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Relative Strength, Sector Weighting, and Sector Returns: A Portfolio Analysis for the Period 2008-2012

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Study Objectives

Evaluate relative strength analysis as a viable method for sector portfolio weighting
Develop a weighting model that favors undervalued sectors

Study Design

We analyzed a data set from the period 2008-2012. In our data set we used the sector spiders of the 10 S&P 500 sectors. Each sector spider is equivalent to one stock in our portfolio. Using these 10 spiders, we took our investment of \$1,000,000 and allocated the funds amongst these sectors using relative strength analysis. We implemented a buy and hold strategy over the 5 year period and compared our portfolio to our benchmark, the S&P 500 index. We split our results up into 5 periods based on the performance of the markets.

Portfolio Weighting Model

$$RS_{it} = P_{it} / P_{st}$$

$$1/RS_{it} = 1 / (P_{it} / P_{st})$$

$$W_{it} = (1/RS_{it}) / (\text{Sum } 1/RS_{it})$$

$$DV_{it} = W_{it} * 1,000,000$$

$$\text{Shares}_{it} = DV_{it} / P_{it}$$

$$PV_{itn} = \text{Shares}_{it} * P_{itn}$$

$$\text{Return}_{it} = (PV_{itn} / PV_{it}) - 1$$

Where:

RS_{it} = Relative Strength of Sector i(t)

P_{it} = Price of Sector i(t)

P_{st} = Price of S+P

$1/RS_{it}$ = Inverse of S+P

W_{it} = Portfolio Weight Assigned to Sector i(t)

DV_{it} = Dollar Investment in Sector i(t)

PV_{itn} = Actual Value of Portfolio

Shares_{it} = Number of shares held in sector i(t)

Return_{it} = Percent change in value of sector i(t)

T = Time

Changes in Dollar Value 2008-2012

Value	Sector Portfolio	S&P 500
Starting Value	\$1,000,000.00	\$1,000,000.00
Value Ending 2008	\$660,295.75	\$617,194.45
Value Ending 2009	\$827,110.99	\$762,191.37
Value Ending 2010	\$937,471.37	\$860,064.29
Value Ending 2011	\$967,139.79	\$858,354.42
Value Ending 2012	\$1,079,720.13	\$974,009.99
Change 2008-2012	\$79,720.13	-\$25,990.01

Sector Returns vs S&P 500

Period	Year	Sector Portfolio	S&P 500	Sector Relative Outperformance
Downswing	2008	-33.97%	-38.28%	4.31%
Rebound	2009	25.26%	23.49%	1.77%
Upswing	2010	13.34%	12.84%	0.50%
Trading Range	2011	3.16%	4.43%	-1.26%
Trading Range	2012	11.64%	8.45%	3.20%
Total	2008-2012	7.97%	-2.60%	10.57%

Conclusions

I/RS Model generated Alpha of 10.57% vs. S+P

Outperformance significant

I/RS model outperformed S +P in downswing period of 2008

Outperformed S+P in the rebound 09

Outperformed in the upswing period in 10

Underperformed in the trading range period 11

Outperformed in the trading range period 12