A Smart Beta Concentrated Portfolio Model For The Information Technology Sector: An Empirical Analysis, 2009-2017

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- Study Purpose:
  Develop a smart beta portfolio weighting model for the Information Technology sector that can outperform the S&P 500 and its sector counterpart, XLK.
- Factor Weights
  - Sales Growth
  - Relative Price Change
- Test Sector- Information Technology (XLK)
- Portfolio Size
  - 10 Stocks
  - 20 Stocks
- Original Investment
  - $1,000,000 (10 stocks)
  - $2,000,000 (20 stocks)
- **Analysis Period:** 2009-2017
- **Model Construction:**
  - Sit=Ai+Bi(t)
  - Wit=Bi/∑Bi
  - Dit=Wit*(1,000,000/2,000,000)
  - SHRSit=Dit/Pit
  - Mvit+1=SHRSit*Pit+1
  - PVt+1=∑Mvit+1
  - 2nd Iteration
  - ΔSHRSit+1=SHRSit*[(Pit+1/Pit)/(∑Pit+1/Pit)]
  - SHRSit+1=SHRSit+ΔSHRSit+1
  - Mvit+2=SHRSit+1*Pit+2
  - PVt+2=∑Mvit+2
- **Nomenclature:**
  - S=Revenue per Year
  - t= time (years)
  - A, B= equation peramiters
  - W= stock weight
  - D= dollars invested
  - SHRS= shares held
  - ΔSHRS= shares added
  - MV= market value
  - PV= portfolio value
  - i=ith firm
  - Pit+1/Pit= relative price change

Table 1

Port. V. Market (10 Stocks)			
	Portfolio Return	Market Return	Alpha
CY 2009	72.86%	29.65%	43.21%
CY 2010	28.06%	19.82%	8.24%
CY 2011	44.17%	2.05%	42.12%
CY 2012	38.60%	14.00%	24.60%
CY 2013	60.92%	19.02%	41.89%
CY 2014	50.97%	11.94%	39.04%
CY 2015	33.51%	-2.87%	36.38%
CY 2016	70.39%	17.45%	52.94%
CY 2017	100.55%	23.90%	76.66%
Cumulative	1870.88%	262.96%	1607.92%

Table 1a

Port. V. Sector (XLK 10 Stocks)			
	Portfolio Return	Sector Return	Alpha
CY 2009	72.86%	42.78%	30.08%
CY 2010	28.06%	24.00%	4.06%
CY 2011	44.17%	4.00%	40.17%
CY 2012	38.60%	8.77%	29.83%
CY 2013	60.92%	18.44%	42.48%
CY 2014	50.97%	14.59%	36.38%
CY 2015	33.51%	3.36%	30.15%
CY 2016	70.39%	21.44%	48.96%
CY 2017	100.55%	36.68%	63.87%
Cumulative	1870.88%	326.57%	1544.30%

Table 2

Port. V. Market (20 Stocks)			
	Portfolio Return	Market Return	Alpha
CY 2009	68.73%	29.65%	39.08%
CY 2010	23.28%	19.82%	3.45%
CY 2011	9.48%	2.05%	7.43%
CY 2012	20.69%	14.00%	6.69%
CY 2013	46.57%	19.02%	27.55%
CY 2014	31.90%	11.94%	19.96%
CY 2015	0.59%	-2.87%	3.46%
CY 2016	31.36%	17.45%	13.91%
CY 2017	65.92%	23.90%	42.02%
Cumulative	1064.99%	262.96%	802.03%

Table 2a

Port. V. Sector (XLK 20 Stocks)			
	Portfolio Return	Sector Return	Alpha
CY 2009	68.73%	42.78%	25.96%
CY 2010	23.28%	24.00%	-0.72%
CY 2011	9.48%	4.00%	5.48%
CY 2012	20.69%	8.77%	11.92%
CY 2013	46.57%	18.44%	28.14%
CY 2014	31.90%	14.59%	17.31%
CY 2015	0.59%	3.36%	-2.77%
CY 2016	31.36%	21.44%	9.93%
CY 2017	65.92%	36.68%	29.24%
Cumulative	1064.99%	326.57%	738.42%

- **Key Findings:**
- 10 and 20 stock portfolios outperform SPY, 2009-2017
- 10 and 20 stock portfolios outperform XLK, 2009-2017
- Risk/Reward favorable against SPY XLK
- Rebound years 2009-2010 and 2016-2017 show cumulative alpha of 51% and 129% respectively.
- Cumulative alpha declines from 10-20 stock portfolio: tradeoff between concertation and diversification.
- In 2011 and 2015, flat to down market years. The 10-20 stock portfolios outperform S&P and XLK