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# Do Stock Market Prices Co-Vary with Regional Manufacturing Activity: A Look at the Chicago Fed's Manufacturing Activity Index

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# Sector/Market price movements and the Chicago Federal Reserve Midwest Manufacturing Index. A univariate regression Analysis 2001-2012

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## Study Purpose

- Determine if the S&P 500 market/sector prices covary directly with Chicago Federal Reserve Midwest Manufacturing Index (CFMMI)

## Research Approach

- Use univariate regression analysis
- Time periods analyzed
  - 2001-2012
  - 2009-2012

## Model Specification

- $SPY_t = a + b(CFMMI_t)$
- $S_{it} = a + bCFMMI_t$
- Where
- SPY= S&P 500 Price Index
- $S_{it}$  = sector price index
- CFMMI= Chicago Federal Reserve Midwest Manufacturing Index
- i= the ith sector
- t= time period in months
- a,b= intercept/ slope coefficients

## Hypothesis

Sector/market prices are directly related to CFMMI:  $b > 0$

## Conclusions

01-12 time period:

- slope coefficients are statistically significant
- 8/10 regressions have the right sign
- $R^2$  los except for Finance and Telecom sectors

09-12 time period:

- All slope coefficients statistically significant
- $R^2$  range from .16 to .92

## Summary

- Results mixed for long term period 01-12
- Hypothesis proved for the short run 09-12 period
- Model works best after a recession period

## Regression Results

CFMMI: 1/31/01-12/31/12				
Index	Intercept	Slope	Tstat	$R^2$
XLP	29.6772	-0.04235	9.168129	0.010252
XLY	21.60435	0.114645	4.2899	0.030413
XLE	84.28749	-0.37064	5.662651	0.036171
XLF	-36.5582	0.650443	16.19192	0.64867
XLV	24.33894	0.071138	8.405792	0.035247
XLI	14.78774	0.167207	3.335437	0.079267
XLB	32.59447	-0.02667	5.73589	0.001331
XLK	12.1371	0.110536	4.357504	0.032498
XLU	20.44632	0.110536	10.96232	0.032498
IYZ	12.61772	0.395676	10.96232	0.458372
SPY	48.77006	0.761024	5.27682	0.163943

CFMMI: 3/31/09-12/31/12				
Index	Intercept	Slope	Tstat	$R^2$
XLP	-9.74981	0.478214	21.85622	0.915659
XLY	-36.9288	0.886985	20.83891	0.908
XLE	-15.283	0.959557	7.625468	0.569251
XLF	7.965322	0.079125	2.906545	0.161074
XLV	-7.28091	0.486716	14.52373	0.827409
XLI	-13.5221	0.553319	10.66737	0.721153
XLB	5.317616	0.347306	5.923937	0.443693
XLK	-11.8356	0.441707	16.23431	0.856935
XLU	1.697557	0.370951	17.78232	0.877849
IYZ	1.379507	0.241763	8.293588	0.609872
SPY	-23.6362	1.775325	13.93712	0.815315