

Stock Returns in Selected S&P 500 Sectors During the COVID-19 Pandemic

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Study Objectives

- Determine the Downside/UpSide Period returns for stocks in the Consumer Discretionary, Healthcare, Technology, Staples, and Industrials S&P 500 sectors.
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- Develop a factor weighting model based on Downside/upside Period returns.
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- Use 10 stocks from each sector analyzed to create sector portfolios.
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- Compare the performance of the sector portfolios to the S&P 500 over the COVID-19 pandemic period.

Portfolio Weighting Model Algorithm

Step 1: $P_{ij}(D) = A_{ij} + B_{ij}(T)$

Step 1-A: $P_{ij}(U) = A_{ij} + B_{ij}(T)$

Step 2: $W_{ij} = B_{ij}(U)/B_{ij}(D)$

Step 3: $DI_{ij} = W_{ij} * 1,000,000$

Step 4: $SHRS_{ij}(t) = DI_{ij}/P_{ij}(t)$

Step 5: $MV_{ij}(t+n) = SHRS_{ij}(t) * P_{ij}(t+n)$

Step 6: $PV_j(t+n) = \sum MV_{ij}(t+n)$

Nomenclature

P_{ij} = Price of i^{th} stock, j^{th} sector

D = Downside period

U = Upside period

T = Time in days

A, B = Equation parameters

W_{ij} = Stock $_i$ in sector $_j$ weight

DI_{ij} = Dollars invested in stock $_{ij}$

1,000,000 = Original investment

$SHRS_{ij}$ = Shares held in stock $_i$, sector $_j$

Mv_{ij} = Market value of stock $_i$, sector $_j$

PV_j = Portfolio value, sector

t = Day 1 of analysis

t+n = t + n days after day 1

Returns of Weighted Sector Portfolios from Feb 2020 - March 2021

XLY (Consumer Discretionary Sector)

Time Period	Cumulative Returns
Feb-June 2020	1.9%
Feb-Sep 2020	53.1%
Feb-Dec 2020	66.7%
Feb-March 2021	76.0%

XLK (Technology Sector)

Time Period	Cumulative Returns
Feb-June 2020	7.6%
Feb-Sep 2020	52.6%
Feb-Dec 2020	48.5%
Feb-March 2021	58.1%

XLV (Healthcare Sector)

Time Period	Cumulative Returns
Feb-June 2020	-0.6%
Feb-Sep 2020	20.4%
Feb-Dec 2020	19.0%
Feb-March 2021	29.0%

XLP (Staples Sector)

Time Period	Cumulative Returns
Feb-June 2020	-0.9%
Feb-Sep 2020	15.2%
Feb-Dec 2020	20.2%
Feb-March 2021	7.1%

XLI (Industrials Sector)

Time Period	Cumulative Returns
Feb-June 2020	-8.9%
Feb-Sep 2020	33.2%
Feb-Dec 2020	41.6%
Feb-March 2021	47.7%

S&P 500

Time Period	Cumulative Returns
Feb-June 2020	-9.3%
Feb-Sep 2020	4.6%
Feb-Dec 2020	8.7%
Feb-March 2021	15.8%

Sector Cumulative Returns Ranking Feb (2020) - March (2021)

Cumulative Returns					
Sector	Model	S&P 500	Alpha	Rank	
XLP	7.1%	15.8%	-8.7%	5	
XLY	76.0%	15.8%	60.2%	1	
XLI	47.7%	15.8%	31.9%	3	
XLK	58.1%	15.8%	42.3%	2	
XLV	29.0%	15.8%	13.2%	4	