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The Collapse of Oil Prices – Implications and Risks


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Oslo Energy Forum

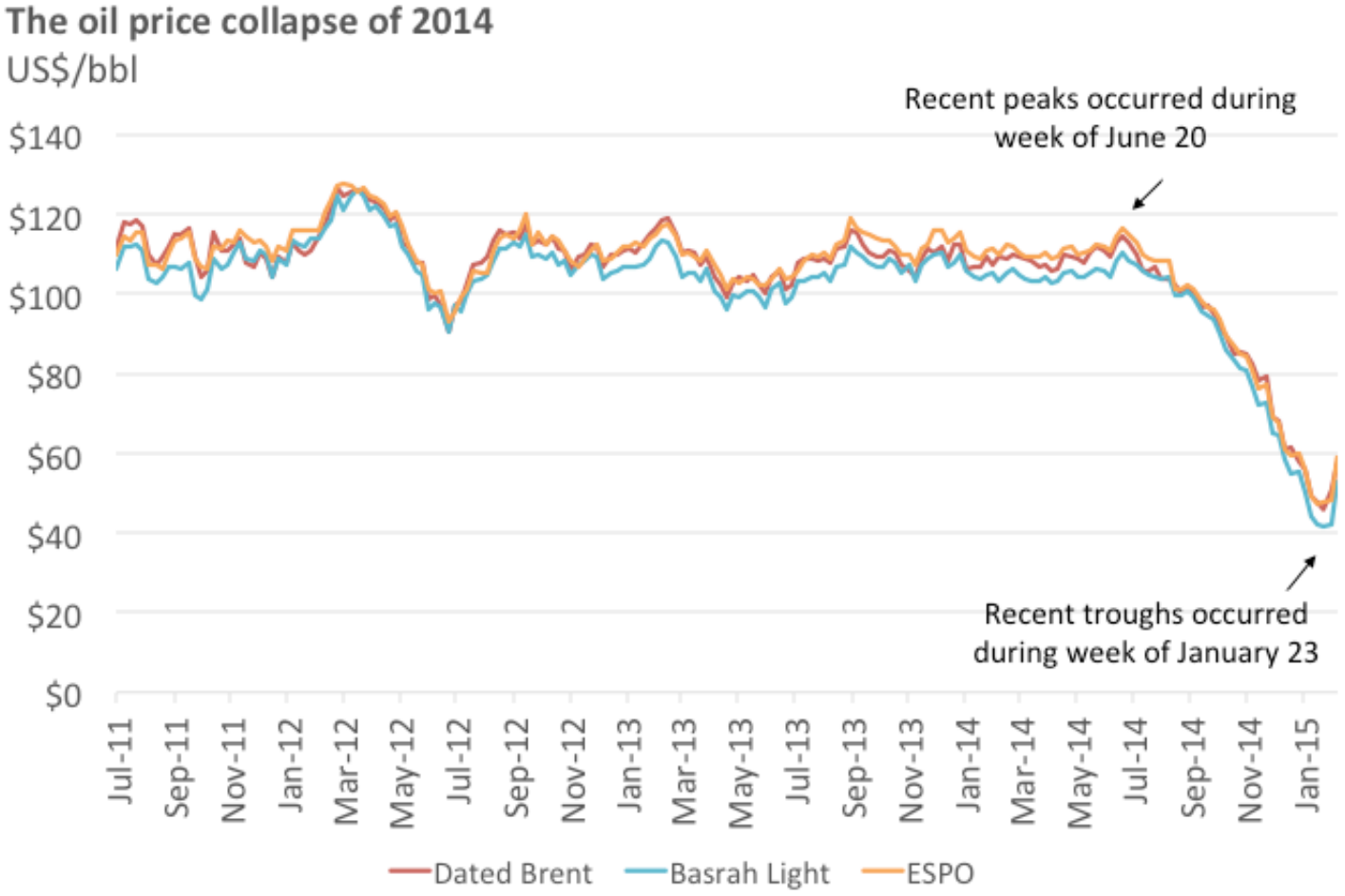
Objectives for this 15-minute brief:

Why did oil prices collapse in 2H2014?

Great Deflation or the Ascent of Risk?

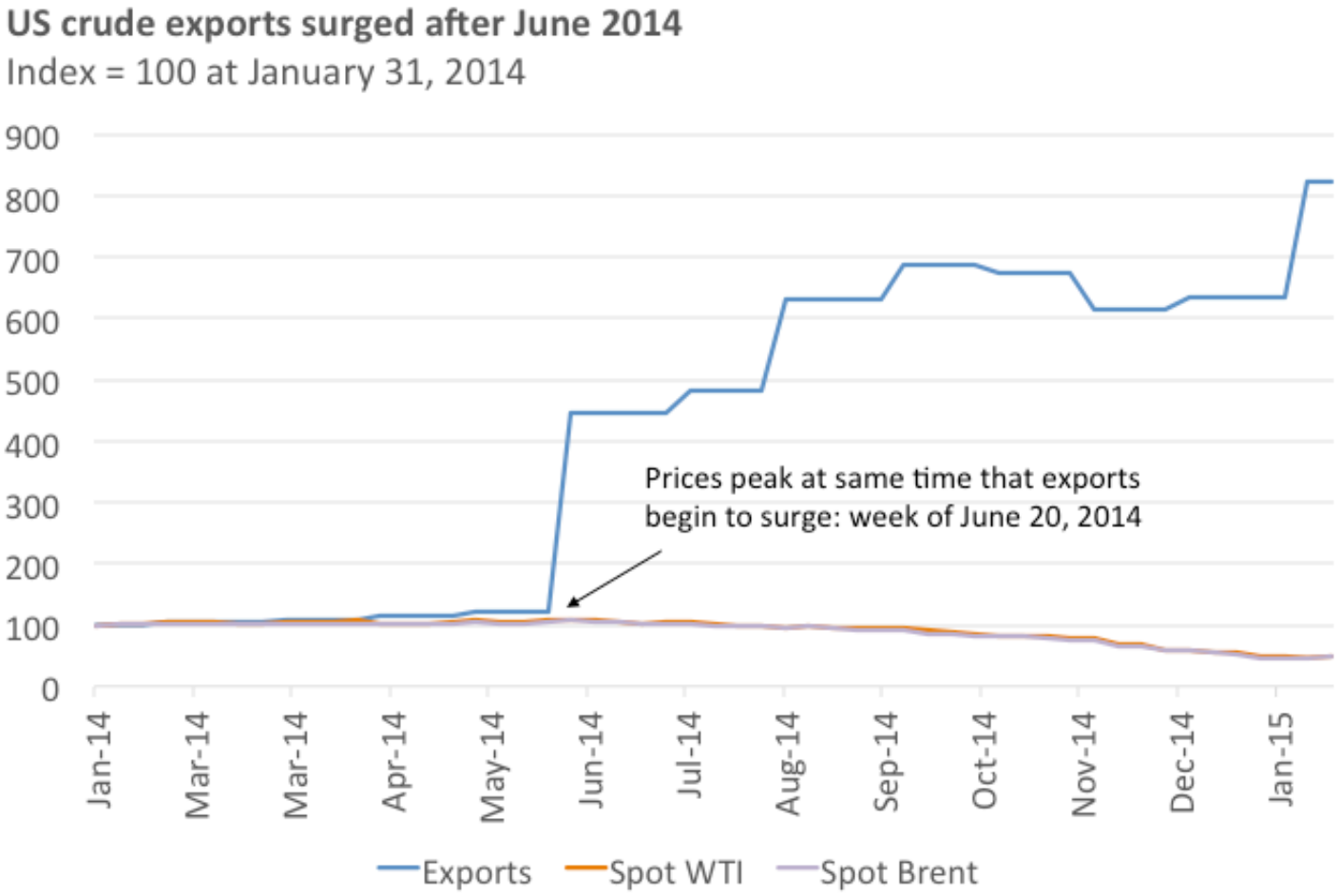
What are the implications and risks from here?

After years of range-bound motion, oil prices swooned by 60% in seven months. Why?



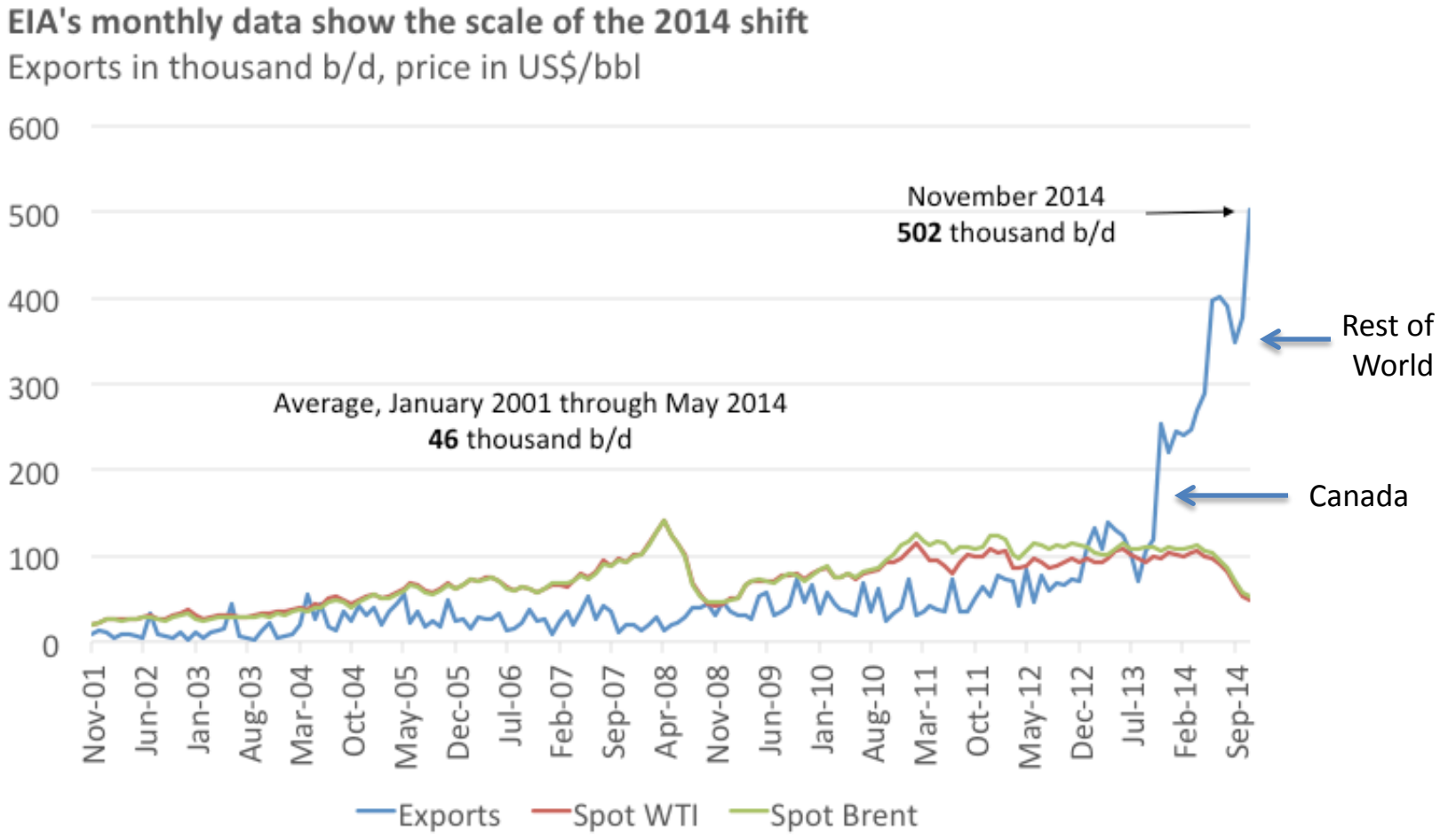
Source: Bloomberg, Platt's

One of the most important factors is among the least recognized: a subtle liberalizing in US trade policy.



Source: Bloomberg, EIA, Platt's

US crude exports are now 10X larger than the normal activity of the past decade. A "wall" came down.



Source: Bloomberg, EIA

US data show no crude shipments to Japan in 2014. But Japanese import stats pick up 9,567 b/d in October.

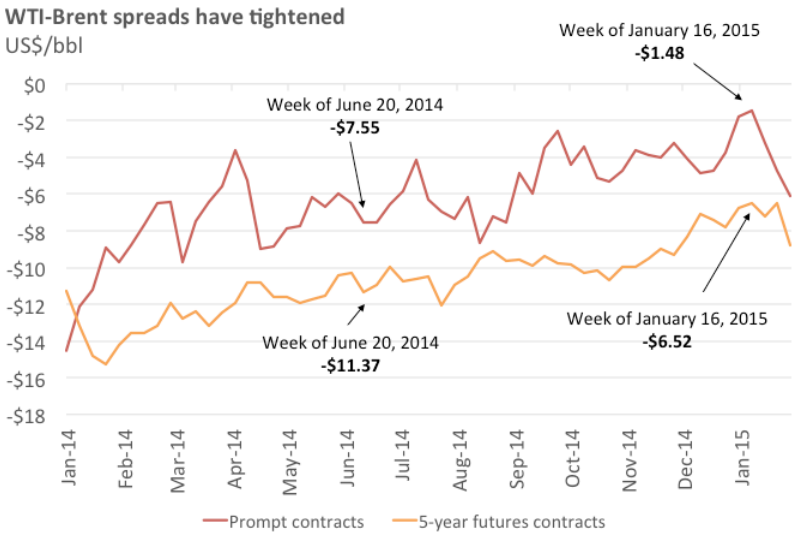
	M.East			Euro								N.America	Africa	
	Iran	Iraq	Saudi Arabia	Norway	Russia							U.S.A.	Libya	
	Total	Total	Total	Alvheim	Vityaz	Sokol	RUSIA-Fo	M100R-Fo	Espo-B	Sakhal-B	Total	Proces-C	Total	Total
2013.12	814,675	453,631	6,201,363	72,963	208,651	225,036	–	–	904,985	–	1,338,672	–	–	19,082,598
2014.01	1,037,555	365,212	5,588,914	58,684	147,039	226,219	–	28,867	1,177,911	–	1,580,036	–	–	19,710,005
02	1,161,081	–	5,439,278	–	158,931	338,565	–	–	1,237,383	–	1,734,879	–	–	17,587,342
03	687,425	310,711	5,868,696	–	208,702	226,259	44,604	–	677,653	–	1,157,218	–	–	18,867,932
04	271,555	328,484	5,494,531	–	173,254	336,773	86,875	–	940,249	–	1,537,151	–	–	16,837,647
05	896,474	–	5,395,581	–	190,784	228,350	–	–	831,767	–	1,250,901	–	–	16,105,752
06	899,956	–	4,447,245	–	190,314	218,384	57,974	–	552,656	–	1,019,328	–	–	14,361,086
07	640,670	–	5,166,126	–	111,025	111,140	–	–	951,770	–	1,173,935	–	–	15,268,178
08	993,078	355,347	4,830,161	–	226,631	–	59,476	–	637,523	–	923,630	–	–	16,521,471
09	981,581	310,160	4,923,592	–	111,131	338,677	–	–	707,271	–	1,157,079	–	–	15,932,170
10	804,783	308,801	5,876,838	–	346,883	–	–	–	1,020,139	–	1,367,022	47,157	–	16,315,382
11	778,515	28,442	4,529,034	–	116,010	448,684	–	–	1,007,231	–	1,571,925	–	–	14,678,760
12	641,509	315,715	5,447,485	–	33,109	561,875	–		1,154,358	151,548	1,900,890	–	56,896	17,511,472
Annual kbd	169	40	1,086		35	52	4	0	188	3	282			3,441
				11,905 b/d in Jan-14								9,567 b/d in Oct-14	11,543 b/d in Dec-14	

Source: MITI, Blacklight Research. Note = units in kl, except for annual sums in kbd, unless otherwise noted.

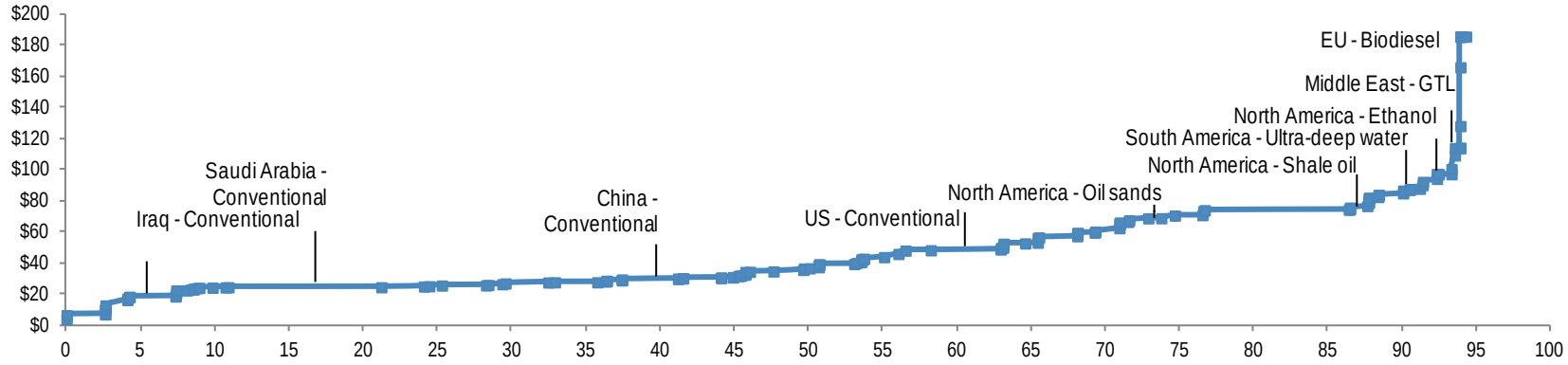
The US export outlet increases AB supply, displaces imports into Canada, and redraws the global cost curve.

US rationale for shift in export policy

- Saturation: find new markets
- To lower US product prices
- Midterm elections, Congress
- Curb behavior of petro-states



1H2014 global petroleum supply curve (US$ per barrel, y-axis; mbd, x-axis)



Source: Rystad, Corporate reports, DOE, IEA, OECD, RFA, USDA, J.P. Morgan Commodities Research. Note: Ultra-deep water is defined as 1500+ meters.

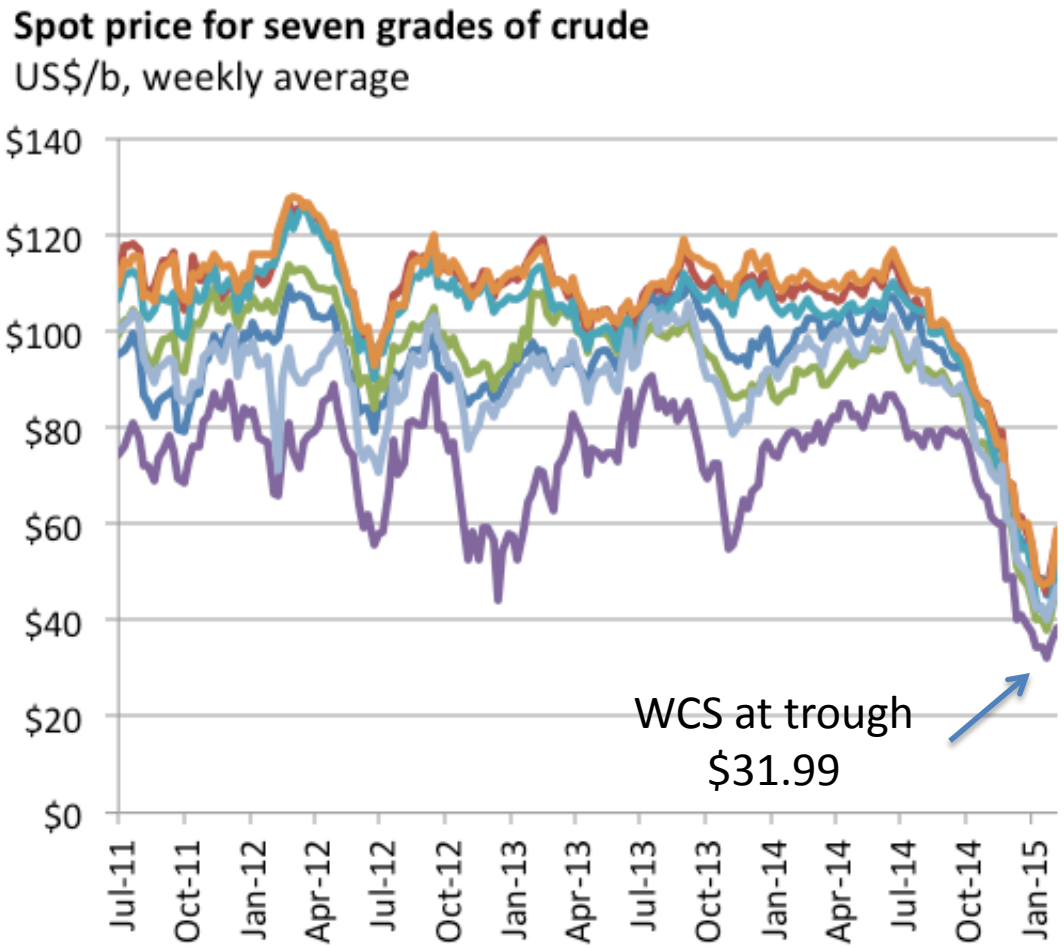
The US export outlet allows international arbitrage and reduces pressure to clear through crude differentials.

WTI Cushing - Dated Brent ($/b)	Average	Min	Max
2000	1.89	0.45	4.35
2001	1.08	-1.14	5.15
2002	1.08	-1.18	2.56
2003	2.65	1.07	4.67
2004	3.51	2.47	5.01
2005	1.41	-1.37	3.70
2006	0.07	-3.18	2.20
2007	-0.34	-5.49	4.81
2008	1.13	-10.13	4.94
2009	-0.73	-10.06	1.88
2010	-0.81	-5.57	2.07
2011	-16.11	-27.88	-7.14
2012	-17.62	-23.33	-11.22
2013	-10.65	-23.18	-0.02
2014	-6.64	-14.53	-2.57
2015 ytd	**-3.50**	**-6.11**	**-1.48**

WTI Cushing - WTI Midland ($/b)	Average	Min	Max
2000	0.25	-0.19	0.50
2001	0.26	-0.03	0.43
2002	0.21	-0.11	0.48
2003	0.26	-0.12	0.50
2004	0.24	-0.10	0.80
2005	-0.01	-0.55	0.50
2006	-0.10	-0.55	0.25
2007	-0.09	-0.40	0.30
2008	0.17	-0.65	2.00
2009	0.20	-0.75	0.65
2010	0.31	-0.40	0.90
2011	0.51	0.25	0.90
2012	4.01	0.60	14.75
2013	1.67	-0.65	13.00
2014	6.90	-0.50	18.00
2015 ytd	**2.03**	**0.50**	**3.10**

Source: Bloomberg, EIA, Platt's

Had USA not loosened trade restrictions, world grades would not have fallen as sharply. Instead, convergence.



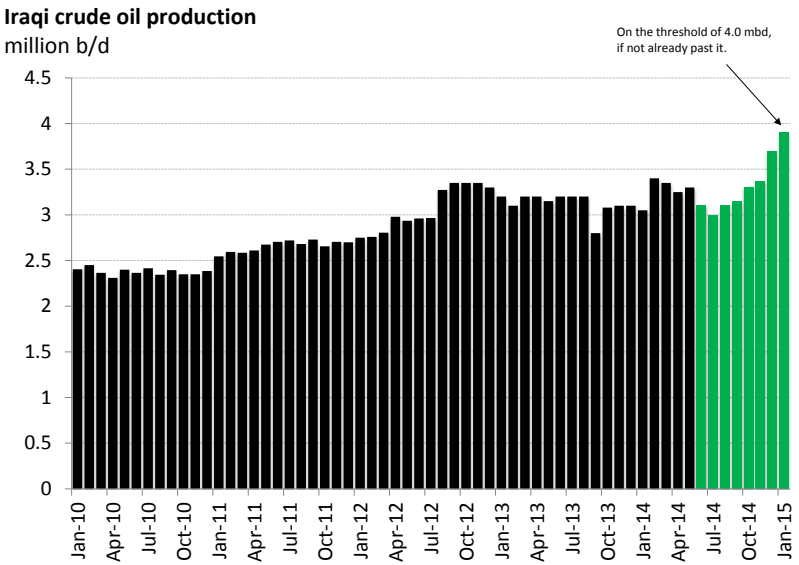
Max-Min Spread:

June 20, 2014:	$29.88
Jan 23, 2015:	$15.50

Source: Bloomberg, EIA, Platt's

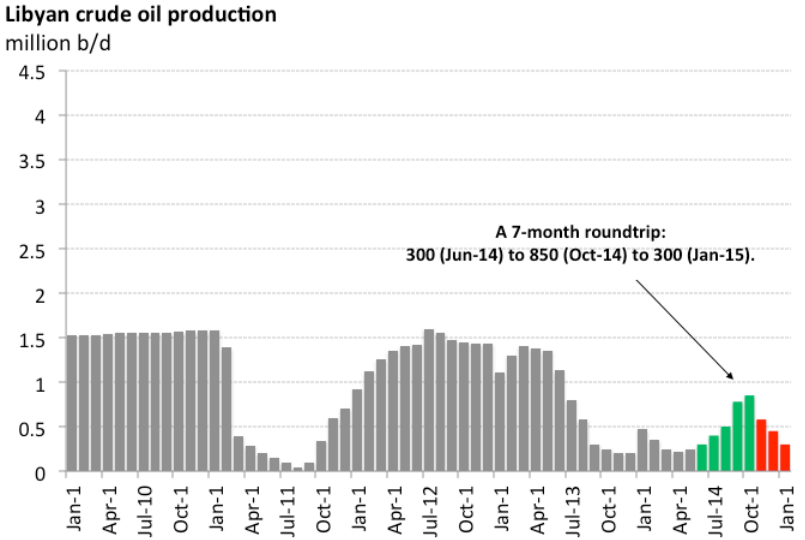
The non-US factors were also important. But 2014 was a tale of two kinds of supply shocks within OPEC.

Iraq: surprising success in face of IS



Source: OPEC

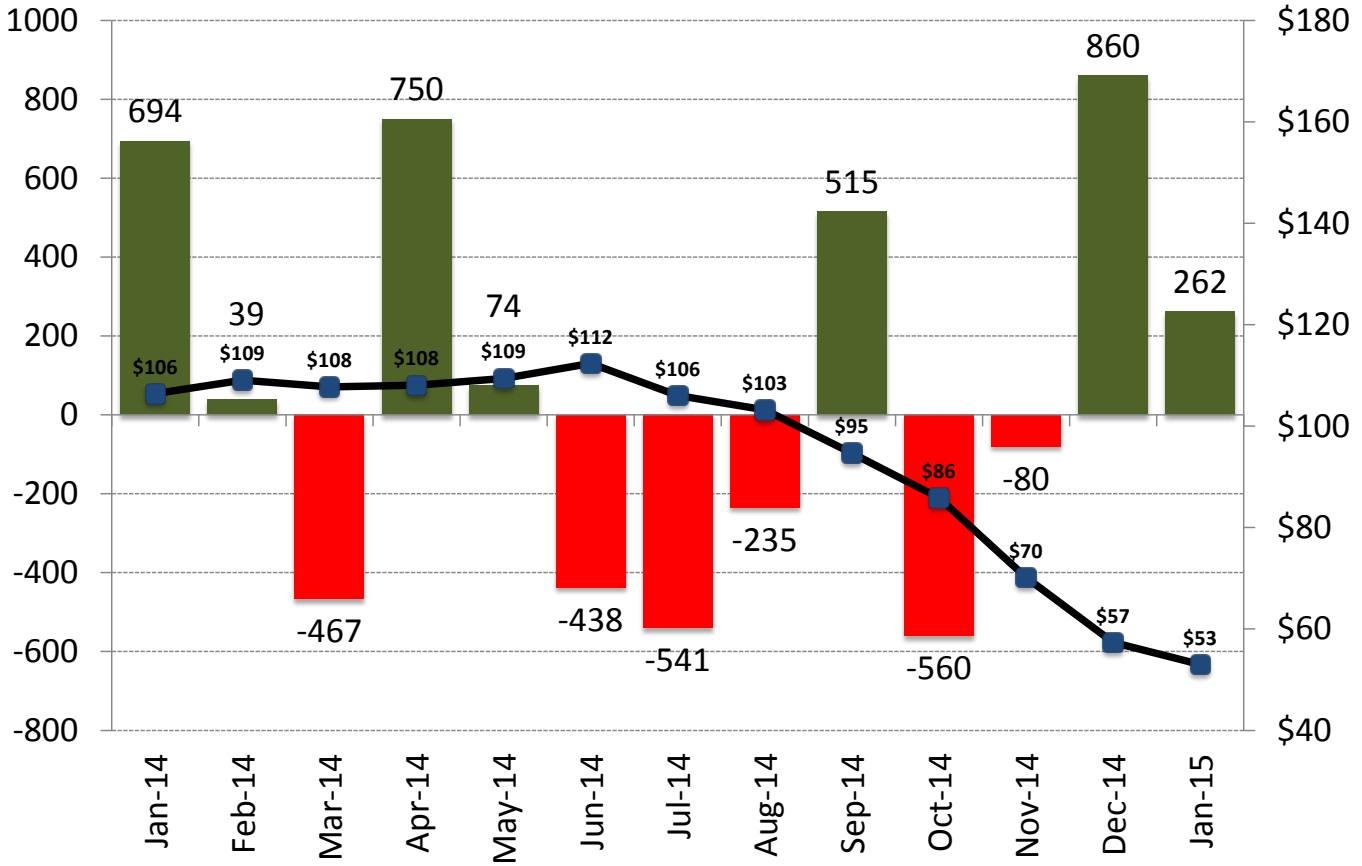
Libya: a surge of hope, then dashed



Source: OPEC

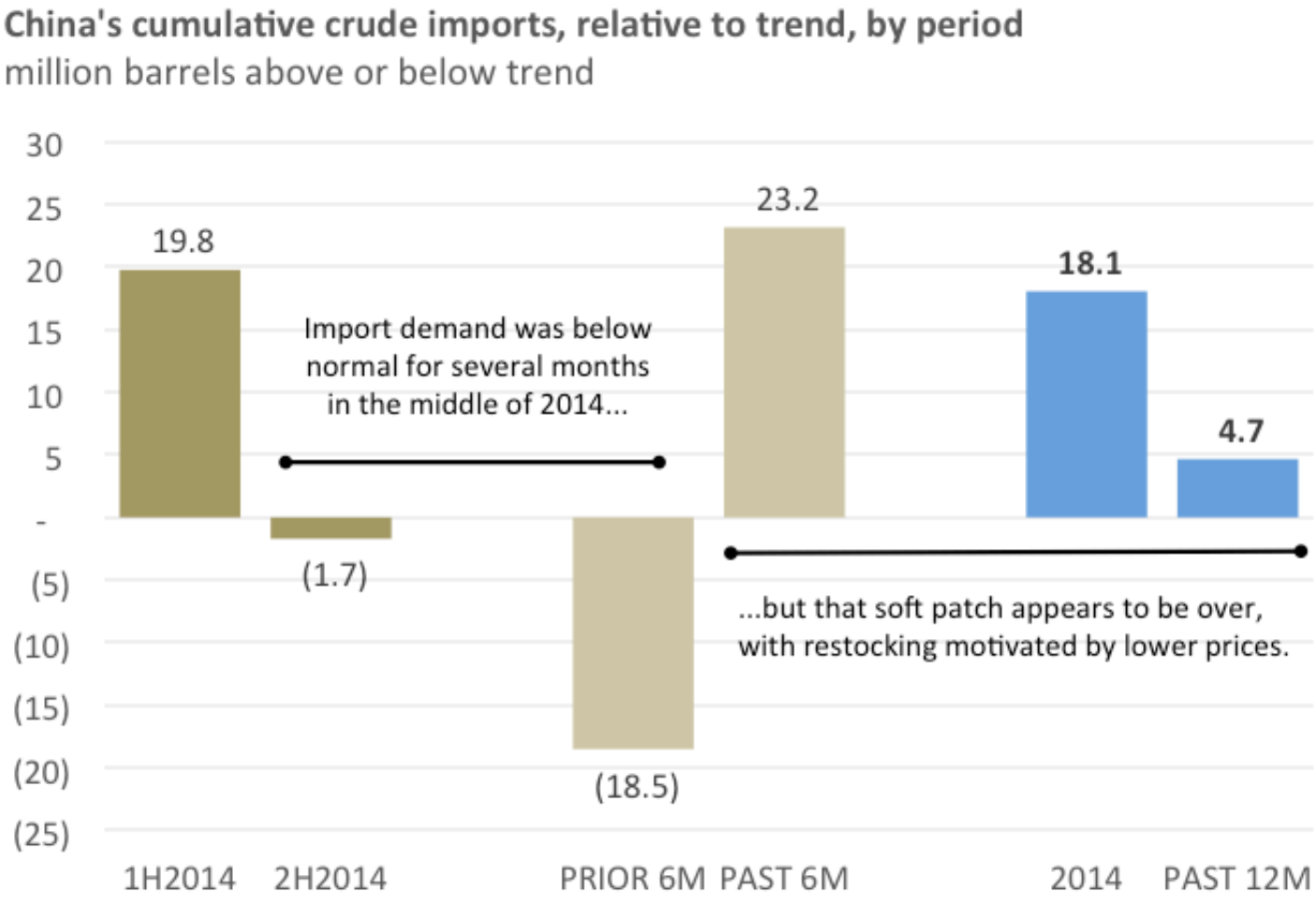
The path of China's crude imports reveals a competitive sensitivity to geostrategic risk, opportunity, and price

China crude oil imports, relative to trend, plotted against Brent spot oil price
(Left) thousand b/d above or below trend, (Right) average oil price in $/bbl



Source: China Customs, ICE, EIA, Blacklight Research

The 2014 soft patch in Chinese import demand has come…and gone.



Source: China Customs, Blacklight Research

Energy market risk is not static. The new year brings new challenges and extension of some old.

Supply	Demand
• Refinery strikes (product) • Plummeting rig count • Capex cuts: 25% - 50% • Layoffs: 7% - 10% • Administrative savings • Egypt/Libya, “IS” • Ukraine?	• Refinery strikes (crude) • European QE • West Coast port strikes • Greek Debt Crisis • Extremes in US weather • Cash and carry storage • Ukraine?

Where does this leave us?

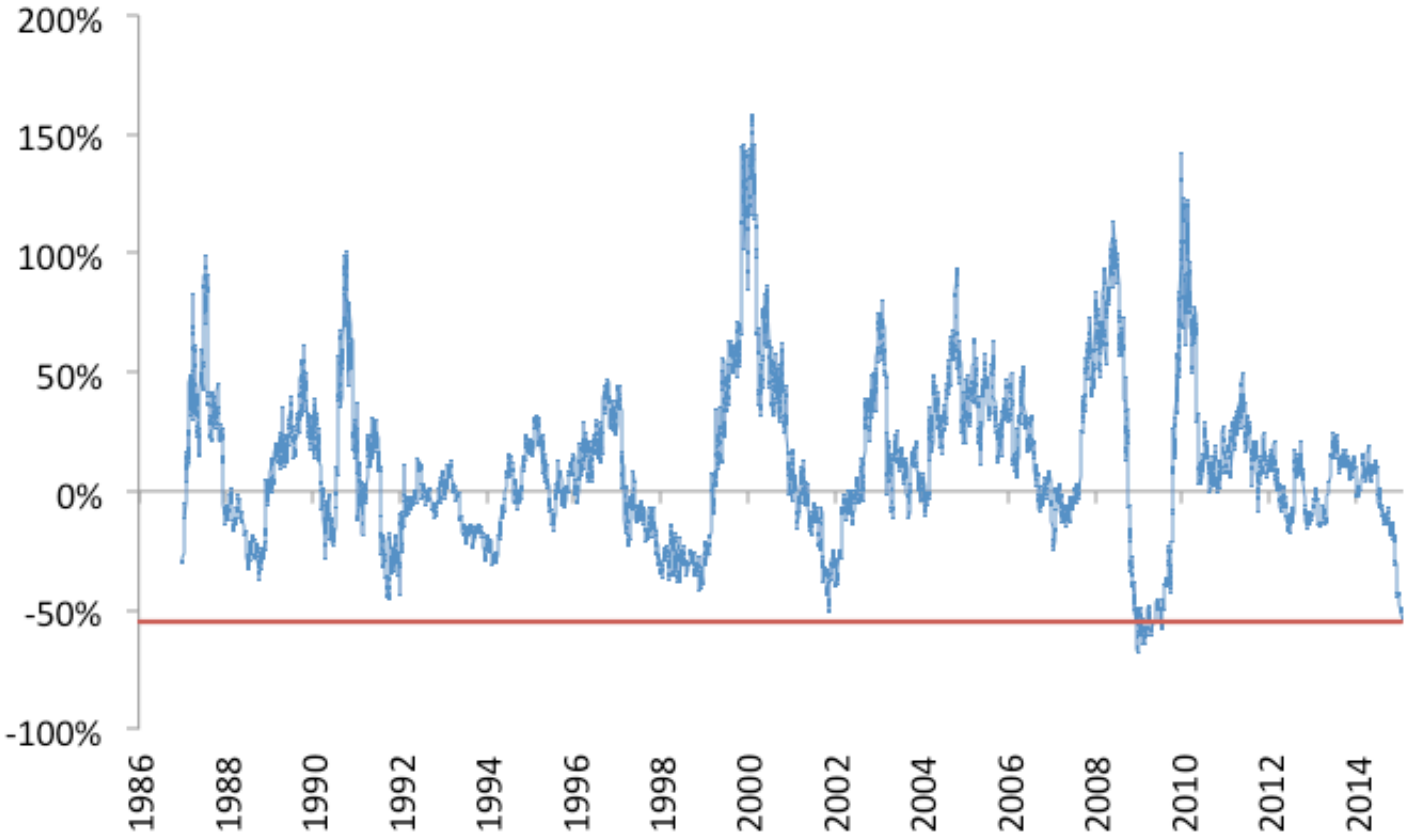
Why did oil prices collapse in 2H2014?

Great Deflation or the Ascent of Risk?

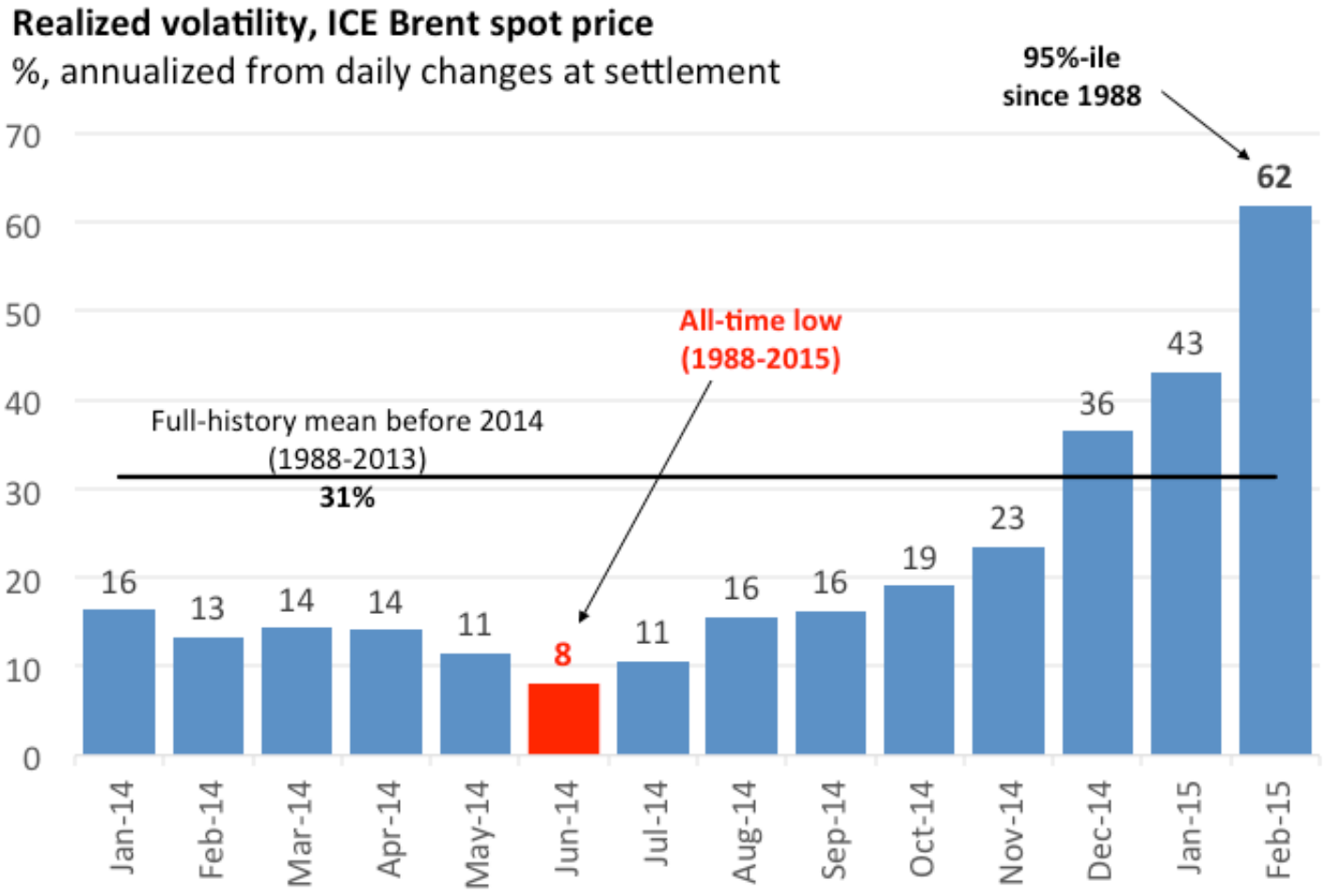
What are the implications and risks from here?

The recent price collapse is historically important and comparable in scope to 1986, 2008, 1998, & 1991. But…

Annual price change in NYM WTI spot price
daily frequency, yoy percentage change

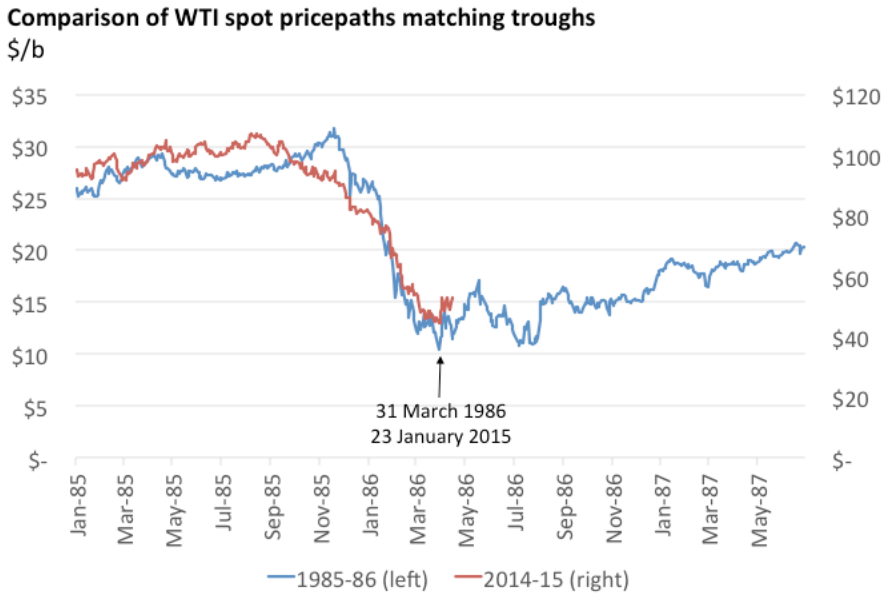


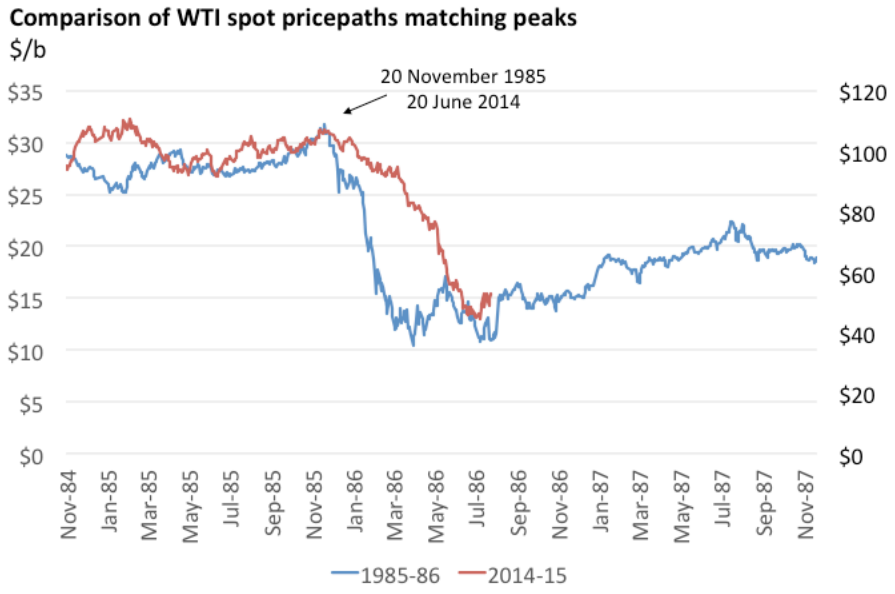
The Ascent of Risk: transit between tails feels extreme



Source: ICE, Blacklight Research

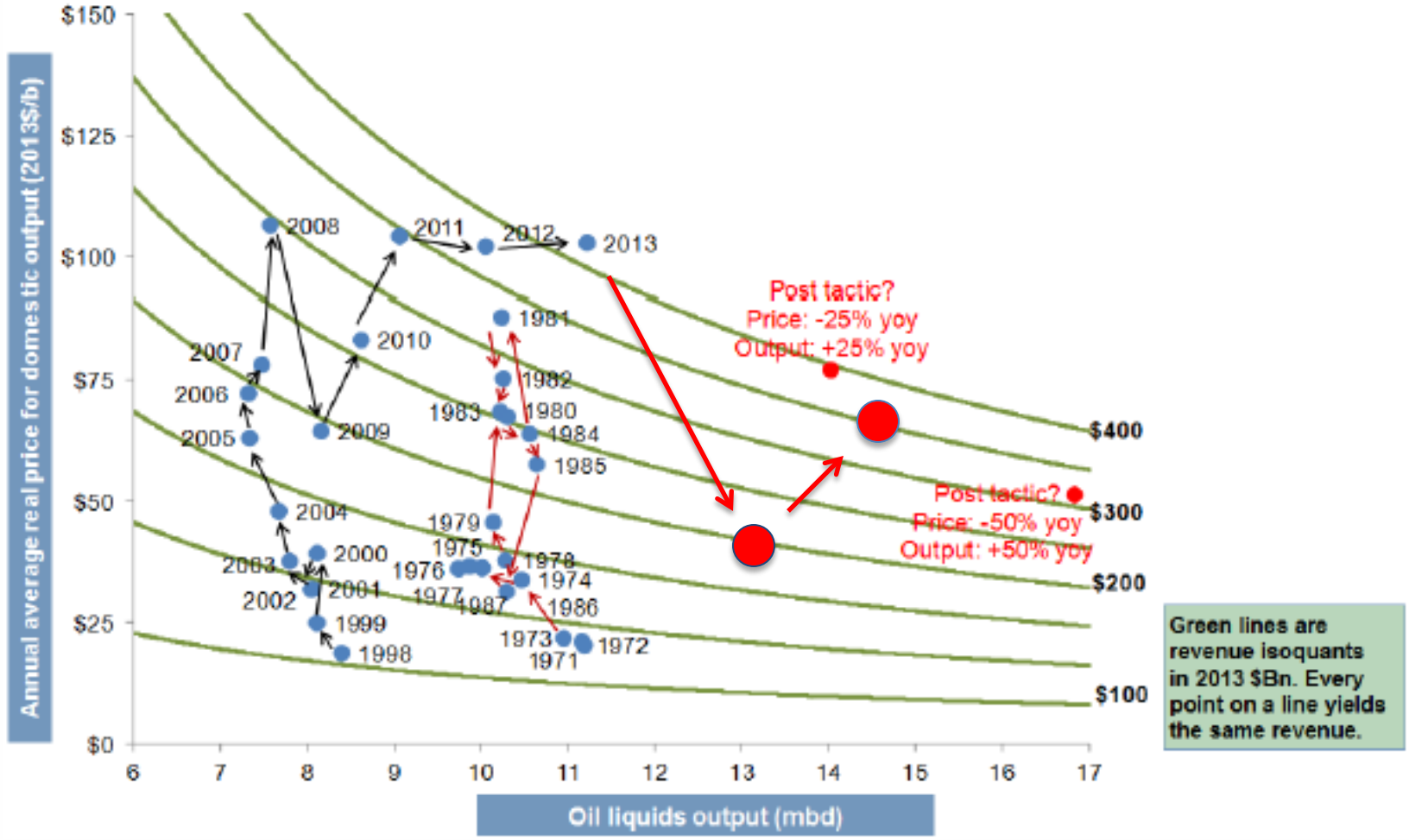
Familiar terrain, though 1985-86 collapse was stronger (-67% v -59%) and steeper (131 days v 217 days)





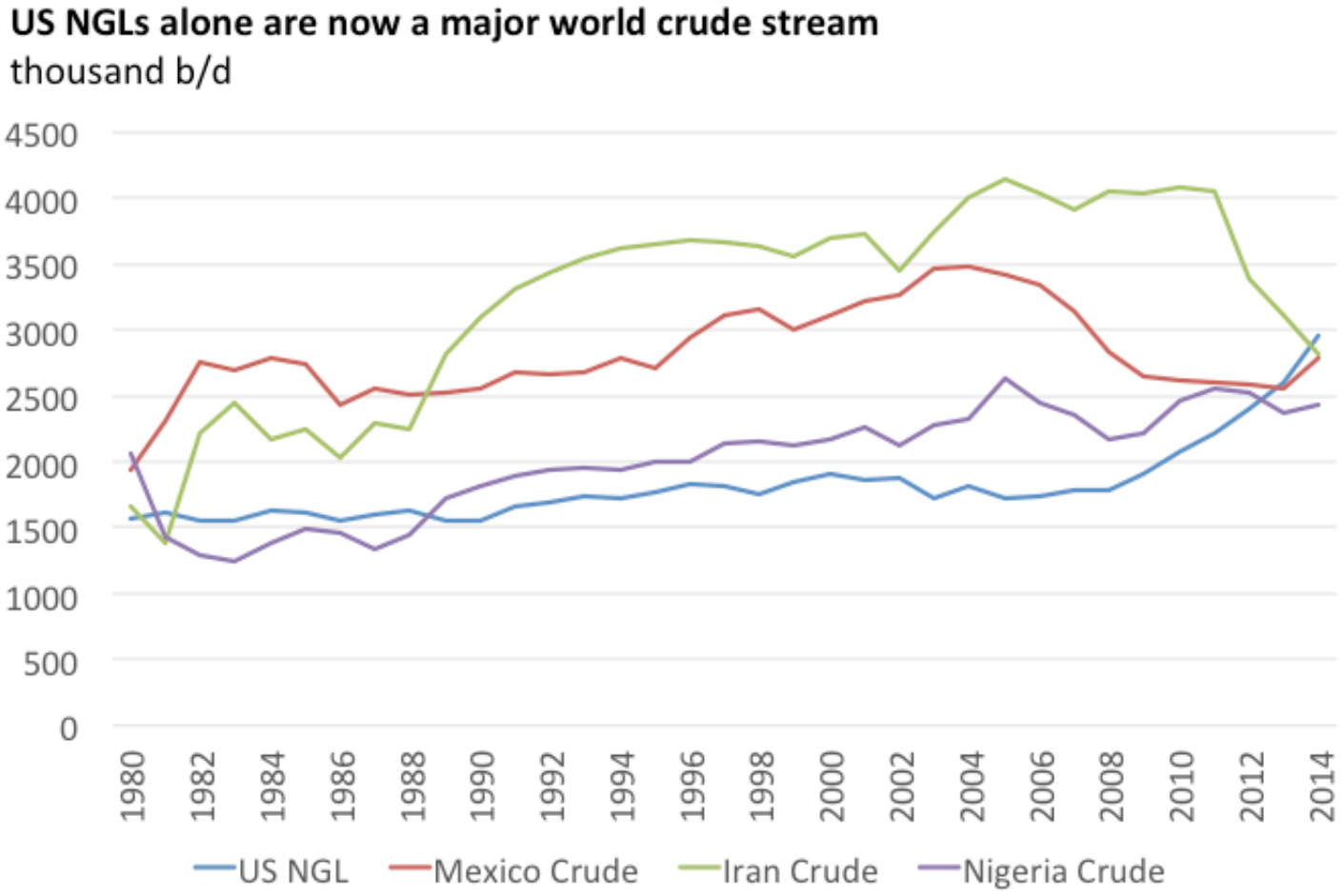
Source: EIA, NYM, Blacklight Research

US Isorevenue: US can trade price for market share



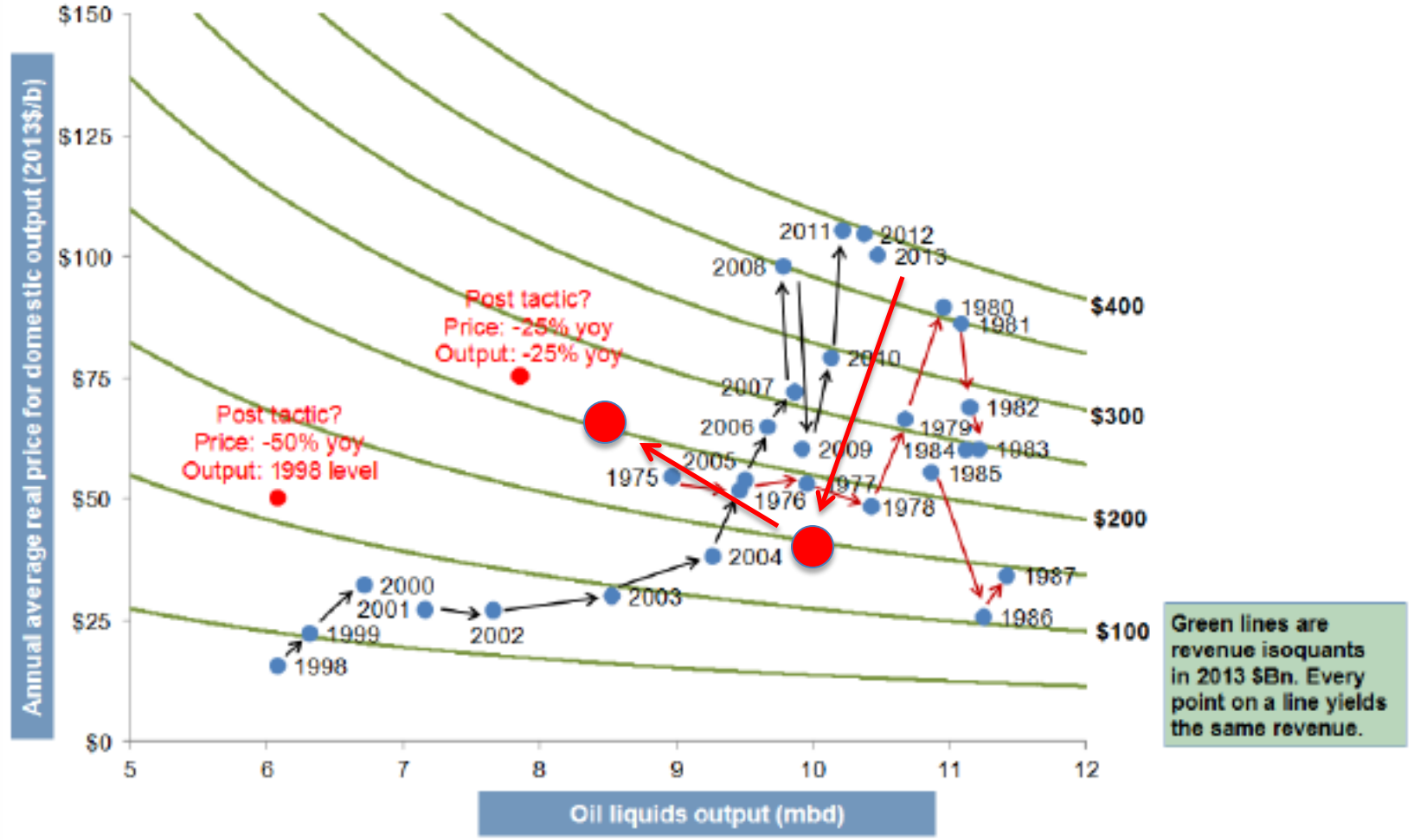
Source: Dermot Gately (NYU and Brookings, 1986), EIA, BPSR, BLS, J.P. Morgan Commodities Research

In 2014, US NGLs became larger than the total crude output of either Mexico, Iran, or Nigeria.



Source: BPSR, EIA, Blacklight Research

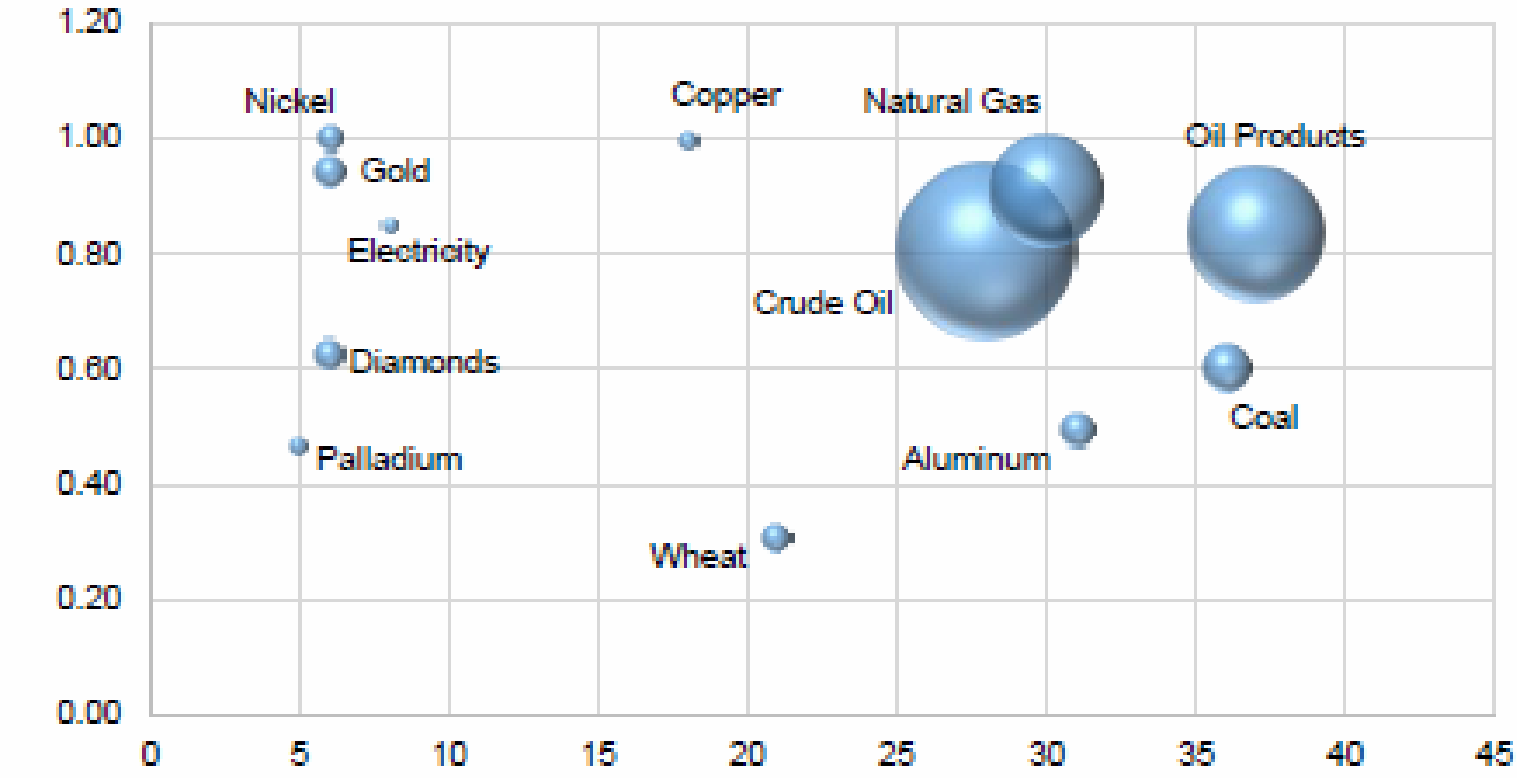
Russia Isorevenue: this is going to cost $200Bn per year.



Source: Dermot Gately (NYU and Brookings, 1986), EIA, BPSR, Russian Central Bank, BLS, J.P. Morgan Commodities Research

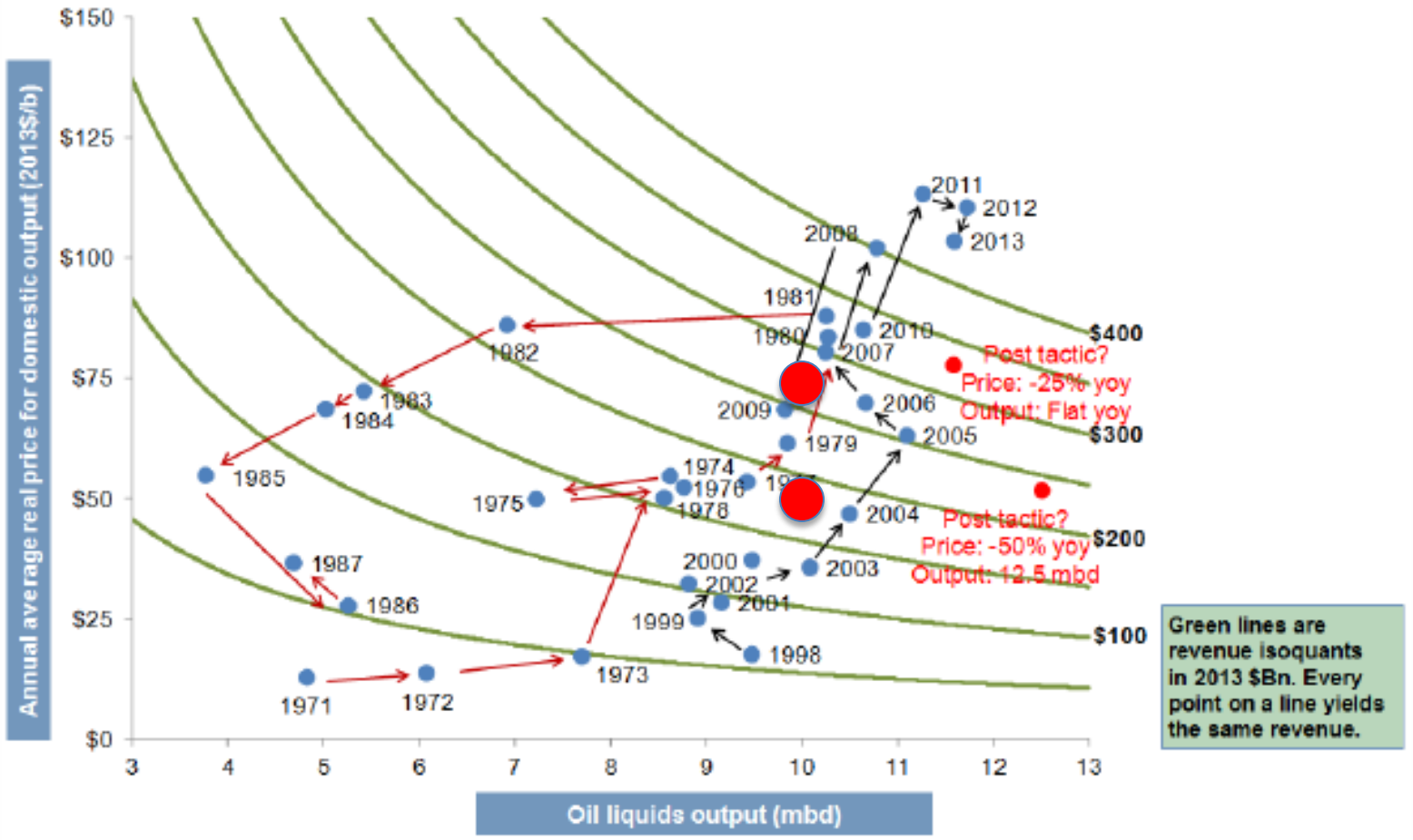
Conversation in March 2014 focused on gas, not oil. But Russia relies heavily on oil sales to Europe for earnings.

The relative value of Russian exports to Europe, 2013 data
(x-axis) number of European countries importing from Russia, (y-axis) Europe's share of total Russian exports. Note: bubble indicates relative size.



Source: Russia and European customs data, J.P. Morgan Research

Saudi Arabia Isorevenue: can survive for long time on large reserves of dollars and low costs.



Source: Dermot Gately (NYU and Brookings, 1986), EIA, BPSR, BLS, J.P. Morgan Commodities Research

Implications and risks

Why did oil prices collapse in 2H2014?

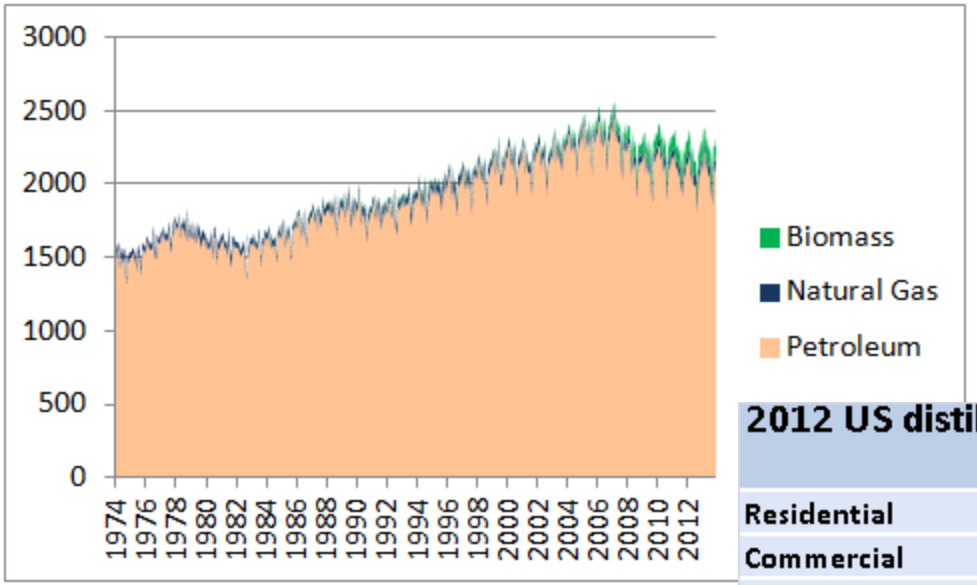
Great Deflation or the Ascent of Risk?

What are the implications and risks from here?

Before the plunge, Canadian oilsands were projected to account for 28% of global supply growth thru 2030.

	2012		2030P	Growth
Oilsands	1.8		5.2	3.4
	-------	=>	-------	
Total Canada	3.2		6.7	3.5
Oilsand share	56%		78%	97%

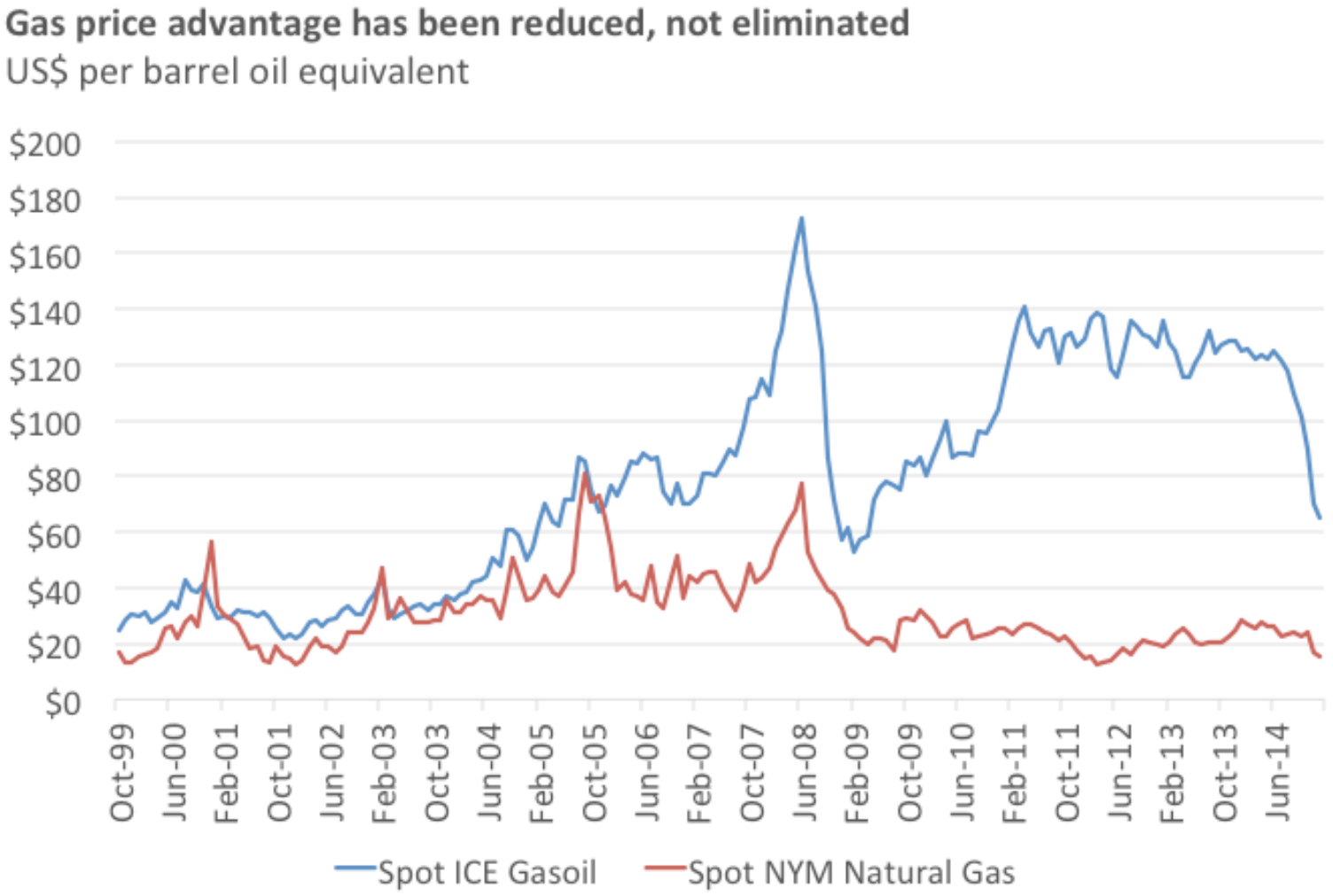
As lower price prompts huge cuts to capex, what is the new plan to fill this gap? LTO? NGV? Solar to liquids?



2012 US distillate consumption by end use

	million gallons	kbd	Percent Share
Residential	3473	400	6%
Commercial	2558	294	4%
Industrial	2326	268	4%
Oil Company	1711	197	3%
Farm	3032	349	5%
Electric Power	462	53	1%
Railroad	3118	359	5%
Vessel Bunkering	1768	203	3%
On-Highway	36343	4182	64%
Military	143	16	0%
Off-Highway	2088	240	4%
Total	**57,022**	**6,561**	

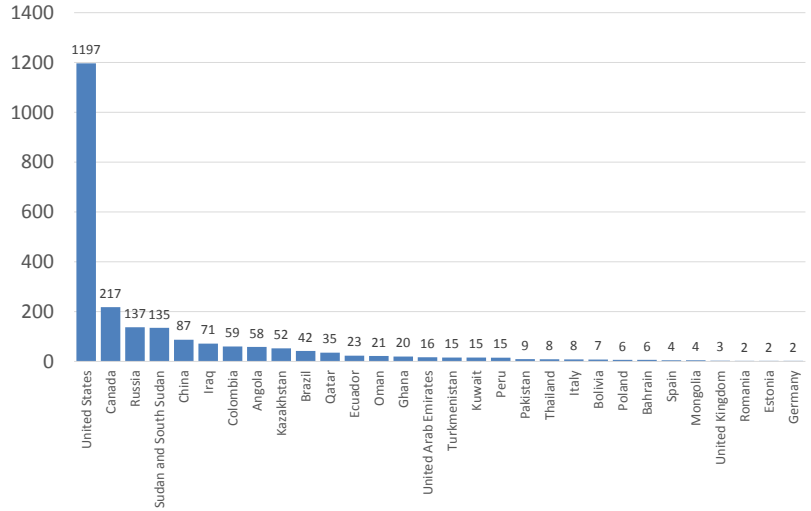
The diesel – natural gas spread, though narrowed, is still open and it is likely to widen again.



World liquids supply growth depends on US tight oil.

US growth > all others combined

Liquids production growth by country, 2013
thousand b/d. These top 30 growers = +2276 kbd.

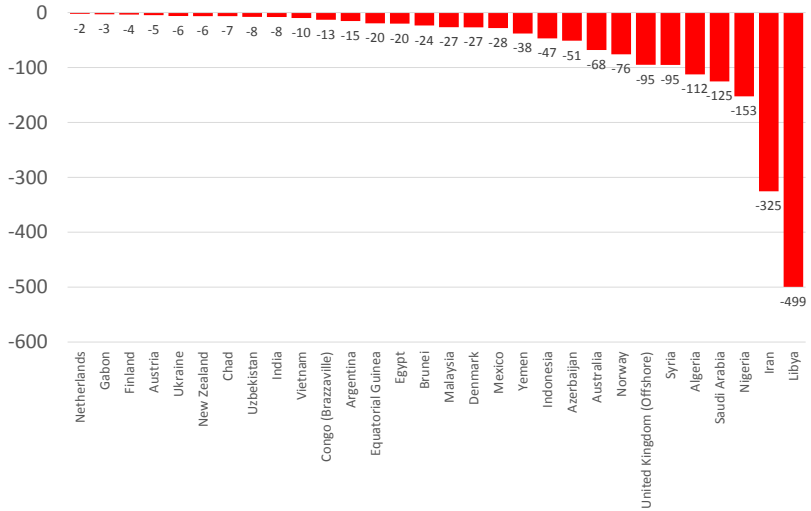


Source: BP Statistical Review (2014), Blacklight Research

(2013) Number of countries who grew liquids production by > 200 kbd: **2**

Oil output is falling in most countries

Liquids production growth by country, 2013
thousand b/d. These bottom 30 growers = —1918 kbd.



Source: BP Statistical Review (2014), Blacklight Research

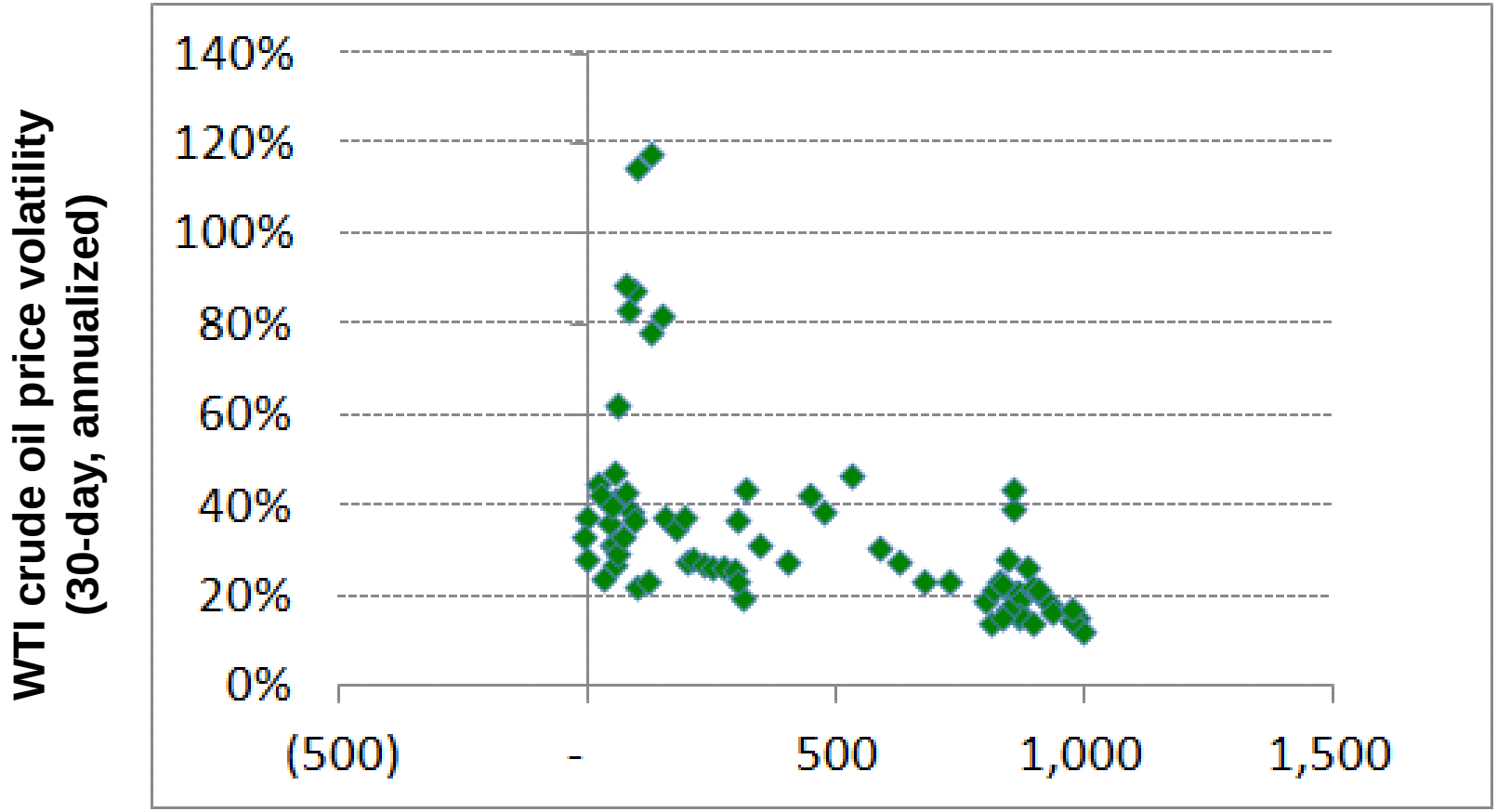
(2013) Number of countries who lost liquids production by > 100 kbd: **5**

Global petroleum balance tightened by 1.3 mbd from 2009 through 2013, despite +4.3 mbd US surplus.

Cumulative change in petroleum supply and demand: 2009 through 2013 (kbd)					
	Liquids Output	Refinery Gains	Supply Growth	Demand Growth	Change in Balance
North America	4081	110	4192	-588	4780
Canada	727	2	729	78	651
Mexico	-275	-2	-276	-56	-220
USA	3629	109	3738	-611	4350
Asia	288	110	398	4463	-4065
China	389	34	423	2649	-2226
India	82	25	107	645	-538
Indonesia	-123	0	-123	299	-422
Rest of Asia	-59	51	-9	870	-878
Eurasia	998	5	1003	532	470
Russia	729	8	737	414	323
Latin America	471	7	478	1033	-555
Middle East	1039	15	1053	1534	-480
Africa	-1253	3	-1250	433	-1683
Europe	-1442	41	-1400	-1854	454
Oceania	-166	0	-166	77	-242
World	4016	291	4307	5629	-1322

Source: EIA, IEA, Company Reports, BPSR, Blacklight Research

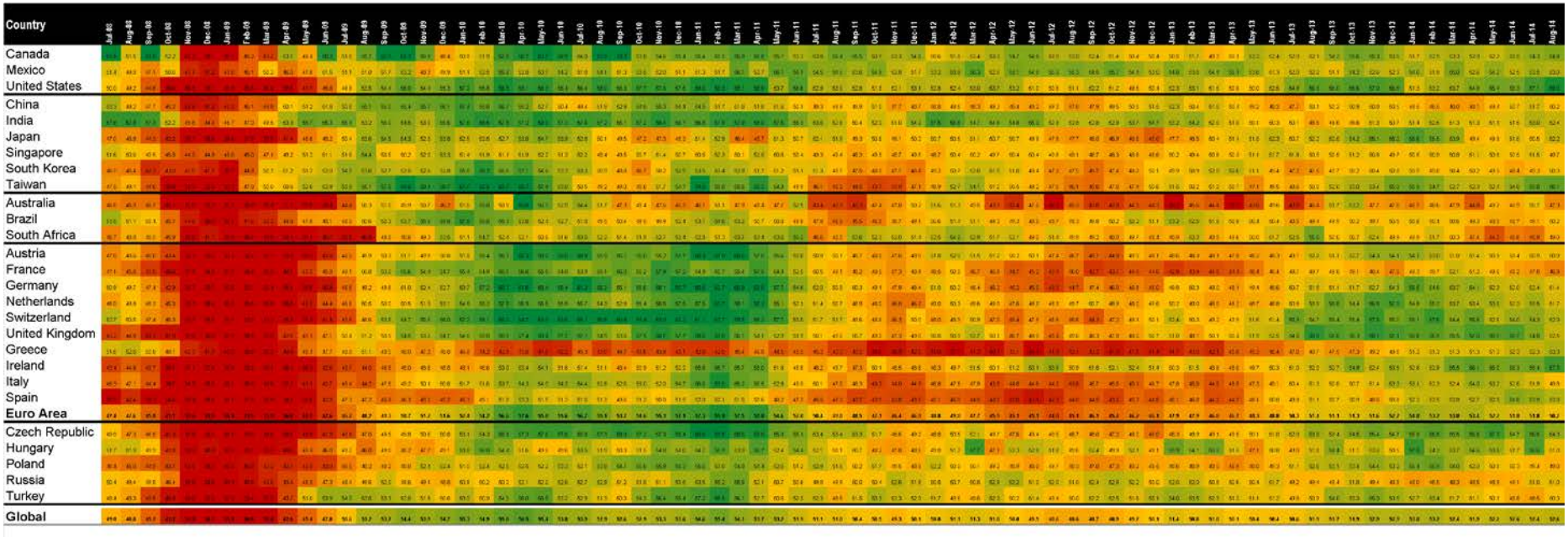
As US LTO production growth slows toward 500 kbd or less, volatility is more likely to be >30% than <25%.



Source: EIA, NYM, Blacklight Research

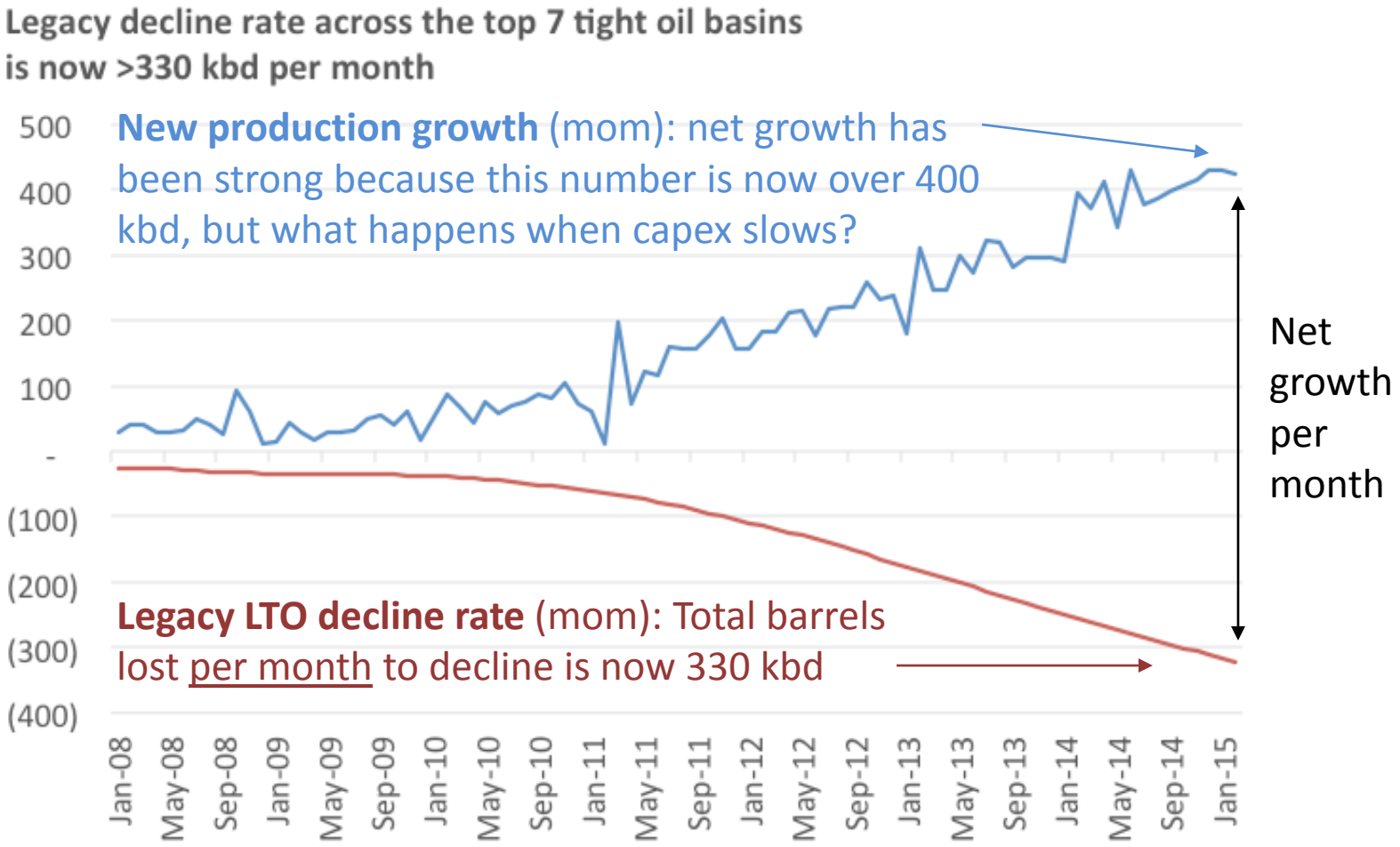
Global manufacturing activity through early 2015 looks solid overall, with Europe the notable exception.

PMI (manufacturing) heat map: economic scale moves from below normal (deepest red) to above normal (deepest green)

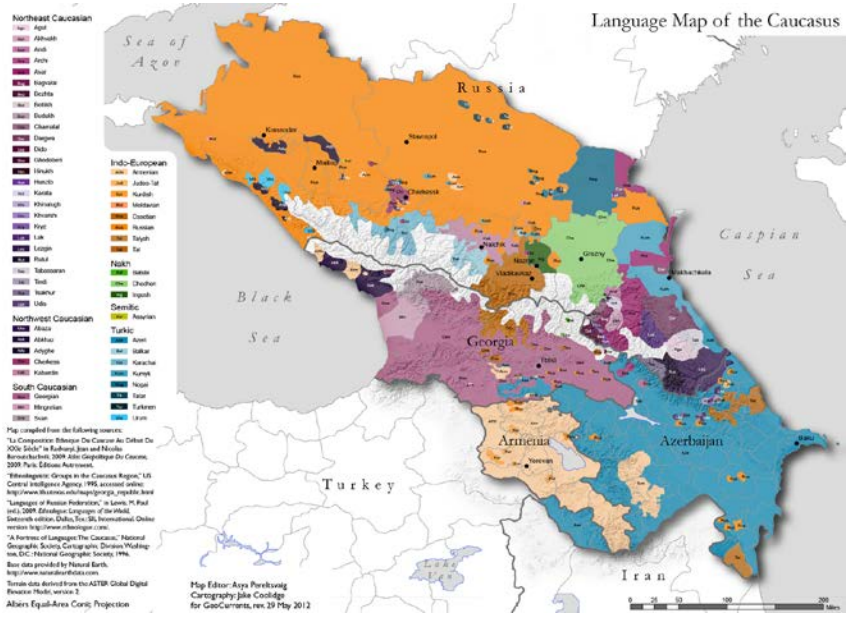


Source: Government and industry sources, J.P. Morgan Commodities and Economics Research

And US is dependent on an enormous decline rate lurking beneath its statistics: capital needs are huge.



‘Ukraine’ and ‘Xinjiang’ both mean “frontier” or “edge”. As in the Caucasus, ethnicity differs from “the center”.



Source: University of Texas

What risk do ISIS-affiliated Uighurs pose to the security of oil facilities in Singapore or Shanghai?

Uighurs stepped up violent protests in Xinjiang in Spring 2014 when the world was watching China closely during a state visit by Putin. Are Uighurs really traveling to SE Asia? If yes, why?

May 2014: trial of 55 "extremists" in a soccer stadium in Xinjiang

The Straits Times
www.straitstimes.com
Published on Sep 16, 2014

Indonesia ISIS probe throws focus on Xinjiang link

Scores from China's province nabbed in South-east Asia in recent months

By Zakir Hussain & Kor Kian Beng

EVEN as Indonesian police continue to investigate four ethnic Uighurs arrested in Sulawesi over the weekend on suspicion of terror links, attention is being focused on the rising number of this group from China's restive Xinjiang province making their way to South-east Asia in recent months.

Scores of illegal immigrants from Xinjiang have been arrested in Thailand, Malaysia and Vietnam, and analysts say the trend is linked to rising violence in their home province over the past year.

Many of them arrive in the hope of seeking asylum in Turkey, a country that has been sympathetic to their plight given their ethnic and linguistic kinship, even though few have made it there.

"The vast majority do not support separatism or terrorism," Dr Rohan Gunaratna of Singapore's International Centre for Political Violence and Terrorism Research told The Straits Times.

Flashpoint: rhetoric about “loose nukes” has picked up

Jan 22: “3 Minutes to Midnight”

Factors to consider

- End of Nunn-Lugar
- Ukraine = no compromise
- Egypt has bombed Libya
- Terror in France/Denmark
- Japan loses a citizen to IS
- Cyber attacks

US Strategic Petroleum Reserve: From Defensive Cupboard to Offensive Policy Lever?

SPR as peaceful/lawful projection of US power through competitive markets

- Max rate of draw = 4.4 million b/d for 90 days = Russia
- Steady draw for:
  - 1 year = 1.89 million b/d = Norway
  - 2 years = 946 thousand b/d = Oman or UK
  - 3 years = 631 thousand b/d = Argentina
  - 4 years = 473 thousand b/d = Thailand
  - 5 years = 379 thousand b/d = Australia

Conclusions: The Ascent of Risk

- New fundamentals, new trade rules, new walls
- Same markets, same economics
- Russia will likely lose market share: 500 to 2000 kbd by 2020
- Spot prices have likely bottomed
- Vol here to stay, but it's a return to normal.
- It is not possible to predict future prices.
- We can only frame and weigh risk scenarios, then manage.

Thank you

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