Discount for Lack of Marketability in Preferred Financings

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The Fair Value Forum

Conceived by a small and committed group of business appraisers, the Fair Value Forum was created to address the advent of fair value accounting and its significant role in changing the standards of practice within the business valuation industry. Headquartered in the San Francisco Bay Area, but with members across the country, the Fair Value Forum gathers some 10 times each year to:

- Discuss relevant issues;
- Engage the regulatory community (the IRS and SEC);
- Publish white papers; and, ultimately,
- Elevate the practice of business valuation.

Through its collective efforts and wisdom, the FVF plays a vital role in developing and disseminating best practices among the growing population of business appraisers.

Executive Summary

With this paper, the Fair Value Forum offers up a topic for discussion surrounding the application of an implied discount for lack of marketability to recent rounds of preferred stock when solving for the implied equity value of an enterprise. This paper identifies different qualitative and quantitative approaches for determining an implied discount for preferred shares and three methods for applying this discount to both preferred and common shares when valuing common stock.

Introduction

As business appraisers, we understand that a per share equity valuation can be completed for several purposes. Over the past three to four years, the profession has seen tremendous growth in the demand for valuations of the common stock of privately held companies for tax purposes under Internal Revenue Code Section 409A ("IRC 409A"). As logic would dictate, these companies and their auditors have looked to these valuations as starting points for determining stock-based compensation under Statement of Financial Accounting Standard

No. 123R ("SFAS 123R") for financial reporting purposes. As such, several issues have surfaced with this dual use of common stock valuations.

Fair Market Value versus Fair Value

Once Statement of Financial Accounting Standard No. 157 ("SFAS 157") became effective for all companies in late 2008; a key focus has been placed on the standard of value for common stock valuations. While SFAS 157 precludes SFAS 123R, the framework for determining value based on levels of inputs has been embraced by the valuation and audit review communities as a best practice for all fair value and fair market value assignments.

Under IRC 409A, the key standard is fair market value. Published in 2004, the AICPA Practice Aid "Valuation of Privately-Held-Company Equity Securities Issued as Compensation" ("Practice Aid") states that for purposes of determining the value of common stock used for compensation the definition of "fair value" would be consistent with that of the definition of "fair market value" from Internal Revenue Ruling 59-60. While within the valuation community, the default assumption is that these two standards of value arrive at the same conclusion, many professionals have seen situations where these two values are different.

AICPA Audit and Accounting Practice Aid

The Practice Aid has received an increase in attention and importance over the last few years. Specifically, the allocation of value to common stock using an Option Pricing Method ("OPM"), as described in the Practice Aid, has evolved into one of the prominent methodologies when valuing venture capital backed companies with evolving business models and an extended term to liquidity.

Implied Enterprise Values Based on a Current Round of Financing

More recently, the desire to rely on a Level 2 input (using FAS 157 terminology) in the form of a recent preferred round of equity has led to a "back-solve" application using the option pricing model (some practitioners refer to this method as the "Reverse OPM"). Once the key inputs to the allocation model have been determined (term, volatility and risk free rate), the business appraiser can solve for the implied value of the enterprise by determining a value that results in the per share price of the last round of preferred securities.

Problem Statement

This Reverse OPM approach creates a complicated problem regarding what appears to be a simple question; at what level of value is the resulting enterprise indication-of- value? At issue is whether the solved enterprise value is at a marketable or nonmarketable level as determined by the business appraiser's conclusion of the marketability of the underlying preferred stock. Specifically, the business appraiser needs to address the following questions;

1. Is the preferred stock sold at a market price?

2. If so, does this assumption imply that the back-solved equity value of the enterprise is also a marketable value?

3. To the degree that the equity value of the enterprise is marketable, does that imply that common shares should be valued using a Discount for Lack of Marketability ("DLOM") i.e. the derived or implied value needs to

be adjusted by some incremental discount to determine the marketable or nonmarketable value of the common shares?

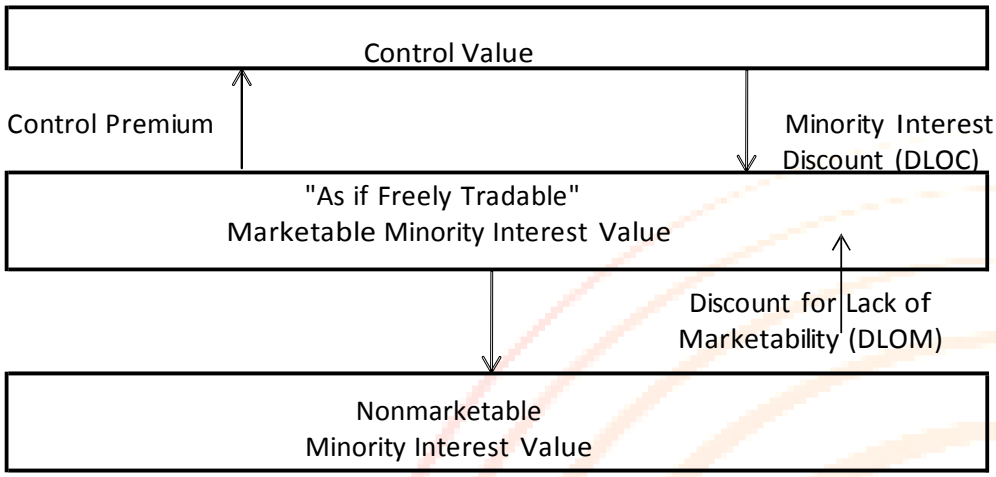
4. If so, what is the appropriate DLOM that needs to be applied in the model?

Synopsis of Approaches

Prior to any discussion on these studies and models and their application, it is necessary to clarify the following;

Levels of Value

Depending upon the valuation methodology used, the resulting value can take the form of a *control*, *marketable minority* or *nonmarketable minority* value. The American Society of Appraisers ("ASA") offers the following graphical interpretation of levels of value.[i]



Depending upon the methodology used to determine the value of the enterprise, the assumptions applied determine the level of the resulting value. The ASA again offers the following summary of this correlation between assumptions and resulting value.[ii]

Summary of How the Valuation Methodology Affects the Resulting Value

Approach/Method	Assumptions	Resulting Value
Income Approach	Control Cash Flows	Control[a]
	Minority Cash Flows	Minority Marketable
Merger & Acquisition	Control Cash Flows	Control[a] (Synergies could indicate investment value)
Guideline Public Company	Control Cash Flows	Control[a]
	Minority Cash Flows	Minority Marketable
Asset Accumulation Method	Control over assets	Control
Excess Earnings Method	Control over assets	Control

[a] if synergies are involved, could be investment value

Based on the above, the question remains; what is the basis of the implied value of equity when solved using the pricing from a preferred equity round?

Clearly, at the theoretical per-share level, the individual preferred investor owns a minority ownership interest. However, businesses that raise money through preferred equity rounds sell stakes in the business rather than individual shares. While the sale of a control ownership stake to a specific investor is not the norm, we need to recognize the reality of venture capital holdings. A lead investor, principally in charge of negotiating the price, typically receives a seat on the Board of Directors, and as such receives some level of control and influence over the governance, leadership and operations of the company. This portion of control is accounted for as part of the price paid for the preferred securities. Furthermore, the enhanced rights and liquidation preferences of preferred securities enhances their desirability, and accordingly increases their marketability relative to the common shares. However, the question remains as to the marketability of these securities.

Fair Value Forum Assessment Questions ("FVFAQ")[iii]

In answering this question, the business appraiser should analyze and understand the following facts surrounding the round of financing:

1. Was the pricing of the round arms' length?
    a. Are there new investors in this round?
    b. Is the company under any duress?
    c. What are the circumstances that prompted the company to raise additional capital?

2. What was the attractiveness of the round?
    a. How many investors were presented with the opportunity?
    b. How many formal term sheets were presented to the company?

3. What were the final terms of the round?
    a. What are the participation rights for this round of securities relative to other equity holders?
    b. How does this round of equity participate differently relative to previous rounds?
    c. Is this round of equity senior to other equity holders, or do they convert pari passu with other equity holders?
    d. Were there any side letters or arrangements for the investors?

4. Was there a presence of new investors?
    a. If so, were there any "strategic" investors?
    b. Did existing investors participate?
    c. Was participation pro-rata?

5. Was this round priced as an "up round" or a "down round" (that is, at a premium or discount to the last per share price or implied enterprise value paid)?

6. Was the deal done in "normal" market conditions?

7. Is the company in a "hot" industry and if so, how did this affect pricing as well as the demand for the investment?

For example, an up-round just completed with new investors, including a strategic investor has significantly different pricing and marketability characteristics than a follow-on round at the previous round valuation closed solely by inside investors.

The result of this analysis will help determine whether any illiquidity is accounted for in the preferred pricing. Depending on the assessment by the business appraiser, using the FVFAQ and other fundamental approaches, this basis drives the key input to the back-solve approach, specifically the use of an implied DLOM to determine the marketable per share price of the preferred and whether it needs to be "grossed up" by a DLOM.

DLOM-The Quest for the Holy Grail

In the arena of fundamental valuation, the determination of a Discount for Lack of Marketability ranks near the top of the list of hotly debated and researched topics. Empirical studies and quantitative models attempt to support one of the most subjective inputs of any valuation of a nonmarketable, minority interest. For example, the ASA lists the following empirical research and quantitative models that support various conclusions of discount:

Empirical Studies

a. **Restricted Stock Studies** – These studies address the price difference between restricted and public market trades in the same stock on the same day. These restrictions are imposed by the SEC under Rule 144. Over time as the SEC has loosened these restrictions, specifically the required holding period (to one year from two), and these studies have seen discounts decrease and become less relevant. The key weakness seen in recent studies is the number of years covered in the study (usually fewer than 2 years) and the limited dataset of transactions. Examples of this type of analysis include studies by Columbia Financial Advisors and FMV Opinions. The Columbia Financial advisors studies show

discounts between 13% and 21%, but were based on fewer than 25 transactions and completed almost a decade ago.[iv]

b. **Pre-IPO Studies** – Based on transactions filed with the SEC in the private stock of IPO candidates, this research includes the Emory, Williamette Management and Valuation Advisors studies. They are thorough but – most would argue – dated.

Quantitative Models

c. **QMDM** – This Quantitative Marketability Discount Model ("QMDM") uses a discounted cash flow approach to calculate a discount. The model is based on five key assumptions; expected growth rate in the value of the subject company, expected dividends, expected growth in dividends, the required holding period of the investment and the subject interest. The model attempts to show the difference between the cash flows available to the marketable minority interests and nonmarketable interests.

d. **Chaffe or Option Pricing Models** – One of the more commonly used methods among business appraisers given the relative ease by which auditors can review the inputs and calculations, these models utilize a Black-Scholes pricing model to determine the value of a protective put. The value of this put divided by the underlying value of the interest determines the discount. The key inputs include: the holding period of the interest, the assumed volatility of the company (either historical or implied), and the risk free rate over the term of the investment. For private companies, the business appraiser needs to reconcile the volatility input to the volatility of a publicly traded universe. This calculation is relatively easy and should be based on the professional's selection of guideline public companies used in the Market Approach.[v]

e. **Longstaff Model** - Francis Longstaff developed an analytical tool that derives a "simple analytical upper bound on the value of marketability using option- pricing theory…and shows that discounts for lack of marketability can potentially be large even when the illiquidity period is very short."[vi] Longstaff's tool is based on a look-back option approach[vii] which works on the presumption that marketability is valuable when an investor can sell an investment which will be falling in value in the future. The Longstaff look-back model assumes that an investor could time the market perfectly to sell at the highest point in the term outlined. Given that it is almost impossible to time the market perfectly, the Longstaff model represents an upper bound. Others have created derivations of Longstaff's model using Asian look-back option[viii] models using *average* market pricing over the specified term.

As outlined above, there are several key factors that affect the size of the DLOM. The ASA outlines the following factors:

1. Size of distributions during the holding period;

2. Prospects for liquidity and length of perceived holding period; and

3. Risk factors, including:
   a) Level and volatility of issuer's earnings;
   b) Size of issue; and
   c) The Mandelbaum Factors (discussed briefly below).[ix]

In the 1995 U.S. Tax Court case of *Bernard Mandelbaum, et al. v. Commissioner*, Judge David Laro outlined several factors that affect the magnitude of the marketability discount. These factors, commonly known as the

Mandelbaum Factors, look at several key inputs including but not limited to: financial statement analysis, dividend policy, management, amount of control in transferred shares and any restrictions on their transferability.

The above studies and models are theoretical approaches to the quantification of the DLOM. The following section will discuss the reality of the investment process and the dichotomy between theory and reality.

Implied DLOM for Preferred Rounds-Myth or Reality?

In certain instances, business appraisers must use theoretical studies and quantitative models to explain real-world behavior, while no such theoretical foundation may actually exist. As discussed, one notable example of the need for such application involves the necessity for the business appraiser to use quantifiable models and assumptions to explain the reasoning behind venture capital investments and the valuation set in connection with such transactions, despite the fact that, in many cases, limited quantitative analysis was used in the investment decision.

Latest Round Pricing as a Proxy

The latest round of equity investment made by a venture investor is commonly considered to be a good indicator of fair value due to its status as a Level 2 input. The most frequently used model to derive a common stock value indication is the option pricing allocation model (or "OPM"), which lends itself to "back-solving" for the implied value of the common based on the latest pricing of preferred stock. Reliance on this model as an indicator of common stock value requires that the user is comfortable that a relationship exists between the price paid for the preferred stock and the value of the common share.

For purposes of concluding a nonmarketable, minority common stock value, the business appraiser and their auditors proceed to dissect the enterprise value indication, attempting to quantify the illiquidity consideration already incorporated in the pricing of the preferred security and, by extension, in the common value indication. This approach constitutes a theoretical line of thinking, but the reality is that venture capital investors do not think in terms of liquid versus illiquid but rather in terms of holding period and all-in return. Moreover, a venture capital investor likely would not agree with the enterprise value or common stock value derived from a quantitative, theoretical model such as the OPM.

The key difference here is that a business appraiser is opining to a theoretical value between a "hypothetical willing buyer and seller" while the venture capital investor is analyzing value from the perspective of a specific purchase of preferred stock with specific rights and preferences. Below we will outline two different approaches to value as viewed by investors and business appraisers, respectively.

Venture Capital Method

The perspective of a typical venture capital investor is to think of the various equity securities in the capital structure as having the same value. This line of reasoning is rooted in the investors' desire to ultimately have their investment objective effectuate a successful IPO in which all securities convert to common stock and sold at equivalent values. For purposes of this article, let us refer to this approach as the Silicon Valley Method. Under the *Silicon Valley Method*, the equity value of the company is equal to the fully-diluted number of shares times the preferred price at the latest round.

Table A
Sample Capital Structure

Security	Shares	Common Equivalent	Purchase Price	Participation
Series A Preferred	2,500,000	2,500,000	$1.00	Participating, Capped at 3x purchase price
Series B Preferred	5,000,000	5,000,000	$2.50	Participating, Capped at 3x purchase price
Common Stock	3,000,000	3,000,000		
Common Stock Options @ $0.15	100,000	100,000		
Common Stock Options @ $0.50	300,000	300,000		
Common Stock Options @ $0.75	500,000	500,000		
TOTAL	**11,400,000**	**11,400,000**		

In contrast to the Silicon Valley Method, the OPM assigns each equity class a value based on its *quantifiable* rights and restrictions.[x] Typically, the most recently sold security is the most valuable because of its first priority in distributions, and the OPM will yield a lower equity value indication compared to the Silicon Valley Method.

An Example

The equity value of the company based on the above sample capital structure in Table A and the recently closed round of Series B preferred is $28.5 million, using a traditional venture investor calculation that does not consider differences in value among the various equity securities.[xi] However, running this capital structure through the OPM and solving for the equity value that yields a $2.50 price for the Preferred B will imply a company equity value of $19.7 million[xii], a difference of approximately 30%.

Comparative Liquidity

If the OPM produces a company value that is lower than the value that the investors have placed on the company, is it really prudent to further discount the value for perceived additional illiquidity? This question is difficult to answer because the original valuation set by the venture investor does not explicitly contemplate illiquidity.

In the absence of concrete answers, we rely on reasoning and finance theory to guide us:

- The preferred shares have certain rights that provide the investor preferential treatment over common stock in a liquidity event. Therefore, preferred securities are theoretically *more* liquid than the common securities in the same company.

- Preferred shares in a privately held entity have undoubtedly less liquidity than publicly traded securities. This second conclusion is important since business appraisers rely on data from the public markets to quantify the magnitude of the illiquidity adjustment.

And that, ladies and gentlemen, is as far as we have collectively come in the justification for additional discounting.

Myth or Reality?

It is a myth that venture capital investors explicitly contemplate, quantify and incorporate any illiquidity aspects in their pricing of potential investments.[xiii] *It is reality* that there are differences in liquidity between the preferred and the common stock in a privately held entity. Moreover, *it is a fact* that as long as we continue to use publicly traded stock data to quantify illiquidity adjustments, there will always be some modifications that must be made to our back-solved equity valuations. It is important to consider the specific circumstances of each situation and calibrate the additional adjustment to account for the difference in value perceived by the venture investor and the value indicated by the theoretical back-solved value in each case.

Current Practices

Current practice in the area of adjusting common value indications for illiquidity consists of a spectrum of methods; from a full lack of marketability adjustments to reduced discounts arrived at in different ways. Based on an unscientific survey of practitioners in the San Francisco Bay Area and beyond (all members of the Fair Value Forum whose firms' work is routinely reviewed by auditors from the Global Six accounting firms we have distilled the broad range of current practices, based on an unscientific survey of Fair Value Forum practitioner-members, to the three most commonly practiced methods.)

It should be noted that different Global Six accounting firms prefer different methods, and there is currently no generally accepted practice, even within firms. Some methods may be recognized and accepted by one firm, but rejected by another firm.

Method I – Traditional

As the valuation profession began to perform valuations adhering to both FAS 123R and IRC 409A, business appraisers began to develop generally accepted methodologies and practices. In the early days we collectively practiced the most straightforward approach, which is taking a full discount for lack of marketability on what was considered a fully illiquid security. This method often produces the lowest indication for the common stock.

As an illustration we will continue to use the capital structure from Table A. Let us assume that the "fully-loaded" DLOM from a put option calculation would result in a 32% discount. Using these assumptions, Method I would result in a non-marketable minority value for the common stock of $0.60/share.

Method I assumes that the price paid for preferred stock does not incorporate any consideration for illiquidity, and that all calculated illiquidity adjustments are incremental to the common equity as compared to the preferred equity. Consequently it is appropriate to apply a full illiquidity discount to the common value indication. *Method I* is theoretically sound given that it is possible, and even likely, that the investors who set the preferred price did not explicitly factor in discounts for lack of marketability when calculating the price they paid for preferred stock.

On the other hand, it is debatable whether the difference in marketability between the preferred stock and the common is as large as theoretical models indicate; especially since the volatilities and other data inputs used are based on public companies, which are more liquid and more volatile than preferred stocks.

Method II – Gross Up

Method II is rooted in the assumption that an equity allocation must be performed on a fully marketable equity value and a preferred share has some measure of illiquidity built into the observed transaction price. Therefore, to bring the preferred stock pricing to a marketable level, the preferred price is grossed up, i.e. increased, by the presumed adjustment already taken into account in the pricing of the preferred round. Thereafter the "marketable" preferred price is used in the "back-solver" calculation to derive a fully marketable common value. This approach allows for a full marketability discount to be taken on the common indication and often results in the highest common value indication.

Again, using the example from Table A, let us assume that half of the DLOM has already been accounted for in the pricing of the preferred B. Therefore we "gross up" the price by half of 32% to a $2.98 pricing indication.[xiv] When solving for the enterprise value, the result of an implied $2.98 value for the preferred B shares is a common price at the non-marketable value indication of $0.89/share.

The fundamental problem addressed by this approach is the issue of allocating an enterprise value that is fully marketable. All other issues remain. Most importantly, we still do not know the *degree* of illiquidity, if any, that was included in the preferred price. Qualitative factors, such as the FVFAQ discussed previously, are used to determine the gross-up factor, but the starting point can be debated. From a conservative standpoint this method is most defensible since it will result in the highest value of the common stock, and the lowest risk of an undervaluation. However, the corresponding risk is that the value of the enterprise and common stock is *overvalued*.

Method III – Adjusted DLOM

This approach is positioned between the two other methods. Similar to the Gross-Up approach, *Method III* assumes that some illiquidity is already incorporated in the preferred pricing. Rather than grossing up the preferred price, the equity value is solved for using the price actually paid in the preferred transaction. Thereafter, a partial (instead of full) illiquidity adjustment is applied to the common shares. The same challenges as in *Method II* remain; qualitative factors such as the FVFAQ must be used to determine the magnitude of the incremental DLOM adjustment, however, as it is applied to the common stock, not the preferred investment. This method usually places the common value between the values generated by *Method I* and *Method II.*

Using *Method III*, the sample capital structure that we have been using would result in a non-marketable value for the common shares of $0.74[xv] using the same adjusted DLOM, or half the calculated DLOM of 32% For this conclusion we are assuming that the other half of the DLOM that was indicated by the put option calculation was already included in the pricing of the preferred B securities.

As with most compromises, this method tends to work well because it addresses the fact that the preferred equity is not completely marketable but also does not second- guess the price actually paid by the preferred investors. Further the middle of the road value seems to be a reasoned theoretical position without violating the practitioners' ethics.

Reality

Below is a table that summarizes the results from the three different methods using the capitalization table found in Table A.

Table B
Results from Different Allocation Methods

Method	Gross-Up Adjustment	Solver	DLOM Applied	NMM Common
Method I: Traditional	0.0%	$0.88	32%	$0.60
Method II: Gross-Up	16.0%	$1.31	32%	$0.89
Method III: Adjusted DLOM	0.0%	$0.88	16%	$0.74

None of these methods is perfect. Perhaps what is most distressing is the auditors' inability to settle on one preferred method across the various firms. As outlined in Table B, the difference between the three methods is distinct.

Recommendation

Business appraisers are faced with the reality that they must know which firm will review their work before "the correct" approach, that is the approach that will be approved by the reviewer, can be chosen. However, the business appraiser should expect that if his or her work is reasonable, clearly explained, supported, and above all performed correctly, there should be no issue with the final opinion. Regardless of a reviewer's opinion of their firm's "correct" approach, we believe that the well- supported use of one of the three methods should yield a strong argument in response to any questions in review.

Endnotes

[i] American Society of Appraisers, BV 203: The Market Approach to Value, Chapter 12: Valuation Discounts and Premiums, page 292 (version 6.0, March 2008)

[ii] Ibid, page 297.

[iii] These factors are based on a set of qualitative arguments developed and originated by Cogent Valuation.

[iv] American Society of Appraisers, BV 203: The Market Approach to Value, Chapter 12: Valuation Discounts and Premiums, page 307 (version 6.0, March 2008)

[v] It should be noted that there is some disagreement among business appraisers regarding the interpretation of the put option output with regards to the indication being a floor or a ceiling discount.

[vi] "How Much can Marketability Affect Security Prices", Longstaff, Francis A., The Journal of Finance, December 1995, Volume L, No. 5, page 1.

[vii] A look-back option is defined as a call or put option whose strike price is not determined until the option is exercised. At the time of exercise, the holder can exercise the option at any underlying price that has occurred during the option's life. In the case of a call, the buyer will choose the lowest price, and in the case of a put, the buyer will choose the highest price.

[viii] An Asian look-back option is similar to a standard look-back option except that the holder can exercise the option at an average of underlying prices (given a specific averaging duration) that has occurred during the option's life.

[ix] Ibid, page 316.

[x] In reality, the only quantifiable rights that are accounted for in the model are liquidation preferences and participation.

[xi] (Fully-diluted number of shares) X (price of latest round)

[xii] Term = 2.75, Volatility = 0.55, Risk-Free Rate = 1.85%

[xiii] As of the writing of this article the current market conditions have forced a change in thinking among venture capitalists. Currently, as of the Fall of 2009 there are allowances made in the valuations of portfolio companies for the expected prolonged time to liquidity as there is no IPO market at the present. Arguably, many investments in venture-backed entities are not good indications of fair value at this time as some deals are made under distressed conditions and/or by investors that are well capitalized and can cram down existing investors through deliberately understated valuations.

[xiv] 2.50/(1-(0.5*0.32))

[xv] $0.88*(1-(0.5*0.32))