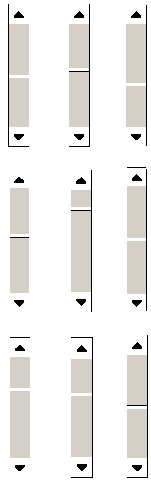
Multiples (Valuation ratios)

FINANCE TOYS

In this spreadsheet I'll demonstrate how to create a multiples table
to compare valuations adequacy of different companies
Financial formulas in some cases may be simplified to make understanding easi

Multiples table for one company

Move scrolls to change company's financials



STEP 1

Here is the example of creation of a table with multiples (valuation ratios) for one company
First, we need to find a financial history for the company, then make a forecast for the next several year
I made the forecast for 2010-2012 interactive. You can change revenue, EBITDA and net income with the scrolls
For further calculation of P/E we also find earnings per share (EPS) = Net income / Number of shares
In this example I use financials of Patterson-UTI - a drilling company

Patterson-UTI — Interactive cells

	2005	2006	2007	2008	2009	2010F	2011F	2012F
Revenue, $mn	1,740	2,547	2,114	2,064	782	1514	1891	2189
EBITDA, $mn	746	1,224	859	818	245	416	430	798
EBITDA margin, %	42.9%	48.1%	40.6%	39.6%	31.3%	27.5%	22.7%	36.5%
Net income, $mn	373	673	439	347	-38	101	151	209
Net margin, %	21.4%	26.4%	20.7%	16.8%	-4.9%	6.7%	8.0%	9.5%
EPS, $	2.4	4.4	2.8	2.3	-0.2	0.7	1.0	1.4

STEP 2

After we inserted all the financials in the table we need a price of the stock to calculate its market capitalization

Last price, $	21.38							
Number of shares, mn	154							
MktCap, $mn	3,295	3,295	3,295	3,295	3,295	3,295	3,295	3,295

Then we find enterprise value (EV) by adding the net debt to the market capitalization

Short-term debt, $mn	5.0
Long-term debt, $mn	95.0
Cash, $mn	73.9
Net debt, $mn	26.1

Enterprise Value, $mn	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321

Now we have all the inputs we need and so we can start multiples calculation

STEP 3

We use all the data we got in step 1 and 2 to construct the final table with multiples: EV/Sales, EV/EBITDA, P/E

	2005	2006	2007	2008	2009	2010F	2011F	2012F
Revenue, $mn	1,740	2,547	2,114	2,064	782	1,514	1,891	2,189
EBITDA, $mn	746	1,224	859	818	245	416	430	798
Net income, $mn	373	673	439	347	-38	101	151	209
EPS, $	2.4	4.4	2.8	2.3	-0.2	0.7	1.0	1.4
MktCap, $mn	3,295	3,295	3,295	3,295	3,295	3,295	3,295	3,295
Enterprise Value, $mn	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321
EV/Sales	1.9	1.3	1.6	1.6	4.2	2.2	1.8	1.5
EV/EBITDA	4.5	2.7	3.9	4.1	13.6	8.0	7.7	4.2
P/E	8.8	4.9	7.5	9.5	-86.1	32.5	21.8	15.8

The result gives us nothing, because we need multiples of other companies from drilling industry for comparison

Multiples table for several companies

In this example we will compare Patterson-UTI with other American drilling companies on multiples
Similar to what we did in the first example for one company, we do for four companies form this sector
Then we calculate an average value for multiples and compare them with Patterson's values
To compare Patterson's multiples with industrial average we calculate premium or discount of Patterson's values to average industrial values

By the way, the forecast for Patterson is taken from the first example, so you can change the estimates for the company

Company	Share price, $	Number of shares, mn	MktCap, $mn	Net debt, $mn	EV, $mn	Net income 2010F	Net income 2011F	EBITDA 2010F	EBITDA 2011F	Revenue 2010F	Revenue 2011F	P/E 2010F	P/E 2011F	EV/ EBITDA 2010F	EV/ EBITDA 2011F	EV/ Sales 2010F	EV/ Sales 2011F
Pride International	32.08	176	5,637	429	6,066	266	492	495	860	1,481	1,957	21.2	11.5	12.3	7.1	4.1	3.1
Rowan Cos	32.03	126	4,043	213	4,255	297	286	624	673	1,809	2,014	13.6	14.1	6.8	6.3	2.4	2.1
Helmerich&Payne	48.33	106	5,122	297	5,419	357	384	885	944	2,256	2,426	14.3	13.3	6.1	5.7	2.4	2.2
Ensco	49.21	143	7,035	-867	6,168	511	612	831	970	1,681	1,936	13.8	11.5	7.4	6.4	3.7	3.2
Average												**15.7**	**12.6**	**8.2**	**6.4**	**3.1**	**2.7**
Patterson-UTI Energy	21.38	154	3,295	26	3,321	101	151	416	430	1,514	1,891	**32.5**	**21.8**	**8.0**	**7.7**	**2.2**	**1.8**
Premium (-) / Discount (+)												-51.6%	-42.2%	2.1%	-17.5%	42.7%	51.3%

We calculate premium with "-" because the existence of a premium means that Patterson's stock are expensive relative to industrial average and therefore have relative downside po
The same logic applies to a discount. If Patterson's stocks trades with discounts, then they have positive upside potential because they are relatively cheap

NOTE! In the example above I compared only American companies. But if you compare companies from different countries pay close attention to the currencies in which the price and company's financials nominated. Adjust figures so everything would be nominated in a single currency.
I also strongly recommend to find a lot more peers in the industry thus your average multiples will be more representative

Trailing multiples

What is trailing multiple?

Using trailing multiples you can see does the stock trade above or below its historical multiples

In the examples above we calculated multiples on the basis on annual financials. Trailing multiples are calculated on the base of the last four quarters financial results.
For example we have revenue for 2008. We subtract 1Q2008 revenue and add 1Q2009 revenue. We get the revenue for the last four quarters from 2Q2008 to 1Q2009.
After that we continue to subtract the last quarter and add the next. Thus we get trailing revenue.

Below is the table with calculation of trailing financials for Patterson-UTI
We make calculations only for EV/S (EV to sales) multiple only just to explain the principle of trailing multiples

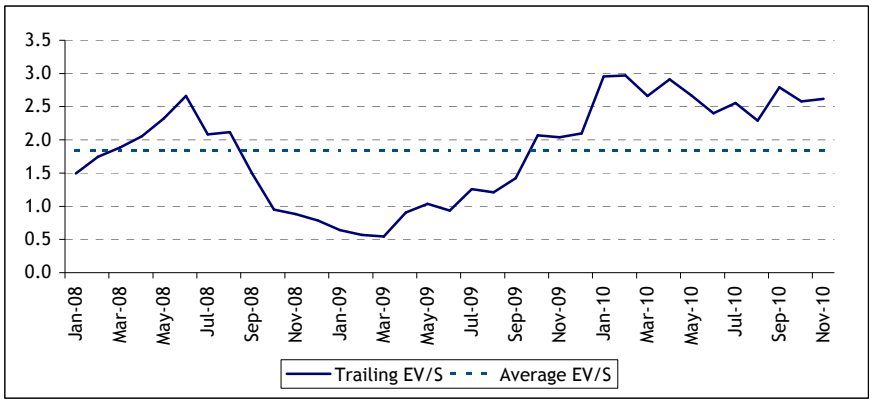
	1Q2007	2Q2007	3Q2007	4Q2007	1Q2008	2Q2008	3Q2008	4Q2008	1Q2009	2Q2009	3Q2009	4Q2009	1Q2010	2Q2010	3Q2010
Revenue, $mn	547	523	524	521	505	526	609	532	268	140	160	214	272	307	379
Trailing revenue, $mn				2,114	2,072	2,075	2,160	2,171	1,935	1,549	1,100	782	785	952	1,171

Now we need a pricing information, number of shares and net debt info (for enterprise value calculation). We will use monthly data for price. Net debt is taken from quarterly balan
That is why it changes every three month
We add revenue in the table only after 2007, because our first annual number is four quarters from 1Q2007 to 4Q2007. The logic here is that in the beginning of 2008 you know full y
results and thus market price is based on knowledge of this annual figure
To calculate our multiple we simply divide EV by revenue (sales) for each period and get our trailing EV/S multiple

Date	Share price, $	# of shares, mn	Market Cap., $mn	Net debt, $mn	EV, $mn	Trailing revenue, $mn	**Trailing EV/S**	Average EV/S
31.01.2007	24.15	158.9	3,837	106.6	3,944			
28/02/07	22.29	156.5	3,489	106.6	3,596			
30/03/07	22.44	156.5	3,513	-16.9	3,496			
30/04/07	24.39	156.5	3,818	-16.9	3,801			
31/05/07	26.42	156.7	4,140	-16.9	4,123			
29/06/07	26.21	156.7	4,107	-12.5	4,095			
31/07/07	22.9	156.7	3,589	-12.5	3,576			
31/08/07	21.47	157.2	3,375	-12.5	3,362			
28/09/07	22.57	157.2	3,548	-10.5	3,537			
31/10/07	19.94	157.2	3,134	-10.5	3,124			
30/11/07	18.85	154.9	2,921	-10.5	2,910			
31/12/07	19.52	154.9	3,025	32.6	3,057			
31/01/08	20.2	154.9	3,130	32.6	3,162	2,114	1.50	1.85
29/02/08	23.73	154.0	3,655	32.6	3,688	2,114	1.74	1.85
31/03/08	26.18	154.0	4,032	-50.3	3,982	2,114	1.88	1.85
30/04/08	27.94	154.0	4,304	-50.3	4,253	2,072	2.05	1.85
30/05/08	31.48	154.4	4,862	-50.3	4,811	2,072	2.32	1.85
30/06/08	36.13	154.4	5,580	-62.2	5,517	2,072	2.66	1.85
31/07/08	28.42	154.4	4,389	-62.2	4,327	2,075	2.08	1.85
29/08/08	28.42	156.6	4,452	-62.2	4,389	2,075	2.11	1.85
30/09/08	20.02	156.6	3,136	-25.0	3,111	2,075	1.50	1.85
31/10/08	13.27	156.6	2,079	-25.0	2,054	2,160	0.95	1.85
28/11/08	12.49	154.6	1,931	-25.0	1,906	2,160	0.88	1.85
31/12/08	11.51	154.6	1,780	-81.2	1,698	2,160	0.79	1.85
30/01/09	9.56	154.6	1,478	-81.2	1,397	2,171	0.64	1.85
27/02/09	8.59	153.1	1,315	-81.2	1,234	2,171	0.57	1.85
31/03/09	8.96	153.1	1,372	-192.3	1,179	2,171	0.54	1.85
30/04/09	12.71	153.1	1,946	-192.3	1,754	1,935	0.91	1.85
29/05/09	14.34	153.4	2,199	-192.3	2,007	1,935	1.04	1.85
30/06/09	12.86	153.4	1,972	-167.7	1,805	1,935	0.93	1.85
31/07/09	13.81	153.4	2,118	-167.7	1,950	1,549	1.26	1.85

31/08/09	13.29	153.6	2,042	-167.7	1,874	1,549	1.21	1.85
30/09/09	15.1	153.6	2,320	-119.2	2,200	1,549	1.42	1.85
30/10/09	15.58	153.6	2,393	-119.2	2,274	1,100	2.07	1.85
30/11/09	15.39	153.6	2,364	-119.2	2,245	1,100	2.04	1.85
31/12/09	15.35	153.6	2,358	-49.9	2,308	1,100	2.10	1.85
29/01/10	15.36	153.6	2,359	-49.9	2,309	782	2.95	1.85
26/02/10	15.44	153.6	2,371	-49.9	2,321	782	2.97	1.85
31/03/10	13.97	153.6	2,145	-63.9	2,081	782	2.66	1.85
30/04/10	15.31	153.6	2,351	-63.9	2,287	785	2.91	1.85
31/05/10	14.03	153.9	2,159	-63.9	2,095	785	2.67	1.85
30/06/10	12.87	153.9	1,980	-96.0	1,884	785	2.40	1.85
30/07/10	16.43	153.9	2,528	-96.0	2,432	952	2.55	1.85
31/08/10	14.75	154.1	2,274	-96.0	2,178	952	2.29	1.85
30/09/10	17.08	154.1	2,633	26.1	2,659	952	2.79	1.85
29/10/10	19.41	154.1	2,992	26.1	3,018	1,171	2.58	1.85
30/11/10	19.7	154.1	3,036	26.1	3,062	1,171	2.62	1.85

After we made all the calculation we can draw a chart to see if Patterson's stock is cheap or expensive right now vs. its historical values
We also calculated average EV/S to know if currently the stock is cheap/expensive vs. its average EV/S



As we see currently the stock trades above its average EV/S which means it is relatively expensive. Although we should understand that the key reason behind that is the impact of financial crisis 2008. It is always better to take longer history. Anyway the chart is quite useful. We can see that now stock trades at pre-crisis levels on EV/S multiple
It is also useful to compare trailing multiples history with the forecasted multiples calculated in the first two examples

The same calculation you can make for all other multiples (EV/EBITDA, P/E, etc)