



# Factor Investing and Concentrated Portfolios of Consumer Discretionary Stocks: An Empirical Analysis of Returns 2009-2021

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## Study Objective:

Hypothesis Tests:

1. Revenue Per Share is a priced in risk factor
2. Returns vary with firm size
3. Diversification lowers portfolio returns

## Portfolio Characteristics:

1. Sector : Consumer Discretionary (XLY)
2. # of Stocks:
  - (1) Top 10 (by market value)
  - (2) Next 10
  - (3) Top 20
3. State Economic Variable: Consumer Spending (PCE)
4. Loading Factor: Revenue Per Share
5. Size: Large Cap
6. Style: Growth
7. Strategy: Buy and Hold
8. Regression Period: 2009-2019
9. Period of Analysis
  - (1) 2009-2019
  - (2) 2009-2020
  - (3) 2009-2021

## Portfolio Weighting Model (RS):

### 1st Iteration

- Step 1.  $R_{si}(t) = A_i + B_i(PCE_t)$
- Step 2.  $W_{li}(t) = B_i / \sum B_i$
- Step 3.  $D_i(t) = W_{li}(t) * 1,000,000$
- Step 4.  $SHR_{Si}(t) = D_{li}(t) / P_i(t)$
- Step 5.  $MV_i(t+1) = SHR_{Si}(t) * P_i(t+1)$
- Step 6.  $PV(t+1) = \sum MV_i(t+1)$

### 2nd Iteration

- Step 7.  $MV_i(t+2) = SHR_{Si}(t) * P_i(t+2)$
- Step 8.  $PV(t+2) = \sum MV_i(t+2)$

Total Iterations: 11

XLY Top Ten Portfolio			
Time Period	Model	SPY	Alpha
2009-2019	2205%	288%	1917%
2009-2020	3299%	347%	2952%
2009-2021	3635%	443%	3192%
XLY Next Ten Portfolio			
Time Period	Model	SPY	Alpha
2009-2019	766%	288%	478%
2009-2020	962%	347%	615%
2009-2021	1362%	443%	919%
XLY Top Twenty Portfolio			
Time Period	Model	SPY	Alpha
2009-2019	1906%	288%	1618%
2009-2020	2814%	347%	2467%
2009-2021	3163%	443%	2720%

## Conclusion:

1. Revenue Per Share is a priced in risk factor
2. Portfolio returns decline with size
3. Diversification resulted in lower cumulative returns
4. Highest returns portfolio was the Top 10
5. Positive progression of returns over the Covid-19 impact period within XLY