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The Suitability of Exercise and Hold 2.0[1]

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Hundreds of lawsuits are currently working their way through the courts and through arbitration panels over an investment strategy referred to as *exercise and hold*.[2] Under the exercise and hold strategy, employees exercise their employee stock options and hold the acquired shares for at least one year to garner preferential tax treatment. The tax-based rationale offered for the exercise and hold strategy is incomplete, sometimes completely illusory and almost always results in unsuitably concentrated positions.

There are two common types of employee stock options, incentive stock options ("ISOs") and non-qualified stock options ("NQSOs"). ISOs and NQSOs are treated quite differently for tax purposes. The benefit an employee receives when he exercises a NQSO is taxed as ordinary independent of how long the acquired shares are subsequently held. This same benefit upon exercise of an ISO is taxed as a long-term capital gain if the acquired shares are held for one year after the option exercise. With either type of option, any increase or decrease in the value of the acquired shares after the exercise will be treated as long-term or short-term capital gains according only to whether the acquired shares are held for more or less than one year.

In this note, we first explain why in a world without taxes an employee should rarely exercise stock options and should not hold the acquired stock if it represents a large proportion of the employee's portfolio. Then we illustrate the tax argument for the exercise and hold strategy. It is unsuitable, under virtually any circumstance, to recommend that an employee exercise NQSOs and hold the acquired stock since there is no tax benefit and the acquired shares add to the diversifiable risk in an employee's wealth. While there is a potential tax benefit to exercising

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We received generous comments from Kaye Thomas, author of "Consider Your Options, 2nd Edition" *Fairmark Press* 2002, suggesting changes to an earlier draft.
[2] "Outrage is Rising as Options Turn to Dust" The New York Times, March 31, 2002.

ISOs, it is usually small relative to the significant diversifiable risk taken on through the acquired position.

The advice to exercise and hold either NQSOs or ISOs is essentially advice to acquire and maintain a concentrated position. As such, the advice can be evaluated within the familiar suitability framework.

I. Employee Stock Options

A. Introduction

Public companies frequently grant their employees options to buy company stock in the future at an *exercise* price equal to the company stock price on the day the options are granted.[3] The options cannot be exercised until they *vest*, usually after three or four years, and expire if unexercised after ten years. When an employee leaves a company, he is usually required to exercise or forfeit any vested options. These options are valuable because the employee only exercises the option to buy when the stock is worth more than the exercise price.

Technology companies have been especially active issuers of employee stock options as they have competed to attract, retain and motivate employees. These companies have also seen their stock prices rise and fall dramatically in recent years. Employees who exercised stock options and held the acquired shares not only lost tremendous option value but in some cases found themselves owing large margin balances or taxes exceeding the value of the stock acquired and still held.

B. Non-Qualified Stock Options ("NQSOs")

The tax treatment of NQSOs is simple. An employee who receives NQSOs does not recognize any income until the options are exercised. When the options are exercised a significant tax event is triggered; the difference between the value of the shares acquired and the exercise cost is taxed as ordinary income and the tax basis for the acquired shares is set to the

[3] We assume throughout that the employer's stock is publicly traded.

current value of the acquired shares. Any change in the value of the acquired shares between the exercise and the subsequent disposition of the shares is treated as long term capital gain or short term capital gain according to whether the shares are held more than or less than one year. The acquisition of stock through the exercise of a NQSO is treated as current income equal to the benefit received when the option is exercised and simultaneous purchase of the acquired stock.

C. Incentive Stock Options ("ISOs")

The tax treatment of ISOs is slightly more complex.

1. Sell the Acquired Stock Within One Year

If an employee sells stock acquired through the exercise of an ISO within one year of the option exercise, part of the proceeds will be treated as current income and part will be treated as a capital gain. If the stock is sold for less than the exercise price the difference is treated as a capital loss. If the stock is sold for more than the exercise cost but less than the stock price at the time of the option exercise, the profit is treated as current income and taxed at the employee's marginal tax rate. If the stock is sold for more than the stock price at the time of the option exercise the difference between the stock price at the time of the option exercise and the exercise cost is treated as current income and the difference between the sale price and the price at the time of the exercise is treated as a capital gain. The sale of stock acquired through the exercise of ISOs within one year is referred to as a disqualifying disposition because it effectively turns the ISOs received and exercised into NQSOs for tax purposes.

If an employee holds stock received upon exercise of options through the end of the year in which he exercises the option he will owe the Alternative Minimum Tax ("AMT"), at as much as 28%, on the difference between the value of the shares received at the time of the exercise and the cost of the exercise. In future years when the stock is sold, the employee gets a credit for the AMT paid but in certain circumstances the AMT credit may never be fully used up.[4] AMT is not

[4] The various possible combinations of applications of the AMT, marginal income, short term and long term capital taxes make a complete analysis too complicated for our present purposes.. We recommend Kaye A. Thomas's "Consider Your Options, 2nd Edition" *Fairmark Press* 2002 to readers interested in a complete treatment of tax issues.

due on stock sold during the year in which it was acquired through an option exercise because the profit is taxed as ordinary income or short-term capital gains as described above.

2. Sell the Acquired Stock After One Year

If the acquired stock is held for at least one year, the employee will pay long-term capital gains tax on the difference between the proceeds of the ultimate sale and the exercise cost paid at the time of the option exercise. That is, the change in the value of the stock between when it was acquired and when it was sold plus the difference between the value of the stock when it was acquired and the exercise cost when the option was exercised is treated as capital gain and the lower long-term capital gains tax rate is applied.

Herein lies the potential tax benefit to *exercise and hold*. If stock acquired through the exercise of ISOs is held for one year, the tax code reaches back through time past the option exercise to the original grant date and treats all appreciation as long-term capital gains. If the acquired stock is sold within one year of exercise this potential benefit is lost.

II. A World Without Taxes

A. Early Exercise Without Taxes

Imagine an employee who has $40,000 in cash and the right to buy one thousand shares of the employee's company's stock for $40 per share any time in the next year. The stock is currently trading in the market place for $100.

The employee is considering whether to exercise the options today and hold the stock for one year or to delay the exercise of the options for one year. If he follows the exercise and hold strategy, he will convert the options and cash into one thousand shares of the employer's stock, and at the end of one year will have one thousand shares of stock. If instead the employee chooses to delay exercising the options until the end of the year he will have the intact options, $40,000 and interest on $40,000 for one year. Table 1 illustrates the year-end payoffs to these two alternative strategies.

Table 1
Payoffs to Early Exercise and Holding Stock

Stock Price After One Year	Exercise and Hold	Delay Exercise
Greater than $40	1,000 shares	1,000 shares *plus* interest
Less than $40	1,000 shares (worth less than $40,000)	$40,000 *plus* interest

If the stock price at the end of the year is above $40, the employee can tender the options and $40,000 in exchange for one thousand shares of stock. By delaying exercising the options until the end of the year, he will have both the value of one thousand shares of stock *plus* the interest earned on the $40,000 for one year. If the stock price is less than $40 at the end of the year, the employee can throw away the option and still have $40,000 in cash. Since the stock price is below $40, $40,000 cash is worth more than the one thousand shares he would have if he had followed the exercise and hold strategy *plus* he will have the interest on the $40,000 for one year. In a world without taxes, employees should never voluntarily exercise options to hold the acquired shares.[5]

This simple analysis can be extended to include the possibility that the stock pays dividends, that the cash used to pay for the option exercise must be borrowed and many other alternative details but the fundamental result remains; regardless of the employee's view of the future price of the stock – in fact, regardless of the realized price – in a world without taxes the early exercise of options destroys value and should very rarely be done.

Value is destroyed when an option is exercised early because the employee pays the exercise price earlier than necessary and therefore forgoes interest income. The employee illustrated in Table 1, loses interest for one year on $40,000 by exercising the options early no matter what the stock price is at the end of the year. Also, value is destroyed because the employee would have been better off not exercising the option whenever the stock price falls below the exercise price at the end of the year. The employee illustrated in Table 1 would be

better off having the cash rather that the shares when the stock price is less than $40 at the end of the year. By delaying the exercise, the employee has the option to keep the $40,000 cash when 1,000 shares are worth less than $40,000.

The amount of value destroyed by early exercise can be estimated. Employee stock options can be valued using slightly modified standard options valuation models.[6] Options are usually worth substantially more than the difference between the underlying stock's price and the exercise price.[7] For instance, an option with a $50 strike price and 5 years to expiration on a $100 stock is worth about $65. If this option is exercised, the employee tenders $50 and the option in exchange for a $100 stock, effectively receiving $50 for the option worth about $65. In this example, early exercise of the option destroys $15 in value. The $15 difference between the option value and the in-the-money amount results from the interest on $50 for 5 years and the chance that at the end of 5 years the stock currently selling for $100 would be worth less than $50.

B. Holding Concentrated Positions

Employees may exercise options because they are separating from their employer, to raise money or to diversify risk in the options associated with his employer. In these cases, it is rarely optimal to hold the concentrated stock position acquired as the concentrated position exposes the employee to excessive, uncompensated risk.

1. Diversification Reduces Risk Without Reducing Expected Returns

Professor Harry Markowitz won the 1990 Nobel Prize in economics for his pioneering work in the 1950s and 1960s in investment management. His insight was that if investors like

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[5] In rare instances, typically very late in the life of an option, it is optimal to exercise an option on a stock that pays a very high dividend but, ignoring taxes for the moment, the acquired shares should be sold and the proceeds diversified.

[6] Craig J. McCann, "How (And Why) Companies Should Value Their Employee Stock Options," *Journal of Applied Corporate Finance*, vol. 7, no. 2 Summer 1994 pp. 91-99.

[7] If the underlying stock's price exceeds the exercise price of an option, the option is said to be *in-the-money*. If the underlying stock's price is less than the exercise price, the option is said to

higher expected returns and dislike greater fluctuations in realized returns they should diversify their wealth across many investments. A security's returns fluctuate around its average returns and when any particular security is experiencing an above average return other securities are likely experiencing below average returns. Diversification allows investors to bear less risk while maintaining the expected return of a portfolio constant because above average returns earned on some securities offset below average returns earned on other securities.

The average (and expected) return to a portfolio of individual securities is a weighted average of the returns to the individual securities, where the weights are just the fraction of the beginning portfolio value accounted for by each security. *See* Equation 1).

$$1) \qquad r_p = \sum_{i=1}^{N} W_i r_i$$

The risk in the returns to a portfolio is typically measured by the standard deviation of the returns. The risk is (approximately) the square root of the average squared difference between the observed daily returns and the average daily return. *See* Equation 2). While this equation looks complicated its interpretation is quite simple. It captures how widely realized returns are spread out around the average or expected return; returns that fluctuate widely have higher standard deviations (more risk) than returns that fluctuate less.

$$2) \qquad s_i \equiv \left(\frac{\sum_{i=1}^{n} \left[r_i - \bar{r} \right]^2}{n-1} \right)^{1/2}$$

The risk in the returns to a portfolio of individual securities is a more complicated function of the risk in the returns to the individual securities. *See* Equation 3).

$$3) \qquad s_p = \left[\sum_{i=1}^{N} \sum_{j=1}^{N} W_i W_j r_{ij} s_i s_j \right]^{1/2}$$

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be *out-of-the-money*. If the underlying stock's price is equal to the exercise price, the option is

The critical factor determining the effectiveness of diversification is the correlation between the returns to pairs of securities, ρ_{ij}. If the securities returns are perfectly correlated, $\rho_{ij} = 1$ and the risk in a portfolio is equal to a weighted average of the risk in the individual securities. In this polar case, combining securities into portfolios does not provide any diversification benefits. Fortunately, returns to securities are not perfectly correlated; many combinations of securities, in fact, have negative correlations. Because securities returns are not perfectly correlated it is possible to combine securities and reduce the risk without reducing expected returns.

2. Competitive Pressures Reduce Expected Returns So That Only Non-Diversifiable Risk is Rewarded

Prices of securities are set as a result of investors buying and selling in search of higher returns for bearing investment risk. As a result of diversification, an investor who adds an individual security to a portfolio of other securities bears less risk from the added individual security than an investor who holds the individual security as his only asset. Since investors can reduce risk through diversification, diversifying investors are willing to pay more for securities. Investors who are best able to diversify the diversifiable risk in a security will be willing to pay the most for the security.

Competitive pressures drive the price of a security up to the point where expected returns just compensate investors for the risk remaining in a security's returns after the security has been included in a well-diversified portfolio. This remaining risk is referred to as non-diversifiable risk. In other words, competitive forces, acting on prices, drive expected returns down to levels that compensate only for the non-diversifiable risk in a security.

3. Prudent Investors Diversify Concentrated Positions

Since only non-diversifiable risk is rewarded with higher expected returns, prudent investors diversify up to the point where transaction costs make further diversification

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said to be *at-the-money*.

inefficient. Investors who don't diversify diversifiable risk are bearing risk without any expected compensation.

The portfolios of securities with the lowest risk for each level or expected return comprise what is referred to as the *efficient frontier*. Portfolios on the efficient frontier can also be thought of as offering the greatest expected return for each level of risk borne. Individual securities and other imperfectly diversified portfolios plot below the efficient frontier in Figure 1. Investors combine the risky asset with the risk free asset to attain the desired combination of risk and expected return along the capital allocation line.

Figure 1
The Risk / Expected Return Tradeoff

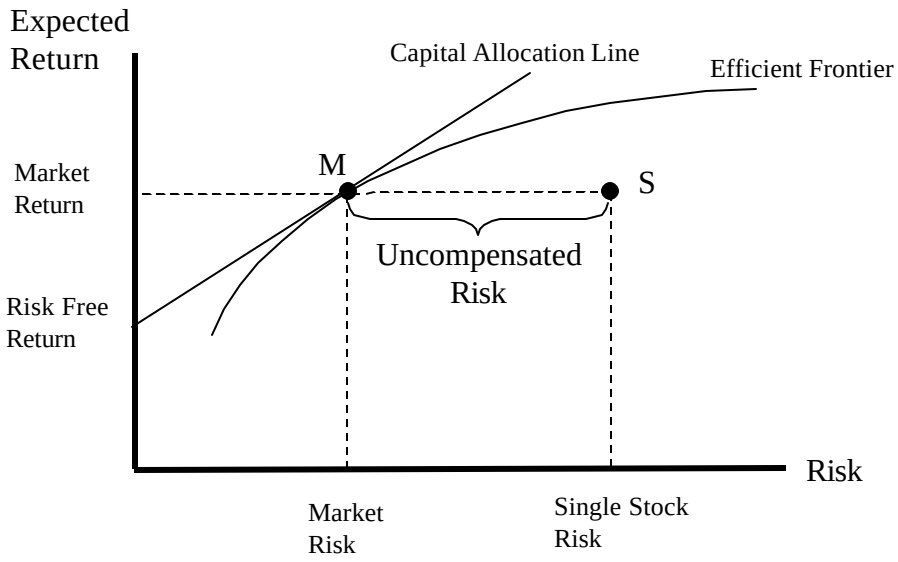


Figure 1 illustrates the benefits of diversification. The market portfolio, M, has the same expected return as the single stock, S, in this example but has much lower risk than the single stock. Risk-averse investors holding the single stock portfolio S should diversify by selling S and buying the market portfolio M. The investor could choose to bear more risk than in the market portfolio by leveraging his investments in search of higher expected returns. Doing so would allow the investor to benefit from a higher expected return than with the single stock portfolio while still bearing much less risk. Another way of viewing the tradeoff between M and

S is that S exposes the investor to considerably more risk than M and offers no more expected return.

Financial economists use this framework developed by Professor Markowitz and refined by other Nobel Prize winning economists to assess the suitability of investments.[8] Well-diversified portfolios plot on or near the efficient frontier. Poorly diversified portfolios plot well below the efficient frontier, exposing the investor to uncompensated risk.

The Capital Allocation Line emanates from the expected return axis at the risk free rate of return and goes through the point representing the expected return and the risk of the market portfolio. Portfolios along the Capital Allocation Line with some risk have expected returns greater than the risk free rate of return. Portfolios along the Capital Allocation Line are created by combining the risky market portfolio with short or long positions in the risk free asset. Portfolios plotting to the left of the market portfolio are invested partly in the market portfolio and partly in the risk free asset. Borrowing and investing more than the portfolio's net value in the market portfolio creates portfolios plotting to the right of the market portfolio.

Conservative investors combine an investment in a diversified portfolio of risky assets with an investment in the risk free asset. Aggressive investors borrow and invest more than their equity in risky assets.

When an employee receives a concentrated position in his employer's stock he should sell it and invest the proceeds in a diversified portfolio unless the acquired position is small relative to a diversified portfolio the employee already holds. The concentrated position unnecessarily exposes the employee to fluctuations in his wealth without any additional compensation. Moreover, since the employee's labor income is tied to the fortunes of his employer, the employee has an even greater need to diversify than a non-employee investor in the employer's stock.

[8] An early application of the Markowitz model to issues of suitability can be found in Stephen B. Cohen "The Suitability Rule and Economic Theory" *Yale Law Journal* (1971) 80:1604-1635.

III. Taxes

A. NQSOs

Taxes have no impact on the unambiguous case for holding or exercising and diversifying NQSOs. Exercising NQSOs and holding the acquired stock increases the diversifiable risk the employee bears. If the additional diversifiable risk is small because the acquired shares are a small part of the employee's wealth then the unexercised options were also a small part of the employee's wealth. In such a case, the NQSOs should not be exercised because the exercise destroys option value without any corresponding benefit.

If the NQSO's are a significant part of the employee's wealth and they are deep in the money it might be suitable to exercise the options but it is unsuitable to recommend that the employee hold the stock received. The option exercise will increase the already significant diversifiable risk in the employee's wealth – especially if the exercise cost and tax withholdings are funded with margin debt or with the sale of other assets – and *there are no tax benefits to holding the concentrated position acquired as a result of exercising NQSOs.*

B. ISOs

1. At-the-Money Option

If an option is at-the-money it should not be exercised; any tax or investment benefit from receiving the stock and holding it or selling it can be achieved by just buying the stock in the open market with the cash used to exercise the option. In every future state of the world, the unexercised option will have value in addition to whatever value the purchased stock has.

2. Deep-in-the-Money ISO

If an option on a $100 stock has a strike price of only $1 then it makes sense to exercise the option early since it is almost certainly going to be exercised. The cost of exercising the option is so low that the foregone interest on the exercise price is negligible. By exercising early the investor will receive any dividends paid on the underlying stock if it is held and will benefit from diversification if the stock is sold. The question then becomes "Should the employee hold

the underlying stock for one year and get the long term capital gains tax treatment or sell and get the benefits of diversification?" More on this below.

3. In-the-Money ISO

An option that is moderately in-the-money creates interesting and complex tradeoffs. Exercising an option eliminates the pure option value and paying the exercise price early has a time-value cost. The closer the in-the-money option is to being at-the-money the greater these costs. Also the closer the in-the-money ISO is to being at-the-money, the smaller that tax benefit to holding the underlying stock acquired as a result of the exercise of an ISO for a year since the tax rate differential applies to the difference between the sale proceeds and the exercise cost of the option.

C. ISOs – To Sell or Hold Acquired Shares

1. Selling the Stock Immediately

If the employee sells stock acquired as a result of an ISO exercise immediately and invests the proceeds in a diversified portfolio he will pay income tax on the profits from the option exercise and stock sale and capital gains tax on the growth in the value of the diversified portfolio. If the acquired stock or a diversified portfolio is held for at least one year the change in value after the option exercise (and possibly the simultaneous sale of the stock received) is treated as a long-term capital gain. Thus the differential tax treatment resulting from the decision to hold the concentrated position or to diversify applies primarily to the in-the-money amount when the option is exercised.

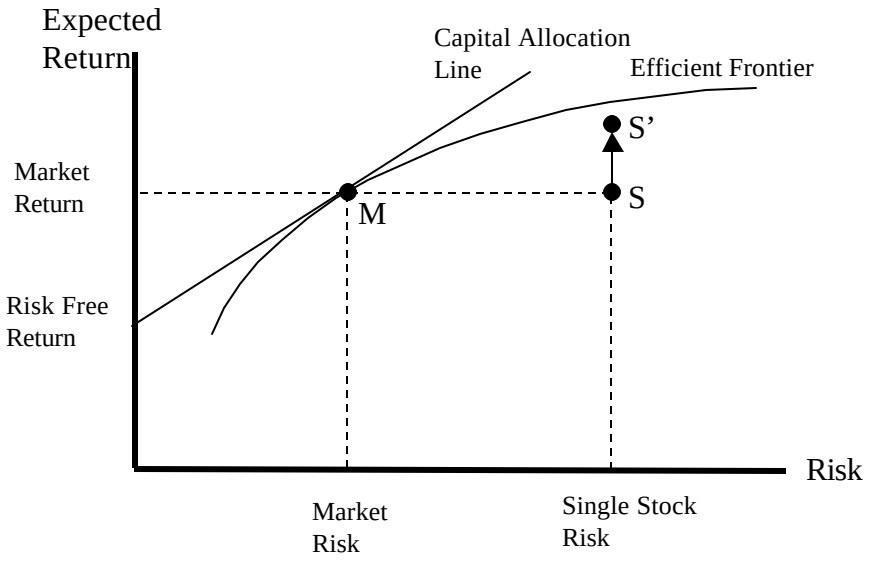
For options that are deep in-the-money early exercise can be optimal, especially if the acquired stock is going to be sold and the proceeds invested in a diversified portfolio. Selling the acquired stock before the end of the year in which the option was exercised replaces the AMT on the excess of the value of the shares over the exercise cost when the option was exercised earlier in the year with marginal income tax on the excess of the sale proceeds over the exercise cost if the stock price has declined. If the stock price has increased since the option exercise, an investor selling the stock during the calendar year the options were exercised will pay income tax

at his marginal tax rate on the difference between the value of the stock when acquired and the exercise cost, and short term capital gains on the increase in the value of the stock between the exercise date and when the stock is sold.

2. Holding the Acquired Stock

Holding the acquired shares for one year has some superficial appeal because the "profits" will be taxed at 20% rather than at likely higher marginal income tax rates, but this impression is misleading.

Figure 2
The Risk / Expected Return Tradeoff With Taxes

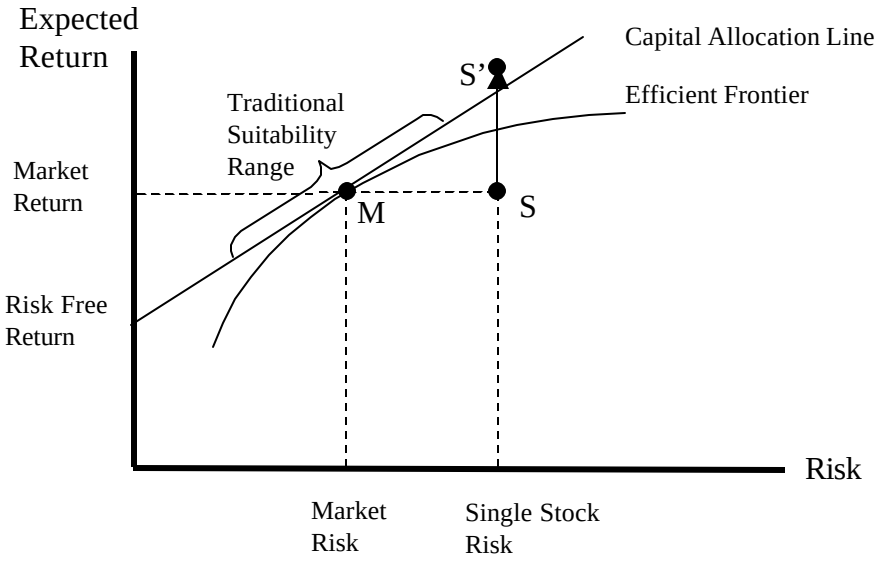


Taxes lower expected returns and the variability of those returns, moving all the items in Figure 1 down and in towards the origin. The expected return and risk of the single stock portfolio shifts in less proportionately than do the other items in Figure 1 because the single stock portfolio will be taxed at a lower rate than the alternative investments if it is held for more than one year. Figure 2 illustrates the impact of taxes on the decision to hold the concentrated stock position or to diversify by selling the acquired position and buying a diversified portfolio.

To simplify matters, we have left the efficient frontier, the risk free return and the capital allocation line unchanged and shifted the expected return up to S'.[9]

The shift from S to S' makes the results of the suitability analysis of the exercise and hold strategy more ambiguous. The differential tax treatment increases the expected after-tax return of S relative to M. If the differential tax rate benefit is large enough, S' shifts up to the after-tax Capital Allocation Line as in Figure 3. In this case, the concentrated position is efficiently diversified given the tax considerations but contains risk equivalent to a highly leveraged diversified portfolio. As such, even in rare cases where the tax benefit justifies a lack of diversification the resulting risk profile makes the investment strategy unsuitable for all but the most aggressive investors.

Figure 3
The Suitability of Exercise and Hold



To a first approximation, the difference in expected returns between S' and S is equal to the percentage by which the option is in-the-money when exercised multiplied by the difference in the investor's marginal income tax rate and the long term capital gains tax rate. If the option

[9] The differential tax treatment also has a small impact on risk but this impact is small (S' could

on a $100 has a strike price of $40, the marginal income tax rate is 36% and the long term capital gains tax rate is 20% the difference in expected return from S to S' is 9.6%.[10] Since the expected after tax equity risk premium is about 6.5%, the single stock portfolio in our example is not tax-efficiently diversified if it contains more than two and a half times the risk of the market portfolio. The average single stock portfolio has about two and a half times the risk of the market portfolio.[11] The technology stocks typically encountered in the exercise and hold cases tend to have much more risk than two and a half times the risk of the market portfolio.

Even if S' is tax-efficiently diversified, it may still embody far more risk than is traditionally considered suitable for most investors. In addition to the additional risk borne in search of the tax advantage, the early option exercise destroys pure option value. The pure option value lost as a result of exercising the options early will often exceed the sought tax benefit. The cost of early exercise should be included in assessing any exercise and hold strategy.

The specific facts of each situation can be modeled but except in rare cases, the employee can achieve the concentrated position's after-tax expected return at much lower risk by selling the acquired shares and diversifying. Figure 4 presents an example of the analysis of a concentrated position in a single technology stock.[12]

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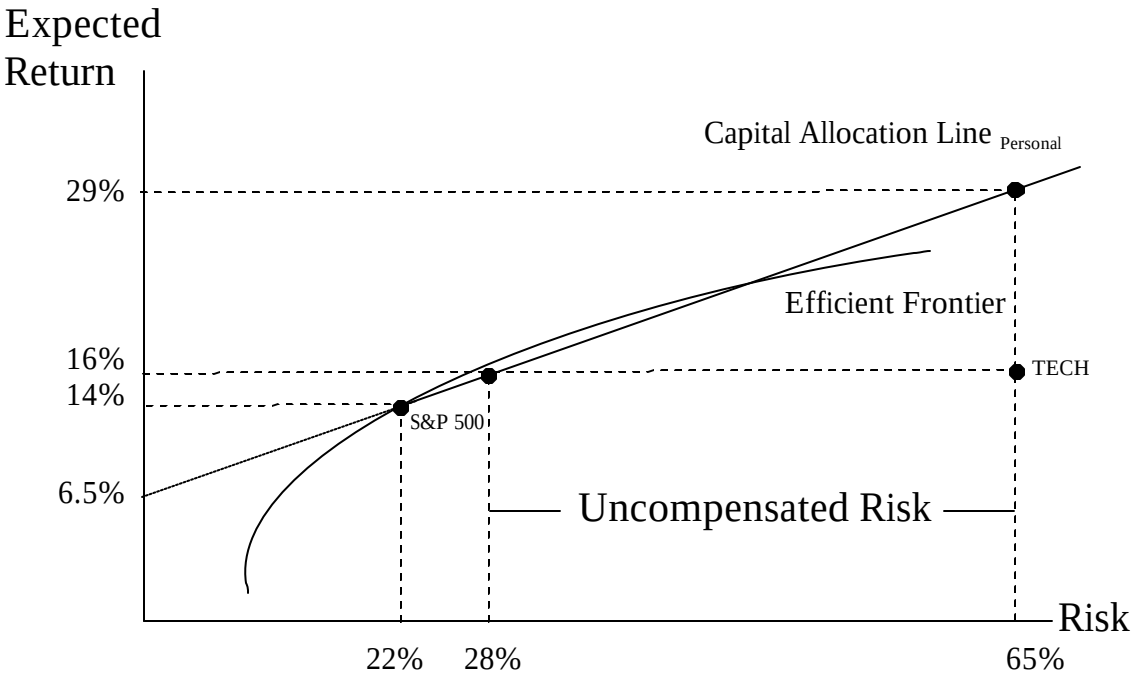
be ever so slightly to the left or right of S) and is ignored for present purposes.

[10] $9.6\% = ([\$100 - \$40] \div \$100) \times (36\% - 20\%)$

[11] *See* Meir Statman "How Many Stocks Make a Diversified Portfolio?" *Journal of Financial and Quantitative Analysis* 1987 pp. 353-363.

[12] The analysis in the example assumes for simplicity that the concentrated position is the employee's only investment. The analysis can be readily extended to include any other investments. A reader versed in modern portfolio theory will notice that the Capital Allocation Line in Figure 4 cuts through the efficient frontier. This is because the personal Capital Allocation Line's vertical intercept is above the risk free rate to reflect the fact that individuals borrow at rates approximately 2% above the risk free rate. *See* Meir Statman, How Many Stocks Make a Diversified Portfolio? *Journal of Financial and Quantitative Analysis*, 22, 353-363.

Figure 4



In this example, the technology stock's returns have an annualized standard deviation of 65% compared to the 22% annualized standard deviation of the S&P 500's returns over the preceding year. The technology stock's β was slightly greater than 1 and therefore its expected return is a little bit greater than the expected return on the S&P 500. The technology stock's expected return of 16% could be achieved by leveraging an investment in the S&P 500. The returns to this leveraged position in the S&P 500 had an annualized standard deviation over the preceding year equal to 28%. Thus, the expected return of the technology stock can be achieved with 60% less risk in the technology stock through diversification. The risk in the technology stock position in excess of the risk of the leveraged investment in the S&P 500 is uncompensated risk.

This is the proper framework for analyzing the exercise and hold strategy. In this example the rate of return read off the Capital Allocation Line $_{Personal}$ required to compensate for the total risk in the technology stock is 29%. Since the technology stock's expected return is

only 16%, the tax benefit would have to be greater than 13% on a pre-tax basis for the employee to be compensated for the risk of holding the concentrated position for one year. Even if the tax benefit is this large, the strategy may be unsuitable since it embodies the risk and return of an investment in the S&P 500 that is leveraged 3 to 1.

3. Selling the Stock After Price Declines During the Calendar Year

If the tax advantages from not diversifying a concentrated position acquired as a result of an ISO exercise outweigh the costs of holding the acquired stock by enough to justify exercising the options early, the analysis needs to be re-evaluated frequently. Aspects of the employee's financial situation will change after the option exercise and the price of the acquired stock will fluctuate. For example, the employee might experience short-term losses on other investments that could be used to offset short term gains from selling some part of the acquired stock position thereby allowing for partial diversification without a tax penalty.

If the acquired stock's price has declined significantly before the end of the calendar year the option was exercised in, it may be advantageous to sell the acquired shares and diversify. Consider the following example: On March 1, 2002 you exercised options to buy 20,000 shares at $1 per share when the stock was trading for $126 per share. If you hold these shares through the end of the year you will have to pay $700,000 in AMT.[13] If by December 15, 2002 the stock has declined to $41 you can reduce your impending tax payments by selling the stock and paying $320,000 taxes on $800,000 in current income rather than $700,000 in AMT.[14] Selling the stock postpones and may forever eliminate the payment of hundreds of thousands of dollars of taxes. In this case, selling the stock that has declined in value during the year provides for diversification and reduces taxes.

The opportunity to replace the AMT with ordinary income tax is a valuable option on the tax treatment that expires at the end of the calendar year in which the stock option is exercised. Like any option, this tax option is more valuable the greater the remaining life of the option and

[13] $\$700{,}000 = 28\% \times 20{,}000 \text{ shares} \times (\$126 - \$1)$

[14] $\$320{,}000 = 40\% \times 20{,}000 \text{ shares} \times (\$41 - \$1)$

so, other things equal, employee stock options should be exercised early in the year. Also, since taxes are due in April, options should be exercised early in the year to allow for a one year holding period prior to the sale of the concentrated position or of the diversified portfolio the following year to fund tax payments.

IV. Hedging Strategies

If an employee holds a concentrated position acquired as a result of an option exercise, there are many strategies the investors could use to hedge the risk.[15] For instance, the employee could consider the following alternative strategies:

1. Put Options
2. Collar Contracts
3. Variable Prepaid Forward Contracts
4. Portfolio Insurance

A. Put Options

The employee may be able to purchase long-term put options on the stock position. Put options provide downside protection while the stock is being held. This strategy typically will not be completely effective because put options are not usually available with expirations of one year. In order to get downside protection for longer periods the employee would have to purchase, and roll forward at expiration, shorter term puts. Moreover, purchasing put options require significant capital outlays.

B. Collar Contracts

The employee could avoid some of the problems associated with purchasing puts by entering into a collar contract. In a collar contract, the employee buys a put option and sells a call option on the underlying stock. The proceeds from the sale of the call options can be used to fund part of the cost of purchasing the put contracts. In order to avoid being treated as a sale of the underlying stock, the exercise price of the call option has to be significantly greater than the

[15] The first three of these strategies provide for diversification but run afoul of tax straddle rules and therefore restart the holding period for determining capital gains tax treatment when the strategies are unwound. As such, the first three strategies do not allow the investor to qualify for long term capital gains tax treatment.

exercise price of the put option, thereby not eliminating all the risk associated with the underlying stock. Collar contracts are customized by brokerage firms and have significant embedded transaction costs. These costs should be carefully analyzed.

C. Variable Prepaid Forward Contracts

Variable prepaid forward contracts combine a collar with a deferred-interest loan secured by the underlying stock. Variable prepaid forwards provide the hedging benefit and the transaction costs of a collar with immediate funds that can be invested in a diversified portfolio.

D. Portfolio Insurance

A concentrated position's value can be partially *insured* even when puts, collars and variable prepaid forward contracts cannot be written on the underlying stock because of a lockup agreement or for some other reason. Put options can be bought, or a collar can be entered into, on an index or portfolio of securities whose value is correlated with the value of the concentrated stock position. In this way, investors will get the long-term capital gains treatment and the desired diversification. The greater the correlation between the value of the portfolio or index and the value of the concentrated position, the more effective is the insurance.

V. Conclusions

Non-qualified stock options should never be exercised early for the purpose of holding the acquired stock; exercising NQSOs early destroys value, holding concentrated stock positions entails bearing risk that is not compensated and *there is no tax benefit*.

Incentive stock options should rarely be exercised early for the purpose of holding the acquired stock. If the employee has an unusually high tolerance for risk and the options' exercise price is extremely low it might be optimal to exercise ISOs and hold the acquired stock for one year. In these rare situations, limit prices should be set to trigger sales before year-end thereby avoiding the AMT and hedging strategies should be considered to reduce the diversifiable and therefore uncompensated risk.