WHY QUANTITATIVE PARTNERS – ERLANGER AND RAIS?

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WHAT ERLANGER DOES

- COMBINE THE ONLY RELIABLE HISTORICAL MULTI DECADE **SHORT INTEREST DATA** (NYSE & NASDAQ) WITH BIWEEKLY REPORTED SHORT INTEREST DATA AND **UPDATED DAILY TECHNICALS** TO DRAW UNIQUE INSIGHTS ABOUT STOCKS, GROUPS/SECTORS AND MARKETS.

- ANALYZE **OPTIONS ACTIVITY** ON A DAILY BASIS.

- REVIEW **SEASONAL TENDENCIES** OF THE MARKET.

- TRACK SHORT POSITIONS OVER 29 YEARS IN TERMS OF MODERATE AND HEAVY SHORT SELLING AND QUANTIFY HOW SHORTS PERFORM.

HOW WE TRACK SENTIMENT?

- IS THE STOCK IN A SHORT SQUEEZE (TYPE 1) OR LONG SQUEEZE (TYPE 4)?

- DOES THE STOCK HAVE RECOGNIZED STRENGTH (TYPE 2) BUT NO SHORTS TO DRIVE IT HIGHER?

- DO THE SHORTS HAVE IT CORRECT (TYPE 3)?

- WE TRACK WHETHER SHORT SELLERS ARE GOOD OR BAD.

- HAS THE STOCK BEEN POUNDED AND NOW ERLANGER OPTION RANK HIGH SETTING UP FOR A PUT SQUEEZE?

- HAS THE STOCK GONE PARABOLIC AND NOW ERLANGER OPTION RANK LOW SETTING UP FOR A CALL SQUEEZE?

3
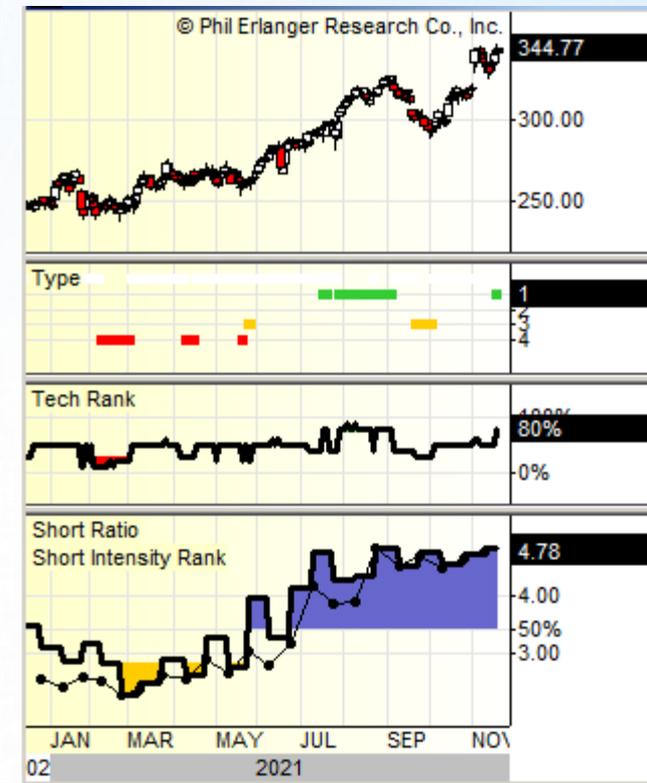
WHAT ARE THE SEASONAL TENDENCIES?

- IS THE STOCK ABOUT TO HIT SEASONAL STRENGTH OR WEAKNESS?

- WHAT DOES OUR SEASONAL HEAT MAP INDICATE?

- ARE WE IN A SEASONAL STRONG OR WEAK ZONE?

- HOW MUCH CONFIDENCE DO WE HAVE IN THE SEASONALITY? HOW HAS THE STOCK PERFORMED IN THE CURRENT YEAR AGAINST ITS HISTORICAL AVERAGE?

- MOVE FROM STOCKS TO SECTOR, GROUP AND INDEX SEASONALITY.

BIAS, SETUPS & TRIGGERS

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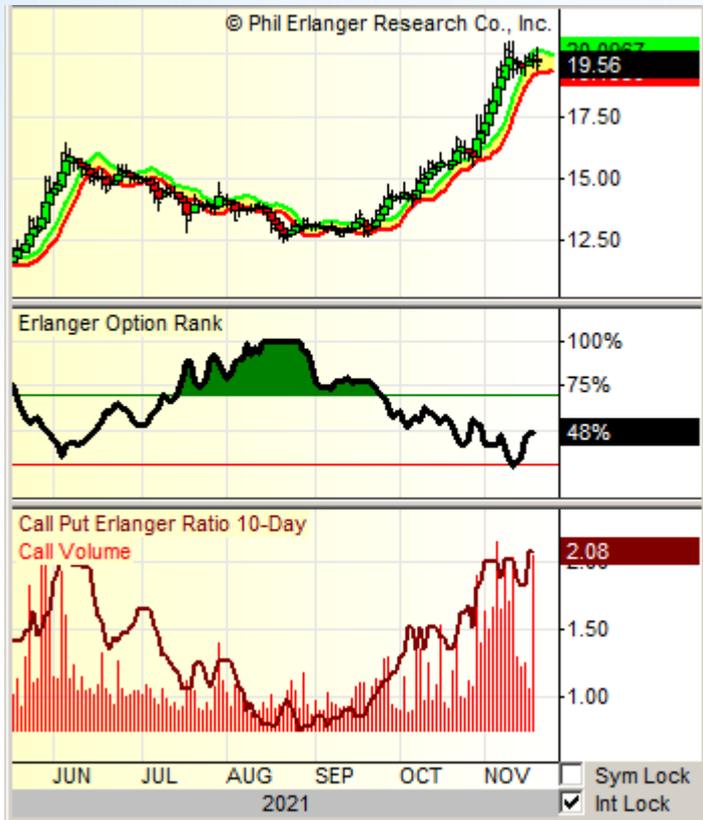
- QUANTIFIED WAY TO DETERMINE BIAS WHETHER A LONG TERM INVESTOR (MONTHLY DMA CHANNEL) OR A HEDGED INVESTOR THAT NEEDS A SHORTER TERM TIME HORIZON (WEEKLY DMA CHANNEL).

- ANALYZE SENTIMENT SETUPS VIA SHORT INTEREST, OPTIONS AND SEASONALITY.

- EXCELLENT TRIGGER INDICATORS TO HELP TIME AN ENTRY OR EXIT OF A POSITION ACROSS MULTIPLE TIME FRAMES.

- WORKS GREAT ON MOST SECURITIES NO MATTER ASSET CLASS OR DOMESTIC/INTERNATIONAL ORIENTATION.

Direction	Start Date	Close	End Date	Close	% change	# Months	Low
UP	1/31/2000	1394.46	11/30/2000	1314.95	-5.70%	10	
DOWN	11/30/2000	1314.95	5/30/2003	963.8	26.70%	30	788.9
UP	5/30/2003	963.8	1/31/2008	1374.3	42.59%	56	
DOWN	1/31/2008	1374.3	7/31/2009	987.48	28.15%	18	666.79
UP	7/31/2009	987.48	6/30/2010	1030.71	4.38%	11	
DOWN	6/30/2010	1030.71	10/29/2010	1183.26	-14.80%	4	1010.91
UP	10/29/2010	1183.26	8/31/2011	1218.89	3.01%	10	
DOWN	8/31/2011	1218.89	2/29/2012	1365.68	-12.04%	6	1266.74
UP	2/29/2012	1365.68	8/31/2015	1972.18	44.41%	42	
DOWN	8/31/2015	1972.18	5/31/2016	2096.96	-6.33%	9	1867.01
UP	5/31/2016	2096.96	12/31/2018	2506.85	19.55%	31	
DOWN	12/31/2018	2506.85	4/30/2019	2945.83	-17.51%	4	2346.58
UP	4/30/2019	2945.83	3/31/2020	2584.59	-12.26%	11	
DOWN	3/31/2020	2584.59	7/31/2020	3271.12	-26.56%	4	2447.49
UP	7/31/2020	3271.12	11/17/2021	4688.67	43.34%	16	
				Cumulative	116.93%		
	Up Winners	6 out of 8	Winners	8			
	Down Winners	2 out of 7	Losers	7			
	Up Cumulative	139.02%	Average Winner	26.52%			
	Down Cumulativ	-22.39%	Average Loser	-13.60%			

SECTOR & GROUP ANALYSIS

- APPLY SHORT INTEREST AND OPTIONS DATA TO DETERMINE EXTREMES ON A SECTOR AND GROUP BASIS.

- USE RELATIVE STRENGTH MEASURES TO TRACK SECTOR AND GROUP RESULTS.

Sector	Sector Rank	Sector Avg Power Rank	Sector Avg Tech Rank	Sector Avg Short Rank	Sector Type 1 %%	Sector Type 3 %%	Sector Universal Squeeze Potential Pct	Sector Type 4 %%	Sector Type 2 %%	Sector Avg Option Rank	Sector Trin 10 Day	Sector Avg EVS	ECOS For Sector
Technology: Semiconductors	1	57%	65%	42%	10%	10%	24%	6%	18%	46.7%	1.5	21.3	11.39
Retailing	2	48%	48%	50%	12%	20%	39%	6%	4%	51.1%	0.9	12.9	5.73
Automobiles & Components	3	48%	50%	49%	14%	10%	38%	9%	4%	51.5%	1.6	13.1	-17.88
Consumer Durables_Apparel	4	45%	44%	47%	8%	10%	31%	10%	4%	57.8%	1.5	12.8	18.24
Materials	5	45%	46%	43%	5%	12%	27%	12%	8%	59.3%	1.2	8.9	9.07
Household & Personal Products	6	45%	46%	43%	8%	8%	30%	13%	8%	48.1%	1.0	12.2	8.60
Commercial Services	7	43%	45%	42%	4%	11%	23%	14%	8%	63.9%	1.3	10.0	14.33
Capital Goods	8	43%	45%	42%	8%	9%	27%	12%	5%	54.7%	1.1	10.3	6.92
Banks	9	43%	46%	34%	6%	3%	21%	11%	7%	60.5%	1.4	7.9	-2.92
Transportation	10	41%	39%	46%	12%	13%	34%	14%	4%	64.0%	1.5	0.6	13.12
Technology: Computers_Equip	11	41%	42%	42%	4%	10%	27%	17%	4%	65.4%	0.8	9.5	-6.55
Real Estate	12	40%	40%	42%	6%	10%	33%	17%	3%	64.6%	1.0	0.7	-1.29
Consumer Services	13	38%	33%	47%	7%	23%	33%	12%	3%	65.5%	1.4	2.1	0.32
Energy	14	37%	37%	39%	4%	11%	20%	17%	7%	68.1%	1.3	-3.1	2.25
Telecommunication Serv	15	37%	33%	48%	3%	17%	34%	15%	3%	69.1%	2.2	0.4	-4.06
Technology: Software_Serv	16	37%	36%	42%	6%	17%	25%	12%	5%	60.0%	1.1	3.0	15.01
Food & Staples Retailing	17	37%	36%	44%	8%	20%	35%	17%	2%	61.1%	1.6	3.4	32.57
Insurance	18	37%	36%	38%	2%	11%	21%	22%	3%	62.9%	1.4	-0.8	1.53
Media	19	36%	36%	41%	9%	12%	24%	18%	2%	70.1%	1.0	5.0	17.58
Diversified Financials	20	35%	40%	32%	2%	7%	15%	18%	2%	61.1%	1.4	8.1	-3.79
Health Care Equip & Serv	21	34%	32%	43%	6%	18%	28%	13%	3%	61.5%	1.0	0.4	23.59
Food Beverage & Tobacco	22	34%	32%	40%	4%	17%	24%	13%	2%	59.5%	1.1	3.5	14.69
Utilities	23	33%	31%	40%	2%	15%	27%	24%	0%	59.2%	1.1	0.1	30.57
Pharmaceuticals	24	29%	26%	36%	1%	14%	19%	17%	3%	66.3%	0.7	-2.6	5.58

Retailing Rank

2
5
10
15
20

Retailing Universal Squeeze Potential Pct

39%
30%
20%
10%

Mkt Avg Short Rank
Mkt Avg Sector Short Rank
Retailing Avg Short Rank

50%
42.64
39.04
30.00
20.00

OCT NOVDEC JAN   MAR APR MAY JUN JUL AUG SEP OCT NOV
2020   2021
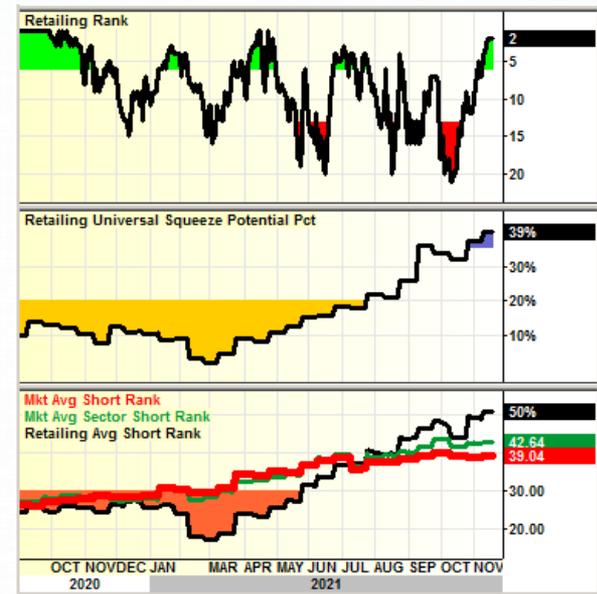
IT'S ALL ABOUT HELPING YOU

- ANALYZE EXISTING POSITIONS FOR RISK/REWARD – BUY LOW, SELL HIGH OR BUY HIGH/SELL HIGHER.

- SCREEN CUSTOM UNIVERSE FOR LONGS & SHORTS.

- DETERMINE "MARKET" BIAS AND RISK.

- CONSTANT MONITORING AND SUPPORT OF THE PORTFOLIO.

- SEVERAL EXAMPLES OF PORTFOLIOS – THE GOOD, THE BAD AND THE UGLY

| Symbol	Sector	Market Cap	Close	Change	Net%	Power Rank	Tech Rank	Short Intensity Rank	Short Ratio	Erlanger Option Rank	Type	EVS:D	ETD:D	ECSpread:D	Seasonal Juice 40	CycleR	DMA Channel:D	DMA Channel:W	DMA Channel:M
A	Pharmaceuticals	49090000000	162.16	0.62	0.38%	66%	50%	99%	2.87	36%	0	14.16	Rally	Up	55	0.16	Above	Inside From Below	Above
ROK	Capital Goods	39140000000	344.77	2.82	0.82%	86%	80%	98%	4.78	0%	1	19.68	Up Trend	Pullback	14	0.44	Above	Above	Above
SPGI	Media	109840000000	463.93	-1.57	-0.34%	65%	50%	95%	12.78	76%	0	14.93	Pullback	Pullback	4	0.60	Above	Above	Above
UNH	Health Care Equip & Serv	433690000000	449.47	0.52	0.12%	58%	40%	94%	2.25	35%	0	1.79	Pullback	Pullback	48	-0.25	Below	Above	Above
KLAC	Technology: Semiconductors	61510000000	423.24	3.40	0.81%	93%	100%	80%	2.71	2%	1	30.75	Up Trend	Pullback	16	0.06	Above	Above	Above
GILD	Pharmaceuticals	84800000000	67.79	0.33	0.49%	40%	20%	80%	2.92	96%	3	10.15	Rally	Up	9	-0.03	Above	Below	Inside From Above
FCX	Materials	60460000000	38.79	-0.08	-0.21%	51%	40%	74%	1.47	82%	0	-2.39	Pullback	Pullback	-6	0.11	Inside From Above	Above	Inside From Above
EXPD	Transportation	22740000000	127.51	-0.51	-0.40%	57%	50%	71%	3.47	69%	0	4.36	Up Trend	Up	8	0.31	Inside From Above	Above	Above

ARE WE A FIT?

- CONFUSED BY PRICE ACTION?

- CAUGHT IN A SHORT SQUEEZE WITH A SHORT POSITION?

- OWN A STOCK THAT KEEPS GOING DOWN DAY AFTER DAY BECAUSE IT IS A LONG SQUEEZE?

- MISSED A BIG PART OF THE MOVE UP OR DOWN?

- OVERSTAYED WELCOME?

- POSITION ESTABLISHED TOO EARLY?

- INCREASED OVERALL EXPOSURE AT WRONG TIME?

- WHIPSAWED BY SECTOR/GROUP ROTATION?

- FAILED TO UNDERSTAND IMPACT OF SHORT INTEREST?

- DID NOT REALIZE SEASONAL IMPACT ON PRICE?

- NEED HELP ON IDEA GENERATION?

ABILITY TO MONITOR PORTFOLIOS

- CHARTBOOKS

- QUOTESHEETS

- EMAILS

- FTP FILES

- SCANS INSIDE ERLANGER CHART ROOM
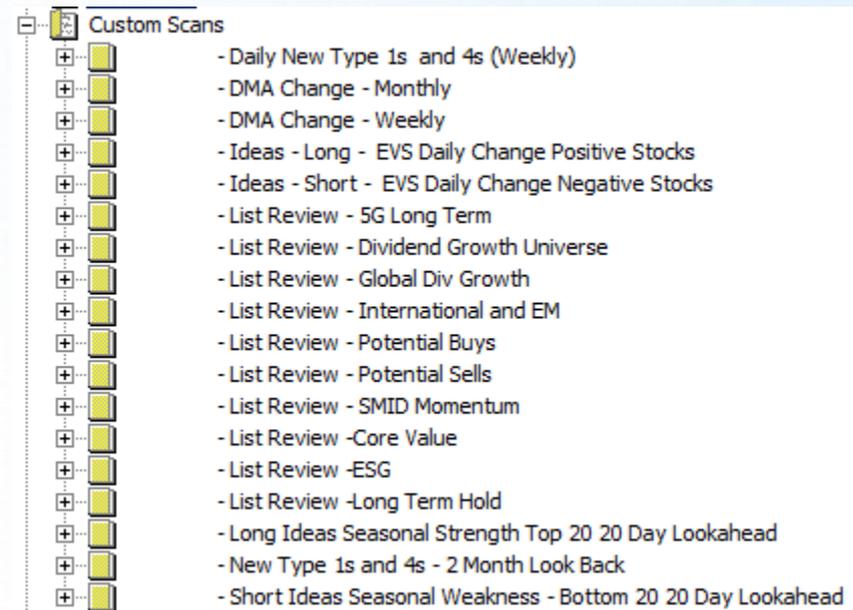
Custom Scans
- Daily New Type 1s and 4s (Weekly)
- DMA Change - Monthly
- DMA Change - Weekly
- Ideas - Long - EVS Daily Change Positive Stocks
- Ideas - Short - EVS Daily Change Negative Stocks
- List Review - 5G Long Term
- List Review - Dividend Growth Universe
- List Review - Global Div Growth
- List Review - International and EM
- List Review - Potential Buys
- List Review - Potential Sells
- List Review - SMID Momentum
- List Review -Core Value
- List Review -ESG
- List Review -Long Term Hold
- Long Ideas Seasonal Strength Top 20 20 Day Lookahead
- New Type 1s and 4s - 2 Month Look Back
- Short Ideas Seasonal Weakness - Bottom 20 20 Day Lookahead

IDEA GENERATION

- WEEKLY CHART BOOK OF LONG & SHORT IDEAS EACH FRIDAY. WEEKLY REVIEW AS WELL.

- WEEKLY TYPES SCREEN ON LARGE/MID CAP NAMES WITH PROVEN RESULTS.

- WEEKLY PORTFOLIOS ON SHORTS, FINANCE & CONSUMER/TECH WITH PROVEN RESULTS ERLANGER CHART ROOM PROVIDES CUSTOMIZED SCANS.

- CHARTBOOK OF SELLSIDE RECOMMENDATIONS
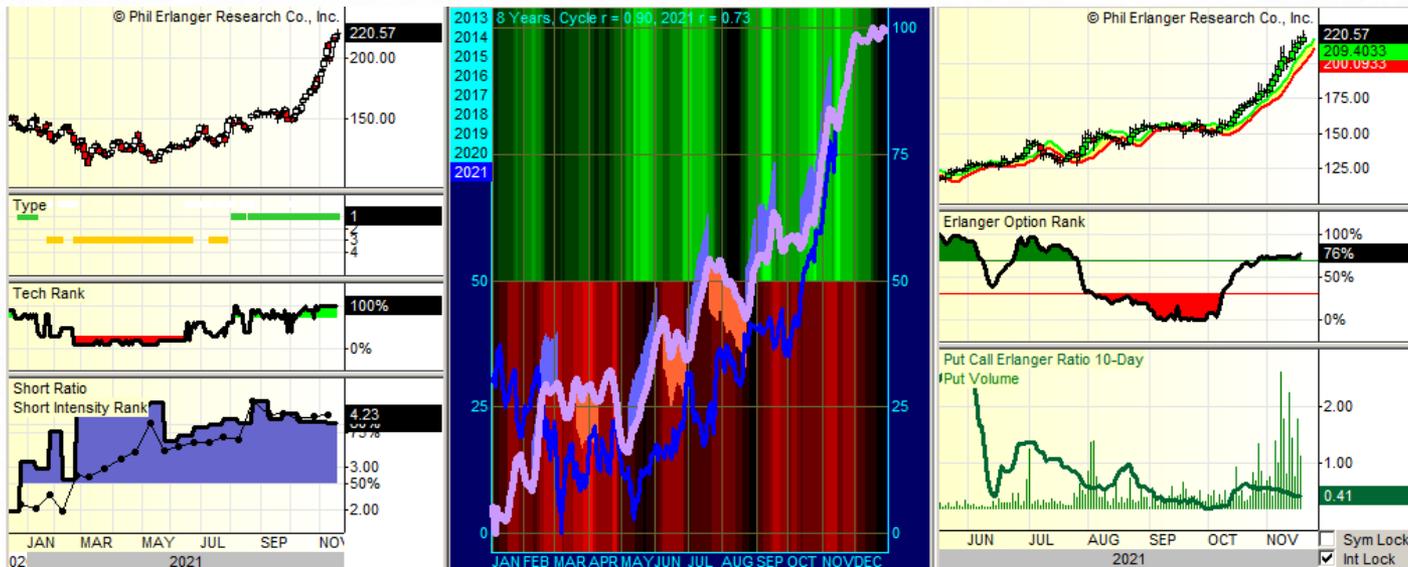
SUMMARY

- IF YOU DO NOT HAVE A SYSTEMATIC PROCESS, THEN WE ARE A PERFECT FIT.

- UPON REVIEW, IF YOU ANSWERED "YES" TO ONE OR MORE OF THE QUESTIONS ON PAGE EIGHT OF OUR PRESENTATION THEN YOU ARE ALSO A PERFECT FIT TO BE A USER OF OUR WORK.

WHAT RAIS DOES

- RAIS ANALYZES RISK ACROSS THREE KEY DIMENSIONS.

- RISK IS THE LEAST ANALYZED FACTOR ON WALL STREET AND YET IT IS A POWERFUL DETERMINANT OF RETURNS.

- A STRONG UNDERSTANDING OF MARKET RISK GIVES CONFIDENCE WHEN IT IS APPROPRIATE TO BE "RISK ON" OR "RISK OFF".

- THREE SPECIFIC AREAS ALLOW US TO PROPERLY UNDERSTAND RISK

INTEREST RATES

- INTEREST RATE MOVEMENTS IMPACT THE COST OF CAPITAL.

- THEREFORE, IMPORTANT TO UNDERSTAND WHAT SECTORS BENEFIT AND ARE HURT BY RATE CHANGES.

- FORECASTING RATES IS TOUGH TO DO AND WE TAKE A DIFFERENT APPROACH.

- ONCE WE GET THE BOUNDARIES CORRECT THROUGH A FACTBASED APPROACH THEN CONFIDENCE IMPROVES.

WHAT IS THE RISK?

WHAT IS THE RISK NOW?

LATTICE WORK OF THE OPTIONS MARKET

- ONE POWERFUL TOOL TO TRACK IS THE STRUCTURE OF THE OPTIONS MARKET.

- OPTIONS TRADING NOW DOMINATES MARKET ACTION AS OPTIONS EXPIRE THREE TIMES PER WEEK IN ADDITION TO NORMAL MONTHLY AND QUARTERLIES.

- PERIODICALLY, TRADERS GET CAUGHT "OFFSIDES" WITH THEIR HEDGING, WHEN THIS OCCURS, IT CREATES OPPORTUNITIES FOR ATTENTIVE PM'S TO CAPITALIZE.

- EVERYONE NEEDS A TOOL SET TO DETERMINE WHEN TO BUY VOLATILITY WHEN IT IS CHEAP, AND WHEN TO SELL VOLATILITY WHEN IT IS PRICED EXPENSIVELY.

EQUITY SELECTION IN RISK REGIMES

- CERTAIN SECTORS PERFORM WELL IN CERTAIN RISK REGIMES... OTHERS DO NOT

- GETTING THAT ROTATION RIGHT CAN MAKE OR BREAK AN ENTIRE YEAR OF PERFORMANCE.

- HOW DO WE DO THIS?

- WE FOCUS ON HOW THE COST OF CAPITAL IS SHIFTING. ➔WE MAINTAIN A KEEN EYE ON THE LEVEL AND DIRECTION OF INTEREST RATES AND THE LEVEL AND TREND IN CREDIT SPREADS

- CURRENT THINKING.

EXAMPLE: 2021 RISK REGIME #1

- THIS RISK REGIME WAS DEFINED BY A RESETTING OF 10Y YIELD HIGHER, FROM 1.21% UP TO 1.625%

- THIS SHIFT LED TO SIGNIFICANT DISPERSION IN RETURNS AS "REFLATION TRADE" WAS LED BY ENERGY & FINANCIALS, WHILE TECH AND CONSUMER DISCRETIONARY LAGGED

2021 Risk Regime #1 2/12/21 - 6/3/21
— Financials +22.3% — Tech -.7% — SPY +7.0% --- 10Y Tld (rhs)
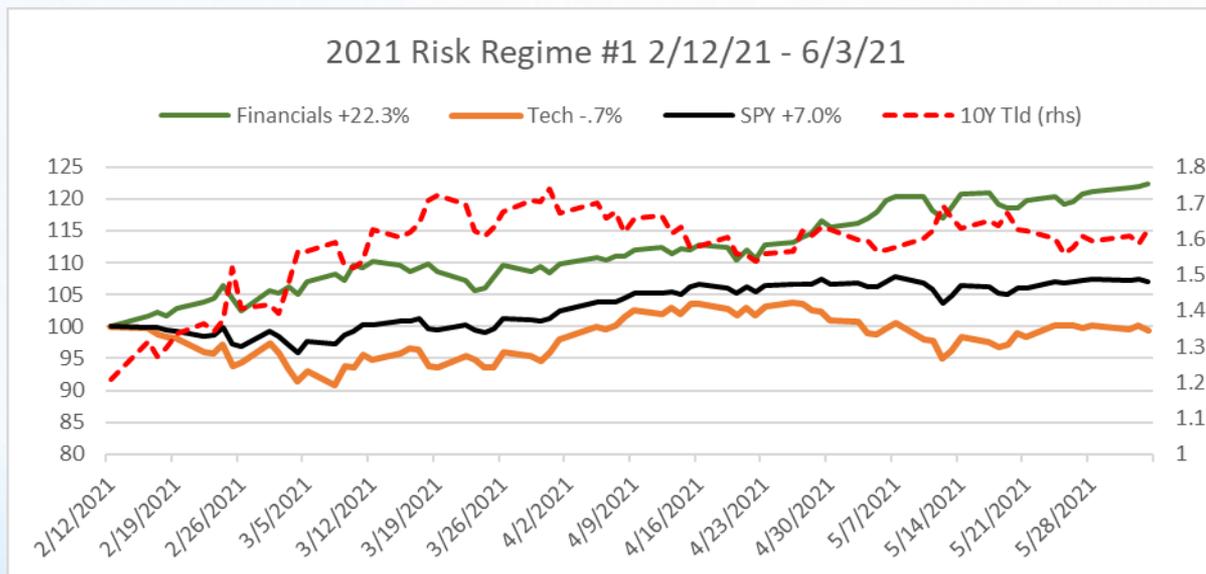
		From: 2/12/2021	To: 6/3/2021
1	Energy		25.30%
2	Financials		22.28%
3	Materials		18.50%
4	Real Estate		17.17%
5	Industrials		16.64%
6	Cons.Staples		9.07%
7	Comm.Services		7.13%
8	SPY (TR)		7.00%
9	Utilities		5.36%
10	HealthCare		4.20%
11	Cons.Discret.		(0.22%)
12	Technology		(0.67%)
	10y - chg in yield		0.42%

EXAMPLE: 2021 RISK REGIME #1

- WE APPLY THE SAME PROCESS TO HELP US SELECT LARGE CAPS VS SMALL CAPS VS MID-CAPS VS EQUAL-WEIGHTED S&P, QQQ.

- BY IDENTIFYING THE INDICES THAT ARE MORE LIKELY TO BENEFIT DURING A NEW RISK REGIME THIS SERVES TO PROVIDE THE PORTFOLIO WITH STRONGER ALPHA POTENTIAL AND HELPS TO AVOID HEADWINDS.

2021 Risk Regime #1 — SPY, MDY, RSP, IWM, QQQ
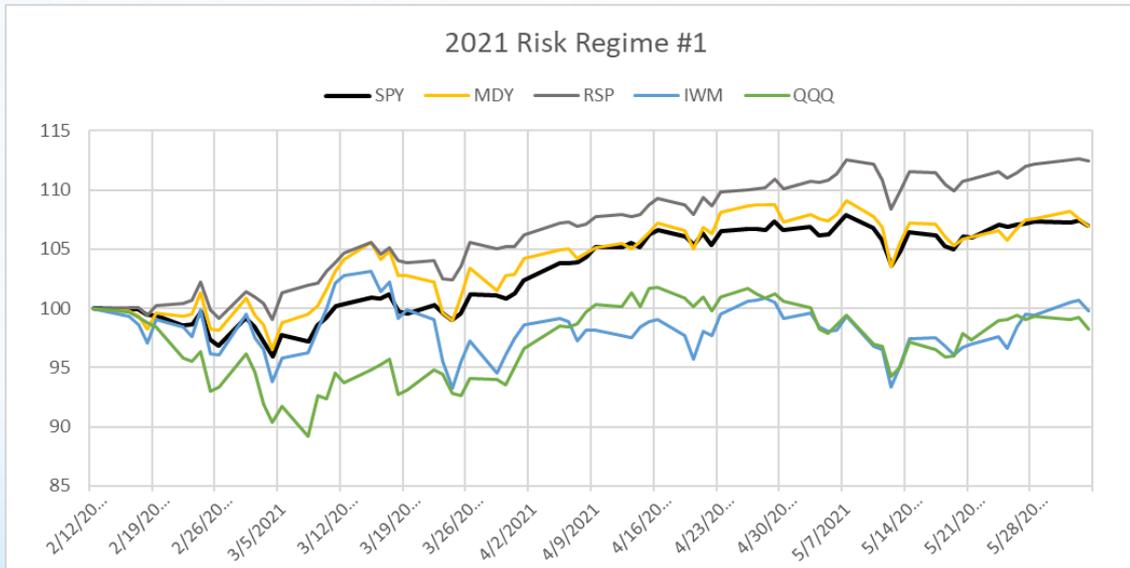
TOTAL RETURN	
From:	**To:**
2/12/2021	**6/3/2021**
SPY	7.00%
RSP	12.49%
MDY	6.95%
IWM	(0.19%)
QQQ	(1.80%)

CURRENT OUTLOOK 4Q 2021

- 2021 RISK REGIME #3 BEGAN ON 9/22/21. THIS RISK REGIME IS CHARACTERIZED BY RISING 10Y YIELDS THAT IS NOW COUPLED WITH THE RISK OF A POLICY ERROR BY THE FED (I.E., DOVISH MONETARY POLICY MAY STOKE INFLATION).

S&P 500 Sector Leaders
2021 Risk Regime #3 ==> 9/22/21 - Present
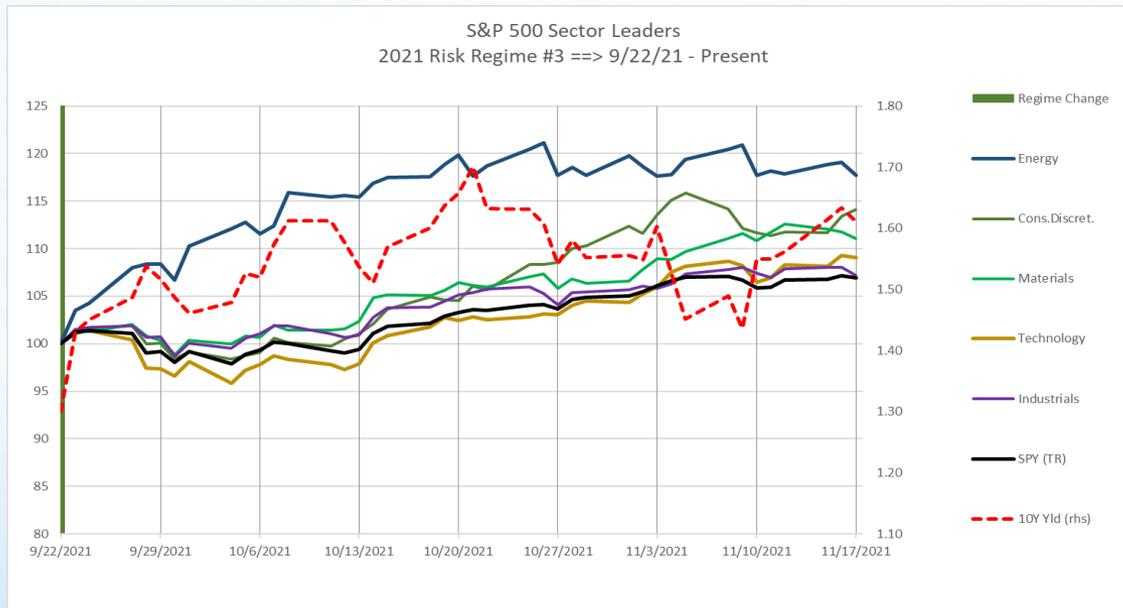
		From: 9/22/2021	To: 11/17/2021
1	Energy		17.71%
2	Cons.Discret.		14.10%
3	Materials		11.09%
4	Technology		9.05%
5	Industrials		7.17%
6	SPY (TR)		6.91%
7	Financials		6.76%
8	Cons.Staples		3.31%
9	Real Estate		2.53%
10	Utilities		2.49%
11	HealthCare		1.53%
12	Comm.Services		(0.52%)
	10y - chg in yield		0.33%

HOW WE BRING THIS TOGETHER

- THREE PIECES A WEEK.

- MONDAY = RATES.

- WEDNESDAY = EQUITY SELECTION.

- FRIDAY = LATTICE WORK OF OPTIONS MARKET

- CUSTOM PIECES WHERE WE OPINE ON TOPICAL ISSUES

- CONFIRMATION OF THINKING WITH ERLANGER WORK