Appendix to:

"Evaluating the Usefulness of Private Equity Managers"

Cases A1 and A2 are meant to represent one end of the spectrum: entirely successful deals. The average real return on corporate investing is a little under 7%. (Yes, it really is that low; higher apparent returns reflect current and imbedded inflation and accounting.) But the typical private equity deal would look for sub-average companies that can be improved. So, let us assume the typical acquired company has only a 5% real return on capital. Critically, let us also assume to begin with that there is no change in today's above average market P/E structure and, even more importantly, no change either in the massively above average profit margins that now exist.

Let us also in Case A1 assume a handsome 30% improvement in return over 5 years resulting in a 30% increase in market value from what would otherwise have been the case.

Case A1 (without leverage): The value of the company increases by 30% over 5 years plus delivers the normal market return, assumed to be a normal 6.0% real return plus 2.5% inflation. Fees of 2% a year for 5 years plus 20% of the total profits gives the following split between investors and the manager.

1. Market investment of $100 rises at 8.5% nominal for 5 years to reach $150.4.
2. All deals have to absorb the original 25% of deal premium. The simplest way to do this is to assume that for the original $100 investment the deal only received $80 of original market value – a 25% premium. Therefore, instead of rising to $150.4 with normal market action, it has only risen to $120.3.
3. This particularly efficient manager, though, increases return, earnings, and market value by 30% to reach $156.4. This gives an added value of $6.0 and is pure alpha, well worth paying for.
4. Manager charges fixed fees of 2% a year for 5 years = $10.

   Plus 20% of profits – not just on the value added of $6.0 but also on the total return of $56.4 – hopefully after deducting the $10 base fee, which yields another $9.3 for a total fee of $19.3. (We will generously ignore those 2% fees that are charged before the money is drawn down!)

   Manager's take = $19.3; client's take = $37.1 on original $100 capital.
5. Conclusion: client has made about 37% over 5 years, which looks okay, but is less than the simple market return of 50.4%. All the return to the manager's talent has gone to the manager, and more besides.

Case A2: Same conditions as A1 except the manager now uses 4:1 leverage (80% debt and 20% equity) and the cost of debt, fixed for 5 years, is 5% net of tax (8% pre-tax).

1. The $80 debt rises over 5 years at 5% to $102.1. (In order to keep life simple this approach debits the net interest costs against growing total value.)
2. The total $100 of original investment still rises to $156.4 pre-debt.
3. The net of debt gain is $156.4 – $102.1 or $54.3, all of which accrues to the $20 of capital, representing ($20 → $54.3) an impressive gain of $34.3, or 170%!
4. 10% of the $20 of capital goes to management as a fixed fee = $2.
5. Plus 20% of the profits ($34.3 – $2 or $32.3) = $6.5.
6. Total Manager's fee = $8.5

Client's take = ($34.3 – $8.5) or $25.8

Manager's take = $8.5/$34.3 or 25% (which looks reasonable)

Client makes $25.8 profit on an investment of $20! This is 18% compounded – a handsome return. But: —

Case A3: This assumes that a taxable investor has leveraged the market return by 4:1 on his own. His cost of borrowing is the same as in the previous case, 5% net cost.

1. Normal market growth raises $100 to $150.4 for a gain of $50.4.
2. Minus cost of debt, $80 rises over 5 years to $102.1.
3. Investor puts up $20 for a gain of ($150.4 – $102.1 – $20) = $28.3 (versus $25.8 in A2). The independent investor beats the professional manager This is because the manager's very considerable talent was offset by the initial take-over premium plus excessive fees that are not benchmarked to market returns.

Case B1 (without leverage): Manager here improves efficiency by a substantial 15% over 5 years (compared to an outstanding 30% in Case A1).

1. General market again rises to $150.4 for a profit of $50.4.
2. Again, after absorbing take-over premium of 25% deal value rises to $120.3.
3. Manager's increased efficiency takes margins, profits, and value up by 15% to $138.3.
4. Manager charges fixed fees of $10 over 5 years.

   Plus 20% of profit (less fixed fees) or 20% of $28.3 = $5.7.

   Manager's take = $15.7; client's take = ($38.3 - $15.7) or $22.6, less than half of the ordinary market return of $50.4.

Case B2: 4:1 leverage and 80% debt; same assumptions as A2 on costs and taxes.

1. The $80 debt rises over 5 years at 5% to $102.1.
2. The total $100 original investment rises to $138.3.
3. The net of debt gain is $138.3 – $102.1 = $36.2, all of which accrues to the $20 of capital.
4. 10% of the 20 units of capital goes to management as a fixed fee = $2.
5. Plus 20% of the profits ($16.2 – $2) or $2.8.
6. Total Manager's fee = $4.8

   Client's return is ($16.2 – $4.8) = $11.4

   Manager's take = $4.8/$16.2 or 30% (still apparently very reasonable)

   Client's take = $11.4 profit on an investment of $20, a 57% return for the 5 years, just slightly better than the market return of 50.4%, but: —

Case B3: Taxable investor buys market on 80% leverage on same terms.

1. Investor gains same $28.3 (versus $11.4 for B2). Even if the manager has 15% efficiency, the client is doing far worse than in a do-it-yourself leveraged deal with no efficiency!

Case C: The 8.5% nominal growth in the market assumed so far is the assumed normal growth at equilibrium or fair market prices, which assume normal profit margins. Today's overpriced market return levels would drop, not by assuming regression in P/Es or margins, but simply by recognizing that higher priced equities deliver lower returns and, happily, vice versa. More realistic equilibrium returns at these high prices would be over 2% a year less and therefore the benefits of leverage would be substantially less.

This does not seem worth working through since it's straightforward enough, so let us go straight to the killer cases where regression to more normal conditions is assumed.

Cases D1-2: The market P/E moves down over 5 years to a friendly estimate of long-term trend or 16 P/E on trailing earnings. Similarly and more dangerously the current exceptional profit margins of 7.9% on sales move down to a very friendly 6.0% on sales compared to a long-term average below 5.0. Both of these reductions are to long-term trends and rather friendly ones at that. This implies that every dollar that would have been earned with today's margin assumption has fallen by 25%, and that these reduced earnings are multiplied by a reduced market multiple of 16x, giving a reduced corporate value of 40% from today's assumed levels. This loss of value occurs through no fault at all of the private equity managers, whether they are brilliant or hacks. These assumptions of regression to normal are never in private equity spreadsheets we are assured, despite the historical persistence of their occurrence. However earnings and assets are still compounded over the 5 years, no dividends are assumed paid, and inflation further raises nominal earnings.

Case D1: The manager with even assumed 40% increase in efficiency, unleveraged.

1. Using GMO's standard assumption of regressing P/Es and profit margins to normal, but doing it over 5 years instead of our usual 7 years. The market investment of $100 falls to $79 real or $89.4 nominal.
2. Due to 25% deal premium having been paid, market return would fall to $71.5.
3. Efficient manager would increase this by 40% to $100.1.
4. Manager's fixed fee would reduce this to $90.1 and there would be no carry. This compares to $89.4 for the market return, so no material gain or loss.

Case D2: 40% efficient manager with 80% leverage.

1. First three steps as in Case D1. Market return pre-fee and interest of $100 rises to $100.1.
2. $20 equity pays $2 fee; aggregate value falls to $98.1.
3. $80 debt rises to $102.1.
4. Balance for investors is negative $4 from the original $20. A total loss of $24 and the clients are paid nothing while they wait as it has been assumed that no dividends have been paid and all cash flows reinvested.

Case E: For all less efficient deals, leveraging loses all theoretical value at end of 5 years. Clients and managers must hope for a recovery in later years and clients must hope that the 2% a year does not make recovery of any investment unlikely or that the hole is so big that the manager will wash out the deal so that the carry can be set back to zero for when favorable market conditions return. Even for 10% efficiency the recovery needed to break-even is over 35%. This could be too long a time for hot shots to wait before they get a "carry" as has been shown in the past for some distressed hedge funds.

Case F: We have not looked yet at the possibility that market P/Es or profit margins actually may fall below trend, which is by definition the level below which half the time is spent. Perish the thought!