2008 Update: Marketability Discounts

A Comprehensive Analysis

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The adjustment (typically a discount) for the lack of marketability or liquidity is often the single largest and most significant amount in a valuation. Therefore, it is critical that valuators deploy a keen understanding of the nature, sources, and nuances of the marketability drivers.

The purpose of this article is to compile every significant study to date of marketability discounts and related factors in a single reference source. It updates the comprehensive analysis published in 2002,[1] and contains an updated, quantitative method for establishing a discount that is keyed to the rights and restrictions of the subject entity.

Studies are presented in five categories: restricted stock studies, pre-IPO studies, major court decisions, cost of flotation studies, and independent studies. In each category, the studies are listed chronologically, beginning with the SEC's seminal effort published in 1971 and continuing through the Pluris LiquiStat study updated in 2007.[2]

Each study is summarized for its salient findings, including mean and median discount percentages (where available), and even occasional standard deviations. Each study is cited in footnotes, so that the reader can find more specifics. Also, each study is compared to the other studies within its respective category; for example, pre-IPO studies are compared to one another (Figure 17, page 23). Finally, all the studies are compared in aggregate and presented visually (Figure 26, page 31).

The article concludes with a "multi-attribute utility analysis" model that can calibrate a subject interest's characteristics (i.e., rights and restrictions) against the evidentiary studies, thus substantiating one's confidence in an adjustment.

I. Background

Definitions

Marketability, with regard to business interests, is commonly defined as "the ability to quickly convert property to cash at minimal cost."[3]

Marketability relates to an investment's liquidity (or lack of it) relative to a comparable and actively traded alternative. To accommodate such relative difference, the "non-marketable" or "non-liquid" price of a security is discounted relative to the price of its marketable (liquid) counterpart. The discount for lack of marketability is typically stated as a percentage of a marketable value, or sometimes an absolute amount.

Therefore, a commensurate discount for lack of marketability is defined as "an amount or percentage deducted from the value of an ownership interest to reflect the relative absence of marketability."[4]

[1] "Marketability Discounts—A Comprehensive Analysis," by Darrell D. Dorrell, *The Valuation Examiner* (NACVA), March/April 2002 (pp. 23-32) and May/June 2002 (pp. 18-25).
[2] Released September 19, 2006; updated January 22, 2007.
[3] *International Glossary of Business Valuation Terms*, American Society of Appraisers, June, 2005; also *Statement on Standards for Valuation Services No. 1* (SSVS No. 1), Valuation of a Business, Business Ownership Interest, Security, or Intangible Asset, AICPA, 2007.
[4] Ibid.

Rationale for a Discount

A discount for lack of marketability may apply whether the business interest is a control or minority position. The rationale for such discount with a control interest can be succinctly stated as follows:[5]

> The controlling owner of a closely held business who wishes to liquidate his or her controlling ownership interest generally faces the following [five] transactional considerations:
> - Uncertain time horizon to complete the offering or sale
> - Cost to prepare for and execute the offering or sale
> - Risk concerning eventual sale price
> - Non-cash and deferred transaction proceeds
> - Inability to hypothecate (i.e., the inability to borrow against the estimated value of the stock)

Consequently, a discount for lack of marketability is routinely considered appropriate in small, closely held businesses. Such a discount reflects the lack of an active market for sale of the stock.

When valuing a *minority* interest, using the market approach to apply market-generated multiples to the subject company fundamentals, the discount for lack of marketability may require adjustment to reflect the control nature of such transactions. This is often true because the data retrieved from subscription data sources typically reflects the purchase of the entire business. Such a transaction, more often than not, trades at a premium over a minority ownership interest in the same company.

The U.S. Tax Court has recognized that discounts for lack of marketability are appropriate for controlling ownership interests in closely held companies. Following is an example of the rationale applied by the court:

> Even controlling shares in a nonpublic corporation suffer from lack of marketability because of the absence of a ready private placement market and the fact that flotation costs would have to be incurred if the corporation were to publicly offer its stock.[6]

If controlling interests in closely held companies must be discounted for their lack of liquidity, then minority interests are even less liquid. The rationale for such a discount with a *minority* interest is driven by many factors, including:[7]

- "Put" rights, if any
- Dividends or distributions available for minority interest holders
- Size of the potential market for buyers
- Size of the interest being valued
- Prospects for going public or being acquired
- Restrictions on transferability of the minority interest
- Relative size and financial strength of the aggregate entity
- Size of the minority interest, particularly if a "swing" vote applies
- Access to and reliability of information
- Financial statement analysis
- The nature of the company, its history, position in the industry, and outlook
- Management

The Impact of a Discount

Given two investment instruments identical in all other respects, the market will accord a considerable premium to one that can be liquidated into cash immediately, especially without risk of loss in value. Without market access (i.e., liquidity) an investor's ability to control the timing of potential gains, to avoid losses, and to minimize the opportunity cost associated with alternative investments are severely impaired. For these and other reasons, an investment in a privately held company usually is worth less than an otherwise comparable investment in a publicly traded entity.

Similarly, impairment of marketability results in illiquidity, which increases an investor's expected (i.e., required) rate of return to compensate for the lack of liquidity. The investor's rate of return threshold can be achieved by either a reduced purchase price, a demand in increased economic benefits (e.g., dividends), or some combination of both.

To quantify and justify such lack of liquidity, a prudent investor would "look to the market" to determine the most empirical and objective source of data.

Empirical and Objective Sources

The discount for lack of marketability applied by investors is based on the subject entity's facts and circumstances, and can often be substantial when compared to pre-adjusted value. Investors lacking readily applied discount factors rely on empirical studies to estimate discounts for marketability. Several studies have been completed over the years and are described below in the following five categories:

Restricted stock studies, which use transaction data ranging from 1966 through 2006, found discounts ranging from 0 to 90 percent, but tend to cluster their averages and medians around the 30 to 40 percent range. Below we describe 13 studies produced since 1971, the authors of which range from the SEC to private individuals, and which consist of nearly 1,500 transactions in total (with some duplication) over a 40-year period.

[5] *Valuing a Business*, 5th Edition, by Shannon P. Pratt, Robert F. Reilly, and Robert P. Schweihs, John Wiley & Sons, New Jersey, 2008, pp. 441-442.
[6] *Estate of Andrews v. Commissioner*, 79 T.C. 938 (1982).
[7] *Business Valuation Discounts and Premiums*, by Shannon P. Pratt, John Wiley & Sons, NJ, 2001, pg. 79; also *Valuing a Business*, 5th Edition (op cit), page 445-446.

Pre-IPO studies include data ranging from 1975 through 2006, and found discounts exhibiting averages of 44 percent and medians of 43 percent. Below we summarize studies produced by three authors, include one individual and two companies. These authors have produced about 21 studies since 1980, consisting of nearly 4,400 transactions over a 25-year period.

Cost of flotation studies quantify the impact of floating securities, thus representing the "cash" to gain liquidity. We summarize two studies from 1974 and 1987, which indicate costs of flotation of 12.4 and 17.7 percent, respectively. Note that flotation costs address only the initial flotation of securities, and do not address subsequent illiquidity differences, if any.

Independent studies have been completed by individuals to either analyze actual application of discounts or to develop more empirical methods of deriving marketability discounts.

Court decisions, while fact-specific, still provide some guidance for discount determination. Some of the more notable cases found discounts ranging from 10 to 35 percent, with the current trend towards allowing higher discounts.

II. Restricted Stock Studies

Guidance as to the proper level of the discount for lack of marketability can be found in examining studies that have approached the question from several different perspectives.

One approach is to analyze the differences in prices between publicly traded securities and those of restricted stocks of the same companies. Since a "lettered" stock[8] is identical to the traded stock in all respects except marketability, the difference in price represents the marketability discount.

Figure 1 compares the results of 13 restricted-stock studies over the relevant period. Note the range from about 20 to 45 percent, and the tight convergence of the means and medians (where available).

Figure 1: Comparison of Restricted Stock Discounts in 13 Studies

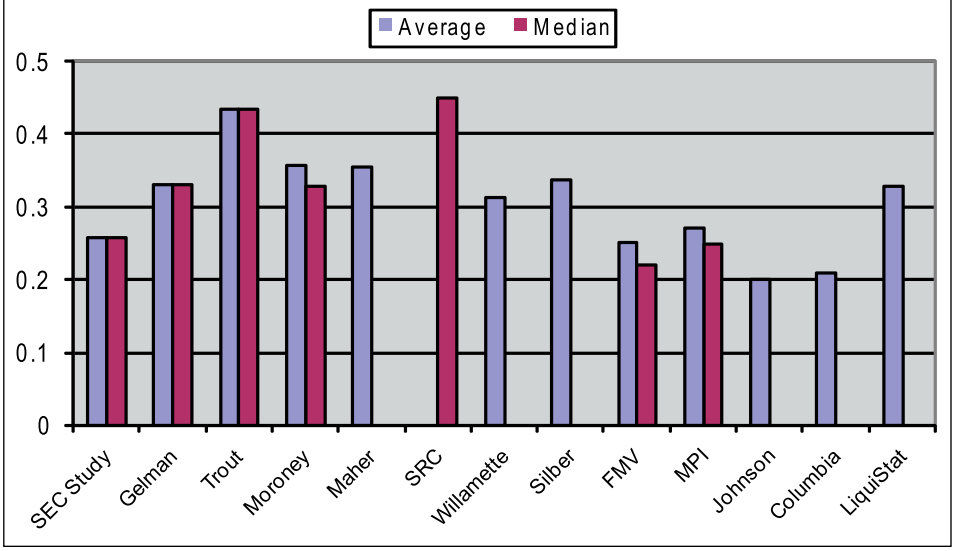
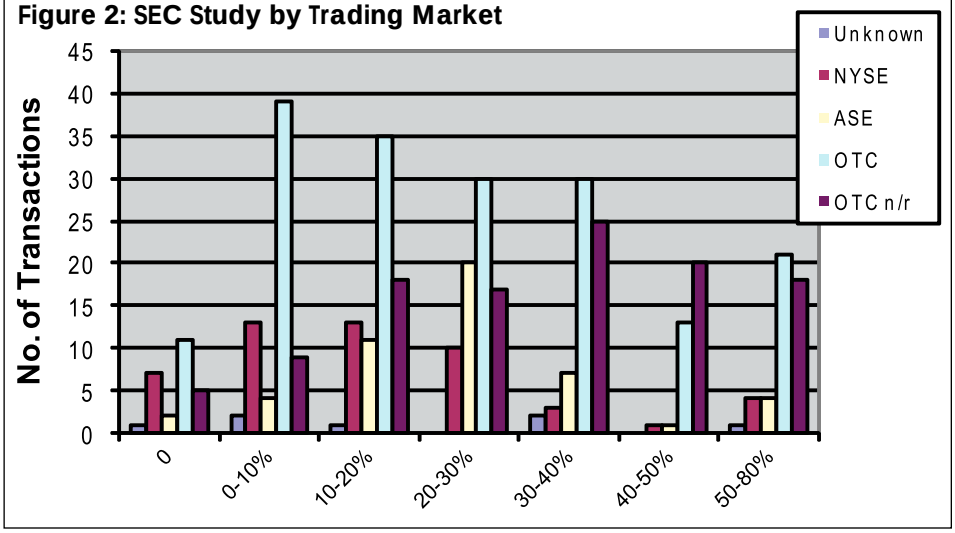


Figure 2: SEC Study by Trading Market



SEC Institutional Investor Study

The SEC study,[9] released in 1971, remains the most comprehensive restricted stock study, comprising 398 transactions from January 1, 1966, through June 30, 1969. The SEC categorized the transactions by various criteria, including these five:

1. Trading market. The differences in discounts were significant for this category. Specifically, the smallest discounts were from New York Stock Exchange (NYSE) listed stocks, with successively larger discounts for the American Stock Exchange, over-the-counter (OTC), and finally OTC non-reporting companies.

More than 50 percent of the OTC non-reporting transactions exhibited discounts exceeding 30 percent. These companies are public, but due to asset size

[8] Privately placed common stock, so-called because the SEC requires a letter from the purchase stating that the stock is not intended for resale, Campbell R. Harvey's *Hypertextual Finance Glossary*, www.duke.edu/~charvey/Classes/wpg/bfglosl.htm, June 24, 2008.

[9] SEC, "Discounts Involved in Purchases of Common Stock (1966-1969)," *Institutional Investor Study Report of the Securities and Exchange Commission*, Volume 5, H.R. Doc. N.64, part 5, 92nd Cong., 1st Session, 1971, pp. 2444-2456.

or number of shareholders are not compelled to file 10-K or other SEC reports. This category reflects companies most similar to privately held companies.

Figure 2 *(page 14)* illustrates the findings of the SEC Trading Market study. Note the clear pattern: discounts increased in correlation to the facility of the trading market. That is, OTC non-reporting companies had much greater discounts than NYSE companies.

2. Type of institutional purchaser. The differences in discounts for this category were not significant.

3. Transaction size. The differences in discounts for this category were not significant.

4. Sales of issuer. Blocks of stock from companies with smaller sales tended to sell at significantly greater discounts, as illustrated in Figure 3.

5. Earnings of issuer. The differences in discounts for this category were even more significant than in the sales-size category. Particularly, blocks of stock from companies with lower earnings exhibited greater discounts than companies with greater earnings. Figure 4 illustrates these findings (earnings are reported in millions).

Figure 3: SEC Study by Size of Issuer Sales

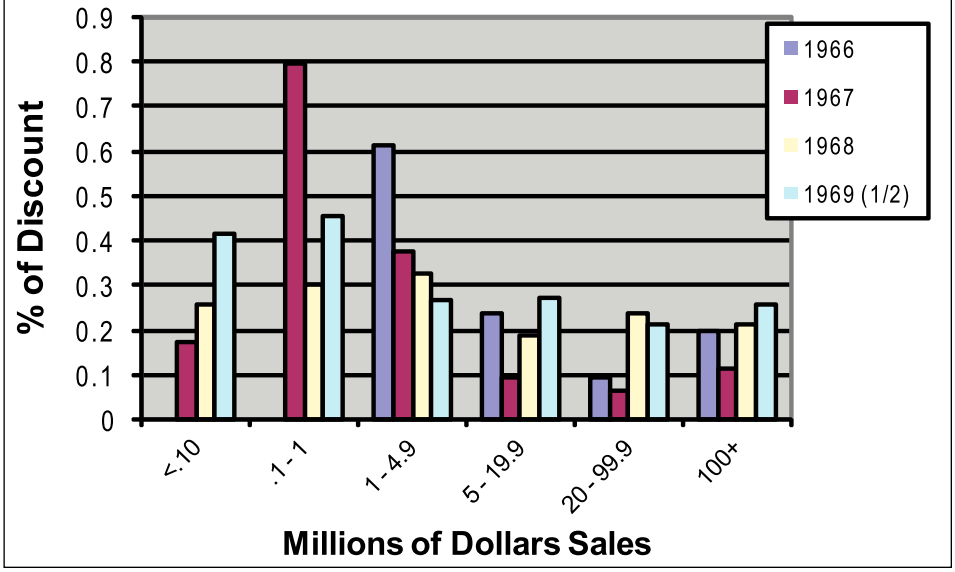
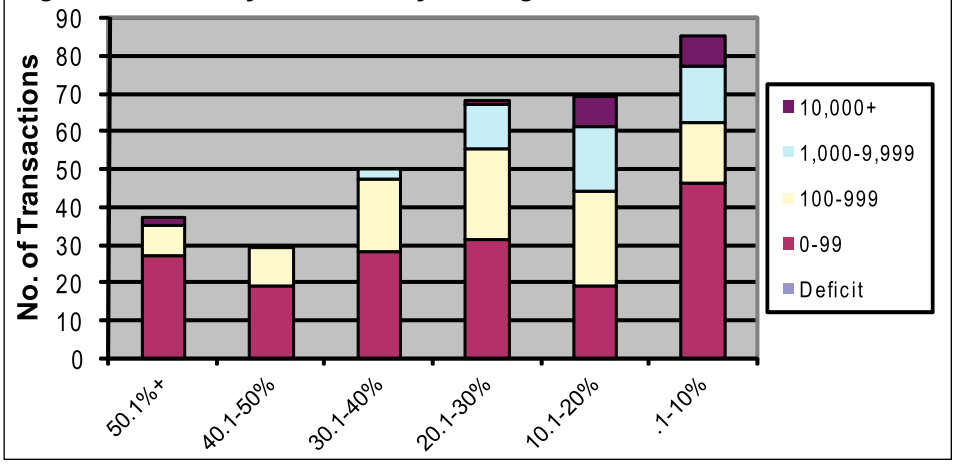


Figure 4: SEC Study Discounts by Earnings



Gelman Study

Milton Gelman, a senior consultant with National Economic Research Associates in New York, conducted a study in which he analyzed 89 restricted stock transactions executed by four investment companies over a three-year period, from 1968 to 1970.[10] Based on the nature of the underlying transactions, the blocks could be considered as non-control, or minority blocks.

The investment companies had been formed in 1968 via public offering to specialize in restricted securities investments. A significant portion of their funds were invested in "letter stock" indicated by Gelman as "precluding the sale of these shares by the purchaser for up to two years, except under the same restrictions as to marketability."

The letter stock consisted of shares of large and small companies, of both listed and OTC public companies purchased either directly from the company, or in some instances from selling stockholders.

The four specialized, closed-end companies formed in 1968 for the purpose of investing in letter stock were the following:

- Diebold Venture Capital Corporation
- Fund of Letters, Inc. (name changed to New America Fund, Inc., in December 1971)
- SMC Investment Corporation
- Value Line Development Corporation

By analyzing the financial statements and related footnotes of those four companies, Gelman could compute the discount from the respective share's market price at the time of the purchase of the share. For example, the 1970 annual report of Diebold Venture Capital indicated for each of its publicly traded letter stock investments:

- The "market value (if free)" which is the number of shares of stock held in the portfolio multiplied by the closing price at the end of 1970

[10] "An Economist-Financial Analyst's Approach to Valuing Stock of a Closely-Held Company," by Milton Gelman, *The Journal of Taxation*, June 1972, pp. 353-354. Gelman was formerly a securities analyst with a New York Stock Exchange firm, and was a member of the National Association of Business Economists and the American Economic Association.

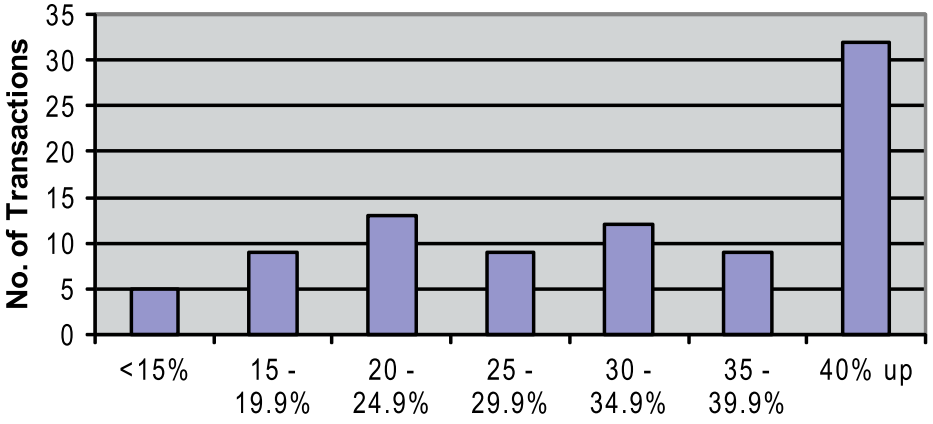
- The "fair value," which reflects the same discount from actual market value at the time the securities were purchased, applied to the closing price at year-end

Based on an analysis of 89 transactions, starting with the funds' 1968 formation through the end of 1970, Gelman found both the mean and the median discounts to be 33 percent. Further, 59 percent of the transactions were at discounts of 30 percent or more, and 36 percent of the transactions were at discounts of at least 40 percent. Figure 5 illustrates the results of Gelman's study at the end of 1970, indicating that 32 of the stocks (36 percent of all transactions) resulted in discounts of at least 40 percent.

Gelman closed his article by indicating:

> Depending on size and other factors, these actual discounts obtained by knowledgeable investors may serve as a guide to the valuation analyst in determining the discount to apply to the gross value previously determined for the closely held stock, in order to arrive at a final value for the shares involved.

Figure 5: Gelman's Study



Trout Study

Robert R. Trout, a member of the faculty of the Graduate School of Administration a the University of California in Irvine and a principal of Trout, Shulman & Associates in Los Angeles, studied 60 transactions involving the purchase of restricted stock by mutual funds between 1968 and 1972.[11]

Trout's objective was to apply multiple regressions to the transactions in order to develop a financial model that could be used to estimate the discount related to restricted securities. The data used in development of this model consisted of purchases of investment letter common stock by six mutual funds:

- The New America Fund, Inc.
- Source Capital Inc.
- Diebold Venture Capital Corp.
- Highland Capital Corp.
- The Value Line Development Capital Corp.
- Value Line Special Situations Fund

Trout's multiple regression analysis yielded two tables, with an "intercept" discount of 43.53 percent, which is refined based upon the following applied variables:

1. Exchange listing. Major exchange listings enhanced marketability. Therefore, non-major exchanges would result in larger discounts. Trout's model indicated an average discount of 8.39 percent greater for unlisted stocks.

2. Number of shares outstanding. Trout expected a correlation between the number of shares outstanding and the size of the market for the shares, i.e., a proxy for overall marketability of the company's shares. Therefore, fewer shares would result in larger discounts. Trout's model indicated an average discount reduction of 4.08 percent for each 1 million shares outstanding, over the study average of 1.51 million outstanding.

3. Shares purchased as a percent of shares outstanding. This variable indicates one of two effects: control or the ease with which the purchaser could dispose of unrestricted shares. A large number of shares would result in the "blockage effect,"[12] which was measured by the addition of two variables, which were somewhat offsetting:

- An indicator variable for purchases of less than 1 percent. This presumes that very small purchases should have small discounts. (Note that the largest total purchase in the study was $4.4 million; Trout considered a "large" purchase $5 million and above.) The average discount declined 0.87 percent for each percentage point of stock exceeding the study average of 7.41 percent.
- Value of purchase. This simulates the value the shares would have if they were registered, or unrestricted. The average discount was 4.75 percent greater for each $1 million exceeding the study average of $1.08 million.

Moroney Study

Robert E. Moroney, associated with the Houston investment banking firm Moroney, Beissner & Co., delivered the results of his study to the Texas CPA Tax

[11] "Estimation of the Discount Associated with the Transfer of Restricted Securities," by Robert R. Trout, *TAXES-The Tax Magazine*, CCH, June 1977, pp. 381-385.

[12] *Glossary and SSVS*. An amount or percentage deducted from the current market price of a publicly traded stock to reflect the decrease in the per share value of a block of stock that is of a size that could not be sold in a reasonable period of time given normal trading volume.

Institute in Houston and Dallas on November 20-21, 1972.[13] His study, published in 1973, presented the results of his analysis of 146 transactions in restricted securities by 10 registered investment companies. Based on the nature of the underlying transactions, the blocks could be considered as non-control, or minority blocks, except as indicated in the court citations.

Moroney's article began with a reference to the IRS Revenue Ruling 59-60:

> In the case of stocks and securities of a corporation the value of which, by reason of their not being listed on an exchange and by reason of the absence of sales thereof, cannot be determined with reference to bid and asked prices or with reference to sales prices, the value thereof shall be determined by taking into consideration, in addition to all other factors, the value of stock or securities of corporations engaged in the same or a similar line of business which are listed on an exchange.[14]

The discounts observed in these transactions ranged from 3 to 90 percent (including one transaction at a 30 percent premium), with a mean discount of 35.8 percent and a median discount of 32.8 percent. Figure 6 summarizes his study results.

Figure 6: Moroney Study of 10 Companies

	High	Low	Med.	Mean
Bayrock	66.0%	12.0%	24.5%	31.8%
Diebold	50.0%	16.0%	21.5%	25.3%
Enterprise	87.0%	31.0%	50.0%	52.4%
Harbor	14.0%	14.0%	14.0%	14.0%
Mates	62.0%	62.0%	62.0%	62.0%
NAF	58.0%	3.0%	37.0%	36.3%
Price	52.0%	15.0%	32.0%	34.4%
SMC	78.0%	-30.0%	33.5%	32.0%
VLDC	90.0%	10.0%	35.0%	37.2%
VLSS	81.0%	10.0%	30.0%	32.3%

Moroney also cited several court cases and summarized the three primary means of determining a marketability discount which had been applied by the courts:

1. Divide the corporation's "net assets" by the number of shares outstanding to arrive at the net assets per share. Then "apply your idea of a proper discount for non-marketability."
2. Calculate the shares' value as if readily marketable, then apply a "discount deemed suitable to compensate the buyer for the non-marketability of his investment."
3. Determine the value of the shares to the public at a stated price. Then deduct the costs sometimes called the "costs of creating a market" to arrive at the resultant value.

The 11 court cases cited by Moroney summarized the discounts for "lack of market," "other factors" (without details), and "total," depending on the details available through the court records. The discounts are highlighted in Figure 7.

Figure 7: Moroney Study Discounts

	Lack of Market	Total
High	35.0%	66%
Low	10.0%	10%
Mean	16.5%	26%
Median	13.6%	20%
Std. Dev.	8.6%	18%

Note that in the *Whittemore*[15] case a 50 percent discount was allowed for a 73 percent majority interest, and a 66 percent discount was allowed for a 24 percent minority interest. Finally, Moroney recommended:

> "[T]he taxpayer had better avail himself of the help of at least one witness (possibly two or three) who is well informed on the practical problems encountered in selling minority interests in closely held corporations…."

Moroney also stressed *dividends* as a key driver in determining the value of minority interests.

Finally, the 146 transactions analyzed by Moroney are scheduled in Figure 8 *(page 18)*, indicating the high, low, mean, median, and standard deviation results for each investment company analyzed.

Finally, he suggested that appraisers should not "stop" at 35 percent discounts since the preponderance of evidence in his studies indicated discounts ranging up to 90 percent.

Maher Study

J. Michael Maher, a former estate and gift tax agent with the IRS, was an officer with the Connecticut General Life Insurance Company. He published in 1976 the results of a study of restricted stock discounts in transactions taking place from 1966 to 1973.[16] He determined that the mean discount was 35.4 percent and 34.7 percent for his total and adjusted analysis, respectively.

[13] "Most Courts Overvalue Closely Held Stocks," by Robert Moroney, *TAXES-The Tax Magazine*, CCH, March 1973, at 144-156.
[14] Section 2031(b), Section 2.03 of Revenue Ruling 59-60.
[15] *Whittemore v. Fitzpatrick*, 54-2 USTC ¶ 10.976, 127 F. Supp. 710.
[16] "Discounts for Lack of Marketability for Closely Held Business Interests," by J. Michael Maher, *TAXES-The Tax Magazine*, CCH, September 1976, at 562-571.

Figure 8: Moroney Study of 146 Transactions

Investment Company	No.	High	Low	Mean	Median	Std. Dev.
Bayrock Growth Fund, Inc.	4	66.0%	12.0%	31.8%	24.5%	23.6%
Diebold Venture Capital Group	6	50.0%	16.0%	25.3%	21.5%	12.4%
Enterprise Fund, Inc.	10	87.0%	31.0%	52.4%	50.0%	17.9%
Harbor Fund, Inc.	1	14.0%	14.0%	14.0%	14.0%	n/a
Inventure Capital Corp.	n/a	At acquisition dates all blocks were valued at cost.				
Mates Investment Fund, Inc.	1	62.0%	62.0%	62.0%	62.0%	n/a
New America Fund, Inc.	32	58.0%	3.0%	36.3%	37.0%	15.3%
Price Capital Corp.	7	52.0%	15.0%	34.4%	32.0%	12.1%
SMC Investment Corp.	12	78.0%	-30.0%	32.0%	33.5%	26.4%
Value Line Development Capital Corp.	35	90.0%	10.0%	37.2%	35.0%	17.6%
Value Line Special Situations Fund, Inc.	38	81.0%	10.0%	32.3%	30.0%	15.2%
Aggregate	146	90.0%	-30.0%	35.8%	32.8%	5.1%

Maher began his article indicating that Tax Court decisions had tended to rise from 10 to 15 percent "many years ago" (circa 1960) to 20 percent (circa 1974), with a recent (circa 1976) consideration of 38.5 percent. He attributed the increase to studies of restricted stock investments, and cited Moroney's study (above).

His study consisted of 34 transactions (30 of which were less than $2 million), comprised of SEC and annual report filings of four mutual fund companies' purchases of restricted common stock. Figure 9 summarizes the Maher study results. The four investment companies studied were:

- Value Line Special Situations
- Source Capital, Inc. (formerly SCM Corp.)
- Highland Capital Corp. (formerly Price Capital Corp.)
- New America Fund (formerly Fund of Letters, Inc.)

Figure 9: Maher Study

Year	Range of Restriced Stock Marketability Discounts	
▼	High	Low
1969	75.66%	14.29%
1970	60.53%	2.79%
1971	39.64%	6.76%
1972	61.31%	20.00%
1973	66.00%	66.00%

Maher concludes his article by indicating that:

> [M]ost appraisers underestimate the proper discount for lack of marketability….The 35 percent discount would *not* [original emphasis] contain elements of a discount for minority interest because it is measured against the current fair market value of securities actively traded (other minority interests). Consequently, appraisers should also consider a discount for a minority interest in those closely held corporations where such discount is applicable.

Standard Research Consultants Study

William F. Pittock and Charles H. Stryker, CFA, consultants with Standard Research Consultants, published a 1983 study of 28 private placements of common stock from October 1978 through June 1982.[17] The discounts ranged from 7 to 91 percent, with a median of 45 percent.

Their study universe was relatively small, and the U.S. equity markets were very depressed during the latter portion of their study, probably affecting the results. As indicated by Figure 10, companies with only one or two years of profitability (out of the preceding five years) sold at the highest average discounts.

Figure 10: SRC Study, Results Based on Profitability

Profitable Years of Latest Five	Number of Placements	Median Discount
Five	2	34%
Two to Four	12	39%
Zero or One	14	46%
All Companies	28	45%

Figure 11: SRC Study, Results Based on Revenue

Issuer Size	Revenue Range ($000)	Discount
Highest Quartile	29,000 - 275,000	36%
Second Quartile	9,500 - 29,699	45%
Third Quartile	1,650 - 9,499	34%
Lowest Quartile	500 - 1,649	48%

And as indicated in Figure 11, stocks of companies with larger revenues bases tended to have smaller discounts.

Willamette Management Associates Study

Willamette analyzed private placements of restricted stocks for the period of January 1, 1981, through May 31, 1984.[18] The early part of this unpublished study overlapped the last part of the Standard Research Consultants study, but few transactions occurred during the overlap period. This study of 33 restricted stock transactions resulted in a mean of 31.2 percent, when compared to the prices of their freely traded counterparts.

Silber Study

William L. Silber, professor of finance and economics at the Stern School of Business, New York University, studied 69 private placements from 1981 through 1989, exhibiting the following characteristics:[19]

Highest discount: 84%
Lowest discount (premium): -12.7%
Average discount: 33.75%

Silber's transaction-size-related results were in stark contrast to Trout's (whom he did not cite), and resulted in the following findings:

- "Discounts are larger when the block of restricted stock is large relative to the total shares outstanding."
- "[T]he dollar size of the issue is inversely related to the discount."

[18] Willamette Management Associates, Inc. (www.willamette.com)

[19] "Discounts on Restricted Stock: The Impact of Illiquidity on Stock Prices," by William L. Silver, *Financial Analysts Journal*, July/August 1991, pp. 60-64.

FMV Opinions Study

The Irvine, CA-based business valuation firm FMV Opinions, Inc., researched thousands of private placements of publicly traded common stock covering the period July 1980 to January 2005.[20] The sample was "cleansed" to include only "plain vanilla" transactions with the following characteristics:

- Rule 144 issues—all private placements of unregistered stock, subject to Rule 144 one- or two-year holding periods[21] and subsequent dribble-out provisions.
- Arm's-length deals only, no purchases by insiders or affiliates.
- Common stock placements—no transactions involving preferred securities, convertible securities, debt, or transactions with "sweeteners" such as common stock warrants.
- Publicly traded equivalent price measurable—no penny stocks, stocks traded on the pink sheets, or stocks without sufficient trading volume (such that the publicly traded price was an unreliable measure of the fair market value of the freely traded stock).
- Transaction details disclosed—enough information provided in the issuing company's SEC filings to determine the number of shares placed, price paid per share, and month of the transaction close.
- No registration rights. In its latest update to its study, FMV further cleansed its previous database to remove all transactions where purchasers were offered any form of registration rights. The specific terms of registration rights in private placements are generally not transparent, and the impact to the liquidity of the shares is therefore unclear. To ensure that the private placement transactions in the FMV study reflect a lack of marketability compared to the issuing company's freely traded stock, transactions with registration rights were excluded.
- No premiums. In its latest update to the study, FMV further cleansed its previous database to remove all transactions where purchasers appeared to pay a premium price for restricted shares over the freely traded shares. Because restricted shares are identical in all respects to freely traded shares other than the Rule 144 trading restrictions attached to restricted shares, premium prices must necessarily result from (a) additional benefits to the purchaser not transparent from publicly available information, or (b) an unknown benchmark price for the freely traded shares, since often the exact timing of private placements is not disclosed. Either case suggests that these transactions do not provide meaningful indications of the discount for lack of marketability of the restricted shares.

This yielded a total of 329 transactions with mean and median discounts of 25.2 and 22.1 percent, respectively. (As of June 2008, the transactions comprised 475 total transactions, including 205 transactions in manufacturing; 138 transactions in business services; 45 transactions in finance, insurance, and real estate; and 25 transactions in transportation, communications, electric, gas, and sanitary services.)

The authors found the following correlations between regarding various characteristics of the issuing entity and the size of the discount:

1. The discount for lack of marketability is negatively correlated with:

- Market value of the issuing entity
- Revenues of the issuing entity
- Earnings and net profit margin of the issuing entity
- Dividend payout ratio of the issuing entity
- Total assets of the issuing entity
- Book value of shareholders' equity of the issuing entity
- Per share stock price of the issuing entity
- Trading volume of the issuing entity's stock
- Size (measured by dollar value) of the block sold

2. The discount for lack of marketability is positively correlated with:

- Market-to-book ratio (market value divided by book value) of the issuing entity
- Stock price volatility of the issuing entity's unrestricted stock
- Subject block size relative to the issuing entity's stock's trading volume
- Subject block size as a percent of total shares outstanding

3. The discount for lack of marketability is not significantly correlated with the issuing company's industry.

Figure 12 *(page 21)* shows the distribution of discounts across the 329 transactions in the FMV Study.

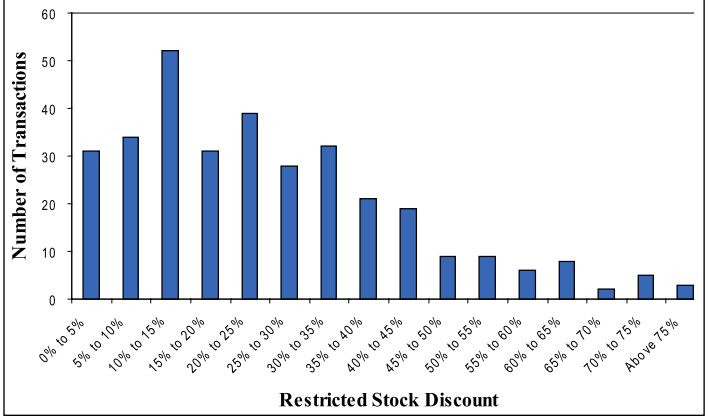
The results of the FMV study contain more data fields than perhaps any other study, and the results are categorized by SIC code. FMV licenses the results, but a summary[22] of discounts by SIC Code and by holding period is provided in Figure 13 *(page 21)*.

[20] "Strategies for Obtaining the Largest Valuation Discounts," by Lance S. Hall and Timothy C. Polacek, *Estate Planning*, January/February 1994, pp. 38-44.

[21] All transactions prior to March 1997 are subject to an initial two-year holding period and subsequent dribble-out limitations, while transactions occurring in and after March 1997 are subject to a one-year holding period and subsequent dribble-out limitations.

[22] "FMV Introduces Detailed Restricted Stock Study," by Espen Robak, CFA, *Shannon Pratt's Business Valuation Update*, November 2001, pp. 1-3.

Figure 12: FMV Study, Discount Based on Number of Transactions



Management Planning Study

Robert P. Oliver, ASA, and Roy H. Meyers, ASA, CFA, members of the Princeton, NJ, business valuation firm Management Planning, Inc., published the results of their study of selected transactions covering a 17-year period.[23]

They began their study with all the transactions published in *Investment Dealers' Digest, Private Placement Letter*, and *Private Equity Week* at the time of their study, which was released in 2000. These sources provided a base of 231 transactions which they narrowed to 53 transactions without registration rights and 27 with registration rights, after eliminating the following:

- Market price less than $2 per share
- Less than $3 million in sales volume
- Startup or "development stage" entities
- Companies lacking sufficient information for analysis

As a result of its analysis, Management Planning made the observations shown in Figure 14.

Figure 14: Management Planning Study

	Entire 231 Transactions	53 Transactions Without Registration Rights	27 Transactions With Registration Rights
Average Discount	29%	27%	12.80%
Median Discount	28%	25%	9.10%
High	N/a	58%	N/a
Low	N/a	3%	N/a

Note that the significant differences in discounts between transactions with and without registration rights is tangible evidence of the strong impact of liquidity on an investment.

Finally, the authors indicated that certain factors affect discounts more than others. For example, they listed the following factors as having the most explanatory power in determining discounts:

Figure 13: FMV Study, Discount by SIC Code

SIC Range	1000s	2000s	3000s	4000s	5000s	6000s	7000s	8000s
No. Trans.	26	40	94	22	15	33	65	34
Average Discount	24.7%	22.9%	26.2%	21.5%	13.2%	21.5%	31.4%	24.0%
Median Discount	22.9%	17.2%	23.6%	17.5%	13.1%	17.8%	28.9%	22.6%
Std. Dev.	16.3%	16.3%	17.1%	13.7%	6.0%	19.8%	20.4%	16.2%

	Trans.	Med. Disc.
Two Year Holding Period	197	21.1%
One Year Holding Period	132	23.7%

Factor	Affect on Discounts
Size of revenues	Companies with higher revenues tended to have lower discounts.
Size of earnings	Companies with higher earnings tended to have lower discounts.
Market price/share	Higher per share prices tended to result in lower discounts.
Price stability	Lower standards of deviation of trading price tended to result in lower discounts.
Trading volume	Block sizes representing a higher percentage of average trading volume tended to have higher discounts.
Value of block	Large dollar blocks tended to have lower discounts.

Johnson Study

Bruce A. Johnson, ASA, of the firm Munroe, Park & Johnson, studied 72 private placements that occurred during the period 1991 through 1995.[24] This period represented the five years following relaxation of Rule 144 restrictions. His study yielded the following characteristics:

Highest discount: 60%
Lowest discount (premium): -10%
Average discount: 20%

Johnson's study also indicated four factors potentially impacting the size of a discount:

- Positive net income
- Sales volume
- Transaction value
- Net income strength

Columbia Financial Advisors Study

Kathryn Aschwald, ASA, of the firm Columbia Financial Advisors, Inc., studied the "before and after" impact

[23] "Discounts Seen in Private Placements of Restricted Stock: The Management Planning, Inc., Long-term Study (1980-1996)," by Robert P. Oliver and Roy H. Meyers, Chapter 5 in *Handbook of Advanced Business Valuation*, edited by Robert F. Reilly and Robert P. Schweihs, McGraw-Hill, New York, 2000).

[24] "Quantitative Support for Discounts for Lack of Marketability," by Bruce A. Johnson, *Business Valuation Review*, December 1999, pp. 152-155.

of the Rule 144 holding-period reduction to one year.[25] The study covered two periods: (a) January 1, 1996, through April 30, 1997; and (b) May 1, 1997, through December 31, 1998. The one-year holding period became effective April 29, 1997. The resulting discounts from the study for each period are indicated in Figure 15.

Figure 15: Columbia Financial Advisors Study

	Jan. 1, 1996 – April 30, 1997	May 1, 1997 – December 31, 1998
No. of Transactions	23	15
High	67.50%	30%
Low	0.80%	0%
Mean	21%	13%
Median	N/a	9%

In the Columbia Financial Advisors study, Aschwald indicated:

> The studies conducted after 1990 are not relevant for purposes of determining discounts for lack of marketability for privately held stock, because they reflect the increased liquidity in the market for restricted securities. Such increased liquidity is not present in privately held securities.

Pluris Valuation Advisors Study

Espen Robak, CFA, of Pluris Valuation Advisors, LLC, recently developed the LiquiStat database from the secondary market in restricted stock. LiquiStat contains transactions facilitated by Restricted Stock Partners[26] from April 2005 to December 2006. The data set for the study consisted of 61 trades in restricted common equity in 100 percent cash for stock transactions. Both buyer and seller could estimate with precision the number of days of illiquidity remaining for each block of stock because the ownership history of the stock was known. Until each transaction is priced, buyers and sellers were unknown to each other, and none of the buyers or sellers was affiliated with each other in any way.

In a 2007 article introducing the LiquiStat database,[27] Robak said that in working with restricted stock data, these two questions often arise:

- Do any transactions not involve raising new capital for the issuing firm?
- How can one filter PIPE[28] deals from the data, to isolate "pure" arm's-length, investor-to-investor transactions?

In that 2007 article, Robak further wrote:

> The [LiquiStat] data provide a pure apples-to-apples comparison between the market-traded shares and restricted shares, with the discount reflecting the latter's liquidity… LiquiStat transactions differ from that of private placements in the restricted stock studies; they are much better suited for measuring differences in marketability, as pure investor-to-investor deals capture the essence of fair market value.

In another 2007 article, Robak wrote:

> Each RSTN transaction is made through a time- and date-stamped restricted securities order. This allowed Pluris to determine precisely the market reference price at the exact point each restricted stock trade was made. This is in sharp contrast with private placement studies where the time of pricing of each transaction is almost always unknown.[29]

The results of LiquiStat study are shown in Figure 16. The restricted stock illiquidity discounts in the LiquiStat database averaged about 33 percent, even though the average expected period of illiquidity is less than 150 days. We noted a significant positive correlation between the days of illiquidity left and the discount rate, consistent with other studies which have demonstrated a link between the holding period and the discount. The LiquiStat database includes more than 1,000 transactions (with about a dozen transactions being added each month),[30] which is significantly more than the number used in most restricted stock studies.

Summary of Restricted Stock Studies[31]

In *Valuing a Business*, Shannon P. Pratt summarizes 13 restricted stock studies performed from 1966 to 1995. The restricted stock studies by definition are stocks for which a public market is available once the specific shares are registered

[25] "Restricted Stock Discounts Decline as Result of One-Year Holding Period," by Katheryn F. Aschwald, *Shannon Pratt's Business Valuation Update*, May 2000, pp. 1-5.
[26] Restricted Stock Partners (http://restrictedsecurities.net/index.htm) created and manage the Restricted Securities Trading Network (RSTN), which facilitates transactions in restricted stock under the "4 (1-½)" exemption. Launched in May 2005, the RSTN has grown rapidly in transaction volume, which is still relatively small compared with overall issued and outstanding restricted securities, a $1.2 trillion asset class. Restricted Stock Partners is a division of Green Drake Capital Corp.
[27] "Introducing LiquiStat: A Completely New Way of Determining DLOM," by Espen Robak, CFA, *Deluxe BVUpdate*, January 2007 (www.bvlibrary.com).
[28] PIPEs refer to all private investments in public companies. Restricted stock studies generally focus on private investments in plain-vanilla restricted shares of common stock, a subset of the PIPE universe.
[29] "Lemons or Lemonade? A Fresh Look at Restricted Stock Discounts," by Espen Robak, CFA, *Valuation Strategies*, Warren, Gorham & Lamont, January/February 2007.
[30] Pluris Valuation Advisors, LLC, www.plurisvaluation.com/liquistat, accessed May 30, 2008.
[31] *Valuing a Business*, 5th Edition, by Shannon P. Pratt, McGraw-Hill, NY, 2007, p. 431, augmented by the LiquiStat study.

Figure 16: LiquiStat Database Descriptive Statistics

	Shares/ Volume	Market Cap ($m)	Days Left	Market Price	Volatility	Discount
Mean	3.1x	$ 325	143.7	$ 9.74	87.6%	32.8%
Standard Deviation	735x	$ 285	106.8	$ 8.81	36.0%	14.9%
Minimum	0.0x	$ 7	3.0	$ 0.29	35.2%	10.1%
Maximum	56.5x	$ 1,079	475.0	$ 33.30	211.2%	65.7%
1st quartile	0.3x	$ 87	55.0	$ 3.17	69.1%	19.1%
median	1.0x	$ 247	120.0	$ 7.80	77.2%	34.6%
3rd quartile	2.7x	$ 493	211.0	$ 14.45	87.9%	44.0%

for public trading or the restrictions listed. The discounts ranged from 23 to 45 percent, with a median of 29 percent.

All of these studies identified median or average discounts in the range of 30 to 40 percent for prices of non-marketable stocks in comparison to marketable shares, which were otherwise deemed to be comparable. The SEC Institutional Investor study reflected a mean discount of 25.8 percent while the remainder had average discounts in the range of 13 to 45 percent.

III. Pre-IPO Studies

A second empirical approach is to analyze the relationship between the prices of companies whose shares were initially offered to the public and the prices at which their shares traded privately within a five-month period immediately preceding the initial public offering (IPO).

Figure 17 illustrates the contrasts and similarities of three IPO study results that we summarize.

Emory Pre-IPO Studies

John D. Emory, Sr., ASA, began his studies of pre-IPO discounts while at Robert W. Baird & Co. in Milwaukee. He now completes the studies through his own firm, Emory Business Valuation, LLC, also based in Milwaukee.

Emory has completed nine studies since his initial study was published in June 1986. The methodology applied to each study has remained consistent, requiring a financially sound company, and private transaction occurrence within five months prior to the IPO date. The first eight studies eliminated certain companies, including:

- Development-stage companies
- Companies with an operating loss history
- Companies with an IPO price less than $5 per share

Emory's ninth study included dot-com companies for the first time. His information sources consisted of prospectuses in which Baird & Co. was part of the underwriting syndicate and transactions where Emory had obtained prospectuses. Following is a chronicle his nine studies.

Emory Study #1 (January 1980 through June 1981) consisted of 13 transactions screened from 97 prospectuses. Emory's accompanying article included the following comments:

> The final question to be answered is that if these kinds of discounts are appropriate for promising situations where marketability is probable, but not a certainty, how much greater should discounts be for the typical company's stock that has no marketability, [has] little if any chance of ever becoming marketable, and is in a neutral to compromising situation?

Emory Study #2 (January 1985 through June 1986) consisted of 21 transactions screened from 130 prospectuses, and the verbiage in his article was similar to his first study.

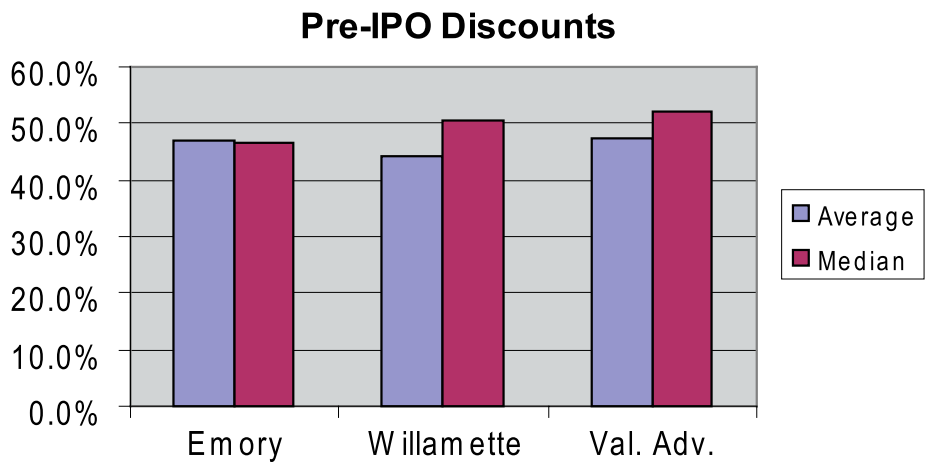
Emory Study #3 (August 1987 through January 1989) included the October 1987 stock market crash, but the empirical results still closely resemble the results of the two preceding studies. He analyzed 27 transactions screened from 98 prospectuses.

Emory Study #4 (February 1989 through July 1990) focused on 23 transactions screened from 157 prospectuses.

Emory Study #5 (August 1990 through January 1992) screened 260 prospectuses to obtain 35 transactions for analysis.

Emory Study #6 (February 1992 through July 1993) was based on 54 transactions screened from 443 prospectuses. Emory indicates that 32 of the

Figure 17: Comparison of IPO Study Results



transactions from the 173 transactions in the first six studies were actual sales, with the remainder consisting of options granted at fair market value. Generally, actual sale transactions occurred at discounts greater than options.

Emory Study #7 (January 1994 through June 1995) screened 314 prospectuses to arrive at 46 transactions for analysis.

Emory Study #8 (November 1995 through April 1997) screened 732 prospectuses to arrive at 91 transactions for analysis. Market activity indicated that the IPO activities were very active.

Emory Study #9 (May 1997 through March 2000) consisted of 53 transactions and also compiled its results by SIC code. It was different from all the preceding studies as a result of the following new criteria:

- Only companies with "com" in their names were included.
- The period covered spanned 35 months, versus 18 months for each of the preceding studies.
- All transactions were actual sales, whereas earlier studies also included options.
- Most of the companies *did not* have earnings.

A comparison of the nine Emory

Figure 18: The Emory Pre-IPO Studies

Study #:	Mean Discount	Median Discount
1	60%	60%
2	43%	43%
3	45%	45%
4	45%	40%
5	42%	40%
6	45%	44%
7	45%	45%
8 – All Trans.	43%	42%
8 – Sale Trans.	54%	61%
8 – Option Trans.	39%	40%
9 dot-coms	54%	54%

Figure 19: Relationship between Illiquidity Period and Discount

Discount versus the Days between Transaction and the IPO					
Mean	30%	40%	42%	49%	55%
Median	25%	38%	43%	50%	54%
Count	18	72	162	161	130
Days	30	60	90	120	153

study is shown in Figure 18. These studies also demonstrated a link between the magnitude of the discount and the illiquidity period prior to the IPO. As one might expect, the closer to the IPO (the shorter the period of illiquidity), the lower the discounts were. This time-discount relationship is summarized in Figure 19.

Figure 19 clearly illustrates that the longer one has to wait for liquidity, the higher the discount will be. Emory has graciously made available all his study results at www.emorybizval.com/valuation-studies.shtml including downloadable Excel data. Emory included the following comment in his summation of the results of his studies:

> Finally, it should be noted that the discounts found in these studies occur where a high degree of marketability is probable, but not certain. Perhaps the discounts should be greater for the more typical company's stock, with extremely limited marketability and dim prospects for the company being sold or having an IPO any time soon.[32]

Willamette Pre-IPO Study

This study series by Willamette Management Associates analyzed 556 companies and 1,007 transactions from 1975 through 1997. The "trimmed" (excludes highest and lowest deciles of indicated discounts) mean discount for each time period ranged from 28.9 to 56.8 percent. The mean for all time periods was 44.2 percent. The median discounts for each time period ranged from 31.8 to 73.1 percent, and the median for all time periods was 50.4 percent.

Unlike the Emory pre-IPO studies, the Willamette pre-IPO studies did not provide the underlying transactional data for independent study. Rather, the methodology and results are reported in *Valuing a Business*.[33] Further, the Willamette studies differed from the Emory studies in the following respects:

- All public offerings in the files of *IPO Reporter* were considered rather than the cross-section studied by Emory.
- The pre-IPO transactions that were considered occurred from one to 36 months before the relevant IPOs.
- When possible, P/E multiples for the pre-IPO transactions were compared with the IPO multiples.
- Certain adjustments were made to control for changes in market conditions between the dates of the pre-IPO transactions and the relevant IPOs.

The overall results of the Willamette studies found that:

- The average (standard mean) discount exceeded 35 percent for all but three of the 14 periods studied, and the overall (standard mean discount) average was 41.4 percent.
- When the samples were trimmed for the high and low deciles, the overall average rose to 46.1 percent.
- The median discounts exceeded 40 percent in all but one year, and the overall average of the medians was 51.9 percent.

[32] "Discounts for Lack of Marketability, Emory Pre-IPO Discount Studies 1980-2000 as Adjusted October 10, 2002," John D. Emory, Sr., ASA, and F.R. Dengel, III, *Business Valuation Review*, Vol. 21 No. 4, December 2002, page 190.

[33] *Valuing a Business*, 4th Edition, by Pratt, Reilly, and Schweihs, John Wiley & Sons, NJ, pg. 400, with updated data.

- The overall average of the standard deviations was 40 percent.

Recently, Willamette completed an additional pre-IPO study covering the five-year period 1998 through 2002. Included in the study were only private market stock sale transactions conducted on an arm's-length basis during 1998-2002. The transactional data analyzed in the study included (a) sales of closely held corporation stock in private placements and (b) repurchases of treasury stock by the closely held corporation. All transactions involving the granting of employee, executive, or other compensation-related stock options were eliminated from consideration in the study. All transactions involving stock sales to corporate insiders or other related parties were eliminated from consideration in the study unless verified that the stock sale transaction was, in fact, a bona fide, arm's-length transaction.

Willamette found that the median discount for lack of marketability for the 1998-2002 period was 36.1 percent. The mean discount for lack of marketability for the same period was 23.9 percent and the corresponding trimmed mean was 31.6 percent.

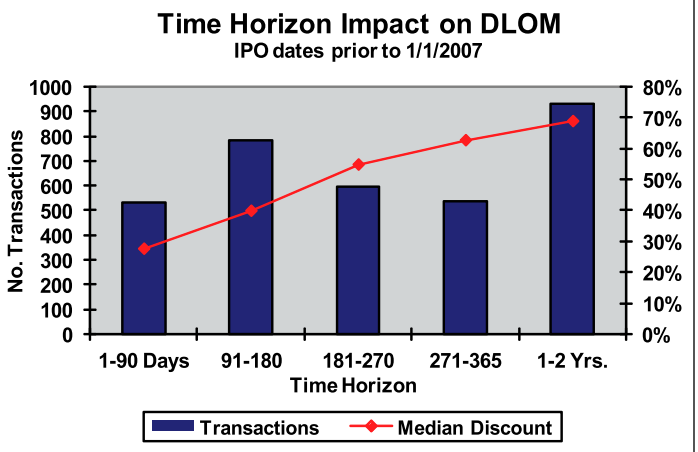
The implication of the Willamette studies is clear: Presumed arm's-length transactions taking place within a short time of the actual IPOs occur at substantial discounts to the ultimate public offering price. These studies support both the validity and magnitude of marketability discounts in general, particularly for companies that are not public offering candidates and for which the prospects for shareholder liquidity may be remote.

Valuation Advisors Pre-IPO Study

As of December 2007, the Valuation Advisors' Lack of Marketability Discount Study currently contains over 3,728 transactions and over 1,580 companies dating from 1995 to 2007.[34] This study was developed by Brian Pearson of Valuation Advisors, LLC, and compares the IPO stock price to pre-IPO common stock, common stock option, and convertible preferred stock prices. The study is a web-based tool used to quantify the discount for lack of marketability and is updated monthly with new IPO transactions. These market-based transactions demonstrate the lack of marketability discount afforded by the pre-IPO instruments because of their illiquidity when issued by a privately held company. The total average discount currently approximates 50.9 percent.

A key feature of these studies was the inclusion of a "time horizon" based on the length of time between the private company transaction and the IPO. As expected, the longer the holding period, the higher the discount. Since the studies included dot-com transactions, the overall averages are higher and consistent with Emory's dot-com results in his ninth study. Another key feature is the inclusion of convertible preferred stock within the transaction base, but it is also calculated separately. The study results are illustrated in Figure 20.

Figure 20: Valuation Advisors Pre-IPO Study



IV. Cost of Flotation Studies

Studies indicate that even controlling interests in privately held companies are subject to lack of marketability, or "illiquidity," discounts. Studies of restricted stock and initial public offerings that relate to minority interests in closely held companies suggest that marketability discounts could range from 25 percent to 60 percent. Costs of flotation, or taking a company public, are generally recognized as one approach to estimating a relevant lack of marketability or illiquidity discount relevant for the valuation of a controlling ownership interest in a closely held company.

The SEC published a study on the costs of flotation in December 1974. As indicated in Figure 21 *(page 26)*, the average cost of flotation at that time was 12.6 percent (sum of compensation and other expenses) of the total public offering.

In a more recent study, published in 1987, Jay R. Ritter provided an analysis of the direct expenses incurred in initial public offerings, with total costs approximating 14 and 18 percent for firm-commitments and best-efforts, respectively, as shown in Figure 22.

V. Independent Studies

Because marketability discounts can represent a substantial reduction in the value of a shareholding interest, continuing empirical development of the discount amount has led to

[34] The pre-IPO studies by Valuation Advisors (Buffalo, NY) are marketed by Business Valuation Resources at www.bvmarketdata.com/defaulttextonly.asp?f=VALMD%20Intro. The Valuation Advisors' Lack of Marketability Discount Study can be licensed annually or for per-transaction use at www.bvmarketdata.com.

Figure 21: SEC Costs of Flotation Study, 1974

Size of Issue ($Millions)	Number	Compensation (% of Gross Proceeds)	Other Expense (% of Gross Proceeds)
Under 0.5	3	8.20	10.85
0.5 - 0.99	227	12.48	8.26
1.0-1.99	271	10.60	5.87
2.0 - 4.99	450	8.19	3.71
5.0 - 9.99	287	6.70	2.03
10.0-19.99	170	5.52	1.11
20.0 - 49.99	109	4.41	0.62
50.0 - 99.99	30	3.94	0.31
100.0-499.99	12	3.01	0.16
Over 500.00	0	0	0
Total/Averages	1,599	8.28%	4.32%

Source: "Cost of Flotation of Registered Issues 1971-1972," Securities and Exchange Commission, Washington, DC, 1974, pg.9.

Figure 22: Ritter Study, 1987

Gross Proceeds ($Millions)	Number of Offers	Underwriting Discount (%)	Other Expenses (%)	Total Cash Expenses (%)
Firm-Commitment Offers				
0.0-1.999999	68	9.88	9.69	9.08
2.0 - 3.999999	165	9.83	7.60	17.43
4.0 - 5.999999	133	9.10	5.67	14.77
6.0 - 9.999999	122	8.03	4.31	12.34
10-120.174175	176	7.24	2.10	9.34
All offers	664	8.67%	5.36%	14.03%
Best-Efforts Offers				
0.0-1.999999	175	10.65	9.59	20.15
2.0 - 3.999999	146	10.00	6.21	16.21
4.0 - 5.999999	23	9.86	3.71	13.57
6.0 - 9.999999	15	9.80	3.42	13.22
10-120.174175	5	8.03	2.40	10.43
All offers	364	10.27%	7.51%	17.78%

Source: "The Costs of Going Public," by Jay R. Ritter, *Journal of Financial Economics*, January 1987, pg. 272.

more independent study of the matter. Twelve of the most notable examples are summarized below.

Solberg and Moore Studies

A survey performed by Thomas Solberg[35] of 15 cases, published in 1979, indicated a mean discount of 37.4 percent. A similar study by Phillip Moore,[36] which analyzed 14 cases by the U.S. Tax Court from 1969 through 1982, indicated wide variations in the decisions but with a trend toward allowing higher discounts.

Black-Scholes Approach

The Black-Scholes Option Pricing Method (BSOPM) is intended to serve as a proxy for the discount for lack of marketability. BSOPM has not shown a successful history in the published courts. However, a 2007 case in the Court of Federal Claims accepted the appraiser's use of it in support of a taxpayer (*Stobie Creek Investments v. U.S.*).

QMDM

Z. Christopher Mercer, ASA, CFA, introduced the Quantitative Marketability Discount Model in 1997.[37] It applies the concepts of holding period and the related return, underlying asset growth during the period, and expected distributions during the holding period to a model that derives the marketability discount. The methodology is readily applied to virtually any set of facts.

According to the QMDM model, the factors that affect the liquidity of an investment include the following five:

- Number of shareholders
- Size of the block of stock being valued
- Restrictions on its sale by agreement or law
- Absence of registration
- Anticipated dividend flow attributable to the investment

When attempting to quantify those five factors to derive an appropriate discount for lack of marketability, it is necessary to consider the following factors:

1. Holding period. Without an active market, an investor must hold for an uncertain length of time until a liquidity event occurs. In general, longer holding periods without liquidity imply higher discounts for lack of marketability. An investor should reasonably characterize exit timing along a probability distribution. Although subjective, the relative probabilities of exit dates are reasonably related to the following:

2. Historical ownership policies (insiders, outsiders, family, investors, etc.) affected by:

- Buy-sell or other shareholder agreements
- Management/ownership succession (age, health, competence, emerging liquidity needs)

[35] "Valuing Restricted Securities: What Factors Do the Courts and the Service Look For?" by Thomas A. Solberg, *Journal of Taxation*, September 1979, pp. 150-54.

[36] "Valuation Revisited," by Phillip W. Moore, *Trusts & Estates*, February 1987, pp. 40-52.

[37] *Quantifying Marketability Discounts*, by Z. Christopher Mercer, Peabody Publishing, Brockton, MA, 1997.

- Business plans and likely exit strategies of the controlling owner(s)
- Emerging attractiveness for equity offering or acquisition.

3. Required holding-period-return. To overcome the unattractiveness of illiquidity, an investor in illiquid securities expects a premium return in excess of that provided by liquid alternatives. Investment features that impair marketability will exact higher expected rates of return, which imply higher discounts for lack of marketability. Unattractive features of an illiquid security could include the following:

- Absence, inadequacy of or inability to pay dividends
- Subjective uncertainties related to the duration of the expected holding period and to achieving a favorable exit-date valuation
- Restrictive shareholder agreements
- Various other features that increase uncertainty of cash flows

4. Growth in underlying value during the holding period. If an investment is appreciating, that growth will provide a portion of the realized return during the holding period. Growth and marketability discounts are negatively correlated.

As expected capital appreciation increases, discounts for lack of marketability decrease. Growth potential should be evaluated in the context of management's business plan, historical growth, and external factors such as emerging industry conditions and market valuations.

5. Expected cash flow distributions during the holding period. Holding period returns are also provided by interim cash flows (in addition to capital appreciation). As with growth, holding period cash distributions and discounts for lack of marketability are negatively correlated. Holding-period cash flows (e.g., dividends) should be evaluated in the context of historical dividend policy, ability to distribute, and the cash needs implied by the business plan.

Hamilton Study

Janet Hamilton, Ph.D., CFA, analyzed actual court-related discounts from 1991 through 2000 and categorized them by type (e.g., estate, gift, bankruptcy).[38] She found gift- and estate-related discounts applied by the court ranging from 0 percent to 40 percent, with a raw average of 21.5 percent.

Economic Components Model

A complex quantitative model was published in Jay Abrams' text, *Quantitative Business Valuation*.[39] His Economic Components Model consists of three key components: the delay to sale, buyer monopsony power, and transaction costs. The model requires strong mathematics skills and should be used in conjunction with other corroborating indicators, if and until the techniques become more commonplace.

Bid-Ask Spread Method

Niranjan Chipalkatti proposed this model,[40] which estimates the discount for lack of marketability using proportional bid-ask prices for publicly traded securities.

Private Placement Method

This technique, created by Mukesh Bajaj, PhD, comprises a variant on the restricted stock studies. He asserts that the restricted stock studies overstate the discount for lack of marketability because they include factors other than the absence of liquidity—for example, monitoring costs of private placements. Bajaj has typically assisted the IRS in challenges against FLPs, and the Tax Court has approved the method for the valuation of such partnership interests.

Long-term Equity Anticipation Securities Study

Buyers of certain securities can insure against price declines by purchasing protective puts on the underlying security. Most put options are short-term; however, there are longer-term put options called long-term equity anticipation securities (LEAPS). These are listed options that grant the buyer (holder) the right, but not the obligation, to sell a specified amount of the underlying asset at a predetermined price on or before a given date.[41] These options offer price protection for up to two years into the future—a time frame similar to restrictions originally placed by the SEC on unregistered securities, which formed the basis for many studies of restricted stock used to estimate a marketability discount.

LEAPs effectively insure against a price drop during the specified period. Robert R. Trout, PhD, CFA, author of the LEAPs study, examined the costs of buying LEAPS puts and determined the relative insurance cost by dividing the put cost by the underlying stock price.[42] Data for option prices of LEAPs as of March 2003 appears in Figure 23 *(page 28)*.

The data concerning the relative cost of puts as an insurance premium suggests that the *minimum* discount that one should assign for the lack of marketability of holding privately held stock is at least 24 percent.[43]

Ronald M. Seaman, ASA, CBA, extended Trout's study to show the effects of time and risk[44] on the sizes of discounts.[45] Figures 24 and 25 illustrate

[38] "Discounts for Lack of Marketability in the Courts, 1991-2000," by Janet D. Hamilton, PhD, Business Valuation Resources, Portland, OR 2001.
[39] McGraw-Hill, New York, 2001.
[40] *Business Valuation Review*, March 2001, Vol. 20, No. 1, pp. 3-10.
[41] The Options Clearing Corporation, www.optionsclearing.com/publications/leaps/intro.jsp
[42] "Minimum Marketability Discounts," by Robert R. Trout, PhD, CFA, *Business Valuation Review*, September 2003, Vol. 22 No.3, pg. 124.
[43] Ibid.

Figure 23: Trout Study of LEAPs, 2003-2005

Option Prices of LEAPs: March 2003 Due January 2005				
Company	Stock Price	Strike Price	Option Price	Premium %
Amazon	$ 22.69	$ 20.00	$ 5.20	22.9%
Ford	$ 7.45	$ 7.50	$ 2.20	29.5%
GM	$ 31.20	$ 30.00	$ 6.70	21.5%
Morgan Stanley	$ 22.00	$ 20.00	$ 4.70	21.4%
Microsoft	$ 23.27	$ 25.00	$ 6.10	26.2%
Nextel	$ 12.47	$ 12.50	$ 4.30	34.5%
Qlogic	$ 36.24	$ 35.00	$ 7.00	19.3%
Qualcom	$ 34.98	$ 35.00	$ 8.80	25.2%
Tyco	$ 14.18	$ 15.00	$ 3.00	21.2%
Average				24.6%
Median				22.9%

Figure 24: Seaman Study, Effects of Size and Risk on Discounts (Data)

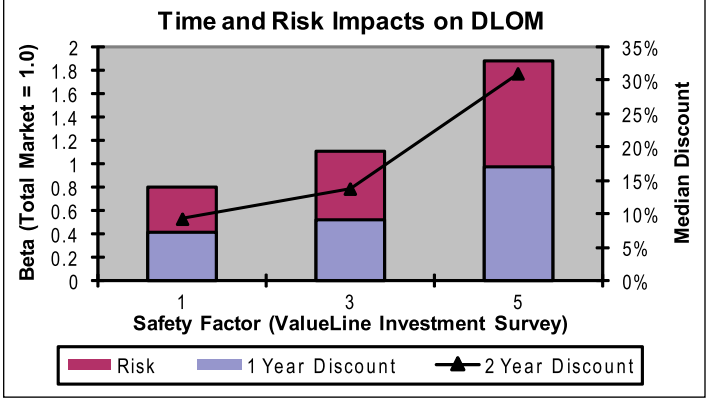
Safety Rank	1	3	5
Beta			
Average	0.82	1.10	1.87
Median	0.80	1.10	1.88
1 Year Discount			
Average	7.0%	10.6%	20.0%
Median	7.3%	9.2%	17.0%
2 Year Discount			
Average	9.4%	14.9%	30.6%
Median	9.3%	13.8%	31.0%

these effects. The data in Figure 24 is presented graphically in Figure 25.

Two implications can be drawn from the above data. First, Figures 24 and 25 were developed from data on publicly traded companies, which are liquid and much larger in general than the subject company. Consequently, higher discounts than those shown above are indicated. The second implication is that the holding periods in Figure 25 are two years or less. We often deal with holding periods that are much longer and perhaps indefinite. This also indicates higher discounts for the subject interest than those shown above.

A follow-up study by Seaman of 261 LEAPs expiring January 2008 measured whether company size in terms of total revenues and/or book value has an effect on the cost of the put option.[46] The conclusion is that it clearly does. In each ValueLine safety rank, discounts increase dramatically as company size in revenues or book value decreases.

Figure 25: Seaman Study (Graph)



NASDAQ Delisting Study[47]

A delisting from NASDAQ results in substantial loss of marketability according to a study by Ashok B. Abbott, PhD, an associate professor of finance at the College of Business and Economics of West Virginia University. Abbott analyzed a sample of delistings from the NASDAQ market and developed a quantitative model providing an explanation for the observed reduction in value attributable to this loss or marketability. Abbott concludes that the relationship between liquidity and value is confirmed by his analysis.

Stockdale Model

John Stockdale proposed a model in, "Time is of the Essence: a Proposed Model for Computing the Discount for Lack of Marketability,"[48] which estimated the discount for lack of marketability using three factors as a function of time: the future value, the probability of sales, and the present value.

Quantitative Method

Abbott introduced a quantitative model using three proxies for liquidity: bid-ask spreads, percentage of no-trade days, and the cost of trading one round lot of stock. He suggests that his model is size- and market-time-specific.[49]

VI. Court Decisions

Various court decisions provide insight into the marketability discounts allowed in certain circumstances. We look at evidence from around a dozen court decisions, not to cite as direct evidence in the instant case, but to review how courts have previously interpreted the objective evidence presented. In addition, we look to court cases for general guidance concerning the nature of evidence deemed acceptable in those decisions.

[44] Risk based on ValueLine Investment Survey "Safety Rank," "a measure of the total risk of a stock compared to others in our approximately 1,700 stock universe," *How To Invest In Common Stocks: The Complete Guide to Using the ValueLine Investment Survey*, Value Line Publishing, NY, 2005, Chapter 4, pp. 11-12.

[45] "Minimum Marketability Discounts," 2nd Edition, by Ronald M. Seaman, ASA, CBA, *Business Valuation Review*, June 2005, page 58.

[46] "Minimum Marketability Discounts," 2nd Edition, by Ronald M. Seaman, ASA, CBA, *Business Valuation Review*, Winter 2005, page 177.

[47] Abbott, Ashok B. PhD, "Discount for Lack of Marketability: An Empirical Analysis", Business Valuation Review, Vol. 22 No. 4, December, 2003, page 172.

[48] *Business Valuation Review*, September 2006, Vol. 25, No. 3, pp. 108-114.

[49] *Business Valuation Review*, May 2007, Vol. 26, No. 1, pp. 2-7.

The following list of court cases are not intended be exhaustive, since each case is distinctly related to the facts and circumstances of the matter. It does provide a chronology of some of the cases considered significant within the context of the discount for lack of marketability.

Estate of Gallo v. Commissioner (T.C. Memo 1985-363, 50 T.C.M. (CCH) 470 1985) was the first case citing the Willamette Management restricted stock studies. The IRS claimed a 10 percent discount, but the estate's expert testified to 36 percent, which was granted by the court. The 36 percent discount for lack of marketability was the highest award up to this date.

In ***Estate of Rodriguez v. Commissioner*** (T.C. Memo 1989-13, 56 T.C.M. (CCH) 1033 (1989), the Tax Court allowed a 10 percent discount for lack of marketability compared to the 35 percent claimed by taxpayers. The court indicated that the taxpayers had not provided sufficient evidence; the IRS sought an "offset" between the marketability discount and control premium.

In ***Estate of Lauder v. Commissioner*** (60 T.C.M. (CCH) 977, 1990; 64 T.C.M. (CCH) 1643, 1992; and 68 T.C.M. (CCH) 985 1994), the court allowed a 40 percent discount for lack of marketability in EJL, the holding company for Estee Lauder USA and related companies. All the companies had been successful historically.

The decedent held 20.6 percent of the stock, which was subject to a restrictive transfer agreement giving EJL (and remaining shareholders if necessary) a right of first refusal at a price based on adjusted book value. Even without a distinct EJL/shareholder stock purchase, any sale to a third party required EJL's consent. Two early cases had focused on the issue of whether the restrictive shareholder agreement should control value for federal estate tax purposes.

In the first trial, the court indicated that values may be enforced through enforceable buy-sell agreements. However, it required further examination of the facts and circumstances to determine whether such buy-sell governed in valuing the shares for federal estate tax purposes.

In the second trial, the court found that EJL's agreement did not meet the long-established criteria necessary for the agreement to control value. The following elements were required to be present:

- The agreement must fix the price.
- It must bind parties in life and death.
- It must have been entered into for a bona fide business reason.
- It must not be a substitute for testamentary disposition.

In ***Estate of Berg v. Commissioner*** (61 TCM 1991-279), the Tax Court relied on an expert's analysis of specific factors that influenced the magnitude of a minority interest discount (20 percent) and a marketability discount (10 percent). The expert's specificity appeared to persuade the court. Other experts in the Berg case were admonished by the court for presenting discount analyses that were "exceedingly general and lacking in specific analysis."

In ***Estate of Mildred Herschede Jung v. Commissioner*** (101 TIC. No. 28 412, 1993), the Tax Court allowed a 35 percent discount for lack of marketability for a 21 percent interest in Jung Corp., a manufacturer and distributor of elastic textile goods. Jung's revenues ($68 million) and profits ($3.1 million) had been growing for several years, a dividend was being paid, and there was a reasonable knowledge that the company could be an attractive acquisition candidate. Of particular note is that the court relied on several of the empirical studies cited above.

Howard v. Shay (1993 U.S. Dist. LEXIS 20153 C.D. Cal. 1993), *reviewed and remanded* (100 F.3d 1484 9th Cir. 1996), cert. denied (520 U.S. 1237 1997) involved the termination of an ESOP owning about 38 percent of an A/E firm. The stock was sold to a trust controlled by the shareholder who owned the other (approx.) 62 percent of the stock.

The ESOP financial advisor applied a 50 percent discount for lack of marketability that resulted in a class action by the other shareholders, claiming undervaluation. Note that no "put" rights were in place in this plan.

The Willamette Management pre-IPO database was entered into evidence to support the discount, with the preceding five years' transactions exhibiting discounts ranging from 25 to 49.9 percent. The 50 percent discount was upheld at trial and again on remand from the Ninth Circuit for further proceedings. The case has significance for appraisers since the Tax Court has yet to allow a discount for lack of marketability exceeding 45 percent.

In ***Estate of Mandelbaum v. Commissioner*** (69 T.C.M. (CCH) 2852, 1995), an estate tax case, Judge David Laro at bench, the case concerned the discount for illiquidity (which the court determined as 30 percent) and indicated specific application to the case's circumstances as follows:

- Financial statement analysis
- Dividend policy
- Nature of the company, its history, position in the industry, and economic outlook
- Management
- Amount of control in the transferred shares
- Restriction on transferability
- Holding period for the stock
- Company's redemption policy
- Costs associated with a public offering

Recently, Judge Laro has appeared to move away from requiring the use of his methodology as outlined in *Mandelbaum.*

In ***Estate of Barge v. Commissioner*** (TC Memo 1997-188, April 23, 1997), the Tax Court indicated a very specific list of marketability factors that it considered in arriving at a discount for lack of marketability. This case applied a quantitative model which included:

- Base value

- Expected holding period
- Expected growth rate of value
- Expected dividends or distributions
- Required holding period return

The Tax Court continues to follow the line of reasoning found in *Mandelbaum* and furthered in *Barge*. It tends to accept the value opinions of business appraisers who develop improved methodologies to quantify marketability discounts in the appraisal of non-marketable minority interests of private businesses and in estimating the appropriate discounts when valuing undivided interests in real property.[50]

In ***In re the Marriage of Tofte*** (134 OR. App. 449, 895 P.2d 1387 Or. Ct. App. 1995), the Oregon Court of Appeals allowed a discount for lack of marketability in this case when no sale was contemplated. The experts for both parties each applied a capitalization of earnings approach, but differed on whether it was appropriate to include a discount for lack of marketability.

The court in *Tofte* was apparently confused about the distinction between minority interest and marketability discounts, and stated:

> [W]e have previously applied marketability and minority discount without consideration of or speculation about the owners' intention to sell shares.

In ***Davis v. Commissioner*** (T.C. Memo 1998-530,110) the issue was the value of stock in a family holding company whose primary asset was more than a million shares of Winn-Dixie stock. The witness for the Service testified to a 23 percent discount based on restricted stock studies. Experts for the taxpayer considered a broader list of restricted stock studies, as well as pre-IPO studies, and testified to a 35 percent discount. The court concluded a value which reflected approximately a 32 percent discount.

In ***Estate of Barnes v. Commissioner*** (T.C. Memo 1998-413, 76 T.C.M. (CCH) 881 1998), the court agreed with the taxpayer's expert and applied a 40 percent discount for lack of marketability for voting stock, and a 45 percent discount for lack of marketability for nonvoting stock. The court was very critical of the IRS expert's lack of preparation.

In ***Estate of Jones v. Commissioner*** (2001 U.S. Tax Ct. LEXIS 11, 116 T.C. No. 11 2001), the Tax Court applied an 8 percent discount for lack of marketability to two complex limited partnerships, after applying a 40 percent discount for minority interest to one of the partnerships.

In ***Okerlund v. United States***, (53 Fed Cl. 341 Fed. Ct. 2002), the expert for the taxpayer valued stock on two different dates for gift tax purposes, by selecting specific transactions from both the FMV restricted stock database and the Valuation Advisors pre-IPO. Selection criteria included block size and company size.

Taxpayer's expert applied a discount of 45 percent on both dates. The expert for the service testified to a discount of 30 percent on both dates. The court concluded that the appropriate discount was 40 percent on one date and 45 percent on the other date, in addition to a 5 percent discount for nonvoting stock (which both experts agreed to), resulting in total discounts of 45 percent on one date and 50 percent on the other date.

Following are cases where the court accepted a discount for lack of marketability for controlling interests:

In ***Estate of Hendrickson*** (T.C. Memo 1999-278, 78 T.C.M. (CCH) 322 1999), the interest at issue was 49.97 percent, but the court deemed it a controlling interest because the balance of the stock was divided among 29 shareholders. The court allowed a 35 percent discount for the 49.97 percent controlling interest.

Estate of Dunn *(Dunn v. Commissioner,* T.C. Memo 2000-12, 79 T.C.M. (CCH) 1337 (2000): 15 percent discount.

Estate of Jameson *(Jameson v. Commissioner*, T.C. Memo 1999-43, 77 T.C.M. (CCH) 1383 (1999): 3 percent discount.

Estate of Dougherty *(Dougherty v. Commissioner,* T.C. Memo 1990-274, 59 T.C.M. (CCH) 772 (1990): 25 percent discount.

Estate of Maggos (T.C. Memo 2000-129, 79 T.C.M. (CCH) 1861 (2000): 25 percent discount.

5th Circuit Reverses *McCord.* Confirming the original valuation of marketability discounts (*McCord v. Commissioner*, 2006 U.S. App. Lexis 21473 (8/22/06), the Fifth Circuit Court of Appeals overturned the first *McCord v. Commissioner* (2003 U.S. Tax Ct. Lexis 16 2003) for its determination of marketability discounts, in which the Tax Court rejected the taxpayer's restricted stock analysis and accepted the criticism of pre-IPO studies by Mukesh Bajaj, PhD (LEGG, Emeryville, CA), without adopting his final conclusions.

Summary of Discounts

The application of a discount for lack of marketability can be derived based upon some or all of the foregoing restricted stock studies, pre-IPO studies, cost of flotation studies, independent studies and court decisions. Figure 26 summarizes the mean and median discounts from all of the above-mentioned studies and decisions. Since the cost of flotation studies, independent studies, and court decisions only resulted in one discount value, the result presented does not include the mean from those sources.

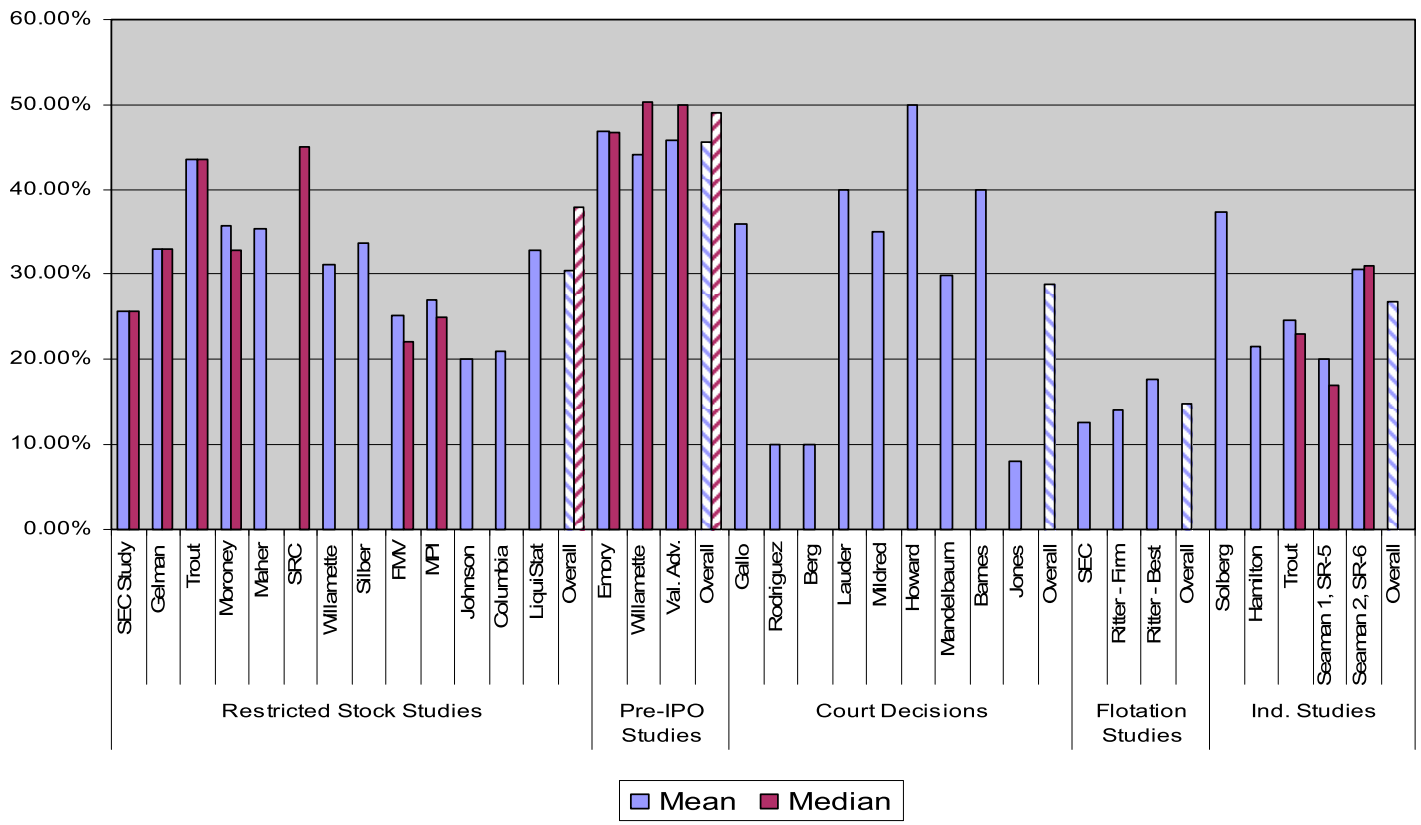
VII. Conclusion

Degrees of Marketability

The ability to convert an investment to cash in three

[50] *Valuing a Business*, 5th Edition, op cit., pp. 449-450.

Figure 26: Summary of Discounts



days or less is the standard or benchmark for determining marketability.

It is generally accepted with the appraisal profession that the standard for marketability (or liquidity) of minority interests in closely held businesses is "cash in three days." In other words, sellers of publicly traded securities with active markets can achieve liquidity on the third business day, at or very near the market price prevailing at the time of the sale.[51]

Compared to this standard, an investment is either marketable or it is not. In between "marketable" and "nonmarketable" is a spectrum of marketability or lack thereof. The following hierarchy of marketability (the most marketable at the top) is not meant to illustrate every conceivable variation in liquidity, but provides a guideline for comparison to the subject interest:[52]

- Registered with the SEC and actively traded (the benchmark from which some lack of marketability discount is indicated
- A stock with contractual put rights (right of owner to sell, usually to the issuing company, under specified circumstances and terms). The most common example is employee stock ownership plan stock.
- Private company with an imminent (or likely) public offering
- Private company with frequent private transactions
- Private company with interests subject to restrictive transfer provisions

Application of the Conclusion

A conclusion regarding the amount of liquidity adjustment should be driven by a comparison of the subject interest's "rights and restrictions" in comparison to available data, i.e., the studies and other reference points contained in this article. Based on those studies and cases, the following model applies a decision-making technique known as multi-attribute utility analysis (MUA).[53]

[51] *Quantifying Marketability Discounts*, by Z. Christopher Mercer, Peabody Publishing, Memphis, TN, 2001, pg. 6.
[52] Adapted from *Business Valuation and Taxes, Procedure, Law, and Perspective*, by David Laro and Shannon P. Pratt, John Wiley & Sons, Hoboken, NJ, 2005, page 285.
[53] "Decision Analysis Comes of Age," by Jacob W. Ulvila and Rex V. Brown, *Harvard Business Review*, September-October 1982, Vol. 60, Number 5, pp. 136-140.

Figure 27: MUA Technique

	Restricted Stock Studies		Little	Medium	Strong	Period	# Trans	Avg	Med.	Comments	
1	SEC Institutional Investor		x			1966-1969	398	25.8%		somew hat general	
2	SEC non-reporting OTC companies			x		1966-1970		32.6%		OTC exchange preferred	
3	Gelman		x			1968-1970	89	33.0%		somew hat general	
4	Moroney		x			1968-1972	148	35.6%		somew hat general	
5	Maher		x			1969-1973	33	35.4%		somew hat general	
6	Trout		x			1968-1972	60	33.5%		somew hat general	
7	Std. Research Consultants			x		1978-1982	28	45.0%	45.0%	older -more specific & segmented	
8	Willamette Mgt Assoc		x			1981-1984	33	31.2%	31.2%	somew hat general	
9	Silber		x			1981-1988	69	33.8%		somew hat general	
10	FMV Opinions-Tw o Year Holding Period			x		1980-1997	197	23.4%	21.1%	data very specific	
11	FMV Opinions-One Year Holding Period			x		1997-2005	132	28.0%	23.7%	data very specific	
12	Johnson		x			1991-1995	70	20.0%		somew hat general	
13	Mgt Planning		x			1980-1996	53	27.0%		somew hat general	
14	Columbia Fin. Advisors - Tw o Year Holding Period		x			1996-1997	23	21.0%		somew hat general	
15	Columbia Fin. Advisors-One Year Holding Period		x			1997-1998	15	13.0%		somew hat general	
16	Pluris Valuation Advisors LLC - Liquistat				x	2005-2006	61	32.8%		secondary market - better data	
17	Summary of Restricted Stock Studies - Tw o Year HP				x		1201	30.6%		preponderance of data	
18	Summary of Restricted Stock Studies - One Year HP			x			147	20.5%		preponderance of data	
19	Summary of Restricted Stock Studies -all			x			1348	29.0%		preponderance of data	
	Pre-IPO Studies										
1	Emory		x			1980-1981	13	60.0%	60.0%	somew hat general - older data	
2	Emory		x			1985-1986	21	43.0%	43.0%	somew hat general - older data	
3	Emory		x			1987-1989	27	45.0%	45.0%	somew hat general - older data	
4	Emory		x			1989-1990	23	45.0%	40.0%	somew hat general - older data	
5	Emory		x			1990-1992	35	42.0%	40.0%	somew hat general - older data	
6	Emory		x			1992-1993	54	45.0%	44.0%	somew hat general - older data	
7	Emory		x			1994-1995	46	45.0%	45.0%	somew hat general - older data	
8	Emory	all		x		11/95-4/97	91	43.0%	42.0%	somew hat general - older data	
8	Emory	sale trans		x		11/95-4/97		54.0%	61.0%	somew hat general - older data	
8	Emory	option trans		x		11/95-4/97		39.0%	40.0%	somew hat general - older data	
9	Emory	dot.coms	x			5/97-12/00	266	54.0%	54.0%	somew hat general - older data	
10	Emory	tech companies	x			5/97-12/00	41	55.0%	55.0%	somew hat general - older data	
11	Willamette Mgt Assoc.		x			1975-1997	1007	44.2%	50.4%	somew hat general - older data	
12	Willamette Mgt Assoc.		x			1999-2002	73	23.9%	31.6%	somew hat general - older data	
13	Valuation Advisors		x			1999	694	58.2%	63.3%	many tech companies & data points	
14	Valuation Advisors		x			2000	653	51.8%	56.4%	many tech companies & data points	
15	Valuation Advisors		x			2001	115	34.4%	37.5%	many tech companies & data points	
16	Valuation Advisors		x			2002	81	38.6%	42.7%	many tech companies & data points	
17	Valuation Advisors		x			2003	123	41.3%	40.1%	many tech companies & data points	
18	Valuation Advisors		x			2004	334	38.2%	40.8%	many tech companies & data points	
19	Valuation Advisors			x		2005	296	32.9%	38.6%	many tech companies & data points	
20	Valuation Advisors				x	2006	348	34.9%	39.1%	many tech companies & data points	
21	Summary of Pre-IPO Studies				x		4341	44.0%	42.9%	preponderance of data	
	Independent Studies										
1	Long-Term Eq. Anticipation Sec. (LEAPS)	Trout		x		2003		24.6%	22.9%	illustrate "minimum discounts"	
2	Long-Term Eq. Anticipation Sec. (LEAPS)	Seaman 1, SR-5			x	2005	261	20.0%	17.0%	illustrate "minimum discounts"	
3	Long-Term Eq. Anticipation Sec. (LEAPS)	Seaman 2, SR-6			x	2005	261	30.6%	31.0%	illustrate "minimum discounts"	

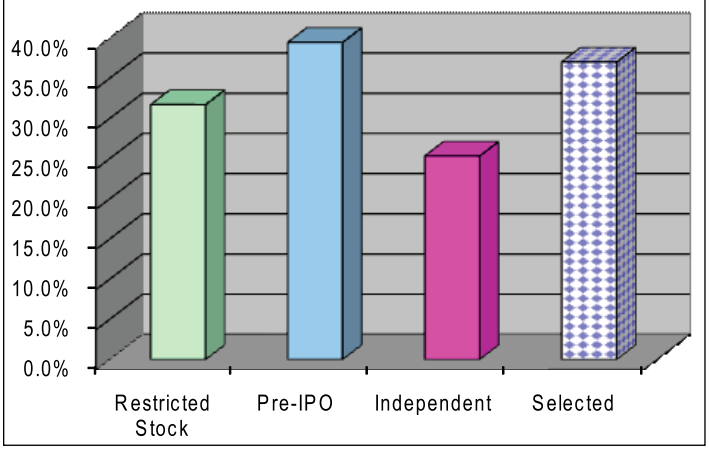
High	32.8%
Median	31.7%
Low	30.6%

Selected	37.0%

High	44.0%
Median	39.5%
Low	34.9%

High	30.6%
Median	25.3%
Low	20.0%

Figure 28: Graphic representation of data in Figure 27
Example Entity, Inc.
Discount for Lack of Marketability



MUA specifies the factors that affect choice between and among competing (and sometimes contradictory) subjective and objective considerations, and thus chooses the alternative available that offers the best balance.

The following model employs MUA by comparing the individual attributes of each study above to the attributes of the subject interest, and deciding whether, or to what extent, the attributes are common. Common attributes result in a "strong" rating. Once the "strong" ratings are identified, the overall attributes are then quantified and arrayed, resulting in a logical progression to an overall conclusion.

The calculation applies the attributes of a non-controlling interest in the subject company.

Additional elements regarding the discount for lack of marketability decision include the following four:

1. No readily available open or over-the-counter market exists on which to trade shareholder interests. Therefore, it is logical to apply discounts at least partially (if not wholly) based on the empirical studies.

2. The empirical data referenced in this article reflect interests that had a clear prospect of liquidity in a near-term time horizon. This characteristic logically suggests that dissimilar prospects of liquidity, e.g., the company would require even greater discounts for lack of marketability.

3. The business as a whole is presumed to be more marketable than a partial interest. In this case we are valuing a non-controlling interest which logically would be even less marketable or liquid than a business as a whole. Accordingly we have applied a very conservative discount for lack of mar-

ketability of 37 percent, since we are valuing a non-controlling interest.

4. Figure 27 reflects the MUA technique used to derive a discount for lack of marketability for the subject interest by calibrating the respective rights and restrictions against the various studies' composition. Figure 28 presents that information in graphical format. VE

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