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Enhancing stock returns using hedged dividend capture

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Abstract

Purpose – This paper aims to explore the potential use of a dividend capture strategy by individual investors. This strategy arises from the 2003 tax law changes which lowered tax rates on dividends received, while leaving the short-term tax rates on capital losses unchanged. In addition, leverage can be used in combination with an aggressive call-writing strategy to receive a multiple of the tax-advantaged dividend yield without a corresponding increase in risk.

Design/methodology/approach – In addition to illustrating how the dividend capture strategy works, a new method of comparing returns between strategies is developed. This method does not rely on a particular risk-return model, such as is used by the Sharpe ratio or Jensen's alpha methodologies. Finally, a formula is derived which computes the borrowing (margin loan) rate that makes the aggressive call-writing strategy profitable.

Findings – The 2003 changes in US tax laws provide individuals with an opportunity to apply dividend capture techniques similar to those which have been available to corporations for many years. However, corporations use dividend capture techniques to lower risk, while individuals require risk exposure to keep the possibility for capital gains. Thus, a method is developed for capturing an enhanced tax refund on the drop in stock price caused by the stock going ex-dividend without giving up the potential for capital gain. A byproduct of this method is a straightforward means to measure risk-adjusted returns for the covered call strategy. The aggressive call-writing strategy described in this paper is found to offer enhanced returns without an increase in risk for those in the top individual tax brackets.

Research limitations/implications – The specific level of additional risk-adjusted returns available depends on the tax rates and interest (margin loan) rates facing the investor.

Practical implications – Following the 2003 tax law changes, individuals can receive returns on stocks higher than implied by the statutory tax rate on dividends by employing a dividend capture strategy which involves writing call options on dividend-paying stocks. This paper also demonstrates that the risk exposure necessary to obtain full capital gains potential can be maintained with an aggressive strategy. This strategy inherently provides a method to judge the extent of improvement without having to rely on questionable assumptions of any specific asset-pricing model.

Originality/value – The paper provides an alternative to conventional covered call-writing strategies which reduce exposure to capital gains. Individual investors and their advisors will find a method to maintain exposure to market risk and therefore the full potential for capital gains, while receiving preferential tax treatment on dividends received. Researchers will find a method to directly compute risk-adjusted return for covered call-writing strategies without having to rely on assumptions made in the asset-pricing models underlying the Sharpe ratio and Jensen's alpha.

Keywords Dividends, Options markets, Tax returns

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For a number of years, corporations seeking to enhance returns on their marketable securities portfolios have used a technique known as hedged dividend capture. This technique capitalizes on the preferential tax treatment that corporations receive by having dividend income instead of interest income. Corporations can exclude 70 per cent or more of dividends received from federal income taxes[1]. The recently enacted (2003) tax law revisions provide a similar, although reduced, incentive for individual investors. The purpose of this paper is to examine the extent to which the lower tax rate on dividends potentially enhances the realized after-tax returns to individual investors.

Although this strategy involves selling (also known as writing) call options against stocks in the investor's portfolio, hedged dividend capture springs from different motivations than does the frequently recommended covered call writing strategy. Covered call writing is generally promoted, as noted by Shefrin and Statman (1993), as a means of increasing cash flow while supposedly reducing risk. Indeed, calls are often written against stocks which pay no cash dividends. As will be seen below, the dividend capture strategy requires that the underlying stock pays dividends and relies upon the preferential tax treatment of cash dividends for the strategy's efficacy.

Literature review

A number of pioneering papers examined the use of hedged dividend capture by corporations as a cash management tool. See, for instance, Brown and Lummer (1984), Brown and Lummer (1986) and Zivney and Alderson (1986). Corporations are fundamentally concerned with minimizing the risk of investments used as cash substitutes; hedging by writing call options against risky stocks is a natural risk-reducing strategy. A well-planned hedge can be so successful in minimizing risk that the Internal Revenue Service places stringent limits on the amount of risk that can be eliminated in the hedge while still receiving tax-advantaged treatment of received dividends. These limits generally require that the investor maintain the underlying risky investment in stock for a substantial length of time. Furthermore, the investor is not allowed to fully hedge away the risk of the assets. This limitation is enforced by limiting both the number of option contracts that can be used as well as the striking price of the options sold. In general, these limits enable corporations to reduce the risk to about half that of the unhedged stock (see Zivney and Alderson (1986) for risk comparisons).

Covered call writing strategies have been the subject of controversy for many years. Although (Rendleman, 1999, 2001) has shown that ordinary covered call programs cannot be expected to provide superior risk-adjusted performance, nor enhance an investor's utility, many articles continue to be published praising the strategy. For example, Duff (1997), Tergesen (2001), and Blake (2002) all suggest that covered call writing generates extra income while reducing risk. Lhabitant (2000) notes that most of these analyses rely upon measures such as the Sharpe ratio, which are not designed to deal with asymmetrical returns patterns such as those involving options.

Thus, while both dividend capture and covered call writing strategies involve owning stock and selling call options, the motivations and research results differ. Dividend capture is based on a desire to obtain a preferential tax rate on dividends and prior research has been unanimous in showing its effectiveness for corporate users. Covered call writing, on the other hand, is based on a belief that the call option

premium received more than offsets the value of stock price appreciation that is foregone. This "free lunch" attitude has been supported by performance measuring tools which are incapable of capturing the effect of the resulting asymmetry.

What makes dividend capture tick?

One of the first major issues in corporate finance was determining the impact of dividends on the value of the firm. Miller and Modigliani (1961) showed that in perfect markets (markets without taxes and transactions costs), the size of the dividend paid did not affect the value of the firm. Another way of presenting their point is that dividend income and capital gains are interchangeable. However, because dividends and capital gains generally have had different tax rates for investors, dividend policy did matter in practice. With the prevailing US tax system having higher tax rates for dividends than for long-term capital gains, many investors expressed a preference for low dividend payouts. In fact, one of the motivating factors for the recent (2003) tax law changes was an expressed desire to create an environment such that managers would be encouraged to pay greater cash dividends.

In addition to tax rates on dividends and long-term capital gains (and losses), investors also have to consider the tax rate on short-term capital gains (and losses). In the previous tax environment, although different investors may be in different tax brackets, the rates for dividends and short-term gains/losses were the same for any individual investor. This equivalence of tax rates meant that short-term investors were indifferent between dividends and short-term capital gains because the price of the stock is expected to drop by the amount of the dividend on the ex dividend date. Thus, the taxable income from receiving a dividend was exactly offset by the tax deductible loss caused by the ex dividend drop in price. Consider a $100 stock paying a $1 dividend. The price of the stock would be expected to drop by a dollar to $99. The stockholder would be able to offset the dollar of dividend income by the dollar of short-term capital loss so there would be no tax effects under the previous tax law. The investor would still have a total of $100 of investment capital – the $99 stock and the $1 dividend.

However, corporations historically have faced a somewhat different situation as far as receiving dividends is concerned. Dividends are often referred to as "twice-taxed" because both the payer and recipient are taxed. Corporations choosing to receive dividends would subject their shareholders to triple-taxation: once at the level of the dividend-paying firm, again when the dividend is received as income by the corporation, and finally when the ultimate shareholder receives a dividend from the corporation. Thus, the income tax laws have provided that most of the dividends received by corporations are shielded from income taxation at the corporate level. However, the corporation can still obtain full tax benefits from capital losses on any stocks it holds as investments. Thus, there is an opportunity for enhancing returns through capturing dividends. The key to this opportunity is to buy a stock just before it pays a dividend, receive the tax-advantaged dividend, then sell the stock which has dropped in price, creating a tax refund on the loss. The corporate investor would pay tax on only 30 per cent of the $1 dividend, but would still be able to claim the entire dollar of short-term loss. Thus, the corporate investor receives $1(1-35 per cent (1-70 per cent)) = $0.895 after-tax dividend and faces a $1(1-35 per cent) = $0.65 loss on the ex dividend price drop for a net after-tax income of $0.245 based on a $1 dividend.

In order to reduce the drain on the Treasury, Congress has required that corporations hold the stock for a length of time that ensures that the investing company faces significant price risk. If the risk of significant change in the market price is great enough, then the relatively small dividend yield will be an unattractive inducement to engage in this form of tax arbitrage.

About twenty years ago, corporations began to write call options against the stocks they held for the purpose of receiving dividends. This writing reduces, but does not eliminate, the stock's price risk because of restrictions on the amount of hedging that is permitted by law. In general, firms are required to hold the stock for at least 46 days, and hedgers are effectively prohibited from writing in-the-money call options. In addition, firms are not allowed to overwrite options; that is, a firm cannot increase the amount of hedging by writing multiple option contracts on any round lot of stock. As a result of these restrictions, corporate interest in dividend capture faded as financial engineering produced other products such as auction rate preferred stock which produced similar tax advantages with less risk.

To summarize, the benefit of dividend capture was based on the differential taxation of dividends and short-term gains and losses. Since individual taxpayers faced identical tax rates for dividends and short-term gains/losses, dividend capture was previously not of interest to individual investors. However, now that dividends are taxed at lower rates than short-term gains/losses, dividend capture must be reevaluated. The rule makers apparently considered this possibility, because individuals are required to hold the stock for more than sixty days and face the same hedging restrictions that corporations do. An interesting twist is that whereas corporations' effective tax rate on dividend income is much less than the rate on long-term capital gains, these rates are now equal for individual investors. Furthermore, while these tax rates are less than the short-term rates, they are not nearly so different as in the case of corporations. Thus, this paper will examine the extent to which dividend capture may be useful to individual investors.

As noted by Zivney and Alderson (1986), traditional hedged dividend capture results in a significant, although not total, decrease in market price risk. This limitation on the reduction of risk is a major drawback for a corporate investor. For the individual investor, who presumably is considering investing in stocks for the long term instead of as a cash substitute, the reduction in risk has the unfortunate side effect of reducing the amount of expected return. Thus, part of this paper focuses on restoring the hedged portfolio's systematic risk so that the expected market-related return can be realized.

This increase in systematic risk back to the original risk level can be accomplished by purchasing additional quantities of stock on margin. This additional stock purchase in turn will enable more call options to be written, thus enhancing the tax benefits of the dividend capture strategy. The total amount of stock that should theoretically be purchased to maintain the market exposure of 100 shares is equal to 100/delta, where delta is given by the Black-Scholes option pricing model factor, $N(d_1)$. For at-the-money call options, where the stock price is equal to the exercise price, delta is close to 0.5. The investor is assumed to have a desired exposure to market risk from a particular stock. If that exposure requires owning 100 shares, the investor engaging in dividend capture should purchase 100/0.5 = 200 shares. In addition, the investor should sell two call contracts with a strike price equal to the current price of the stock. As a result of this maneuver, the investor will effectively receive twice the tax-advantaged dividend. However, buying twice the originally desired amount of stock will increase the cost. Part of the increased cost is offset by the option premium received, but additional funds

will still need to be borrowed. The interest paid on the borrowing will tend to offset the increased dividends received.

In order to receive that advantage of differential short-term and dividend rates, the investor must maintain a short-term position in the stock so that the ex dividend drop will be taxed at short-term rates. In addition, as originally shown by Constantinides (1984) and recently reexamined by Zivney *et al.* (2001), there is a slight, but measurable advantage to annually recognizing gains and losses in volatile stocks. This maintains a short-term posture in order to be able to reap additional benefits from short-term losses being taxed at different rate than long-term gains. Because volatility is an important determinant of option value, volatile stocks are those most likely to be used both in a dividend capture strategy and also in annual loss harvesting strategies.

Risk-adjusted performance assessment

Since writing call options against a stock changes the risk of the investment, the expected return should also be expected to change. Unfortunately, there is no universally agreed upon method of determining the proper amount of risk-adjustment. Many previous studies of the covered call strategy have used the Sharpe ratio, which is the ratio of average returns in excess of the risk-free return divided by the standard deviation of the returns. Unfortunately, the Sharpe ratio is inappropriate when the returns distribution is asymmetrical, which is certainly the case with covered calls where the upside return is truncated because of the written call. Lhabitant (2000) has demonstrated that the misuse of the Sharpe ratio underlies many of the reported successes in the literature of the covered call strategy.

At the opposite extreme, studies of corporate covered call strategies have viewed the strategy as a substitute for money market securities, which have very little risk. Yet, Zivney and Alderson (1986) show that the residual risk for covered call strategies is substantial. Regulatory restrictions on their dividend capture strategy result in only about 55 per cent of the total market risk being eliminated. Thus, a straightforward comparison of returns without adjustment for risk appears inappropriate.

This paper introduces a risk-adjustment method which equalizes the risk of the dividend capture strategy with the risk of merely investing in the stock. The method does not rely upon a particular asset pricing model, such as the Capital Asset Pricing Model, for adjusting risk. Thus, the method is more robust than the Sharpe ratio or Jensen's alpha.

From the Black and Scholes (1973) Option Pricing Model, the value of a call option is given by:

$$C = SN(d1) - PV(X)N(d2) \quad (1)$$

where S is the price of the stock, PV(X) is the present value of the exercise price, X, N( ) is the cumulative normal distribution, and d1 and d2 are functions of the volatility (σ), time to expiration, risk-free interest rate, and the degree of moneyness of the option (the relationship between S and X). N(d1) is often referred to as the delta, δ. It is referred to as delta because it is the amount by which the price of the call option, C, changes for a dollar change in the price of the underlying stock, S.

Delta is also referred to as the hedge ratio, because *one* call option will perfectly hedge *delta* shares of the stock for small changes in the stock's price. A portfolio consisting of one share of stock, S, and selling one call option, C, would cost S – C. However, the portfolio would have only $(1 - \delta)$ of the risk of S because a dollar decrease

in S would be offset by a gain of δ on the short call position. In order to return the risk of the portfolio to that of the original stock, the investor would need to buy additional shares of stock and write additional calls. In particular, one needs to buy $S/(1-\delta)$ shares and sell $C/(1-\delta)$ calls to have the same volatility as simply owning S shares of the stock. Since the portfolio will cost more, the investor will need to borrow the difference to maintain the original investment basis. Then, the investor will have the same net investment and the same risk exposure with both the risk-adjusted hedged portfolio and the original stock position. Any differences in returns can then be attributed to the tax advantage harvested through the dividend capture stategy.

To illustrate, consider the following table which assumes a stock selling for \$100, with the call price computed using the Black-Scholes model for an exercise price of \$100. Other parameters for the example are $\sigma = 40$ per cent, t = 1 year, and Rf = 5 per cent. The delta is computed to be 0.626 and the resulting price of the call option is \$17.97. Borrowing \$119.33 restores the initial cash flow to the \$100 of simply buying the stock. As Table I shows, the risk of the combined leveraged investment is the same as the initial investment of buying a share of stock.

In order to determine whether dividend capture enhances returns over simply buying the stock, we need to compare the cash flow subsequent to the purchase of the (now) equally-costly positions. Because of the risk-adjustment process, the capital gains or losses should be the same for either strategy. Thus, only the after-tax dividends and interest need be compared!

The stock-only strategy receives a dividend, D, while the dividend-capture strategy receives greater dividends because of the greater number of shares owned. However, the increased dividend income may be more than offset by the need to pay interest on the funds borrowed to buy the additional stock. The hedged portfolio receives $D/(1-\delta)$ while paying $i[(\delta S - C)/(1-\delta)]$. Key to the potentially enhanced returns of the dividend capture strategy is the difference in tax rates on dividends received and interest paid[2]. The increase in dividends received is $\delta D/(1-\delta)$[3] so the after-tax dividend increase can be compared with the after-tax interest incurred by the dividend capture hedging strategy:

$$\delta D/(1-\delta)[1-Td] \Leftrightarrow i[(\delta S - C)/(1-\delta)][1-Tst] \quad (2)$$

where Td and Tst are the investor's tax rates on dividend income and short term (ordinary) income, respectively. The above expression can be solved to show how low the margin interest rate, i, must be for a given dividend yield, D, in order for the

Table I.
Leveraged dividend capture portfolio with same risk as stock

		Cash flow	Relative risk S = 100%
Buy: $S/(1-\delta)$	$-\$100.00/(1-0.626)$	−\$267.38	$\sigma(S)/(1-\delta)$: 267.38%
Sell: $C/(1-\delta)$	$+\$17.97/(1-0.626)$	+\$48.05	$-\delta\sigma(S)/(1-\delta)$: −167.38%
Net: $(S-C)/(1-\delta)$	$+\$82.03/(1-0.626)$	−\$219.33	100.00%
Borrow: $(\delta S - C)/(1-\delta)$		+\$119.33	0.00%
Total investment:		−\$100.00	100.00%

dividend capture strategy to be marginally better than the straightforward investment in stock:

$$i = \{\delta D/(\delta S - C)\}\{[1 - Td/[1 - Tst]\} \quad (3)$$

The first portion of the equation, $\delta D/(\delta S - C)$, can be rewritten as $D/(S - C/\delta)$, which is the enhanced dividend yield caused by the leverage from the option; D/S is the dividend yield of the investment in stock. The second portion is the tax advantage caused by the tax rate on dividend income, Td, now being less than the tax rate on interest expense Tst. For investors in the 25 per cent bracket, the advantage is $[1 - 0.15]/[1 - 0.25] = 1.1333$, while wealthier investors in the 35 per cent bracket have an advantage of $[1 - 0.15]/[1 - 0.35] = 1.3077$.

It is more difficult to solve the equation to determine the necessary dividend yield, D/S, for a given level of margin interest rates because the enhanced dividend yield depends upon the price of the call, C, and delta, δ.

$$D/S = i\{[1 - Tst]/[1 - Td]\}\{\delta S - C)/\delta S\} \quad (4)$$

The above equation shows that the required dividend yield has three components: a market defined interest rate, i; a regulation defined tax rate factor, $[1 - Tst]/[1 - Td]$; and a stock and call option specific factor, $(\delta S - C)/\delta S$. The last factor, in turn, depends upon all of the variables in the Black-Scholes option pricing model for C. For the numerical example used above, and a margin interest rate of 4 per cent, the stock must have a dividend yield of at least 2.516 per cent for the investor in the 25 per cent bracket (2.181 per cent for the investor in the 35 per cent bracket). Currently, Brown and Company requires a margin balance of $50,000 to be able to borrow at 4 per cent. Investors having margin balances of at least $1,000,000 can borrow at 2.5 per cent. Such investors, presumably in the 35 per cent tax bracket, would require a dividend yield of only 1.36 per cent to profitably employ the dividend capture strategy described in this paper.

The amount needed to borrow to equalize the risk level and initial investment does not depend upon the tax rates, but only on S, C, and δ: $(\delta S - C)/(1 - \delta)$. Therefore, this risk-adjustment method could be used to replicate previous studies of covered call writing, which do not consider the tax advantages of the new tax law. However, the breakeven interest rate is dependent upon the specific tax rates.

Summary and conclusion

This paper has shown that the slight incentive for receiving dividend income individual investors have under the 2003 tax law can be enhanced through a form of hedged dividend capture. Unlike the corporate hedged dividend capture programs of the 1980s, which sought to reduce risk while reaping substantial tax benefits, the individual program described in this paper seeks to maintain market risk exposure which is the primary source of investment returns. The limited tax benefits of receiving dividends is enhanced by writing call options against the dividend paying stock. This hedging process necessarily reduces risk and therefore expected return. However, the reduced risk is leveraged back to the beginning value through borrowed funds. The interest paid on the borrowed funds produces a

deduction with a tax benefit more than sufficient to cover the tax due on the extra dividends received.

The analysis in this paper assumes that gains and losses on both the stock and call options are short term. Because the risk (i.e. price change) of the hedged portfolio is the same as that of the stock alone, the before-tax return on the leveraged dividend capture portfolio is the same as that on the stock alone. The paper provides a formula to determine whether the after-tax return of the leveraged dividend capture portfolio will be greater than that of the stock. At current levels of interest rates and dividend yields, investors in the 25 per cent bracket are marginally able to enhance their portfolio performance, while those in the 35 per cent bracket are should be able to apply the strategy to a broad range of dividend paying stocks.

Notes

1. The exact percentage of received dividends that may be excluded varies depending upon the degree of ownership control exercised by the investing company on the company paying the dividends.
2. In order to deduct the interest expense, the investor must have an offsetting amount of net investment income. Internal Revenue Code Sec. 1(h)(11)(D)(i) prevents the use of the reduced dividend tax rate if the dividend income is included in net investment income on the investor's tax return. Thus, we assume the investor has other sources of net investment income, such as interest income or short-term capital gains.
3. Dividends received in hedge, $D/(1-\delta)$, minus dividends received from pure stock, D $[=D(1-\delta)/(1-\delta) = (D-\delta D)/(1-\delta)]$.

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