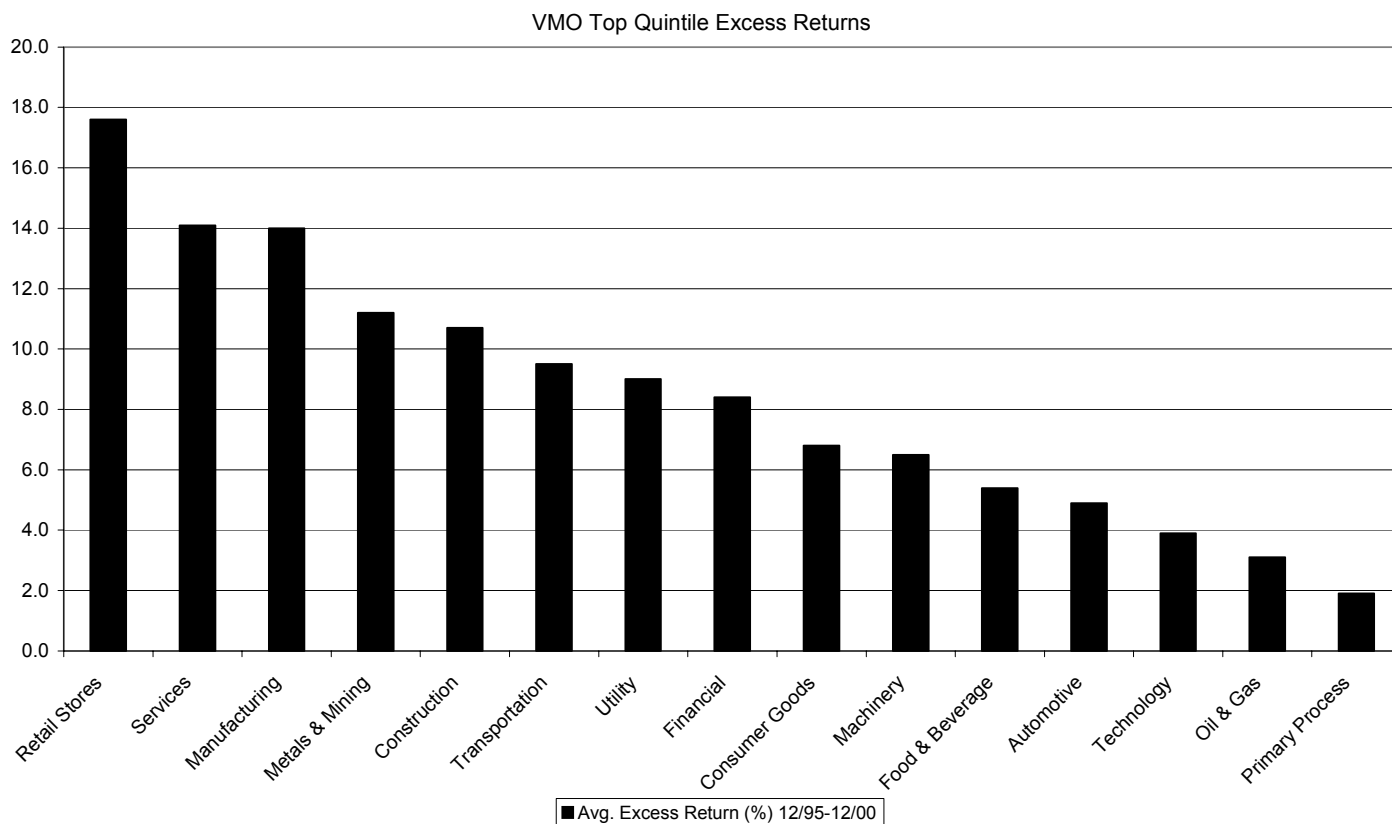


## Value/Momentum Sector Analysis - August 31, 2001

The Ford Value/Momentum model (VMO) which was introduced in September 1997, and revised in March 1999 has proven to be successful in predicting returns across a broad universe of stocks. This study examines the Value/Momentum's effectiveness when applied to industry groups and capitalization sectors. The study further examines VMO performance when portfolio industry weightings are mirrored with index industry weights to identify the model's potential usefulness in a sector neutral indexing strategy.

### Industry Groups

In the first part of the study we examine whether VMO ranking can produce excess returns when used within a single industry group. The universe of 4000 stocks was sectored into Ford's 15 macro industry sectors on a monthly basis for the 5-year period 12/95 – 12/00. Each of these industry groups was then ranked in descending order by VMO and divided into 5 equally-sized sectors. Performance figures were computed for each sector and compared with the average industry group return. Over the 5-year period, all of the highest VMO sectors outperformed their respective industry groups. Additionally, the top VMO sectors produced impressive gains on a year by year basis with 5 groups outperforming in all 5 years, 5 groups outperforming 4 of 5 years and 5 groups outperforming 3 of 5 years.



This chart shows the average annual top quintile return in excess of the industry group average return for the 5 year period ended December 2000 for Ford's 15 macro industry sectors. The effectiveness of VMO is evident across all groups.

Automotive							Machinery						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	27.9	18.3	21.7	40.7	13.1	25.0	12/95-12/96	43.6	37.1	21.2	14.7	28.5	29.0
12/96-12/97	29.9	18.9	35.2	14.3	8.2	21.3	12/96-12/97	70.5	61.8	36.9	34.3	33.5	47.3
12/97-12/98	18.3	5.1	-18.0	-0.7	2.4	1.8	12/97-12/98	-10.1	-35.5	-27.7	-25.9	-44.9	-28.3
12/98-12/99	1.4	-12.0	-4.0	3.8	-20.7	-6.3	12/98-12/99	-0.4	2.0	22.2	22.7	39.9	16.9
12/99-12/00	-27.3	-44.1	10.4	-18	-15.7	-20.6	12/99-12/00	23.4	32.4	32.2	29.3	23.4	28.9
12/95-12/00 (annual)	7.7	-6.2	7.4	6.3	-3.5	2.8	12/95-12/00 (annual)	22.0	14.1	14.2	12.6	10.3	15.5
Consumer Goods							Technology						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	23.5	17.1	17.3	3.1	15.3	15.1	12/95-12/96	19.3	19.0	27.6	7.6	5.5	15.7
12/96-12/97	40.0	18.2	16.8	13.2	-10.0	15.2	12/96-12/97	24.9	20.0	20.9	6.3	7.7	16.2
12/97-12/98	20.9	6.1	4.5	1.6	-14.6	1.9	12/97-12/98	4.8	9.2	-0.7	15.8	1.8	6.9
12/98-12/99	5.5	8.8	34.7	8.5	33	17.5	12/98-12/99	67.4	86.5	92.0	111.9	148.5	99.6
12/99-12/00	23	14.8	34.4	23.9	22.1	28.2	12/99-12/00	-5.8	-5.1	-30.3	-33.1	-51.9	-27.0
12/95-12/00 (annual)	22.1	12.9	21	9.8	7.5	15.3	12/95-12/00 (annual)	19.8	22.5	15.5	13.4	6.7	15.9
Food & Beverage							Construction						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	30.0	11.6	29.8	8.6	13.8	19.2	12/95-12/96	32.2	23.4	27.6	22.5	31.7	27.9
12/96-12/97	75.3	40.1	37.2	32.4	12.5	39.2	12/96-12/97	26.9	26.7	24.3	23.6	15.4	22.9
12/97-12/98	5.1	3.2	13.7	0.2	9.2	5.5	12/97-12/98	19.4	-5.3	-4.6	0.9	-18.8	-3.2
12/98-12/99	-12.2	-13.2	-15.2	-30.0	-20.0	-18.3	12/98-12/99	-3.3	-11.3	-1.9	-3.8	-11.5	-6.3
12/99-12/00	-6.8	13.3	32.5	18.2	-7.7	7.5	12/99-12/00	30.6	3.8	20.0	10.3	-5.9	11.1
12/95-12/00 (annual)	14.4	9.7	17.9	3.6	0.6	9.0	12/95-12/00 (annual)	20.4	6.4	12.2	10.2	0.6	9.7
Retail Stores							Financial						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	33.8	28.5	17.2	15.2	4.8	20.2	12/95-12/96	41.6	37	32.8	21.0	24.6	31.2
12/96-12/97	46.1	49.5	25.9	17.6	16.6	30.9	12/96-12/97	68.3	55.6	51.5	52.2	30.8	51.8
12/97-12/98	43.0	22.4	12.3	31.3	34.2	28.7	12/97-12/98	0.8	1.6	5.3	-2.1	-6.4	-0.4
12/98-12/99	11.5	-1.7	-3.5	-2.1	-5.7	-1.2	12/98-12/99	-1.6	-10.8	-6.1	-7.0	-6.2	-6.6
12/99-12/00	6.0	-18.5	-14.6	-13.7	-56.3	-21.6	12/99-12/00	34.5	29.6	18.0	18.2	7.2	21.4
12/95-12/00 (annual)	27.0	13.5	6.4	8.5	-7.6	9.4	12/95-12/00 (annual)	26.0	20.1	18.6	14.7	8.9	17.6
Metals & Mining							Services						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	22.6	9.7	9.4	14.0	10.4	14.5	12/95-12/96	29.7	22.6	14.0	7.5	-1.0	14.3
12/96-12/97	-11.6	-9.9	-18.6	-9.7	-50.6	-19.9	12/96-12/97	38.8	21.6	25.0	19.6	12.4	23.4
12/97-12/98	-14.1	11.7	-23.7	-16.1	-30.2	-14.0	12/97-12/98	10.4	1.0	9.6	-0.3	-10.0	1.4
12/98-12/99	56.8	8.2	24.5	-11.7	2.4	15.5	12/98-12/99	7.4	6.6	-5.9	18.2	11.6	7.8
12/99-12/00	-2.5	1.4	6.0	-37.7	-13.4	-10.0	12/99-12/00	21.9	0.5	6.6	-14.4	-47.5	-9.1
12/95-12/00 (annual)	7.3	3.9	-2.1	-13.8	-19.5	-3.9	12/95-12/00 (annual)	21.1	10.0	9.4	5.3	-10.1	7.0
Manufacturing							Transportation						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	31.0	22.2	24.7	14.9	9.2	20.7	12/95-12/96	13.7	16.2	20.3	13.3	-7.9	11.5
12/96-12/97	43.4	37.3	22.7	20.9	22.2	29.5	12/96-12/97	36.8	38.2	40.1	27.4	12.2	31.5
12/97-12/98	2.3	11.4	-10.2	-10.6	-15.5	-5.0	12/97-12/98	9.2	5.5	7.0	-30.1	-15.2	-6.3
12/98-12/99	21.9	-4.7	-3.1	2.8	8.2	5.3	12/98-12/99	10.1	14.0	-5.4	9.6	-25.5	-0.8
12/99-12/00	22.2	11.6	-7.7	-4.6	-31.8	0.1	12/99-12/00	19.2	42.1	-4.1	13.8	-28.4	7.1
12/95-12/00 (annual)	23.4	14.7	4.2	4.0	-3.6	9.4	12/95-12/00 (annual)	17.4	22.4	10.3	4.7	-14.1	7.9
Oil & Gas							Utility						
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group		High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group	
12/95-12/96	55.3	58.7	42.5	50.8	37.8	49.3	12/95-12/96	18.8	11.7	11.7	13.2	2.2	11.3
12/96-12/97	23.1	12.5	12.9	7.4	12.2	14.8	12/96-12/97	34.1	28.4	27.1	32.1	28.9	30.5
12/97-12/98	-40.9	-29.0	-40.0	-46.6	-52.1	-41.8	12/97-12/98	10.9	12.7	17.1	9.2	20.4	14.3
12/98-12/99	23.4	8.0	37.7	60.8	20.0	29.7	12/98-12/99	4.7	12.3	18.4	22.9	69.5	25.0
12/99-12/00	84.1	57.3	89.4	85.2	52.1	73.8	12/99-12/00	46.5	33.6	-13.2	-21.0	-63.2	-10.8
12/95-12/00 (annual)	20.7	16.6	20.3	20.8	6.2	17.6	12/95-12/00 (annual)	22.1	19.4	11.3	9.6	-0.2	13.1
Primary Process Industry													
High VMO	Quint.-2	Quint.-3	Quint.-4	Low VMO	Industry Group								
12/95-12/96	21.2	23.6	17.0	16.8	0.4	15.9							
12/96-12/97	22.3	10.3	20.4	16.5	22.7	18.3							
12/97-12/98	-14.1	-13.8	-9.8	-23.0	-28.3	-17.9							
12/98-12/99	7.8	15.7	10.0	5.6	25.8	12.9							
12/99-12/00	-9.8	8.2	-8.6	-8.0	-36.7	-11.5							
12/95-12/00 (annual)	4.3	8.0	5.0	0.4	-6.8	2.4							

## Capitalization Sectors

In order to test the effectiveness of VMO within capitalization sectors we used the S&P 500, Midcap 400 and Smallcap 600 indexes for our large, mid, and small cap universes. The stocks in these indexes were ranked by VMO in descending order and divided into equal-sized quintiles. Equal-weighted and cap-weighted performance was computed on each sector. As the following tables show, the results were good. The top quintile of VMO outperformed its respective universe over the 5 year period in each index studied. The results were better in the small and mid cap universes than in large caps. On an equally-weighted basis, excess returns of the high VMO quintiles over the index returns were 12.9%, 9.7%, and 6.2% for small, mid and large caps, respectively. When returns were cap-weighted, excess returns fell in a tighter range of 9.6%, 11.1% and 8.9% for the same indexes, respectively.

S&P 500 (equally weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	S&P 500
12/95-12/96	28.5	20.5	20.5	20.1	9.7	19.8
12/96-12/97	40.9	32.0	31.8	27.1	14.1	28.9
12/97-12/98	17.0	20.4	16.2	10.1	3.2	13.3
12/98-12/99	18.1	2.1	12.6	11.7	15.3	11.9
12/99-12/00	12.0	10.3	10.8	11.3	7.1	10.5
12/95-12/00 (annual)	22.9	16.6	18.2	15.9	9.8	16.7

S&P 500 (cap weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	S&P 500
12/95-12/96	28.5	25.4	25.7	19.2	12.3	23.3
12/96-12/97	43.1	30.9	42.3	23.7	21.1	33.4
12/97-12/98	39.8	36.3	34.5	22.9	10.9	28.8
12/98-12/99	43.9	6.7	24.4	14.8	19.1	20.7
12/99-12/00	-9.3	-4.4	-2.9	-8.2	-11.4	-8.5
12/95-12/00 (annual)	27.4	18.0	23.8	13.8	9.8	18.5

Mid Cap 400 (equally weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	MidCap 500
12/95-12/96	38.2	21.5	13.4	15.2	14.4	20.4
12/96-12/97	53.9	28.3	31.6	32.7	13.2	31.4
12/97-12/98	18.9	14.0	6.7	5.4	-7.3	7.3
12/98-12/99	4.3	11.2	4.3	-6.2	18.1	6.3
12/99-12/00	22.6	21.5	52.3	11.2	-1.3	20.3
12/95-12/00 (annual)	26.5	19.2	20.4	11.0	6.9	16.8

Mid Cap 400 (cap weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	MidCap 500
12/95-12/96	38.5	21.9	12.1	9.0	12.2	19.1
12/96-12/97	59.6	28.1	26.8	31.0	15.2	32.6
12/97-12/98	32.2	40.5	10.4	7.0	-2.0	19.0
12/98-12/99	17.1	23.0	20.1	-0.5	15.1	15.5
12/99-12/00	16.7	14.5	67.0	12.5	-8.8	18.8
12/95-12/00 (annual)	31.9	25.3	25.8	11.3	5.9	20.8

Small Cap 600 (equally weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	SmallCap 500
12/95-12/96	35.7	34.2	18.5	17.4	10.5	23.1
12/96-12/97	45.1	39.4	18.9	22.3	4.0	25.3
12/97-12/98	17.3	2.9	1.0	-5.1	-10.8	0.8
12/98-12/99	11.6	10.4	5.6	16.2	20.5	13.0
12/99-12/00	32.4	13.3	11.5	7.4	5.2	14.1
12/95-12/00 (annual)	27.8	19.2	10.9	11.2	5.4	14.9

Small Cap 600 (cap weighted)						
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	SmallCap 500
12/95-12/96	35.5	32.6	16.0	11.0	6.7	21.8
12/96-12/97	39.7	37.6	16.6	20.3	9.0	25.9
12/97-12/98	11.4	0.5	-2.2	-4.5	-15.9	-1.2
12/98-12/99	5.6	13.1	7.6	17.3	31.3	14.0
12/99-12/00	31.5	12.6	9.8	4.2	8.2	13.7
12/95-12/00 (annual)	24.0	18.5	9.3	9.3	6.8	14.4

## Index Industry Sector Weighted

To neutralize the industry sector bias introduced by the model, we sectored each of the 15 macro groups within each index into VMO quintiles. Then, index industry weights were applied to the performance results of each sector in the table below. Constraining the industry emphasis that the model naturally produces reduces returns across all of the indexes. However, the high VMO quintiles still outperform their respective indexes (by 10.7%, 8.6%, and 3.7% for small, mid, and large cap groups) in the period studied.

	S&P 500 (sector neutral)					S&P 500
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	
12/95-12/96	25.9	18.9	23.0	18.2	14.0	20.2
12/96-12/97	32.9	27.6	30.2	25.2	18.3	27.1
12/97-12/98	17.5	22.5	18.8	13.8	10.3	16.6
12/98-12/99	22.4	10.1	18.3	14.6	12.2	15.3
12/99-12/00	11.0	14.6	10.8	3.1	9.8	9.7
12/95-12/00 (annual)	21.5	18.6	20.1	14.7	12.7	17.8

	Midcap 400 (sector neutral)					Midcap 400
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	
12/95-12/96	30.6	19.2	17.4	14.6	17.1	19.9
12/96-12/97	42.7	34	26.1	29.9	18.1	30.3
12/97-12/98	23.9	15.7	10.2	9.3	2.5	12.7
12/98-12/99	14.8	13.3	15.2	-2.6	18	11.7
12/99-12/00	25.7	25.5	36.8	14.8	-2.1	20.3
12/95-12/00 (annual)	27.3	21.3	20.8	12.9	10.3	18.7

	Small Cap 600 (sector neutral)					Small Cap 600
	High VMO	Quintile 2	Quintile 3	Quintile 4	Low VMO	
12/95-12/96	33.0	24.6	19.0	19.0	11.9	21.8
12/96-12/97	35.4	32.6	27.9	20.7	12.7	26.2
12/97-12/98	18.4	5.9	5.1	-3.0	-4.7	4.1
12/98-12/99	17.7	9.0	16.3	13.6	14.2	14.4
12/99-12/00	29.3	16.8	15.1	10.6	3.2	15.2
12/95-12/00 (annual)	26.6	17.8	16.1	11.8	7.1	15.9

## Conclusion

It is very evident that in addition to proving useful across a broad universe of stocks, the Value/Momentum model performs very well when applied within industries. Additionally, while VMO tends to work best in the small cap companies, the model performs well across all cap sectors. Finally, a simple test of industry sector neutral returns across capitalization indicates that using VMO in a sector neutral strategy may also prove very useful.