Consultants' Training Institute
5217 South State Street, Suite 400
Salt Lake City, Utah 84107
(801) 486-0600
E-mail: info@theCTI.com
Website: www.theCTI.com

Special Purpose Valuations
Study Guide

Co-Sponsored by:
National Association of Certified Valuators and Analysts
Institute of Business Appraisers

2016.v1

This publication is designed to provide authoritative and accurate information about the subject covered. It is sold with the understanding that the copyright holder is not engaged in rendering legal, accounting, or other professional service or advice. If legal or other expert advice is required, the services of an appropriate professional person should be sought.

Although information contained in this publication has been carefully compiled from sources believed to be reliable, the accuracy of the information is not guaranteed.

The authors specifically disclaim any personal liability, loss, or risk incurred as a consequence of the use, either directly or indirectly, of any information or advice given in these materials. The instructor's opinion may not reflect those of NACVA/IBA, their policies, other instructors, or materials.

Material may not be reproduced, including photocopying, in whole or in part in any form whatsoever.

The contents of this course and the exhibits herein are designed for educational purposes only. Each occurrence and the facts of each occurrence are different. Changes in facts and/or policy terms may result in conclusions different than those stated herein. It is not intended to reflect the opinions or positions of the authors and instructors in relation to any specific case, but rather to be illustrative for educational purposes. The user is cautioned that this course is not all inclusive.

Consultants' Training Institute
5217 South State Street, Suite 400
Salt Lake City, Utah 84107
(801) 486-0600
E-mail: info@theCTI.com
Website: www.theCTI.com

Special Purpose Valuations Study Guide

Contributing Author

Enrique C. Brito

2016.v1

Table of Contents

Special Purpose Valuation Study Guide

I. INTRODUCTION

With the valuation fundamentals firmly in place, the valuation analyst is well positioned to build on this knowledge and explore the application of the various valuation methodologies to other assets and securities that are likely to be important components in future valuation engagements. Each of these assets and securities are common in the operation of business enterprises and thus it is critical that the analyst understands their key characteristics, how they are valued, and their contribution to the overall value of the enterprise.

This guide describes the analytical techniques related to the valuation of:

- Intangible assets
- Debt securities
- Convertible securities
- Stock options
- Preferred stock
- Voting vs. non-voting stock
- Personal vs. enterprise goodwill

II. VALUING INTANGIBLE ASSETS

A company's ability to grow its earnings in competitive markets is mainly due to the nature and sustainability of its competitive advantage. These economic benefits—which can take many forms including revenue enhancements, cost reductions, or barriers to competition—are mainly attributable to the company's intangible assets such as patents, copyrights, proprietary processes, customer lists, goodwill, and favorable contracts among others. Consequently, this special type of assets represent an essential source of value for the company, and as such, it is important for a valuation analyst to understand how to identify, quantify, and value these critical assets.

It should be noted that intangible assets may or may not appear in a company's balance sheet. According to GAAP[1], certain costs of developing and maintaining intangibles are expensed as incurred. However, if intangible assets are purchased, they are carried at cost and amortized over their useful life.

Not all intangible assets enjoy the same legal status and protections. There is a special classification of intangible assets called *intellectual property* which enjoys special legal recognition and protection both in federal and state statutes. These are assets whose creation can be attributed to the activity of a specific individual(s) and are usually assigned to one of two categories:

- Creative intellectual property (e.g. copyrights, trademarks)
- Innovative intellectual property (e.g. patents, trade secrets)

[1] Generally Accepted Accounting Principles

Other categorizations of intangible assets include:

- Technology-related (e.g. engineering drawings, technical manuals and documentation, unpatented processes)
- Customer-related (e.g. customer relationships, customer contracts, expected customer contract renewals)
- Contract-related (e.g. favorable supplier contracts, franchises, permits, license agreements)
- Data processing-related (e.g. computer software, automated data bases)
- Human capital-related (e.g. trained and assembled workforce, employment agreements, non-compete agreements)
- Marketing-related (e.g. advertising campaigns, product catalogs, promotional brochures)
- Location-related (e.g. leasehold interests, water rights, air rights, easements, rights of way, mining and mineral exploitation rights)
- Goodwill-related (e.g. goodwill, going concern value)

When evaluating intangible assets it is important to determine if they have value in the marketplace by establishing whether someone would want to buy the asset or licensing it. As part of this analysis it is also important to determine if the intangible asset can bring to the subject company a competitive edge (perhaps in the form of improved operating margins) and what stage the asset is in its lifecycle. In the event that it is determined that the intangible asset has value, the next step is to select the most appropriate valuation method.

A. VALUATION METHODS

In general terms, intangible assets can be valued either in aggregate or individually:

1. Aggregate Methods

Most methods valuing intangibles in the aggregate focus on the earnings generated by the intangible asset(s).

a) Allocated value in arms-length bargaining

This approach involves IRC section 1060 where assets are allocated in seven classes. Note that the tax court has stated that goodwill exist if: (a) the buyer expects continued excess earnings capacity, (b) the business has a competitive advantage, and (c) the business has continued patronage.

b) Residual value

Involves the quantification of goodwill, namely, purchase price less the market value of tangible assets less intangible assets subject to amortization. Note that when using this method, some questions may arise as to whether the sales price accurately reflects fair market value and whether the tangible and intangible assets are accurately appraised.

c) Earnings-based approach

It involves capitalization of earnings (excess earnings method) or the discounting of earnings attributable to intangibles (e.g. patents, favorable leasehold interests, etc.).

2. Individual Methods

The valuation of individual intangible assets is carried out through the three fundamental approaches to valuation.

a) Market approach

It focuses on finding transactions involving the sales of intangible assets. Its application create some challenges as intangible assets are rarely sold in isolation from the business and it is difficult to determine their remaining useful life. Assuming adequate transactions at arm's length are found, then relevant units of comparison are selected (e.g. income multipliers or dollars per unit—per drawing, per customer, per line of code, etc.). The units of comparison then are used to compare the subject asset to each transaction and an appropriate multiplier is selected to apply to the subject asset. Finally, the various value indications produced from the transactions are reconciled into a single indication of value or a range of values.

b) Income approach

It is based on identifying the income stream resulting from increments to revenue or cost reductions and subsequently capitalizing or discounting the income stream at a rate that reflects a fair return on the investment given its risk. The most commonly used income approach method include: discounting, capitalization of excess earnings, relief from royalty method, and postulated loss of income method.

c) Cost approach

It involves first estimating the intangible asset's replacement cost new (reproduction cost new[2] less incurable functional obsolescence[3] and technological obsolescence[4]) less its physical deterioration[5] less economic obsolescence[6] less curable functional and technological obsolescence. This method is most applicable when the costs to construct the intangible are well supported, when appraising internally developed intangibles, or when comparable sales are not available.

B. BUNDLE OF LEGAL RIGHTS

An important step in valuing intangible assets identifying the specific bundle of rights subject to appraisal. Keep in mind that when a right is separated from the bundle and transferred, a fractional ownership interest is created. Some of the more common bundles of rights related to intangible assets include: fee simple interest, life or term estate, licensee/franchiser interests, development rights, exploitation rights, use rights, and other fractional ownership interests.

---

[2] It considers the construction of an exact replica of the subject intangible asset. Other cost definitions include: replacement cost (cost of recreating the functionality of the asset), creation cost (creation of the asset with no guidance), and re-creation cost (duplicating the asset assuming prior experience in the creation process).

[3] Inability to perform the original function for which it was designed.

[4] Decrease in value due to improvements in technology that make the assets less than ideal replacement.

[5] Wear and tear resulting from continued use.

[6] Reduction in value due to external events and conditions. It is usually considered incurable.

C. REMAINING USEFUL LIFE

In terms of valuing intangible assets, the shortest remaining useful life applies. There are several factors that influence the remaining useful life including: legal life (document), contractual life (document), statutory/judicial life (document), physical life (engineering), functional life (engineering), technological life (technical), economic life (engineering) and actuarial mortality life. For the valuation analysts, it is important to distinguish between total life, average life and average remaining life. There are two categories of analytical procedures to estimate remaining useful life: (a) estimation of a historical attrition rate and (b) survivor curve analysis.

D. GOVERNING FRAMEWORKS

The valuation of intangible assets is governed by the following financial accounting and reporting frameworks:

1. Intangible assets and fair value measurements (ASC 820)
2. Accounting for acquired intangible assets (ASC 350)

III. VALUING DEBT SECURITIES

In determining the equity value of a privately-held company using a discounted cash flow method (Income Approach) or invested capital multiples (Market Approach), the valuation analyst must subtract from the indicated enterprise value the *market value* of the interest-bearing debt. Hence, the valuation of debt securities in the company's capital structure is a critical component in the valuation analysis. The challenge is that when debt securities cannot be purchased or sold in a public market, there are no readily observable market values, and therefore, their value must be estimated.

In general terms, the value of the debt in a privately-held company is calculated by first defining the payoffs that debt holders can expect to receive over the debt security's term. Then, these payoff are discounted at a rate that takes into account both the risk-free rate and the company's risk of default.

A. DEBT VALUATION PROCESS

There are three components that must be defined in order to estimate the value of a debt security in a privately-held company:

1. The amount of future payments generated by the debt security

It is determined by the coupon rate of the security. The payment of interests and the principal are both specified in the contract establishing the debt security. Keep in mind that certain characteristics may alter the amount of the payments such as call provisions, sinking fund provisions, zero-coupon features or conversion privileges (see section 3 below).

2. The timing of the future payments

Also determined by the debt security's contract. As with the amount of the payments, there are certain features that may affect the timing of the future payments such as conversion privileges, call provisions or zero-coupon characteristics (see section 3 below).

3. Determining the yield to maturity (YTM)

This rate is established by the market and determines the market value of the payments generated by the debt security. To calculate the yield to maturity to apply to a closely held debt security, it is necessary to compare various characteristics of the issuer with comparable publicly traded debt securities. This involves a ratio analysis of the subject company's operating performance (Income Statement analysis) and financial condition (Balance Sheet analysis). Then, these ratios are compared with ratios calculated over the same period and industry used by rating agencies (such as S&P or Moody's) to estimate the rating classification for the subject company's debt (e.g. AAA to D rating if S&P or Aaa to D2 rating if Moody's).

Once the credit rating for the subject company's debt has been defined, the valuation analyst can select specific publicly traded debt securities similar in debt rating and characteristics to the subject company[7]. The companies are analyzed in a similar fashion as described in the Guideline Public Company Method in Market Approach[8] by comparing ratios involving operating performance and financial position. The objective is to develop an opinion as to the risk of the payments of the subject company compared to the guideline companies to estimate the appropriate yield to maturity to apply to the privately-held debt security payments.

Practice Note: The application of a discount for lack of marketability is not required since interest payments and principal are a contractual obligation and received by the security holder regardless of the security's marketability.

B. DEBT SECURITIES PROVISIONS

In the valuation of debt securities, it is important for the valuation analyst to assess how certain provisions of the debt security will impact its value. Features such as call provisions, sinking fund provisions, collateral pledges, zero coupon features, convertibility and income tax status will have an effect on the security's cash flow, and therefore, on its value. Hence, it is critical that the analyst carefully reviews the debt indenture agreement to fully understand the terms under which the debt has been issued in order to properly model the securities future cash flows.

IV. VALUING CONVERTIBLE SECURITIES

Convertible securities such as convertible debt and convertible preferred stock represent a "hybrid" type of securities that combines elements of straight debt and common equity. They are similar to fixed income securities in the sense of paying a fixed interest or preferred dividend on a periodic basis. In addition, they can be exchanged into common shares of the issuing company based on a stipulated conversation ratio.

The main advantage of convertible securities is that they lower the cost of borrowing for issuing companies by providing the security holder an upside based on the appreciation of the issuer's common stock. This allows the issuing company to raise capital through convertible securities with coupon or dividend rates below the market yields for comparable bonds and preferred stocks. At the same time, the scheduled interest or preferred dividend payments provide current income for the security holder.

[7] Use S&P Bond Guide or Moody's Bond Record
[8] See Chapter 4 - Guideline Public Company Method

A. VALUATION METHODS

Convertible securities are valued through two primary methods:

1. Straight security plus an option

The convertible security is valued as a straight bond or preferred stock with an embedded option to purchase the issuer's common stock at the conversion price.

Example: Assume a five-year convertible bond with semi-annual coupon payments of 5% (the current yield to maturity of a B+ rated bond is 8%) convertible into 30 common shares currently trading at $50 per share.

Using a discounting cash flow methodology the value of the straight bond is $878.34. The embedded option can be valued using a Black-Scholes or binomial model (stock price = $50; strike price = $33.33 ($1,000/30); maturity = 5 years; risk-free rate = 2%; volatility = 43%) to arrive at a value per option of $26.53 or $795.9 for the 30 options.

The resulting total value of the convertible bond is $1,674.24 per bond or a 67% premium to par value.

2. Enhanced common stock

The convertible security is valued as common shares equivalent enhanced by additional current income over a given time horizon.

Example (cont.): Multiplying the 30 common shares per bond by the $50 per share market price represents a conversion value of $1,500. In addition, the present value of semi-annual payments of $25 for five years discounted at the yield to maturity of 8.00% results in a value of $204. As a result, the total implied value for the convertible security $1,704, a 70% premium to par value.

Please note that in the event that the company pays common dividends, the present value of the cash flows on the convertible would be calculated by considering only the amount paid in excess of the common dividend as part of the current conversion value.

In the above examples, the convertible security would be expected to trade somewhere between 167% and 170% of par value. In other words, it would be expected to trade between the indicated value as a bond with attached options and the indicated value as enhanced common share equivalents with additional current income.

B. MARKETABILITY DISCOUNT

It is important to note that in those instances where the common shares to be received in conversion are non-marketable (privately held or restricted), it would be appropriate to apply a marketability discount to the value of the common shares. Likewise, a premium for illiquidity would be added to the yield to maturity for the fixed income component of the convertible.

V. VALUING STOCK OPTIONS

Many privately-held businesses issue stock options—which confer to the holder the right to buy the company's stock at a predetermined price under certain circumstances—as part of incentive compensation plans for their employees or in raising capital. These securities have certain important characteristics which will influence their value. For instance, their value depends on the behavior of the underlying stock making them a "derivative" security (their value increases with the volatility of the underlying stock and the time to maturity). Also, they lack a trading market and therefore represent an illiquid asset. Lastly, they can be "exercised" only at a fixed price during a predetermined period of time with their value falling down to zero thereafter.

A. STOCK OPTION FUNDAMENTALS

Stock options are categorized as either **calls**—which confer to the holder the right but not the obligation to *buy* the underlying stock under certain conditions—and **puts—**which confer to the holder the right but not the obligation to *sell* the stock the underlying stock under certain conditions. In addition, depending on when a stock option can be exercised, they are classified as either **American-style** options—which may be exercised at any time prior to the option's expiration—or **European-style** options—which can be exercised only at expiration. Most publicly traded options in the U.S. are American-style options.

The value of a stock option involves of two components: the **intrinsic value** and the **time value**.

The intrinsic value of a stock option is the difference between the stock's value and the exercise price (i.e. the price at which the option holder can purchase the stock).

The time value of a stock option is the present value of the difference between the value of the stock at the option's expiration date and the exercise price.

The key factors that influence the value of a stock option are:

1. The period of time to the expiration of the option; the longer the time to expiration, the greater the chances that the stock will appreciate in value thus enhancing the value of the option.
2. The volatility of the underlying stock; the greater the fluctuations of the stock, the higher the chances that the stock price will be above the exercise price prior to expiration.
3. Whether or not the company pays dividends on its stock; the payment of dividends decreases the option's value because (a) the option holder does not receive the dividends and (b) those earnings are not reinvested in the growth of the company.
4. The dilutive effects on ownership of exercising the option; the more options outstanding, the greater the dilution effect if all the options are exercised.
5. The liquidity of the underlying stock and the option itself; lack of liquidity results in reduced option values (keep in mind that the discount for lack of marketability for an option is less than the common stock).

B. OPTION VALUATION MODELS

There are two valuation models commonly used to value stock options:

- Black-Scholes Model
- Binomial Tree Model

1. Black-Scholes Model

The most widely used of these stock option valuation models is the Black-Scholes Option Pricing Model. This model was developed by Fisher Black and Myron Scholes in 1973 and it is used to value both marketable and non-marketable call options. The model is based on five inputs:

a) The current stock price
b) Time to expiration of the option
c) The option's exercise price (also known as "strike price")
d) The risk-free rate
e) Volatility of the underlying stock

The basic Black-Scholes model for a non-dividend paying stock expresses the value of the call option as:

$$C = SN(d1) - Ke^{-rt}N(d2)$$

Where:

C = call option value
S = current value of the underlying stock
K = option's strike price
t = time remaining to expiration of the option
r = risk-free rate
D(*) = cumulative standard normal density function
σ = standard deviation of the stock's return

$$N(d1) = \frac{\log\left(\frac{S}{K}\right) + \frac{(r + \sigma^2)}{2}t}{\sigma\sqrt{t}}$$

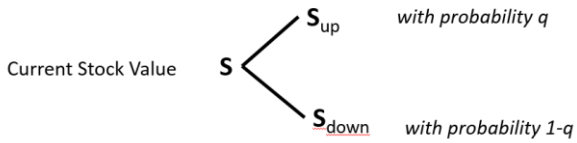
$$N(d2) = \frac{\log\left(\frac{S}{K}\right) + \frac{(r - \sigma^2)}{2}t}{\sigma\sqrt{t}}$$

Keep in mind that the application of the model to the valuation of stock options issued by privately-held companies requires the estimation of the value of the underlying stock and its volatility. With regard to the stock's volatility, due to the lack of historical pricing of privately-held companies, the volatility factor is estimated using the prices of comparable publicly traded companies as a proxy.

2. Binomial Tree (Lattice) Model

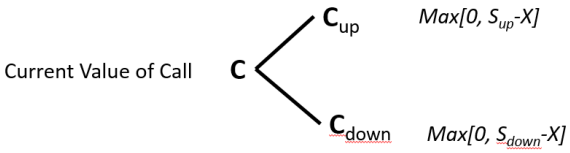
A binomial tree model assumes the value of a stock can have two possible values at the end of any future discrete period. In a one-period model, the stock price will be either S_{up} or S_{down} at the end of the period. The stock price movement is represented in Figure 1.

FIGURE 1



Thus, the value of a call with one period to expiration is equivalent to the representation shown in Figure 2.

FIGURE 2



At this point, the lattice model assumes the value of a call should be the discounted value of the payoff it will receive in a risk-neutral world. As the time to expiration is divided into smaller intervals, the diagrams shown in Figures 1 and 2 take on a lattice framework. If the time to expiration continues to be divided into smaller intervals with smaller up or down movements, the lattice valuation equation approaches the continuous-time valuation equation of the Black-Scholes model.

C. ACCOUNTING STANDARDS

The valuation of stock options is governed by the following accounting standards:

1. Accounting for Stock Based compensation (ASC 718)

VI. VALUING PREFERRED STOCK

Many privately-held companies, particularly startups, are financed with a combination of equity securities—broadly categorized as common and preferred stock—that provide their holders different rights and preferences. In situations where a startup has raised several rounds of financing, it is highly likely that each round will have associated with it a type of equity—most often preferred stock—with rights that will differ from the securities issued in the preceding round. Therefore, it is important for the valuation analyst to get familiar with the different types of securities used to finance business growth, and most importantly, to understand how to allocate enterprise value among the different equity claims.

There are two characteristics of preferred stock that makes it attractive to investors in startups: liquidation preference in the event of a company liquidation and anti-dilution protection in subsequent financing rounds. In addition, preferred stock pays a fixed dividend that must be paid before any dividend can be paid to common stockholders thus acting basically as debt. But, unlike debt, preferred stock dividends cannot be deducted as interest expense by the issuing company.

A. VALUATION PROCESS

In its basic form, the value of preferred stock is determined by calculating the present value of its earnings stream (preferred dividend) discounted at a market-based rate of return (dividend yield).

The appropriate required dividend yield for the subject company's preferred stock is a function of its risk. Hence, ratio analysis is commonly used to determine the likelihood of investors receiving future preferred dividends. Common ratios used in this analysis include:

1. Fixed-charge coverage ratio:

Pre-tax income plus interest expense divided by pre-tax interest expenses plus preferred dividends.

2. Return on capital:

Pre-tax income plus interest expense divided by long-term debt plus preferred equity plus common equity.

3. Liquidation coverage:

Market value of total assets less market value of total liabilities divided by the aggregate preferred stock liquidation value.

The ratios calculated for the subject company are compared to the ratios of publicly traded companies with preferred stocks (excluding financials and public utilities) that have the same rights as the subject company (i.e. liquidation preference, redemption, conversion, voting, and anti-dilution rights). This enables the analyst to determine an appropriate credit rating for the subject company based on the ratings assigned by Moody's and/or Standard & Poor's to similar publicly traded preferred stock issues.

Once the credit rating for the subject company's preferred stock is established, it is then used to determine its corresponding market yield. Here, the analyst should use the average yield for the preferred stocks in the selected credit rating category.

Lastly, the fair market value of the preferred stock is calculated by capitalizing the stock's annual preferred dividend by the market yield.

B. MARKETABILITY

It may appear that a privately-held company's preferred stock would be subject to the same discount for lack of marketability applied to its common stock. However, unlike common stock, which derives most of its value from price appreciation, preferred stock's returns are based on the cash flows generated in the form of preferred dividends. These cash flows are independent of the security's marketability, and therefore, the discount for lack of marketability of the preferred stock of a privately-held company is different in terms of magnitude from that of common stock.

C. REGULATORY GUIDELINES

The guidelines for the valuation of preferred stock are established in the IRS Revenue Ruling 83-120. It describes the analytical tools (coverage ratios) for the valuation of privately-held preferred stock aimed at determining the subject company's ability to pay its dividend yield and its liquidation preference. In addition, RR 83-120 describes several factors affecting the value of preferred stock including:

1. Stated dividend rate and the risk associated with its payment
2. Cumulative vs. non-cumulative dividends
3. Ability to pay the preferred stock's liquidation preference at liquidation
4. Voting rights
5. Redemption privileges

VII. VOTING VS. NON-VOTING STOCK

There are situations in which public and private-held companies are capitalized with voting and non-voting stock. Typically, voting and non-voting stock have identical attributes, with the exception of the ability to vote. In the case of public companies, dual class voting structures allow founding shareholders the flexibility to focus on long-term strategic goals rather than fending off potential hostile takeovers or defending against activist shareholders who are more concerned about achieving quarterly earnings targets. For private companies, dual class voting stock is commonly used in private equity investments as preferred stock generally has no voting rights.

Often, the difference in value between these two types of security largely depends on the degree of control associated with the ownership interest. As such, the greater the degree of control, the greater the impact that voting rights have on the value of the stock.

A. EVIDENCE FROM MARKET STUDIES AND COURT CASES

Empirical market studies conducted on the difference in price between publicly traded voting and non-voting stock reveal that the price premium of voting stock is generally in the 3% to 5% range. In addition, these studies indicate that the market does not seem to confer any price advantage to the voting rights of minority interests. Table 1 summaries the studies conducted on the price difference between voting and non-voting stock.

TABLE 1

Study	Year	Time Period	Companies	Discount
Masulis Wang, Xie	2008	1995-2003	457	2.3%
Cox & Roden	2002	1984-1999	98	10.0%
Ettleson	1999	1993-1998	40	2.7%
HLHZ	1996	1996	116	2.7%
Smith/Amoako-Adu	1995	1988-1992	81	6.0%
Zingales	1995	1984-1990	94	9.5%
O'Shea & Siwicki	1991	1989-1990	43	1.3%
SEC	1987	n/a	63	2.0%-8.0%
Lease, McConnel & Mickkelson	1983	1940-1978	30	5.2%

Source: Sout, Risius, Ross

Prior tax court cases involving the issue of a voting premium or nonvoting discount indicate that the courts generally have allowed discounts ranging from 0% to 5% for nonvoting stock, consistent with the results from empirical market studies. A summary of tax court cases is shown in Table 2 below.

TABLE 2

Case	Year	Discount
Estate of Simplot v. Commissioner, 2001 U.S. App. LEXIS 9220 (9th Cir.)	2001	0.00%
Barnes v. Commissioner, 76 T.C.M. 881	1998	3.70%
Kosman v. Commissioner, 71 T.C.M. 2356	1996	4.00%
Estate of Newhouse v. Commissioner, 94 T.C. 193	1990	0.00%
Estate of Joyce C. Hall v. Commissioner, 92 T.C. 19	1989	5.20%
Estate of Clara S. Roeder Winkler, 57 T.C.M. 373 (1989)	1989	9.10%
The Northern Trust Company v. Commissioner, 87 T.C. 349	1986	0.00%
Ahmanson Foundation v. United States, 81-2 U.S.T.C. 13,438	1981	3.00%
Wallace v. United States, 82-1 U.S.T.C. 13,442	1981	4.80%
Estate of Alvin Thalheimer v. Commissioner, 36 T.C.M. 10; 212	1977	4.40%
Estate of Alvin Thalheimer v. Commissioner, 33 T.C.M. 877	1974	5.40%
Jacob S. Kamborian v. Commissioner, 56 T.C. 847	1971	3.90%

Source: Sout, Risius, Ross

B. FACTORS IMPACTING DISCOUNT FOR LACK OF VOTING RIGHTS

In general, the discount for lack of voting rights is influenced by three main factors:

1. Concentration of voting ownership

In situations where the ownership of the company is concentrated in the hands of a few individuals, owning a small block of voting stock provides little benefit relative to a block of non-voting stock. In contrast, in the event that the voting shares are widely dispersed, the probability of a change in management increases and therefore it may be appropriate for the voting shares to be valued at a premium. A similar situation occurs with a "swing vote" given its potential to unlock company value.

2. Weak management

At poorly managed companies, voting shares should be valued at a premium relative to non-voting shares. This is not the case, however, at well managed companies since the impact associated with control in terms of unlocking company value would be minimal.

3. Public vs. private companies

In privately-held companies, investors who are dissatisfied with the how the company is being run face an illiquid market for their shares. Accordingly, a downward adjustment is justified for the voting and non-voting stock of private companies based on the values indicated by the public markets.

C. ALLOCATING EQUITY VALUE

The most commonly used method of allocating equity value between voting and non-voting stock is called the "sequential method." The process involves dividing the market value of equity by the total number of shares outstanding (voting and non-voting) to calculate the market value per share. Then, a discount for lack of voting rights is applied to the market value per share to arrive at the market value per share (non-voting).

Example: Assume a company with a dual-class stock capitalization structure has a market value of equity of $63 million. Currently, there are one million voting shares and five million non-voting shares outstanding.

Based on a public market analysis, the valuation analyst estimates that a reasonable premium for voting rights is 5%. As a result, a discount for lack of voting rights is calculated as:

$$LVR\ Discount = 1 - \frac{1}{(1 + Voting\ Rights\ Premium)}$$

LVR Discount = 1- 0.952 = 4.76%

Market value per share (voting) = $63M / 6M = $10.50

Market value per share (non-voting) = $10.50 x (1 – 0.476) = $10.00

VIII. PERSONAL VS. ENTERPRISE GOODWILL

Goodwill is a term frequently used to describe a single asset or a bundle of intangible assets that confer to a business the ability to earn a return on investment in excess of its cost of capital. The intangible assets could be the result of a number of factors not separately identifiable such as brand name, reputation, and customer loyalty among others. Further, goodwill is considered to be marketable if there is a perception that the earnings it generates will continue in the future independent of the time and effort involved.

Professional (personal) goodwill is a type of goodwill that attaches to the personal efforts of an individual. And, in general, it is considered to be difficult to transfer, if at all. Enterprise (practice) goodwill, on the other hand, attaches to the firm, and thus, it can be institutionalized.

A. ALLOCATING GOODWILL

Currently, there are no accepted method of splitting goodwill into personal and enterprise components. However, there are certain factors distilled from court cases[9] that indicate the presence of either personal or enterprise goodwill.

1. Factors indicating the presence of **enterprise goodwill:**

    a) A large business with formalized institutional structures, systems, and controls
    b) Professional has a pre-existing covenant not to compete
    c) Not heavily dependent on personal services
    d) Significant investments in tangible assets
    e) Firm has employment contracts and/or non-compete agreements with employees
    f) More than one owner, especially non-employee owners
    g) Firm sales result from the business name recognition, sales force, sales contracts, and other firm-owned intangibles
    h) The firm has supplier contracts and formalized production methods, patents, copyrights, and business systems

2. Factors indicating the presence of **personal goodwill:**

    a) Business name is same or similar to owner
    b) Business is highly dependent on the professional's skills and relationships
    c) No pre-existing non-compete (an employee transfers the personal goodwill to the enterprise through the non-compete)
    d) Personal service provided by the professional is an important feature of the company's revenues
    e) Revenue dependent on the professional's relationships
    f) Product/service knowledge rests with the professional

[9] See Lopez v. Lopez, 113 Cal. Rprt. 58 (38 Cal. App. 3d 1044 (1978)

B. VALUING PERSONAL GOODWILL

It should be noted that the arguments in favor of personal goodwill are similar to those involving a key person discount. Thus, it is incumbent upon the valuation analyst to ask pertinent questions and review internal documents to determine why client loyalties lie with individual professionals. Particular attention should be placed on sources of revenue such as client referrals, personal referrals, and marketing efforts.

Another perspective in valuing personal goodwill involves its similarity to valuing a non-compete agreement. In essence, the purpose of a non-compete is to prevent an individual from exercising his/her own skills to generate value for other entities. Therefore, it is important that the valuation gauges the ability and willingness of the professional to compete with the firm by examining several interrelated factors such as the professional's expertise in the industry, the professional's relationships with clients, suppliers and referral sources as well as the duration, geography and scope of the restrictions to compete.

It is also important to keep in mind that in the case of professional practices the issue of separating personal goodwill from enterprise goodwill is not clear cut. Professional practices derive most of their revenues from client relationships and the professionals' reputation in the community. In addition, most professional practices obtain their patients through referrals (also based on the reputation of their professionals).

In short, there are several best practices used by valuation analysts in defending a determination of value related to personal goodwill including:

1. Thorough analysis of personal/enterprise factors listed above
2. Quantification of revenue generation/referral sources
3. Use of vetted industry methods such as DCF with/without and excess earnings method

SPECIAL PURPOSE VALUATION STUDY GUIDE

REVIEW QUESTIONS

SPECIAL PURPOSE VALUATION STUDY GUIDE

CHAPTER REVIEW QUESTIONS

1. Intangible assets are a key source of competitive advantage for a company. This asset category mainly includes:

    a. Non-operating assets
    b. Patents, copyrights, customer lists, goodwill, and favorable contracts among others
    c. Only assets that enjoy special legal status and protection
    d. Intangible assets found on the company's balance sheet

2. Intangible assets are valued using aggregate or individual methods. The individual valuation methods include:

    a. Residual value
    b. Allocated value in arm's length's transactions
    c. Relief from royalty method
    d. Quantification of goodwill

3. The value of a debt security in a privately-held company is calculated by:

    a. The current book value recorded on the company's balance sheet
    b. Determining what the company can reasonably pay in the future
    c. The original debt commitment less payments to date (interest plus principal)
    d. Discounting the debt-related cash flows at a rate that takes into account the risk-free rate and the company's risk of default

4. The appropriate discount rate to use in discounting the cash flows of a debt security with no call provisions in a privately-held company is:

    a. The yield to maturity
    b. The coupon interest rate
    c. The risk-free rate
    d. Yield to worst

5. Convertible securities can be exchanged for common shares of the issuing company. This type of securities includes:

    a. Class B stock
    b. Phantom stock
    c. Founders stock
    d. Convertible notes

6. What are the suggested methods to value convertible securities?

    a. Comparable transactions
    b. Straight security plus an option
    c. Value of conversion
    d. Capitalization of earnings

7. Which of the following are key features of stock options?

    a. Strike price, volatility, yield to maturity
    b. Volatility, risk-free-rate, earnings per share
    c. Maturity, dividend yield, equity risk premium
    d. Strike price, volatility, time to expiration

8. Which of the following models are commonly used to value stock options?

    a. Black-Scholes, Binomial, Adjusted Present Value
    b. Discounted Cash Flow, Binomial, Quadratic Approximation
    c. Black-Scholes, Binomial, Quadratic Approximation
    d. Black-Scholes, Quadratic Approximation, Economic Value Added
    e. Binomial, Black Scholes, Three-Stage DCF

9. Which of the following statements is true regarding the Black-Scholes model?

    a. It calculates the value of a put option
    b. Can only be used to value marketable options
    c. The basic model is for dividend-paying stocks
    d. It requires five inputs: current stock's price, option's exercise price, the risk-free rate, the stock's volatility and the option's time to expiration

10. What two key characteristics of preferred stock make them attractive to investors in startups and middle market businesses?

    a. Preferred dividends and voting rights
    b. Liquidation preference and anti-dilution protection
    c. Participation along with common shareholder on company profits and registration rights
    d. Pay-to-play and drag along rights

11. The primary method of valuing preferred stock in startups and middle market companies is:

    a. Analysis of comparable transactions
    b. Applying a discount factor to the value of common shares
    c. Using the Black-Scholes model
    d. Using a discounting method

12. Which regulatory guideline governs the valuation of preferred stock?

    a. IRS Revenue Ruling 59-60
    b. IRS Revenue Ruling 83-12
    c. ARM 34
    d. IRS Revenue Ruling 77-287

13. Dual class voting stock structures (voting – non-voting) are used by companies because they:

    a. Allow the executive team to better compensate employees for achieving short-term objectives
    b. Increase the company's valuation
    c. Allow the concentration of the degree of control associated with an ownership interest
    d. Result in higher dividends for the voting stock

14. Which of the following factors impact the lack of voting rights discount?

    a. The company's effective tax rate
    b. Current market conditions
    c. Weak management
    d. Form of incorporation

15. Which of the following factors indicate the presence of "enterprise" goodwill?

    a. More than one owner, especially non-employee owners
    b. Few investments in tangible assets
    c. No pre-existing non-compete agreements
    d. Business name is the same as the owner's

APPENDIX I

SPECIAL PURPOSE VALUATIONS STUDY GUIDE

Review Questions and Answers

SPECIAL PURPOSE VALUATION STUDY GUIDE

CHAPTER REVIEW QUESTIONS AND ANSWERS

1. Intangible assets are a key source of competitive advantage for a company. This asset category mainly includes:
   a. Non-operating assets
      Incorrect—Intangible assets are important in the generation of the company's cash flows and thus are considered to be operating assets.
   b. Patents, copyrights, customer lists, goodwill, and favorable contracts among others
      B is Correct—These are all forms of intangible assets.
   c. Only assets that enjoy special legal status and protection
      Incorrect—Only intellectual property enjoys legal protection; there are other types of intangible assets besides intellectual property (e.g. customer lists).
   d. Intangible assets found on the company's balance sheet
      Incorrect—Intangible assets may or may not be found on the company's balance sheet (e.g. operating leases).

2. Intangible assets are valued using aggregate or individual methods. The individual valuation methods include:
   a. Residual value
      Incorrect—Residual value is an aggregate valuation method.
   b. Allocated value in arm's length's transactions
      Incorrect—Allocated value is an aggregate valuation method.
   c. Relief from royalty method
      C is Correct—The relief from royalty method is an individual valuation method.
   d. Quantification of goodwill
      Incorrect—This is the residual value method which is an aggregate valuation method.

3. The value of a debt security in a privately-held company is calculated by:
   a. The current book value recorded on the company's balance sheet
      Incorrect—The value of a debt security must be calculated based on market value, not book value.
   b. Determining what the company can reasonably pay in the future
      Incorrect—Debt is a contractual obligation whose payment is not at the company's discretion.
   c. The original debt commitment less payments to date (interest plus principal)
      Incorrect—The value of debt is not based on its book value.
   d. Discounting the debt-related cash flows at a rate that takes into account the risk-free rate and the company's risk of default.
      D is Correct—The market value of a debt security is found by discounting the debt security's cash flows at a rate that reflects the market's risk-free rate plus the company's perceived risk of default.

4. The appropriate discount rate to use in discounting the cash flows of a debt security with no call provisions in a privately-held company is:
   a. The yield to maturity
      A is Correct—The yield to maturity is the appropriate discount rate to use as it provides the internal rate of return of the cash flows assuming that the debt is held to maturity.
   b. The coupon interest rate
      Incorrect—The stated interest rate represents the original cost and it does not take into account the debt security's market value.
   c. The risk-free rate
      Incorrect—The risk-free rate does not take into account the company's risk of default.
   d. Yield to worst
      Incorrect—The question stated that it was assumed that the debt is non-callable.

5. Convertible securities can be exchanged for common shares of the issuing company. This type of securities includes:
   a. Class B stock
      Incorrect—Class B stock is a type of common stock with additional voting rights.
   b. Phantom stock
      Incorrect—Phantom stock confers to the holder the right to a cash payment, not conversion into common shares.
   c. Founders stock
      Incorrect—Founders stock is a class of common stock that provides the holder with additional voting rights.
   d. Convertible notes
      D is Correct—Convertible debt can be converted into common shares at the occurrence of a specified event.

6. What are the suggested methods to value convertible securities?
   a. Comparable transactions
      Incorrect—It would be difficult to find transactions involving securities with exactly the same characteristics (conversion features, price of underlying stock, etc.) as the subject convertible security.
   b. Straight security plus an option
      B is Correct—This method takes into account the current market value of the security plus the conversion feature (valued as an option).
   c. Value of conversion
      Incorrect—This method ignores the interim cash flows provided by the convertible security.
   d. Capitalization of earnings
      Incorrect—This method ignores the conversion feature.

7. Which of the following are key features of stock options?
   a. Strike price, volatility, yield to maturity
      Incorrect—The yield to maturity is a feature of debt securities.
   b. Volatility, risk-free-rate, earnings per share
      Incorrect—Earnings per share is a feature of common stocks.
   c. Maturity, dividend yield, equity risk premium.
      Incorrect—The equity risk premium is a feature of the cost of equity.
   d. Strike price, volatility, time to expiration
      Correct—These are three key features of stock options, the other two being the price of the underlying stock and the risk-free rate.

8. Which of the following models are commonly used to value stock options?
   a. Black-Scholes, Binomial, Adjusted Present Value
      Incorrect—Adjusted Present Value is a model used to analyze a project's cash flows.
   b. Discounted Cash Flow, Binomial, Quadratic Approximation
      Incorrect—DCF is an analytical method to discount cash flows at their cost of capital.
   c. Black-Scholes, Binomial, Quadratic Approximation
      C is Correct—These three models are accepted methods to value stock options.
   d. Black-Scholes, Quadratic Approximation, Economic Value Added
      Incorrect—Economic Value Added is a method of estimating a company's net profits by deducting the opportunity cost of the capital employed.
   e. Binomial, Black Scholes, Three-Stage DCF
      Incorrect—A three-stage DCF model utilizes different cash flow growth rates for each stage in the cash flow forecast.

9. Which of the following statements is true regarding the Black-Scholes model?
   a. It calculates the value of a put option
      Incorrect—The Black-Scholes model calculates the value of a call option.
   b. Can only be used to value marketable options
      Incorrect—The Black-Scholes model can be used to value marketable and non-marketable options.
   c. The basic model is for dividend-paying stocks
      Incorrect—The basic model is for non-dividend paying stocks.
   d. It requires five inputs: current stock's price, option's exercise price, the risk-free rate, the stock's volatility and the option's time to expiration
      D is Correct—All these inputs are required to calculate the value of an option using the Black-Scholes model.

10. What two key characteristics of preferred stock make them attractive to investors in startups and middle market businesses?
    a. Preferred dividends and voting rights
       Incorrect—Preferred stock usually has no voting rights (unless voting provisions have been negotiated). Preferred dividends in startups and most middle market companies are cumulative and paid-in-kind rather than in cash.
    b. Liquidation preference and anti-dilution protection
       B is Correct—Preferred stock shareholders get paid ahead of common shareholders in the event of a company liquidation or liquidity event and are protected from dilution in situations involving a financing round based on a lower valuation.
    c. Participation along with common shareholder on company profits and registration rights
       Incorrect—Only participating preferred stock has this benefit and there is usually a participation cap. Registration rights are not the primary reason why investors favor preferred stock as an investment vehicle.
    d. Pay-to-play and drag along rights
       Incorrect—Although these two features are common characteristics of preferred stocks, they are not the primary reason for investors to prefer them as investment vehicles in startups and middle market companies.

11. The primary method of valuing preferred stock in startups and middle market companies is:
    a. Analysis of comparable transactions
    Incorrect—The preferred stock issued by startups and middle market companies is illiquid and has no trading market.
    b. Applying a discount factor to the value of common shares
    Incorrect—Preferred stock has many characteristics that differ from common stock (in addition to seniority) making them not equivalent.
    c. Using the Black-Scholes model
    Incorrect—Although the security can be redeemed at the option of the holder, preferred stock is not a derivative security and thus it cannot be valued as an option.
    d. Using a discounting method
    D is Correct—the value of preferred stock is determined by calculating the present value of its earnings stream (preferred dividend) discounted at a market-based rate of return (dividend yield).

12. Which regulatory guideline governs the valuation of preferred stock?
    a. IRS Revenue Ruling 59-60
    Incorrect—RR 59-60 provides guidance on how to value privately-held businesses.
    b. IRS Revenue Ruling 83-12
    B is Correct—RR 83-120 describes the analytical tools for the valuation of privately-held preferred stock aimed at determining the subject company's ability to pay its dividend yield and its liquidation preference.
    c. ARM 34
    Incorrect—ARM 34 introduced the "excess earnings method" of valuing businesses after the enactment of "prohibition."
    d. IRS Revenue Ruling 77-287
    Incorrect—RR 77-287 provides guidance on how to value restricted stock.

13. Dual class voting stock structures (voting – non-voting) are used by companies because they:
    a. Allow the executive team to better compensate employees for achieving short-term objectives
    Incorrect—Dual voting structures are more suited to create focus on long term objectives.
    b. Increase the company's valuation
    Incorrect—What changes is how the company's value is allocated between voting and non-voting stock, not the value.
    c. Allow the concentration of the degree of control associated with an ownership interest
    C is Correct—Dual voting stock structures enable the concentration of the degree of control.
    d. Result in higher dividends for the voting stock
    Incorrect—Voting and non-voting stock have the same attributes except for the ability to vote.

14. Which of the following factors impact the lack of voting rights discount?
    a. The company's effective tax rate
    Incorrect—The lack of voting rights has no effect on the company's tax rate.
    b. Current market conditions
    Incorrect—Market conditions have no effect on a stock's lack of voting rights.
    c. Weak management
    C is Correct—At companies with weak management, voting shares will be valued at a premium over non-voting shares.
    d. Form of incorporation
    Incorrect—A company's form of incorporation has no effect on the value of non-voting shares.

15. Which of the following factors indicate the presence of "enterprise" goodwill?
    a. More than one owner, especially non-employee owners
    A is Correct—Several owners (particularly non-employee owners) may indicate the presence of "enterprise" goodwill.
    b. Few investments in tangible assets
    Incorrect—The lack of investments in tangible assets may indicate the presence of "personal" goodwill.
    c. No pre-existing non-compete agreements
    Incorrect—The absence of non-compete agreements may indicate the presence of "personal" goodwill.
    d. Business name is the same as the owner's
    Incorrect—A business name similar or identical to the owner's may indicate the presence of "personal" goodwill.

APPENDIX II

SPECIAL PURPOSE VALUATIONS STUDY GUIDE

PowerPoint Slides

Business Valuation Training

Day 5

Special Purpose Valuation

Consultants' Training Institute

DISCLAIMER

The information contained in this presentation is only intended for general purposes.

It is designed to provide authoritative and accurate information about the subject covered. It is sold with the understanding that the copyright holder is not engaged in rendering legal, accounting, or other professional service or advice. If legal or other expert advice is required, the services of an appropriate professional person should be sought.

The material may not be applicable or suitable for the reader's specific needs or circumstances. Readers/viewers may not use this information as a substitute for consultation with qualified professionals in the subject matter presented here.

Although information contained in this publication has been carefully compiled from sources believed to be reliable, the accuracy of the information is not guaranteed. It is neither intended nor should it be construed as either legal, accounting, and/or tax advice, nor as an opinion provided by the Consultants' Training Institute (CTI), the National Association of Certified Valuators and Analysts (NACVA), the Institute of Business Appraisers (IBA), the presenter, or the presenter's firm.

The authors specifically disclaim any personal liability, loss, or risk incurred as a consequence of the use, either directly or indirectly, of any information or advice given in these materials. The instructor's opinion may not reflect those of the CTI, NACVA, IBA, their policies, other instructors, or materials.

Each occurrence and the facts of each occurrence are different. Changes in facts and/or policy terms may result in conclusions different than those stated herein. It is not intended to reflect the opinions or positions of the authors and instructors in relation to any specific case, but, rather, to be illustrative for educational purposes. The user is cautioned that this course is not all inclusive.

The Consultants' Training Institute (CTI) is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be submitted through its web site: learningmarket.org.

Day 5 - Learning Objectives

I. Identify the key challenges, requirements and nuances in conducting a valuation analysis for litigation purposes.

II. Understand the techniques commonly used in valuing certain assets such as intangible assets, stock options and preferred stock.

III. Explain the difference and key considerations in the valuation of voting vs. non-voting stock and personal vs. professional goodwill.

IV. Identify the steps in the analysis and valuation of a company in a typical valuation engagement.

V. Apply the three main valuation approaches: Assets, Income and Market in a valuation analysis.

VI. Describe the key sections of a valuation report and how to connect the narrative to the quantitative analysis.

VII. Explain the process of reconciling the different indications of value in the valuation analysis.

Agenda

I. Intangible assets

II. Debt securities

III. Convertible securities

IV. Stock options

V. Preferred stock

VI. Voting vs. non-voting stock

VII. Personal vs. enterprise goodwill

Section I

Valuing Intangible Assets

Valuing Intangible Assets

Key Considerations

- A company's ability to grow its earnings in competitive markets is mainly due to the nature and sustainability of its competitive advantage.
- Competitive advantage => revenue enhancements, cost reductions or barriers to competition.
- Intangible assets include patents, copyrights, proprietary processes, customer lists, goodwill and favorable contracts among others.

Valuing Intangible Assets

Key Considerations (cont.)

- intangible assets may or may not appear in a company's balance sheet.
- GAAP: certain costs of developing and maintaining intangibles are expensed as incurred.
- if intangible assets are purchased, they are carried at cost and amortized over their useful life.

Valuing Intangible Assets

Intellectual Property

- IP => special classification of intangible assets.
- Enjoy special legal recognition and protection both in federal and state statutes.
- Their creation can be attributed to the activity of a specific individual(s).
  - **Creative intellectual property** (e.g. copyrights, trademarks)
  - **Innovative intellectual property** (e.g. patents, trade secrets)

Valuing Intangible Assets

Analysis

When evaluating intangible assets…

- Does it have value in the marketplace? (i.e. someone would want to buy it or licensing it)
- Can it bring to the subject company a competitive edge (e.g. higher growth, improved margins)
- Where is the asset in its lifecycle (e.g. inception, high growth, maturity)

Valuing Intangible Assets

Valuation

intangible assets can be valued either in aggregate or individually:

- Aggregate Methods
  - **Allocated value in arms-length bargaining** (involves IRC section 1060 where assets are allocated in seven classes).
  - **Residual value** (quantification of goodwill => purchase price less the market value of tangible assets less intangible assets subject to amortization).
  - **Earnings-based approach** (capitalization or discounting of earnings attributable to intangibles).

Valuing Intangible Assets

Valuation (cont.)

- Individual Methods
  - **Market approach** (focuses on identifying arm's length transactions involving the sales of similar intangible assets).
  - **Income approach** (capitalizing or discounting the income stream from the intangible asset; methods include: DCF, capitalization of excess earnings, relief from royalty method, and postulated loss of income method).
  - **Cost approach** (replacement cost new less physical deterioration less curable functional and technological obsolescence).

Valuing Intangible Assets

Remaining Useful Life

- Legal life (document)
- Contractual life (document)
- Statutory/judicial life (document)
- Physical life (engineering)
- Functional life (engineering)
- Technological life (technical)
- Economic life (engineering)
- Actuarial mortality life

Valuing Intangible Assets

Governing Framework

The valuation of intangible assets is governed by the following financial accounting and reporting frameworks:

- **ASC 820:** Intangible assets and fair value measurements.
- **ASC 350:** Accounting for acquired intangible assets.

Section II

Valuing Debt Securities

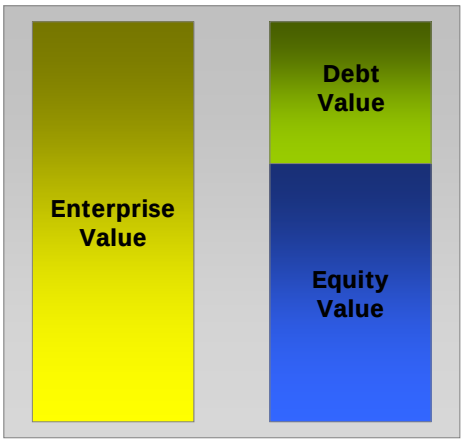
Valuing Debt Securities

Key Considerations

- A critical component in the valuation analysis is the valuation of debt securities in the company's capital structure.
- Challenge: when there are no readily observable market values, their value must be estimated.
- The value of the debt in a privately-held company is calculated by discounting its related cash flows at a rate that takes into account both the risk-free rate and the company's risk of default.

Valuing Debt Securities

Calculating Equity Value



PV of CFs to Total Invested Capital

PV of CFs to Debt Holders

PV of CFs to Equity Holders

Includes Common, Preferred Stock, Minority Interest

Valuing Debt Securities

Debt Valuation Process

1. Determine the **future payments** to be generated by the debt security.
   - The timing and amount of future payments may be affected by features such as conversion privileges, call provisions or zero-coupon characteristics.
   - Other attributes such as sinking fund provisions, collateral pledges, zero coupon features, convertibility and income tax status will have an effect on the security's cash flow, and therefore, on its value.

Valuing Debt Securities

Debt Valuation Process (cont.)

2. Determine the **yield to maturity** (YTM)
   - involves a **ratio analysis** of the subject company.
   - Ratios are compared with ratios calculated by Moody's or S&P over same period and industry to determine credit ratings.
   - Select specific publicly traded debt securities similar in **debt rating** and characteristics to the subject company.
   - Develop an opinion as to the risk of the payments of the subject company compared to the guideline companies.

Valuing Debt Securities

Moody's Rating Criteria

- **Software Industry**

Grid Factors	Factor Weighting	Sub-Factors	Sub-Factor Weighting
Business Profile	25%	Product Line Diversity	5%
		Geographic Diversity	5%
		End-Market Diversity	5%
		Market Share	10%
Scale	15%	Revenue	10%
		Free Cash Flow	5%
Profitability	10%	Operating Income ROA (Net of Cash + Marketable Securities)	10%
Leverage and Coverage	30%	Debt/EBITDA	10%
		(EBITDA-CapEx)/ Interest Expense	5%
		Free Cash Flow/Debt	10%
		(Cash + Marketable Securities) / Debt	5%
Financial Policy	20%	Financial Policy	20%
Total	100%	**Total**	100%

Source: Moody's Analytics

Valuing Debt Securities

Moody's Rating Criteria (cont.)

Software Industry – Business Profile (25%)

	Sub-Factor Weight	Aaa	Aa	A	Baa	Ba	B
Product Line Diversity	5%	Operates in all 3 Primary industry segments with a broad portfolio in each	Operates in all 3 Primary segments, with a broad portfolio in 2 and a limited portfolio in 1	Operates in all 3 Primary segments, with 1 broad and 2 limited or, Operates in 2 Primary segments with a broad portfolio in each	Operates in 2 Primary segments with a broad portfolio in 1 and limited in the other	Operates in 2 Primary segments with a limited portfolio in each or Operates in 1 Primary segment with a broad portfolio in that segment	Operates in 1 Primary segment with a limited portfolio within that segment

Source: Moody's Analytics

Valuing Debt Securities

Moody's Rating Criteria (cont.)

Software Industry – Scale (15%)

	Sub-Factor Weight	Aaa	Aa	A	Baa	Ba	B
Revenue (USD Billion)	10%	≥$60	$30 - 60	$15 - 30	$3 - 15	$0.75 - 3	$0.25 - 0.75
Free Cash Flow (USD Billion)	5%	≥$12.5	$7.5 - 12.5	$3.75 - 7.5	$0.75 - 3.75	$0.1875 - 0.75	$0.0625 - 0.1875

Source: Moody's Analytics

Valuing Debt Securities

Debt Valuation Process (cont.)

3. **Discount** the debt securities cash flows using the yield to maturity as the discount rate.
   - The application of a **discount for lack of marketability** is not required since interest payments and principal are a contractual obligation and received by the security holder regardless of the security's marketability.

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n}$$

Section III

Valuing Convertible Securities

Valuing Convertible Securities

Key Considerations

- Convertible securities represent a **"hybrid" type of securities** that combines elements of straight debt and common equity.
- Pay a **fixed interest or preferred dividend** on a periodic basis and **can be exchanged** into common shares of the issuing company.
- Lower the cost of borrowing for issuing companies by providing the security holder an upside based on the appreciation of the issuer's common stock.

Valuing Convertible Securities

Valuation Methods

Convertible securities are valued through two primary methods:

a) **Straight security plus an option** – the convertible security is valued as a straight bond or preferred stock with an embedded option to purchase the issuer's common stock at the conversion price.

b) **Enhanced common stock** – the convertible security is valued as common shares equivalent enhanced by additional current income over a given time horizon.

Valuing Convertible Securities

Valuation Methods (cont.)

a) **Straight security plus an option**

Assume a five-year convertible bond with semi-annual coupon payments of 5% (the current yield to maturity of a B+ rated bond is 8%) convertible into 30 common shares currently trading at $50 per share.

Value of straight bond (DCF) = $878.34

Value of option (Black-Scholes) = $795.90 (see next slide)

Value of convertible bond = **$1,674.24**

Valuing Convertible Securities

Valuation Methods (cont.)

a) Straight security plus an option

Value of option (Black-Scholes) = **$795.90**

- Stock price = $50 (current trading price per share)
- Strike price = $33.33 ($1,000/30 shares)
- Maturity = 5 years
- Risk-free rate = 2% (5-yr. T-Bond)
- Volatility = 43% (σ of the stock's returns)

Value per option = $26.53

Value of option = $26.53 x 30 shares = **$795.90**

Valuing Convertible Securities

Valuation Methods (cont.)

a) Enhanced common stock

Assume a five-year convertible bond with semi-annual coupon payments of 5% (the current yield to maturity of a B+ rated bond is 8%) convertible into 30 common shares currently trading at $50 per share.

Conversion value = $50 x 30 shares = $1,500

PV (semi-annual payments of $25 @ 8%) = $204

Implied value of convertible bond = **$1,704**

Valuing Convertible Securities

Valuation Methods (cont.)

	Premium Over Par
Straight security plus an option	67%
Enhanced common stock	70%

The convertible security would be expected to trade somewhere between 167% and 170% of par value

Valuing Convertible Securities

Marketability Discount

If the common shares to be received in conversion are non-marketable (privately held or restricted):

- Apply a marketability discount to the value of the common shares.
- A premium for illiquidity would be added to the yield to maturity for the fixed income component of the convertible.

Section IV

Valuing Stock Options

Valuing Stock Options

Key Considerations

- Many privately-held businesses issue stock options as part of incentive compensation plans for their employees or in raising capital.
- Options confer to the holder the right to buy the company's stock at a predetermined price under certain circumstances.
- Their value depends on the behavior of the underlying stock making them a "derivative" security.

Valuing Stock Options

Options Fundamentals

- Stock options are categorized as either:
  - **Calls** – confer to the holder the right but not the obligation to ***buy*** the underlying stock under certain conditions.
  - **Puts** – confer to the holder the right but not the obligation to ***sell*** the stock the underlying stock under certain conditions.

Valuing Stock Options

Options Fundamentals (cont.)

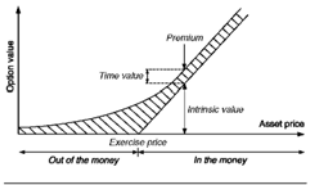
- Depending on when a stock option can be exercised:
  - **American-style options – can be exercised at any time prior to the option's expiration**
  - **European-style options – can be exercised only at expiration**.

Most publicly traded options in the U.S. are American-style options

Valuing Stock Options

Options Fundamentals (cont.)

- The value of a stock option involves two components:
  - **Intrinsic Value –** is the difference between the stock's value and the exercise price (i.e. the price at which the option holder can purchase the stock).
  - **Time value –** is the present value of the difference between the value of the stock at the option's expiration date and the exercise price.

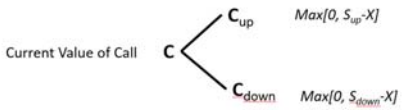


Valuing Stock Options

Option Valuation Models

There are two valuation models commonly used to value stock options:

- Black-Scholes $C = SN(d1) - Ke^{-rT}N(d2)$
- Binomial



Valuing Stock Options

Option Valuation Models (cont.)

Black-Scholes Model

- Most widely used stock option valuation model.
- Developed by Fisher Black and Myron Scholes in 1973.
- It is used to value both marketable and non-marketable call options.

Valuing Stock Options

Option Valuation Models (cont.)

Black-Scholes Model

Requires five inputs:

1. The current stock price
2. Time to expiration of the option
3. The option's exercise price (also known as "strike price")
4. The risk-free rate
5. Volatility of the underlying stock

Valuing Stock Options

Option Valuation Models (cont.)

Black-Scholes Model

$$C = SN(d1) - Ke^{-rt}N(d2)$$

C = call option value
S = current value of the underlying stock
K = option's strike price
t = time remaining to expiration of the option
r = risk-free rate
D(*) = cumulative standard normal density function
σ = standard deviation of the stock's return

$$N(d1) = \frac{\log\left(\frac{S}{K}\right) + \frac{(r+\sigma^2)}{2}t}{\sigma\sqrt{t}}$$

$$N(d2) = \frac{\log\left(\frac{S}{K}\right) + \frac{(r-\sigma^2)}{2}t}{\sigma\sqrt{t}}$$

Valuing Stock Options

Option Valuation Models (cont.)

Black-Scholes Model

$$C = SN(d1) - Ke^{-rt}N(d2)$$

S = $50.0
K = $33.3
t = 5 years
r = 2%
σ = 43%

d1 = 1.0065
N(d1) = 0.8429

d2 = 0.045
N(d2) = 0.5179

Call Value = $26.53

1-N(d2) indicates the probability that the option will be "in the money" K > S

Valuing Stock Options

Option Valuation Models (cont.)

Binomial Model

- Assumes the value of a stock can have two possible values at the end of any future discrete period.
- In a one-period model, the call price will be either C_{up} or C_{down} depending on the stock price's movement
- As the option's time to expiration is divided into smaller intervals the lattice valuation equation approaches the continuous-time valuation equation of the Black-Scholes model.

Valuing Stock Options

Accounting Standards

The valuation of stock options is governed by the following accounting standards:

- **ASC 718:** Accounting for Stock Based Compensation

Section V

Valuing Preferred Stock

Valuing Preferred Stock

Key Considerations

- Many privately-held companies, particularly startups, are financed with a combination of equity securities broadly categorized as common and preferred stock.
- There are two characteristics of preferred stock that makes it attractive to investors in startups: **liquidation preference** and **anti-dilution protection**.
- Preferred stock pays a fixed dividend that must be paid before any dividend can be paid to common stockholders thus acting basically as debt.

Valuing Preferred Stock

Valuation Process

- The value of preferred stock is determined by calculating the **present value of its earnings stream** (preferred dividend) discounted at a market-based rate of return (dividend yield).
- The appropriate required dividend yield for the subject company's preferred stock is a function of its risk.
- Ratio analysis is commonly used to determine the likelihood of investors receiving future preferred dividends.

Valuing Preferred Stock

Valuation Process (cont.)

Ratio Analysis

- **Fixed-charge coverage ratio**: pre-tax income plus interest expense divided by pre-tax interest expenses plus preferred dividends.
- **Return on capital**: pre-tax income plus interest expense divided by long-term debt plus preferred equity plus common equity.
- **Liquidation coverage**: market value of total assets less market value of total liabilities divided by the aggregate preferred stock liquidation value.

Valuing Preferred Stock

Valuation Process (cont.)

Determining the Dividend Yield

- Compare subject company's ratios to publicly traded companies with preferred stocks that have the same rights as the subject company (i.e. liquidation preference, redemption, conversion, voting and anti-dilution rights).
- Establish an appropriate **credit rating for the subject company** based on the ratings assigned by Moody's and/or Standard & Poor's to similar publicly traded preferred stock issues.
- Determine the **average dividend yield** for the preferred stocks in the selected credit rating category.

Valuing Preferred Stock

Valuation Process (cont.)

Determining the Dividend Yield

Exchange	Security Type	Sector	Rating Moody's	Rating S&P	Quote	Coupon Rate	Dividend Yield	Dividend Amount
AMEX	Convertible	Consumer Products	Ba3	BB+	$ 25.89	74.00%	7.40%	$ 0.93
NYSE	Convertible	Consumer Products	B1	B-	$ 50.00	7.00%	7.00%	$ 0.88
NASDAQ	Convertible	Consumer Products	B3	CCC	$ 48.52	6.75%	7.00%	$ 0.84
NYSE	Convertible	Consumer Products	B2	B	$1,280.00	6.75%	6.40%	$ 10.88
NYSE	Convertible	Consumer Products	Baa3	BBB+	$ 144.79	4.75%	5.30%	$ 1.19
NYSE	Convertible	Consumer Products	B2	B	$ 105.68	4.00%	1.90%	$ 50.00
NYSE	Convertible	Consumer Products	B2	B	$ 109.56	4.00%	1.80%	$ 50.00

Source: Preferred-Stock.com

Average dividend yield [rating: B2/B] = **3.37%**

Valuing Preferred Stock

Valuation Process (cont.)

Marketability

- Unlike common stock, preferred stock's returns are based on the cash flows generated in the form of preferred dividends, not appreciation.
- Cash flows are independent of the security's marketability.
- The discount for lack of marketability of the preferred stock of a privately-held company is different in terms of magnitude from that of common stock => deconstruct security into debt and equity components.

Valuing Preferred Stock

Regulatory Guidelines

- Established in the **IRS Revenue Ruling 83-120**.
- Describes the analytical tools (coverage ratios) for the valuation of privately-held preferred stock aimed at determining the subject company's **ability to pay its dividend yield and its liquidation preference**.
- Describes several factors affecting the value of preferred stock including: stated dividend characteristics, voting rights and redemption privileges.

Section VI

Voting vs. Non-Voting Stock

Voting vs. Non-Voting Stock

Key Considerations

- Voting and non-voting stock have identical attributes, with the exception of the ability to vote.
- In public companies, dual class voting structures allow founding shareholders the flexibility to focus on long-term strategic goals.
- In private companies, dual class voting stock is commonly used in private equity investments as preferred stock generally has no voting rights.

Voting vs. Non-Voting Stock

Key Considerations

- The difference in value between these two types of security largely depends on **the degree of control** associated with the ownership interest.
- The greater the degree of control, the greater the impact that voting rights have on the value of the stock.
- Studies on the difference in price between publicly traded voting and non-voting stock reveal that the price premium of voting stock is generally in the **3% to 5%** range (LVR discount = 2.9% - 4.8%).

Voting vs. Non-Voting Stock

Empirical Market Studies

Study	Year	Time Period	Companies	Discount
Masulis Wang, Xie	2008	1995-2003	457	2.3%
Cox & Roden	2002	1984-1999	98	10.0%
Ettleson	1999	1993-1998	40	2.7%
HLHZ	1996	1996	116	2.7%
Smith/Amoako-Adu	1995	1988-1992	81	6.0%
Zingales	1995	1984-1990	94	9.5%
O'Shea & Siwicki	1991	1989-1990	43	1.3%
SEC	1987	n/a	63	2.0%-8.0%
Lease, McConnel & Mickkelson	1983	1940-1978	30	5.2%

Source: Sout, Risius, Ross

Voting vs. Non-Voting Stock

Tax Court Cases

Case	Year	Discount
Estate of Simplot v. Commissioner, 2001 U.S. App. LEXIS 9220 (9th Cir.)	2001	0.00%
Barnes v. Commissioner, 76 T.C.M. 881	1998	3.70%
Kosman v. Commissioner, 71 T.C.M. 2356	1996	4.00%
Estate of Newhouse v. Commissioner, 94 T.C. 193	1990	0.00%
Estate of Joyce C. Hall v. Commissioner, 92 T.C. 19	1989	5.20%
Estate of Clara S. Roeder Winkler, 57 T.C.M. 373 (1989)	1989	9.10%
The Northern Trust Company v. Commissioner, 87 T.C. 349	1986	0.00%
Ahmanson Foundation v. United States, 81-2 U.S.T.C. 13,438	1981	3.00%
Wallace v. United States, 82-1 U.S.T.C. 13,442	1981	4.80%
Estate of Alvin Thalheimer v. Commissioner, 36 T.C.M. 10; 212	1977	4.40%
Estate of Alvin Thalheimer v. Commissioner, 33 T.C.M. 877	1974	5.40%
Jacob S. Kamborian v. Commissioner, 56 T.C. 847	1971	3.90%

Source: Sout, Risius, Ross

Voting vs. Non-Voting Stock

Factors Impacting Discount for Lack of Voting Rights

- **Concentration of voting ownership** – How likely it is that a block of voting shares will unlock company value?
- **Weak management** - How likely it is that a block of voting shares will cause a change in management?
- **Public vs. private companies** – Is a downward adjustment justified for the voting and non-voting stock of private companies based on the values indicated by the public markets?

Voting vs. Non-Voting Stock

Allocating Equity Value

- The most commonly used method of allocating equity value between voting and non-voting stock is called the "**sequential method**."
- Allocation Process:
  - Calculate the **market value per share** by dividing the market value of equity by the total number of shares outstanding (voting and non-voting).
  - Apply a **discount for lack of voting rights** to the market value per share to arrive at the market value per share (non-voting).

Voting vs. Non-Voting Stock

Allocating Equity Value

Example

Assume a company with a dual-class stock capitalization structure has a market value of equity of $63 million. Currently, there are one million voting shares and five million non-voting shares outstanding.

Based on a public market analysis, the valuation analyst estimates that a reasonable premium for voting rights is 5%.

$$LVR\ Discount = 1 - \frac{1}{(1 + Voting\ Rights\ Premium)}$$

LVR Discount = 1- 0.952 = 4.76%

Market value per share (voting) = $63M / 6M = $10.50

Market value per share (non-voting) = $10.50 x (1 – 0.476) = **$10.00**

Section VII

Personal vs. Enterprise Goodwill

Personal vs. Enterprise Goodwill

Key Considerations

- Goodwill describes a single asset or a bundle of intangible assets that enables a business to earn a return on investment in excess of its cost of capital.
- The intangible asset could be the result of a number of factors not separately identifiable such as brand name, reputation and customer loyalty.
- Goodwill is considered to be marketable if the earnings it generates will continue in the future independent of the time and effort involved.

Personal vs. Enterprise Goodwill

Key Considerations (cont.)

- **Professional (personal) goodwill** attaches to the personal efforts of an individual. It is considered to be difficult to transfer, if at all.
- **Enterprise (practice) goodwill**, attaches to the firm, and thus, it can be institutionalized.

Personal vs. Enterprise Goodwill

Allocating Goodwill

- Currently, there are **no accepted method** of separating goodwill into personal and enterprise components.
- Certain **factors distilled from court cases** indicate the presence of either personal or enterprise goodwill.

Personal vs. Enterprise Goodwill

Allocating Goodwill (cont.)

Factors indicating the presence of **enterprise goodwill**:

- A large business with formalized institutional structures.
- Not heavily dependent on personal services.
- Significant investments in tangible assets.
- Employees have employment contracts and/or non-compete agreements.
- More than one owner, especially non-employee owners.
- Firm sales result from the business name recognition, sales force, sales contracts, and other firm-owned intangibles.
- The firm has supplier contracts and formalized production methods, patents, copyrights, and business systems.

Personal vs. Enterprise Goodwill

Allocating Goodwill (cont.)

Factors indicating the presence of **personal goodwill**:

- Business name is same or similar to owner.
- Business is highly dependent on the professional's skills and relationships.
- No pre-existing non-compete (an employee transfers the personal goodwill to the enterprise through the non-compete).
- Personal service provided by the professional is an important feature of the company's revenues.
- Revenue dependent on the professional's relationships.
- Product/service knowledge rests with the professional.

Personal vs. Enterprise Goodwill

Valuing Personal Goodwill

- Arguments in favor of personal goodwill are similar to those involving a key person discount.
- Valuation analyst needs to determine why client loyalties lie with individual professionals.
- Particular attention should be placed on sources of revenue such as client referrals, personal referrals and marketing efforts.

Personal vs. Enterprise Goodwill

Valuing Personal Goodwill (cont.)

- Valuing personal goodwill is similar to valuing a **non-compete agreement**.
- it is important to determine the ability and willingness of the professional to compete with the firm by examining:
  - The professional's expertise in the industry,
  - The professional's relationships with clients, suppliers and referral sources.
  - The duration, geography and scope of the restrictions to compete.

Personal vs. Enterprise Goodwill

Best Practices

- Thorough analysis of personal/enterprise factors derived from court cases.
- Quantification of revenue generation/referral sources.
- Use of vetted industry methods such as DCF with/without and excess earnings method.

Special Purpose Valuation

Questions?