



TOTAL RETURNS

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The total return experienced by an investor in equities is as a result of two factors. The first is the Earnings growth itself and the second is the percentage change in PE levels. This can be expressed as

Total Return TR = Earnings Growth*change in PE

So if we input 20 for the starting PE and 25 for ending PE and earnings growth is 10% then the Total Return TR = $(1.1) * (1.25) = 1.375$

Or in other words, the total return that an investor will get under these conditions is 37.5%.

If this period of holding increases beyond one year and then the Total Annualized Return is expressed as

TR = (((Earnings growth) ^ (number of years)) * (Percentage change in PE)) ^ (1/number of years)

If our holding period is 2 years then the Annualized Return becomes = $((1.1)^2 * (1.25))^{(1/2)} = 22.98\%$

In both these examples, because the PE expanded by 25% i.e. increased from 20 to 25, the total return experienced by the investor was higher than the Earnings growth in the portfolio. The earnings growth was only 10% but the total returns were seen to be much higher!

The reverse is also true. If there is a PE contraction, then the total return experienced by any investor will be much lower than the actual earnings growth in the portfolio.

To give you a feel I show you a few examples.

The Current PE of Nifty, as per NSE is more than 26 but I have taken 25 just for ease. The total earnings growth in the last few years have been less than 10% but I assume that the next few years will be better and hence have taken examples of 10, 15 and 25% earnings growth.



TABLE A

Earnings Growth						
10.00		Number of years				
Starting PE	Ending PE	1	2	3	5	10
25	15	-34.00%	-14.79%	-7.22%	-0.68%	4.52%
25	16	-29.60%	-12.00%	-5.20%	0.61%	5.20%
25	17	-25.20%	-9.29%	-3.27%	1.83%	5.84%
25	18	-20.80%	-6.66%	-1.41%	3.01%	6.45%
25	19	-16.40%	-4.10%	0.38%	4.13%	7.02%
25	20	-12.00%	-1.61%	2.11%	5.20%	7.57%
25	21	-7.60%	0.82%	3.79%	6.23%	8.10%
25	22	-3.20%	3.19%	5.41%	7.22%	8.60%
25	23	1.20%	5.51%	6.98%	8.18%	9.09%
25	24	5.60%	7.78%	8.51%	9.11%	9.55%
25	25	10.00%	10.00%	10.00%	10.00%	10.00%

If we see a 10% earnings growth for the next couple of years and the PE remains at the same elevated levels of 25 then we will see a total return of 10% annualized. But if the PE drops even by 1 point to just 24 then our annualized return drops below 8% in 2 years! And if the PE drops just to its average level of 20 then we will see a negative return of 1.6% across 2 years despite an Earnings Growth of 10%



Now let us examine what happens if we assume 15% earnings growth.

Table B

Earnings Growth						
15.00		Number of years				
Starting PE	Ending PE	1	2	3	5	10
25	15	-31.00%	-10.92%	-3.01%	3.83%	9.27%
25	16	-26.40%	-8.00%	-0.90%	5.18%	9.98%
25	17	-21.80%	-5.17%	1.13%	6.46%	10.65%
25	18	-17.20%	-2.42%	3.07%	7.69%	11.28%
25	19	-12.60%	0.25%	4.95%	8.86%	11.89%
25	20	-8.00%	2.86%	6.76%	9.98%	12.46%
25	21	-3.40%	5.40%	8.51%	11.06%	13.01%
25	22	1.20%	7.88%	10.20%	12.10%	13.54%
25	23	5.80%	10.30%	11.85%	13.10%	14.05%
25	24	10.40%	12.68%	13.45%	14.06%	14.53%
25	25	15.00%	15.00%	15.00%	15.00%	15.00%

With a 15% earnings growth and a holding period of 2 years, we see very small 2.86% annualized returns if the PE drops to its average of 20. If it drops to 22 then we see a 7.88% return. Only if the PE remains at 25 will we experience returns equal to earnings growth of 15%.

Of course if earnings growth surprises everyone (which it well could) and we see a breakout 20% compounded earnings growth for 2 years, then these are the returns that will be experienced.



Table C

Earnings Growth						
20.00		Number of years				
Starting PE	Ending PE	1	2	3	5	10
25	15	-28.00%	-7.05%	1.21%	8.35%	14.02%
25	16	-23.20%	-4.00%	3.41%	9.75%	14.76%
25	17	-18.40%	-1.05%	5.52%	11.09%	15.46%
25	18	-13.60%	1.82%	7.55%	12.37%	16.12%
25	19	-8.80%	4.61%	9.51%	13.59%	16.75%
25	20	-4.00%	7.33%	11.40%	14.76%	17.35%
25	21	0.80%	9.98%	13.22%	15.89%	17.93%
25	22	5.60%	12.57%	14.99%	16.97%	18.48%
25	23	10.40%	15.10%	16.71%	18.02%	19.00%
25	24	15.20%	17.58%	18.38%	19.02%	19.51%
25	25	20.00%	20.00%	20.00%	20.00%	20.00%

The key point to note in all these numbers is that despite sterling earnings growth, returns can be negative under certain circumstances, especially when the holding period is small i.e 1 or 2 years. For example, even with a 20% earnings growth, 1 year returns can be negative even if the PE only contracts to its average levels of 20!

But why am I talking of 1 or 2 years of holding period when the investment horizon is clearly very long i.e. 10 years or more? Most investors that I talk to claim that they are in it for the long term and are happy to hold on to the investment for more than 10 years. Despite this, the reason I talked about just 2 years is that we live every moment of those 10 years! While it is easy to claim that we are invested for 10 years, the fact is that if the returns are negative in the



first 2 years then the behavioral bias of loss aversion and recency bias will kick in and the investor might sell out at the worst possible time. But if the investor is really willing to hold on for 10 years and even if the Earnings Growth was only 10% and the PE contracted 40% from 25 to 15, the return experienced will still be 4.52% net of all taxes. This is given in Table A

It is important to repeat this. Even if Earnings Growth is not stellar and the PE actually contracts sharply by 40% the total return to the investor will be 4.52% compounded across the 10 years despite all the adverse conditions. If the ending PE is 20 which is more likely given that it has been the average for a long time, then despite just 10% earnings growth and a starting rich valuation of 25 PE, the investor will still get an 7.57% return across 10 years. This shows that the starting PE doesn't really matter so much if investors are willing to really shut themselves off from the noise of the media and the market and actually remain invested for 10 years.

Increasing the holding period actually helps in two ways. It actually smoothens the Earnings Growth number which means that bad earnings growth in a few years of our investment can be set off by higher earnings growth in other periods. In other words, we give a greater chance for our investment to ride through the cyclical downturns in the economy and capture the average earnings growth across a decade.

More importantly, what happens is that the potential contraction in PE is offset by the fact that this contraction is amortized across a longer period of time. This single fact ensures that increasing the holding period of our investments increases the chance of a positive return.

Instead of 10% as given in the earlier example if we assume Earnings Growth of 15% across 10 years then for a starting PE of 25 and a contraction in PE to 20, we still see a 12.46% return across the 10 year period.

Table D



Earnings Growth

15.00		Number of years				
Starting PE	Ending PE	1	2	3	5	10
20	15	-13.75%	-0.41%	4.48%	8.57%	11.74%
20	16	-8.00%	2.86%	6.76%	9.98%	12.46%
20	17	-2.25%	6.02%	8.94%	11.32%	13.15%
20	18	3.50%	9.10%	11.03%	12.60%	13.79%
20	19	9.25%	12.09%	13.05%	13.83%	14.41%
20	20	15.00%	15.00%	15.00%	15.00%	15.00%
20	21	20.75%	17.84%	16.89%	16.13%	15.56%
20	22	26.50%	20.61%	18.71%	17.21%	16.10%
20	23	32.25%	23.32%	20.48%	18.26%	16.62%
20	24	38.00%	25.98%	22.21%	19.27%	17.12%
20	25	43.75%	28.57%	23.88%	20.25%	17.59%

In the case where the investor buys at a PE level of 20 (average PE of Nifty for several years), then the chance of a return equal to or higher than the Earnings Growth increases substantially. The PE of the market has moved normally between 18 and 22 for most part of the time and therefore buying around 20, gives us a great chance of experiencing some PE expansion at the end of our investment horizon. This gives us a greater probability of experiencing returns which are equal to or greater than the earnings growth in the market.



Finally to summarize...

- The total returns experienced by the investor is a function of both Earnings growth and the change in PE across the investment horizon
- The smaller the holding period the more important are those two factors in determining the total returns.
- For larger holding periods of 10 years or more, the starting PE reduces in importance. This is because the change in PE is amortized across the holding period. So even if PE contracts, the effect is lesser on the total returns. In simple terms, timing the markets is unimportant if the holding period is very large.
- The returns could be volatile in the interim, that is in the short term returns are very dependent on PE changes and this could even lead to negative returns despite a double digit earnings growth.
- This negative return could lead to the investor getting out of the portfolio at the worst possible time leading to sub optimal returns in the long run.
- While an investor cannot control the Earnings Growth, he can definitely control the Starting PE by investing only at times when the market PE is at reasonable levels for investment.