

{What's it worth?}

Valuation of equity compensation

in privately owned companies

RESTRICTED STOCK, STOCK OPTIONS, PHANTOM SHARES, AND OTHER FORMS OF EQUITY COMPENSATION

The valuation of equity compensation in privately owned companies is required for a variety of purposes. These include plan design, modifications, financial reporting, taxes, regulatory compliance, transactions, redemptions, and legal disputes.

This paper discusses the valuation of equity compensation in privately owned companies. The subjects presented in this paper include:

- An Overview of Equity Plans
- Forms of Equity Compensation
- Valuation Methods

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Overview of

equity compensation plans

BASICS

An equity compensation plan is any program designed to provide participants with income tied to the value of ownership in the company where they work. Participants in an equity plan can be employees, directors, or contractors who provide services to the company. A plan can be broad based — encompassing a large number of or all employees — or it can be narrow, including only a few employees such as key management.

Compensation awarded in an equity plan can come in a variety of forms. These include stock options, restricted shares, restricted stock units, stock appreciation rights, stock purchase plans, phantom shares, or other instruments tied to the equity value of the company. The most common types of equity compensation are further described in this paper. The range of alternatives in the types of equity compensation provides flexibility in the design of a plan to accomplish a variety of objectives.

Equity compensation is provided in addition to wages, salary, bonus, profit sharing and other forms of compensation. However, equity compensation has some important differences when compared to other types of compensation. First, the award of equity compensation is a non-cash form of payment to the recipient. Participants receive an equity interest, not cash. Second, the payout on equity compensation is deferred, with the recipient receiving payment at a time, often years, in the future. Finally, equity compensation is not a fixed payment amount; its value can change over time.

Equity compensation has a number of characteristics that distinguish it from ordinary shares of stock in the company. Compensation granted as equity is for services provided to the company, usually without any cash payment from the recipient. This is in contrast to where regular shareholders will have provided actual payment or other consideration for their shares. Equity compensation can be subject to restrictions, whereas regular shareholders have full rights and value in their shares. Finally, equity compensation can have a risk of forfeiture or might never be cashed in, while regular shareholders have an established and ongoing right to the value of their shares.

PURPOSES OF AN EQUITY COMPENSATION PLAN

There are a number of reasons why private companies adopt equity compensation plans. Most equity plans are created to increase the equity value of the company and reward employees. Objectives for equity compensation plans include goals to: improve business performance; attract and retain employees; achieve business plans; assist in ownership transition; enhance cash flow; or support the culture of the company. The overall strategy for an equity compensation plan is to help enhance the wealth of both participants and shareholders.

Equity compensation plans create an exchange of value between shareholders and employees that aligns their economic interests. Each party gives up something of value now, with the expectation that they will achieve greater value in the future. For shareholders,

this means accepting a reduction in their ownership interests, with an expectation that their shares can achieve a greater value in the future. In turn, participants accept equity compensation in lieu of current cash compensation, with the anticipation it will provide a meaningful payout in the future.

Valuation is the key to this relationship between shareholders and employees because it establishes the amount of this trade off and measures the outcome. In addition, it is used for financial reporting and as the basis for determining taxes.

Features of equity compensation plans

INCENTIVES

Most equity compensation plans include features designed to increase equity value. This is accomplished through the use of incentives, focused on business value drivers, within the design of the plan. The principal value drivers targeted by equity plans are factors relating to growth, performance, and risk. An equity plan that motivates participants to achieve favorable outcomes in these areas, and provides rewards for that success, will be expected to help increase business value. A fourth category of business value driver — the external financial market or economic conditions — can have a significant effect on value. However, as this factor is outside the control of participants, this creates a challenge in its use as an incentive.

VESTING

Equity compensation is usually subject to vesting requirements. Vesting refers to the condition where equity compensation has been granted; however, its value and rights will not become fully available to the recipient until certain conditions have been satisfied. Vesting conditions provide the ability for the company to create incentives intended to help increase equity value.

Vesting incentives in private companies principally fall into the categories of service and performance conditions. Service conditions relate to a requirement that the recipient remain in employment with the company for a specified period of time. Service conditions are based on the concept that there is an advantage to retaining key individuals or reducing the cost/risk associated with staff turn-

over. Performance conditions require the recipient to accomplish certain business objectives. Performance conditions can have a variety of targets, such as to increase revenue, reduce costs, or develop new products. Performance conditions are tied to results that are expected to have a positive effect on business value drivers.

Another type of vesting is based on market conditions, such that the value of the company's shares achieves a certain price, generates a target total return, or outperforms an industry benchmark. In private companies, vesting tied to market conditions is uncommon and difficult to implement.

Once the recipient satisfies the service, performance, or market requirements, the equity compensation is deemed to be "vested." When vested, the full value represented by the award is no longer contingent. However, in a private company, even after vesting, the equity compensation may still be subject to restrictions, such as on sale or transfer. If a recipient leaves the company prior to vesting, any unvested equity compensation is usually forfeited. Equity compensation plans may also have provisions for changes in vesting upon certain events, such as a change in control.

The vesting period represents the time over which the vesting conditions are expected to be satisfied. As such, it is an important factor in determining the value of equity compensation. The vesting period defines expense recognition for the company. As further described in this paper, certain forms of equity compensation may create tax benefits

for the company. The vesting period determines when the potential tax benefits will occur and the value of those tax benefits. It also defines when equity compensation is eligible for payout and the timing of any potential cash expenditures for the company.

Equity compensation may not always vest, which usually results in forfeiture; this results in the complete loss of rights to the equity compensation by the recipient. Forfeiture most commonly occurs when vesting requirements are not met or recipients leave employment with the company prior to vesting. A risk of forfeiture lowers the perceived value of the equity compensation because it may not actually be delivered to the recipient. Although forfeiture is an implicit possibility in equity compensation, it is difficult to predict. As a result, potential forfeiture does not specifically effect the initial determination of value for equity compensation unless it can be identified with a high level of certainty.

TAXES

Compensation provided under equity plans is subject to taxation. The specifics of taxation for any particular equity compensation plan depend on a number of factors and are beyond the intended scope of this paper. However, some general concepts regarding the tax implications pertaining to the value of equity compensation can be described.

With equity compensation, the recipient is afforded either ordinary income and/or capital gains treatment on the value received, depending upon the specific type of equity compensation granted, holding periods, and other factors.

Features of

equity compensation plans (continued)

The tax obligations of the recipient do not directly impact the value of equity compensation, unless the company is somehow providing for payment of the recipient's taxes. However, the company can generally record a tax deductible expense corresponding to the value of equity compensation when it is vested and actually "received" by the employee. As a number of equity compensation instruments are non-cash, this results in a tax deductible expense for which there is no corresponding cash payment. This creates a tax benefit, or "tax shield," representing the value of the future tax savings. This tax shield increases equity value in the company by lowering the effective costs of the plan.

DIVIDENDS

Dividends are another factor that impact value. Dividends, for purposes of the discussion of private companies in this paper, include any distributions or payments to stockholders related to their ownership interests. Most shareholders in a private company, subject to the terms of the shareholder agreements, are entitled to receive dividends. As further described in this paper, certain types of equity compensation are not actual shares of stock in the company and would not normally be entitled to receive dividends. However, equity compensation plans may be designed to pay dividends or dividend equivalents on these types of equity compensation. Payment of dividends or dividend equivalents in these situations increases the value of equity compensation.

DILUTION

Dilution is an important aspect of equity compensation plans. Dilution measures the trade-off in value between the shareholders and the recipients of equity compensation. This dilution is defined as the reduction to existing shareholder interests attributed to the issuance of equity-based compensation.

There are two primary types of dilution that may occur when an equity compensation plan is implemented. The first is a reduction in the percentage ownership of existing shareholders. The second is a reduction in the value per share of existing shareholders. A third type of dilution, the dilution in reported earnings per share as the result of recording equity compensation expense, is usually not a significant consideration for privately owned companies.

Dilution in the percentage ownership occurs when additional equity instruments are issued as compensation, assuming there are no other related changes, and the percentage ownership of existing shareholders thereby declines. For example, if a shareholder owns 300 shares, and the company has 1,000 shares total outstanding, the corresponding ownership percentage is 30%. If the company then issues 150 new shares in an equity compensation plan, there are now 1,150 shares outstanding, and the percentage ownership for 300 shares is reduced to 26%.

Dilution in the value per share takes place when equity compensation is issued and an amount less than the existing value per share is received by the company. This is the expected

outcome with equity compensation, since it is awarded for services provided and usually without full payment by the recipient at grant. In this situation, there is a reduction in value per share, as there are now more shares outstanding and no change in the total equity value. For example, if the total equity value of a company is \$100,000 and there are 1,000 shares outstanding, the value per share is \$100. If 150 new shares are issued for an equity compensation plan (with no payment), there are now 1,150 shares outstanding and the value per share drops to \$87, a reduction of 13% in value per share.

Valuation of equity compensation measures the amount of this dilution. It quantifies the trade-off in value between existing shareholders and the recipients of equity compensation. The amount of value, and not percentage, dilution is the principal measure used to establish the reasonableness, and often fairness, of an equity compensation plan. Percentage dilution becomes relevant when the potential number of shares which might be issued under the equity compensation plan could have an effect on the organizational or control structure of the company.

Equity compensation plans incorporate valuation into their design to manage the dilution. As noted earlier, shareholders and recipients make this trade-off because they expect it to result in a higher value for their equity interests than might otherwise be achieved. Using the above example on a simple basis, shareholders would benefit from the dilution in value if the equity compensation plan was expected to

Features of

equity compensation plans (continued)

help increase the per-share value above \$100, or conversely protect against a decline below \$87. Recipients would benefit from equity compensation if they expect their equity interest to be worth more in the future than if they

had just received cash or another form of current compensation. The exchange of value is managed through the type of instrument, amount awarded, vesting requirements, and other design features of the plan.

Types of

equity compensation

There are basically three categories of equity compensation: (1) actual shares of stock in the company; (2) the right to purchase or receive shares of stock; and (3) an equity equivalent that is not actual shares of stock, but an instrument which derives its value from the underlying stock.

A description of the most common forms of equity compensation within these categories is provided in the following sections.

ACTUAL SHARES OF STOCK

The company can issue actual shares of stock to employees or set up a stock purchase plan (which may include a discounted purchase price) for employees

to purchase shares. The shares issued could be of any type authorized for the company. Shares issued as equity compensation often have restrictions. These restrictions can relate to vesting, sale, voting rights, dividends, or other criteria. Restrictions most commonly associated with shares issued as private company equity compensation are for vesting periods and sale/transfer rights.

The value of equity compensation awarded as actual shares of stock is equal to the price of the corresponding shares. If the shares issued as equity compensation are for a low or no payment, or at a discount to the corresponding stock value, these factors can contribute to shareholder dilution.

RIGHTS TO OBTAIN SHARES

The second category of equity compensation consists of instruments that give an employee a "right" to obtain shares. Examples of these forms of equity compensation are stock options and restricted stock units. These instruments are not awarded as actual shares but provide the opportunity for employees to obtain shares in the future.

STOCK OPTIONS

Stock options have a long history as a widely used form of equity compensation. A stock option provides the recipient with the right (but not the obligation) to acquire a certain number of shares, at a specific price (the exercise or strike price), within a defined

Types of

equity compensation (continued)

period of time. The recipient does not pay anything for the award of a stock option. The option is simply held until the recipient decides to exercise. The exercise price for a stock option used as equity compensation is usually the fair market value of the underlying stock at the grant date. If the stock price rises above the exercise price, the recipient has a gain. However, if the stock price falls below the exercise price, the recipient does not incur a loss (other than of existing gains) because there was no investment made.

Stock options used as equity compensation are generally issued for periods of five to 10 years. When an option is exercised, the employee pays the strike price and is issued shares by the company. Plans may provide for a "cashless" exercise, where the option holder effectively exercises the option and sells the shares back to the company, receiving the net difference in cash.

If the exercise price of the option is lower than the price of the underlying stock, the stock options are "in-the-money." If the price of the underlying stock is below the exercise price, the stock options are said to be "out-of-the-money." The intrinsic value of a stock option is the difference between the current share price and the exercise price when the option is in-the-money. An out-of-the-money stock option has no intrinsic value, although it is not necessarily worthless. An out-of-the-money stock option may have the option value associated with the possibility the price could rise, and the stock option be in-the-money at some time in the future. An in-the-money stock option also has a

component of option value represented by the possibility of the price increasing in the future prior to expiration. A stock option that is not exercised by its expiration is worthless.

With stock options, the expectation is that, over time, the value of the stock will rise. Then, when the option is exercised, the stock price will have appreciated above the exercise price. Stock options basically provide the right for the recipient to participate in the upside in value in the underlying shares over a specific period of time. And the holder of a stock option does not incur any loss on investment if the stock price falls below the exercise price. There can be an element of "loss" if the stock price had risen and the option was not exercised, as the recipient incurs an unrealized loss of value. However, as long as the option has not expired, then the potential exists for the stock price to recover. It should also be noted that equity stock options in private companies are not themselves traded, meaning that the option must normally be exercised in order for the recipient to obtain value.

There are two principal types of stock options used in equity compensation plans: Incentive Stock Options (ISOs, also referred to as statutory options) and Non-Qualified Stock Options (NSOs or NQSOs). All ISOs must conform to certain statutory requirements regarding exercise price, term, grant, compliance, and other features. ISOs that comply with these conditions receive favorable tax treatment. NSOs do not have specific requirements and provide greater flexibility in their structure and design. NSOs are sometimes defined as

any stock option used for equity compensation that is not an ISO. A warrant is similar to a stock option, although that term is generally applied to equity instruments granted to capital providers or investors rather than employees/service providers.

Recipients of stock options do not have customary shareholder rights (such as voting) until the stock options are exercised and the corresponding shares issued. Stock options can be subject to vesting, forfeiture, or other restrictions. Stock option vesting can be based on service, performance, or other events. Dividends are normally not paid to recipients of stock options until exercised and the actual shares are issued. However, companies may choose to pay "dividend equivalents" to recipients of stock options. Dividend equivalents are cash payments made "as if" the corresponding shares were held.

The valuation of stock options is commonly done using an option pricing method (OPM) such as the Black Scholes method or a binomial method. These methods are further discussed later in this paper. Stock options can contribute to dilution in shareholder value, as the recipient does not pay for the stock option, pays only the exercise price (when the stock value is in-the-money), and receives the full value equivalent of the underlying share. The payment required for the strike/exercise price reduces dilution, making options less dilutive than fuller value stock grants or awards. Further, stock options may not vest, be exercised, or have intrinsic value and these lower the potential actual amount of dilution.

Types of

equity compensation (continued)

Equity compensation issued as stock options to employees, once vested, may be exercised prior to expiration. This is because the recipient must exercise the option to capitalize on the value of the underlying share. The decision to exercise can be based on the level of the underlying stock price, time until expiration, income needs of the recipient, departure from services to the company, a liquidity event, or other factors. As a result, an estimate of the expected life of each stock option is required to adjust inputs for standard OPM formulas. Within the capital structure of the company, stock options provided as equity compensation are considered equity instruments.

RESTRICTED STOCK UNITS

A restricted stock unit provided as equity compensation represents the right of the recipient to receive shares of restricted stock within a specified period of time upon satisfaction of vesting provisions. Restricted stock units are more attractive to recipients than stock options because they are full value awards. Stock options require the payment of an exercise price, where restricted stock units do not. A full value award gives the recipient value no matter if the underlying stock price rises or falls (above zero). In contrast, stock options only provide value to the recipient if the corresponding stock price rises. Restricted stock units provide a win-win scenario to the recipient, as opposed to the win-lose aspect of stock options.

Like stock options, restricted stock units do not provide shareholder rights to the recipient until they are converted into the corresponding shares. Restricted

stock units on a per-unit basis have a higher value and are more dilutive than stock options because of the full value feature. However, this can mean fewer actual units might be issued, making them less dilutive to percentage ownership. Within the capital structure, restricted stock units that settle in stock are considered equity instruments, and those that settle for cash are treated as liabilities.

DERIVATIVE INTERESTS

For purposes of this paper, derivative equity interests represent a right to receive payment of an amount that is based on the value of underlying shares. Derivative equity compensation instruments are typically settled (paid) in cash, and actual shares are not issued. The underlying stock value is just a tracking price mechanism. Within the capital structure, derivatives settled in cash are valued as liabilities; and any settled in stock are valued as equity instruments. Derivative instruments may or may not receive dividend equivalents, depending upon the plan design. Like other forms of equity compensation, derivative interests may be issued subject to vesting and other restrictions.

STOCK APPRECIATION RIGHTS

A stock appreciation right (SAR) provides the recipient with participation on gains in value above a target price on the underlying shares over a specified period of time. The target price is often the value of the corresponding stock on the grant date. This makes a SAR act much like a stock option. However, a SAR has no strike or exercise price requirement, is not convertible into shares, and provides no shareholder rights.

SARs are generally settled in cash, making them similar to the cashless exercise of stock options previously described. Like stock options, SARs share only in the upside for changes in value of the corresponding stock price. If that stock price falls below the target price, the SAR has no intrinsic value (although the opportunity may exist for appreciation in the future). SARs contribute to value dilution for shareholders because they provide the recipient with the potential upside in value with no cash investment. They do not, however, contribute to potential percentage ownership dilution (unless they are settled in shares). The value of SARs is usually determined using an option pricing method. Within the capital structure of the company, SARs generally receive liability treatment.

PHANTOM SHARES

A phantom share provides a form of equity compensation that is tied to the value of the underlying stock. Phantom shares are simply a mechanism to “shadow” the value of the corresponding stock. Actual shares are not provided to the recipient. Phantom shares are full value awards and contribute to the value dilution to shareholders because they provide the recipient full share value with no cash investment. They do not, however, contribute to potential percentage ownership dilution (unless they are settled in shares). They are normally not convertible into shares and do not have shareholder rights. Within the capital structure of the company, phantom shares generally receive liability treatment.

Valuation methods

The value of equity compensation is derived from the total equity value, or market capitalization, of the company. For a private company, where shares are not publicly traded, there are a number of approaches that can be used to determine equity value. These include market, income, and in some instances, asset-based approaches.

Market approaches use information from publicly available prices on transactions involving similar companies to determine value. Market approaches used to value equity compensation include a transaction (M&A) method and a guideline public company (GPC) method.

Income approaches use the expected income and estimated required return on investment in a company to determine value. Income approaches used in equity compensation include a capitalized income method or a discounted cash flow method.

Asset approaches use the estimated value of the sum of the company's individual assets to determine value. Asset approaches include the adjusted net asset method and liquidation method. However, asset methods are used infrequently for equity compensation.

There are other methods which may be used to value equity compensation. However, this paper describes the more commonly used market and income approaches presented above. Each of these methods is further described in the following sections.

VALUATION PROCESS

In a privately owned company, the valuation process for equity compensation

presented in this paper is to select the appropriate valuation method(s) and then determine an overall value for the total business. The overall business value is referred to as the enterprise value or market value of total invested capital.

Once a market value of invested capital is determined, it is then allocated across the capital structure of the company. The process of allocation of value to the particular capital structure of the company is often referred to as a "waterfall." This is because value is allocated to the capital structure based on the hierarchy of preferences between the highest and succeeding level(s) of capital interest rights. For example, debt will have a higher claim than equity, or preferred stock will have a higher claim than common shares. Once the value has been allocated to all the capital interests, the valuation has been completed.

Ultimately, the value of equity compensation is a component of and dependent on the total market capitalization (equity) and business (enterprise) values of the company. As further discussed in this paper, there is a codependence between total equity value and the value of equity compensation, reflecting the impact of dilution and trade-off of value between shareholders and recipients.

In this paper, we first describe the process to determine a market value of invested capital and then discuss the allocation of value to total equity and equity compensation.

VALUATION DATE

The valuation of equity compensation is based on a specific date. Dates used in the valuation of equity compensation include the grant date, financial statement reporting date, vesting date, and conversion date. The grant date value is used to determine compensation expense, financial statement disclosures, compliance, and tax requirements. Valuation on the financial reporting date provides information used in the financial statement disclosures. Valuation on the vesting date may be required for tax and compensation expense reporting. Additionally, equity compensation may also be valued on a conversion date in connection with its exercise or a liquidity event.

DEFINITIONS OF VALUE

Equity compensation is governed by and subject to two specific definitions of value.

The first, referred to as "fair market value" (FMV), applies principally to tax reporting and is defined under the Internal Revenue Service Ruling 59-60 as:

"The price at which property would change hands between a hypothetical willing buyer and a hypothetical willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell, with both parties having reasonable knowledge of the relevant facts."

The second definition of value, referred to as "fair value" (FV), applies to accounting and financial reporting under United States Generally Accepted Accounting Principles (U.S. GAAP) and

Valuation methods (continued)

International Financial Reporting Standards (IFRS). It is defined under Accounting Standards Codification (ASC) Topic 718, as:

“The amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.”

The differences in interpretation and application under these respective definitions of FMV and FV continue to be subject to professional debate,

interpretation, and discussion. However, FMV can be thought to imply a transaction between two hypothetical parties where value is dependent upon an agreement between the buyer and seller. On the other hand, FV implies an exit price, or what would be received by the seller in the market as of the valuation date. This implies the value might be different from the seller’s perception and basically represent what the seller could expect to “get” in the market.

For purposes of convenience in the discussion of equity compensation within this paper, FMV and FV will be

assumed to identify the same definition of value, and any differences will not be considered significant.

A third definition value is the concept of “fair value,” which arises in litigation. It is defined as what the court determines “fair” to the parties. Rather than under a standard definition, this is determined by the individual legal matter, case law, laws of the particular jurisdiction, and what a specific court rules. This definition of value is not utilized for equity compensation outside of legal situations.

Income approaches

Income approaches to value are based on the concept of return on investment. In an income approach, specific measures of income for the company are identified and measured. Examples of income measures are cash flow, operating profit, net income, or EBITDA (earnings before interest, taxes, depreciation and amortization). When determining a market value of invested capital as

described in this paper, the appropriate income measure is cash flow to invested capital (sometimes referred to as free cash flow). Free cash flow takes into consideration operating income, non-recurring income or expense, depreciation, amortization, income taxes, capital expenditures, equity compensation expenses, working capital requirements, and excludes the effects of debt.

An expected rate of return, associated with the income measure selected, is developed. The expected rate of return is an estimated market rate, taking into account business factors such as size, industry, growth, risk, comparable market returns, and other items. Individual expected rates of return are developed for equity, debt, or other capital interests in the company.

Income approaches (continued)

The expected rates of return are then used to create a discount rate. To determine market value of invested capital, the appropriate discount rate is a weighted average cost of capital. A weighted average cost of capital takes into account the expected equity rates of return, estimated interest rates on debt, corporate income tax rate, and capital structure of the company.

When using an income approach, the discount rate is then applied to the corresponding income measure to determine a value.

CAPITALIZED INCOME METHOD

The capitalized income method is based on using historical income and a market-based discount and capitalization rate. In a capitalized income method, the historical financial results of the company over a defined period of time are used. The period of time is selected to correspond to a representative example of business operations, such as three or five years. The period selected is designed to help establish a representative base for expectations regarding future performance of the company.

To determine a market value of invested capital, the income measure of EBIT (adjusted earnings before interest and taxes) is used as a base. EBIT is calculated for each period, adjusting for any extraordinary, non-recurring, or non-operating items. The adjustments would also take into account any expenses associated with equity compensation. EBIT is then normalized using a weighting or selection of historical amounts, to estimate an ongoing level of EBIT. The

ongoing EBIT is then used to determine an ongoing free cash flow, factoring in estimates of taxes, depreciation, amortization, capital expenditures, and working capital requirements.

A weighted average cost of capital, as described above, is then used as a discount rate. The discount rate is then used to calculate a capitalization rate. A capitalization rate is based on the discount rate and an estimated long-term growth rate. The estimated long-term growth rate is intended to equal the projected annual growth rate in the free cash flow into a very long period of time as a perpetuity. The capitalization rate is then simply equal to the discount rate minus the estimated long-term growth rate. The capitalization rate is then applied to the ongoing free cash flow to determine the total market value of invested capital for the company.

DISCOUNTED CASH FLOW METHOD

Where a capitalized income method uses historical business performance, a discounted cash flow method is forward looking. The discounted cash flow method is used to determine the market value of invested capital based on the present value of the expected future cash flows of the company. To accomplish this, financial projections are used covering a reasonable period of time. The projection period can vary. It could be just a few years, or even 10 or more, but it is common to use three to five years. While it's not always possible to predict the future, financial projections rely on assumptions and estimates, with the objective to be as reasonable as possible.

The financial projections are used to develop expected future free cash flows for the business. The expected future free cash flows take into consideration the timing and estimated amounts of operating income, taxes, depreciation, amortization, working capital, capital expenditures, and other items. The projected cash flows are adjusted for any equity compensation-related payments and non-operating items.

The financial projections present the anticipated performance of the company for a finite period of time. If the business is expected to continue operations beyond the period of the projections (which is normally the case), a residual value is required. The residual value is intended to estimate the total value of the business (market value of invested capital) at the end of the projection period. The residual could be based on a perpetuity formula, hypothetical sale, or some other estimate of continuing value.

The projected free cash flow and residual value are then discounted to a present value using a weighted average cost of capital as a discount rate to determine the present value of the market value of invested capital.

Market approaches

Market approaches are based on the theory of substitution, or that the trading prices of similar items can be used to determine value. In a market approach, pricing information is developed in the form of market valuation multiples. A market valuation multiple is a ratio comparing a value to an income measure. The value measure is the numerator, and the income measure is the denominator. The result is a formula that can be used to value a company. Examples of multiples include market value of invested capital divided by revenue, EBITDA, or EBIT. The market valuation multiples obtained may then be adjusted for performance, growth, risk, or other factors before they are applied to the comparable financial performance measures of the company.

MARKET TRANSACTIONS METHOD

The market transactions method uses market pricing multiples derived from actual sale or investment transactions on comparable companies as a basis for determining value. Examples of transactions which could be used include sales, divestitures, IPOs, or private equity investments. Transactions are identified involving the sale or investment in similar companies. Available information on the transactions is screened based on industry, size, location, type, time, or other factors. The market transaction information is most useful for businesses which are reasonably comparable to the operations of the company being valued. Another criteria is having a sufficient number of transactions with adequate information to compute market valuation multiples. The data is then

assembled to create a market "index" of transactions and the corresponding market valuation multiples.

Market transactions multiples are calculated, for purposes of the approach presented herein, based on market value of invested capital and a representative measure of financial performance. The transaction price is used as a basis, and may require adjustment, to determine the market value of invested capital for the transaction. Commonly used performance measures used to calculate market valuation multiples for market transactions include sales (or revenue), EBIT, and EBITDA.

The comparable financial performance measures are determined for the company. An analysis is done to compare financial performance measures of the company and, if available, those underlying the market transaction data. The objective of this analysis is to identify differences relating to value such as in the areas of growth, performance, or risk between the company and the index data. Based on any differences identified, the market transaction multiples may then be adjusted to account for these differences. The adjusted market transaction multiples are reviewed and a representative multiple is selected. The selected market valuation multiple is applied to the company's financial performance measures to determine the market value of invested capital for the company.

GUIDELINE PUBLIC COMPANY METHOD

The guideline public company method uses market pricing multiples from

equity securities of publicly traded companies as a basis for determining value. Public companies are identified which are similar based on industry, size, location, and other factors. Information on the public companies is obtained from SEC filings, stock trading records, the public companies themselves, and other sources. One feature of using public company information is that there is a large amount of detail available, and the data is normally considered to be reliable.

The information obtained on the public companies is used to calculate market valuation multiples. The market value of invested capital of each public company is determined based on market capitalization, debt, and other components of the capital structure. Market valuation multiples are calculated based on the market value of invested capital divided by a representative measure of financial performance such as sales, EBIT, or EBITDA. The comparable financial performance measures are determined for the company. An analysis is done to compare financial performance measures of the company and those underlying the public company data, to identify differences relating to value. The market multiples may be adjusted based on comparative size, performance, or other factors. The adjusted public company market valuation multiples are reviewed, and a representative multiple, or multiples, is selected. The selected multiple(s) is applied to the company's financial performance measures to determine a market value of invested capital for the company.

Option valuation methods

The market and income valuation approaches described above are used to determine an overall market value of invested capital for the company. In addition, the valuation of equity compensation may utilize various option valuation methods. These methods are used in the allocation of equity value within the capital structure of the company. Option valuation methods provide a means to value equity compensation instruments where there is the combination of a potential change in value and alternative outcomes. Examples of equity compensation interests which use option valuation methods include stock options and stock appreciation rights. Two frequently used option valuation methods are the Black Scholes and binomial methods. These are further described in the following sections.

BLACK SCHOLES METHOD

The Black Scholes option pricing method is a commonly used method to value stock options and stock appreciation rights for privately owned companies. The formula is the result of an equation developed by Fischer Black and Myron Scholes in 1973. The Black Scholes formula takes into account the underlying stock price, the exercise price, risk free rate, volatility, dividends, and expected term of the equity compensation-related options. For use in an equity compensation plan, inputs to the Black Scholes formula may need to be adjusted for dividends or dividend equivalents and the expected term (expiration).

The Black Scholes formula requires an estimate of volatility in the price of the underlying stock. With private companies, there usually is not a sufficient history of trading activity for the actual shares to estimate volatility. In that situation, a commonly used method is to estimate volatility based on an index created using data on stock price volatility from a group of guideline public companies. Guideline public companies are selected based on general similarity to the company being valued.

The result of using the Black Scholes formula is a determination of the option value of the stock option. Conceptually, this is the value of the future possibility, and by how much, the option could be in-the-money prior to expiration.

BINOMIAL METHOD

A binomial method is a means to estimate the value of equity compensation where there is a contingency feature or the possibility of various future scenarios. It can be used to value a wide variety of instruments and features, over multiple periods, making it a commonly used tool for valuing equity compensation and capital structures. Binomial methods allow for more flexibility in defining future possibilities than the Black Scholes method, and they can also be adapted for use in valuing complex equity compensation instruments.

A binomial method determines the value of future outcomes based on probabilities and expected value at future points in time. With a binomial method, a probability weighted decision

tree (also referred to as a lattice) is constructed. For any point of time in the future, there are only two possible outcomes. For example, when the binomial method is being used to value an equity compensation stock option, the alternatives are whether the price of the underlying stock goes up or down. The future points in time where these alternatives can occur are referred to as nodes.

Probabilities are estimated for each possible outcome represented by the nodes. An expected value for each node is estimated. For an equity compensation stock option, the value at each node is the difference between the projected stock price and the exercise price (i.e., the intrinsic value). A "tree" is then constructed with the valuation date as the base and successive branches corresponding to the nodes up to the expected life of the stock option. The projected values developed in the tree are then weighted by the cumulative binomial probabilities and discounted to present value using a corresponding risk-free discount rate.

With a binomial method, the value of the stock option is then the sum of the discounted, probability-weighted future values.

Allocation of value

The market and income approaches described above are used to determine a market value of invested capital. A market capitalization, or value of the total equity in the company, must then be determined before a value for equity compensation can be reached.

To arrive at a total equity value for the company, the approach presented in this paper is to take the market value of invested capital, subtract capital debt, adjust for working capital or other items, and the remainder is the total value of equity. Capital debt will normally consider bank loans, lines of credit, capital leases, junior/subordinated debt, convertible debt, or other interest-bearing obligations. Working capital adjustments refer to amounts that may be added or subtracted from the market value of invested capital corresponding to levels of working capital which are respectively above or below amounts estimated to be necessary for the ongoing operations of the company. Other adjustments may include items such as non-operating assets or liabilities deemed not to be an essential aspect of the ongoing operations of the business.

Once the total equity value is determined, that value is then allocated amongst the various equity interests of the company such as preferred shares, common stock, warrants, and equity compensation based on their respective values.

The allocation of value begins by starting with the total equity value and then subtracting in order of preference the value of the various equity interests, including:

1. Equity compensation with liability treatment
 - a. Phantom Shares
 - b. Stock Appreciation Rights
2. Equity compensation with equity treatment
 - a. Restricted Stock Units
 - b. Non-qualified Stock Options
 - c. Incentive Stock Options
3. Warrants
4. Preferred Stock
5. Convertible (if converted) Debt
6. Convertible (if converted) Preferred Stock
7. Restricted Shares

The exact order and amounts will depend on the overall business and equity value, specific capital structure of the company, and the various terms and conditions of the individual capital interests.

In order to complete an allocation of value as presented above, a comprehensive understanding of the various rights, terms, and preferences of the various equity interests is necessary. The order of any particular interest in the waterfall allocation will depend on the specific characteristics of each respective equity instrument. In some

instances, certain convertible securities may require option valuation methods. The allocation of value can also be repetitive, where calculations must be done over several "passes" to reach a final result. This occurs when there is a codependence between various classes of equity interests. For example, the value of a common stock option is dependent upon the value of the underlying common shares, and the value of a common share is also impacted by the dilution arising from the stock option. Or, the determination of the conversion value for convertible debt depends on the value of the underlying stock. Such codependency is resolved through an iterative process of allocation, valuation, and then re-allocation until the respective values balance out.

The result of the allocation process is that after all values have been subtracted, the remaining value equals the value of common shares.

Discounts and premiums

Once an allocation to the various equity interests has been completed, it may be necessary to adjust that value for the specific features of a particular class or individual recipient's equity compensation interest. These final adjustments will relate to any premiums and/or discounts associated with control or minority ownership and/or marketability. Generally, equity compensation interests in a privately owned company will be on a minority (non-controlling), non-marketable interest basis.

Conclusion

Equity is a unique form of compensation. It offers the potential for income deferral, growth, and tax benefits. The valuation of equity compensation in private companies can present complexity due to the variety of instruments and terms, use of option pricing models, and challenges of allocating value within capital structures.

An accurate valuation is critical, as the result is used by and relied on by a number of parties. These include the recipients, management, boards of directors, auditors, capital providers, attorneys, the courts, or the IRS.

However, the primary stakeholders in the valuation equation are the shareholders and recipients. As a result, the underlying economic purpose for the valuation of equity compensation is to establish the trade-off in value, measured in dilution, between shareholders and recipients. While each expects the equity compensation plan will provide the possibility for increased value in the future, that potential is unknown. What can be determined is the value of equity compensation today, and answer the question, "What's it worth?"

About the author

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