



Ford Introduces New Earnings Momentum - April 30, 1996

Ford is introducing Earnings Momentum (EMO), a new and improved version of its earnings trend analysis, to its research data base in the second quarter of 1996. EMO adjusts Ford's existing Earnings Trend (SED) for the volatility of earnings. Based on the same inputs as Ford's Earnings Trend, which has been published since July 31, 1974, the performance of EMO is better than SED for both small and large cap companies. A comparison of the EMO with earnings estimate revision models show similar performance with low correlation. When combined with a three month change in FY1 estimate model, the results were better than either model alone, with no increase in volatility.

Ford's earnings trend analysis has been successful in predicting near-term stock price performance, primarily because it gives an early indication of changing earnings momentum. The analysis involves some complex mathematics, known as the "second derivative", which measures the acceleration or deceleration in the change of earnings. The second derivative is simple and straightforward in concept and is reviewed at the end of this study.

The earnings trend analysis is constructed to eliminate the common problems in measuring earnings momentum. The second derivative is calculated for a second-order curve which best fits a company's trailing 12-month earnings per share for the past four quarters and an estimate for the current quarter. To get a better picture of real earnings changes, the earnings figures used are Ford's Operating Earnings Series (EQ1-EQ5). The operating earnings are adjusted for extraordinary items, cumulative accounting changes, sale of discontinued operations, and other major nonrecurring items. The 12-month earnings ending each quarter are used to eliminate seasonal fluctuations. To standardize the calculation, the second derivative is stated as a percentage of the company's Normal Earnings (ENO), which for most companies is the latest 12-month earnings. However, for cyclical companies or companies with large one-time charges, an estimate of normal earnings is used.

The new EMO makes an additional adjustment to the SED analysis for the volatility of the earnings. High numbers or top percentiles in the standard SED had a tendency to underperform, as can be seen in the decile rankings in the tables below. This can be partially corrected by screening on Ford's Quality Rating (QTY) of B- or better, which has as one of its criteria historical earnings stability. The EMO divides the standard earnings trend by a measure (standard error) of how well the curve fits the earnings series. For example, if a company has steady earnings and the curve has an almost perfect fit to those earnings, the standard error would be near zero. The more volatile the earnings, the worse the fit and the larger the standard error. A company with a standard earnings trend of 20 that had a near perfect fit of 0.2 (standard error) would have a new EMO of 100. The same company with more volatile earnings and a standard error of 1.0 would have a lower EMO of 20, penalizing EMO for the greater volatility.

As can be seen in Table 1, the performance of the top decile improved by over 400 basis points for EMO versus SED with lower standard deviation and somewhat higher turnover. The EMO also has better capitalization weighted performance on both the Ford Universe and S&P 500 universe which are capitalization weighted in Tables 2 and 3. Note that in all three tables, the top decile for EMO has the best performance, unlike SED.

Table 1
12/80-12/95
Ford Universe, Equally Weighted, Quarterly Rebalancing

Decile	Earnings Trend SED Performance	Earnings Momentum EMO Performance	Earnings Trend SED Ann. Std. Deviation	Earnings Momentum EMO Ann. Std. Deviation	Earnings Trend SED Turnover	Earnings Momentum EMO Turnover
1	16.9	21.5	25.4	20.1	197.2	282.4
2	19.0	19.2	19.7	19.4	293.3	322.1
3	17.8	16.8	18.3	19.5	319.4	335.5
4	17.4	16.0	17.1	18.1	324.6	342.7
5	17.9	16.4	17.5	17.8	317.4	345.5
6	16.6	15.9	16.7	18.1	312.0	315.4
7	14.6	14.5	17.7	16.6	321.9	306.0
8	12.9	13.0	17.2	17.7	322.2	302.1
9	12.4	11.5	18.2	18.1	307.5	286.3
10	6.0	6.9	22.0	23.6	234.9	221.3
Universe	15.2	15.2	18.4	18.4		
IC	0.04	0.055				
T-Ratio	1.698	2.317				
Points	1843	1843				
Max Companies	2680					
Min Companies	1400					

Table 2
12/80-12/95
Ford Universe, Capitalization Weighted, Quarterly Rebalancing

Decile	Earnings Trend SED Performance	Earnings Momentum EMO Performance	Earnings Trend SED Ann. Std. Deviation	Earnings Momentum EMO Ann. Std. Deviation	Earnings Trend SED Turnover	Earnings Momentum EMO Turnover
1	14.7	18.3	20.3	16.7	197.2	282.4
2	15.0	14.7	17.7	16.3	293.3	322.1
3	15.0	16.3	15.5	16.1	319.4	335.5
4	15.0	15.0	15.1	14.7	324.6	342.7
5	17.8	14.8	15.0	14.8	317.4	345.5
6	14.4	14.4	15.3	15.6	312.0	315.4
7	13.7	13.6	15.9	15.4	321.9	306.0
8	12.0	11.3	14.9	14.9	322.2	302.1
9	12.1	12.2	15.3	15.9	307.5	286.3
10	9.6	9.4	18.3	18.2	234.9	221.3
Universe	14.1	14.1	14.9	14.9		

Table 3
12/80-12/95
S&P 500 Universe, Capitalization Weighted, Quarterly Rebalancing

Decile	Earnings Trend SED Performance	Earnings Momentum EMO Performance	Earnings Trend SED Ann. Std. Deviation	Earnings Momentum EMO Ann. Std. Deviation	Earnings Trend SED Turnover	Earnings Momentum EMO Turnover
1	16.8	18.9	21.7	16.5	189.1	277.8
2	17.3	15.4	17.1	16.8	299.2	319.7
3	14.6	16.9	16.0	15.8	329.3	340.2
4	14.7	14.4	15.4	15.2	325.2	347.1
5	18.5	15.2	15.3	15.7	318.2	344.1
6	15.7	15.8	15.4	15.5	318.0	325.2
7	13.2	13.2	15.5	15.6	326.5	313.6
8	12.8	14.2	16.7	16.6	320.6	309.5
9	12.1	11.8	15.2	16.2	306.8	287.7
10	12.9	10.6	17.4	18.1	220.1	207.9
Universe	14.7	14.7	15.0	15.0		
IC	0.033	0.043				
T-Ratio	0.742	0.956				
Points	495	495				
Max Companies	500					
Min Companies	494					

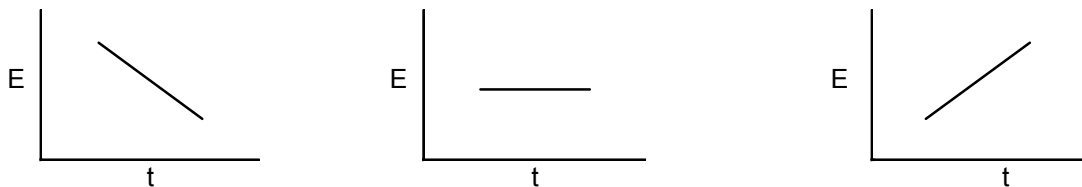
To create a correlation matrix, the variables were ranked with the best in the first decile (low P/E, high EMO, etc.). There are some interesting comparisons with the Earnings Momentum and P/E, Price to Book, Price to Cash Flow, Price to Value (dividend discount model), and Price Momentum.

Table 4
Correlation Results
12/80-12/95
Ford Universe

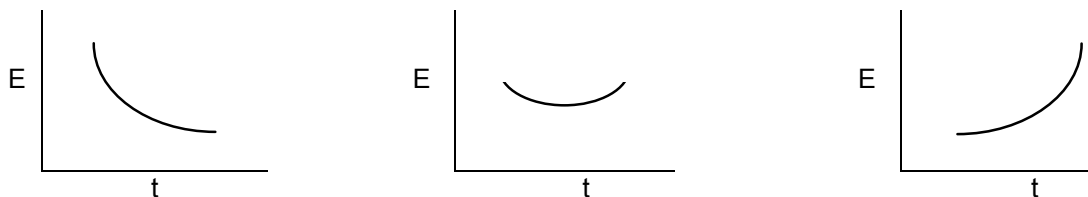
	EMO Earnings <u>Momentum</u>	PEC Price/ <u>Earnings</u>	PBK Price/ <u>Book</u>	PCF Price/ <u>Cash Flow</u>	PVA Price/ <u>Value</u>	PRM Price <u>Momentum</u>
EMO	1.0000	-0.0167	0.0289	-0.0222	0.0508	0.1155
PEC	-0.0167	1.0000	0.2774	0.5300	0.4067	0.1518
PBK	0.0289	0.2774	1.0000	0.5435	0.3259	0.0167
PCF	-0.0222	0.5300	0.5435	1.0000	0.3413	0.0510
PVA	0.0508	0.4067	0.3259	0.3413	1.0000	0.0220
PRM	0.1155	0.1518	0.0167	0.0510	0.0220	1.0000

The new variable EMO will be added to the Ford Data Base in the next month or two. Because the calculated values of EMO tend to be large and since the magnitude of the value has no clear significance, we will express the variable as a percentile ranking of the Ford Universe.

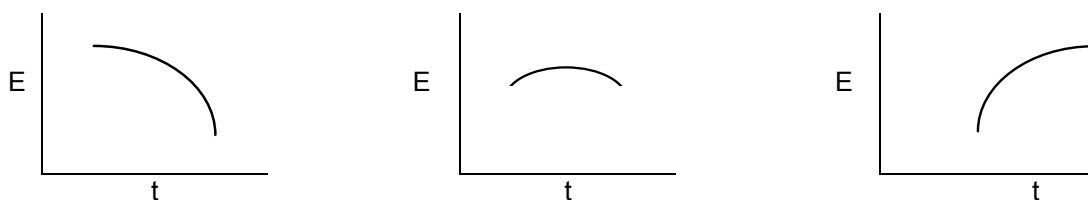
The second derivative is a term which, if one thinks of a line plotted on a graph, refers to the curvature of the line. If the line is straight, the second derivative is zero; if the line curves upward as it proceeds, the second derivative is positive; and if the line curves downward as it proceeds, the second derivative is negative. The sharper the curvature of the line, the greater the magnitude of the second derivative. To see how the second derivative can be applied to common stock analysis, consider a graph of per-share earnings (E) versus time (t). Here are three such graphs:



Certainly, the company represented on the right appears more successful than the one on the left. However, earnings trend analysis rates all three neutral for near-term stock price performance because their current earnings trends are exactly the same as they were in the past; in other words, the companies' performances are not changing. And because the graphs are all straight lines, the second derivative is zero in all three cases. Here are three more earnings graphs:



Again, the earnings pictures are quite different, but here all three companies are steadily improving their performance. This type of earnings trend generally indicates a strong stock price performance in the coming months. Because the earnings lines are curving upward, the second derivatives are positive in all three cases; the sharper the upward curvature, the larger the second derivative will be (and the more favorable the stock price indication). Now consider the following three earnings graphs



Each of these companies' current earnings performance is disappointing relative to its past performance. Since the earnings lines are curving downward, the second derivatives are all negative (the sharper the downward curvature, the more negative the second derivative) and the stock price outlooks are all unfavorable.

Ford's earnings trend analysis makes use of five operating earnings figures, consisting of earnings for the latest quarter reported, the previous three quarters, and an estimate for the next quarter. Rather than actual quarterly earnings figures, 12-month operating earnings ending with each quarter are used to eliminate seasonal fluctuations. The second derivative is calculated for a curve which best fits these five figures.

As can be seen from the above, a large positive second derivative is a favorable indication, while a zero or near-zero value is neutral and a large negative value is unfavorable.