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A Covariance Analysis of Consumer Expenditures on Health Care and Health Care Sector Price Movement

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Study Objective:

Determine if Health Care (HC) sector stock prices covary directly with consumer expenditures on health care

Research:

- Univariate Regression Analysis
- Time Period 2004-2013
- Data Sets
 - HC Consumer Expenditures
 - HC Sector ETF (XLV)
 - HC Equipment (XHE)
 - Biotech (XBH)
 - Pharmaceuticals (XHD)
 - HC Services (XHS)
- Data Frequency: Quarterly Data

Model Specifications

$XLV = A + B(HCCE)$
 $XHE = A + B(HCCE)$
 $XBI = A + B(HCCE)$
 $XHD = A + B(HCCE)$
 $XHP = A + B(HCCE)$
 $XHS = A + B(HCCE)$

Hypothesis:

There is a direct relationship between HCCE and HC sector Prices: $B > 0$; $Tstat > 2$

Table 1 Regression Results

Time Period	Dependent Variable	Linear		
		B	Tstat	Rsquared
2004-2014	XLV	0.027	6.339	0.489
2011-2014	XHE	0.105	7.327	0.891
2006-2014	XBI	0.140	9.355	0.849
2006-2014	XPH	0.100	10.115	0.86955
2011-2014	XHS	0.222	17.870	0.982

Table 2 Logarithmic Regresions Results

Time Period	Dependent Variable	B	Tstat	Rsquared
2004-2014	XLV	0.010682	5.707758	0.436835
2011-2014	XHE	0.003984	7.113735	0.783299
2006-2014	XBI	0.002973	8.460272	0.677958
2006-2014	XPH	0.004356	9.111437	0.715562
2011-2014	XHS	0.002282	16.92373	0.959787

Conclusions:

- Linear Models $B > 0$ and $Tstat > 2$
- Log Linear Models $B > 0$ and $Tstat > 2$
- XHS Best Linear and Log Linear Relationship, $Rsquared > .95$