Subject: Daily report explanatory notes, Dashboard 1
Version: 0.9
Date: Jan 02, 2023
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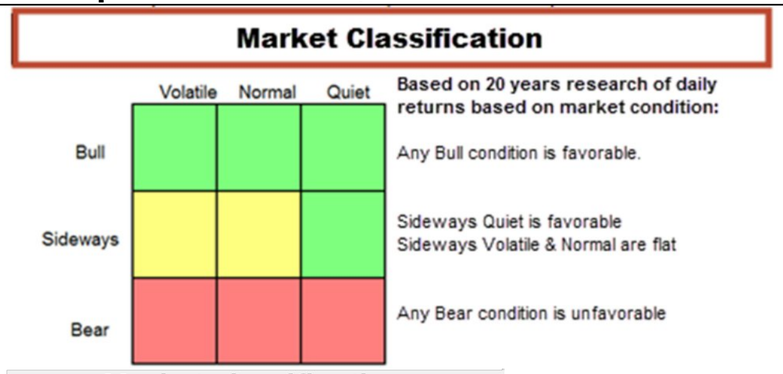
Description	Example from Dec 23, 2013
1. **Market Classification:** o Shows market condition in one of 9 conditions, based on the daily close o Market classification has 2 dimensions: ▪ Bull-Sideways-Bear: based on price relative to the 200 day MA. ▪ Sideways is within 2% of the SMA200 ▪ Volatile-Normal-Quiet based on the ATR%(14) compared to the statistics of the ATR%(14) of the last 100 days. ▪ Normal Volatility is within 1x StDev of Avg o Over the life of SPY any Bull and Sideways quiet are (on average) favorable for the long side for the next day o Sideways Volatile and Sideways Normal are (on average) flat and any Bear has been negative o The details behind the model and the research study are described in an info paper	 Market classification 5/23/2020 | Volatile | Normal | Quiet Bullish | 0-Jan | 1-Jan | 0-Jan Sideways | 1-Jan | | 1-Jan Bearish | 0-Jan | 1-Jan | 0-Jan
2. **NDX analysis of 5 lookback periods:** o Lookbacks: 3,10,30,90, 270 days o Threshholds: ▪ Overbought >80 ▪ Neutral: 20<->80 ▪ Oversold: <20	Annual | Quarter | Month | 2week | Cycle SPY | -270 | -90 | -30 | -10 | -3 Overbought | | | 91 | 90 | Neutral | 64 | 64 | | | 42 Oversold | | | | |

5/23/2020	Comment	Measure	Value	Comment
	Price relative to 200day Ma, Sideways +/-2%	200dma	-1.38%	Sideways
	Trend strength (ADX 14) >25 string, <15 weak	ADX(14)	13.9	Weak
	Relative Volatility (ATR% vs StDev over last 100 days)	ATR%(100)	2.06%	Normal
	Risk Index: ^VIX MA(30/10); <=1.0 is Risk Off	^VIX MA(30/10)	1.122	Risk On
	Z score of ^VIX MA(30/10), n= 5000; normal between 1, -1	Risk Z	1.06	Abnormal(+)

3. **Market Mosaic:** A collection of additional indicators to describe assorted aspects of market condition which we call the "Market Mosaic". Many of these indicators are coded Green-White-Yellow-Red using descriptive statistics. We do this by taking a population of data and finding the Max, the Min, the Average, and the standard deviation.
    - Green: more than 1 Standard deviation above average
    - White: between Average and Average +1 standard deviation
    - Yellow: between Average and Average - 1standard deviation
    - Red: more than 1 standard deviation less than average

    a. **Price Relative to the 200 Day MA:** Computes the % distance to the 200 DMA and compares that value to the stats of the last 180 days to define the condition as Green-White-Yellow-Red. Also used in the Market Model to determine Bull-Sideways-Bear conditions. Described in further detail in an info paper.

    b. **ADX (14):** Standard indicator that measures strength of trend using thresholds of 25 and 15 to represent Strongly Trending and Un-trending respectively.

    c. **Relative Volatility: ATR% (100)** Describes the market's volatility condition as part of the market classification system. Computed by comparing the ATR % (14) to the statistics of ATR % over the last 100 days, with these definitions:

        a. ATR%(14) equals ATR (14)/Price
        b. Volatile: today's ATR % (14) is more than 1 SD > 100 day average.
        c. Normal: today's ATR % (14) is within 1 SD of the 100 day average
        d. Quiet: today's ATR % (14) is more than 1 SD < 100 day average

    d. **Risk Index:** Based on research, the market is favorable to hold riskier assets ("Risk-On") when the 30 period MA of the ˆVIX is greater than the 10 period MA. It is unfavorable to hold riskier assets when the 10 period MA is greater than the 30 period MA. The Risk Index is calculated by dividing the ˆVIX MA (30) by the MA (10), and uses the following definitions:
        a. "Risk On" : Risk Index >= 1.0
        b. "Risk Off": Risk Index < 1.0

    e. **Risk-Z:** Takes the calculated value of the Risk Index and compares it to the statistics of the last 5000 trading days, then finds the Z-score. We then plot the time series of the Z-score over the last 180 days and look for key turning points after the indicator reaches extreme conditions (i.e. greater then + or - 1 SDs from the 6 month mean).

4. **Gap Behavior:** The Gap statistics describe the behavior of the market at the open, compared to the previous close using the following definitions:

- Gap equals the difference between today's open and yesterday's close (O-C (-1))
- Follow Through equals the difference between today's Open and today's Close (C-O)
- The market can only gap up or gap down. I classify "no gap" as a gap Up of size 0
- The market can only follow through higher or lower. I classify "no follow through" as a follow through Up of size 0
- We examine the behavior of the last 30 days and of the last 200 days for reference

Method: For Each Time Period: Calculate the number of times the market did one of the 4 possible things each day then compute the average Follow Through for each condition:

- Gap Down - close lower than the opening (label: gap down, drop)
- Gap Down - reverse to close higher than the opening (label: gap down, reverse)
- Gap Up - reverse to close lower than the opening (label: gap up, reverse)
- Gap Up - close higher than the opening (label: gap up, gain)

Gap stats	last 200 days			last 30 days		
gap down, drop	7.5%	15	-0.49%	3.3%	1	-0.17%
gap down, reverse	6.5%	13	0.53%	0.0%	0	1.30%
gap up, reverse	71.5%	143	-0.77%	63.3%	19	-0.62%
gap up, gain	15.0%	30	0.37%	33.3%	10	0.38%

5. **Gap Statistic:** This indicator may show some short term patterns of behavior associated with the gap which may provide actionable information.
   - Purpose: describe the characteristics of normal and exceptional gaps
   - Our correlation research indicates that the size of the gap is correlated to the size of the Follow Through, BUT does NOT correlate with nor predict the direction of the Follow Through. What we can say is that when you see an exceptionally large gap, you should be prepared for an exceptionally volatile Follow Through the rest of the day. This is an edge for intra-day traders

   The Gap Statistics describes the behavior of the market at the open compared to the previous close using the following definitions:

   - Gap is the difference between today's open and yesterday's close (O-C (-1))
   - Follow Through equals the difference between today's Open and today's Close (C-O)
   - Normal gap is within 1 standard deviation of the average gap
   - Exceptionally large gap is an opening more than one standard deviation greater than average (in either direction)

Gaps:	SPY
max	2.08%
avg	0.59%
min	-0.87%
STD	0.58%

6. **Intraday Moves:** This table describes the behavior of the intraday market's intraday range defined as:

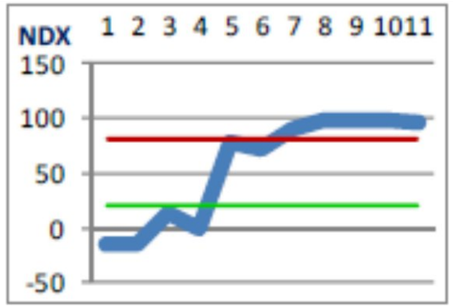
- Range equals the difference between today's High and today's Low (H-L)
- We do this by taking the range of the last 200 trading days then finding the Max, the Min, the Average, and the Standard Deviation
- Purpose: to help us understand the difference between normal and exceptional intraday trading opportunities.
- We take the Range as the theoretically best possible 1 way trade intraday.
- These statistics help us calibrate what are reasonable places to take profits after observable moves

Intraday moves	
Max	2.82%
+1SD	1.28%
Avg	0.87%
-1SD	0.45%
Min	0.26%
StDev	0.41%

7. **NDX Indicator:** This chart is a 10 day time series of the NDX (10). The NDX is a Tortoise-developed indicator. It's an oscillator that closely resembles Williams's %R but which offers 2 important additional insights not available in %R.
   - Method:
     - For the daily NDX (10), we examine the previous 10 days and find the highest high and lowest low.
     - We set the highest high to 100 and the lowest low to 0, and then compute the value of the current price (or the Close) using the formula:

       100* (Price- Low) / (High - Low)

     - We use 80/20 as the thresholds for Overbought and Oversold respectively
     - Closes that are higher than the previous "x day" high can have a value > 100
     - Closes less than the previous "x day" low can have a value < 0
     - The number value will tell you the magnitude of the breakout compared to the "x-day" trading range



8. **Risk Index:** Based on research the market is favorable to hold riskier assets ("Risk-On") when the 30 period MA of the ˆVIX is greater than the 10 period MA. It is unfavorable to hold riskier assets when the 10 period MA is greater than the 30 period MA.

	20 yr lookback			
Risk Z	VIX	Z VIX	Index	Z
max	80.86	7.13	1.271	3.260
+1sd	29.20	1.00	1.087	1.000
avg	20.76	0.00	1.006	0.000
-1sd	12.33	-1.00	0.924	-1.000
min	9.89	-1.29	0.699	-3.766
sd	8.43	1.00	0.081	1.000
today	12.33	-1.00	0.981	-0.299

9. **Risk-Z:** Takes the calculated value of the Risk Index and compares it to the statistics of the last 5000 trading days then finds the Z-score. Next we plot the

time series of the Z-score over the last 90 days and look for key turning points after the indicator reaches extreme conditions (i.e. greater then + or - 1 SDs from the 6 month mean).

- The table summarizes the performance of the ˆVIX over the last 20 years in the first 2 columns and the performance of the Risk Index in column 3 & 4
- The Risk index is computed by dividing the ˆVIX MA (30) by the MA (10)
- When the value is exactly 1.0 then the 2 MAs are identical
- When the index is >1 then the MA (30) is > than the MA (10) and the market is in "Risk On" conditions
- When the index is <1 then the MA (30) is < than the MA (10) and the market is in "Risk Off" conditions
- The Z scores of the ˆVIX (col 2) and Risk-Z (col 4) give a way to compare the ˆVIX reading with that of the Risk Index
- The Risk Index computed from the two MAs is necessarily slower to change (i.e. smoother than the readings on the ˆVIX, which changes much more on a daily basis)

	20 yr lookback			
Risk Z	VIX	Z VIX	Index	Z
max	80.86	7.13	1.271	3.260
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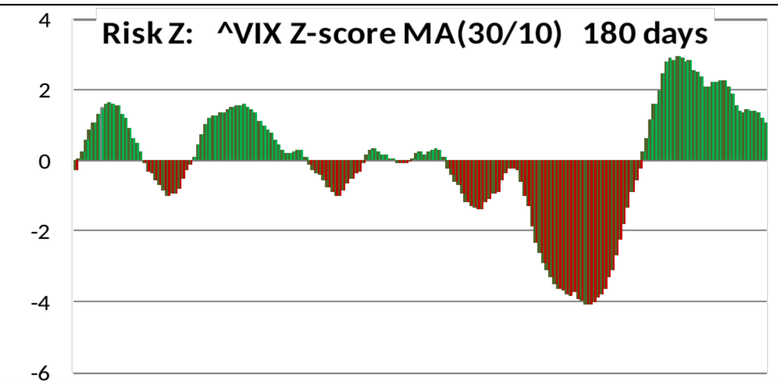
sd	8.43	1.00	0.081	1.000
today	12.33	-1.00	0.981	-0.299

10. **180 Day Time Series of the Risk-Z:** Turning points that occur more than 1 SD from the 0 line are significant and can lead to some exceptional swing trades in VXX. Look to trade XIV when the oscillator reverses upwards and VXX when the oscillator peaks and reverses downward. I recommend VXX only be traded intraday.



11. **Channeling and Overreaction System Summary:** Describes the signals from 2 high probability mechanical swing systems

12/21/2013		Overreaction System:						Today's Signals			
Long Rules		SPY	QQQ	DIA	MDY	IWM	EFA	EPP	ILF	EEM	IEV
Rule 1	Close > 200DMA	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes
Rule 2	Daily High < 10DMA	No	No	No	No	No	No	No	No	Yes	No
Rule 3	Close < Long Trigger	No	No	No	No	No	No	No	No	No	No
Short rules		SPY	QQQ	DIA	MDY	IWM	EFA	EPP	ILF	EEM	IEV
Rule 1	Close < 200DMA	No	No	No	No	No	No	Yes	Yes	Yes	No
Rule 2	Daily Low > 10DMA	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
Rule 3	Close > Short Trigger	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes

Index Channelling Rules	SPY	QQQ	MDY	IWM	EFA	EPP	ILF	EEM	IEV
(1) Close > 200DMA	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
(2) Williams%R (10) < -80	No	No	No	No	No	No	Yes	Yes	No
(3) Buy another position if Williams%R(10) <-80 while in the trade									
(4) Exit when Williams%R >-30 at the close or the next morning									

12. **Daily Pivot tables:** Computes the Support and Resistance levels of US index ETFs based on formulas used by futures pit traders for the corresponding futures contract. It is not surprising when these price levels become important turning points for price intraday.

Daily Pivots					
	SPY	DIA	QQQ	MDY	IWM
High	181.99	162.53	86.68	239.88	114.22
Low	180.5683	161.61	85.73	237.04	112.09
Close	181.56	162.01	86.5	239.67	113.93
R3	183.60	163.41	87.83	243.53	116.87
R2	182.79	162.97	87.25	241.70	115.54
R1	182.18	162.49	86.88	240.69	114.74
Pivot	181.37	162.05	86.30	238.86	113.41
S1	180.76	161.57	85.93	237.85	112.61
S2	179.95	161.13	85.35	236.02	111.28
S3	179.33	160.65	84.98	235.01	110.48

13. **Min and Max Pain:**
    - 10 Day Min Pain: these are the 5 symbols of each population that have lost the least % from the 10 day high
    - 10 Day Max Pain: these are the 5 symbols of each population that have lost the most % from the 10 day high
    - My hypothesis is that the "Max Pain" candidates are the most likely in that population to have:
        1) To have experienced an overreaction from fear-based selling thus creating a short term retracement opportunity
        2) To be good candidates for shorting if the failure continues

1

Market classification

30/2022	Volatile	Normal	Quiet
Bullish	6-Jan	4-Jan	6-Jan
Sideways	6-Jan	4-Jan	6-Jan
Bearish	4-Jan	2-Jan	4-Jan

2

Multi-time frame NDX

	Annual	Quarter	Month	2week	Cycle
SPY	-270	-90	-30	-10	-2
Overbought					
Neutral +				61	68
Neutral -	26	48	21		
Oversold					

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12/30/2022	Comment	Measure	Value	Comment
	(Long term trend) Price relative to 200day MA	200dma	-4.30%	Bearish
	Intermediate trend strength (ADX over last 14 days)	ADX(14)	16.1	Neutral
	Relative Volatility (ATR% vs StDev over last 100 days)	ATR%(100)	1.92%	Normal
	Risk Index: ^VIX MA(30/10); <=1.0 is Risk Off	^VIX MA(30/10)	1.008	Risk On
	Z score of ^VIX MA(30/10), n= 5000; normal between 1, -1	Risk Z	-0.04	Neutral

The Market Mosaic: *(Hat tip to Robert Gardner, legendary trader, mentor and friend)*
a collection of indicators I use to describe different aspects of the market condition from independent perspectives.

4 **Gap statistics** describe the recent behavior of SPY from Close to Open

Gap stats	last 200 days			last 30 days		
gap down, drop	31%	62	-0.96%	37%	11	-0.74%
gap down, reverse	26%	52	0.96%	27%	8	0.59%
gap up, reverse	19%	37	-1.05%	17%	5	-0.78%
gap up, gain	25%	50	0.97%	20%	6	1.20%

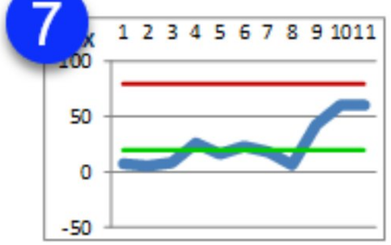
5

Gaps:	SPY
max	3.72%
avg	-0.06%
min	-2.55%
STD	0.87%

6

Intraday moves	
Max	5.6%
+1SD	2.6%
Avg	1.8%
-1SD	1.0%
Min	0.3%
StDev	0.8%

7

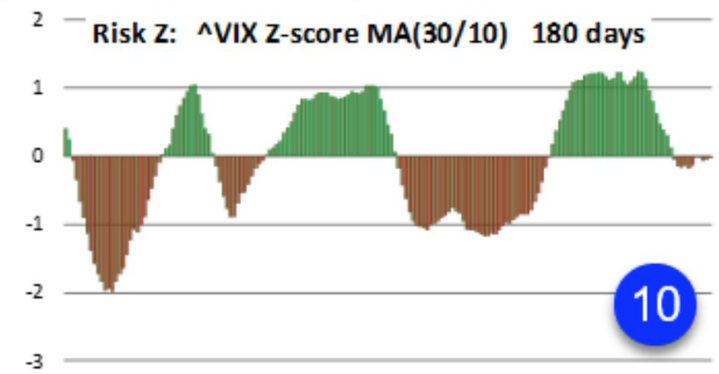


NDX(10): SPY price location, last 10 days

8 **Risk-Z:** a stats-based indicator that guides our approach to swing trade opportunities

	20 yr lookback			
Risk Z	VIX	Z VIX	Index	Z
max	82.7	8.70	1.32	2.93
+1sd	26.0	1.00	1.12	1.00
avg	18.7	0.00	1.01	0.00
-1sd	11.3	-1.00	0.91	-1.00
min	9.1	-1.29	0.58	-4.10
sd	7.4	1.00	0.11	1.00
today	21.7	0.41	1.01	-0.04

9



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11 **Channeling and Overreaction** systems are conservative, purely-mechanical systems for the large indexes

12/30/2022		Overreaction System						Today's Signals			
Long Rules		SPY	QQQ	DIA	MDY	IWM	EFA	EPP	ILF	EEM	IEV
Rule 1	Close > 200DMA	No	No	Yes	No	No	Yes	No	No	No	Yes
Rule 2	Daily High < 10DMA	No	Yes	No	No	No	No	No	No	No	No
Rule 3	Close < Long Trigger	No	No	No	No	No	No	No	No	No	No
Short rules		SPY	QQQ	DIA	MDY	IWM	EFA	EPP	ILF	EEM	IEV
Rule 1	Close < 200DMA	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No
Rule 2	Daily Low > 10DMA	No	No	No	No	No	No	No	No	No	No
Rule 3	Close > Short Trigger	No	No	No	No	No	No	No	No	No	No

Index Channelling Rules	SPY	QQQ	MDY	IWM	EFA	EPP	ILF	EEM	IEV
(1) Close > 200DMA	No	No	No	No	Yes	No	No	No	Yes
(2) Williams% R (10) < -80	No	No	No	No	No	No	No	No	No
(3) Buy another position if Williams% R(10) <-80 while in the trade									
(4) Exit when Williams% R >-30 at the close or the next morning									

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12 **Pivot points ID** intraday support and resistance. See: futures

Daily Pivots	SPY	DIA	QQQ	MDY	IWM
High	382.58	331.40	266.41	443.66	174.72
Low	378.43	328.35	262.29	439.18	172.61
Close	382.43	331.33	266.28	442.79	174.36
R3	388.01	335.43	271.82	449.05	177.29
R2	385.30	333.41	269.11	446.36	176.01
R1	383.86	332.37	267.70	444.57	175.18
Pivot	381.15	330.36	264.99	441.88	173.90
S1	379.71	329.32	263.58	440.09	173.07
S2	377.00	327.30	260.87	437.40	171.79
S3	375.56	326.26	259.46	435.61	170.96

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12/30/2022	10 day Min Pain	10 day Max Pain
Dow 30	JPM, XOM, V, CVX, AXP	TSLA, WBA, DIS , MSFT, HD
ETF100	SHV, FXE, XLF, IWD, XBI	UNG, TLT, WIZ, XLY, EWW

Min Pain and Max Pain are measured as a percentage loss from the symbols' 10 day high.

I use these to find relative strength winners and losers for short term opportunity trades(1-2 days in length)