ROLLIN' AND TUMBLIN' IN US NATURAL GAS

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"Well, I rolled and I tumbled, cried the whole night long Well, I woke up this mornin', didn't know right from wrong". Muddy Waters, "Rollin' and Tumblin'"

CONCLUSION AND OVERVIEW

In all marketplace battlefields, a wide variety of storytellers select between (and emphasize differently) an array of variables. They thereby generate diverse bullish and bearish arguments that heatedly compete for allegiance and action. And analysis and trading always are difficult enterprises. However, in the United States natural gas universe nowadays, the noise, smoke, and uncertainty produced by these diverse variables and conflicting perspectives and recommendations make it especially challenging to boldly swear unquestioning loyalty to a particular marketplace viewpoint.

What does historical analysis of major United States natural gas bear marketplace moves (NYMEX nearest futures continuation basis) in the context of days coverage reveal regarding the ending of the major bear trend that emerged in late February 2014? Perhaps 4/13/15's 2.475 low was an important trough; however, several days of course remain in April and many key bottoms have occurred around contract expiration. If a noteworthy bottom is not established in calendar April 2015, the most probable time for a major low is in late August/calendar September 2015. NYMEX natural gas reached many important bottoms in late calendar August and September. However, a final low in late summer 2015 would stretch out the February 2014 bear marketplace trend substantially longer than the historical average.

In any case, if NYMEX natural gas prices pierce 4/13/15's low (nearest futures continuation), that level probably will not be broken by much. Substantial support lurks around 2.40 and 2.20/2.15.

How clear is the natural gas scene?

Yes, the natural gas bear marketplace trend that emerged in late February 2014 still looks fairly ferocious. The percentage slump since the February peak has been slightly less than the average for previous major bear declines. Yet that retreat already has run longer in time than average and most previous major bear trends (NYMEX nearest futures continuation basis). And April 2015 is the three year anniversary of the major bottom at 4/19/12 at 1.902. In addition, current and probable prospective inventory level days coverage probably stands on the average to slightly low side, a bullish consideration (particularly in the context of NYMEX gas prices well under 4.00).

Uncertainty derives from whether the upcoming summer will be torrid or cool. Will winter 2015-16 be freezing or warm?

Coal and electricity playgrounds of course interrelate with natural gas ones. The EIA's STEO declares (p2): "Power generators are using more natural gas than last year, primarily because of lower natural gas prices compared with coal prices. The use of natural gas-fired generation is expected to average 30.4% of total generation in 2015 compared with 27.4% during 2014." How much fuel switching from coal to gas will occur this summer, especially if prices remain under 3.00 (or sustain a drop under 2.50), especially for a significant strip of contract months)?

Coal retirements continue, which should help natural gas demand. Yet renewable energy sources creep higher in importance in many regions. What will be the outcome of heated legal battles related to the Clean Air Act and coal power plants?

Drilling rig counts have tumbled, but drilling productivity has advanced during the shale revolution. US total marketed production has risen sharply in recent years, a key bearish consideration. Output climbs sharply in calendar 2015 relative to 2014, over 3.7bcf/day (five percent; US Energy Information Administration, Short-Term Energy Outlook, "STEO", Table 5a; 4/7/15, next release 5/12/15). Are debt burdens forcing some US natural gas producers to maximize production to pay off creditors and stay in business? In any case, especially if lower prices are sustained, arguably US natural gas (and petroleum) output growth eventually may slow. The EIA predicts 2016 natural gas production edges up a modest 1.9 percent (1.5bcf/d) year-on-year. What gas price (use NYMEX as a benchmark, with basis relationships in mind) will encourage drillers in the Marcellus region (or other areas) to slow or stop new drilling projects? Keep an eye on the Canadian natural gas scene (and Mexican imports too).

What about US consumption? It has been on an upward trend for several years, and it blossoms about 3.9pc (about 2.9bcf/d) in calendar 2015 versus 2014. However, 2015's projected gas demand increase is less than that in production. Moreover, underline the bearish gas demand tumble of .5bcf/d (roughly one pc) in 2016 gas relative to 2015.

US LNG exports arguably are a significant bullish variable for America's natural gas arena. However, this is more of a longer run factor because near-term prospects are relatively modest. See the EIA's "Natural Gas Weekly Update" (4/16/15) and its "Annual Energy Outlook 2015"). Fourth quarter 2015 exports will be about .6bcf/day, with 4Q15 roughly 1.1bcf/d (STEO Table 5a).

Will environmental concerns related to fracking grow stronger?

To what extent will OPEC policy and petroleum price trends influence US natural gas output and price trends? Natural gas prices often travel substantially independently of petroleum (and commodities "in general") and of so-called "international" factors. However, especially since mid-to-late June 2014 and into early 2015, bearish natural gas price movements intertwined with those in the petroleum complex and the bull move in the broad real trade-weighted US dollar.

Looking forward, how strong will the US economy be? How will natural gas and other commodity marketplaces respond to a Federal Reserve interest rate rise, or a further round of dollar strength? To what extent will issues such as Eurozone turmoil (as in Greece) and emerging marketplace trends influence US natural gas?

WALKING THE WALK: PRICE, DISTANCE, AND TIME

How best to study and value a stock, interest rate, currency, commodity, or real estate marketplace?

Sugar (Marilyn Monroe) exclaims in the movie "Some Like It Hot" (Billy Wilder, director): "Real diamonds! They must be worth their weight in gold!"

Interpretation of natural gas price history can venture beyond the NYMEX nearest futures continuation contract. Trend hunters may elect to peer at individual actual contract months (such as the NYMEX May 2015 futures contract), several trading months of a season (as in the NYMEX winter 2015-16 strip), calendar years (like the calendar 2018 strip of contracts), spreads (such as NYMEX March 2016/April 2016), prices in other regions than the NYMEX realm, and basis relationships. Marketplace warriors can derive insight into and tell tales regarding natural gas domains and their bull and bear patterns via analyzing electricity, coal, other marketplaces, and assorted additional economic and political phenomena. In natural gas as in other territories, supply/demand investigation can intertwine with so-called technical analysis.

Here follows one perspective on major natural gas bear moves based upon the NYMEX natural gas nearest futures continuation contract.

		Decline	Duration
High; Date	Low; Date	(Percent)	(Months)
1. 4.60; 12/20/96	1.68; 2/24/97	63.5pc	Two
2. 3.85; 10/28/97	1.61; 8/27/98	58.2	Ten
3. 10.10; 12/27/00	1.76; 9/26/01	82.6	Nine
4. 11.90; 2/25/03	4.39; 9/22/03	63.1	Seven
5. 15.78; 12/13/05	4.05; 9/27/06	74.3	Nine and two weeks
6. 13.694; 7/2/08	2.409; 9/4/09	82.4	Fourteen
7. 6.108; 1/7/10	1.902; 4/19/12	68.9	Twenty-seven and one wk

The average distance traveled over these seven bear moves is 70.4 percent. The average duration is about eleven and one-quarter months.

Looking back prior to the December 1996 high does not significantly alter the table's price and time portrait. The 53.4 percent decline from the 3.72 plateau on 12/21/95 to the 1.735 valley on 9/5/96 lasted about nine and a half months (though a final low, as part of a double bottom, arguably occurred 2/24/97 at 1.68). The 60.0pc drop from 11/26/90 at 2.65 to 6/25/91 at 1.06 spent seven months. The 52.3pc fall from 11/5/91 at 2.14 to 1/24/92 at 1.02 lasted two and a half months.

So for the ten bear moves combined, the average fall is about 65.9 percent, with the average duration about nine and three quarter months. (See "Taking Shape: NYMEX Natural Gas Bear Trend History"; 1/19/15).

What about the current marketplace situation? It is a close case as to whether a calendar April 2015 low will be the final bottom in the bear trend that appeared in February 2014. If 4/13/15's 2.475 low is broken, whether this month or later, time and price history on balance signals that prices probably will not fall dramatically beneath this.

The nosedive from the 6.493 major high on 2/24/14 to the low since then, 4/13/15's 2.475, is 61.9 percent and nearly 14 months. The percentage bear move slump from February 2014 through April 2015 is less than average, including the three most recent ones. An average bear move of 65.9 percent gives a target of 2.214 (6.493*.341). A 66pc erosion from 6.493 is 2.162, close to 6/14/12's interim low at 2.168.

However, history indicates the downturn since February 2014 has been sufficiently long in duration to be looking for a noteworthy trend change. It has extended longer in time than eight of 10 big bear moves, and it is about equal to one (2008-09).

In the timing context, keep in mind that a significant April 2015 low, even if interim, finds a calendar parallel in April 2012's major bottom. April 2015'nearest futures continuation 2.475 depth stands close to 9/4/09's 2.409. A five percent breach of 2/6/15's minor low at 2.567 gives 2.439. Half of 6/16/14's 4.886 key drop-off point within the February 2014 bear crash is 2.443, neighboring the September 2009 abyss.

Many important NYMEX natural gas trend changes have occurred around contract expiration.

MARKETPLACE TIMING, CONTINUED: AS THE WORLD TURNS

"To every thing there is a season, and a time to every purpose under the heaven." Ecclesiastes, Chapter 3, verse 1 (King James Version)

Chronicles of calendar month timing of key marketplace trend changes fascinate some soothsayers. What does history reveal regarding prior appearances of very important (major) highs and lows in the NYMEX natural gas nearest futures continuation contract?

**April- major bottom 4/19/12 at 1.902. In ancient times, recall the 4/23/93 top at 2.80.

With the exception of 6/25/91's bottom at 1.06 and the Goldilocks Era 13.694 pinnacle on 7/2/08, no major lows or highs occurred in calendar May, June, and July (although there were some interim/minor ones such as 6/16/14's 4.886 and 6/9/11's 4.983). Therefore, if the final low of the bear trend is not created in April 2015, this bear move probably will end in late August or calendar September. However, marketplace history is not marketplace destiny; one should not be dogmatic about calendar month timing, especially as late August/calendar September timing makes the bear move from February 2014 a very long one from the historical perspective.

**Several very important natural gas lows appeared in late August and calendar September. Recall 8/27/98 at 1.61, 9/26/01 at 1.76, 9/22/03 at 4.39, 9/16/04 (final bottom) at 4.52, 9/27/06 at 4.05, and 9/4/09's 2.41. In the current context, keep in mind the interim low of 8/29/12 at 2.58.

With the exception of a top almost 20 years ago (9/23/92 at 2.79), highly significant summits have not occurred in this August/September calendar period window.

What about lows in early August? Possible, but less likely. An important trough occurred about 25 years ago at 1.396 on 8/1/90. The 8/8/13 low at 3.129 was very significant (it matched 2/15/13's 3.125 level and approached 1/2/13's 3.050), but it was not an interim low, not a major bottom.

**October- Key October highs are 10/28/97 at 3.85, 10/28/99 at 3.28, and 10/28/04 at 9.20. Major lows generally have not occurred in calendar October. However, see 10/27/10's interim low at 3.212.

- **November- one key low, that of 11/24/99 (2.08; part of a double bottom with 1/15/00's 2.13); highs 11/26/90 (at 2.65), 11/5/91 (at 2.14), and 11/30/06 (9.05). The 11/5/13 depth at 3.379 was an important take-off point within the long run bull move, but it was not a major low (similarly, 11/23/12's 3.933 and 11/10/14's 4.544 are interim tops).
- **December- no noteworthy lows; major tops 12/21/95 (at 3.72), 12/20/96 (4.60), 12/27/00 (10.10), 12/13/05 (15.78; all-time high).
- **January- significantly, there have been four key bottoms in calendar January. The two highs that also occurred in January underscore the potential for trend change during that month. Major and record low 1/24/92 (1.02), 1/13/95 (1.25), 1/15/00 (2.13; see November), 1/28/02 (1.85; preceded by the 9/26/01 low at 1.76); tops 1/9/04 (7.63) and 1/7/10 (6.11). Keep in mind the interim lows in early January 2013 (1/2/13's 3.05 and 1/9/13's 3.09).
- **February- troughs at 2/24/97 (1.68), 2/26/99 (1.63); summits 2/2/94 (2.69), 2/25/03 (11.90), and 2/24/14 (6.493).
- **March- no noteworthy lows or highs.

To help assess probabilities as to whether and when natural gas has achieved an important bottom, watch petroleum (NYMEX crude oil and Brent/North Sea crude oil, for example) and other marketplaces. A trend change in NYMEX natural gas of course need not coincide with one in the petroleum complex or in commodities "in general". However, in recent months, NYMEX natural gas, NYMEX crude oil, and the broad Goldman Sachs Commodity Index have tumbled downhill around the same time. For example, NYMEX natural gas established a significant interim high 6/16/14 at 4.886. The final top in NYMEX crude was 6/20/14 at \$107.73. Recall the broad GSCI's 6/23/14 interim high at 673.

Recall the worldwide economic crisis of 2007-09. The major high in the broad GSCI was 7/3/08's 894; the 7/208 natural gas summit at 13.694 was right in line with this. But in 2009, September's natural gas low followed those in the broad GSCI and petroleum complex. Will that be the case in the current marketplace scene? What if the broad GSCI (oil) lows made earlier this year hold their ground? The broad GSCI's 1/29/15 low at 372 occurred around the same calendar time as 2/19/09's major bottom at 306. Although NYMEX crude oil reached its major low shortly before this, on 12/19/08 at \$32.40, its final low was 2/12/09's \$33.55.

MARKETPLACE ATTACHMENTS AND TRENDS: SEEKING COMMITMENTS

Ben Quick says in the movie "The Long, Hot Summer" (Martin Ritt, director): "Life's very long and full of salesmanship, Miss Clara. You might buy something yet."

At times the CFTC's Commitments of Traders is a helpful indicator for predicting significant trend changes and travels in natural gas marketplaces. Review the benchmark NYMEX and ICE natural gas contracts (futures and options combined) plus the NYMEX European look-alike options contract. In the natural gas complex, sometimes key highs and lows in price occur alongside notable levels in the net noncommercial position.

On 2/18/14, the net noncommercial long ("NCL") position peaked at about 328,000 contracts, or 7.7 percent of total open interest (the percentage of total open interest attained its 8.4pc high the following week). February 2014's net NCL summit roughly coincided with the NYMEX natural gas (nearest futures continuation) 2/24/14 pinnacle at 6.493. The substantial liquidation of this large net noncommercial long position in natural gas helped to propel prices sharply lower in the succeeding months.

February 2014's lofty net NCL levels reside beneath the 367m net NCL ceiling established 4/30/13 (7.6pc of total open interest; plateau percentage 5/28/13's 7.8pc). This spring 2013 net NCL top occurred alongside the key interim top in NYMEX natural gas (nearest futures continuation) at 4.444 on 5/1/13.

What about the current battleground? As of the most recent week, 4/14/15, the noncommercial position was significantly net short ("NCS"), at about 242,000 contracts (8.0 percent of total open interest and thus close to the net NCL percentage record). This represents the highest net NCS positon in both contractual and percentage of open terms since ICE data became available in January 2010. It surpasses 11/22/11's net NCS 227m (5.5pc of total open interest), attained during the major bear move that carried down to 4/19/12's 1.902 major bottom.

The 4/14/15 total open interest of about 3.04 million contracts plummets from 2/18/14's 4.26mm (and 4/23/13's 4.92mm), around the times of marketplace price peaks, as well as from the massive 5.27mm on 4/24/12, around the time of the major bottom.

The current very large net NCS position (both in arithmetic and percentage of open interest terms warns of the potential for a shift to a bull (or at least a sideways) trend from the bear trend that commenced in February 2014. Keep in mind the level, time, and distance consideration in this context.

Nevertheless, remember that after the net NCS peaked in November 2011, prices kept moving lower while the net NCS position diminished. On 4/24/12, the net NCS position was merely 15m contracts. Thus one should approach the Commitments of Traders data with care.

US NATURAL GAS INVENTORIES

The Duke of Gloucester declares in Shakespeare's Henry VI, Part II (Act II, Scene 4): "Thus sometimes hath the brightest day a cloud; And after summer evermore succeeds Barren winter, with his wrathful ripping cold: So cares and joys abound, as seasons fleet."

For the week ending 4/10/15, United States working gas in underground storage (lower 48 states) was 1539bcf, up 847bcf and 81.7 percent relative to the prior year week. This year-on-year comparison, however, does not tell the whole story regarding inventory levels.

Detailed historical analysis of working natural gas inventories enables audiences to ascertain the degree of tightness in America's overall supply/demand situation. Although arithmetical (bcf) levels are important, review from the days coverage perspective offers greater insight.

Nowadays, for calendar March (and for all other calendar months), the medium run span from 2006 to the present better arguably shows the normal (average) level of days coverage than the long run 1990-present vista. Why? The average level of natural gas industry stock holding probably shifted upwards beginning around 2006. One likely variable influencing this boost has been alternative investment in commodities, which reduces natural gas free supply. This reduction in free supply probably can have particularly significant consequences in low inventory situations around the finish of the winter draw season. See previous essays such as "US Natural Gas- a Winter's Tale" (1/12/14), "US Natural Gas Inventory: the Producing Region Drawing Board" (12/16/13), and "US Natural Gas: Drawing Pictures" (11/25/13) on this issue.

However, the alternative investment situation is not the only relevant development regarding days coverage. The further explosive natural gas production boost in the past couple of years, particularly when viewed in the context of notable gas pipeline expansion/building (over that time span and looking forward), perhaps has shifted the natural gas industry's desired level of days coverage downward to some extent. Greater output now (or relatively soon will) have (more) avenues of escape, so why should players keep as much inventory around?

In the following discussion regarding and table for US end March working gas inventories, the indicated "year" for a given March derives from the calendar year of the preceding October. Thus the 2473bcf (in actual calendar March 2012) noted for the 2011 "year" is from the end October 2011 to March 2012 winter draw season. This table extends through winter 2014-15 (includes the 2014 year). (Bcf levels and estimates are from EIA's "STEO", Table 5a, 4/7/15, next release 5/12/15).

END MARCH 2015 GAS STOCKS: END WINTER DRAW SEASON IN CONTEXT

Long Run (1990-2014) Long Run (1990-2014)
End Calendar Month
Arithmetic (Bcf)
Average

Average

Long Run (1990-2014)
End Calendar Month
Days Coverage
Average

March 1343 21.8

	Season Highs	Season Highs (Year)		Season Lows (Year)	
	(Bcf)	Days Cover	(Bcf)	Days Cover	
March	2473 (2011)	37.1 (2011)	730 (2002)	11.6 (2002)	
	1692 (2005)	28.1 (2005)	742 (2000)	11.6 (2000)	
			857 (2013)	12.0 (2013)	
			758 (1995)	12.5 (1995)	

Some statisticians would label the 1723bcf end March inventory for the 2012 year as very high. Yet this represented only 24.7 days coverage- a modest 2.9 days above the long run average, whereas 2005's leaped 6.3 days above that average. Compare calendar year 2012's 69.8bcf/day consumption with 2005's 60.3bcf/d.

March Medium Run (2006-2014)
End Calendar Month
Days Cover Average

24.1 days (2.3 days more than 1990-2014's time span)

End March 2015's 20.0 days of coverage (1471bcf divided by about 73.5bcf/day of full calendar year 2014 consumption), though way up from March 2014's 12.0 days coverage, dips slightly under the 21.8 days end March 1990-2014 average. It also falls a notable, though not extreme, 4.1 days beneath the nine year 2006-14 average. Thus despite the notable arithmetic stock increase during calendar 2014 build season, the national days coverage inventory picture at the end of winter 2014-15 draw season is slightly bullish.

What's the bottom line in regard to the natural gas bear trend that began in February 2014 if one concentrates on the natural gas inventory variable? With the NYMEX nearest futures natural gas price currently well under 4.00, this end winter 2014-15 inventory factor "taken by itself", looks neutral to supportive for gas prices. This fundamental consideration should be interpreted alongside the marketplace history relating to price and time factors.

END BUILD SEASON 2015

US natural gas inventory estimates for end build season 2015 and thereafter admittedly are conjectural. Yet that potential end build season inventory situation likewise (viewed "alone", and "all else equal"), if realized, looks bullish for natural gas prices.

The EIA forecasts working natural gas inventories will be 3781bcf at end October 2015 (STEO, Table 5a). Relative to calendar year 2015 demand of slightly over 76.3bcf/day (up a sharp 3.9pc year-on-year), days coverage at the close of the 2015 build season will be about 49.5 days (compare October 2014's 48.8 days coverage). Sometimes inventories build into calendar November, but they usually do not do so by much (EIA forecasts 3716bcf end November 2015 stocks).

Demonstrated underground maximum working gas capacity in the Lower 48 states as of November 2014 was 4336bcf (EIA, "Underground Natural Gas Working Storage Capacity; 2/25/15). Thus the US as a whole probably will not face significant containment problems this year.

Let's further review the 3781bcf stocks and 49.5 days coverage level for end October 2015 in historical context. Focus especially on the days coverage variable.

Long Run (1990-2014) Long Run (1990-2014)
End Calendar Month
Arithmetic (Bcf) Days Coverage
Average Average

October 3316 53.6

	Season Highs (Year)		Season Lows (Year)	
	<u>(Bcf)</u>	Days Cover	<u>(Bcf)</u>	Days Cover
<u>October</u>	3929 (2012) 3851 (2010)	66.0 (1990) 60.7 (2009)	2732 (2000) 2810 (1996)	42.9 (2000) 45.5 (1996)

October Medium Run (2006-2014)

End Calendar Month
Days Cover Average

55.8 days (2.2 days more than the 1990-2014 time span)

End October 2015's 49.5 days coverage level slides 6.3 days beneath the 2006-14 end October average of 55.8 days and 4.1 days under 1990-2014's 53.6 days. This end October 2015 days coverage total therefore is bullish (even if not wildly so given prospects of increased natural gas production).

THE MORE DISTANT FUTURE: GAS STOCKS IN MARCH AND OCTOBER 2016

Look further out in the murky future to March and October 2016. Although much of course can happen between now and then, potential days coverage nevertheless does not suggest notable oversupply relative to historic averages.

The EIA forecasts end March 2016 inventory at 1704bcf and end October 2016 stocks at 3923bcf. Days cover at end March 2016 will be around 22.3 days (1704bcf/76.3bcf/d). Though this is slightly (.5 day) above the 21.8 day 1990-2014 average, it is 1.8 day less than 2006-14's 24.1 day average. October 2016's hypothetical days coverage is 51.7 days (3923bcf/75.8bcf/d. This is about 1.9 days under the 1990-2014 average for that calendar month and 4.1 days beneath 2006-14's 55.8 day average.

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