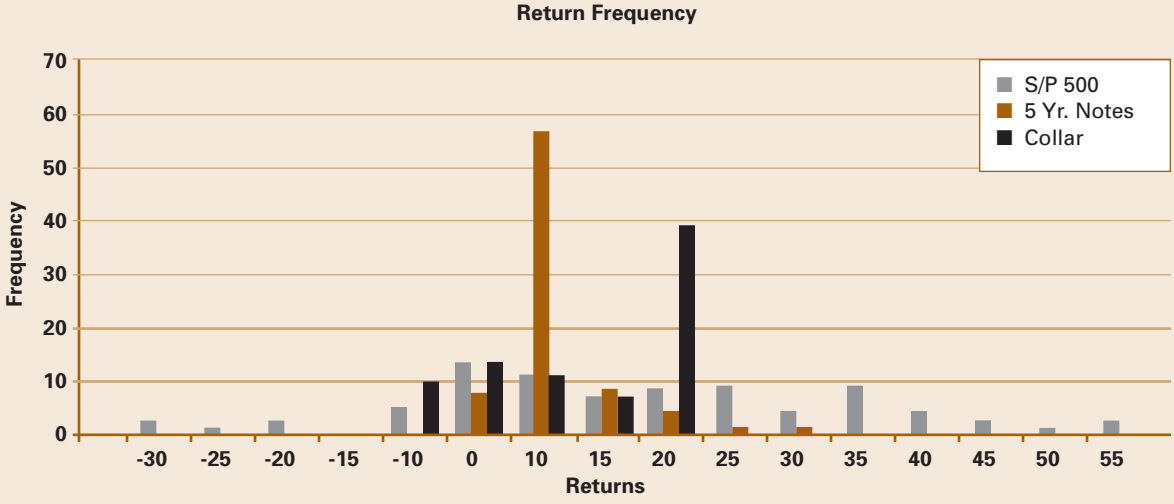
In each period, the resulting return on the collar has three potential outcomes. If the S&P 500 index return (including dividends) is up by 20% or more, the call will be exercised and the investor will receive the positive 20% return. That is possible since the collar is set to have a strike price at a 20% appreciation level above the current S&P 500 index. Should the index decline and the put be exercised, then the loss to the investor would be a maximum of 10% regardless of the actual decline in the index. For example, if the stock index fell 45%, the loss would be limited by the put to only 10%, thereby protecting the investor from serious deterioration in the value of his or her investment. In the case where neither the put nor the call is exercised, the return to the investor would be equal to what the index actually provided. Therefore, once the collar is positioned the investor knows the potential maximum and minimum return that the collar strategy will provide. Unlike the asset-allocation portfolio, the collar provides deterministic limits to the investment outcome and volatility.

Financial Planning with Greater Certainty

With the asset-allocation portfolio, the outcome is totally probabilistic. The investor must determine what meaning the historic descriptive statistics and the characteristics of the allocated return distribution provide relative to some future outcome. It is interesting to note that over the 80-year period, the S&P 500 averaged 12.3%, but there were only four years in which the return was actually between 11% and 13%. Yet the range of outcomes varied from –43.35% to 53.93%. Note that all of the outcomes have some probability of occurrence. It is very difficult for the investor to determine what his or her actual future outcome will be since all outcomes are possible and not bounded in any way. This is the case even if the investor wishes to reduce the risk of loss through asset allocation.

To illustrate the process a specific example is provided. Consider the efficient portfolio characterized by the following allocation: 52% equity and 48% debt. It is the desire for risk avoidance that leads investors to hold a group of investments, as opposed to one single asset that provides the greatest expected return. This grouping of investments follows the notion of investing as a process of

FIGURE 1



selecting "components" that, when combined, will produce the desired risk/return trade-off. Here, the investment strategy is to diversify across security types as well as within a particular group. The individual holds lower risk investments such as high-quality debt, along with riskier equities. While some portion of the portfolio may underperform, the goal is for the total combined return to reach the desired target for both risk and return.

Financial planners, in the interest of their clients, must be concerned with the absolute levels of both return and risk. Some planners may feel that the traditional notion of risk as volatility should be replaced with "shortfall risk." Shortfall risk is defined as the probability that returns may fall below a prescribed threshold. Once the investor has determined the minimum threshold, a balance across asset classes, such as debt and equity, is established. Consequently, diversification is achieved and it is believed that risk is reduced to acceptable levels in a prudent fashion. Unfortunately the probabilistic nature of the risk remains. The financial planner may truly believe that the 52%/48 % portfolio is prudent. However, using asset allocation alone, the planner cannot guarantee the investor that a loss greater than the desired minimum loss is not possible.

For example, over the entire period the 52%/48% stock/bond portfolio generated a mean return of 8.8%. However, its standard deviation or volatility measure of 10.9% produced a possible range of outcomes from –23.65% to 28.94%. Given such a risk-averse portfolio, it is difficult to imagine that the investor or the financial planner would foresee the potentiality of a 23.65% loss. It is also difficult for the investor to interpret the meaning of the standard deviation relative to that maximum potential gain or loss. Even if one uses confidence intervals, all outcomes are probabilistic and therefore possible. Receiving a loss of an unanticipated magnitude can be very problematic for the individual approaching retirement. However, given the volatility in the markets, an unforeseen downturn is possible.

Comparing the results of a 52/48 stock/bond mix with that of the +20/–10 zero-cost collar approach, over the same period collars produced about the same mean return of 8.9%, with a mildly higher standard deviation or volatility, 12%. However, unlike the asset-allocation method, the range of possible outcomes with collars always falls between a maximum upside equal to 20% and a maximum loss of no more than –10%. If the investor chose the collar there would be a trade-off of 8.94% on the upside (28.94% versus 20%) in exchange for a reduction in downside loss of 13.65% (–23.65% versus –10%).

With the collar the range of possible outcomes is set; they are deterministic. The financial planner does not have to try to estimate what the *future* potential range might be using *historic* data. The collar allows the financial planner to express the risk nature of the investment in a concrete fashion (e.g., "Can you deal with a possible 10% loss?" and "Will you be satisfied with a maximum gain of 20%?"). There are no surprises beyond those parameters. There is no reliance on historic data and/or the planner's ability to extrapolate the historic data to the future. By being able to express the investment in terms of the collar's limits, the financial planner is able to

TABLE 5

Characteristics of Return Distributions Using 1926 to 2005 Annual Returns

	Return Data			Combined Portfolios		
	S&P 500 Index*	Five-Year Treasury Notes	Collar Strategy +20/–10	52% S&P 500 48% Debt	20% S&P 500 80% Debt	52% S&P 500 48% Collar
Skewness	–0.298	1.357	–0.054	–0.323	0.484	–0.414
Kurtosis	2.778	5.754	1.644	2.928	4.333	2.107
Jarque-Bera	1.350	49.833	10.033	1.408	9.039	4.943
Probability	0.509	0.000	0.007	0.494	0.011	0.084

*Illustrates that the Jarque-Bera test indicates a normal distribution.

reduce the investor's regret. There are no complicated statistics to interpret or misinterpret.

Table 3 provides some interesting insight into this concept. Performance measures for the S&P 500 index, five-year Treasury notes, +20/–10 collar, and portfolios having a varying mix of debt to equity are presented. The parameters between the collar and the 52%/48% portfolio have been previously discussed. What is interesting is the significant change in the mix of the portfolios given a small change in the statistical parameters. For example, if the investor desired the same minimum return as the +20/–10 collar, the stock/debt mix would have to change from 52/48 to 20/80. Would an investor who stated a desire for a balanced portfolio really want such a divergent mix? Granted, the maximum historic return would be larger than that of the collar's maximum (27.6% versus 20%); however, the mean return would be 6.7% versus 8.8% for the collar. In search of the lower downside risk provided by the collar, would the investor regret such a large decline in average return?

There is an additional possibility. It can generally be assumed that investors have some expectation about the average return. However, given the uncertainty, they have no idea what the next year will bring. That would depend on the stage of the business cycle. In a down cycle, you have a floor of –10% in any one year. In an up cycle, you have a 20% ceiling. Suppose the actual return next year is 20% (up cycle/bull). You have now overperformed the expected return by 11% (20% – 9%). The collar can now be set at +19/–9. As the business (up cycle) continues, you can continue to book the overperformance to future years by narrowing the collar. In this way, you can reduce the volatility around the expected return. You could advocate similar management styles if the move (collar) coincided with the beginning of a down cycle.

Risk Versus Regret

The concept of "regret" is used to explain investor reactions to changes in portfolio values and relates to the notion of a decision gone bad.[10] Relating regret to collars points out several interesting notions that differentiate it from traditional mean/variance risk aversion.

For example, assume two investors initially choose opposite risk characteristics for structuring their portfolios (e.g., 100% debt and 100% equity). Later, both investors adjust the portfolio mix based on differing expectations to 48% debt and 52% equity. For different reasons, both investors have chosen the same asset allocation and the same risk level. While both will receive the same realized return and therefore the same risk/return relationship, they may have very different feelings about the performance of their respective portfolios. Let us assume that over the holding period, stock returns rise by 20% and bond returns rise by 5%. The investor who originally held 100% in bonds will be pleased, while the investor who originally held 100% equity would certainly experience some regret.

While both investors chose the same risk level for their portfolios, the performance may be viewed quite differently based on the respective "benchmark" chosen. Although, the risk/return trade-off is the same for both investors, the behavioral response would vary. In the context of the asset-allocation portfolio, this notion of regret provides an interesting point of view. If one considers the traditional investment vehicles (the S&P 500 and Treasury notes) as the benchmark, then over the period tested, the holder of the collar would experience little or no regret. While the risk/return trade-offs may vary as illustrated in Table 3, there would be no investor regret as long as the investor in the collar was satisfied with the predetermined range of returns.

Using Collars to Manage Systematic Risk

The collar approach offers an alternative method for controlling market risk, also called "systematic" or "undiversifiable" risk. Nonmarket risk factors such as specific security risk, industry risk, and style risk generally are controlled by the principles of diversification. For example, if a portfolio contains only one stock, the investor has significant exposure to specific security risk or the risk of severe loss if bad news comes out about that particular company. However, this specific security risk can easily be reduced by owning several stocks. The same is not true for systematic risk. If the stock market in general takes a sudden drop, such as what occurred after 9/11, even owning hundreds of stocks will not protect you from market risk. Because this risk cannot be diversified away within the equity sector, financial planners

diversify into other asset classes to reduce market risk. Unfortunately, diversifying to other asset classes moves money away from equities, historically the highest returning asset class. By comparison, the equity-collar approach, because it places a floor on stocks, effectively manages systematic risk and allows investors to keep more money in the equity asset class.

Using Collars to Replicate Debt

When using asset allocation as an investment strategy, adding debt generally reduces risk and creates a more reliable stream of income. Those who support diversification in the context of age banding advocate this. It is reasonable to assume therefore that the percentage of debt one holds, relative to equities, is an indication of the loss one is willing to accept. Simply put, an investor who chooses an all equity portfolio is much more willing to accept a larger potential loss in search of the greater expected returns equities provide relative to debt.

Using collars in place of debt is most appropriate in the early stages of one's career. At that stage, the investor would have ample time to absorb the minimum loss and return of the collar approach in exchange for the higher expected mean return it provides. As shown in Table 3, a +20%/–10% collar produced average annual returns of 9.0% compared with a 5.5% return for Treasury notes. For younger clients who are less concerned with short-term swings in the market and who do not require current income, replacing at least a portion of the normal bond allocation with collared equities may make sense. Using collared equities to replace traditional bond allocations may be particularly relevant for corporate pension plans, endowments, foundations, and other investors whose period for returns is long term.

How Reliable Are Past Returns for Good Decision Making?

Making asset-allocation decisions based on historical data implies history will repeat. However, historic data for equity returns covers a lengthy period in which U.S. economic power was dominant. These patterns may not persist in the future. Also, in the past asset classes have not been highly correlated, which has added to the usefulness of diversification as a means of dealing with risk. However, expanding risk protection into the area of value at risk (VAR) has shown that in extreme risk scenarios the correlation among international equity groups become more positive, thus reducing the benefits of diversification. Some academic studies have also shown that significant changes in risk premiums on debt are also related to the volatility in the equity market.[11] About 30% of the change in spreads for high-grade bonds and up to 50% for high yield-bonds were found to be associated with the level and volatility of equity returns. It is during these periods of high volatility that the collar would be an especially valuable tool in the protection of one's principal. It is also during these periods of high volatility that we find that the risk/reduction benefits of asset allocation are reduced.

Summary and Conclusions

Using the S&P 500 index and the five-year Treasury note, several asset-allocated portfolios are generated and compared to the returns generated by a + 20/–10 zero-cost collar. The results indicate that the equity collar provides several advantages over the traditional asset-allocation approach to risk/return analysis.

First, the equity collar does not rely on the historic nature of the return data or the descriptive statistics that portray it. The equity collar is bounded by its predetermined limits and not the assumption that these historic patterns will present themselves in the future. Consequently, the financial planner is not burdened with interpreting the client's risk/return needs in the context of statistical uncertainty.

Second, it reduces the potential regret that an investor may experience from receiving an unforeseen decline in asset values even with an asset allocation that was thought to have a balanced risk component. For example, over the entire period the 52%/48% stock/bond portfolio generated a mean return of 8.8%. However, its standard deviation or volatility measure of 10.9% produced a possible range of outcomes from –23.65% to 28.94%. Given such a risk-averse portfolio, it is difficult to imagine that the investor or the financial planner would foresee the potentiality of a 23.65% loss.

Third, the collar provides a means of controlling market risk or systematic risk. This risk cannot be controlled

through equity diversification alone. Therefore, in order to reduce systematic risk, the investor is forced to move to other lower-yielding asset classes. Using collars in place of debt in the early stages of one's career would allow one to avoid the move to a lower-yielding asset. As shown in Table 3, a +20%/–10% collar produced average annual returns of 8.9% compared with a 5.5% return for Treasury notes. For younger clients who are less concerned with short-term swings in the market and do not require current income, replacing at least a portion of the normal bond allocation with collared equities would be useful.

In general, the study shows that using equity collars is beneficial in reducing uncertainty and helpful in managing systematic risk. In doing so, historical data is no longer relied upon to determine the probabilistic range of portfolio outcomes. By setting deterministic limits, possible outcomes are easily understood and investor regret is minimized. As an alternative to asset allocation the equity collar may provide comparable returns with additional attractive qualities beneficial to both financial planners and their clients. ■

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