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## CONTROLLING INTERESTS— DISCOUNT FOR LACK OF MARKETABILITY: THE EMPIRICAL EVIDENCE

By Ronald D. DiMattia, CPA, ABV, CMA

### OVERVIEW

Some leading practitioner-authors have questioned whether a discount for lack of marketability should be applied when valuing controlling ownership interests. Although the logical arguments are strong that controlling ownership interests lack marketability, no empirical studies have been cited as support—unlike minority ownership interests, for which such studies are numerous.

This article analyzes the concept of marketability generally and as it applies to controlling ownership interests. It then identifies an area of academic research, merger arbitrage, which has been widely examined and includes a number of empirical studies. The conceptual underpinnings of merger arbitrage are described and are found to be quite similar to the lack of marketability concept for controlling ownership interests. Empirical evidence from certain studies is then cited and offered as an indicator of the lack of marketability for controlling ownership interests. Areas for further research are also identified.

### GENERAL THEORY

The concept of a discount for lack of marketability in valuing privately held

business ownership interests is well established in modern valuation theory. It can be a crucial aspect in the valuation of the stock of a privately held company because many valuation methods used by appraisers result in a marketable indication of value. That result is due to the underlying market data that appraisers use in the income and market approaches. These data are derived from publicly traded companies. It is generally accepted that appraisers should consider whether the interest being valued is nonmarketable, and if a discount for lack of marketability should be applied.

The concept of marketability centers on the ease with which the holder of a stock ownership interest can convert the security to cash in terms of timing, the reliability of realizing the quoted proceeds, and transaction costs. The authors of *Valuing a Business* put it better, as follows:

In this text, we will define marketability as the ability to convert the business ownership interest (at whatever ownership level) to cash quickly, with minimum transaction and administrative costs in so doing and with a high degree of certainty of realizing the expected amount of net proceeds.<sup>1</sup>

<sup>1</sup> Shannon Pratt, Robert F. Reilly, and Robert P. Schweihs, *Valuing a Business*, 4th ed (New York: McGraw-Hill, 2000), p. 393.

The general standard against which marketability is measured is stocks that are actively traded on public exchanges. When the owners of a stock are unable to quickly liquidate their ownership position, they are exposed to significantly greater risk than stockholders of a company traded on a public exchange. The owners of an illiquid security cannot react quickly to developments in the specific company they have an investment in, or to developments in the broader market. Studies have shown that, because investors are risk averse, they apply a considerable discount to stocks that are not freely tradable.

It is widely accepted that marketability is affected by a variety of factors including the company's number of shareholders, financial stability and volatility of earnings, concentration of ownership interests, capabilities of management, size of the block of stock being valued, required holding period, restrictions on transfers, size of the company, and dividend-distribution policy. The Court ruling in *Bernard Mandelbaum, et al v. Commissioner* (TCM 1995-255) provides an excellent analysis of the discrete factors affecting the marketability of a minority ownership interest.

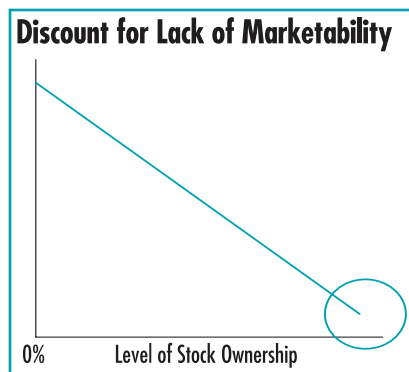
Much of the work that valuation practitioners conduct involves measuring the fair market value of a minority ownership interest in a privately held company. So it is no surprise that the empirical studies of

marketability have focused on minority ownership interests. The most widely used studies can be divided into two general categories:

1. Studies of discounts on sales of restricted shares of publicly traded companies
2. Studies of discounts on sales of closely held shares relative to the subsequent initial public offering price per share.

Both groups of studies contain a thorough body of research which consistently suggests a general range of discount from 20%–60% to reflect a minority equity interest's lack of marketability in a privately held company, with a rough average being 30%–45%.

It is also widely accepted among valuation practitioners that marketability has a fairly close relationship with the level of ownership control. It is generally assumed that the higher the level of control, the lower the level of marketability discount (all else held constant), as illustrated in the following chart:



There is disagreement among practitioners, however, regarding the lack of marketability associated with controlling interests. Put another way, some practitioners believe that the line in the preceding graph should intersect zero at some point along the ownership continuum. Some leading practitioner-authors state that no empirical evidence supports the claim that controlling interests in privately held companies lack marketability, and that if any lack of marketability does exist, it is captured in the calculated valuation result.<sup>2</sup> Some practitioners do believe that the lack of marketability is reflected in the valuation result when a merger and acquisition valuation method is utilized under the market approach. Well-known authors, however, seem to agree that a discount for lack of marketability is required with the merger and acquisition method.<sup>3</sup>

It would seem that most practitioners believe that despite the lack of empirical evidence, it is only logical that a controlling interest in a privately held company would be illiquid, regardless of the level of ownership interest, even 100% ownership. The illiquidity related to a controlling interest would derive principally from the factors described in the following paragraphs based on the discussion of them by Pratt, Reilly, and Schweihls in *Valuing a Business*, 4th edition.<sup>4</sup>

<sup>2</sup> James R. Hitchner, *Financial Valuation: Applications and Models*, 2nd edition (New Jersey: Wiley and Sons, Inc., 2006), pp. 391–392 (summarizing the controversy).

<sup>3</sup> Shannon P. Pratt, *The Market Approach to Valuing Businesses*, (New Jersey: Wiley and Sons, Inc., 2000), 154–155, and Hitchner, pp. 268–269.

<sup>4</sup> Shannon Pratt, Robert F. Reilly, and Robert P. Schweihls, *Valuing a Business*, 4th ed (New York: McGraw-Hill, 2000), pp. 411–416.

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- **Time horizon risk.** The rule of thumb among investment bankers and business brokers is that it can take, on average, 9–12 months to sell a small, privately held company. The process includes drafting marketing materials, identifying potential buyers, contacting buyers, holding preliminary discussions, negotiating letters of intent, conducting due diligence procedures including appraisals and EPA reports, negotiating the formal purchase agreement, and closing the transaction.
  - Offsetting time horizon risk would be the interim cash flows an investor could expect as a result of the company's dividend or distribution policy.
- **Price risk (a).** There are two elements to price risk. The first risk is actually realizing the quoted proceeds. Estimates of value for privately held enterprises can vary widely, and for some enterprises, there is a serious question whether they can be sold at all. Business brokers and investment bankers seem to believe that for any given transaction there is a very small probability of success. Business brokerage industry articles note that only one in five companies that are listed for sale is actually sold, and that 50% of deals that make it to the letter of intent stage fail.<sup>5</sup>
- **Price risk (b).** The second element of risk is the form that the purchase price will take. Consideration paid for a privately held enterprise is rarely all cash and often includes risky contingent consideration. Transaction currencies (cash vs. seller notes vs. earn-outs) would seem to exhibit a cyclical nature, varying in proportion depending on the health

of the overall financial markets. Both risks differ dramatically from that associated with the sale of publicly traded entities.

— To the extent a valuation analyst considers price risk effects in a valuation (by reducing the value conclusion or stating it as a range), it would not be necessary to include such considerations in estimating a discount for lack of marketability. The difficulty is that price risk effects are driven as much by the characteristics of buyers generally and the economic outlook as they are by the attributes of the valuation subject. As a result it may be more effective to consider price risk within the context of a discount for lack of marketability than to consider it separately.

- **Transaction costs.** Many valuation practitioners believe that transaction costs should not be taken into account in determining the value of an ownership interest. However, it is the relative difference in transaction costs, compared to a relevant base, which concerns valuation analysts because costs have an impact on proceeds. Costs for attorneys, accountants, investment bankers, and environmental consultants and other fees and expenses can be quite high (10% or more) for a small privately held company. It would seem that the concept of “economies of scale” would apply to acquisitions of ownership interests as well. Valuation analysts generally consider the effect of transaction costs when a significant relative difference in costs is expected.

Although the logical arguments in support of a discount for lack of marketability for controlling interests are

strong, no empirical data have been cited to date in support of it as there is with minority ownership interests.<sup>6</sup> Many practitioners assume that the level of marketability discount should be lower with controlling interests than with minority interests (as depicted in the chart accompanying this article), and generally settle on a discount of 20% or less.<sup>7</sup> It is the absence of empirical evidence that lies at the heart of the ongoing debate about discounts for lack of marketability for controlling interests in privately held companies.

#### MERGER ARBITRAGE—EMPIRICAL EVIDENCE

The concept of merger arbitrage has been established in the financial community for decades and can be defined as it is in the following paragraph taken from a Working Paper, “Merger Arbitrage: Evidence of Profitability” by Taewon Yang and Ben Branch<sup>8</sup>:

Merger arbitrage specialists invest in companies involved in a merger or an acquisition. In an acquisition situation, the manager will usually go long the stock of the company being acquired and short the stock of the acquiring company. The stock of the company being acquired will in general trade at a discount since all acquisitions take time and there always is a risk that the acquisition will not be completed. Merger arbitrage funds make investment profits when they successfully anticipate the outcome of an announced merger and capture the spread between the current market price and the price at which the stock will be trading after the merger is completed.

So once a merger or acquisition of a publicly traded company is announced, the target's stock price

<sup>5</sup> “Why Your Business Won't Sell!” Article ID: 116; “Tips on Avoiding the Deal Breakers,” Article ID: 35 by Business Brokers Press, available online at California Association of Business Brokers ([www.cabb.org](http://www.cabb.org)).

<sup>6</sup> Hitchner, p. 377; Exhibit 8.2; p. 392.

<sup>7</sup> *Ibid.*, p. 392.

<sup>8</sup> University of Massachusetts, Isenberg School of Management Working Paper, pp. 1-2 ([airtdatabase.com/research/pdffiles/article2taiwonandbranch.pdf](http://airtdatabase.com/research/pdffiles/article2taiwonandbranch.pdf)).

reacts and tends to rise near to, but generally lower than, the announced acquisition price. There seems to be general agreement that the differential in price arises because there is a meaningful lapse between the times the deal is first announced and when it eventually closes, as described in the following excerpt from another working paper, “Expanding the Limits of Merger Arbitrage” by Eliezer Fich and Irina Stefanescu:<sup>9</sup>

Because the purchase and tender of target shares do not occur simultaneously, risk arises in at least two different ways. First, while the deal is still pending, there is a risk that it will fail. In this situation the target’s price will likely fall, and the arbitrageur will suffer substantial losses. Second, arbitrageurs may require capital to finance the purchase of target shares while the deal is pending. Thus, even if the merger is completed, financing may put profits at risk....

An announced merger or acquisition could fail as a result of a variety of issues including the following:

- The target’s performance could slip, causing the buyer to re-evaluate the price or the entire deal.
- The buyer’s performance could change, making it unlikely to close the deal.
- General economic conditions could change, such as unanticipated movements in interest rates that make deal financing unattractive.
- Dynamics within either the buyer’s or target’s industries could change, such as a strike against or bankruptcy of a major supplier.
- Financial markets could experience a shock, a recent and vivid example being the “subprime” debacle.
- Regulators could rule that the deal is anticompetitive and cause

the terms to be altered or force it into a lengthy litigation.

— Such regulations apply to even relatively small transactions as a result of the Hart-Scott-Rodino Antitrust Improvements Act of 1976.

- Unexpected information about a target could come to light causing the buyer to reconsider.

The linkage between studies of merger arbitrage and an analysis of discounts for lack of marketability for controlling ownership interests is compelling. The similarities between these public merger transactions (for which there is substantial available data) and private acquisitions of controlling interests (for which there is very little available data) are strong. They are as follows:

- Both represent the acquisition of a controlling ownership interest.
- Both require a substantial period of time to complete.
- As a result of the lengthy time to complete, both are subject to a meaningful level of deal failure for which investors seek protection.

#### ELAPSED TIME

As noted previously the ability to liquidate a position in a stock quickly is a key determinant of marketability. A recent paper by Ben Branch and Taewon Yang studied 185 “collar” merger offers from 1993–2003.<sup>10</sup> The authors found that the average duration of public collar merger offers was 139 days. The working paper by Eliezer Fich and Irina Stefanescu cited earlier, “Expanding the Limits of Merger Arbitrage,”<sup>11</sup> studied 1,928 cash and stock mergers and acquisitions from 1985–2000 and found that the average transaction duration was about 4.5 months (although table 1 of that paper lists the average duration as 94 days, or about 3 months).

As we stated earlier, the rule of thumb among business brokers and investment bankers is that the sale of a privately held company requires a significantly longer period of time than the period cited in the studies previously mentioned. The rule of thumb period is between 9 and 12 months, sometimes longer than a year, depending on market conditions. However, it is unclear at this point whether private transactions do, in fact, take longer to consummate—from beginning to end—than do public transactions. Before a public merger or acquisition is announced, a significant amount of due diligence has already occurred, which is facilitated by Securities and Exchange Commission disclosure requirements. So although the elapsed time from announcement to closing approximates 4.5 months for public transactions, it is quite possible that the time from initial exploration of a merger or sale to closing approximates the rule of thumb for privately held companies. It would appear that the oft-cited business brokers’ rule of thumb starts when the broker is first hired, prior to preparing the initial due diligence package and contacting buyers.<sup>12</sup> From the perspective of elapsed time, it would appear that public mergers and acquisitions could exhibit similar characteristics to private mergers and acquisitions, but further research is required to confirm this belief.

#### TRANSACTION FAILURE RISK

Merger arbitrage studies also provide insights regarding another element of marketability—certainty of realizing the quoted proceeds. Because of the lengthy period of time necessary to close a merger/acquisition, there are a number of reasons why the transaction might ultimately fall apart. Data regarding the potential

<sup>9</sup> Kenan-Flagler Business School, University of North Carolina Chapel Hill Working Paper, May 18, 2003, p. 5. ([http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=410600](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=410600))

<sup>10</sup> “Merger Deal Structures and Investment Strategies,” *The Journal of Alternative Investments*, Winter 2006, Exhibit 4.

<sup>11</sup> Kenan-Flagler Business School, University of North Carolina Chapel Hill Working Paper, May 18, 2003, p. 12.

<sup>12</sup> “How Long Does it Take?” Business Brokerage Press ([www.bbpic.com/articlesdetail.asp?id=27](http://www.bbpic.com/articlesdetail.asp?id=27)).

for an announced transaction to fail are also well-documented.

In their working paper, “Expanding the Limits of Merger Arbitrage,” Eliezer Fich and Irina Stefanescu found that nearly 23% of the deals in their study failed.<sup>13</sup> Additionally, Micah Officer studied 4,593 merger or tender offer bids over the period 1985–2004 and found that between 17%–22% of the transactions in his study failed.<sup>14</sup>

Given the research, transaction failure risk is not insignificant. Interestingly, the Fich and Stefanescu paper also found that the risk of deal failure was significantly higher for smaller acquirers, defined as those not included in the Standard & Poor’s 500 index. They found that roughly 9% of transactions failed when the bidder was part of the S&P 500. However, the failure rate jumps to 26% when the bidder is not included in the index.<sup>15</sup> Because the acquirer of a smaller privately held company is more likely to be outside the S&P 500 index, one could argue that the risk of deal failure is probably greater the smaller the target.

The *Mergerstat Review* (Mergerstat) is a well regarded publication among valuation analysts. It includes information about deal failure rates. At first blush it would appear that Mergerstat’s data contradict the findings in the previously mentioned research papers. The Mergerstat data are summarized in the following table:<sup>16</sup>

	2002	2003	2004	2005	2006
Gross announcements	7,469	8,136	9,924	10,522	10,841
Cancellations	166	153	141	171	182
Cancellations %	2%	2%	1%	2%	2%

Mergerstat presents data in its yearbook back to 1982, and cancellations generally approximate less than 10%

each year. Over the past 10 years cancellations were generally less than 4%. Other detail in the Mergerstat yearbook, though, provides useful insights.<sup>17</sup>

	2002	2003	2004	2005	2006
Gross announcements	7,469	8,136	9,924	10,522	10,841
Cancellations	166	153	141	171	182
Cancellations %	2%	2%	1%	2%	2%
Publicly traded sellers	411	463	372	448	488
Privately owned sellers	3,683	3,714	4,916	5,385	5,744
Divestitures	2,691	3,188	3,560	3,570	3,375

The differences in cancellation results would appear to be explained by the nature of the data sets used in each case. The academic research of merger arbitrage is focused on transactions involving publicly traded sellers. Mergerstat’s data are dominated by privately owned sellers and divestitures. Additionally, Mergerstat’s data are obtained principally through public announcements of transactions. This fact is important because privately owned sellers (and to some extent divestitures) are not subject to the same disclosure requirements as are publicly traded sellers. To be sure, deals with privately owned sellers do fail, but those failures are far less likely to be announced publicly. Announcements of transactions with private sellers (and many divestitures) are generally published once the deal is completed, not while it is pending, unlike publicly traded sales. It is well known and widely accepted that with privately owned sellers and divestitures, the principals involved are very reluctant to have any information about a pending transaction “leaked” before it is actually completed. The reasons most often cited relate to employees (who could leave if they know the company’s being sold), customers (who

could get concerned about their source of supply), and competitors (who could try to use the announcement to their advantage). Although further research is necessary to reconcile these differences, it would *not* appear that the academic research of merger arbitrage overstates transaction failure risk.

**RISK DISCOUNT**

Empirical research makes clear that for publicly traded targets, the time between deal announcement and consummation is lengthy, and the risk of deal failure is high. So it is logical that arbitrageurs should reap a benefit for assuming this risk in the form of a discount from the announced deal price. In terms of the merger arbitrage market, this discount is known as the *spread*, and empirical studies support its existence and indicate that it is meaningful.

The study by Ben Branch and Taewon Yang of collar merger offers found that the spread between the offer price and the market price one day after the merger announcement averaged roughly 9% for the transactions in their study.<sup>18</sup> Micah Officer’s study analyzed the spread from several perspectives with average spread results ranging from 4%–6% generally.<sup>19</sup> However, these studies are silent on the effect that dividends have on the calculated spread, an interesting question that should be researched further.

It is important to note the differences in the way each of the studies mentioned in the previous paragraph calculates the spread. The Branch/Yang study calculates the *initial* spread, which is the spread one day after the merger announcement. The study by Micah Officer captures the *average* spread for a large number

13 Fich and Stefanescu, p. 17.

14 Micah Officer, “Are Performance Based Arbitrage Effects Detectable? Evidence From Merger Arbitrage” Working Paper, February 20, 2007, p. 15. ([http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=725322](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=725322))

15 Fich and Stefanescu, p. 17.

16 *Mergerstat Review 2007 Yearbook*, FactSet Mergerstat LLC, p. 158.

17 *Ibid.* pp. 158, 219.

18 Ben Branch and Taewon Yang, “Merger Deal Structures and Investment Strategies,” *The Journal of Alternative Investments*, Winter 2006, Exhibit 6.

19 Officer, Tables 4 & 5, Figure 1.

of transactions that are pending around large failed mergers (the purpose of his study was to determine if average spreads are affected by the failure of large high profile proposed mergers). So, in the study by Micah Officer, the spreads calculated could span a wide time range after the announcement of a merger. As Officer notes in his working paper

Merger spreads differ between deals and across time due to deal-specific characteristics. For example, the probability that a merger proposal or tender offer will be successfully consummated and the probability that a higher competing bid will eventuate are both factors that will cause spreads to vary....Intuitively, spreads should be narrower, but positive, when the offer is more likely to be completed and completed in a short timeframe because arbitrageurs are more likely to realize the offered compensation for their shares quickly.<sup>20</sup>

The distinction in calculation methods is important because one would expect that the *initial* spread should become narrower as a transaction nears completion. That is because the probability of deal failure is expected to be greatest when the transaction is first announced. As a deal nears completion, risk of failure should begin to subside, and the spread should narrow. There are notable exceptions to this expectation, and further research would be useful to confirm this belief. But it would seem fair to say that the study method used by Micah Officer would tend to produce lower spread results than the method used in the Branch/Yang study. Further research is required to confirm this belief.

Additionally, Micah Officer's study indicates the existence of a size effect related to the spread.<sup>21</sup> Although the spread on the largest

targets in one part of his study ranged from 1%–3%, the spread for the smallest targets approximated 7%. This finding is significant as it relates to discounts for lack of marketability because many valuation practitioners assume that the smaller the company, the less marketable it is (all else being constant). The results of Officer's study would seem to support this conclusion.

#### **APPLICATION TO DISCOUNTS FOR LACK OF MARKETABILITY OF CONTROLLING INTERESTS**

Given the similarities between public and private merger and acquisition transactions, it would seem logical to apply the findings from studies of merger arbitrage to the valuation of a privately held controlling ownership interest for the following reasons:

- The studies cited relate to announced mergers and acquisitions, which are control indications of value.
- Empirical research indicates that merger announcements are a sign of an illiquid valuation as the time to realize the quoted price is extended, which is similar in acquisitions of privately held companies.
- Empirical research also indicates that merger announcements are subject to significant risk of failure, similar to acquisitions of privately held companies.
- Empirical research would indicate that the risk the market attaches to such illiquidity is significant, from 4%–9% according to the studies.

Based on the research reviewed, it would appear that merger arbitrage studies provide useful empirical research concerning the marketability of controlling ownership interests. The average spread calculated in the studies would seem to be an appropriate measure to use in the

valuation of a controlling ownership interest in a privately held company to reflect its lack of marketability. Merger arbitrage studies would also seem to support the belief that, as the level of ownership increases, so does relative marketability. Empirical research would seem to demonstrate that discounts for lack of marketability are much larger for minority ownership interests (35%–40% on average) than are discounts related to controlling ownership interests (4%–9% on average). Finally, merger arbitrage studies would seem to support the belief that larger companies are more marketable than are smaller companies (all else being constant).

#### **MORE RESEARCH NEEDED**

Empirical research summarized in this paper indicates that studies of merger arbitrage could be a rich source of data in assessing the discount for lack of marketability associated with controlling ownership interests. Further study is required, though, before it can be accepted as settled theory among practitioners. The research cited in this article was not specifically generated to address the question of discounts for lack of marketability for controlling interests; it was focused on returns that are generated in merger arbitrage trading strategies. However, results of merger arbitrage studies would seem to indicate that it is a valid area of research concerning the marketability of controlling ownership interests. ❧

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<sup>20</sup> Officer, pp. 6–7.

<sup>21</sup> Officer, Figure 1.