U.S. Monetary Policy, Monetary Aggregates and S&P 500 Stock Prices: An Empirical Analysis 2009-2016

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Study Purpose

- Determine if money supply aggregates are predictors of returns for sector stock prices

Research Design #1

- Use regression analysis to determine covariation between money supply and top ten stocks (market value) for 9 SPDR sectors

ResearchDesign#2

- Based on B-coefficients from regressions, develop portfolio weighting models for the 9 SPDR sectors

Model #1 Regression Equations

$P_i(S_i) = A + B(MV) + e$

Where $P_i(S_i)$ = Price of stock i, sector i

A, B = Equation parameters

M = Money Supply Aggregates M1, M2, MB

V = Velocity of Money

e = error term

Time Period: 2009-2016

Data Frequency: Monthly

i = ith stock (10 per sector)

Model #2 Portfolio Weighting

$W_i = B_i/\Sigma B_i$

$D_i = W_i(1{,}000{,}000)$

$SHR_{i(t)}=D_{i(t)}/P_{i(t)}$

$MV_{i(t+1)} = SHR_{i(t)}*P_{i(t+1)}$

$PORT_{(t+1)} = \Sigma MV_{i(t+1)}$

Where W_i = portfolio weight

D_i = dollar investment

SHR_i =shares held in (i)

MV_i = market value of (i)

PORT =portfolio value of 9 SPDR sectors

i = ith sector

t = time period: 2009 - 2016

M1V1 Cumulative Returns 2009-2016

Sector	Return(M1V*M1)	SPY Return	Alpha
XLP	176%	157%	19%
XLY	1388%	157%	1231%
XLV	372%	157%	216%
XLE	448%	157%	292%
XLF	164%	157%	7%
XLI	198%	157%	41%
XLB	348%	157%	192%
XLK	332%	157%	176%
XLU	116%	157%	-41%

M2V2 Cumulative Returns 2009-2016

Sector	Return(M2V*M2)	SPY Return	Alpha
XLP	176%	157%	19%
XLY	1388%	157%	1231%
XLV	372%	157%	216%
XLE	447%	157%	290%
XLF	164%	157%	7%
XLI	198%	157%	41%
XLB	348%	157%	192%
XLK	332%	157%	175%
XLU	116%	157%	-41%

MB Cumulative Returns 2009-2016

Sector	Return(MB)	SPY Return	Alpha
XLP	182%	157%	26%
XLY	1403%	157%	1247%
XLV	373%	157%	216%
XLE	431%	157%	275%
XLF	164%	157%	8%
XLI	197%	157%	41%
XLB	344%	157%	187%
XLK	331%	157%	174%
XLU	108%	157%	-49%

Conclusion

- M1V1 Model - All sectors except utilities had positive alpha with XLY having the highest excess return
- M2V2 Model - Similar excess returns to M1V1 model
- MB Model - Similar excess returns to M1V1 and M2V2 model with XLY having slightly higher alpha
- Results suggest M1, M2, and MB are predictors of excess returns for stocks across sectors
- M1, M2, and MB show positive covariation with selected stocks across sectors
- 2009 to 2016 was a period of aggressive monetary easing