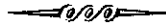


FOURTH EDITION

**TAKEOVERS,
RESTRUCTURING, AND
CORPORATE GOVERNANCE**



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CHAPTER 21

MERGER ARBITRAGE



The mention of merger arbitrage often conjures up images of Ivan Boesky, famed arbitrageur, or Gordon Gekko in the box-office hit *Wall Street*. However, Ivan Boesky went to federal prison for buying takeover targets in advance of merger announcements. Gordon Gekko was a corporate raider who attempted to buy entire companies based on illegal inside information. In contrast to purchasing takeover targets prior to the merger announcement or engaging in insider information, merger arbitrage is the purchase of a target's stock after the merger announcement.

After the announcement of a merger, the target's stock price typically trades at a small discount, often 1% to 2%, relative to the consideration offered by the acquirer. This discount reflects the time value of money because the deal usually takes a few months to complete, and it reflects the possibility that the merger might fail, in which case the target stock often plummets. In evaluating the discount, commonly referred to on Wall Street as the deal spread, the arbitrageur will translate the spread into an annualized rate of return, estimate the probability of deal failure, and then decide whether or not the spread compensates for the time value of money and for the possibility of deal termination. If the spread is sufficiently large, the arbitrageur will purchase shares in the target firm.

On the opposite side of the trade are investors, who typically have received a substantial windfall, usually ranging from 20% to 30%, due to the large appreciation of the value in the target stock at the merger announcement. These investors face the choice of selling the target stock and realizing the large windfall or holding onto the stock in order to obtain the remaining premium that is the result of the target trading at a small discount relative to the consideration offered. The cost of holding onto the target stock until merger consummation is that if the deal breaks, albeit with a low degree of probability, the investor will lose the previous gain on the target stock due to the large appreciation at merger announcement and might lose considerably more, as well. Many investors choose to insure against this downside by locking in the gains and avoiding the potential for deal failure. Arbitrageurs step in and buy the target shares from the investors, thereby in effect selling insurance against deal failure to those investors. Merger arbitrageurs are compensated for bearing this transaction risk.

Several distinct characteristics of mergers are important for understanding merger arbitrage.

- Aggregate merger activity tends to be procyclical with respect to the stock market.
- Times-series clustering of merger activity can occur with heavy concentrations in certain sectors at each point in time.
- Merger agreements sometimes fall apart and, therefore, fail.

- Merger failure is typically idiosyncratic but is occasionally due to aggregate market conditions.
- There are many forms of payment to the target shareholders, which determines the trades required to capture the merger arbitrage spread.

Many notable financial experts have excelled at merger arbitrage at some point during their career, including Warren Buffett, chairman of Berkshire Hathaway (invested in merger arbitrage during the 1970s and 1980s), Ace Greenberg, former chairman of Bear Stearns (spent 54 years at Bear Stearns and continues to sit on the arbitrage trading desk), and Robert Rubin, vice chairman of Citigroup and former U.S. Treasury Secretary (famed Goldman Sachs merger arbitrageur during the 1970s and 1980s). Today, numerous types of financial institutions engage in merger arbitrage, including proprietary trading desks of Wall Street investment houses, hedge funds, and even some corporate pension funds and endowment funds. Indeed, on a much smaller scale, individual investors often invest in target firms after mergers are announced and hold until deal consummation or failure.

This chapter will describe the investment practice of merger arbitrage and will discuss the risk and return to this investment strategy. The chapter is organized into the following sections: (1) merger arbitrage scenarios, (2) empirical research of merger arbitrage, and (3) merger arbitrage in action.

MERGER ARBITRAGE SCENARIOS

Arbitrage is the zero-investment purchase of a security financed by the sale of an identical security at a higher price. Because arbitrage has a zero probability of a loss on the investment and a positive probability of a profit, it is risk free. Merger arbitrage, however, is risky due to the occasional deal failure, and is thus often referred to as risk arbitrage. Merger arbitrageurs specialize in bearing deal-failure risk and typically attempt to avoid overall market risk as much as possible. As we will see, insulating just the deal-failure risk sometimes involves fairly complicated trading strategies and cannot be done completely. Failing to fully appreciate the risks of merger arbitrage has proven to be costly for many investors. This section describes the mechanics of various types of merger arbitrage.

CASH DEALS

The most straightforward merger arbitrage trade involves cash mergers or cash tender offers. An example will illustrate the arbitrage trade. At 7:29 A.M. on May 13, 2002, Sears, Roebuck and Company announced a definitive agreement for Sears to acquire Lands' End, Inc. (LE), the successful catalog apparel retailer, in a cash tender offer for \$62 per LE share, or roughly \$1.9 billion. The merger announcement followed months of extensive discussions regarding the strategic merits of the merger and how to structure the actual transaction. Management of the merging parties believed that the merger would be helpful in addressing key strategic issues that each party faced. Sears had recently done an excellent job at cutting costs, but it had fared poorly at enhancing revenue growth, especially in the apparel offerings. The addition of LE clothes to all 870 Sears department stores would increase the annual sales at Sears greatly. For LE, the merger brought huge growth opportunity because it would allow exposure to a large group of consumers who do not buy clothing through catalogs or the Internet.

The stock price of LE increased substantially in response to the definitive merger agreement, closing at \$61.73 on the announcement date, up from \$51.02 at the close of the prior trading day, an increase of 21%. A merger arbitrageur would calculate the expected return to an investment of purchasing LE stock and holding it until merger completion or termination. See Table 21.1 for the calculation. Assuming that the arbitrageur could purchase the stock at the closing price of \$61.73 and would pay commission costs of 2 cents per share, the net dollar return would be 25 cents ($\$62.00 - \$61.73 - \$0.02$), representing a 0.405% return ($\$0.25/\61.75). Note that arbitrageurs also would account for any dividends to be received during the period that they hold the target stock. In the case of LE, management did not plan to pay any dividends prior to merger closing. The commission cost of 2 cents per share was simply an estimate of what the arbitrageur would pay. It could range from less than 1 cent per share for an arbitrageur who employs an electronic trading system to 5 cents per share at a full-service investment house, which provides research guidance to the arbitrageur regarding the merger.

In order to determine whether or not to invest in LE, a comparison should be made to the opportunity cost of capital. In order to make this comparison, the arbitrageur must assess the risk of the transaction. Because Sears and LE signed a definitive agreement, management of both firms had full intentions of consummating the merger. Moreover, Gary Comer, founder and chairman of LE, and certain other shareholders had agreed to tender their shares, representing roughly 55% of the total shares outstanding. The tender offer was conditional on obtaining at least 67% of the shares, and thus with the 55% already in favor, probability was low that target shareholders would block the merger. Both companies were in good financial shape and thus little problem was anticipated in financing the cash tender offer. Indeed, Sears had in excess of \$1 billion in cash at the time of the merger announcement, more than half of the total cost of the acquisition. In addition, LE had more than \$100 million in excess cash, and hence the actual purchase price was \$1.8 billion rather than the stated \$1.9 billion. Sears knew it would be able to finance the rest of the acquisition easily with its near-term cash flow from operations.

TABLE 21.1 Expected Payoff in Lands End Incorporated-Sears, Roebuck and Company Merger

<i>Expected Payoff</i>	
Tender Offer	\$62
Current Price	\$61.73
Gross Spread	\$0.27
Commission Costs	\$0.02
Cost of Purchase	\$61.75
Net Spread	\$0.25
Promised Return	0.405%
Price if Deal Breaks	\$51.02
Net Sale Price	\$51
Probability of Deal Failure	0.01
Expected Return	0.227%
Time to Completion	40 days
Expected Annualized Return	2.09%
Annualized Risk-free Rate	1.70%

An unlikely deal blocker was the failure to obtain government approval. Arbitrageurs often spend considerable resources and time attempting to predict the government's reaction to a deal. In light of the low market share and minor overlapping operations held by the merging parties, and given the competitive marketplace in which they were operating, arbitrageurs assigned a small probability to the FTC or the Department of Justice blocking the merger on antitrust grounds. In addition to assessing the strategic benefits of the merger, evaluating the financial positions of the merging parties, forecasting antitrust action, and so on, arbitrageurs also attempt to account for any other potential factor that could derail the deal.

Once arbitrageurs have evaluated the likelihood of a merger being completed, they assign a probability to deal completion versus termination and make the appropriate adjustment to the expected return. For purposes of illustration, assume that arbitrageurs assigned a probability of 99% of Sears acquiring LE at the stated terms. Thus, arbitrageurs believed there was little probability of any factor derailing the merger. To complete the calculation of the expected return, they needed to forecast the price of LE stock in case of merger failure. This forecast is difficult to make with a high degree of certainty, because it is hard to forecast the reason for merger failure. If the merger failed due to LE receiving a higher bid from another acquirer, then its price would go up. However, if the merger failed due to accounting fraud issues at LE, the price would plummet likely well below where it was trading prior to the merger announcement. In the LE example, assume that its price would drop to the premerger announcement price of \$51.02 in the event of deal failure. Accounting for the probability of deal failure, the expected return can be calculated as 0.227% [$99\% \times (\$62/\$61.75 - 1) + 1\% \times (\$51.02/\$61.75 - 1)$], considerably less than the 0.405% promised return.

Once the arbitrageur has calculated the expected return, the next step is to compare to the opportunity cost of capital. Merger arbitrageurs typically assume that the investment is market neutral and hence has no beta risk (this will be discussed in greater detail later in the chapter). Many arbitrageurs use the 3-month Treasury bill return as the comparable benchmark. At the time of the LE merger, the annualized 3-month Treasury bill return was about 1.70%. In order to annualize the expected return to the arbitrage investment in LE, the expected time to completion must be forecasted. During the conference call on May 13, 2002, when the deal was announced, management indicated that the deal would be expected to close in mid to late June. Given this guidance by management, coupled with the low likelihood of a second request from the FTC and the fact that it was a cash tender offer without substantial outside financing, arbitrageurs forecasted the deal would take about 40 days to complete. Consequently, the expected annualized return was $[(1.00227)^{365/40} - 1]$, or 2.09%. In that the expected return exceeded the benchmark return, the merger arbitrageur would invest in LE.

Alternatively, merger arbitrageurs could calculate the market's expectation of deal failure and then compare this estimate to their own estimate of deal failure likelihood. To the extent that arbitrageurs' estimates of deal failure are less than the market's estimate of deal failure, they would choose to invest in the deal. To compute the market's expectation of deal failure, arbitrageurs would use the following equation:

$$\frac{[(1 - p) \times \text{Offer Price} + p \times \text{Failure Price}]}{[1 + \text{Treasury Bill Rate}]^T} = \text{Current Price}$$

where p is the probability that the merger fails. If we use the same inputs (Offer Price = \$62.00, Failure Price = \$51.02, Annualized Treasury Bill Rate = 1.70%, Time to Completion as proxied by $T = 40$ days, and Current Price = \$61.73) as before, the implied probability failure is equal to

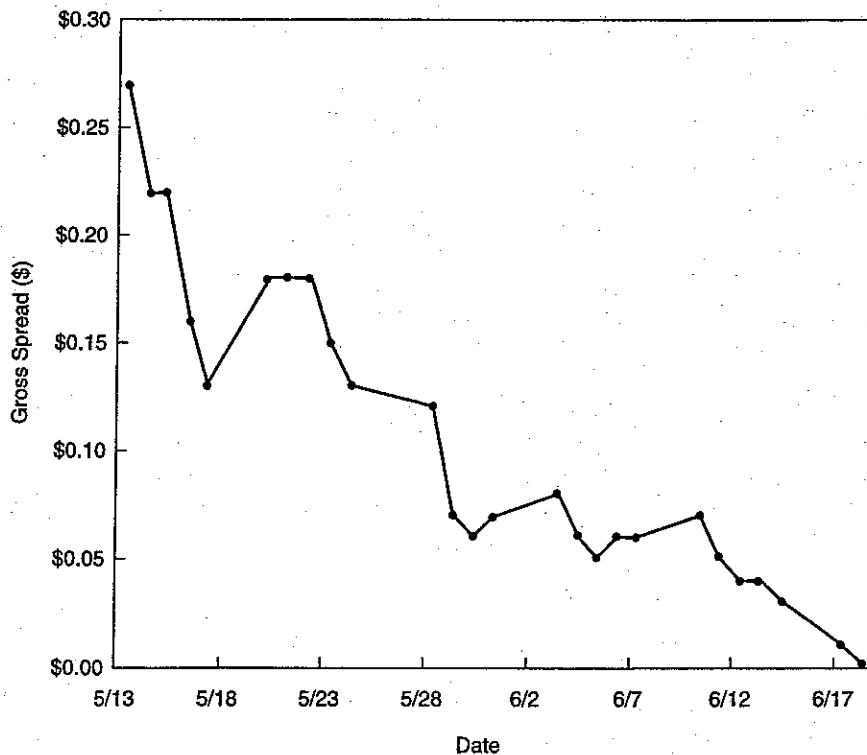
1.40%. To the extent that the merger arbitrageurs believe that the probability of deal failure is less than 1.40%, they will invest in the deal.

Sears completed the merger with LE on the evening of June 17, which was 1 week ahead of the completion date as forecasted by the merger arbitrage community. When Sears announced the acquisition on May 13, management revealed that it would commence the formal tender offer shortly, which it did on May 17. On May 28, the FTC notified Sears and LE that it granted early termination of the waiting period under HSR. Figure 21.1 displays the daily gross spread on LE from May 13 through June 18, calculated as the tender offer price of \$62 minus the closing price on each day during the window. As the deal progressed to completion, the spread tightened. By June 17, the spread was 1 cent, as the LE stock price closed at \$61.99. The gross spread of 1 cent would have yielded an annualized return of nearly 6% assuming arbitrageurs had received their tender offer payment on the next day, but any adjustment for commission would have eliminated the risk-free profit opportunity.

STOCK MERGERS

In a stock merger, the arbitrageur does not merely buy the target stock after the merger announcement and hold it until deal consummation or failure. Rather, in a stock merger, the arbitrageur also will short the stock of the acquiring firm in order to eliminate any overall stock

FIGURE 21.1 Gross Spread on Lands' End, Incorporated, Acquisition by Sears, Roebuck and Company



market risk associated with the trade because the merger arbitrageur specializes in deal failure risk. A recent high-profile example of a stock merger that received enormous attention from the merger arbitrage community in addition to an extraordinary amount of discussion by the corporate governance community was the merger of Compaq Computer Corporation (“Compaq”) and Hewlett-Packard Company (“HP”) that was announced in September 2001 and completed in May 2002. In this chapter, we will describe the merger from the perspective of the merger arbitrageur rather than from the corporate finance and governance view.

HP and Compaq announced the \$25 billion merger at 10:31 P.M. on Labor Day, September 3, 2001. Under the terms of the agreement, unanimously approved by both boards of directors, Compaq stockholders received 0.6325 shares of a newly issued share of HP for each share of Compaq. Management predicted that the merger would be substantially accretive to HP’s earnings in the first full year of combined operations. Cost synergies of \$2 billion and \$2.5 billion were forecasted for 2003 and 2004, respectively. Based on HP’s closing price of \$23.21 on August 31, the Friday before the announcement, the 0.6325 stock-exchange offer represented a premium of 18.9% $[(0.6325 \times \$23.21)/\$12.35 - 1]$ over Compaq’s closing price of \$12.35. As displayed in Table 21.2, the offer consideration was simply the exchange ratio of 0.6325 times HP’s share price of \$23.21, yielding an offer price of \$14.68.

Despite the synergies proclaimed by management, the stock market did not respond positively to the merger announcement. By the close of trading on September 4, HP’s stock price had dropped to \$18.87, a decline of 18.7% $(\$18.87/\$23.21 - 1)$. As a result of HP’s large stock price decline and the newly established link between the two stocks, Compaq stock dropped as well, down to \$11.08 from the prior close of \$12.35, representing a 10.3% $(\$11.08/\$12.35 - 1)$ decline. Academicians, journalists, and Wall Street analysts criticized the merger decision, claiming that it would not generate the synergies suggested, but rather would destroy the value of the two firms, especially HP. For example, David Yoffie, a professor at Harvard Business School, in his strong criticism of the merger contended that “no large-scale, high-tech merger has ever worked—ever” (*Wall Street Journal*, December 17, 2001, p. A18).

To the merger arbitrage community, the issue was not so much whether the merger would result in increased profit margins in the long term, but rather whether the merger would be completed, whether the terms would change even if completed, and if completed, the actual timing of completion. Merger arbitrageurs were mindful of HP’s recent failed attempt to acquire the consulting unit of Price Waterhouse for \$17 billion, a failure that was attributed to

TABLE 21.2 Announcement Period Stock Price Information for Compaq Computer and Hewlett-Packard Merger

<i>Announcement Period Price Information</i>		
	<i>Compaq Computer</i>	<i>Hewlett- Packard</i>
Premerger Price	\$12.35	\$23.21
Merger Exchange Ratio		0.6325
Offer Price	\$14.68	
Premium	18.87%	
Announcement-day Closing Price	\$11.08	\$18.87
Announcement-day Return	-10.28%	-18.70%

the sharp negative price reaction of HP stock to the acquisition announcement. Arbitrageurs also were mindful of the EU's rejection of the General Electric and Honeywell merger only 3 months prior. Given the large size of the Compaq merger, it was possible that antitrust authorities would label the merger as anticompetitive due to the potential for the new HP to bundle its personal computer/server/printer products to the detriment of the consumer.

Based on HP's closing stock price of \$18.87 on September 4, 2001, the offer price was \$11.94 ($\18.87×0.6325), yielding a gross spread of 86 cents (7.8% relative to Compaq's closing price of \$11.08. This 7.8% spread is large relative to the 0.4% (27 cents) gross spread in the Lands' End merger.

In the LE cash tender offer, the arbitrageur locked in the gross spread of 27 cents by purchasing stock in LE and waiting until tender offer completion to collect the payment. It is more difficult to lock in the 86 cent gross spread in the Compaq merger. For example, suppose the arbitrageur simply purchases Compaq shares at a price of \$11.08. The merger closes on schedule several months later, and by that time, HP stock has dropped from \$18.87 to \$12.87. Because the stock-swap ratio is 0.6325, the arbitrageur receives \$8.14 in HP stock ($0.6325 \times \12.87). Thus, arbitrageurs would lose 27% ($\$8.14/\$11.08 - 1$) on their investment, and yet the merger was completed successfully at the agreed-upon terms. Had HP stock increased subsequent to the arbitrageurs' purchase of Compaq stock, they would have made more than the 86 cent spread. For example, if HP's price were \$24.87 at the close of the merger, arbitrageurs would have made \$4.65 on their investment ($0.6325 \times \$24.87 - \11.08). Only if HP's stock price at the merger close equaled \$18.87 would the arbitrageur receive the gross spread of 86 cents. Because arbitrageurs seek to neutralize market risk and focus on deal failure risk, the arbitrageur will short HP stock contemporaneous with the purchase of Compaq. Specifically, the arbitrageur will short 0.6325 shares of HP for every share purchased in Compaq. Table 21.3 illustrates the payoff from the hedged investment versus that of the unhedged investment. For the hedged investment, whereby the arbitrageur shorts 0.6325 shares of HP for every share purchased in Compaq, the net profit is 86 cents, irrespective of HP's price when the merger closes. For example, when HP's price at merger close is \$12.87, the arbitrageur loses \$2.94 on the Compaq long position ($0.6325 \times \$12.87 - \11.08) but makes \$3.80 on the HP short position [$0.6325(\$18.87 - \$12.87)$], yielding the net profit of 86 cents. By hedging in the exact proportion as the merger exchange ratio, the arbitrageur will neutralize the market risk associated with movements in HP's stock price.

Before making the hedged investment in Compaq, the arbitrageur will assess the probability of deal failure, the expected time to completion, and so forth. As mentioned earlier, arbitrageurs would be concerned about HP's large price decline upon the announcement of the merger, and also would have concerns about antitrust issues. In addition, the Compaq merger would be expected to take considerably longer than the Lands' End merger. Due to the complexities in due diligence involved with integrating the two firms and the antitrust issues, arbitrageurs forecasted that the merger would take 7 months to complete and predicted a merger closing date of March 31, 2002. During the merger conference call on the announcement date, management indicated that they expected the merger to close in the first half of 2002 but were not more specific. In light of the lengthy period prior to merger completion, the arbitrageur would need to forecast the expected dividend payments by Compaq and HP. Both companies would be paying dividends with record dates in September, December, and March. Compaq pays a quarterly dividend of 3 cents, and HP pays a quarterly dividend of 8 cents. Thus, assuming the merger closes on schedule, arbitrageurs will receive 9 cents in dividends for each Compaq share held and will have to pay out 15 cents in dividends ($3 \times \$0.08 \times 0.6325$) on their

TABLE 21.3 Payoff of Unhedged Versus Hedged Investment in Compaq-Hewlett-Packard Merger

Unhedged Investment				
<i>Unhedged Investment</i>	<i>Purchase (number of shares)</i>	<i>Price</i>		
Compaq	1	\$11.08		
HP	0			
<i>Outcome</i>	<i>Value of HP Stock Received</i>	<i>Compaq Profit/Loss</i>		
HP Price = \$12.87	\$ 8.14	-\$2.94		
HP Price = \$18.87	11.94	0.86		
HP Price = \$24.87	15.73	4.65		
Hedged Investment				
<i>Hedged Investment</i>	<i>Purchase (number of shares)</i>	<i>Price</i>	<i>Short Sale (number of shares)</i>	<i>Price</i>
Compaq	1	\$11.08		
HP			0.6325	\$18.87
<i>Outcome</i>	<i>Value of HP Stock Received</i>	<i>Compaq Profit/Loss</i>	<i>HP Profit/Loss</i>	<i>Net Profit/Loss</i>
HP Price = \$12.87	\$ 8.14	-\$2.94	\$3.80	\$0.86
HP Price = \$18.87	11.94	0.86	0.00	0.86
HP Price = \$24.87	15.73	4.65	-3.80	0.86

0.6325 short position in HP. Another financial consideration in the hedged investment is the expected short-interest rebate on the short position in HP stock. Professional investors typically receive short-interest proceeds at a rate slightly less than the federal funds rate. At the time of the merger announcement, the federal funds rate was 3.5%. Assuming arbitrageurs would receive 80% of this rate, they would expect to receive roughly 19 cents ($\$18.87 \times 0.6325 \times 0.035 \times 0.80 \times 7/12$) in short-interest proceeds. Finally, there is the matter of actual transactions costs in setting up the trade. The arbitrageur often will pay a higher rate on setting up a stock-swap trade than on setting up the simple long-only trade. The higher rate is due to the added complexities in simultaneously buying Compaq stock and short selling HP stock. Rather than attempt to place the trades directly, the arbitrageur often will have a merger arbitrage trading desk at a major investment house set up the trade. A large investment house typically will have substantial trading volume in both stocks, thereby making it easier to put on the hedged position. A typical rate on such a trade is 5 cents per share. Thus, in the case of the Compaq merger, the commission costs would be 8.2 cents, consisting of the 5 cents on the long position and 3.2 cents ($0.6325 \times \$0.05$) on the short position. If the merger closes successfully, the long position simply crosses with the short position and no further commission costs are incurred. However, if the merger fails, the arbitrageur will incur added transactions costs associated with liquidating the position.

Table 21.4 displays the various inputs to convert the gross spread of 86 cents to a net spread of \$0.91. Based on the net spread of \$0.91, the return to the arbitrageur if the deal is completed is 8.25% ($\$0.91/\11.03). Note that the \$11.03 is the net investment cost and is equal to the offer

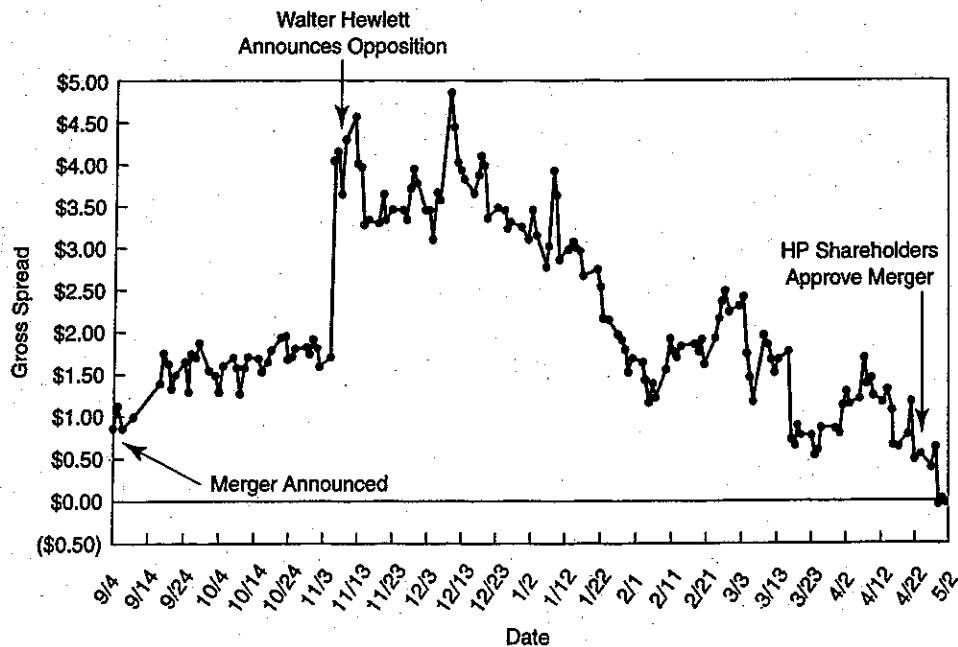
**TABLE 21.4 Deal Spread on
Compaq-Hewlett
Packard Merger**

<i>Deal Spread</i>	
Gross spread	\$0.86
Compaq dividends	\$0.09
HP dividends	-\$0.15
Short interest proceeds	\$0.19
Commission costs	-\$0.08
Net spread	\$0.91

price of \$11.94 minus the net spread. Assuming the deal closes on schedule as of the end of March, the annualized return would be 14.6% ($1.0825^{12/7} - 1$). This spread is large relative to the 2.1% annualized spread associated with the Lands' End merger, highlighting the perceived greater likelihood of failure. If arbitrageurs believe that the spread is sufficiently large enough to offset the likelihood of deal failure, then they will put on the position. Otherwise, they will delay an investment until there is either an increase in the spread or a decrease in their estimate of deal failure, holding all other factors constant.

Figure 21.2 displays the gross dollar spread for the Compaq-HP merger. On the far left side of the chart, the spread is 86 cents as described previously. A relatively sharp increase in the spread occurs on September 17 from 97 cents to \$1.38, the first day of trading subsequent to the tragic events of September 11, 2001. By November 5, the gross spread had gapped out to \$1.69 on

FIGURE 21.2 Gross Spread on Compaq-Hewlett Packard Merger



fears that the merger would be canceled or the exchange ratio reduced as a consequence of deteriorating performance numbers at Compaq. Assuming the forecasted closing date of March 31, 2002, the gross annualized return would be 53.8% if the merger was completed on schedule:

Prices on 11/5/01	Compaq	\$8.99
	HP	\$16.89

Gross spread = $\$16.89 \times 0.6325 - \$8.99 = \$1.69$
 Gross return = $\$1.69/\$8.99 = 18.8\%$
 Number of days from 11/5/01 to 3/31/02 = 146 days
 Gross annualized return = $(1 + 0.188)^{(365/146)} - 1 = 53.8\%$

In a surprising development, Walter Hewlett, son of the HP cofounder William Hewlett, publicly announced on the afternoon of November 6 that he and the rest of the Hewlett family members, along with a foundation in the family's name, would vote against the merger. The Hewlett family held a 5% stake in HP and thus accounted for 10% of the votes necessary to block the merger (HP is incorporated in Delaware which mandates 50% approval for shareholder voting). Arbitrageurs were stunned by the announcement because Walter Hewlett was not merely a member of the cofounder's family but was also a board member of HP and had earlier voted in favor of the merger at the board meeting. Upon the release of this announcement, the spread more than doubled to greater than \$4. The news also caught HP management by surprise as they were given only a half-hour warning by Mr. Hewlett before the news was made public. Soon after, the Packard family, with a stake of 10% indicated its intention to vote against the merger. Several large institutional investors indicated their intention to vote against the merger, as well.

Due to the large increase in the spread, many arbitrageurs reduced their position in Compaq in order to prevent further losses. Several arbitrageurs went so far as completely exit their investment in Compaq, and a few even chose to speculate against the deal by shorting Compaq and buying HP. Eventually, management prevailed, winning slightly more than 50% of the shareholder vote in a proxy election that was bitter until the end, climaxed by a vote recount demanded by Walter Hewlett. Once it finally became official that the merger would be completed, the spread closed to zero in early May 2002. The merger was formally consummated after the close of trading on May 3, 2002.

COMPLEX MERGER TRANSACTIONS

Cash mergers (Lands' End) and fixed-exchange ratio stock mergers (Compaq Computer) are straightforward merger arbitrage investments and account for more than half of all mergers. However, several different types of complex merger transactions are more difficult to hedge. Examples include transactions in which some of the payment to the target shareholders include securities such as debentures and preferred stock, transactions in which investors have a choice in the form of payment received (often a choice of either cash or stock), and stock transactions in which the exchange ratio is not known at the initial merger announcement date.

Without going into detail of explaining the hedging strategies for these complex transactions, we will describe briefly why they are more difficult to hedge from the viewpoint of the merger arbitrageur. Considerable market risk arises in a merger in which the form of payment is a security, such as preferred stock or debentures, that is not publicly traded, yet it is difficult to hedge the risk therein. One could hedge out a basket of publicly traded preferred stocks or debentures; however, there is considerable pricing risk in these hedges, especially considering that spreads on arbitrage deals are often only 1 or 2%, thereby leaving little room for error.

In many mergers, the form of payment is a combination of cash and stock. In some of these cases, the acquirer offers a fixed-dollar amount of cash per share and a fixed exchange ratio. These mergers are relatively straightforward because they simply offer a cash component and a stock component, and the arbitrageur will hedge out the stock component in the same manner as in the Compaq merger. However, in some cash/stock combination mergers, the acquirer allows the target shareholders to elect to receive either cash or acquirer stock as payment. A recent example was the merger of RGS Energy and Energy East Corporation. Under the terms of the merger agreement, shareholders of RGS Energy could elect to receive either \$39.50 in cash or 1.7626 shares in Energy East stock, subject to proration so that 55% of the RGS shares would be exchanged for cash and 45% would be exchanged for Energy East stock. Shareholders had to elect their preference within 3 days after the merger had closed. On June 28, 2002, the last day of trading in RGS stock, RGS closed at \$39.20 and Energy East closed at \$22.60. As of this date, electing stock would yield the higher value of \$39.83 ($\22.60×1.7626) versus cash of \$39.50. However, 3 days later, at the time of the election deadline, Energy East stock had dropped to \$22.07, thereby yielding a decreased value of \$38.90 to the stock electors. Thus, an investor who chose to elect at the close of trading on the election deadline date would prefer cash, all else being equal. From the arbitrageur's viewpoint, the problem is not knowing how other investors plan to elect. That is, arbitrageurs who elect cash because it generates the highest value might find out a few days subsequent that they have received stock in addition to cash due to the fact that nearly all of the investors elected cash. Consequently, the arbitrageurs would have an unhedged position in the acquirer stock and would thus bear considerable risk if the acquirer stock dropped during the period in which the investors made the election and learned of the outcome of the election. As a result, it is important for arbitrageurs to be able to forecast accurately how other investors will choose to elect, a difficult task because most investors do not pre-announce their election decision. As described, arbitrageurs do not always know the optimal hedge ratio near the end of the merger; however, in these election mergers, this is a problem throughout the life of the merger period.

Whereas the exchange ratio was fixed as of the merger announcement date in the Compaq and HP merger, in many stock mergers the exchange ratio is not known as of the merger announcement date but is instead dependent on the acquirer's stock price near the close of the merger. An example is the 2001 merger of American General and AIG International. According to the merger agreement, the exchange ratio would be determined based on the 10-day average price of AIG's daily high and low share prices ending 3 days prior to the closing of the merger. If AIG's average price during this 10-day period was less than \$76.20, the exchange ratio was to be fixed at 0.6037. If AIG's average price during this period was greater than \$84.22, the exchange ratio was fixed at 0.5462. If AIG's average price was between \$76.20 and \$84.22, the shareholders of American General were to receive a fractional amount of AIG shares equal to \$46 per share of AIG. The payoff to the American General shareholder is displayed in Figure 21.3, and this payoff is referred to as a collar. There are numerous varieties of these collar transactions, many of them more complicated than the American General merger. To the arbitrageur, these mergers are relatively more difficult to hedge because the merger-closing price of the acquirer is not known at the time that the deal is announced. However, the payoff to the target shareholder can be modeled as a portfolio of options on the acquirer's stock price. As with the straightforward, fixed-exchange ratio merger, the goal is to isolate market risk as proxied by changes in the stock price of the acquiring firm. With the fixed-exchange ratio merger, the arbitrageur simply sets the hedge ratio as equivalent to the stock-swap exchange ratio. To obtain market neutrality in the collar deals, many arbitrageurs employ

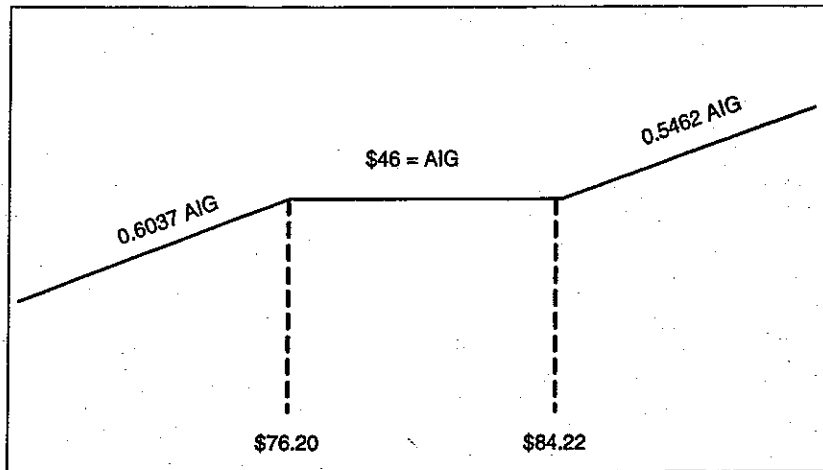


FIGURE 21.3 Collar Payoff to Acquirers in General AIG Mergers

option-pricing models to determine the optimal hedge ratio for these mergers and then continually adjust the hedge as the acquirer price changes during the course of the merger.

EMPIRICAL RESEARCH ON MERGER ARBITRAGE

Until recently, merger arbitrage has received little attention in academic literature. However, recent work has focused on many aspects of merger arbitrage, ranging from investment management issues such as the risk and return of merger arbitrage, to corporate finance/market microstructure issues, such as the impact of arbitrage short selling on stock prices of acquiring firms around merger announcements. This section describes the recent literature.

RISK AND RETURN TO MERGER ARBITRAGE

Many merger arbitrageurs view their occupation as one of selling insurance. When a merger is announced, the target shareholder can hold on the shares to receive the higher payoff assuming the deal goes through. However, the target shareholder then bears the risk of deal failure, which can cause the stock price to drop considerably, often well below what it was trading at prior to the merger announcement. Consider, for example, an investor who purchased stock in Lands' End at \$29.91 on September 17, 2001. Upon the May 13, 2002, announcement of Sears' plan to acquire LE for \$62 in a cash tender offer, the stock price of LE immediately increased to \$61.73. As of that date, investors would have realized a 106% return ($\$61.73/\$29.91 - 1$) on their investment in LE during a period in which the overall stock market was virtually flat. Many investors would choose to recognize their profits rather than to wait for the deal to be completed. If the deal is completed, their incremental return is less than half a percent. Moreover, they face the possibility of substantial downside risk in case the deal fails, say due to the exposure of accounting fraud at LE. In such a case, the stock potentially could be delisted, as was the recent case of Enron following its failed acquisition by Dynegy. To the extent that these target shareholders demand liquidity to avoid the blow-up risk, merger arbitrageurs step

in to provide such liquidity. Indeed, it is the occasional deal failure that allows the arbitrageur to collect the insurance premium via the deal spread. Absent deal failure, the spread would not bear a risk premium and thus would only reflect the time value of money.

The merger arbitrageur diversifies across several deals so as to reduce the risk of the portfolio. When a merger fails, the reason for failure often is unrelated to the other deals in the merger arbitrageur's portfolio. In addition, deal failure usually is uncorrelated with the overall stock market and is thus viewed as a market-neutral investment. The risk/return to merger arbitrage can be considered in the context of the CAPM:

$$R_{MA,t} - R_{F,t} = \alpha_{MA} + \beta_{MA}(R_{MKT,t} - R_{F,t})$$

where $R_{MA,t}$ is the return at time t to the merger arbitrage portfolio, $R_{F,t}$ is the return at time t to the risk-free rate, α_{MA} is the excess return to the merger arbitrage portfolio, β_{MA} is the measure of systematic risk of the merger arbitrage portfolio, and $R_{MKT,t}$ is the overall stock market return at time t . To the extent that merger arbitrage is market neutral, the beta should be equal to zero. That is, there should be no systematic risk in the merger arbitrage portfolio if the deal failure risk is unrelated to the overall stock market. Assuming market efficiency and that the CAPM is the correct asset pricing model by which to examine the risk and return to merger arbitrage, the alpha term also should be equal to zero.

What is the risk and return to arbitrageurs who purchase target stocks after takeover announcements? Several recent studies have reported large returns to merger arbitrage, inconsistent with the efficient market hypothesis. For example, Dukes, Frohlich, and Ma (1992) reported annualized returns of 220% for a sample of 761 cash tender offers during the period 1971 to 1985. Jindra and Walkling (1999) reported annualized excess returns of 102% for a sample of 361 cash tender offers during the period 1971 to 1995. Károlyi and Shannon (1999) focused on Canadian targets of 37 cash and stock mergers and reported an annualized return of 26%, which is more than twice the return on the overall Canadian stock market during the corresponding period. Geczy, Musto, and Reed (2002) documented annualized excess returns of 65% for a sample of 227 stock mergers during the period 1998 to 1999. Geczy, Musto, and Reed noted that even after accounting for various short-selling constraints with respect to shorting the acquirer, the excess return still exceeded 30% on an annualized basis.

The aforementioned studies largely relied on the CAPM or a similar asset-pricing model to calculate the returns to merger arbitrage. For the most part, these studies reported a beta near zero in support of the view that merger arbitrage is a market-neutral investment. In addition, the large excess returns to merger arbitrage as documented by these studies suggest that the stock market is not efficient at pricing merger targets. Using a large sample of 1,901 cash and stock mergers over the period 1981 to 1996, Baker and Savasoglu (2002) searched for the source of the perceived market inefficiencies in merger arbitrage. Similar to the other studies, Baker and Savasoglu also documented large annualized excess returns, roughly 10%, though not nearly as large as that of the other studies. Baker and Savasoglu suggested that the positive excess returns reflect limited arbitrage (capital is limited in erasing arbitrage opportunities; see Shleifer and Vishny [1997]). In their model, merger arbitrageurs are risk averse and must be compensated for bearing idiosyncratic risk. They performed a cross-sectional analysis of the returns to merger arbitrage and showed that returns are higher when deal failure is more likely, and returns are higher when targets are larger. Thus, arbitrageurs are relatively averse to holding deals that have a substantial probability of failure, and they are averse to holding large positions in deals. In addition, Baker and Savasoglu found that returns are higher when the supply of merger arbitrage capital is low.

Mitchell and Pulvino (2001) constructed a sample of 4,750 cash and stock mergers that occurred during the period 1963 through 1998. They created a portfolio series that mimics the returns from a hypothetical merger arbitrage manager. The hypothetical manager is seeded with \$1 million in cash at the beginning of 1963. Similar to active merger arbitrageurs, the hypothetical manager incurs transactions costs, including direct transactions costs such as brokerage commissions and indirect transactions costs such as price impact. In addition, the maximum weight in a deal cannot exceed 10% of the overall portfolio as of the time that the investment is made in the deal. Mitchell and Pulvino attempted to account for the various transactions costs and practical constraints that an active merger arbitrageur is subject to, and then imposed these costs and constraints on the hypothetical manager. However, unlike active merger arbitrageurs, Mitchell and Pulvino's hypothetical merger arbitrageur did not discriminate between deals that the arbitrageur believed would succeed versus fail. Rather, this arbitrageur can be thought of as a monkey that will invest in every target when it is first publicly revealed. Accounting for the various transactions costs and real-world constraints, the hypothetical merger arbitrageur generated an excess return of roughly 4% per annum.

By using a much larger sample of mergers and a considerably longer time series, in conjunction with accounting for transactions costs and practical constraints, the excess return documented by Mitchell and Pulvino was much smaller than that of the other studies; however, it was still economically and statistically significant. Thus, where is the risk in merger arbitrage, often referred to as risk arbitrage? Mitchell and Pulvino argued that the excess returns to merger arbitrageurs simply reflect compensation for bearing extraordinary risk. Although most of the other merger arbitrage studies controlled for risk such as market risk, they all assumed that a linear asset pricing model such as CAPM was appropriate to analyze merger arbitrage investments.

In contrast, Mitchell and Pulvino accounted for market risk in a nonlinear way. The intuition is that in flat and appreciating markets, a merger arbitrage portfolio generates positive returns that are largely uncorrelated with the overall market (see Figure 21.4 for an illustration).

Deals occasionally fail in these environments, but failure is typically unique to the specific deal and not systematic. However, in depreciating markets, for example when the overall monthly stock market return is -5% or worse, they conjectured that deals are more likely to either fail outright, be revised to the detriment of the target shareholders, or take longer to complete (note that in Figure 21.4, the slope of the relation between the excess return to merger arbitrage and the excess return to the overall stock market is much steeper during stock market downturns). For example, as discussed by Mitchell and Netter (1989), takeover targets suffered enormous losses around the crash of October 1987. During the late 1980s, most mergers were financed with cash, often with borrowed funds, and in the aftermath of the crash, many acquirers either terminated their bids or revised the offers downward. Merger arbitrageurs were hard hit as a result, and many exited the business. An example was Comdisco, a computer-leasing firm that invested excess cash of \$130 million along with borrowed funds of \$70 million in merger arbitrage. Comdisco ended up losing nearly \$100 million on the total invested capital of \$200 million, a loss in excess of 75% of its own capital. Every merger arbitrage firm was hit hard during the crash of 1987 as virtually every single takeover target dropped considerably in value during the crash period. Moreover, most of the arbitrage funds were levered, as in the case of Comdisco, and thus accentuated the losses to the funds' equity capital.

More recently, merger arbitrageurs realized large losses in September 2001 as a result of the stock market downturn due to the tragic events of September 11. Many deals were delayed, and some were outright canceled. For example, on September 21, 2001, Felcor Lodging terminated

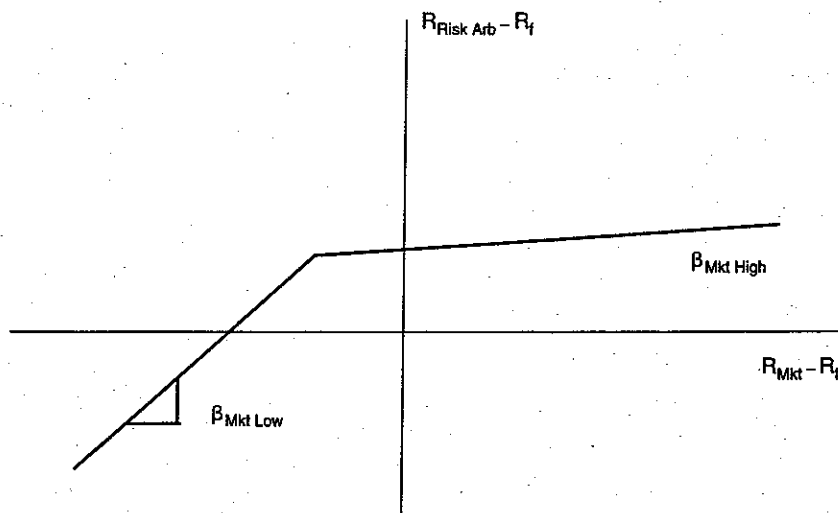


FIGURE 21.4 Nonlinear Model of Systematic Risk in Merger Arbitrage

Source: Mitchell, Mark, and Todd Pulvino, *Journal of Finance*, December 2001, p. 2139.

its agreement to acquire Meristar Hospitality. The merger agreement contained a walk-away provision at \$18.40 per share of Felcor whereby either party could terminate the agreement without penalty. Felcor's stock price closed at \$19.95 on September 10, 2001, but it traded as low as \$11.95 on September 21, due to concerns that the travel industry would be hard hit by the events of September 11. Due to Felcor's stock price trading so far below the walk-away price, both parties agreed to mutually terminate the merger. On September 10, Felcor stock closed at \$19.95 and Meristar closed at \$20.16. The terms of the deal called for a stock swap of 0.784 plus \$4.60 in cash. Thus, the value of the offer was \$20.24 on September 10 ($0.784 \times \$19.95 + \4.60), yielding a gross spread of just 8 cents ($\$20.24 - \20.16). Just 11 days later, when the deal was terminated on September 21, Felcor closed at \$12.70 and Meristar closed at \$8.65, resulting in a gross spread that had increased from 8 cents to \$5.91 ($0.784 \times \$12.70 + \$4.60 - \8.65), thereby causing huge losses to any arbitrageur who was betting on the deal being completed.

Consistent with the anecdotal evidence of October 1987 and September 2001, Mitchell and Pulvino documented that merger arbitrage does indeed offer a nonlinear payoff. In flat and appreciating market months, merger arbitrage yields a positive return with zero beta, but in negative market months, merger arbitrage suffers large losses and has a beta of roughly 0.50. Thus, merger arbitrage generates positive returns in most environments, but in infrequent cases, it generates large negative returns. Consequently, Mitchell and Pulvino argued that the 4% annualized excess return reflects a risk premium to merger arbitrageurs for providing liquidity to other investors, especially during periods of severe market stress.

DO MERGER ARBITRAGEURS ACCURATELY FORECAST MERGER SUCCESS?

Merger arbitrageurs attempt to uncover information regarding the probability of deal completion and to forecast the stock prices of the merging parties in the occasion of deal failure. In assessing the probability of deal completion, they consider issues such as the form of payment,

method of financing, intent of the acquirer, intent of the target, underlying economic conditions, historical and forecasted performance of the merging parties, and antitrust considerations. Merger arbitrageurs also purchase advice from Wall Street equity research analysts who cover the merging parties and from law firms and economics consulting firms that have expertise in antitrust matters. Are arbitrageurs able to use their proprietary databases, trading systems, and information-gathering processes and networks to generate excess profits versus that of the hypothetical merger arbitrageur who invests in all deals? Specifically, do arbitrageurs know in advance which mergers will succeed versus those that will fail? As indicated previously, many arbitrageurs view their occupation as one of selling insurance. The evidence amassed by Mitchell and Pulvino is consistent with this notion. However, many arbitrageurs claim they are able to beat the market and avoid investing in deals that fail. Some of these arbitrageurs will even trade in and out of the same deal numerous times as their probability of deal failure differs from that of the market as proxied by the deal spread.

Research by Brown and Raymond (1986) and Samuelson and Rosenthal (1986) provided evidence that the deal spread, calculated as the difference between the offer price and the post-merger announcement price of the target, distinguishes between those mergers that succeed versus those that fail. That is, for those deals that eventually fail, the spreads are much larger prior to failure than for those deals that are completed. A recent study by Jindra and Walkling (2001) examined the deal spread for a sample of 362 cash tender offers during 1981 through 1995. They found that the deal spread is positively related to the length of time that it takes to complete the tender offer and negatively related to the magnitude of price revision. Thus, for tender offers that are expected to take a relatively long time to complete, the spread is larger than for tender offers that are expected to be completed in a short period. For deals with tight spreads or even negative spreads (a negative spread is the case of the target stock trading higher than the proposed tender offer price), it is more likely that the acquirer will increase the offer compared with deals that have wide spreads.

The empirical evidence from these papers provides support for the notion of an efficient merger arbitrage market, namely that the market is able to distinguish the winners from the losers, as well as to distinguish along the dimensions of length of time to deal completion and the likelihood of deal terms revision. Consistent with this evidence, Figure 21.5 (adapted from Figure 1 of Mitchell and Pulvino, 2001) indicates that for a large sample of mergers and a long-time series, the market is able to distinguish mergers that succeed from mergers that fail. Specifically, spreads are much wider for mergers that eventually fail versus those mergers that succeed. Of added interest is the fact that although the market is able to *ex ante* select between the winners and the losers, the failure itself is a major surprise to the stock market, as demonstrated by the near doubling of the spread when failure occurs. In all likelihood, professional arbitrageurs are also unlikely to have forecasted deal failure accurately; otherwise, the spread would have begun to widen well in advance of the deal failure date as a result of arbitrageurs reducing their positions in the deal. Just as arbitrageurs generally keep deal spreads fairly tight for secure deals, any threat of a deal failure will send arbitrageurs rushing to unload their deal positions by selling their target shares and buying to cover the acquirer shares. To the extent that many arbitrageurs exit the deal, the spread will widen immediately and often by a large amount.

To directly assess the ability of active merger arbitrageurs to outperform the market, Mitchell and Pulvino examined the merger arbitrage return series published by Hedge Fund Research, a consulting firm that tracks the hedge fund industry. The active merger arbitrage series is an index of several merger arbitrage funds since 1990. Mitchell and Pulvino found that the payoff profile of the active merger arbitrageurs is similar to that of the hypothetical manager

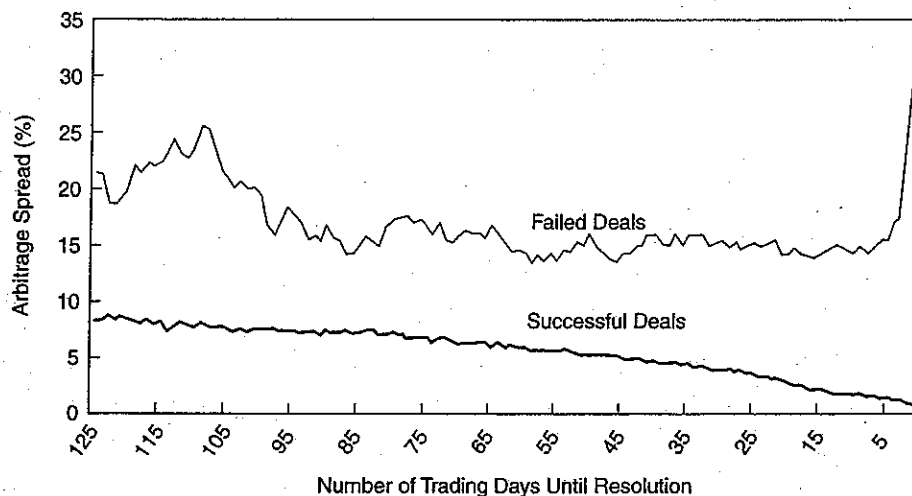


FIGURE 21.5 Median Arbitrage Spread for Successful Versus Failed Mergers

Source: Mitchell, Mark, and Todd Pulvino, *Journal of Finance*, December 2001, p. 2139.

who does not pick deals but rather invests in every merger target. The excess returns are similar, and the nonlinear relation of large betas in down markets and near-zero betas in flat and appreciating markets is also the case for the active arbitrageurs.

Overall, the empirical evidence suggests that the market is able to distinguish quickly between deals that will fail versus deals that will succeed. However, even though the arbitrage community can assess on average the likelihood of failure, the active arbitrageurs do not appear to be able to avoid all the failed deals, as evidenced by the fact that their payoff profile is similar to the index approach to merger arbitrage.

PRICE PRESSURE AROUND MERGERS

As described earlier, when HP announced the acquisition of Compaq on September 4, 2001, its stock price dropped from \$23.21 to \$18.87. Numerous commentators ranging from academicians to journalists blasted the merger, saying it would destroy value rather than create synergies. As support for their arguments, they pointed to the immediate negative response that the stock market gave to the merger announcement. These commentators argued that the stock market response to the merger reflected a negative NPV merger from the point of view of the acquiring-firm shareholders. However, as this book has discussed earlier, a negative stock-price reaction does not necessarily reflect the market's dissatisfaction with the merger, but rather some merger announcements signal low growth opportunities for the acquirer on a stand-alone basis, and thus the merger was a necessary adjustment to the changing environment. Indeed, according to this line of reasoning, the merger may well generate positive NPV, yet the merger announcement generates a negative stock-price reaction due to the revelation of the diminishing stand-alone prospects of the acquirer. An alternative explanation, and one that is given frequently in the case of stock mergers, is that the negative price reaction reflects a signal that the acquirer's stock was previously overvalued. A fourth explanation, and one that is often suggested by merger arbitrageurs, is that their selling pressure on acquirer stocks due to hedging the deal spread is the reason for the price decline. When mergers are announced, merger arbi-

trageurs act quickly and begin to make large investments in the target stock on the announcement date. Thus, if the merger involves a stock swap, the arbitrageurs will simultaneously short sell the acquirer's stock. To the extent that they short a relatively large amount of the acquirer's stock, arguably these arbitrageurs exert downward price pressure on the acquirer's stock price. This does not mean that arbitrageurs accounted for the entire price decline in the case of the Compaq merger, but rather that arbitrage short selling could potentially account for some of the price decline.

Recent research by Mitchell, Pulvino, and Stafford (2003) examined a sample of 2,130 mergers announced during the period 1994 to 2000 to assess the importance of price pressure around various merger event dates attributable to arbitrageurs. Consistent with merger arbitrage activity, they noted that the level of short interest increases substantially around fixed-exchange ratio stock mergers on the order of about 40% but does not increase around cash mergers. This evidence is also consistent with an information explanation of the negative price reaction to stock mergers whereby fundamental investors short stock acquirers and buy cash acquirers. However, Mitchell, Pulvino and Stafford (2003) also documented that when the stock merger closes, the short interest drops back to its forecasted level, consistent with the activity of merger arbitrageurs who are taking the deal off, and inconsistent with fundamental short sellers who would not necessarily pick the merger closing date as the period during which to take off the short position in the acquirer. These authors construct measures of price pressure caused by merger arbitrage short selling on merger announcement days, and provide evidence that such price pressure accounts for nearly half of the stock price decline associated with fixed-exchange ratio stock mergers on announcement days.

FLOATING-EXCHANGE RATIO MERGERS

Most stock mergers are of the Compaq and HP variety where the exchange ratio is fixed as of the announcement date. However, in a subset of stock mergers, the exchange ratio is not known until nearly the date of the merger completion. Recall that we briefly discussed collar stock mergers earlier. Another subset is a floating-exchange ratio merger, which specifies the value of the acquirer's stock to be exchanged for each target share rather than the number of shares. The number of acquirer shares that will be exchanged for each target share is determined later by dividing the offer value by the acquirer's stock price measured during a prespecified pricing period, usually just before the merger closing. It is during this pricing period that merger arbitrageurs short sell the acquirer's stock. An example is detailed next.

In 1998, First Union agreed to purchase Money Store for \$34 in First Union stock for each share of Money Store. The merger agreement specified that the number of shares of First Union that ultimately would be exchanged would be determined by dividing \$34 by the average closing price of First Union stock over the 5 trading days prior to the merger closing date. To capture the arbitrage spread, an arbitrageur would buy Money Store stock immediately after the merger announcement. However, unlike a fixed-exchange ratio offer, the arbitrageur would not immediately short sell the stock of First Union, the acquiring company. The reason is that by doing so, the arbitrageur would bear significant market risk. Recall that in the Compaq and HP example, as long as merger arbitrageurs shorted 0.6325 HP shares for each share long of Compaq on September 4, 2001, the date of the merger announcement, they would lock in the gross spread of 86 cents, irrespective of what happened to the price of HP over the ensuing months, assuming the merger was completed. In the case of the Money Store merger, the stock price of Money Store closed at \$31.75, and the stock price of First Union closed at \$52 on

March 4, 1998, the announcement date of the merger. Because the agreement called for shareholders of Money Store to receive \$34 in First Union stock, the deal spread based on March 4 closing prices was \$2.25, or 7.1%. Based on First Union's closing price of \$52 on the merger announcement day, the pro forma exchange ratio was 0.6538 ($\$34/\52). Assuming that 0.6538 was the actual exchange ratio used in the merger, the arbitrageur who shorts 6,538 shares of First Union for every 10,000 shares purchased in Money Store would realize a profit of \$2.25 per share.

However, as indicated previously, the merger agreement stated that the number of First Union shares that would be exchanged would be determined by dividing \$34 by the average closing price of First Union stock over the 5 trading days prior to the merger closing date. The merger formally closed on June 30, 1998, prior to the market open. First Union set the exchange ratio at 0.5851, equal to \$34 divided by \$58.1125, where the latter is the average closing price of First Union during June 23 to 29, 1998, the 5 trading days preceding the merger close. Reconsider the arbitrageurs who shorted 0.6538 shares of First Union for each share purchased in Money Store on March 4. Based on First Union's closing price of \$58.0625 on June 29, the value of the arbitrageurs' long position in Money Store would be worth \$33.97 ($\58.0625×0.5851), yielding a per-share profit on the long position of \$2.22 ($\$33.97 - \31.75). However, because the arbitrageurs were short 0.6538 shares of First Union for every share held in Money Store, they would have lost \$3.96 on their short position ($0.6538 \times (\$58.0625 - \$52)$), yielding a net loss per share of \$1.74. The problem was that the arbitrageurs had shorted too many shares of First Union, and because its stock price increased subsequent to the merger announcement date, the loss on the short position exceeded the profit realized on the long side of the trade. Note also that because the arbitrageurs had shorted 0.6538 shares but actually received only 0.5851 shares, they would have a net short position in First Union after the merger had closed and thus must buy to cover the additional shares short in order to completely close out the trade.

Because the exchange ratio is not determined until the pricing period, the arbitrageur will purchase the stock of Money Store at merger announcement but will wait until the pricing period before shorting the stock of First Union. In order to minimize pricing risk, the merger arbitrageur would short sell First Union near the close of each of the 5 trading days of the pricing period. In the simple case where First Union's share price remained constant at \$58.1125 during the pricing period, the arbitrageur who had purchased 10,000 shares of Money Store at merger announcement would short sell 1,170 ($10,000 \times 0.5851 / 5$) shares of First Union on each of the pricing period days to hedge the position. Note that substantial price changes during the pricing period can result in large changes in the number of shares to short each day. For example, in the case of a rapidly declining acquirer price during the pricing period, the arbitrageur would increase the number of shares sold short each day.

Thus, from the arbitrageur's perspective, floating-exchange ratio mergers are similar to cash mergers before the pricing period begins and similar to fixed-exchange ratio mergers after the pricing period ends. In The Money Store merger just discussed, the pricing period ended the day before the merger closed. Often, however, the target trades for a couple of days after the pricing period ends, in which case the exchange ratio is fixed. In the case of Money Store, the fixed-exchange ratio would have been 0.5851 had trading continued in Money Store during the post-pricing period.

Mitchell, Pulvino, and Stafford (2003) argued that price pressure effects on the acquirer's stock are expected to be greatest during the pricing period when arbitrageurs are shorting the acquirer's stock. The pricing period does not begin until after the merging parties have met the milestones necessary to complete the merger and generally precedes the closing of the merger

by only a day or so. Consistent with their arguments, Mitchell, Pulvino, and Stafford (2003) found that during the pricing period (10 days on average), acquirers' stock prices declined 3.2% in floating-ratio stock mergers. On the announcement date of these mergers, when it is fully known that stock will be used as currency for the merger, the acquirer's stock price increases, 0.6% on average, in comparison with a 2.7% decline on the announcement date for fixed-exchange ratio mergers. Indeed, they found that the announcement period stock price reaction for the floating-ratio stock mergers is similar to the 1.0% positive price reaction associated with the cash mergers in their sample. Consistent with the short interest patterns around fixed-exchange ratio mergers, this evidence suggests that a large part of the negative price reaction to fixed-exchange ratio mergers might be due to price pressure caused by merger arbitrageurs rather than solely due to fundamental sellers for information reasons.

MERGER ARBITRAGE IN ACTION

Merger arbitrageurs are active throughout the takeover process from the date of the merger announcement until the merger formally closes or terminates. These arbitrageurs are employed at various institutions, primarily at proprietary trading desks of Wall Street investment houses, merger arbitrage boutiques, and multistrategy hedge funds. To a lesser extent, some large endowments and pension funds manage merger arbitrage strategies in house, and even some nonfinancial corporations invest excess cash in merger arbitrage (note, however, that the latter can yield sharp losses to the firm's excess capital at the very time when such capital is needed). This section describes some of the typical portfolio management activities that the merger arbitrageur undertakes.

Most mergers are announced during the morning prior to the opening of the stock market. On a highly active day during periods of market expansion, 10 mergers could be announced during the 2-hour period preceding the market open. During recessionary periods, a few days could pass without the occurrence of an investable target. When a merger is announced, the arbitrageur will act quickly. The first step is to record all of the terms associated with the transactions and then cross-check these terms with various sources. The arbitrageur will first learn of the merger from one of several potential sources, including news sources such as Bloomberg, CNBC, Dow Jones News Service, Reuters, and *Wall Street Journal*; merger arbitrage research desks of brokerage firms where the arbitrageur sends trade orders; and merger arbitrage consulting firms.

After reading the various press releases and news accounts of the merger, the arbitrageur will listen to the merger conference call held for investors by the merging parties. This call usually takes place on the day of the merger announcement, and in most cases during the morning. During the call, management will review the terms of the merger, discuss expected revenue synergies and cost savings, forecast the expected closing date, and so forth. Following the presentation by management, a question-and-answer session occurs in which investors are able to raise questions about the merger. Both fundamental investors and merger arbitrageurs will address concerns during this session. The questions by the arbitrageurs generally focus on making sure of the exact deal terms, on understanding the perceived risks that could stop the merger such as antitrust complications, and on the expected time to completion.

Many arbitrageurs will begin to build their position in the target firm as soon as possible following the merger announcement. Some arbitrageurs will wait until all terms have been verified either via the merger conference call or via discussions with management at the target or

acquirer firm. Other arbitrageurs might wait until they have spent considerable time scrutinizing the deal, including building financial spreadsheets to determine their own valuation of the target, talking with outside legal counsel to better understand the antitrust issues surrounding the merger, and reading research reports by Wall Street analysts about the merger.

THE MECHANICS OF TRADING

The actual mechanics of trading vary considerably across merger arbitrageurs. In some cases, a distinction is evident between the analyst and the trader. In other cases, the analyst also acts as the trader. Generally, the larger the merger arbitrage firm is, the more likely it is that a dedicated trader will be used. To the extent that the investment philosophy is to trade numerous times throughout the course of a deal, it is also more likely that the firm will employ a dedicated trader. For example, many merger arbitrageurs will trade a particular deal multiple times during a given day. One approach would be to increase the position size as the deal spread gaps out on an intraday basis, and then reduce the position size as the deal spread subsequently tightens. This approach can cause huge losses to the portfolio if the deal spread continues to gap out and the merger eventually fails. At the opposite end of the spectrum is the arbitrageur who builds a position, sometimes building the entire position in the deal soon after the announcement, and other times, increasing the position as the deal hits various milestones but not cutting back on the position to take profits until there is resolution of either deal completion or failure.

Trading venues also need to be considered. Historically, the standard approach was to conduct trading through a brokerage firm. Many brokerage firms have merger arbitrage desks that specifically cater to merger arbitrageurs. These desks provide research and trading support. The research support ranges from answering questions about a specific merger regarding deal terms, closing dates, antitrust issues, and so on, to providing lengthy research reports on the current M&A landscape. With respect to trading support, the broker will handle all types of trades on behalf of the arbitrageur.

In the case of a straightforward cash merger, arbitrageurs typically will use a limit order specifying the highest price they are willing to pay for the target firm. Consider the recent acquisition of Garan by Berkshire Hathaway in a cash merger of \$60, which was completed in early September 2002. Two weeks prior to the close of the merger, Garan was trading at around \$59.88 with a bid price of \$59.87 and an ask price of \$59.89. Because the merger was near completion, there was little liquidity in Garan's stock. A market order to buy 10,000 shares of Garan would not simply be executed at the ask price of \$59.89 but could go much higher before other sellers would step in. Consequently, if the average price per share paid turned out to be \$59.95, the return to the arbitrageur would be extremely low, even on an annualized basis, especially if the broker charged a high commission for the trade. For instance, commission costs range from 1 cent to 5 cents per share. At a commission cost of 5 cents per share the arbitrageur would expect to receive a zero rate of return on the deal if the average price per share on a market order turned out to be \$59.95. Thus, arbitrageurs would place limit orders to ensure that they do not end up paying an especially high price via market orders. A downside to the limit order approach is that it might take considerable time to ever build a position in the target, specifically relatively small targets of \$500 million or less in equity value. However, by going through a major brokerage house, there are often occasions for which some of the broker's major customers are looking to sell large blocks of the target stock and thus the broker can facilitate the large trade, thereby allowing arbitrageurs to fill their positions more rapidly

before all the available shares are in the hands of other arbitrageurs. Indeed, it is this benefit of obtaining trade flow that allows some brokerage houses to charge higher commissions.

THE CHALLENGE OF STOCK MERGERS

Stock mergers are much more difficult to set up. As discussed, the arbitrageur must short the stock in the acquiring firm in addition to buying the stock in the target firm. Consider the merger of Conoco and Phillips Petroleum, which was announced in November 2001 and was completed in September 2002. The terms of the merger agreement called for Conoco shareholders to receive 0.4677 shares of stock in Phillips Petroleum for each share held in Conoco. Appendix A displays a Trading Summary Recommendation and Risk Capital Analysis for the Conoco merger prepared by DealAnalytics.com. DealAnalytics is a Web-based company that provides research and analytical support to merger arbitrageurs. DealAnalytics continuously updates the Trading Summary Recommendation for mergers involving publicly traded U.S. targets with equity values in excess of \$100 million. The snapshot of the Trading Strategy Recommendation for Conoco was taken on midday August 22, 2002, roughly 6 weeks prior to the expected merger close. Terms of the merger are listed at the top of the Trading Strategy Recommendation. The pricing period information on the right of the table pertains to collar deals and floating-ratio deals. Because the Conoco merger is a fixed-exchange ratio deal, the pricing period entries are blank. The Sample Trading Strategy in the second frame details the arbitrage potential profits from putting the deal on. Based on the stock price of \$52.74 for Phillips Petroleum and the stock price of \$24.54, the gross spread per share is calculated as 12.6 cents ($52.74 \times 0.4677 - 24.54$). Both companies paid a dividend on September 3, 2002, with an ex-dividend date prior to August 22, 2002. Because the merger was expected to close at the end of September, DealAnalytics.com was not forecasting any dividends on either the long or the short side of the position. The brokerage commission of 7.3 cents is for the long and the short trade, reflecting a 5-cent commission per share traded ($7.3 \text{ cents} = 5 \text{ cents} + 5 \text{ cents} \times 0.4677$). The short rebate of 4.2 cents refers to the interest rate that the merger arbitrageur would expect to receive from shorting 0.4677 share of Phillips Petroleum. Typically, institutional investors receive a rate that is slightly below the federal funds rate (the federal funds rate is the interest rate at which a depository institution lends immediately available funds balances at the Federal Reserve to another depository institution overnight). On August 22, 2002, the federal funds rate was 1.73%. For stocks such as Phillips Petroleum that are easily shortable, the short rebate rate is equal to the 1.73% less a haircut of 0.25%. Accounting for the time to completion, this yields the 4.2 cents short rebate from shorting the 0.4677 share of Phillips Petroleum. Finally, note that DealAnalytics.com does not make an adjustment for price impact. Specifically, their calculation of the net spread of 9.4 cents assumes that the arbitrageur can buy and sell at the latest traded price. However, if one assumes instead that the purchase takes place at the ask price and that the short sale takes place at the bid price, then the net spread would be lower. The annualized net spread as calculated is 3.42%, roughly twice that of the current 3-month Treasury bill rate.

As alluded to in the previous discussion, it is more difficult to build a position in a stock merger than in a cash deal. In the example of Conoco, the arbitrageur will short 4,677 shares of Phillips Petroleum for every 10,000 shares purchased in Conoco. The objective is to lock in the gross spread of 12.6 cents on the trade. However, in order to do so, first there must be shares in Phillips Petroleum available to short. Arbitrageurs will first check with their prime broker

(prime brokers provide clearing, custody, settlement, financing, stock lending, and other services to hedge funds) to determine whether the shares in Phillips are available for shorting and what short interest rebate the prime broker will pay with respect to the short. Note that the short interest rebate is not always simply a straight haircut of 0.25% off the prevailing federal funds rate, as it also depends on the demand for shorting. The greater the demand is for shorting, the higher the price will be namely the lower the short rebate that the arbitrageur will receive from the broker. In certain cases, the rebate will be negative; that is, the arbitrageur will pay the prime broker for the right to short shares in a particular company. There are instances in which the gross spread on a stock merger yields a sufficiently high annualized return to invest in, yet an inability to receive full rebate will render the trade unprofitable.

Once arbitrageurs are ready to begin trading, they must decide on the actual mechanics as to putting on the position. In order to short the acquirer stock, the arbitrageur must wait on an uptick (an uptick is when the trade takes place at a price higher than the previous trade, or if the trade takes place at a price equal to the previous trade, then the previous trade took place at a price higher than its previous trade, and so forth). In the event of the acquirer declining in price when the arbitrageur is attempting to put the deal on, it will be more difficult to lock in the deal spread. This is especially true on the merger announcement day when price pressure from the arbitrageur results in substantial downward pressure on the price of the acquirer.

In light of the potential difficulty in setting up the short side of the trade, many arbitrageurs will set up the short side in the acquirer before purchasing any shares in the target. They might either put the entire short position on first and then put on the long position, or instead they might build the position in increments; for example, in the Conoco merger, they would short 46.77 shares of Phillips Petroleum and then buy 100 shares of Conoco, repeat the sequence of trades, and so forth. The latter method of incrementally building the position is more likely to be used if the arbitrageur is using a proprietary, in-house electronic trading system. It should be noted that with the first approach, arbitrageurs face substantial stock market risk because they might have built a substantial short position before purchasing the target. Some arbitrageurs decide which side of the trade to put on first based on what they think will happen to the stock market that day. For example, if arbitrageurs believe that the market will be strong throughout the day, they might put on the long position first, and then hedge it out at the end of the day. In doing so, they are taking on considerable market risk.

Given the complexities in building a position in a stock deal, especially in a deal with a relatively tight spread where the margin for error is slight, many arbitrageurs will have a broker execute a paired transaction. Arbitrageurs often will send the entire trade for the day on a deal they wish to put on or add to and will specify either a gross spread or a spread net of commission costs to the broker. The broker is then responsible for setting up the trade, and if the broker only manages to set up one side, the arbitrageur is not liable for the trade. In return for accepting the risk, the broker generally will charge a fairly high commission for these types of orders, often up to 5 cents per share.

THE MONITORING PROCESS

Once merger arbitrageurs have invested in a deal, they will monitor it constantly and often will either increase or decrease the weight on the deal based on their assessment of the deal completing on time. This monitoring process can be time consuming and involves not only reading press releases and analysts' reports about the progression of the merger, it also involves con-

versations with the involved parties, expert consultants, and so on. Brokerage firms with merger arbitrage desks often will provide periodic reports of ongoing deals. As mentioned previously, DealAnalytics.com is an example of a company that provides analysis and commentary about ongoing deals. Appendix B provides selected commentary from DealAnalytics.com regarding the attempted merger of HotJobs.com, Limited, and TMP Worldwide, Incorporated, in 2001. We provide a brief discussion of this commentary below.

On July 2, 2001, the date of the HotJobs.com and TMP Worldwide merger announcement, DealAnalytics.com described the transaction, forecasted a closing date of October 15, indicated there should be minimal antitrust risk, and noted that HotJobs.com had poor financial performance and thus the downside risk would likely be severe should the deal break. DealAnalytics.com regarded the gross spread of 41 cents (13.9% annualized) as a bit high, given HotJobs's poor operating performance. On August 14, DealAnalytics.com questioned the HSR second request issued by the FTC, noting that the FTC staff has some difficulty with basic market concepts. However, DealAnalytics.com still believed that the merger would close on schedule. By October, the spread had more than doubled due to antitrust concerns, and DealAnalytics.com moved the closing date to mid-January. Concerns about the merger continued in November, and DealAnalytics.com at that time assigned only a 60% likelihood of FTC approval. Both merging parties were starting to become extremely frustrated with the entire process. By December, DealAnalytics.com noted that the FTC was preparing to block the merger on the grounds that it would greatly reduce competition in the recruitment industry. Arbitrageurs were rapidly unwinding their positions, and the gross had increased to \$3.43—more than \$3 higher than the initial spread. Soon after, and just before the FTC was to block the merger, Yahoo! entered the picture with a bid of \$10.50. On December 13, 2001, the date of the Yahoo! offer, the stock price of HotJobs.com increased from \$6.47 to \$10.30, an increase of 59%. On December 28, DealAnalytics.com announced that HotJobs.com was terminating the merger with TMP Worldwide.

In most cases, arbitrageurs have the same opinion of a deal. This is especially true for safe deals with tight spreads. However, arbitrageurs can differ widely in their assessment of a deal such as HotJobs.com. A few invested in the deal at the initial merger announcement in July and held until HotJobs.com was acquired successfully by Yahoo!, but many arbitrageurs exited the deal when the spread widened in November and December and then reinvested when Yahoo! made its bid. Other arbitrageurs traded in and out of the deal numerous times, often speculating against the deal going forward by reversing the natural trade (these arbitrageurs bought TMP Worldwide and shorted HotJobs.com).

In addition to paying considerable attention to each deal, the arbitrageur devotes substantial effort to managing the overall portfolio. Merger arbitrageurs do not invest all of their available funds in a single deal, but rather invest across a number of deals in order to diversify the largely idiosyncratic deal-failure risk. Consequently, they set maximum weights on the amount invested in any one deal. These maximum weights range from as low as 2% to as high as 20%. In addition, they will limit their exposure to a particular type of deal based on characteristics such as form of payment, friendliness of merging parties, deal spread, downside risk, and industry clustering. To further increase the level of diversification, many merger arbitrageurs will allocate a small part of the portfolio to similar trading strategies such as negative stub-investments associated with parent/subsidiary stocks (See Mitchell, Pulvino, and Stafford, 2002). Appendix C displays Portfolio Recommendations from DealAnalytics.com for 52 live mergers as of August 13, 2002. The methodology for these recommendations is provided in Appendix D.

Summary

An important role in the merger process is played by merger arbitrageurs. These arbitrageurs begin their investment in a target firm after a merger is announced, and generally continue to own the target stock up until the date that it is delisted. Many investors seek to exit their investment in a company after it has agreed to a takeover. Merger arbitrageurs provide these investors with the liquidity to exit without a price impact. In so doing, arbitrageurs facilitate the merger occurring as planned. During the course of the merger, arbitrageurs are not only active investors, but also actively provide information about how the deal is proceeding. In some cases, they will even provide information to the merging parties regarding how to better structure the deal to avoid deal termination.

The potential for blow-up risk is considerable. Mergers sometimes fail to be completed, and when they do, the target stock typically plummets. In some cases, the losses are compounded if the acquirer stock increases, assuming it is a stock merger and the arbitrageur has shorted the acquirer. To some extent, the arbitrageur can mitigate the blow-up risk by pooling across a large number of mergers, similar to the sale of insurance. However, although merger arbitrage typically is viewed as a market-neutral investment strategy, deal stocks often are hit hard during severe market downturns. As compensation for bearing this risk, arbitrageurs receive a risk premium.

For a long time, researchers have viewed the negative stock market response to stock acquirers as signaling either a negative NPV investment or overvalued stock. However, recent evidence suggests that a portion of the negative stock price reaction to stock acquirers might reflect shorting by merger arbitrageurs. This evidence has implications for interpretations of stock price reactions around stock mergers.

Questions

- 21.1 What is the difference between a merger arbitrageur and a textbook “perfect capital market” arbitrageur?
- 21.2 On August 23, 2002, McAfee.com Corporation agreed to a takeover offer by Network Associates to acquire each outstanding share of McAfee.com’s stock in exchange for \$8.00 in cash plus 0.675 of a share of Network Associates. At the close of trading on the merger agreement date, McAfee.com’s stock was \$17.72 and Network Associates’s stock price was \$14.56. The merger was expected to be completed by September 14, 2002. At the time, the 3-month Treasury bill rate was 1.75%. Arbitrageurs were receiving short interest rebates of 1.50% and were paying commission costs of 3 cents per share. What is the arbitrage investment? Should the merger arbitrageur undertake this investment?
- 21.3 Evaluate the stock-picking ability of a merger arbitrageur who is able to identify takeover targets and purchase their stocks during the month immediately prior to the merger announcement.
- 21.4 Why are acquirers more likely to terminate mergers during stock market downturns? How does this impact merger arbitrageurs?
- 21.5 What is the price pressure explanation of negative stock price reactions to acquiring firms at stock merger announcements?

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Case 21.1 CHEAP TICKETS, INCORPORATED—CENDANT CORPORATION

On August 13, 2001, Cendant Corporation and Cheap Tickets, Incorporated, announced a definitive agreement for Cendant to acquire all of the outstanding common shares of Cheap Tickets at a share price of \$16.50. With 25.76 million shares outstanding, the total buyout would be about \$425 million. In addition, Cheap Tickets had about \$145 million in excess cash, and thus the net purchase price would be about \$280 million. To execute the transaction, Cendant planned to begin a cash tender offer within 10 days for any and all shares of Cheap Tickets. Subject to meeting customary closing conditions, including HSR approval, Cendant expected to complete the merger in the fall of 2001.

Cheap Tickets was a leading seller of discount leisure travel products, with the majority of sales coming from airline tickets. The company was founded in 1986 as a traditional travel agency, and since launching its Web site in 1997, roughly 40% of its bookings had come from the Internet. Cendant is a diversified global provider of business and consumer services primarily within the real estate and travel sectors. Cendant's travel operations consist of hotel management car rentals; and computer reservation services to airlines, hotels, car rental agencies, and other travel suppliers. The acquisition would permit Cendant to continue the rapid expansion of its global business in the leisure travel marketplace.

On the day of the merger announcement, the stock price of Cheap Tickets rose from \$11.85 to \$16.33. Trading volume on that date was extremely high at roughly 6 million shares, more than three times the highest trading volume day to date in 2001. In light of the 38% increase in the stock price of Cheap Tickets, many investors chose to sell their positions rather than hold out for the remaining 1%. Merger arbitrageurs responded by providing liquidity to these selling shareholders. Arbitrageurs forecasted that the merger would close at the end of September

or early October. They expected that the merger would easily pass FTC muster as Cheap Tickets competed with numerous online travel brokers such as Priceline.com, Expedia.com, and Travelocity.com, and with traditional travel agents.

Cendant began the tender offer on August 23, 10 days after the announcement date, as planned. In addition, Cendant already had filed HSR on August 16, and the 15-day waiting period was scheduled to expire on August 31. Given that the deal was proceeding on a relatively fast track, many arbitrageurs were now forecasting the merger to close on September 21, which was 1 day after the 20-day tender offer was expected to expire.

By Monday, September 10, 2001, the stock price of Cheap Tickets had climbed to \$16.44 with a gross spread of only 6 cents (\$16.50 – \$16.44). However, following the tragic events of the morning of Tuesday, September 11, the stock market was closed for the rest of the week. On Monday, September 17, 2001, the first day of trading in a week, the stock price of Cheap Tickets was hard hit, declining to \$12.55. Arbitrageurs feared that Cendant would terminate the merger due to the impact of September 11 on the travel industry. For example, during the week following September 11, online air travel bookings were down 50%.

In light of the high level of deal-failure risk, arbitrageurs began to focus on termination clauses in the merger agreement. The agreement provided for Company Material Adverse Changes (MACs) that would allow Cendant or Cheap Tickets to terminate the merger. For example, if either company were found to have committed fraud and such fraud would have a material impact on the viability of the merger, the harmed party could terminate the merger.

However, these MACs excluded any change in the market price of Cheap Ticket's stock or negative conditions (including changes in economic, financial market, regulatory, or political conditions) affecting

generally the travel industry in which Cheap Tickets operated. Thus, the merger agreement appeared to be secure, barring any extraordinary events. Of special interest to the arbitrage community was that the MAC included a commencement of a war, armed hostilities, or other international or national calamity directly or indirectly involving the United States. Thus, although a general economic condition would not impair the merger going forward, a war arguably could allow either party to terminate the merger agreement.

On September 24, Cendant chose to extend the tender offer for an additional 10 days. Upon the release of this information, the stock market responded quickly, sending Cheap Ticket's stock price up from \$14.85 to \$16.24. Despite the events of

September 11, the merger was completed successfully on October 5 at the agreed-upon terms.⁵²

QUESTIONS

- C21.1.1** What is the expected arbitrage return to purchasing Cheap Tickets at the closing price on the day of the merger announcement? Should a merger arbitrageur buy the stock? Note that at the time of the merger announcement, the 3-month U.S. Treasury bill rate was roughly 3.5%. Assume commission costs of 2 cents per share.
- C21.1.2** In light of the huge downward pressure in Cheap Tickets's stock price on September 17, what should the merger arbitrageur do?



References

- Baker, Malcolm, and Serkan Savasoglu, "Limited Arbitrage in Mergers and Acquisitions," *Journal of Financial Economics* 64, April 2002, pp. 91–115.
- Brown, Keith, and Michael Raymond, "Risk Arbitrage and the Prediction of Successful Corporate Takeovers," *Financial Management* 15, Autumn 1986, pp. 54–63.
- Dukes, William, Cheryl Frohlich, and Christopher Ma, "Risk Arbitrage in Tender Offers: Handsome Rewards—And Not for Insiders Only," *Journal of Portfolio Management* 18, 1992, pp. 47–55.
- Geczy, Christopher, David Musto, and Adam Reed, "Stocks Are Special Too: An Analysis of the Equity Lending Market," *Journal of Financial Economics* 66, November 2002.
- Jindra, Jan, and Ralph Walkling, "Arbitrage Spreads and the Market Pricing of Proposed Acquisitions," working paper, Ohio State University, 1999.
- Jindra, Jan, and Ralph Walkling, "Speculation Spreads, Arbitrage Profits, and Market Pricing of Proposed Acquisitions," working paper, Ohio State University, 2001.
- Karolyi, G. Andrew, and John Shannon, "Where's the Risk in Risk Arbitrage?" *Canadian Investment Review* 12, Spring 1999, pp. 11–18.
- Mitchell, Mark, and Jeffrey Netter, "Triggering the 1987 Stock Market Crash: Antitakeover Provisions in the House Ways and Means Tax Bill?" *Journal of Financial Economics* 24, September 1989, pp. 37–68.
- Mitchell, Mark, and Todd Pulvino, "Characteristics of Risk and Return in Risk Arbitrage," *Journal of Finance* 56, December 2001, pp. 2135–2175.
- Mitchell, Mark, Todd Pulvino, and Erik Stafford, "Limited Arbitrage in Equity Markets," *Journal of Finance* 57, April 2002, pp. 551–584.
- Mitchell, Mark, Todd Pulvino, and Erik Stafford, "Price Pressure Around Mergers," forthcoming in *Journal of Finance*, 2003.
- Samuelson, William, and Leonard Rosenthal, "Price Movements as Indicators of Tender Offer Success," *Journal of Finance* 41, June 1986, pp. 481–499.
- Shleifer, Andrei, and Robert Vishny, "The Limits of Arbitrage," *Journal of Finance* 52, March 1997, pp. 35–55.

APPENDIX A



CONOCO INCORPORATED— PHILLIPS PETROLEUM

CONOCO INCORPORATED—PHILLIPS PETROLEUM

Trading Strategy Recommendation and Risk Capital Analysis Last Trading Strategy Update 08/15/02

Deal Summary Target Ticker COC/Acquirer Ticker P

Date Announced	11/18/01	Pricing Period Begins	N/A
Estimated Closing	09/30/02	Pricing Period Ends	N/A
Trading Days Remaining	27	Trading Days Remaining	N/A
Calendar Days Remaining	39	Current Average Price	N/A
		Current Stock Ratio	0.4677
	<i>Terms</i>	<i>Amount</i>	<i>Value per Share</i>
Stock Ratio	0.4677	100%	\$24.6660
Cash per Share	\$0.0000	0%	0
Other	\$0.0000	0%	0
Current Parity Value			\$24.6660
Minimum Ratio 0.0000/Maximum Ratio 0.0000			

SAMPLE TRADING STRATEGY

Target Ticker COC/Acquirer Ticker P

Target Positions

Ticker	Type	Month	Strike	Contracts	# of Shares	Price		
Stock	COC	—	—	—	10,000	\$24.5400	Gross Spread per Share	\$0.1260
							Long Dividends	\$0
							Short Dividends	\$0
							Options Adjustment ^a	\$0
							Pre-Carry Spread	\$0.1260
							Cost of Carry	\$0
							Brokerage Commissions	-\$0.0730
							Short Rebate	\$0.0420
							Net Spread ^a	\$0.0940
							Net Annual Return	3.42%
							Adj. Net Spread ^a	\$0.0940
							Adj. Net Annual Return	3.42%

^aOptions Adjustment equals the cost of any respective options strategy reflected as an addition to or subtraction from the Gross Spread per Share. The Pre-Carry Spread reflects the adjusted spread per share, including the premium from or cost of any short or long options contracts. The Net Spread compares the Net Spread and Net Return versus an options-based Adjusted Net Spread and Net Return.

RISK/RETURN SUMMARY

	<i>Amount</i>	<i>% of Total Capital</i>	<i>% of Total P&L</i>
Total Capital Invested ^a	\$245,400	100.0%	19,476.2%
Total P&L at Parity	1,260	0.5	100.0
Maximum Loss ^b	260,342	106.1	20,662.1
Risk Capital ^c	42,371	17.3	3,362.8

^aTotal Capital Invested equals the absolute sum of all long and short positions aggregated.

^bMaximum Loss equals total loss if deal terminates and position prices exceed historic averages by more than two standard deviations.

^cRisk Capital equals estimated loss if deal terminates.

RISK/RETURN MATRIX

<i>Acquirer Price</i>	<i>Implied Parity</i>	<i>Positions</i>		<i>Deal Close-Results</i>	
		<i>Target P&L</i>	<i>Acquirer P&L</i>	<i>Total P&L</i>	<i>Annualized Net Return</i>
\$36.740	\$17.183	-\$73,570	\$74,832	\$1,262	3.42%
38.740	18.119	-64,210	65,478	1,268	3.45
40.740	19.054	-54,860	56,124	1,264	3.43
42.740	19.989	-45,510	46,770	1,260	3.42
44.740	20.925	-36,150	37,416	1,266	3.44
46.740	21.860	-26,800	28,062	1,262	3.42
48.740	22.796	-17,440	18,708	1,268	3.45
50.740	23.731	-8,090	9,354	1,264	3.43
52.740	24.666	1,260	0	1,260	3.42
54.740	25.602	10,620	-9,354	1,266	3.44
56.740	26.537	19,970	-18,708	1,262	3.42
58.740	27.473	29,330	-28,062	1,268	3.45
60.740	28.408	38,680	-37,416	1,264	3.43
62.740	29.343	48,030	-46,770	1,260	3.42
64.740	30.279	57,390	-56,124	1,266	3.44
66.740	31.214	66,740	-65,478	1,262	3.42
68.740	32.150	76,100	-74,832	1,268	3.45

Source: DealAnalytics.com.

APPENDIX B



PROPOSED HOTJOBS.COM, LTD. AND TMP WORLDWIDE, INC. MERGER SELECTED COMMENTARY BY *DEALANALYTICS.COM*

07/02/01, 08:26 A.M.

TRANSACTION SUMMARY

The new definitive agreement was announced late Friday, June 29, 2001:

- Terms: fixed ratio providing 0.2195 TMPW per share of HOTJ
- Accounting: pooling-of-interests (not a condition to the merger)
- Projected closing date: October 15, 2001
- Competing entities: HotJobs.com and Monster.com (owned by TMPW)

From the press release:

- TMP Worldwide Inc. (NASDAQ:TMPW), the world's leading supplier of human capital solutions, including the pre-eminent Internet career portal Monster.com(R), announced today that it has entered into an agreement to acquire HotJobs.com, Ltd. (NASDAQ: HOTJ). Under the terms of the acquisition, each share of HotJobs common stock outstanding will be exchanged for 0.2195 shares of TMP common stock. TMP intends to maintain HotJobs.com as a stand-alone site and brand. Monster and HotJobs will be a formidable combination in the online recruitment industry, with a total of more than 14 million resumes and more than 650,000 jobs.
- As a result, TMP anticipates issuing a total of approximately 8.3 million shares of its common stock, with a value of approximately \$460 million, based on the 10-day average TMP closing stock price, representing a 20.9% premium to HotJobs' June 28, 2001, closing price.
- The Board of Directors of both companies have approved the transaction, which is expected to be tax free to the shareholders of both companies. The merger is subject to the approval of

HotJobs' shareholders, regulatory approval, and other customary closing conditions, and is expected to close in the fourth quarter of 2001.

The transaction is being accounted for as a pooling of interests under U.S. generally accepted accounting principles.

BUSINESS SUMMARY

A brief summary of the companies follows from their press release:

- HotJobs.com is a leading Internet recruiting solutions company that develops and provides companies with innovative recruiting solutions and services. HotJobs.com (www.hotjobs.com), the company's popular consumer job board, provides a direct exchange of information between opportunity seekers and employers, and includes features such as HOTBLOCK, which enables job seekers to block specific companies from searching their resumes. In addition, HotJobs also offers an Agency Desktop, which provides a direct, business-to-business exchange between corporate hiring managers and staffing agencies. Over 10,600 companies subscribe to HotJobs' online employment exchanges. HotJobs also provides employers with progressive recruiting solutions such as its Resumix® and Softshoe® hiring management software, Career Expos, its HotReach affiliate program, and Diversity Marketing Solutions.
- Founded in 1967, TMP Worldwide Inc., with more than 9,500 employees in 32 countries, is the online recruitment leader, the world's largest Recruitment Advertising agency network, and one of the world's largest Executive Search and Executive Selection agencies. TMP Worldwide, headquartered in New York, is also the world's largest Yellow Pages advertising agency and a provider of direct marketing services. The

company's clients include more than 90 of the Fortune 100 and more than 480 of the Fortune 500 companies. In June 2001, TMP Worldwide was added to the S&P 500 Index.

- Monster.com, headquartered in Maynard, Mass., is the leading global careers Web site, recording over 26.9 million unique visits during the month of May 2001 according to independent research conducted by I/PRO. Monster.com connects the most progressive companies with the most qualified career-minded individuals, offering innovative technology and superior services that give them more control over the recruiting process. The Monster.com global network consists of local content and language sites in the United States, United Kingdom, Australia, Canada, the Netherlands, Belgium, New Zealand, Singapore, Hong Kong, France, Germany, Ireland, Spain, Luxembourg, India, and Italy.

We will post our initial Pending Transaction analysis shortly, but we foresee no antitrust with this transaction despite the obvious overlap. We are using an initial October 15, 2001, projected closing date.

07/02/01, 09:33 A.M.

ANTITRUST COMMENTARY

HOTJ and Monster.com are the two leading Internet-based job placement services. On the conference call this morning, management cited (i) low barriers to entry and (ii) "thousands of competitors" as the primary reasons for the lack of antitrust concern. We tend to agree, particularly with the second point, noting that competitors include:

- Online services—both general and industry-specific
- Traditional headhunting services
- Company Web sites—many companies offer their own "Job Opportunities" sections on their Web sites

Despite the "60% market share" created by combining the top two Internet companies, we cannot see how the FTC will have any problems with the merger. We suppose a second request is a possibility, but we view this deal as having minimal, if any, antitrust risk.

The transaction will be subject to only the expiration of the HSR waiting period.

We will post our Financial Analysis summary shortly.

07/02/01, 10:25 A.M.

FINANCIAL ANALYSIS SUMMARY

HOTJ is bleeding cash. On an operating basis, since 1998 the company has lost \$60.6 million on total cumulative revenue of \$120.6 million. Its most recent results have shown some signs of improvement and are as follow (for the period ending March 31, 2001):

- LTM revenue = \$116.3 million (up 20.5% versus fiscal 2000 and up 464% versus 1999)
- LTM EBIT = -\$34.7 million (versus -\$41.3 million in fiscal 2000 and -\$17.1 million in 1999)
- LTM EBITDA = -\$13.3 million (versus -\$25.7 million in fiscal 2000 and -\$16.3 million in 1999)

Between December 31, 2000 and March 31, 2001, HOTJ's cash balance declined from \$99.1 million to \$82.7 million. Net of cash, the TMPW acquisition values HOTJ at $2.9 \times$ LTM revenue, which equates to the following premiums paid:

- 90-days Average Prior to Announcement (\$5.89) = 115.4%; 90-days High Prior to Announcement (\$10.10) = 25.8%; 90-days Low Prior to Announcement (\$3.09) = 311.3%

TRADING RECOMMENDATION

We are maintaining our October 15, 2001, projected closing date and our "3" Portfolio Rating (Monitoring Key Issues).

At \$0.41 gross, the arbitrage spread yields a 13.9% net annualized return to our projected closing date, a level which we view as somewhat rich given HOTJ's operating performance. If the deal terminates for any reason, we view the downside in HOTJ as quite substantial. Note that HOTJ was trading below \$4.00 per share as recently as April 2001.

08/07/01, 4:40 P.M.

COMMENTARY

Despite recent complaints to the FTC from one of the company's competitors, FreeJob.com, regarding the "monopolistic" threat of a merged HOTJ/TMPW, we view the antitrust associated with this merger as nil. The relevant market is not defined simply by on-line job search engines. It includes printed media, company Web sites, other portals (such as Bloomberg), and a variety of other job-hunting resources. We see

absolutely no risk associated with the efforts of New York-based FreeJob.

In today's *WSJ*, for example, FreeJob is quoted as having sent a letter to the FTC warning of Monster.com's "monopolistic practices." The company has also filed a lawsuit against Monster.com.

08/14/01, 09:03 A.M.

ANTITRUST COMMENTARY

Once again demonstrating that the staff of the FTC has difficulty with basic market concepts, the FTC yesterday issued an HSR second request, as disclosed this morning by the companies:

TMP Worldwide Inc. (Nasdaq: TMPW) and HotJobs.com, Ltd. (Nasdaq: HOTJ) announced today that they each received a request for additional information from the Federal Trade Commission ('FTC') in connection with TMP's pending acquisition of HotJobs. TMP and HotJobs will comply with the request for additional information promptly. The merger is subject to the expiration of the Hart-Scott-Rodino waiting period, the approval of HotJobs' shareholders, and other customary closing conditions, and is expected to close in the fourth quarter of 2001. TMP and HotJobs remain committed to working cooperatively with the FTC as it conducts its review of the merger.

We expected the HSR waiting period to expire yesterday, and we find the FTC's action disturbingly inappropriate. True, the FTC may simply be on a fishing expedition to learn more about the online job-recruiting market, but its issuance of an HSR second request is irrational (unless the companies' filings were somehow deficient, in which case we would have believed a re-filing was warranted). We cannot imagine any scenario that would entail remedial action.

The FTC's response would be analogous to issuing a second request for the merger of two Internet-based research services while ignoring the mountains of research provided by sell-side competitors through hard-copy, email, and fax.

In any event, we believe the HSR second request should be resolved within the timeframe provided by our mid-October projected closing date.

TRADING RECOMMENDATION

We are maintaining our "3" Portfolio Rating (Monitoring Key Issues).

10/03/01, 10:00 A.M.

COMMENTARY

Observations based upon a follow-up conversation with HOTJ's CFO this morning:

1. Delayed timing: The companies have realized that the FTC's inquiry will simply take longer than they had hoped. The FTC remains in the discovery phase of its investigation. HOTJ and TMPW believe a year-end closing remains possible, but the companies are trying to be realistic and anticipate that a two-month post-compliance period will be likely in order to obtain approval.
2. Second request compliance: Both HOTJ and TMPW still expect to fully comply with the HSR second request prior to October month-end.
3. Remedial action: HOTJ's CFO does not believe any remedial action should be mandated; however, he acknowledges that the process is moving slowly and speculation is premature.
4. Market definition: The companies have not received enough specific inquiry from the FTC to determine the staff's position on market definition. The staff's questions have been broad and general so far, although the companies expect focused inquiries once full compliance is certified.
5. Full compliance: The companies are committed to working together with the FTC to resolve the second request expeditiously. They will not seek to force the FTC's hand by adhering to a specific deadline once compliance is certified.
6. HeadHunter.net: Neither TMPW (during the conference call this morning) nor HOTJ had any meaningful comments regarding the HHNT/CareerBuilder deal.

We continue to believe that the FTC should approve the transaction without remedial action. We are extending our forecasted closing date to January 15.

10/10/01, 10:28 A.M.

COMMENTARY

Excerpt from the FTC Watch "In Brief" column (dated today, October 10):

[T]he FTC's Northwest Regional Office in Seattle, assisted by investigators in Washington,

D.C., is considered likely to recommend injunctive action to block the proposed merger of Monster.com and HotJobs, two of the Internet's largest personnel recruiters.

We would find this action, if taken, to be nearly inconceivable.

10/10/01, 4:06 P.M.

COMMENTARY

We spoke at length with HOTJ's CFO this afternoon:

- Nature of FTC Watch article. He characterized the article as "ridiculous," noting that the companies have not even fully complied with the HSR second request.
- Second request. The companies continue to furnish information to the FTC (both Washington and Seattle), and the inquiries from the FTC have evolved into a "second round of responses" that are more focused in nature.
- Timing. He reiterated that the companies remain firmly committed to closing the merger by year-end (despite TMPW's acknowledgement that the closing could slip into early 2002).

We are maintaining our January 15, 2002, projected closing date.

TRADING RECOMMENDATION

We are maintaining our "3" Portfolio Rating (Monitoring Key Issues). The spread widened to as much as \$1.50 gross this morning before trading throughout the afternoon at \$1.00 gross and closing at \$0.86 gross.

10/16/01, 07:30 A.M.

ANTITRUST COMMENTARY

To continue our antitrust review, posted Friday, October 15, we estimate that the entire "job recruitment" market will equal \$8.5 billion in total revenue, with \$2.0 billion derived from companies in the online sector, for the current year. These figures supply the denominator for the following analysis.

Our analysis follows.

INDUSTRY OVERVIEW

As a starting point, we excerpt a description of the entire market from TMPW's most recent 10-K:

1. **Interactive:** The Internet is an increasingly significant global medium for communications, content, and commerce. The increasing functionality, accessibility and overall usage of the Internet and online service have made them an attractive commercial medium. Thousands of companies have created corporate Web sites that feature information about their product offerings and advertise employment opportunities. Online recruiting is also proving to be attractive to employers and recruiters because online job advertisements can be accessed by job seekers anywhere in the world at anytime and more cost-effective than print media. Forrester Research estimates that online spending by employers for recruitment will grow from \$1.2 billion in 2000 to \$7.1 billion in 2005.
2. **The Recruitment Advertising Market:** Recruitment advertising traditionally consists of creating and placing recruitment advertisements in the classified advertising sections of newspapers. While the recruitment advertising market has historically been cyclical, during the period of 1995 through 2000, the U.S. market grew at a compound annual rate of approximately 12% according to the Newspaper Association of America. For the year ended December 31, 2000, global spending (billings) in the recruitment classified advertisement section of newspapers was approximately \$8.7 billion according to the Newspaper Association of America. Agencies which place recruitment classified advertising are paid commission rates historically ranging from approximately 10% in Australia to 15% in the U.S. and the United Kingdom of recruitment advertising placed in newspapers and earn fees for providing additional recruitment services. Based on experience with our clients, we believe that only 20% to 30% of open job positions are placed using traditional print media.
3. **Executive Search:** The market for executive search firms is generally separated into two broad categories: retained executive search firms and contingency executive search firms. Retained search firms are generally engaged on an exclusive basis and paid a contractually agreed-to fee. Contingency executive search firms typically do not focus on the senior executives and are generally paid a percentage of the hired candidate's salary only when a candidate is successfully placed.

4. **The Yellow Page Advertising Market:** Currently, approximately 6,000 yellow page directories are published annually by 200 publishers and, in the U.S., many cities with populations in excess of 80,000 are served by multiple directories. The percentage of adults who use the yellow pages has remained relatively constant over the last ten years at over 56%, and such readers consult the yellow pages approximately two times weekly. Accordingly, yellow page directories continue to be a highly effective advertising medium. According to the Yellow Page Publishers Association, for the year ended December 31, 2000, total spending on yellow page advertisements in the U.S. was \$12.0 billion. Of this amount, approximately \$10.0 billion was spent by local accounts and approximately \$2.0 billion was spent by national accounts.
5. **Selection and Temporary Contracting:** The mid-market selection finds for our clients those professional candidates who typically earn between \$50,000 and \$150,000. Temporary contracting supplements our management selection and permanent placement services and allows our clients to quickly respond to staffing needs that are a result of growth or changing business conditions. According to the Staffing Industry Report, the United States temporary staffing market grew from approximately \$62 billion in revenue in 1998 to approximately \$86 billion in revenue in 2000, and the U.S. total staffing industry is at more than \$140.0 billion.

FINANCIAL SUMMARY

TMPW operates five segments:

- Interactive (including Monster.com and Monstermoving.com)
- Advertising
- eResourcing
- Executive Search
- Directional Marketing

Within each segment, commissions and fees are earned from the following activities: (a) job postings placed on its career Web site, Monster.com, (b) resume and other database access, (c) executive placement services, (d) moving related advertisements on its website, Monstermoving.com, (e) mid-level employee selection and temporary contracting services, (f) selling and placing recruitment advertising and related

services, (g) resume screening services, and (h) selling and placing yellow page advertising and related services.

TMPW earns fees through the following activities:

1. **Interactive:** For the placement of job postings on the Internet primarily its careers Web site, Monster.com. In addition, it earns fees for resume and other database access. The company also derives commissions and fees for job advertisements placed in newspapers and other media, plus associated fees for related services. Commissions and fees are generally recognized upon placement date for newspapers and other media.
2. **Permanent placement:** For permanent placement services provided, a fee equal to between 20% and 30% of a candidate's first year estimated annual cash compensation is billed in equal installments over 3 consecutive months (the average length of time needed to successfully complete an assignment). For eResourcing's temporary contracting business, commission and fees are recorded when the contracted services are performed.
3. **Executive Search:** Services and these are recognized as clients are billed. Billings begin with the client's acceptance of a contract. A retainer equal to 33 1/3% of a candidate's first year estimated annual cash compensation is billed in equal installments over 3 consecutive months.
4. **Advertising:** Quarterly commissions and fees for the Advertising and Communications Division are typically highest in the second quarter and lowest in the fourth quarter; however, the timing of yellow page directory closings is currently concentrated in the third quarter.

For fiscal 2000, Monster.com's gross billings and commissions and fees were \$364.0 million and \$362.0 million, respectively, and the company's total Interactive gross billings and commissions and fees were \$485.9 million and \$435.2 million, respectively, including Monster.com, MonsterMoving.com and related advertising revenue.

TMPW Fiscal 2000 Gross Billings:

- Interactive = \$485.9 million
- Advertising = \$877.8 million
- EResourcing = \$391.7 million
- Executive Search = \$178.3 million

- Directional Marketing = \$545.8 million
- Total Gross Billings = \$2.48 billion

TMPW Fiscal 2000 Total Net Revenue (commissions and fees):

- Monster.com/Interactive = \$372.9 million, including \$10.9 million from Monstermoving.com
- Advertising = \$225.7 million
- EResourcing (temporary employment) = \$408.4 million
- Executive Search = \$178.4 million
- Other = \$106.3 million
- Total gross revenue = \$1.29 billion

For 2001, we estimate the following for TMPW:

- TMPW total commission revenue = \$1.5 billion (18% of total \$8.5 billion)
- TMPW total Monster.com Interactive online segment revenue = \$462 million (23% of total \$2.0 billion)

For 2001, we estimate the following for HOTJ:

- HOTJ total revenue = \$125 million (1.4% of total \$8.5 billion)
- HOTJ online segment revenue = \$125 million (6.2% of total \$2.0 billion)

Pro forma combined HOTJ/TMPW:

- Total revenue = \$1.525 billion = 18% of total industry
- Online revenue = \$587 million = 30% of online segment

By comparison, the #2-ranked HHNT/CareerBuilders estimated 2001 pro forma is as follows:

- HHNT (\$67 million) + CareerBuilders (\$47 million) = \$114 million = 6% of online segment.

MARKET SHARE CONCLUSIONS

The FTC seeks to prevent business practices that restrain competition. The agency's analysis consists of many components, including:

- Market definition
- Pricing power
- Barriers to entry

Market Definition

Most FTC investigations are led by its Bureau of Competition. In this case, the Bureau of Competition

is being assisted by lawyers in the FTC's Seattle branch who are familiar with e-commerce. This issue in this case is not how many competitors have significant market shares because of one simple fact, the merger of HOTJ and TMPW will further consolidate TMPW's already sizable lead in the online/interactive segment of the job recruiting industry.

We believe that the market should be defined more broadly than the online/interactive segment. However, to assume the FTC's role, we will proceed under the assumption that the merger will create an entity with 30% to 33% of the online/interactive market.

Pricing Power

The issue then becomes clear. Assuming the segment is defined narrowly, can the merger entity restrain competition? To reach a conclusion, one needs to examine the competitive landscape within the online/interactive segment. As we posted on October 12, the top five firms, ranked by "eyeball" share (time spent on site) are as follow:

1. Monster.com = 58.2%
2. Headhunter.net = 13.5%
3. HotJobs = 12.7%
4. JobsOnLine.com = 4.6%
5. CareerBuilder = 4.4%

Pro forma for the two pending mergers:

1. HOTJ/TMPW = 70.9%
2. HHNT/CareerBuilders = 17.9%
3. JobsOnLine.com = 4.6%

This appears overwhelming; however, shopping does not equal buying. Thus, we are led to ask who are the customers and how do TMPW and HOTJ derive revenue? The companies customers consist of three categories: (1) job seekers, (2) companies seeking help, and (3) advertisers.

The ability of Monster.com and HotJobs to "restrain competition" depends on the elasticity of demand for their services. If the companies raise prices for posting resumes, job searches, and executive recruiting, then what happens? Job seekers will use the newspaper classified ads, as will companies seeking help. Or they will use traditional headhunting firms who use phones and fax machines. Or the weaker players will gain market share by discounting. Or well capitalized firms will move into the online/interactive space because . . . there are no barriers to entry.

Barriers to Entry

We will make this comment brief. The only barrier to entry is capital. In fiscal 2000, TMPW, HOTJ, and HHNT spent the following on marketing, related salaries, and promotion:

- TMPW spent \$161.4 million (up 112% versus \$75.8 million in 1999), or 12% of net revenue, excluding salaries. Total salary expense equaled \$667.4 million. Combined, these expenses equaled \$828.8 million, or 64% of net revenue.
- HOTJ spent \$82.5 million (up 236% versus \$24.5 million in 1999), or 85% of net revenue.
- HHNT spent \$50.9 million (up 500% versus \$9.9 million in 1999), or 103% of net revenue.

Interestingly, compare net revenue growth rates since 1999:

- TMPW (Monster.com only) = 181% (19% for LTM)
- HOTJ = 368% (30% for LTM)
- HHNT = 442% (33% for LTM)

This trend leads to two conclusions: (1) The online/interactive sector is well penetrated and thus sustained revenue growth will be achieved by buying market share and lowering prices, and (2) access to capital is essential to fund growth.

As HHNT summarizes in its most recent 10-K:

We compete against other online recruiting services, such as Monster.com, HotJobs, and CareerBuilder, as well as:

ONLINE

- corporate Internet sites,
- not-for-profit Web sites operated by individuals,
- educational institutions, and
- government job sites.

OTHER

- classified print advertising,
- radio, and
- television.

Many of our current and potential competitors, including those mentioned above, have significantly greater financial, technical and marketing resources, longer operating histories, better name recognition, and more experience than we do. Many of our competitors also have established relationships with job posters.

Note two points raised in the final paragraph: (1) "current and potential competitors," and (2) "marketing resources."

Our conclusions remain that:

- HOTJ/TMPW should be approved by the FTC.
- HHNT/CareerBuilders will be approved by the FTC.

In the final analysis, the HHNT/CareerBuilders merger is pro-competitive under any scenario. Although we find that the HOTJ/TMPW merger is not pro-competitive, we fail to see how the merger will, in the FTC's own words, "restrain competition."

11/06/01, 09:42 A.M.

COMMENTARY

We have three additional observations regarding the conference call:

1. The HOTJ acquisition was barely mentioned during the call. In fact, TMPW management failed to discuss the merger in any detail until asked specifically about the transaction during Q&A. We found that surprising.
2. TMPW's new president, Jim Treacy, seemed to imply that TMPW is frustrated with the FTC and that the company may be less willing to continue to cooperate than previously assumed, although he stated that the company "intends to work" with the FTC, the inference we took away from his remark was that TMPW may become less committed to the acquisition if the FTC fails to approve the merger shortly after TMPW certifies compliance with the pending second request. This worries us.
3. Timing. TMPW will complete its document dump "within the next few weeks" (late November). TMPW then intends to certify compliance, which gives the FTC an additional 30 days to review the submitted material (late December). Assuming, for the moment, that TMPW works with the FTC without adhering to the 30-day deadline, closing could occur in early January.

TRADING RECOMMENDATION

We are maintaining our "3" Portfolio Rating (Monitoring Key Issues), which we will review after speaking with TMPW management.

The current \$0.95 gross arbitrage spread yields a 67.5% net annualized return to our January 15, 2002, projected closing date. This date is probably the earliest possible closing date and could easily extend deeper into the first quarter—assuming the companies continue to work toward completing negotiations with the FTC and closing the merger.

11/06/01, 10:11 A.M.

COMMENTARY

We spoke with a contact in TMPW management after the conference call:

- Questions we asked:

Q. Is TMPW committed to closing the acquisition?

A. "Yes, fully."

Q. Will TMPW continue to work with the FTC staff?

A. "We don't work with the FTC, we comply. If someone at the FTC has a position against the merger, we'll aggressively pursue our position."

Q. Will TMPW certify compliance and then adhere to the 30-day deadline?

A. "Absolutely not. When they ask for an extension, you give it to them. We'll be happy to give them additional time, but we won't give them forever."

Q. Why was HOTJ not emphasized on the call?

A. "We were happy to answer any question regarding them on the call . . . We believe our shareholders know as much as we know."

Q. What is management's attitude regarding the FTC?

A. "The FTC has its own pace without regard to our business or shareholders or market conditions. We want this done, and we want HotJobs to be part of the family. Willing or not, we have to comply with the FTC, and we'll supply them with tons and tons, truckloads, of paperwork. They've asked for 5 years of material, but this is not the time to lose sight of our commitment."

Q. What other steps are being undertaken by TMPW?

A. "We've supplied the FTC with several white papers, position papers, that we didn't go into on the call."

- Our conclusions:

1. TMPW wants to close the acquisition but seems very frustrated by the second request and the depth of the FTC's investigation.
2. TMPW will not allow this process to continue indefinitely.
3. We are maintaining our 60% probability of FTC approval.

12/04/01, 10:25 A.M.

TRADING COMMENTARY

We are growing somewhat more disillusioned with the situation, but not for reasons espoused by Robert Doyle in yesterday's Bloomberg report¹. The definitive proxy statement has not been filed despite the objective of having the HOTJ shareholder meeting in December, which is now impossible. HOTJ needs TMPW a great deal more than TMPW needs HOTJ, and we fail to sense a burning commitment from TMPW's management.

We have no new checks regarding the status of the FTC's legal staff's views on the merger. We believe, though, that Monster.com remains viewed by regulators as an overzealous competitor. Our doubts remain, however, whether the FTC would be able to win an injunction against the merger-assuming TMPW persists. The termination drop-dead date is not until March 31, 2002.

As we have discussed previously, we do not believe HOTJ's share price downside is substantial when compared with the HHNT transaction multiples (see our posting dated October 18 in the Pending Transaction file). Despite poor liquidity and a large overhang, we believe HOTJ should not trade significantly below \$5.00 per share in the event of a deal termination, subject to the market remaining relatively stable.

The arbitrage spread is now at its widest level since announcement (June 29):

- Current gross spread = \$2.64
- Average Since Announcement = \$0.61
- Previous Wide Spread Since Announcement = \$2.01
- Tightest Spread Since Announcement = \$0.14

¹Robert Doyle, a former FTC staff lawyer, is in the Washington, DC, office of Powell, Goldstein (202-624-7231).

12/06/01, 3:33 P.M.

COMMENTARY

To summarize our views:

1. **FTC staff recommendation:** We have little doubt at this point that the legal staff is preparing to recommend seeking to block the merger. Its actions are consistent with preparing to litigate and, frankly, Jim Treacy's comments and tone at the CS First Boston conference convince us that TMPW is well aware of the position of the FTC staff. Plans to meet with the Commissioners are not made lightly and certainly not unless a last resort effort is in the works.
2. **TMPW's commitment:** TMPW's motivation is one aspect of this transaction that has always troubled us. In our opinion, TMPW has never really cared about acquiring HOTJ; instead, we believe HOTJ needs TMPW much more than TMPW needs HOTJ. We tend to think that TMPW's original objective remains to eat the competition.
3. **Probabilities:** We continue to view the FTC's position as weak (despite the undoubted presence of damning internal documents contained in the companies' data dump), and we believe that the Commission has only a 40% chance of prevailing in winning an injunction. However, we now view the likelihood of a Commission vote to block as 60% based upon deepening evidence of the legal staff's conviction. Much will depend on TMPW's true commitment to closing the acquisition in determining whether the company will call the FTC's bluff or simply walk away from trying to acquire HOTJ.
4. **Market definition:** We still believe the relevant market includes newspapers, trade journals, geo-specific Web sites, company-specific Web sites and many other sources of job-seeking and job-posting. Recently, the *New York Times* and *Boston Globe* announced plans to consolidate their job-listing Web sites. Furthermore, Dow Jones and the *WSJ* operate a joint venture with Korn-Ferry, a major international recruiting firm, called FutureStep.com. However, the FTC legal staff seems hell-bent on forging ahead with a new market definition.

If the FTC choose this path, then we firmly believe that its decision will look as ridiculous 3 years from now as its decision on Office Depot/Staples looks today.

In terms of technicals, we believe that many arbitrage accounts have unwound most or all of their positions, which, along with Jim Treacy's remarks, accounts for the continuing lack of trading support for HOTJ.

12/12/01, 12:43 P.M.

COMMENTARY

We interviewed Stephen Axinn at length earlier today. Mr. Axinn is acting as lead counsel on behalf of TMPW in connection with the company's negotiations with the FTC. Mr. Axinn seemed clearly interested in promoting TMPW's views, as well as clarifying certain recent published reports in the media.

A review of topics discussed follows:

GENERAL OBSERVATIONS

1. TMPW is "hopeful" that the FTC will approve the transaction.
2. TMPW believes "at the moment" that no remedy is required.
3. TMPW argues that the barriers to entry should exclude promotional and advertising expenses.
4. TMPW believes strongly that the broad market definition is relevant and, even in a narrow definition, that the barriers to entry are sufficiently low enough to invite serious competition in the near future as major media players devote more resources to the online segment.

Discussion of Issues

APPROVAL

- Mr. Axinn stated that he is hopeful that the FTC will "come around" to the company's views regarding market definition and barriers to entry. He added that his optimism is based generally upon "the government's reaction to the information we've provided." He would comment specifically beyond this remark other than to say his view is predicated on "compelling facts and precedents," including the FTC's recent approval of the RAL/Nestle transaction, which initially encountered "the same knee-jerk reactions" by the FTC's staff.

ISSUES

- Barriers to entry. TMPW's view is that few, if any, credible barriers to entry exist. "A well defined concept for antitrust analysis is that a

barrier to entry is an obstacle faced by a new entrant that was not faced by the incumbent.” Mr. Axinn’s position is that advertising and promotion expenses are ongoing operating expenses, not a prerequisite to entering the market segment. He added that “branding is not a barrier, whether it’s renting a blimp to fly over the Super Bowl, or anything else.” His view is that “patents, copyrights, and expertise,” are barriers, not simply raising and spending capital. Mr. Axinn pointed out the new site Gator.com, which directs Web-surfers from a sought site to an advertisement pop-up for a competing site. Services like Gator.com illustrate competitive advertising alternatives geared directly at users of specific types of searches (such as job-hunting). He concluded, “There are no barriers to entry in this business.”

- **New entrants.** The job recruiting market has experienced “extraordinarily dynamic level” of change over the past few years. Monster.com continues to view itself as a “new entrant” into a market dominated by deep-pocketed media companies (e.g., Knight-Ridder, Dow Jones, the New York Times). Furthermore, any major Web-based company possesses the ability to enter the segment, including Yahoo!, AOL, and Microsoft. Mr. Axinn stated: “Can TMP dictate to them? We’re still a small company compared to some” of the major media players, several of which are making strides in switching from printed classified ads to Internet-based content.
- **Market segment.** The “ultimate” issue to resolve is whether HOTJ “can be replaced” (i.e., whether TMPW’s acquisition of HOTJ will result in a less competitive market)—not whether Monster.com can be replaced. TMPW’s position is that only 3%–4% of all job placements result from Internet based recruiting, with the vast majority continuing to result from classified ads and word-of-mouth. In antitrust analysis the acquisition of a competitor must be considered within the context of the competitive realities of the marketplace. Mr. Axinn stated that “any of [the major media players] can decide to plant their flags” at any time. In fact, any search engine, such as Google.com or Alta Vista.com, will find multiple job postings from a variety of sources on an objective, non-discrimi-

natory basis, which may or may not include “Monster.com, HotJobs, or Headhunter.”

STATUS OF FTC NEGOTIATIONS

- **TMPW’s attitude.** The company realizes that Jim Treacy’s recent remarks were inappropriate and only “reflected a level of frustration” based upon the FTC staff’s level of demands (additional documentation, studies, depositions, etc.). According to Mr. Axinn, Jim Treacy “saw the KRI [Headhunter] deal go through and felt like the FTC was singling out Monster.com.” About Mr. Treacy’s public frustration, Mr. Axinn said that “We’re not denying that it happened, but that’s history. He never intended to be insulting.” Mr. Axinn confirmed that senior executives have met with Joe Simons (Director of the Bureau of Competition) recently and that the FTC and the company is “communicating” more effectively, with both sides “listening to each other . . . Diplomacy is an art.”
- **Negotiations.** Mr. Axinn would not discuss the level of “conversations” with the FTC staff or the FTC’s more senior officials, stating that he would not comment “on any solution or whether any solution is necessary.” He added: “Our opinion at the moment is that no solution will be necessary.”

We pressed Mr. Axinn about whether TMPW would consider behavioral remedies as a compromise solution. We discussed the specific remedies suggested in our previous commentaries (of which he was aware), but Mr. Axinn would not comment on their viability. Throughout the interview, it struck us that TMPW is willing to agree to certain behavioral modifications. Mr. Axinn repeated the phrase “at the moment” more than once when discussing his view that no remedies would be required. He presented a compelling argument which, as a litigator, is to be expected, but our view is that some progress has been made recently with the FTC.

TRADING RECOMMENDATION

We are maintaining our “3” Portfolio Rating (Monitoring Key Issues). The arbitrage spread is currently \$3.43 gross, which is approximately \$0.60 tighter than the recent widest level.

12/28/01, 4:14 P.M.

COMMENTARY

We have confirmed with HOTJ's CFO that the breakup fee has been wired to TMPW.

For the record, as filed on Form 8-K with the SEC this afternoon:

- On December 27, 2001, HotJobs.com, Ltd. ("HotJobs") announced that it had terminated the agreement and plan of merger by and among

TMP Worldwide Inc., TMP Tower Corp. and HotJobs (the "TMP Merger Agreement"), dated as of June 29, 2001, and that it had entered into an agreement and plan of merger (the "Yahoo! Merger Agreement") by and among Yahoo! Inc., ("Yahoo!"), HJ Acquisition Corp., a wholly owned subsidiary of Yahoo!, and HotJobs.

We will move the Pending Transaction file to the Archive shortly.

Source: DealAnalytics.com, August 18, 2002.

APPENDIX C

ILLUSTRATIVE PORTFOLIO RECOMMENDATIONS

ILLUSTRATIVE PORTFOLIO RECOMMENDATIONS: AUGUST 13, 2002

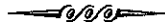
Target/Acquirer	Ticker/ Ticker	Industry	Portfolio Rating	Parity Value	Gross Spread	Net Spread	Date Announced	Estimated Closing	Annual Net Return	Latest Update
American Water Works/RWE A.G.	AWK/ N/A	IND	3	\$46,000	\$2,530	\$2,970	9/14/01	1/31/03	13.10%	8/7/02
AT&T Canada/AT&T Corp.	ATTG/ T	TEL	3	33,340	1,820	1,770	3/4/99	10/8/02	36.83	8/12/02
AT&T Corp./Comcast Corp.	T/ CMCSA	TEL	3	10,464	0,064	0,076	7/8/01	11/30/02	4.73	8/12/02
Bancorp Connecticut/Banknorth Group	BKCT/ BKNG	BAN	1	28,000	0,040	-0,010	4/11/02	8/30/02	-0.59	7/23/02
Centennial Bancorp/Umpqua Holdings	CEBC/ UMPO	BAN	2	9,058	0,458	0,452	7/23/02	11/29/02	17.13	7/24/02
Chase Industries/Olin Corp.	CSI/ OLN	IND	3	11,885	0,335	0,287	5/8/02	9/30/02	5.08	8/6/02
ChemFirst Inc./DuPont	CEM/ DD	IND	2	29,200	0,270	0,420	7/23/02	12/15/02	4.30	7/29/02
Conoco. Inc./Phillips Petroleum	COC/P	IND	2	23,769	0,009	0,003	11/18/01	9/30/02	-0.26	8/9/02
Datum/Symmetricom, Inc.	DATM/ SYMM	TEC	4	9,111	1,221	1,074	5/23/02	10/31/02	54.75	8/13/02
Dave & Buster's/Investcorp	DAB/ N/A	OTH	3	13,500	0,490	0,440	5/30/02	9/30/02	22.74	8/2/02
DeWolfe Companies/NRT Corp. (Cendant)	DWL/ NRT	OTH	2	19,000	0,140	0,090	8/12/02	9/20/02	4.05	8/12/02
Donnelly Corp./Magna International	DON/ MGA	IND	3	26,406	0,906	0,933	6/25/02	9/30/02	32.73	8/13/02
Dreyer's Grand Ice Cream/ Nestle SA	DRYR/ N/A	OTH	2	83,000	16,070	16,860	6/17/02	1/1/06	7.49	8/7/02
Echo Bay/TVX Gold/Kinross Gold	ECO/ KGC	OTH	4	0,946	0,036	-0,036	6/10/02	10/31/02	-22.09	8/13/02
EEX Corp./Newfield Exploration	EEV/ NFX	IND	2	1,866	0,026	-0,022	5/29/02	9/27/02	-3.85	8/9/02
EXCO Resources/Management LBO	EXCO/ N/A	IND	4	17,000	1,040	0,990	8/7/02	12/31/02	19.13	8/9/02
Expedia Inc./USA Networks	EXPE/ USAI	INT	3	59,305	8,365	8,180	7/16/01	12/31/02	43.71	8/9/02

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FEI Corp./Veeco Instruments	FEIC/ VECO	TEC	2	18.658	0.269	0.236	7/12/02	10/31/02	5.09	8/13/02
Garan Inc./Berkshire Hathaway	GAN/ BRK/A	IND	1	60.000	0.120	0.070	7/02/02	9/4/02	2.49	8/5/02
Golden State Bancorp/Citigroup	GSB/C	BAN	2	34.724	0.554	0.530	5/21/02	9/30/02	11.51	8/9/02
Hispanic Broadcasting/Univision Communications	HSP/ UVN	MED	4	18.827	0.627	0.744	6/12/02	2/28/03	4.70	8/8/02
Hollywood Casino/Peran National Gaming	HWD/ PENN	OTH	3	12.750	0.730	0.680	8/7/02	5/31/03	7.55	8/11/02
Hughes Electronics/EchoStar Communications	GMH/ DISH	TEL	3	11.556	1.626	1.631	8/5/01	12/31/02	42.59	8/13/02
International Speciality Products/ Management LBO	ISP/ N/A	IND	3	10.000	0.050	0	7/8/02	12/31/02	.00	7/25/02
McAfee.com Inc./Network Associates	MCAF/ NET	TEC	2	15.108	0.158	0.087	3/18/02	9/12/02	6.29	8/13/02
MCI Group/WorldCom, Inc.	MCWE/ WCOE	TEL	3	0.190	0.010	-0.103	5/22/02	12/31/03	-40.81	8/12/02
Medford Bancorp/Citizens Financial	MDBK/ N/A	BAN	1	35.000	0.150	0.250	6/13/02	10/15/02	3.85	8/7/02
Mississippi Valley Bancshares/ Marshall & Ilsley	MVBI/ MI	BAN	2	52.158	0.458	0.506	6/17/02	10/31/02	5.21	7/24/02
NCS HealthCare/Genesis Health Ventures	NCSS/ GHVI	HEA	3	1.590	-0.830	-0.885	7/29/02	10/31/02	-159.83	8/9/02
Nortek, Inc./Keiso & Co.	NTK/ N/A	IND	3	46.000	1.700	1.650	4/8/02	10/31/02	18.53	8/9/02
Oplink Communications/Avanex Corp.	OPLK/ AVNX	TEC	4	0.928	0.018	-0.052	3/19/02	8/19/02	-319.89	8/5/02
P&O Princess Cruises/Carnival Corp.	POC/ CCL	OTH	4	30.352	6.532	6.661	12/16/01	12/31/02	64.16	7/31/02
PanAmSat/EchoStar Communications	SPOT/ DISH	TEL	3	22.470	0.070	0.020	8/5/01	12/31/02	.22	7/12/02
Paradigm Geophysical/Fox Paine & Co.	PGEO/ N/A	IND	3	5.150	0.029	-0.021	5/22/02	8/13/02	-37.42	8/13/02
PayPal Inc./eBay Inc.	PYPL/ EBAY	INT	3	23.014	2.354	2.466	7/8/02	12/31/02	31.48	8/12/02
Penn Virginia/BP Capital	PVA/ N/A	IND	3	40.000	6.150	6.550	6/25/02	11/25/02	68.34	8/09/02
Pennzoil-Quaker State/Royal Dutch Shell	PZL/ RD	IND	2	22.000	0.300	0.275	3/25/02	9/30/02	9.05	8/1/02
Petroleum Geo-Services/Veritas DGC	PGO/ VTS	IND	3	0	-0.500	-0.550	11/27/01	12/31/02	-268.03	8/13/02
Pharmacia Corp./Pfizer Inc.	PHA/ PFE	HEA	3	45.402	-0.168	-0.091	7/15/02	2/15/03	-0.26	8/13/02
Prime Group Realty/American Realty Investors	PGE/ ARL	OTH	3	10.500	5.270	5.220	8/24/01	12/31/02	270.96	8/13/02
Rainbow Media/Cablevision Systems	RMG/ CVC	MED	2	6.419	0.019	-0.087	8/5/02	8/20/02	-26.25	8/8/02
Royal Caribbean/P&O Princess Cruises	RCL/ POC	OTH	3	20.637	3.097	3.219	11/20/01	12/31/02	45.02	7/31/02
SkillSoft Corp./SmartForce plc	SKIL/ SMTF	TEC	4	7.765	0.015	-0.141	6/10/02	9/6/02	-49.60	8/6/02
Spectrain Corp./REMEC Inc.	SPCT/ REMC	TEC	4	7.900	1.500	1.350	5/20/02	9/30/02	192.75	8/12/02
SpeedFam-IPEC/Novellus Systems	SFAM/ NVLS	BAN	3	4.892	0.092	0.063	8/12/02	11/29/02	3.33	8/13/02
Syncor International/Cardinal Health	SCOR/ CAH	HEA	2	32.302	0.222	0.225	6/14/02	9/30/02	5.74	8/08/02
Three Rivers Bancorp/Sky Financial	TRBC/ SKYF	BAN	1	16.958	-0.192	-0.231	5/8/02	9/30/02	-9.24	7/29/02
TRW Inc./Northrop Grumman	TRW/ NOC	IND	2	59.998	5.248	5.171	2/22/02	10/31/02	37.45	8/8/02
Unilab Corp./Quest Diagnostics	ULAB/ DGX	HEA	3	21.256	3.466	3.443	4/2/02	9/30/02	120.09	8/13/02
VIB Corp./Rabobank Group	VIBC/ N/A	BAN	1	15.100	0.160	0.110	7/31/02	12/31/02	1.68	8/2/02
Warren Bancorp/Banknorth Group	WRNB/ BKNG	BAN	1	15.750	0.170	0.225	8/8/02	12/31/02	3.88	8/9/02
Wink Communications/Liberty Media	WINK/ L	MED	3	3.000	0.020	-0.030	6/24/02	8/19/02	-44.39	8/1/02

Source: DealAnalytics.com.

APPENDIX D



ILLUSTRATIVE PORTFOLIO RECOMMENDATIONS SUMMARY

PORTFOLIO RECOMMENDATIONS SUMMARY

Portfolio Recommendations provides specific rankings of recommended investment positions from DealAnalytics Transaction Database. Each Portfolio Recommendation is weighted by its overall merits and risks, and each is reviewed on a daily basis. A key to the rankings is set forth:

Portfolio Recommendations Ratings Key^a:

	<i>Maximum Allocation^a:</i>		<i>Summary of Current Recommendations:</i>	
	<i>Assets</i>	<i>Risk Capital</i>	<i>Total</i>	<i>Average Return</i>
1 = Core Portfolio Holding	7.5%	3.5%	6	0.3%
2 = Developing Trading Position	4.0	1.5	14	5.9
3 = Monitoring Key Issues	2.5	0.5	25	5.8
4 = Sell Position/No Position	0.0	0.0	8	-7.0
5 = Short/Reverse	2.5	0.5	0	0

^aMaximum Allocation of Assets represents the maximum percentage of an unleveraged portfolio's total assets or a leveraged portfolio's net assets. Maximum Allocation of Risk Capital represents the maximum "equity risk capital" expressed as a percentage of an unleveraged portfolio's total equity value or a leveraged portfolio's net equity value.

PORTFOLIO RECOMMENDATIONS METHODOLOGY

Investment Strategy

- I. Announced deals (mergers, acquisitions, and restructurings)
- II. Hedged approached to portfolio management (utilizing options when appropriate)
- III. Short-term trading strategies (60 days average)
- IV. Minimize risk of loss, market correlation, and volatility

Research Process

- I. General Philosophy: To eliminate uncertainty in two areas—deal risk and market volatility.
- II. Two distinct disciplines:

Fundamental Research—three objectives:

- Determine whether transaction makes strategic business sense (financial analysis)
- Research regulatory challenges to the deal (legal analysis)
- Estimate timing and project what can delay closing (trading analysis)

Quantitative Research—two objectives:

- Quantify maximum loss and "risk capital" (hedging analysis)
- Quantify effect of potential market volatility (P&L analysis)

Portfolio Diversification

- I. General Philosophy: To diversify based upon risk of loss rather than capital allocation.
- II. Combine Fundamental Research with Quantitative Research

III. Create trading strategies designed to:

- Minimize “risk capital” and market correlation
- Maximize short-term IRR
- Hedge maximum loss

IV. Diversify portfolio investments with:

- No more than 3.5% “risk capital” in any one position
 - No more than 7.5% maximum asset allocation in any one position
 - Increased risk capital percentage as deal-closing nears
 - Actively traded and rebalanced hedges
-

Source: DealAnalytics.com, August 13, 2002.