

Planning for Stock Option Wealth

Steven Huddart

Penn State

<http://www.smeal.psu.edu/faculty/huddart>

55th Penn State Tax Conference

March, 2001

1. Good things about options

- provide optionees with incentives to increase the stock price of the firm;
- serve as “golden handcuffs” that bind optionees to firms during the vesting period;
- allow optionees to recognize income at times that coincide with favorable tax treatment or personal liquidity needs; and,
- may be treated as “off income statement compensation” by the employer for financial statement purposes.

2. Bad things about options

- dilute existing shareholders’ interests in the firm (but increase cash inflows to the firm);
- expose optionees to the risk of fluctuations in the employer’s stock price; and,
- cause optionees to trade in their employers’ stock and therefore put them at risk of violating insider trading rules.

3. ESOs compared to TSOs

3.1 TSOs

- tradable
- short-lived—generally less than three years
- valuation by reference to market
- standardized contract

3.2 ESOs

- non-transferable
- long-lived—10 year life is common
- vesting requirements
- forfeiture in certain circumstances, e.g., termination of employment
- terms established by company-specific language

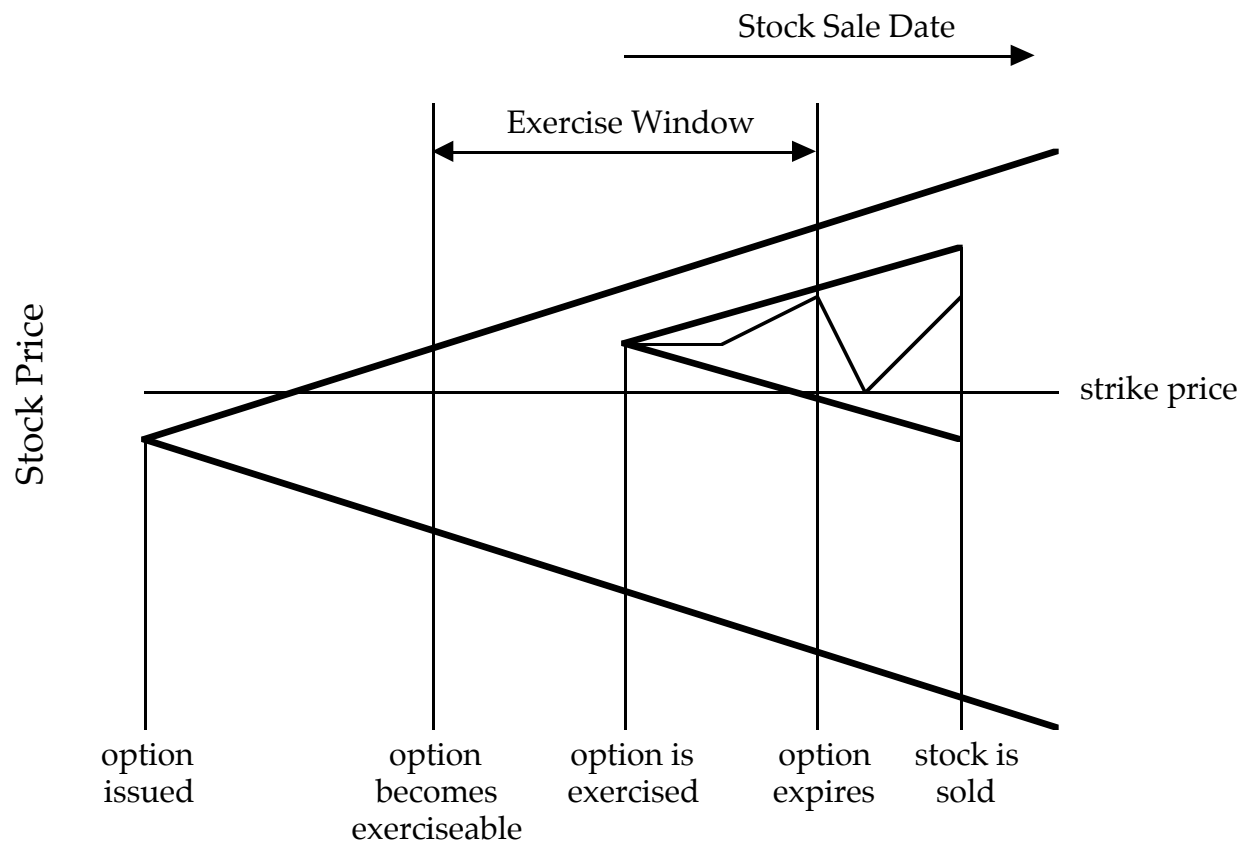


Figure 1. Nature of employee stock options.

Employee stock options often are not exercisable for some years after issuance. The option may be exercised before expiration. Generally, the employee may sell the stock at any time after he exercises the option.

4. When to exercise ESOs

- **General rule:** At expiration
- **Exceptions:**
 - dividends
 - termination
 - change in control
 - reload options
 - private information
 - liquidity needs
 - risk aversion
 - taxes

5. Risk aversion and liquidity needs¹

How does $(S - X)$ compare to W ?

OR

Is $\frac{S - X}{W}$ near zero or one?

The measure has the following nice properties:

- The measure is always between 0 and 100%.
- At expiration, if the options are in the money, the measure is 100%.
- If the options are under water, the measure is 0%.
- The measure gets bigger as:
 - the market price rises above the strike,
 - the time to expiration of the option decreases, or
 - the volatility of the stock decreases.

Typically, people exercise when the measure is about 75%.

¹ Assume $S > X$ or replace $S - X$ with $\max\{0, S - X\}$, i.e., in-the-money options.

[Home](#) | [Previous](#) | [Next](#) | [Site Outline](#)

Should I Exercise My Stock Options?



[Should I Exercise My Stock Options?](#)

[Research](#)

[Cases](#)

[Courses](#)

[Stock Compensation Glossary](#)

[Compensation Links](#)

[Securities Law Links](#)

[Tax Links](#)

[Office Hours](#)

[Facts about the School](#)

This experimental page gives you some idea of the value you receive from exercising a stock option today as opposed to waiting until later. The output is a number between 0 and 100% that is the ratio of the value you would receive were you to exercise your option today and an estimate of the market value of a similar tradable option. When the value is near zero, you are giving up a lot to exercise today. When the value is near 100%, it is probably a good idea to exercise.

Typically, people exercise when the value is about 75%.

This page is experimental. The response you get is only guidance. You might exercise and then watch the value of your company's stock skyrocket. You might not exercise and then see the value of your company's stock plummet. Caveat actor.

Please fill in the fields below, then click the "Submit Form" button. The analysis will appear in about 15 seconds.

Ticker of your company's stock:

Don't know your company's stock ticker?
[Ticker symbol lookup](#) (Opens a new window).

[Strike price](#) ([Split-adjusted](#)):

Enter in dollars and cents.
 For example, enter 12.125 NOT 12 1/8.

[Expiration date](#) of the options you hold:

mm - dd - yy
 - -

For example, 07-02-08 is July 2, 2008.

or

[Steven Huddart](#)
 Smeal College of Business, Penn State University, University Park PA 16802-1912
 (814) 865-3271
 (814) 863-8393 fax
huddart@psu.edu

PENN STATE SMEAL Invention. Integration. Innovation.	Home	Mail	Directory	Search	PENN STATE
	Smeal	PSU	Text Only	Help	

[Home](#) | [Previous](#) | [Next](#) | [Site Outline](#)

http://www.smeal.psu.edu/faculty/huddart/ValuatorExperimental/index.shtml
 was last built on Sat, Apr 21, 2001.
 Today is Thu, May 10, 2001.

Unless otherwise noted, all material is:
 Copyright ©1995-2001 Steven Huddart. All rights reserved.

Server: NetPresenz/4.1

[Home](#) | [Previous](#) | [Next](#) | [Site Outline](#)

Option analysis



Data you provided

Ticker	retk
Strike	\$10
Expiration date (mm/dd/yyyy)	7 / 2 / 2008

Additional data

Share price at 3:52PM on 5/10/2001	\$32.35
Estimated share price Volatility (percent per year)	123%
Interest rate per year	5.097%
Last quarterly dividend	No dividend
Estimated dividend yield	0%
Intrinsic value	\$22.35
Black-Scholes value	\$30.95
Barone-Adesi and Whaley value	Not applicable
Percent of option value captured	72%

[Should I Exercise My Stock Options?](#)

[Research](#)

[Cases](#)

[Courses](#)

[Stock Compensation Glossary](#)

[Compensation Links](#)

[Securities Law Links](#)

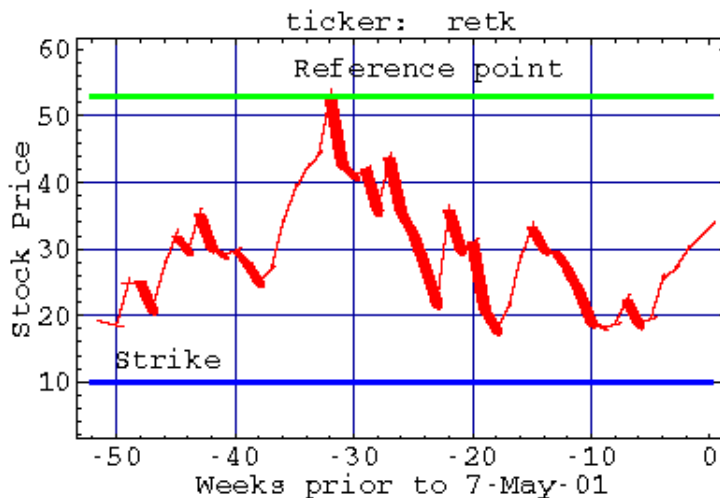
[Tax Links](#)

[Office Hours](#)

[Facts about the School](#)

An estimate of the fraction of the option value you would capture by exercising today is 72%. [Interpretation](#) of this measure is here.

Here is plot of recent stock price movements in your company's stock (in red) in relation to both the strike price (blue line) and the highest price attained in over the period from a year ago to a month ago (green line), which is an important psychological [Reference Point](#).



Here is some further information on [planning for stock option wealth](#).

[Steven Huddart](#)
 Smeal College of Business, Penn State University, University Park PA 16802-1912
 (814) 865-3271
 (814) 863-8393 fax
huddart@psu.edu

6. Tax rate changes and non-qualified options

$$(S - X)(1 - t_1) > W(1 - t_2),$$

or

$$\frac{S - X}{W} > \frac{1 - t_2}{1 - t_1}. \quad (1)$$

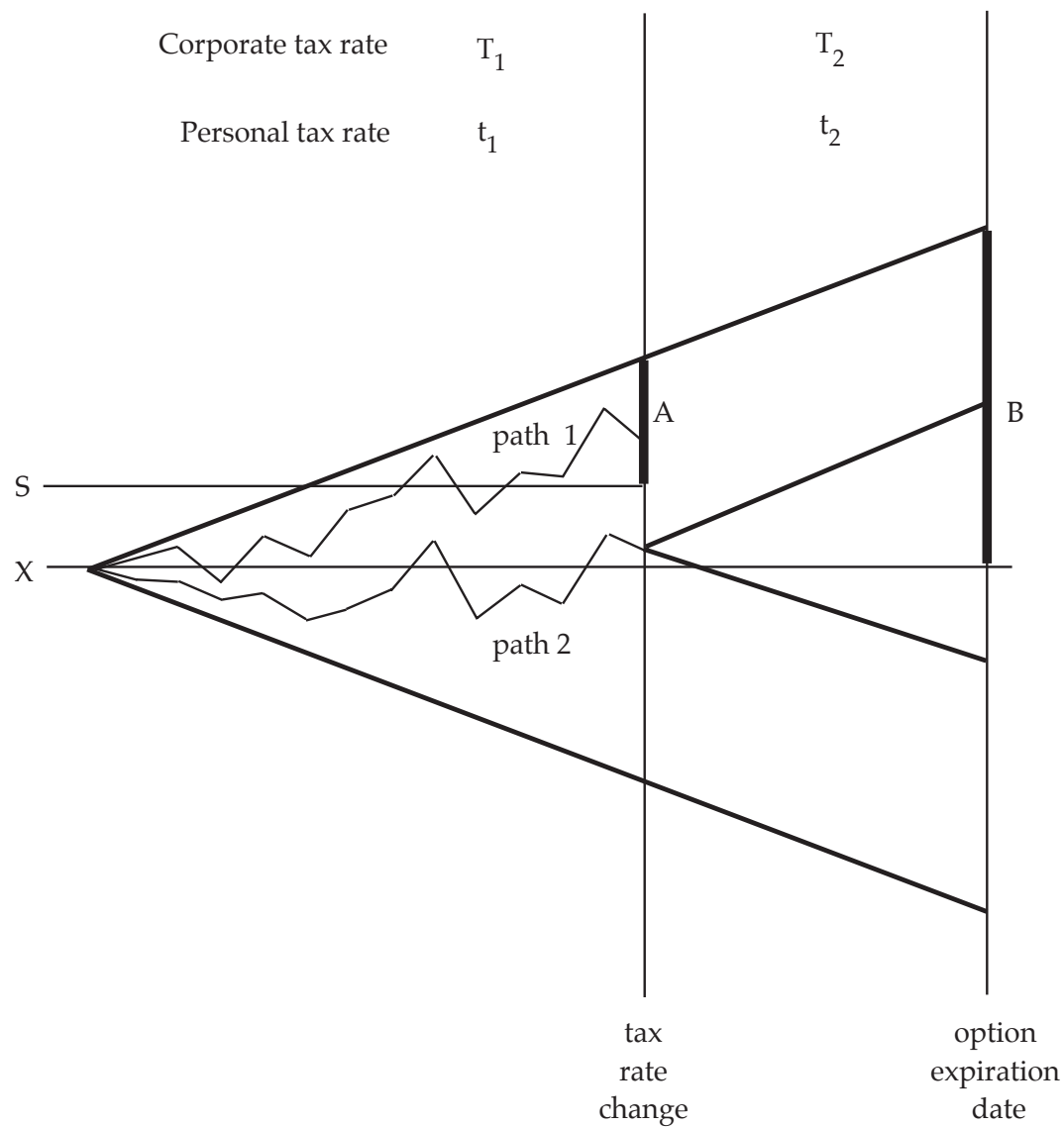


Figure 2. Relationship between stock price and exercise decisions.

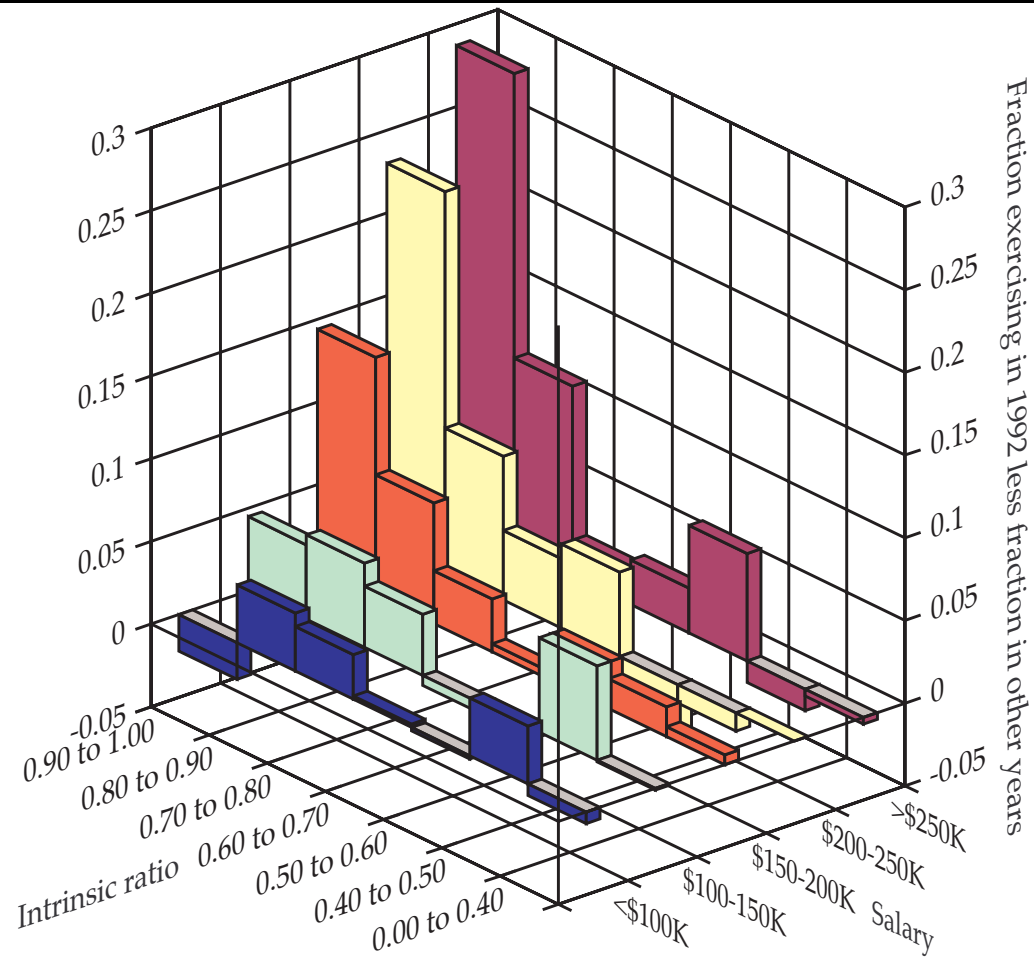


Figure 3. Increase in exercise before a tax rate increase.

7. Early exercise for capital gains?

Exercising the option at time 1 so that future appreciation is taxed at capital gains rates is preferred if

$$\tilde{S}_2 - (\tilde{S}_2 - S_1)g - [X + (S_1 - X)t](1 + r) > (\tilde{S}_2 - X)(1 - t)$$

$$(\tilde{S}_2 - S_1)(t - g) > [X + (S_1 - X)t]r.$$

The left-hand side represents the benefit from having the appreciation of stock from time 1 to time 2 taxed at capital gains rather than ordinary rates. The right-hand side of the expression represents the cost of borrowing the strike price and withholding tax until time 2. Dividing through by S_1 , and collecting terms gives

$$\frac{\tilde{R}}{r} > \frac{t + \frac{X}{S_1}(1 - t)}{t - g},$$

where $\tilde{R} = (\tilde{S}_2 - S_1)/S_1$ is the pretax return on the stock from time 1 to time 2.

8. Worthwhile?

- As a rule of thumb, the anticipated appreciation in the stock, relative to the cost of borrowing must exceed $t/(t - g)$.
- For instance, if t is 40% and g is 20%, then the anticipated pretax return on the stock must be at least **twice** the net-of-tax cost of borrowing for early exercise to be worthwhile when the strike price is negligible compared to the current market price
- More attractive when:
 - Strike is low
 - Current stock price is high
 - Tax rate on ordinary income is high
 - Tax rate on capital gains is low
 - Future appreciation on the stock is large
- Maybe attractive in pre-IPO companies. Reverse-vesting can enhance the attractiveness of this strategy.

9. ISOs

- ISOs are tax-inefficient from a combined employer-employee perspective
- Disqualifying events
- Alternative minimum tax (AMT)

10. Strategies

- Exercise the option
- Buy a put
- Buy a put and write a call

11. Impediments

- Insider trading and Rule 10b5-1
 - Insider trading laws broadly prohibit trading on the basis of material nonpublic information.
 - A safe harbor is provided by new SEC Rule 10b5-1: Trading “on the basis of” material nonpublic information, which was adopted August 15, 2000.
- Character mismatch
 - The primary tax difficulty encountered in hedging NQOs is that these options produce ordinary income, but gains or losses from any TSOs that hedge the NQOs are capital in nature.
- Margin requirements
 - ESOs are not transferable and do not have margin value.

Questions?

www.ioptions.com

www.mystockoptions.com