Income Tax Valuation Insights

The S Corporation Economic Adjustment Model Revisited

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Introduction

The Winter 2003 edition of *Insights* first presented[1] "The Valuation of S Corporation Stock: The Equity Adjustment Multiple." That article presented the theoretical and conceptual background for the development of a mathematical formula to adjust the value of noncontrolling S corporation equity securities when such value was estimated using empirical studies and analyses of C corporations.

This formula—referred to herein as the S corporation Economic Adjustment Model ("the model")—contained certain income tax–related components including the income tax rates on dividend income and capital gains. The mathematical components of the model—as presented in the original *Insights* article—inherently assumed that the income tax rates on individual ordinary income and dividend income were identical.

On May 28, 2003, President George W. Bush signed into law the Jobs and Growth Tax Reconciliation Act of 2003 ("JGTRA"). This legislation significantly reduced the income tax rates on individual ordinary income, dividend income, and capital gains income.

Prior to the enactment of this law, dividend income and individual ordinary income were subject to the same federal income tax rates. Under the newly enacted JGTRA, both dividend income and capital gains income are subject to a maximum federal income tax rate of 15 percent. In other words, the JGTRA created distinct income tax rates for individual ordinary income and dividend income.

Consequently, it is necessary to modify the model to reflect these changes in income tax law. This *Insights* article explains these modifications.

The S Corporation Economic Adjustment

Equity investors in corporations expect to receive an investment rate of return that is comprised of some combination of income (i.e., cash dividends) and capital gains or losses. The following formula is the mathematical calculation of the investment rate of return for an equity security:

$$k_1 = \frac{(S_1 - S_0) + d_1}{S_0}$$

where:

k_1 = Investment rate of return during period 1
S_1 = Stock price at end of period 1
S_0 = Stock price at beginning of period 1
d_1 = Dividends paid during period 1

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The above formula illustrates the fundamental principle that the investment rates of return on equity securities—and, therefore, the capitalization rates[2]—are derived from a combination of the capital appreciation of the security ($S_1 - S_0$) and dividend payments (d_1).

Theoretically, capital appreciation and dividend payments are derived from the net income of the corporation. In other words, net income is either (1) paid to the shareholders in the form of dividends or (2) retained in the company (resulting in the capital appreciation[3] of equity).

Consequently, investment rates of return of C corporations inherently reflect:

1. corporate income taxes at the entity level,
2. capital gains taxes at the shareholder level, and
3. dividend income taxes at the shareholder level.

To the extent that there are differences in the income tax treatment of ordinary income, capital gains, and dividend income of S corporations and C corporations and their respective shareholders, the value indications are potentially distorted when capitalization rates of publicly traded C corporations are used to value S corporation equity securities.

Historically, analysts have attempted to correct for these differences by estimating income taxes and subtracting this amount from the reported net income of the subject S corporation. Unfortunately, this adjustment does not properly resolve the mismatch.

Also, it is difficult—if not impossible—to formulate accurate empirical studies of equity security transactions that specifically isolate the economic differences solely attributable to the differing income tax treatments of C corporations and S corporations.

Consequently, a mathematical framework that adjusts the indicated equity value of an S corporation to account for these differences would be beneficial. A suggested mathematical framework is provided in this article and is referred to herein as the S corporation Economic Adjustment ("SEA").

The SEA contemplates the differing income tax treatments of S corporations and C corporations and their respective shareholders. As such, the SEA is the first step in creating a mathematical framework that may be used to adjust the indicated value of S corporation equity securities when empirical studies and analyses of C corporations are used to estimate value.

The SEA is based on equations that model the net economic benefits to (1) C corporation shareholders (NEB_C) and (2) S corporation shareholders (NEB_S).

The NEB_C equation is comprised of two principle components:

1. net cash received by shareholders from dividends after the payment of:
   a. income taxes at the entity level and
   b. income taxes on dividends at the shareholder level, and
2. net capital appreciation of the equity security after recognition of capital gains taxes at the shareholder level.

The equation for the first component of the NEB_C equation is provided below:

$$\text{Net cash from dividends} = I_p \times (1 - t_c) \times D_p \times (1 - t_d)$$

where:

I_p = Reported income prior to federal and state income tax ($I_p > 0$)
t_c = C corporation effective income tax rate
D_p = Dividend payout ratio
t_d = Income tax rate on dividends

The equation for the second component of the NEB_C equation follows:

$$\text{Net capital appreciation} = I_p \times (1 - t_c) \times (1 - D_p) \times (1 - t_{cg})$$

where:

t_{cg} = Capital gains tax rate

Adding together the first and second component of the NEB_C equation results in an equation that models the total net economic benefit to the C corporation shareholder.

The NEB_C equation in its entirety is provided below:

$$NEB_C = [I_p \times (1 - t_c) \times D_p \times (1 - t_d)] + [I_p \times (1 - t_c) \times (1 - D_p) \times (1 - t_{cg})]$$

The NEB_S equation is much less complex. The NEB_S equation simply multiplies S corporation reported net income by one minus the individual ordinary income tax rate ($1 - t_i$). This is the only adjustment necessary. This is due to the fact that the income tax paid at the shareholder level represents the only income tax–related economic drain to the reported net income of the S corporation.

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The remaining S corporation reported net income (i.e., after payment of income tax at the shareholder level) provides either tax-free dividends or tax-free capital appreciation[4] of the equity security.

The NEB_S equation is provided below:

$$NEB_S = I_p \times (1 - t_i)$$

Obviously, there is a mathematical inequality between the NEB_C and NEB_S equations. This inequality represents the difference between the net economic benefit derived by S corporation shareholders and the net economic benefit derived by C corporation shareholders. This inequality is the SEA.

The basic SEA equation is provided below:

$$SEA = NEB_S - NEB_C$$

A detailed version of the SEA equation is provided below:

$$SEA = [I_p \times (1 - t_i)] - \{[I_p \times (1 - t_c) \times D_p \times (1 - t_d)] + [I_p \times (1 - t_c) \times (1 - D_p) \times (1 - t_{cg})]\}$$

The algebraically simplified version of the SEA equation is provided below:

$$SEA = I_p \times (t_c + t_{cg} - t_i - t_c t_{cg} + D_p t_d - D_p t_{cg} - D_p t_c t_d + D_p t_c t_{cg})$$

The SEA quantifies the difference in net economic benefit derived by S corporation and C corporation shareholders. As such, the SEA may be used to adjust the net economic benefit enjoyed by the S corporation shareholder to a number that is equivalent to the net economic benefit enjoyed by the C corporation shareholder.

The selection of the numerical components of the SEA equation is properly left to the discretion of the analyst. However, the following recommendations are provided for consideration:

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- C corporation effective income tax rate (t_c)—the effective income tax rate of the publicly traded C corporations selected as comparative to the S corporation.
- Capital gains tax rate (t_{cg})—a composite of combined federal and state long-term capital gains tax rates.
- Individual ordinary income tax rate (t_i)—a composite of combined federal and state individual income tax rates that would apply if the total S corporation net income were subject to individual ordinary income tax rates.
- Income tax rate on dividends (t_d)—a composite of combined federal and state individual income tax rates on dividends.
- Dividend payout ratio (D_p)—the dividend payout ratio of publicly traded C corporations selected as comparative to the subject S corporation.

The SEA quantifies the incremental net economic benefit of being an S corporation shareholder vis-à-vis a C corporation shareholder. As such, the SEA equation is useful in creating a factor that may be used to adjust the appraised value of the equity of an S corporation when empirical studies and analyses of C corporations are used to estimate value.

A discussion of this factor is provided in the following section of this article and is referred to as the "S corporation Equity Adjustment Multiple."

S Corporation Equity Adjustment Multiple

The S corporation Equity Adjustment Multiple ("SEAM") provides an estimate of the percentage premium an investor would be willing to pay for an S corporation share versus an otherwise identical C corporation share. This percentage is calculated by dividing the incremental net economic benefit of being an S corporation shareholder vis-à-vis a C corporation shareholder (i.e., the SEA) by the net economic benefit of being a C corporation shareholder (i.e., the NEB_C).

This percentage is then added to 1.0 to calculate a multiple. That multiple may be used to adjust the indicated equity value of S corporation equity when empirical studies/analyses of C corporations are used to estimate value.

The basic SEAM equation is provided below:

$$SEAM = 1 + \frac{SEA}{NEB_C}$$

A detailed version of the SEAM equation is provided below:

$$SEAM = 1 + \frac{[I_p \times (1-t_i)] - \{[I_p \times (1-t_c) \times D_p \times (1-t_d)] + [I_p \times (1-t_c) \times (1-D_p) \times (1-t_{cg})]\}}{[I_p \times (1-t_c) \times D_p \times (1-t_d)] + [I_p \times (1-t_c) \times (1-D_p) \times (1-t_{cg})]}$$

The algebraically simplified version of the SEAM equation is provided below:

$$SEAM = 1 + \frac{(t_c + t_{cg} - t_i - t_c t_{cg} + D_p t_d - D_p t_{cg} - D_p t_c t_d + D_p t_c t_{cg})}{(1 - t_c - t_{cg} + t_c t_{cg} - D_p t_d + D_p t_{cg} + D_p t_c t_d - D_p t_c t_{cg})}$$

The above formula appears to be complex; however, when studied closely, the reader should recognize that the calculations involve relatively simple mathematics. The formula may be easily entered into an Excel spreadsheet using the following programming syntax:

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=1+(A1+A2-A3-(A1*A2)+(A4*A5)-(A4*A2)-(A4*A1*A5)+(A4*A1*A2))/
(1-A1-A2+(A1*A2)-(A4*A5)+(A4*A2)+(A4*A1*A5)-(A4*A1*A2))
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where:[5]

A1 = C corporation effective income tax rate (t_c)
A2 = Capital gains tax rate (t_{cg})
A3 = Individual ordinary income tax rate (t_i)
A4 = Dividend payout ratio (D_p)
A5 = Income tax rate on dividends (t_d)

To check the accuracy of your Excel programming, the input of the following numbers into the cell references listed above should result in a SEAM of (rounded) 1.1765:

A1 = 35.0%
A2 = 15.0%
A3 = 35.0%
A4[6] = Any percentage between 0.0% and 100.0%
A5 = 15.0%

Application of the SEAM

The application of the SEAM analysis in a business valuation exercise is relatively simple. The analyst:

1. estimates the value of the S corporation equity—on a noncontrolling ownership interest basis—as though it were a C corporation, and then
2. multiplies this concluded value by the SEAM.

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The resulting indication of value may then be adjusted with a discount for lack of marketability as appropriate. The original *Insights* article provides application examples.

Primary Assumptions and Potential Adjustments

The SEAM is based on the following primary assumptions:

- The S corporation organizational form of the subject company will continue in perpetuity.
- Investors are indifferent between cash investment returns and unrealized capital gains.
- Investors in C corporations recognize capital gains taxes when incurred.
- Buyers are willing to pay sellers for the S corporation income tax benefits.
- Income tax law regarding S corporations vis-à-vis C corporations will continue in perpetuity.
- The subject S corporation will continue to be a profitable enterprise in perpetuity.

A discussion of these primary assumptions—and potential analytical adjustments—is provided below.

S Corporation Perpetuity Assumption

Investors would not be willing to pay a price premium for an S corporation equity security if the S election would be revoked upon purchase. If the revocation of the S election were a foreseeable near-term possibility, investors would likely require a discount from the C corporation equivalent value due to the negative tax implications associated with a revocation.

Alternatively, investors may be willing to pay a price premium—all other factors being equal—if the S election is expected to continue in perpetuity. Between these two points lies a curvilinear line that may be estimated based on an analysis of:

1. the expected remaining life of the S election and
2. the present value of the incremental net economic benefits of the S corporation (i.e., the SEA) during the estimated remaining life of the S election.

Many of the risks that shorten the remaining life of a corporation are similar for both S corporations and C corporations. Business threats such as bankruptcy, litigation, structural industry changes, macro- and microeconomic conditions, and geopolitical risks similarly apply to both S corporations and C corporations.

Consequently, the indication of value of S corporation equity provided by empirical studies and analyses of C corporations inherently contemplate these risks.

To the extent that S corporations are subject to risk factors inconsistent with C corporation risk factors, the SEAM premium may overstate the indicated value of S corporation equity. Certainly, one of these risk factors is the potential for revocation of the S election. Even if the S election is expected to continue in perpetuity, the SEAM does not specifically contemplate any risk of revocation.

Consequently, when applying the SEAM, analysts should consider:

1. whether the terms and conditions of shareholder agreements discourage shareholder behavior that may endanger the S election and
2. whether the subject S corporation is in danger of revocation of the S election.

The presence of either of these conditions may require a qualitative adjustment to the SEAM-adjusted value of S corporation equity.

Cash Investment Returns and Unrealized Capital Gains

The SEAM assumes that S corporation investors are indifferent between (1) cash in the form of dividend payments and (2)

unrealized net capital appreciation of the equity securities. Typically, this is not the case.

This is especially true when one considers that S corporation shareholders are required to recognize a pro rata share of the reported net income of the S corporation on their personal income tax returns. As such, S corporation investors may be faced with the unhappy prospect of having to pay income taxes on S corporation earnings while receiving no dividends to pay the tax.

Consequently, investors may be more willing to pay a premium—all other factors being equal—for an S corporation that distributes some or all of its earnings. Therefore, the dividend history, general distribution policy, expected future distribution policy, and projected cash flows of the subject S corporation are important matters to consider in the application of the SEAM.

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It cannot be overemphasized that the SEAM equation inherently assumes that the subject S corporation is expected to distribute 100 percent of its net income. If this is not the case, the SEAM may systematically overstate the value of S corporation equity.

If the subject S corporation is not expected to make "tax distribution" dividend payments to the shareholders, the SEAM may substantially overstate the value of S corporation equity. Typically any adjustment for the expected future dividend distributions of the subject S corporation is recognized and quantified in the selection of the discount for lack of marketability.

It is noteworthy that the dividend payout ratio (D_p) used in the SEAM equation is the dividend payout ratio of similar publicly traded C corporations, not the dividend payout ratio of the subject S corporation.

Once again, the SEAM formula assumes that the dividend payout ratio of the subject S corporation is 100 percent of reported net income.

Recognition of Capital Gains Taxes

The SEAM equation assumes that C corporation investors recognize capital gains tax liabilities when incurred rather than when realized. Under current U.S. tax law, capital gains taxes are not assessed until the asset is sold. To the extent that C corporation investors discount the contingent nature of the capital gains tax liability, the SEAM may overstate the value of S corporation equity.

It would be extremely difficult—if not impossible—to estimate (1) the potential investment holding period and (2) the associated capital gains tax liability of the average C corporation investor. The most reasonable analysis is to assume that:

1. capital gains are derived from retained earnings and
2. investors recognize the capital gains tax liability when incurred rather than when realized.

Since the retained earnings of the S corporation increase the tax basis of the S corporation equity, the S corporation is theoretically not subject to the capital gains tax liability. C corporations shareholders do not receive this same beneficial tax treatment.

The SEAM equation models this tax treatment and assumes that C corporation investors recognize the economic impact of the contingent nature of capital gains tax liabilities when incurred. To the extent this is not true, the SEAM may overstate the value of S corporation equity.

Tax Status of Buyers and Sellers

The SEAM inherently assumes that buyers are willing to pay a premium for the tax attributes of the seller. In other words, the SEAM assumes that a potential buyer would be willing to pay a premium to the seller for the S corporation organizational form.

Certainly this would be the subject of negotiations between buyers and sellers. To the extent the buyer was not a qualified S corporation shareholder, the buyer would resist paying for a tax benefit that only the seller would benefit from.

On the other hand, the seller would attempt to maximize the price of his ownership interest by locating a pool of potential buyers that would qualify for the S corporation tax benefits and thereby pay the premium.

The SEAM assumes that the pool of potential buyers is comprised of qualified S corporation shareholders. The SEAM also assumes that these buyers would recognize—and pay for—the economic benefits attributable to the income tax treatment of S corporations. If it can be demonstrated that the pool of most likely buyers is comprised of C corporations—or other nonqualified S corporation shareholders—then the SEAM premium would likely overstate the value of the S corporation equity.

Even if the pool of most likely buyers is comprised of nonqualified S corporation shareholders, a portion of the SEAM premium may still be applicable to the analysis. The sellers may be willing to accept a reduction in the SEAM premium as a result of negotiations with a nonqualified buyer. In this case, the most likely scenario would be a negotiated premium that falls somewhere between the SEAM-adjusted indication of value and the C corporation equivalent value.

Income Tax Law

The SEAM analysis inherently assumes that the current law related to the beneficial income tax treatment of S corporations vis-à-vis C corporations will continue in perpetuity. In most instances, this is the most reasonable assumption. Any risk of income tax law changes that equally affect both S corporations and C corporations is inherently reflected in the stock prices and investment rates of return of C corporations.

Consequently, these risks are reflected in the SEAM adjusted indication of value of the S corporation. However, if it can be demonstrated that there is increased risk of income tax law changes that only affect S corporations, the application of the SEAM may systematically understate or overstate the indication of value of an S corporation equity security.

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Profitability Assumption

The SEAM adjusts the S corporation equity value for the beneficial income tax treatment attributable to S corporation shareholders vis-à-vis C corporation shareholders. If the subject S corporation is not expected to be profitable for some or all of the foreseeable future, there may be some reduction—or elimination—of the beneficial income tax treatment realized by the S corporation shareholders.

In other words, it is difficult to benefit from the income tax treatment of an S corporation unless the company reports taxable income. Therefore, the SEAM may overstate the value of the equity of an S corporation that is not expected to be profitable in the foreseeable future.

Summary and Conclusion

The SEAM is a mathematical model that may be used to adjust the appraised value of equity of an S corporation when empirical studies/analyses of C corporations are used to estimate value. The SEAM contemplates the differences in net economic benefits attributable to shareholders resulting from the differing income tax treatments of (1) S corporations and C corporations and (2) their respective shareholders.

The SEAM is not a black box in which to throw numbers and expect meaningful results. A careful and reasoned approach to the initial business valuation analysis and the SEAM analysis is required to estimate meaningful and appropriately supported indications of value of S corporation equity securities.

Notes:

1. Since the publication of the Winter 2003 *Insights*, versions of this article have appeared in *Trusts and Estates* magazine and the *Pennsylvania Family Lawyer* journal.

   This theory was also presented at the following: (1) 21st and 22nd Advanced Business Valuation Conferences of the American Society of Appraisers in October 2002 and 2003, respectively, (2) 9th Annual SuperConference of the Alliance of Mergers and Acquisition Advisors in July 2003, and (3) Valuation and Litigation Support Conference of the New Jersey Society of Certified Public Accountants in October 2003.

   A more comprehensive treatise of this theory will be published in 2004 in (1) *The Handbook of Business Valuation and Intellectual Property Analysis* and (2) the *Business Valuation Review*—the quarterly journal of the Business Valuation Committee of the American Society of Appraisers.

2. A capitalization rate is a percent—or multiple—used to convert a measurement of income into a value indication. Capitalization rates may take the form of a single-period capitalization rate, a multi-period present value discount rate, or a market-derived pricing (i.e., P/E) multiple.
3. There are a multitude of economic factors that contribute to the capital appreciation (or depreciation) of equity besides retained earnings, including macro-economic conditions, capital market conditions, general interest rates, transaction activity, etc. It is not feasible to mathematically model all of the components that either contribute to or detract from the capital appreciation of an equity security. Therefore, the discussion contained in this article is based on the assumption that capital appreciation is derived solely from retained earnings.
4. The author assumes that the capital appreciation of equity is derived entirely from the undistributed earnings of the S corporation. Since undistributed earnings increase the income tax basis of the S corporation shares, the capital appreciation is thereby tax-free.
5. The A1, A2, A3, etc. refer to specific cell references within the Excel spreadsheet.
6. When the capital gains tax rate and income tax rate on dividends are identical, the dividend payout ratio selected will not affect the SEAM.

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