A Reexamination of the Covered Call Option Strategy for Corporate Cash Management

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I. Introduction

Traditionally, corporations faced with the problem of managing short-term cash reserves have relied almost exclusively on investments in the money market. Recently, however, financial strategists have developed several innovations designed to take advantage of the benefits of short-term equity participation. Most notable among the methods suggested thus far is the "hedged dividend capture" plan, wherein the stock of a company about to pay a dividend is purchased at the same time a call option is sold. The resulting covered call position is then liquidated soon after the dividend is received. The primary advantage of this scheme is the company's ability to obtain the 85% tax exclusion on dividend income while protecting against price fluctuations in the underlying stock issue. Indeed, the rewards of employing the hedged dividend capture approach can be dramatic. Brown and Lummer [1] found that the covered call technique led to an almost 300% increase in the after-tax yield offered by Treasury issues, while reducing the number of unhedged stock positions that lost money by almost 50%. Further, Zivney and Alderson [4] documented an equally impressive set of results by hedging an entire equity portfolio with a single stock index option position.

Although those findings would appear to indicate that the dividend capture strategy can be implemented with great success, a major problem exists in drawing that conclusion. The Brown and Lummer (BL) results were based on tax provisions in force prior to the reform legislation of July 1984. As noted by Tell and Norris [3], one purpose of this tax legislation was to heighten the risk of the corporate investor involved in short-term dividend acquisition programs. Specifically, two changes in the tax code are relevant to the cash manager. First, and most importantly, the minimum holding period necessary to be eligible for the 85% dividend tax exclusion was raised from 16 to 46 days. Since the sole benefit of the program comes from the exclusion of dividend income, an increase in the holding period provides no further expected returns while reducing the ability of each invested dollar to generate

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income. Second, whereas BL advocated the use of “deep in-the-money” options to provide more protection against adverse stock price movements, the current requirements state that only the least in-the-money option can be sold at the inception of a new position. Since this regulation may substantially reduce the effectiveness of the hedge, the risk inherent in the covered call program might be expected to increase.

If the new tax legislation accomplishes its goal, the returns available from the dividend tax provision should be reduced while the risk exposure of the short-term investor should be increased. The purpose of this study is to examine the performance of the option-based dividend capture plan in the wake of these tax reforms.

II. A Revised Dividend Capture Methodology

BL demonstrated that under some stylized assumptions the theoretical after-tax dollar return to the dividend capture program could be expressed as follows:

\[(S_0 - X_0)(\exp(rT) - 1) - C](1-t_c) + Dd_{et}, \tag{1}\]

where \(S_0\) and \(X_0\) represent the stock and option prices at the initiation of the covered call position. Further defining \(r\) and \(T\) as the risk-free rate and the length of the holding period, respectively, it is easily seen that the primary benefit of the strategy is the tax exclusion of the dividend received, which is the product of the amount of the dividend \((D)\), the marginal corporate tax rate \((t_c)\), and the fraction of dividends excluded from taxation \((d_{et})\).

One of the assumptions underlying the construction of Equation (1) is that the call option is assured of being in-the-money at the time of expiration. Although this is certainly a strong conjecture, it may not have been too unrealistic for BL, who could write deep in-the-money calls within a month of expiration. However, since the recent tax code revisions place severe restrictions on the options that can be sold at the time of the initial investment, the practicality of this assumption is a far more pressing issue. Given that the hedged dividend capture strategy now faces these restrictions, its effectiveness in the post-reform period is an empirical question.

Since the intention of the new tax bill was to increase the riskiness and decrease the returns to the covered call position, it is important to design specific strategies that address these changes. In particular, two techniques will be considered. The first plan will use stocks on which an option is traded that expires between one and forty-five days after the stock’s ex-dividend date. Following the mandatory holding period, during which time the qualified dividend is received, the option either is exercised or expires worthless. If the option is not exercised, the stock is sold in the market on the next trading day. Defining \(c_s\) and \(c_x\) as the respective commissions on stock and option transactions, the after-tax holding period yield from this scheme can be written as follows:

\[\text{HPY}_{H1} = \frac{D(1-0.15t_c) + Z(1-t_c)}{S_0(1+c_s) - X_0(1-c_x)} - (1-t_c), \tag{2}\]

where \(Z = \begin{cases} E & \text{if } S_1 \geq E \\ S_1(1-c_x) & \text{if } S_1 < E \end{cases}\)

Here, \(E\) and \(S_1\) represent the option exercise price and stock sales price, respectively. There are two advantages to this variation. First, by positioning the end of the holding period to occur on the expiration date of the option, it is possible to save one, and perhaps two, of the commission payments. Second, it is possible that some of the risk inherent in the basic strategy will be diminished as a result of the fact that it is no longer necessary to enter the option market a second time.

A second dividend capture technique that will be considered requires that the hedged position be kept open long enough to receive two quarterly dividend payments. This will involve writing a covered call just prior to the first ex-dividend date and unwinding the entire position immediately after the next. Since the termination of this plan will typically involve repurchasing the option contract at a price of \(X_1\), the after-tax holding period yield is given by

\[\text{HPY}_{H2} = \frac{(D_1 + D_2)(1-0.15t_c) + [S_1(1-c_x) - X_0(1+c_s)](1-t_c)}{S_0(1+c_s) - X_0(1-c_x)} - (1-t_c). \tag{3}\]

The obvious advantage of this strategy is that it can be expected to capture twice the dollar amount of dividends as the first alternative. Of course, since the position will have to be maintained twice as long, the annualized equivalent of the after-tax return may be no greater.

In order to examine the post-tax reform performance of the covered call approach to cash management, the
Exhibit 1. Average After-Tax Risk-Return Behavior for Alternative Short-Term Investments

<table>
<thead>
<tr>
<th></th>
<th>Hedged</th>
<th>Unhedged</th>
<th>S&amp;P 500</th>
<th>Treasury Bills</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>No Commissions</td>
<td>Commissions</td>
<td>No Commissions</td>
<td>Commissions</td>
</tr>
<tr>
<td><strong>Strategy One:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg (Annual)</td>
<td>17.7%</td>
<td>14.7%</td>
<td>22.6%</td>
<td>17.9%</td>
</tr>
<tr>
<td>St Dev (Annual)</td>
<td>11.2%</td>
<td>11.2%</td>
<td>43.8%</td>
<td>41.8%</td>
</tr>
<tr>
<td>Maximum HPY</td>
<td>5.1%</td>
<td>4.8%</td>
<td>20.9%</td>
<td>20.3%</td>
</tr>
<tr>
<td>Minimum HPY</td>
<td>-3.7%</td>
<td>-4.2%</td>
<td>-8.0%</td>
<td>-8.4%</td>
</tr>
<tr>
<td>Sample Size</td>
<td>116</td>
<td>116</td>
<td>116</td>
<td>116</td>
</tr>
<tr>
<td>Proportion of Positive Returns</td>
<td>94.8%</td>
<td>92.2%</td>
<td>76.7%</td>
<td>72.4%</td>
</tr>
<tr>
<td><strong>Strategy Two:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg (Annual)</td>
<td>13.6%</td>
<td>10.9%</td>
<td>14.8%</td>
<td>12.6%</td>
</tr>
<tr>
<td>St Dev (Annual)</td>
<td>9.7%</td>
<td>9.3%</td>
<td>27.0%</td>
<td>26.4%</td>
</tr>
<tr>
<td>Maximum HPY</td>
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<td>12.2%</td>
<td>24.7%</td>
<td>24.0%</td>
</tr>
<tr>
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<td>-8.3%</td>
<td>-11.8%</td>
<td>-12.2%</td>
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<tr>
<td>Sample Size</td>
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<td>162</td>
<td>162</td>
<td>162</td>
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<tr>
<td>Proportion of Positive Returns</td>
<td>93.2%</td>
<td>90.1%</td>
<td>67.9%</td>
<td>66.7%</td>
</tr>
</tbody>
</table>

The sample period will be restricted to the twelve months between July 19, 1984 and July 18, 1985. In accordance with the new statutes, both of the plans described heretofore will use the least in-the-money option. The first variation will employ the option with the closest expiration date, while the second strategy will utilize the contract that expires between three and six months after the position is initiated. Two additional restrictions will be placed on the selection of the stocks involved in the study. First, only firms with an annual dividend yield in excess of 3% will be eligible. Second, only those companies having their options listed on either the CBOE or the AMEX will be considered. These criteria leave a total of 116 separate positions using the first variation and 162 holdings using the second.

For each position created via either of the two strategies, holding period yields and their annualized equivalents will be computed according to Equations (2) and (3), respectively. To facilitate comparison between the two variations, the average and standard deviation of the sample returns will be calculated for each. The results of the two dividend capture plans will then be compared with three alternative investments. First, to get a better impression of how effectively the call options offset price fluctuations in the underlying securities, returns will be computed for the 278 corresponding unhedged stock positions. Second, the after-tax annualized returns to the Standard & Poor’s (S&P) 500 index will be reported to give an indication of overall economic conditions. Finally, to evaluate a competing short-term cash management alternative, returns to the prevailing 91-day Treasury bill series will be calculated.

III. Empirical Results

Exhibit 1 presents the results for the several different cash management schemes described in the preceding section: the two specific covered call strategies along with their unhedged equivalents, the S&P 500, and the T-bill series. The exhibit is structured as follows. Strategy One is defined as the covered call scheme that captures one dividend over a 46-day period. Strategy Two denotes the plan that maintains the hedge position just long enough to receive two dividends. For all investment alternatives, the average and standard deviation of the after-tax, annualized sample returns are reported. In this regard, it is important to note that the stock index and government security returns were generated to coincide with the holding periods appropriate to each of the dividend capture plans. Exhibit 1 also indicates the minimum and maximum holding period yield of every strategy tested. The purpose of doing this was to obtain an indication of how the best and worst single position did for a particular investment alternative. In order to get a better impression of how transaction costs affect the returns to modified dividend capture strategies, the returns to both the hedged and unhedged variations are listed with and without a deduction for brokerage fees. To maintain comparability with earlier studies (see [1] and [2]), a commission of 0.45% of the price of either a share of stock or an option will be assumed. To be conservative in the comparison, no transaction cost will be charged.
against the purchase of the stock index or Treasury bills. The maximum marginal tax rate of 46% is used in all calculations.

Perhaps the most interesting result contained in Exhibit 1 is the superior performance of both covered call programs. As mentioned earlier, the intention of the revisions to the tax code was to diminish the yield accruing to the dividend income exemption while increasing the risk over the short-term. The tabulated findings indicate that only the first of these two goals was satisfied. To see this more clearly, recall that Brown and Lummer [1, pp. 14-15] showed that the hedged dividend capture plan led to approximately a 280% increase in the after-tax Treasury bill yield. The similar figures for the revised Strategies One and Two (with commissions) are 177% and 106%, respectively. Notice also that the after-tax returns for both variations far exceed those of the market index. Although the S&P 500 rose by almost 30% over the entire twelve month sample period, the relevant holding period for the cash manager in this comparison is only 46 days long. Since the 278 positions employed in this study were formed unevenly throughout the year, enough temporary downturns in overall activity were represented to leave an after-tax average market yield of under 8%. Thus, while smaller than before the recent legislation, the returns available to a hedged dividend capture program are still impressive. Further, the modified strategies have been able to dramatically reduce the investment risk associated with the covered call format. This conclusion can be reached by comparing the risk per unit of return (i.e., the coefficient of variation) of the pre-tax reform strategy with the results listed here. As shown in [1], the average coefficient of variation for the old format was (44.74/28.35), or 1.58. From Exhibit 1, the comparable figures for the respective modifications are easily computed to be (11.2/14.7) = 0.76 and (9.3/10.9) = 0.85.

There are other indications that the proposed strategies have reduced the risk involved with hedged dividend capture. Exhibit 1 also lists the percentage of individual positions that were profitable for each of the alternatives. Even after deducting brokerage fees, the covered call plans still earned a positive return in nine out of ten cases. This can be compared to about a 65–70% success rate for the unhedged investments and for the S&P 500. Once again, it is instructive to see that while an investment in the market portfolio would have been quite lucrative if held for the entire twelve-month sample period, one out of three 46-day positions lost money. Put another way, by protecting the stock with a sale of an option, approximately 70% of the unhedged positions that had lost money were able to generate a profit. Further, the covered call strategy based on the 16-day holding period was only profitable 75% of the time (see [1, p. 14]). Clearly, the modified techniques do a much better job of protecting short-term capital.

Perhaps a more direct comparison of the extent to which the option-based strategies mitigate stock price fluctuations can be seen by considering the percentage decrease in risk per unit of return in going from the unprotected to covered version of Strategy One. Returning to the figures listed in Exhibit 1, this statistic can be expressed by ratio $\frac{(44.74/17.9) - (11.2/14.7)}{(44.74/17.9)} = 0.85$. This measure demonstrates that nearly 70% of the risk per unit of return associated with the unhedged dividend capture plan can be avoided by employing the covered call format. Given that the mean returns for both types of positions are quite similar, this result stands as strong testimony to the continued usefulness of the option-based form of cash management.

It is also instructive to consider how sensitive these findings are to the selection of a particular sample period. Specifically, what portion of the return to the hedged investment can be attributed to the favorable market conditions that existed during the twelve months following the tax reforms? This question can be answered in two ways. First, without the dividend tax exclusion (i.e., if $d_2$ in Equation (1) equals zero), the return that the non-corporate investor would have earned from employing Strategy One was only 9.8%. Thus, one third of the 14.7% overall yield reported in Exhibit 1 is generated purely by dividend capture. Secondly, it is also possible to observe the performance of those covered call positions held at a time when the stock market declined. As indicated heretofore, 39 of the 116 short-term positions in the S&P 500 had negative returns. Interestingly, however, the mean return of the associated dividend capture holdings was still 10.5%. Consequently, while the yields do appear to be somewhat sensitive to the prevailing status of the market, the impressive returns of the covered call program are not solely contingent on positive stock price movements.

As a final note, it can be seen in Exhibit 1 that the mean return to the hedged position was reduced by only about three percentage points when commissions were included. At this rate of decline, transaction costs would have to be as high as 1.86% per trade before the covered call strategy would fail to outperform a Trea-
sury bill investment. However, since the assumed brokerage fees were, if anything, on the high side for investments of even moderate magnitude, this finding should be particularly reassuring to cash managers investing short-term assets for both small and large corporations.

IV. Conclusion

In the aftermath of any major revision in the legal structure governing financial markets, there inevitably must be a reevaluation of the investment strategies that had previously been considered successful. This study has investigated the performance of two variations of the hedged dividend capture approach to corporate cash management in the period following the July 1984 tax reform. Intriguingly, the empirical results showed that while the covered call format is less profitable than it was prior to the recent legislative changes, it is also less risky. Thus, it is concluded that hedged dividend capture remains an extremely valuable tool for the short-term corporate investor.

References