Lecture Note: Advanced Topics on Financial Arbitrage Part 2

Risk Assessment when using Financial Arbitrage

When performing an arbitrage trade it is important to do your homework and only consider making an investment "after" the deal has been announced to the public --- the return from "chasing" an arbitrage situation is not worth the risk that the deal might never be done and you've already committed your money.

If you had been able to predict that Berkshire Hathaway was going to buy BNSF you could have purchased shares of BNSF for $76 and then tendered them to BRKA for $100, a nice $24 profit generating about a 27% return. However, in order to do, would have required that you purchase BNSF on the hope that such a merger would occur. On the other hand, if you had waited for the announcement a bought BNSF then, you would have paid $97 generating a $3 profit. In terms of arbitrage, a $3 certain profit is worth more than a $24 maybe deal. What makes this arbitrage transaction work is its certainty and relatively short time frame to complete.

Why risk arbitrage is to be avoided in favor of the lower profit, higher certain deals. The world of risk arbitrage is huge, with most large scale Wall Street arbitrage operations having as many as 50 or 60 deals going on at once. They operate on the theory that if most deals go bad, but they have a few outstanding winners, those winners will more than make up for the larger group of losers. However, a large-risk operation requires constant monitoring, reviews of financial press releases and SEC filings. A larger number of positions also increases the probability of error, and in most cases the Wall Street firms are leveraging their transaction with borrowed money ==➔ great opportunity to lose spectacularly as in the case of Long Term Capital Management.

The key to consistently generating profits in arbitrage is to concentrate on just a few deals that have a very high probability, or certainty of being completed. Once there is an announcement it is important to gather as much information as is available on the type of transaction, financial situation of the respective players, and the factors that might alter the timing of the transaction.

Benjamin Graham's Arbitrage Risk Equation

This equation adjusts the potential return from a deal with the probability of its actually happening. This formula provides a risk-adjusted potential rate of return on the arbitrage investment.

The first part of the equation requires that we determine our potential return. If you take the amount that is expected to be earned [cost to get in – funds received from tender offer, liquidation, re-organization = + amount] divided by the amount of our investment we have potential return.

For example, if the tender offer for shares of Company A is $55 and you are buying A shares for $50, your projected profit [PP] is $55 - $50 or $5. Your projected rate of return [PPR] is going to be:

[$55 - $50]/$50 = 10%.

Next, you need to figure out the likelihood that the arbitrage event will occur. Does this deal have a 30% or 90% chance of being completed? The characteristics of the tender offer will give some indication of what this probability should be --- if the tender is being made Company A based on their wanting to own more shares, there will be no regulatory approval and may not require a shareholder vote, if the tender is part of a friendly merger, the likelihood is much greater than with a hostile offer since both parties favor getting the deal done, on the other hand if there is a hostile offer and it results in a bidding war so much the better because the likelihood is that the deal will be done and the offer will be moving up. After you have ascertained a conservative likelihood of the deal happening [LDH], you multiply it by the projected profit [PP] to get the adjusted projected profit [APP], so

PP x LDH = APP

In our case if the deal is 90% certain to be completed the APP = $5 x .90 = $4.50.

The adjusted projected rate of return is found by:

APP/ I [our investment amount] = $4.50/450 = 9%

Once we have the adjusted projected profit [APP] in this case, $4.50 we need to factor in the risk of the deal falling apart. If the deal falls through we can assume that the value of A's shares will decline below what we paid [$50]. If A's shares were trading at $44 before the announcement it is likely that if the deal falls through the share price will return to that level. Therefore, the projected loss [PL] should the deal fall apart is $44 - $50 or -$6. The projected loss [PL] = original price [OP] – I [your investment in the shares]. Next we need to assess the likelihood of the deal falling apart [LDFA] – if the deal has a 90% chance of being completed, the symmetrically, the LDFA = 1 = LDH or in this case 10%.

Using this information you can calculated the adjusted projected loss [APL] as:

APL = PL X LDFA or in this case -$6 x .10 = $.60

Consequently, the risk-adjusted projected profit [RAPP] is defined to be:

APP [$4.50] – APL [$.60] = RAPP [$3.90]

Finally, by taking the risk-adjusted projected profit [RAPP] and dividing it by the amount of your investment I, yields the risk adjusted rate of return on your arbitrage investment [RAPPR]

RAPPR = RAPP/I ==➔ $3.90/$50 or 7.8%

Now, if this deal is likely to be done in 6 months, your annualized risk-adjusted projected rate of return would amount to approximately: 7.8% x 2 = 15.6%

Understand that using this equation, it is possible to produce negative numbers. For example if our adjusted projected loss [APL] had been $7 instead of $.60, then the risk adjusted profit [RAPP] would have been $4.50 - $7 or -$2.50 ==➔ no arbitrage opportunity exists in this deal and you should walk away from it.

How the Timing of a Deal Makes a Significant Difference in Overall Return

With stock arbitrage and other special situations, a rate of return of 5% may end up being a 20% annualized return based on a 3 month time period to complete the deal. Time can either work for you or against you. If one would find an investment that generates a 5% return in a month's time preferable to another that a 20% in a year's time. In the former case the approximate annual return would be: 5% x 12 = 60%. On the other hand if you entered an arbitrage investment that was to yield 20% in a year, but the deal took 2 years to complete --- you approximate annual rate of return would drop off to 20%/2 or 10%.

The certainty of a deal presents an opportunity to use leverage- borrowed money—to increase the annualized rate of return on investment. The high probability of the arbitrage deal being completed equates to a large amount of risk being removed. In most cases the individual investor can borrow money through the use of margin in your brokerage account. However, as with any margin investment you will need to determine the amount of margin to be used in relation to the total value of your holdings. While you are eligible to margin up to 50% of the value of your holdings, it would be prudent to margin only 10 to 15% of that amount on arbitrage or special situations. It is also important to note that these opportunities do not open up every day and so patience and thorough investigation of multiple possibilities is required in order to be successful.

The Time Danger of Using Leverage

There are two concerns associated with use of leverage when investing in stock arbitrage: (1) if the deal or event that drives the profit isn't certain, then borrowing capital to invest in it can be an invitation to folly when the deal blows up (2) if the time element is not ostensibly certain, then determining the difference between the cost of borrowed funds and the rate of return becomes impossible to calculate.

E.G. You borrow $50,000 at 5% to invest in a stock arbitrage that is projected to earn $7,500. Our annual cost to this investment is 5% x $50,000 or $2,500. If the deal gets completed in one year our return will be [$7,500 - $2,500]/$2,500 = 200%. But if it takes three years to complete, our return turns out to be [$7,500 - $2,500 x 3]/ $7,500 = 0, and thereafter the return will be negative.