

**Stress Financial Conclusions and Market/Sector  
Price Movement 2001-2012**  
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Standards Presentation

Study Objectives:

- To study the statistical relationship between the Kansas City Financial Stress Index (KCFSI) and S&P sector prices.

Research Approach:

- Univariate regression analysis

Model Specification:

$$SPY_t = a + b(KCFSI_t)$$

$$S_{it} = a + b(KCFSI_t)$$

SPY=S&P500 ETF

$S_{it}$ =Sector ETF's

i=The i<sup>th</sup> Sectors

t=Time in months

KCFSI=Kansas City Financial Stress Index

Time Periods:

- 2001-2012
- 2003-2007
- 2009-2012

Hypothesis:

- Market and sector prices inversely related to with KCFSI:  $b < 0$

Conclusion:

01-12 Period: Slope coefficient have right sign and statistically significant

- $R^2$ 's relatively low, highest for XLY: 34%

09-12 Period: Slope coefficient have right sign and statistically significant

- $R^2$ 's range from .50-.75, highest for XLF: 75%

03-07 Period: Majority of slope coefficients are positive and statistically significant

- $R^2$ 's quite low, little or no explanatory power

Summary: Hypothesis that  $b < 0$  held true for 01-12 & 09-12.

- Persistent declining negative values for KCFSI during 03-07 period results in positive slope coefficients. Does not violate original hypothesis.
- All 3 periods analyzed suggest KCFSI has predictor capabilities. Weakest explanatory power in 03-07 period.

Regression Results:

KCFSI VS Sector 1/31/01-12/31/12				
Sector	Intercept	Slope	T-Stat	R-Squared
SPY	120.3825	-6.580266	81.94185	0.203183
XLY	33.49982	-3.007181	71.17587	0.341615
XLE	52.10348	0.251565	31.6243	0.000296
XLF	23.83429	-3.312793	39.30824	0.275052
XLV	31.61645	-1.353417	39.30824	0.212212
XLI	30.92288	-1.863905	64.06093	0.159318
XLB	31.27331	-1.155903	52.9826	0.046478
XLK	22.08277	-1.205265	64.85568	0.137382
XLU	30.79803	-0.387782	56.65742	0.006427
IYZ	23.1473	-1.578766	69.5687	0.222496
KCFSI VS Sector 1/31/09-12/31/12				
Sector	Intercept	Slope	T-Stat	R-Squared
SPY	124.1898	-11.95799	80.21875	0.702468
XLY	38.01288	-4.930511	48.40917	0.609402
XLE	66.06668	-6.135163	58.03254	0.534728
XLF	14.95522	-1.281833	101.6944	0.750409
XLV	33.8877	-2.677898	68.00785	0.533349
XLI	33.47342	-3.808607	73.04357	0.732143
XLB	35.04279	-3.131597	93.55542	0.734474
XLK	25.45522	-2.542364	65.03428	0.625407
XLU	32.9261	-1.840481	89.51143	0.49766
IYZ	21.90336	-1.618301	84.76547	0.608172
KCFSI VS Sector 1/31/03-12/31/07				
Sector	Intercept	Slope	T-Stat	R-Squared
SPY	122.8813	1.268432	36.34879	0.000855
XLY	31.71331	-2.825436	46.56693	0.09473
XLE	49.11528	6.987469	15.83933	0.029946
XLF	29.1205	-3.0943	42.07921	0.108371
XLV	31.59264	0.661941	65.59458	0.011353
XLI	31.18198	0.758207	30.37871	0.003306
XLB	31.27549	2.294116	26.21001	0.021977
XLK	21.49668	0.845594	39.51271	0.014474
XLU	31.09304	1.575968	23.84251	0.0088
IYZ	24.90827	0.216384	29.36615	0.000396

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