Historical Performance Tests of Ford Variables
August 31, 2000

This study is a follow on to one we did in April 1995 in which we examined the effectiveness of variables from the Ford data base in predicting future stock returns. Since that time we have added several new variables. Six of them, operating earnings yield, earnings momentum, sales momentum, share buyback/ issuance, stock split past 6 months, and value/momentum model have been added to the previously studied 33 variables.

The study was done by dividing the universe of stocks monthly into equal-sized quintiles based on each variable. The quintiles are sorted in either ascending or descending order to put the "best" ranked stocks in the first quintile (this differs from the original study in which all the variables were ranked high to low). Quality (QTY) was the only sector we created differently; the first quintile includes A+ and A rated stocks, the second A- ratings, the third B+ ratings, the fourth B ratings and the fifth B-. Equally weighted total returns for each quintile were computed monthly. The universe was limited to stocks with quality ratings of B- or better. Additionally, for variables requiring historical data, stocks with not available values were eliminated from the universe.

Analysis was done for 10-year, 5-year, and 1-year periods ended 12/99 and for the year-to-date period ending July 2000. The results shown are annualized total returns except for the year-to-date period, which are actual returns for that period. The summary page shows the difference in return of quintile 1 (best) and the universe average return for each period. The complete results are found starting on page 3.

 A look at the results shows that traditional valuation variables such as P/E, price/value, and price/book have historically done a good job at predicting returns. In 1999, P/E (PEC) and operating earnings yield (OEY) variables suffered a reversal in their usefulness. However, price/value (PVA) and P/E based on normal earnings (PER) continued to work well as did these variables in relation to their 5-year average (PEH) and (PVH).

Momentum and growth variables, except for 5-yr dividend growth (HDG), were found to be useful in predicting returns. Price momentum and earnings momentum did well in each time period studied, especially in the 1-year and year-to-date periods. The value momentum model showed strong results in the 10-year and 5-year period but experienced weakness in the 1-year period due to the ineffectiveness of its factor exposure to operating earnings yield. Companies with high growth expectations (GRO) did exceptionally well last year and in the year to date period.

Other interesting results include the strong performance of high beta (BET) stocks in the 1-year period and year-to-date. It is also notable that large capitalization (CAP) and high quality (QTY) stocks have hit a rough patch in the year to date period after having posted fairly steady results in the longer time periods.

Summary Results - Q1 minus Universe

Ranking - (a)scending , (d)escending

Variable		10-year	5-year	1-year	year-to-date
PEC	P/E ratio using 12 mo EPS (a)	4.9	5.1	-4.5	2.4
PER	P/E ratio using normal EPS (a)	4.9	5.8	4.4	-2.0
PEH	PER/5-year average PER (a)	2.5	2.4	8.0	2.3
PEG	PER/GRO (a)	3.6	3.7	4.7	-2.9
PCF	Price/cash flow (a)	1.9	1.7	0.5	-4.0
PBK	Price/book value (a)	1.9	0.8	0.3	-4.3
PSS	Price/sales ratio (a)	1.0	-0.4	-5.0	-4.3
PVA	Price/value ratio (a)	4.0	4.0	4.1	0.0
PVH	PVA/5-year average PVA (a)	1.4	1.4	6.6	3.0
OEY	Operating earnings yield (d)	5.6	5.6	-6.2	-1.7
ROI	Internal rate of return (d)	3.5	3.4	4.1	-1.3
SED	Earnings Trend (d)	2.9	1.5	12.1	8.3
SDR	Relative earnings trend (d)	3.0	1.8	8.9	6.8
COM	PVA-SED combination (a)	3.3	2.4	2.0	1.9
PGN	Price gain-past month (d)	-4.7	-6.9	2.0	-9.1
PGQ	Price gain-past 3 months (d)	-0.1	-0.9	11.3	-1.7
PGH	Price gain-past 6 months (d)	-1.1	0.7	16.1	1.0
PGY	Price gain-past year (d)	4.8	5.9	15.9	3.8
PGF	Price gain-past 5 years (d)	1.9	5.2	7.3	4.0
PRM	Price momentum (d)	8.8	12.8	19.8	7.9
EMO	Earnings momentum (d)	3.9	2.6	7.1	8.6
SMO**	Sales momentum (d)	n/a	0.3	1.5	1.8
SHB	Share buyback/issuance (a)	1.0	0.9	-2.9	-1.7
SPH	Stock split 6 months (d)	1.9	2.6	2.3	-1.1
VMO	Value/momentum model (d)	10.8	11.3	3.5	8.5
CAP	Market capitalization (d)	0.7	4.8	9.0	-4.8
QTY	Quality rating (d)	1.3	4.6	0.6	-8.9
YLD	Dividend yield (d)	-1.2	-2.4	-9.8	2.1
RET	YLD + GRO (d)	1.5	3.3	15.7	5.4
GRO	Projected growth rate (d)	2.6	4.5	18.7	6.8
HEG	5-yr EPS growth (d)	1.2	3.0	6.6	5.1
HSG	5-yr sales growth (d)	1.2	1.8	6.8	5.0
HDG	5-yr dividend growth (d)	0.5	2.2	-1.9	-2.0
BET	Beta (d)	4.7	7.9	24.8	9.8
FND	Percent fund holdings (d)	-0.7	-0.7	0.7	0.3
DEQ	LT debt/equity (a)	1.8	3.0	10.5	1.1
ROE	Return on equity (d)	2.3	4.7	4.4	-2.9
PLB	Plowback on equity (d)	3.7	4.9	10.5	0.0
NPS	Net profit margin on sales (d)	1.3	5.0	6.5	0.0

** from 12/94

Detailed Results

Variable	10 YEARS (12/89-12/99)						5 YEARS (12/94-12/99)						1 YEAR (12/98-12/99)						Year-to-Date (12/99-07/00)					
	1	2	3	4	5	Univ	1	2	3	4	5	Univ	1	2	3	4	5	Univ	1	2	3	4	5	Univ
PEC (a)	20.0	13.5	12.4	14.7	14.7	15.1	24.2	16.1	15.4	19.5	19.8	19.1	2.7	-4.7	-3.4	15.0	29.0	7.2	8.2	3.8	2.2	5.0	9.0	5.8
PER (a)	20.0	14.7	13.2	12.0	15.3	15.1	24.9	16.8	16.0	15.4	21.9	19.1	11.6	-4.7	-1.4	2.9	29.2	7.2	3.8	7.9	2.1	1.3	13.1	5.8
PEH (a)	17.6	14.5	14.3	14.2	14.4	15.1	21.5	17.4	18.0	17.0	20.9	19.1	15.2	1.4	2.6	-2.6	20.1	7.2	8.1	7.8	4.2	-0.3	8.4	5.8
PEG (a)	18.7	15.1	14.5	14.2	12.2	15.1	22.8	18.1	17.7	18.5	17.6	19.1	11.9	0.7	2.7	6.2	14.0	7.2	2.9	7.8	4.6	3.6	9.7	5.8
PCF (a)	17.0	13.7	14.2	13.0	17.3	15.1	20.8	16.9	17.7	16.9	22.6	19.1	7.7	0.8	1.8	1.4	24.9	7.2	1.8	7.3	5.9	3.2	10.0	5.8
PBK (a)	17.0	15.5	13.2	13.1	16.3	15.1	19.9	17.9	16.0	17.3	23.9	19.1	7.5	3.0	-0.8	7.2	19.0	7.2	1.5	8.4	6.0	4.0	8.5	5.8
PSS (a)	16.1	14.0	15.4	13.9	15.6	15.1	18.7	16.9	18.2	18.4	22.8	19.1	2.2	1.0	5.9	5.1	21.9	7.2	1.5	4.4	8.6	6.8	7.1	5.8
PVA (a)	19.1	16.4	14.4	12.0	13.3	15.1	23.1	20.3	16.6	16.2	18.6	19.1	11.3	4.7	-3.1	1.3	22.5	7.2	5.8	5.9	3.9	3.1	9.6	5.8
PVH (a)	16.5	15.2	14.6	13.3	15.4	15.1	20.5	19.1	17.4	17.8	20.0	19.1	13.8	5.7	-0.2	-0.4	17.2	7.2	8.8	7.4	3.8	1.4	6.4	5.8
OEY (d)	20.7	14.3	13.1	12.8	14.3	15.1	24.7	17.1	15.4	16.7	21.1	19.1	1.0	-3.7	-3.1	7.7	37.8	7.2	4.1	7.0	2.0	3.1	11.9	5.8
ROI (d)	18.6	16.4	13.9	14.5	11.7	15.1	22.5	19.4	17.1	18.2	17.5	19.1	11.3	3.5	-1.6	4.9	17.8	7.2	4.5	8.1	2.7	6.2	7.0	5.8
SED (d)	18.0	16.6	15.9	12.4	12.3	15.1	20.6	20.4	20.1	17.3	16.6	19.1	19.3	1.8	2.7	3.8	8.6	7.2	14.1	8.9	3.5	1.7	0.9	5.8
SDR (d)	18.1	16.5	15.5	13.2	12.1	15.1	20.9	20.3	18.8	17.2	17.9	19.1	16.1	4.1	2.6	3.4	9.9	7.2	12.6	7.8	6.6	2.4	-0.1	5.8
COM (a)	18.4	17.8	15.0	12.2	11.9	15.1	21.5	22.1	17.7	16.1	17.6	19.1	9.2	7.5	-2.0	1.9	19.5	7.2	7.7	3.5	6.6	1.6	8.9	5.8
PGN (d)	10.4	13.2	15.3	16.2	20.2	15.1	12.2	16.1	18.7	21.5	26.9	19.1	9.2	3.8	1.6	6.1	15.0	7.2	-3.3	1.4	6.9	9.4	14.4	5.8
PGQ (d)	15.0	13.8	13.4	14.5	18.3	15.1	18.2	16.7	16.8	18.6	24.6	19.1	18.5	0.5	-1.3	3.4	15.4	7.2	4.1	-4.0	5.4	9.9	12.6	5.8
PGH (d)	14.0	11.8	14.6	15.6	19.0	15.1	19.8	13.9	17.8	19.8	23.5	19.1	23.3	-4.1	-0.5	4.5	14.2	7.2	6.8	2.1	2.3	6.0	10.5	5.8
PGY (d)	19.9	15.7	12.7	12.7	14.1	15.1	25.0	19.5	16.2	15.6	18.6	19.1	23.1	3.4	-2.5	1.7	10.7	7.2	9.6	2.6	0.4	8.1	7.3	5.8
PGF (d)	17.0	14.2	13.5	14.1	16.3	15.1	24.3	20.4	17.8	15.4	17.1	19.1	14.5	4.3	4.5	3.1	8.8	7.2	9.8	5.9	5.1	6.0	1.5	5.8
PRM (d)	23.9	16.6	13.8	13.0	8.3	15.1	31.9	22.3	16.2	16.2	9.5	19.1	27.0	5.3	3.1	1.9	-0.1	7.2	13.7	11.1	10.3	2.2	-8.0	5.8

Detailed Results (cont)

Variable	10 YEARS (12/89-12/99)						5 YEARS (12/94-12/99)						1 YEAR (12/98-12/99)						Year-to-Date (12/99-07/00)					
	1	2	3	4	5	Univ	1	2	3	4	5	Univ	1	2	3	4	5	Univ	1	2	3	4	5	Univ
EMO (d)	19.0	16.9	14.3	12.5	12.7	15.1	21.7	20.8	18.6	16.5	17.5	19.1	14.3	7.2	0.6	3.3	10.4	7.2	14.4	7.2	4.9	1.3	1.3	5.8
SMO (d)			---N/A---				19.4	19.5	20.7	16.6	18.9	19.1	8.7	7.8	7.0	2.6	9.5	7.2	7.6	8.7	6.8	2.3	3.6	5.8
SHB (a)	16.1	15.6	13.4	16.2	14.0	15.1	20.0	18.6	17.5	20.7	18.3	19.1	4.3	5.3	4.3	10.9	10.9	7.2	4.1	3.1	5.2	8.0	8.3	5.8
SPH (d)	17.0	13.5	14.2	15.7	14.9	15.1	21.7	16.8	17.5	20.6	18.6	19.1	9.5	4.1	8.2	3.9	10.1	7.2	4.7	10.3	5.5	2.5	6.0	5.8
VMO (d)	25.9	18.4	14.5	11.3	5.9	15.1	30.4	23.1	18.2	14.2	10.1	19.1	10.7	6.5	6.5	2.4	9.5	7.2	14.3	7.8	5.9	0.3	0.9	5.8
CAP (d)	15.8	14.6	14.3	14.1	16.2	15.1	23.9	19.4	17.3	15.3	18.9	19.1	16.2	6.5	5.3	2.3	4.7	7.2	1.0	6.6	6.8	10.2	3.6	5.8
QTY (d)	16.4	14.2	15.3	14.0	16.0	15.1	23.7	20.2	20.1	17.2	19.0	19.1	7.8	3.5	6.3	3.6	11.0	7.2	-3.1	1.0	6.7	5.3	7.4	5.8
YLD (d)	13.9	14.9	14.0	15.0	17.1	15.1	16.7	17.8	18.7	20.1	21.3	19.1	-2.6	0.1	2.6	14.5	22.1	7.2	7.9	-1.8	0.2	11.6	10.5	5.8
RET (d)	16.6	15.6	16.4	14.0	12.5	15.1	22.4	19.0	19.9	17.2	16.2	19.1	22.9	8.3	2.2	0.1	3.0	7.2	11.2	10.3	3.2	3.9	-0.1	5.8
GRO (d)	17.7	14.5	14.6	14.3	13.7	15.1	23.6	18.5	18.0	17.7	16.8	19.1	25.9	7.2	1.1	0.3	2.3	7.2	12.6	6.6	5.3	-0.7	4.5	5.8
HEG (d)	16.3	14.9	14.4	14.0	15.6	15.1	22.1	19.8	17.3	16.9	18.8	19.1	13.8	5.3	-2.0	2.2	17.1	7.2	10.9	4.7	4.4	2.1	6.6	5.8
HSG (d)	16.3	15.8	14.0	14.1	15.0	15.1	20.9	19.8	18.0	16.7	19.5	19.1	14.0	8.3	4.6	3.5	5.3	7.2	10.8	8.0	8.1	-0.4	2.3	5.8
HDG (d)	15.6	14.7	12.5	17.0	15.5	15.1	21.3	18.3	15.2	22.6	17.6	19.1	5.3	-1.2	1.0	20.0	11.4	7.2	3.8	0.0	4.4	12.6	7.9	5.8
BET (d)	19.8	15.6	15.3	12.6	11.6	15.1	27.0	20.2	19.0	15.4	13.4	19.1	32.0	5.1	8.4	-1.4	-5.8	7.2	15.6	0.8	3.2	0.2	9.4	5.8
FND (d)	14.4	15.9	16.7	14.5	13.7	15.1	18.4	20.2	20.4	18.5	17.6	19.1	7.9	10.6	4.8	3.3	9.0	7.2	6.1	7.0	3.7	8.8	3.1	5.8
DEQ (a)	16.9	16.5	15.7	12.8	13.3	15.1	22.1	20.6	19.8	16.4	16.2	19.1	17.7	8.1	8.2	4.0	-1.8	7.2	6.9	10.3	2.7	4.2	4.3	5.8
ROE (d)	17.4	15.2	15.2	13.2	14.3	15.1	23.8	19.3	19.7	15.2	17.2	19.1	11.6	7.3	3.5	-0.8	14.5	7.2	2.9	4.6	9.8	7.1	4.6	5.8
PLB (d)	18.8	15.3	15.0	14.7	11.4	15.1	24.0	20.9	18.4	17.4	14.4	19.1	17.7	7.5	1.7	6.7	2.4	7.2	5.8	8.0	4.1	4.1	6.8	5.8
NPS (d)	16.4	14.8	14.5	15.0	14.6	15.1	24.1	19.4	16.7	17.8	17.2	19.1	13.7	8.8	8.2	3.3	1.6	7.2	5.8	8.6	9.8	4.3	0.4	5.8