



# Non-Farm Employment and Goods Sector Employment and Stock Price Movements in the Consumer Staples and Consumer Discretionary Sectors 2009-2016

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## Study Objective:

- Determine total non-farm and goods sector employment covariances with price movements for Consumer Staples (XLP) and Consumer Discretionary (XLY) sectors.

## Research Design #1: Regression Analysis

- Regress total non-farm (NF) and goods (G) employment on top ten stocks (by market value) on XLP and XLY.
- Time Period: 2009-2016
- Time Frequency: Monthly Date
- Model Specification:
  - $P=A+B(NF)+e$
  - $P=A+B(G)+e$
  - P=Price of Stocks
  - A, B=Equation Parameters
  - NF/G=Employment Variables
  - e=Error Term

## Research Design #2: Portfolio Weighting Model

- $W_i = B_i / \sum B_i$
- $D_i = W_i \times 1,000,000$
- $SHR_i(t) = D_i(t) / P_i(t)$
- $SHR_i(t) \times P_i(t + 1) = MV_i(t + 1)$
- $PORT(t + 1) = \sum MV_i(t + 1)$

Where:

- $W_i$ =Stock Volume
- $D_i$ =Dollars Invested
- $SHR_i$ =Shares Held
- $MV_i$ =Market Value
- PORT=Portfolio Value
- t=Time in Years
- i= lth stock

Consumer Staples Cumulative Returns 4/1/09-12/31/16			
Year	NF Return	S&P Total	Alpha
2009	19.27%	28.54%	-9.27%
2010	35.31%	44.94%	-9.63%
2011	51.43%	46.15%	5.28%
2012	63.55%	76.29%	-12.74%
2013	98.90%	110.46%	-11.56%
2014	132.07%	136.08%	-4.01%
2015	134.84%	129.34%	5.50%
2016	148.64%	157.42%	-8.78%

Consumer Discretionary Cumulative Returns 4/1/09-12/31/16			
Year	NF Model	S&P Total	Alpha
2009	108.61%	28.54%	80.07%
2010	227.35%	44.94%	182.41%
2011	279.18%	46.15%	233.03%
2012	403.71%	76.29%	327.42%
2013	812.57%	110.46%	702.11%
2014	801.11%	136.08%	665.03%
2015	932.28%	129.34%	802.94%
2016	1140.71%	157.42%	983.29%

Consumer Staples Cumulative Return 4/1/09-12/31/16			
Year	Goods Model	S&P Total	Alpha
2009	19.32%	28.45%	-9.13%
2010	31.62%	43.85%	-12.23%
2011	46.41%	43.56%	2.85%
2012	55.34%	62.90%	-7.56%
2013	87.14%	111.27%	-24.13%
2014	115.10%	135.12%	-20.02%
2015	125.70%	133.21%	-7.51%
2016	134.38%	155.70%	-21.32%

Consumer Discretionary Cumulative Return 4/1/09-12/31/16			
Year	Goods Model	S&P Total	Alpha
2009	108.28%	28.45%	79.83%
2010	227.22%	43.85%	183.37%
2011	278.94%	43.56%	235.38%
2012	402.26%	62.90%	339.36%
2013	809.79%	111.27%	698.52%
2014	799.21%	135.12%	664.09%
2015	928.34%	133.21%	795.13%
2016	1135.28%	155.70%	979.58%

## Conclusion

- Consumer Staples
  1. NF Model underperforms S&P
  2. Goods Model underperforms S&P
- Consumer Discretionary
  1. NF Model outperforms S&P
  2. Goods Model underperforms S&P