

WHAT THE MARKET LIKES

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Outline

1. Efficient Market Theory (EMT)
2. Five Sample Study
 1. What the Market Likes
 2. Market Preference related to Earnings Change and P/E Change
 3. Residual P/E independent of Market Preference
 4. Stock selection with Market Preference and Residual P/E
3. $\text{Log Price Change} = \text{Log Earnings Change} + \text{Log P/E Change}$
4. How long does the negative correlation of Earnings Change and P/E change take to dissipate?
5. A Seven-Year Real-Money Example

Topics for Discussion as Time Permits

What is the best structure for the Value Group going forward?

Buying a stock by selling a put option.

Can we time the market?

Each day the market evaluates each listed company and establishes a stock price representing the market's valuation of the company. We can, thus, look at the company characteristics that are correlated with measures of price to find the characteristics of valuable companies.

I have five samples of a little over 1,000 stocks each that I am studying, each containing 72 variables descriptive of the companies and the stocks. The stocks for each sample were selected as listed American companies followed by four or more analysts with complete data for most variables.

The samples were from January 2013, 2014 and 2015 and July 2013 and 2014, and one-year follow-up data were also collected for each sample.

Since stock-market data often have skewed distributions and occasional outliers, all 72 variables were transformed to z-scores (normal distribution with mean of 0.0 and standard deviation of 1.0).

There are four commonly used measures of price: EV/EBITDA, P/E, P/Book and P/Sales. I computed correlations of each of the 72 variables with these four price indicators in each of the five samples. The correlations were very consistent across the five samples, so the average correlation is a good indicator.

Thirty-two variables had significant correlations with one or more of the four price indicators. A study of these variables indicated that they represented six characteristics of the company, which were *Growth, Profitability, Financial Strength, Estimates, Relative Strength and Median Price of the Industry*. I formed scales for each of the six content categories. The correlations among the scales and with the four price measures are shown in the next slide.

Correlations of Market Preference Scales
with each other (red) and with Price Measures (blue)

Market Preference Scale and Price Measures	Estimates	Growth	Industry	Profitability	Relative Strength	Financial Strength	Market Pref. Total
Estimates	1.00	0.44	0.25	0.10	0.46	0.13	0.62
Growth	0.44	1.00	0.16	0.09	0.21	0.19	0.49
Industry	0.25	0.16	1.00	0.29	0.52	0.07	0.65
Profitability	0.10	0.09	0.29	1.00	-0.11	0.21	0.46
Relative Str.	0.46	0.21	0.52	-0.11	1.00	0.01	0.62
Financial Str.	0.13	0.19	0.07	0.21	0.01	1.00	0.56
Market Pref. Total	0.62	0.49	0.65	0.46	0.62	0.56	1.00
EV / EBITDA	0.37	0.25	0.32	0.16	0.22	0.15	0.40
Price/Earnings	0.47	0.28	0.33	0.18	0.29	0.26	0.51
Price/Book	0.34	0.27	0.29	0.04	0.31	0.42	0.50
Price/Sales	0.09	0.10	0.48	0.61	0.12	0.15	0.45
Price Composite	0.42	0.31	0.43	0.34	0.23	0.33	0.57

Variables with highly significant correlations with Price Composite. Average of five samples

Category	Detail	Variable
Growth	Growth Rate	Sales-Growth 12m
Growth	Growth Rate	Sales-Growth 5yr
Growth	Increasing Growth	Sales-Growth 12m - 5YR
Growth	Increasing Growth	Sales Growth Q1 - Ave. Q4 to Q2
Growth	Increasing Growth	Op Inc Growth Q1 - Ave. Q4 to Q2
Growth	Consistent Growth	Correl EPS Growth 4 qtrs + Est 2Q
Growth	Consistent Growth	Correl EPS-DC Q8 -Q1 + Est 2Q
Growth	Consistent Growth	Correl SalesY7 - Y1
Growth	Consistent Growth	Correl Sales Q8 to Q1
Growth	Consistent Growth	Correl Sales Growth 4 qtrs
Growth	Rate of Growth	Slope Sales Growth 4 qtrs
Growth	Rate of Growth	Slope EPS-DC Q8 -Q1 + Est 2Q
Growth	Rate of Growth	Slope EPS Growth 4 qtrs + Est 2Q
Estimates	Growth Estimate	EPS Growth Est 5yr
Estimates	Growth Estimate	EPS Growth-Hist Y1 to Est Y0
Estimates	Growth Estimate	EPS Growth-Est Y0 to Est Y1
Estimates	Growth Estimate	EPS Growth-Est Y1 to Est Y2
Estimates	Growth Estimate	Est. % EPS Gr. Q0
Estimates	Growth Estimate	Est. % EPS Gr. Q1
Estimates	Growth Estimate	Est. Rev. Index
Estimates	Growth Estimate	EPS Est Y1-% Rev-Last Month
Estimates	Growth Estimate	Three mo est % ch Y1

Category	Detail	Variable
Profitability	Margin	Gross margin 12m
Profitability	Margin	Gross margin, 5 year Avg.
Profitability	Margin	Gross margin 12m - Ind
Profitability	Margin	Operating margin 12m - Ind
Profitability	Margin	Net margin 12m - Ind
Profitability	Return	Return on assets 12m - Ind
Profitability	Return	Return on equity 12m - Ind
Financial Str.	Average 5 Indicators	Z Score Q1
Industry	Ind, Median Price	Ind. PE
Industry	Ind, Median Price	Ind. Price/Book
Industry	Ind, Median Price	Ind. Price/Sales
Industry	Ind. Margin	Ind. Gross margin 12m
Momentum	Price Increase	Relative Strength 52 week
Momentum	Price Increase	Relative Strength 26 week
Momentum	Price Increase	Relative Strength-Weighted 4Qs

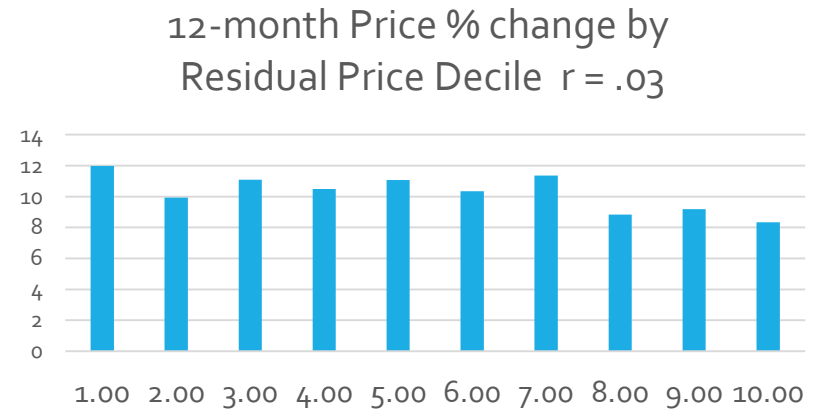
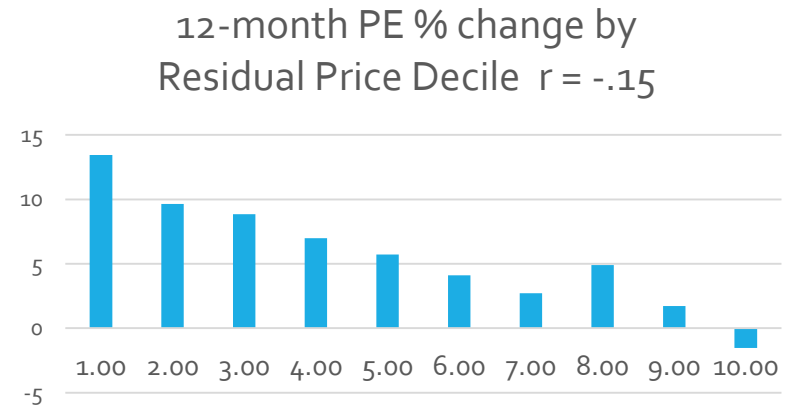
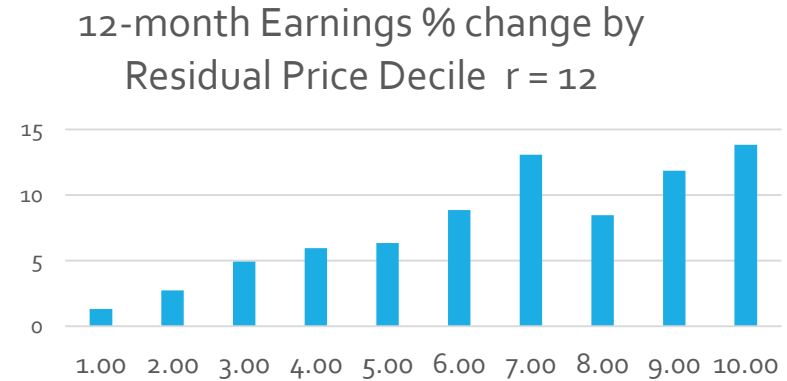
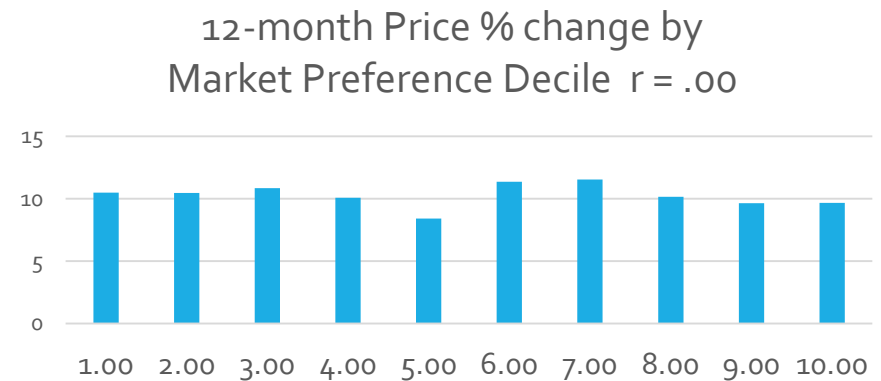
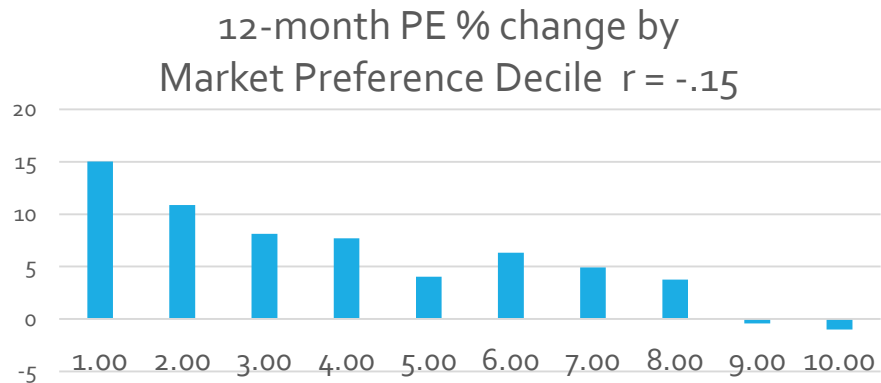
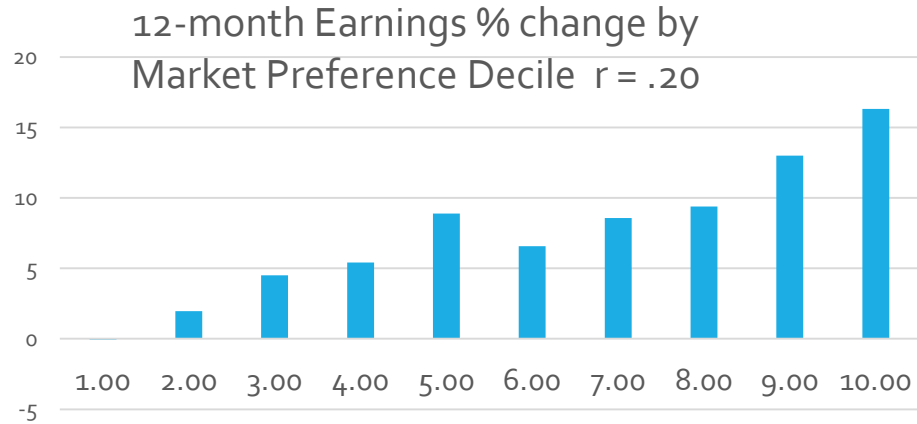
Correlations of Market Preference, Price Composite and Residual Price with Price and Value Changes for Three Time Periods. Correlations are the average of five samples. Total N = 4,818

Change Measure	Three Months Change			Six Months Change			Twelve Months Change		
	Market Pref.	Price Comp.	Residual Price	Market Pref.	Price Comp.	Residual Price	Market Pref.	Price Comp.	Residual Price
Price Change	0.03	0.01	-0.01	-0.01	-0.04	-0.04	0.00	-0.03	-0.03
EBIT Change	0.21	0.17	0.05	0.22	0.20	0.08	0.20	0.23	0.12
Earnings Change	0.22	0.19	0.06	0.22	0.20	0.08	0.20	0.23	0.12
Book Value Change	0.22	0.12	-0.02	0.23	0.11	-0.04	0.22	0.11	-0.02
Sales Change	0.41	0.32	0.08	0.42	0.34	0.10	0.41	0.35	0.12
EV/EBIT Change	-0.11	-0.11	-0.06	-0.15	-0.18	-0.10	-0.15	-0.22	-0.16
P/E Change	-0.13	-0.12	-0.04	-0.18	-0.20	-0.11	-0.15	-0.22	-0.15
Price/Book Change	-0.05	-0.04	0.00	-0.10	-0.08	-0.02	-0.10	-0.09	-0.03
Price/Sales Change	-0.07	-0.06	-0.02	-0.14	-0.14	-0.06	-0.13	-0.15	-0.08

Correlations with Initial P/E and Price Change Over Three Time Periods. Average of Five Samples (N = 4,818)

Time	Variable	Correlation with Initial P/E	Correlation with Price Change
3 Mo.	Price Change	0.04	1.00
3 Mo.	Earnings Change	0.22	0.19
3 Mo.	P/E Change	-0.13	0.47
6 Mo.	Price Change	0.02	1.00
6 Mo.	Earnings Change	0.27	0.20
6 Mo.	P/E Change	-0.21	0.46
12 Mo.	Price Change	0.04	1.00
12 Mo.	Earnings Change	0.31	0.25
12 Mo.	P/E Change	-0.26	0.39

Combined
Five Samples.
N = 4818



Percentage Price, Earnings and PE Change for Market Preference Top 10% and Residual Price Bottom 20%.
Five Samples combined.

	Mkt. Pref. Top 10%, Residual Price Bottom 20%	All Residual Price Bottom 20%	Total Sample
Price Change 3 mo.	4.00	1.75	1.90
Price Change 6 mo.	10.96	8.38	7.70
Price Change 12 mo.	15.04	10.96	10.26
Earnings Change 3 mo.	3.81	0.96	3.05
Earnings Change 6 mo.	5.42	1.43	4.78
Earnings Change 12 mo.	8.80	2.05	7.51
PE Change 3 mo.	3.99	2.46	1.18
PE Change 6 mo.	7.16	9.23	5.66
PE Change 12 mo.	11.39	11.46	5.84
Sample Size	71	970	4818

Stock-Price Change is the combined result of Earnings Change and PE Change

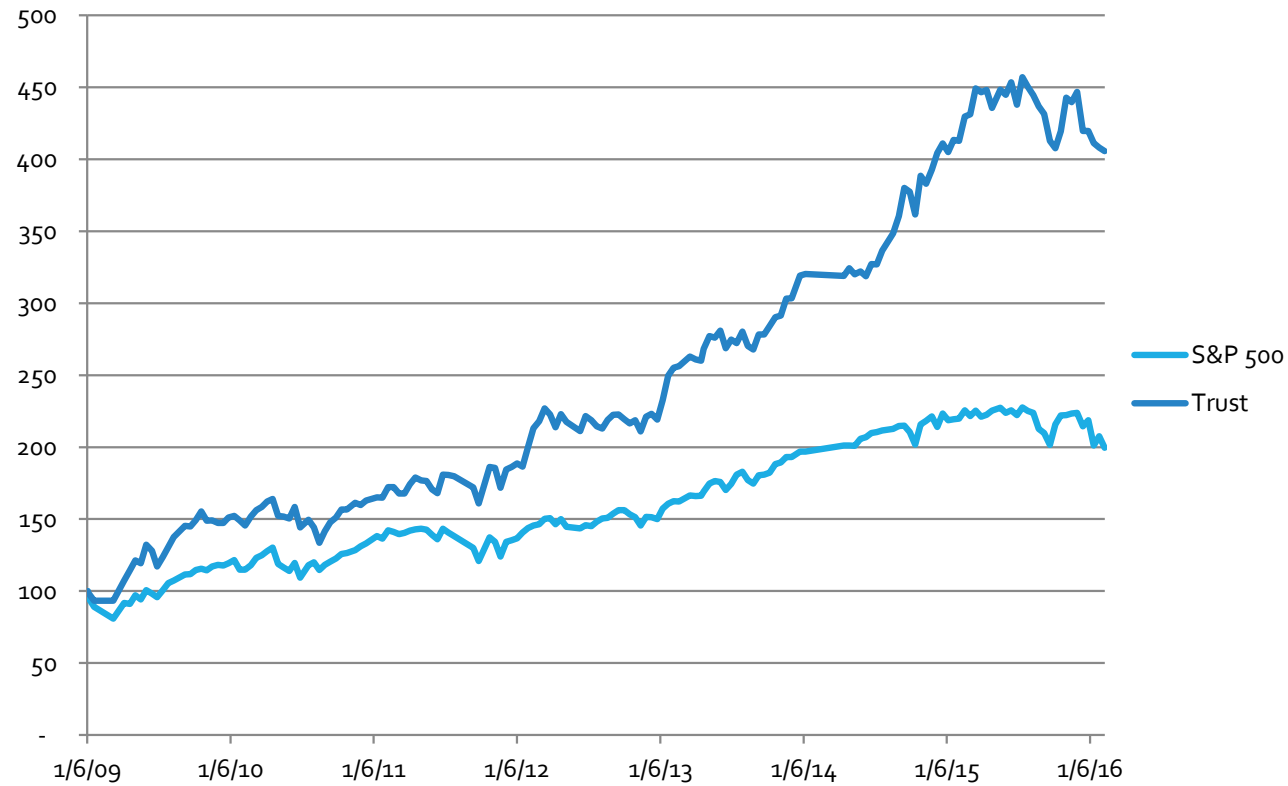
- Change in price is the combined effect of changes in Earnings and changes in PE, as follows:
 - **Log Price change = Log Earnings change + Log PE change**
 - This formula also works equally well for EV/EBITDA, Price/Sales and Price/Book.
- The Excel functions for Log Price Change and Percentage Price Change are:
 - **LogPriceChange = LN(Earnings_{t2} / Earnings_{t1}) + LN(PE_{t2} / PE_{t1})**
 - Where the subscripts t1 and t2 indicate beginning and ending values.
 - **PercentagePriceChange = EXP(LogPriceChange) * 100**
- Logarithmic values are used because dollars and percentages are unequal-interval scales because of compounding. which the Log values eliminate. Compounding occurs because one percent becomes larger as prices go up and smaller as prices go down. The compounding effect is small for small price changes and the log change is fairly close to the proportional change, but the difference increases as the price change gets larger. This actually works to the advantage of investors.
- Suppose we invest \$50 each in Stock A and Stock B, for a total of \$100, and after a time Stock A doubles to \$100 and Stock B drops in half to \$25. These are equal price changes, since each will reverse the other and they have equal logarithms. The two stocks can then be sold for \$125, a 25% profit, because of positive compounding as Stock A went up and negative compounding as Stock B went down.

Correlation of price change with Sales, EBIT and Earnings Change over 1 to 5 years. New sample of 844 stocks January 2010 - 2016

	Price Change 1 Year	Price Change 2 Years	Price Change 3 Years	Price Change 4 Years	Price Change 5 Years
Sales Change 1 Year	0.06				
Sales Change 2 Years		0.12			
Sales Change 3 Years			0.19		
Sales Change 4 Years				0.18	
Sales Change 5 Years					0.19
EBIT Change 1 Year	0.08				
EBIT Change 2 Years		0.22			
EBIT Change 3 Years			0.31		
EBIT Change 4 Years				0.34	
EBIT Change 5 Years					0.28
Earnings Change 1 Year	0.17				
Earnings Change 2 Years		0.23			
Earnings Change 3 Years			0.32		
Earnings Change 4 Years				0.30	
Earnings Change 5 Years					0.32

In a study of 844 stocks with data present for 6 years. We see that change in sales, EBIT and Earnings does not immediately result in price changes because of built-in negative correlation of earnings change and P/E change. After about three years earnings change does affect price change.

Performance of Trust Account vs the S&P 500 Both starting at 100 on 1/6/2009



During the seven years between 2009 and 2016 there were 33 trades.
16 were to harvest short term losses in December.
9 were to take a long-term gain and replace with better prospect.
3 were to take a long-term loss and replace with better prospect.
5 were tax-free transfers.

Performance of Trust Account 2009 - Present

Tkr	Company	In date	Shares	Cost	Buy price	Buy PE	Buy EPS	Buy S&P	Crnt Price	Crnt PE	Crnt EPS	Crnt Value
GOOG	Alphabet Inc	1/6/09	60	\$9,997	166.62	20.9	7.94	890	706.89	30.8	22.92	\$42,413
CME	CME Group Inc.	1/6/09	470	\$19,877	42.29	13.7	3.096	890	91.15	24.7	3.69	\$42,841
ISRG	Intuitive Surgical, Inc.	1/13/11	144	\$40,356	280.25	33.4	8.40	1293	531.28	34.3	15.51	\$76,504
UTHR	United Therapeutics Corp	12/10/12	1,300	\$68,037	52.34	10.8	4.86	1414	126.56	9.8	12.96	\$164,528
AAPL	Apple Inc.	2/1/13	770	\$49,509	64.30	10.2	6.31	1518	93.99	10.0	9.41	\$72,372
FFIV	F5 Networks, Inc.	4/8/13	485	\$34,962	72.09	20.6	3.50	1553	87.83	17.2	5.12	\$42,598
EW	Edwards Lifesciences Corp	5/1/13	1,248	\$38,964	31.22	19.7	1.59	1634	81.04	36.0	2.25	\$101,138
MYGN	Myriad Genetics, Inc.	8/19/13	950	\$25,953	27.32	15.4	1.77	1656	34.21	25.7	1.33	\$32,500
WAB	Westinghouse Air Brake	2/5/16	400	\$25,153	62.88	15.8	3.99	1940	65.35	16.4	3.99	\$26,140

Tkr	Company	Yrs held	G/L	Ann G/L %	G/L %	Log G/L	Log PE Ch	Log EPS Ch	Log S&P Ch	2wk price ch	2wk PE ch	2wk EPS ch
GOOG	Alphabet Inc	7.10	\$32,416	46%	324%	145	39	106	74	-7.2%	-14.0%	7.8%
CME	CME Group Inc.	7.10	\$22,963	16%	116%	77	59	18	74	1.4%	2.9%	-1.3%
ISRG	Intuitive Surgical, Inc.	5.08	\$36,148	18%	90%	64	3	61	37	-1.8%	-8.3%	7.2%
UTHR	United Therapeutics Corp	3.18	\$96,491	45%	142%	88	-10	98	28	2.7%	3.2%	0.0%
AAPL	Apple Inc.	3.03	\$22,863	15%	46%	38	-2	40	21	-3.4%	-2.9%	0.0%
FFIV	F5 Networks, Inc.	2.85	\$7,636	8%	22%	20	-18	38	18	-6.3%	-6.0%	0.0%
EW	Edwards Lifesciences Corp	2.79	\$62,174	57%	160%	95	60	35	13	3.6%	-3.0%	6.6%
MYGN	Myriad Genetics, Inc.	2.48	\$6,547	10%	25%	22	51	-29	12	-12.2%	-18.2%	7.3%
WAB	Westinghouse Air Brake	0.02	\$987	205%	4%	4	4	0	-4	3.9%	4.1%	0.0%

Current Look-Ahead Data

Ticker	Company name	% Sales Growth				% Operating Income Growth				% Earnings Growth				% Est. Earn. Growth	
		Q8 to Q4	Q7 to Q3	Q6 to Q2	Q5 to Q1	Q8 to Q4	Q7 to Q3	Q6 to Q2	Q5 to Q1	Q8 to Q4	Q7 to Q3	Q6 to Q2	Q5 to Q1	Q0	Q1
GOOGL	Alphabet Inc	12	11	13	18	8	13	26	22	-2	-1	35	31	56	67
AAPL	Apple Inc.	27	33	22	2	35	37	31	0	40	45	38	7	-14	-4
CME	CME Group Inc	8	12	12	-3	12	20	20	0	24	-1	23	-6	14	43
EW	Edwards Lifesciences Co	13	7	1	9	110	-83	25	26	100	-80	23	28	17	30
FFIV	F5 Networks, Inc.	12	10	8	6	20	11	0	-1	30	23	8	6	38	35
ISRG	Intuitive Surgical, Inc.	15	14	7	12	130	22	19	32	127	29	31	26	68	41
MYGN	Myriad Genetics, Inc.	-2	1	9	-45	-35	-32	67	-27	-40	-40	76	-24	32	61
UTHR	United Therapeutics Co	20	13	8	17	727	-107	-3	NA	462	-115	-9	NA	28	-925
WAB	Westinghouse Air Brake	18	17	2	1	22	20	12	10	20	17	10	11	3	-46

Ticker	Company name	Annual % Earnings Growth						Estimated Annual % Earn. Growth.			Est. % 5-Yr Growth	% Est. Rev.			Est. Revenue Index	Est. Number	Qtrly Surprise-Prior Qtr.			Qtrly Surprise Current Qtr		
		Y6	Y5	Y4	Y3	Y2	Y1	Est Yo	Est Y1	Est Y2		last. Mo.	Last 3 Mo.	Index			Date	%	SUV	Date	%	SUV
GOOG	Alphabet Inc	29	13	17	13	1	15	17	17	18	16	1	1	43	46	10/22/2015	2	0.6	2/1/2016	7	2.1	
AAPL	Apple Inc.	66	83	60	-10	14	43	-2	10	9	12	0	-7	-4	44	10/27/2015	4.3	1.6	1/26/2016	1.6	0.5	
CME	CME Group Inc	15	90	-50	8	15	10	13	8	8	13	3	3	75	16	10/29/2015	2.8	2.8	2/5/2016	2.3	2.1	
EW	Edwards Lifesciences Co	-6	9	24	39	119	-40	15	16	12	15	8	9	96	23	10/26/2015	9.2	4.5	2/2/2016	1.6	0.1	
FFIV	F5 Networks, Inc.	63	225	-43	1	17	23	5	10	8	11	0	-2	0	33	10/28/2015	5.5	4.8	1/20/2016	7.9	6.4	
ISRG	Intuitive Surgical, Inc.	60	30	30	5	-34	40	7	12	14	14	0	3	0	16	10/20/2015	23.8	7.8	1/21/2016	16.9	3.5	
MYGN	Myriad Genetics, Inc.	12	-29	18	36	27	-52	15	12	12	18	-2	-2	21	20	11/3/2015	16.1	5.7	2/2/2016	10.3	4.2	
UTHR	United Therapeutics Co	-131	450	96	56	-43	91	-4	16	4	22	-2	-2	-16	9	10/27/2015	263.9	14.9	2/25/2016	-17.8	-0.7	
WAB	Westinghouse Air Brake	8	37	48	16	21	13	6	6	1	15	2	-5	4	12	10/22/2015	-2.1	-1.1	2/18/2016	0.5	0.3	