DNB Markets Shipping

November 2014

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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Table of content

- Shipping from a cycle perspective
- Shipping recovery in 2013 thanks to slow-steaming
- Lower oil prices is not what shipping needs
- Dry bulk market
- Crude tanker market

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
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Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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Shipping from a cycle perspective

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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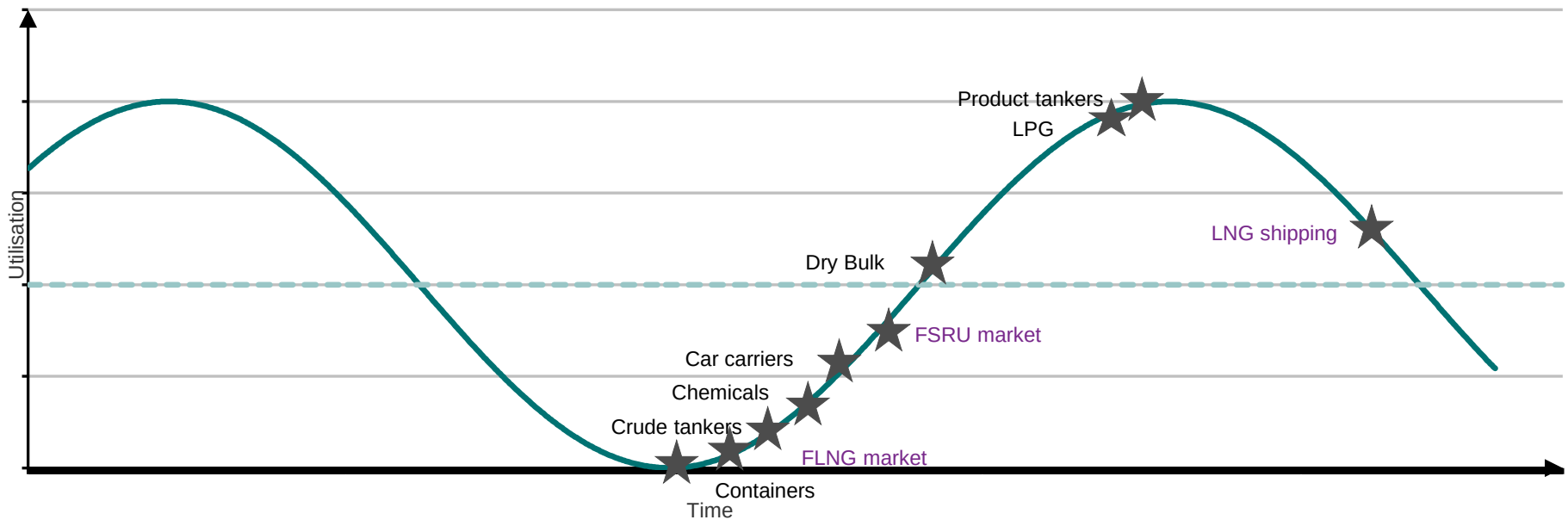
Shipping from a cycle perspective



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Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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Shipping recovery in 2013 thanks to slow-steaming
Lower oil prices is not what shipping needs

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
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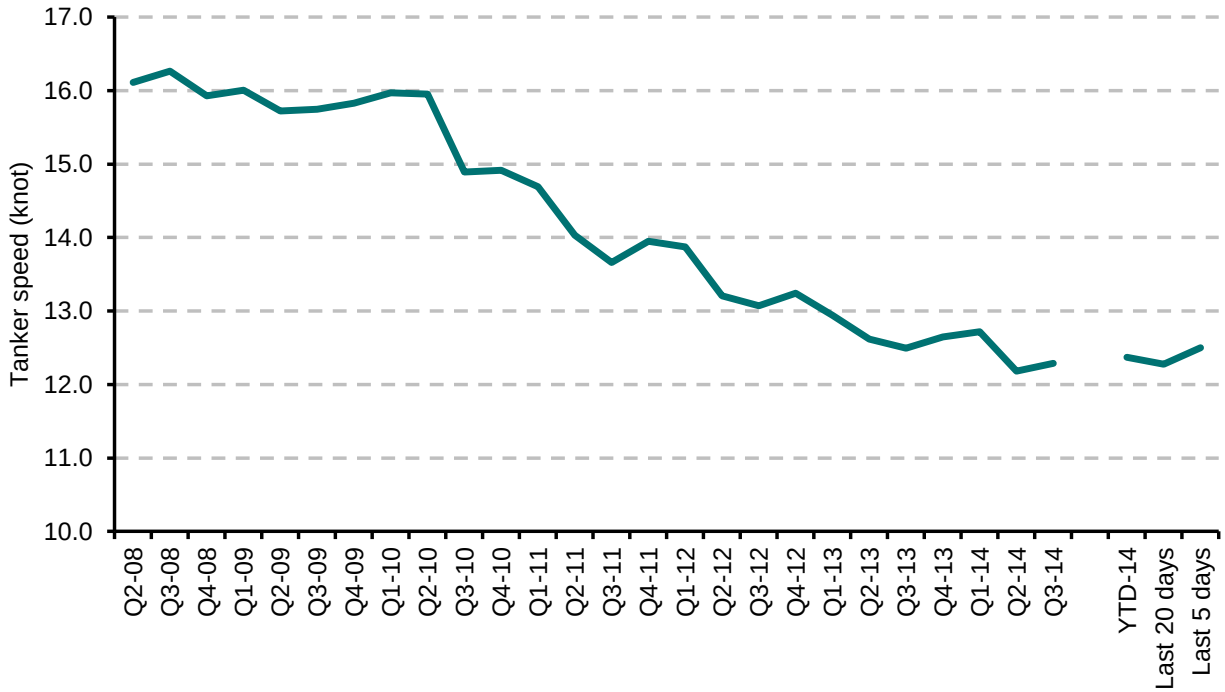
VLCC speed (knots)



Source: AIS Live and DNB Markets

High bunker (oil) prices and low rates have led to a sharp decline in VLCC speed (knots) increasing capacity utilization...

…while a USD20/bbl decline in the oil price and rate recovery have led to a speed increase adding capacity to the market

We calculate that 10-12% of crude tanker fleet is tied up in slowsteaming

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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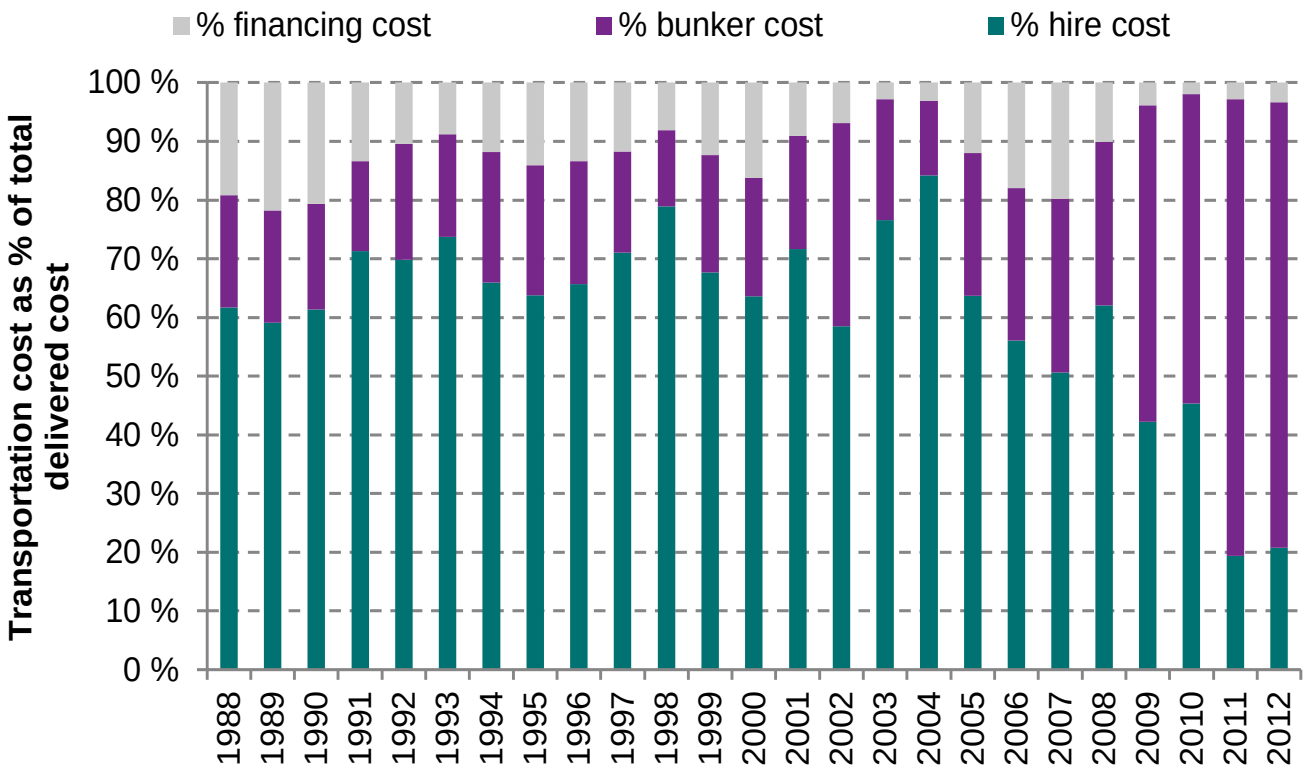
Historical vessel hire and bunker costs for a VLCC vessel (%)



Bunker cost has increased from 20% to 80% from the 80ies until today

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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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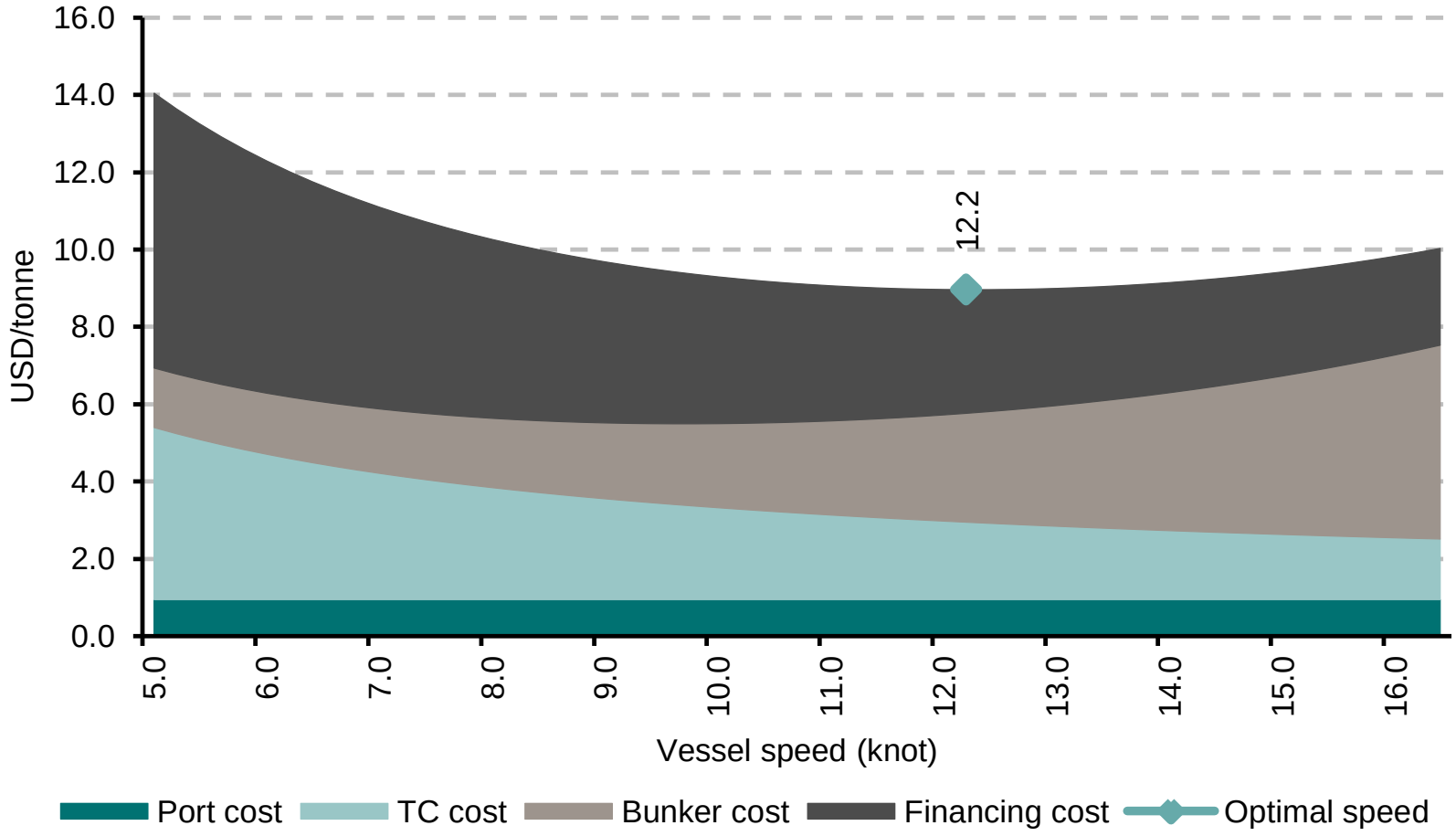
Freight cost in laden condition for a VLCC



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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Every freight rate and oil price has its optimal VLCC speed (knots)

Optimal laden speed increased from 13.8 to c14.5 knots

OPTIMAL SPEED LADEN

	TC rates [$/day]																			
Bunker price	**2500**	**5000**	**7500**	**10000**	**12500**	**15000**	**17500**	**20000**	**22500**	**25000**	**27500**	**30000**	**32500**	**35000**	**37500**	**40000**	**42500**	**45000**	**47500**	**50000**
100	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
150	16.0	16.3	16.5	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
200	15.1	15.3	15.5	15.7	15.9	16.0	16.2	16.4	16.5	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
250	14.4	14.6	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	16.0	16.1	16.3	16.4	16.6	16.6	16.6	16.6	16.6	16.6
300	13.9	14.1	14.2	14.4	14.6	14.7	14.9	15.0	15.1	15.3	15.4	15.5	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.5
350	13.4	13.6	13.8	13.9	14.1	14.2	14.4	14.5	14.7	14.8	14.9	15.0	15.1	15.3	15.4	15.5	15.6	15.7	15.8	15.9
400	13.1	13.2	13.4	13.6	13.7	13.8	14.0	14.1	14.2	14.4	14.5	14.6	14.7	14.8	14.9	15.1	15.2	15.3	15.4	15.5
450	12.8	12.9	13.1	13.2	13.4	13.5	13.6	13.8	13.9	14.0	14.1	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1
500	12.5	12.6	12.8	12.9	13.1	13.2	13.4	13.5	13.6	13.7	13.8	13.9	14.1	14.2	14.3	14.4	14.5	14.6	14.6	14.7
550	12.2	12.4	12.6	12.7	12.8	13.0	13.1	13.2	13.3	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.4
600	12.0	12.2	12.3	12.5	12.6	12.7	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2
650	11.8	12.0	12.1	12.3	12.4	12.5	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0
700	11.7	11.8	11.9	12.1	12.2	12.3	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.7
750	11.5	11.6	11.8	11.9	12.0	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.5
800	11.4	11.5	11.6	11.8	11.9	12.0	12.1	12.2	12.3	12.5	12.6	12.7	12.8	12.8	12.9	13.0	13.1	13.2	13.3	13.4
850	11.2	11.4	11.5	11.6	11.7	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.0	13.1	13.2
900	11.1	11.2	11.4	11.5	11.6	11.7	11.8	12.0	12.1	12.2	12.3	12.4	12.5	12.5	12.6	12.7	12.8	12.9	13.0	13.0
950	11.0	11.1	11.2	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.7	12.8	12.9
1000	10.9	11.0	11.1	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.4	12.5	12.6	12.7	12.8

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Dry bulk

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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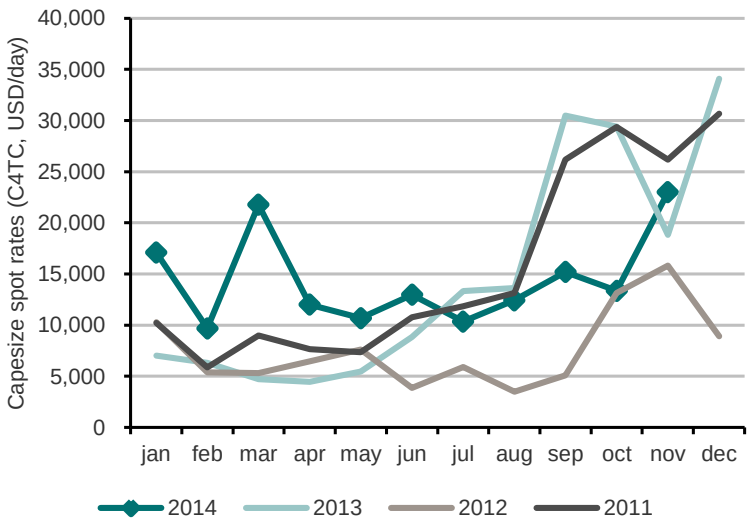
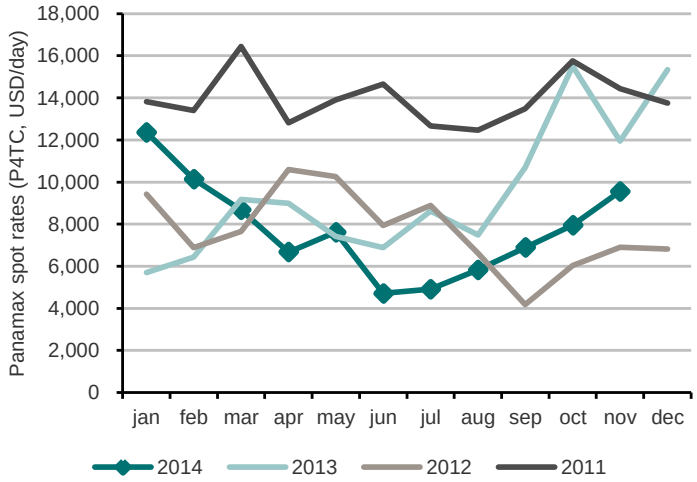
Capesize market performing while smaller vessel sees lower rates

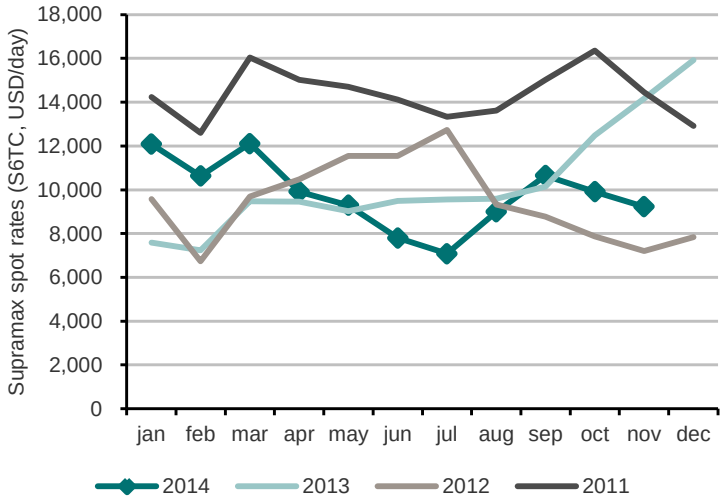
Capesize spot rates



Panamax spot rates



Supramax spot rates



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Iron ore

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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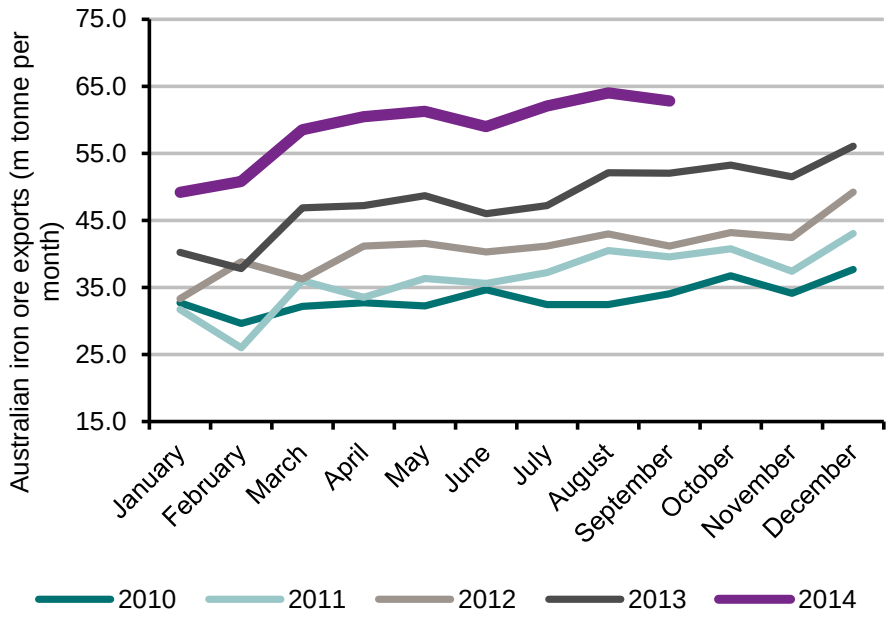
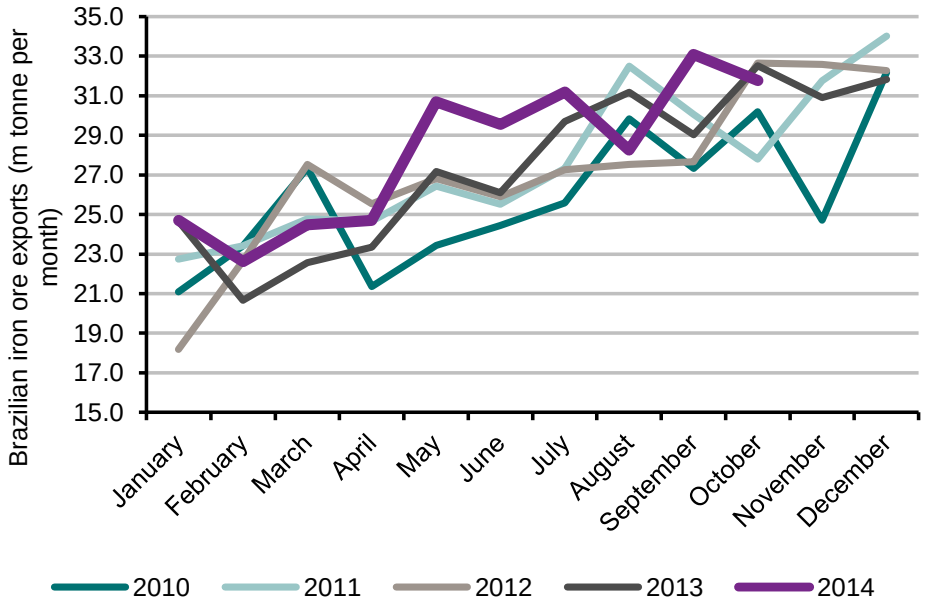
2014 has been a very good year in the seaborne iron ore market

Australian iron ore exports up 26% YTD



Brazilian iron ore exports up 5% YTD



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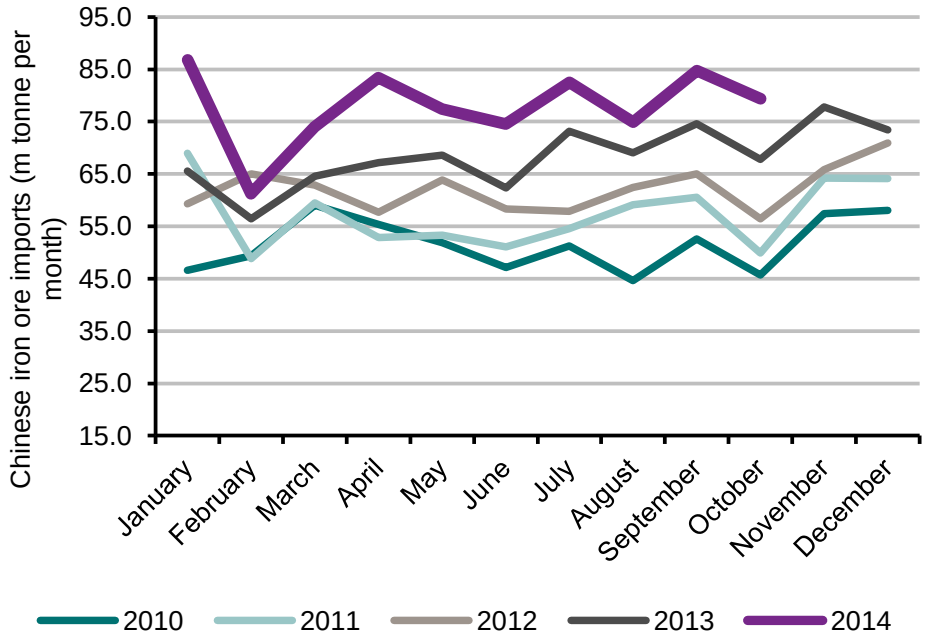
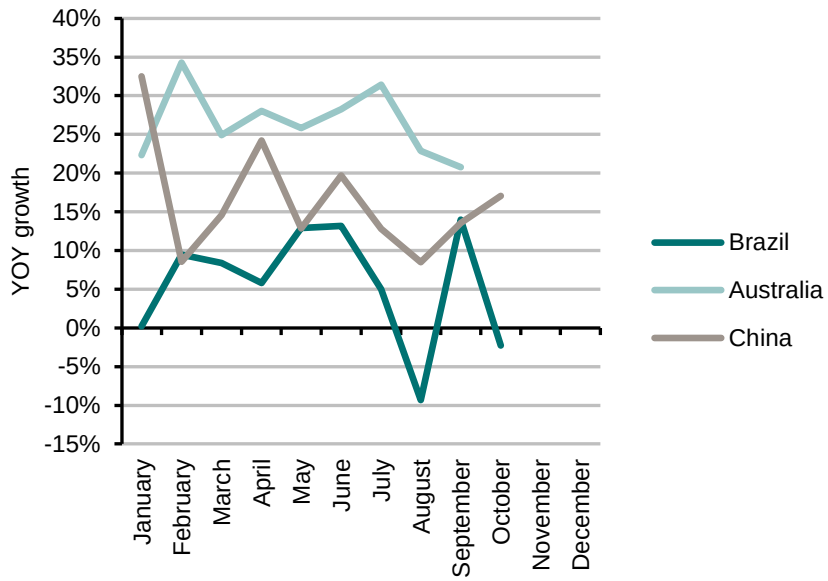
Chinese iron ore imports up 16% YTD

Chinese iron ore imports up 16% YTD



YOY growth by month YTD



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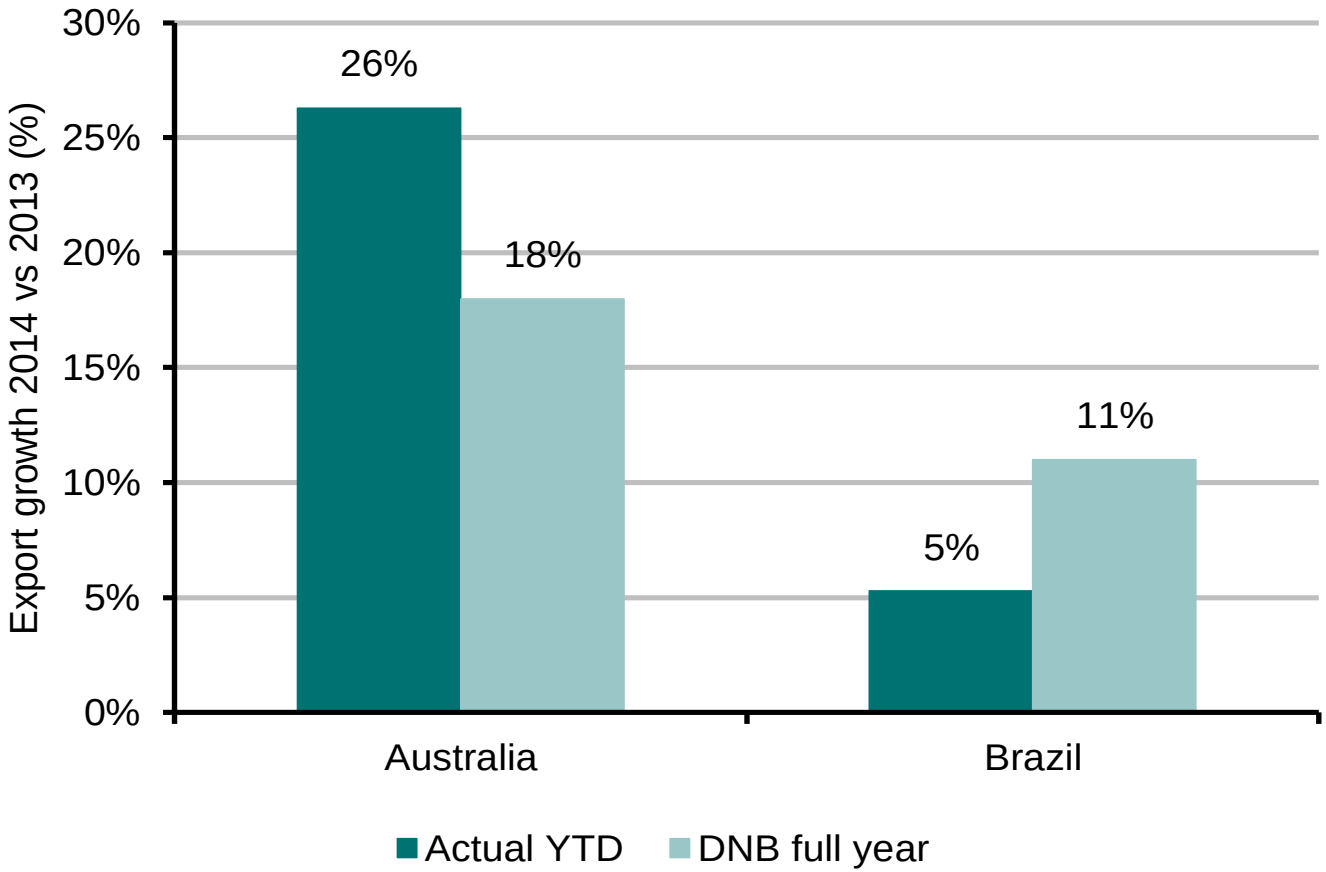
DNB full-year iron ore growth estimates versus YTD growth



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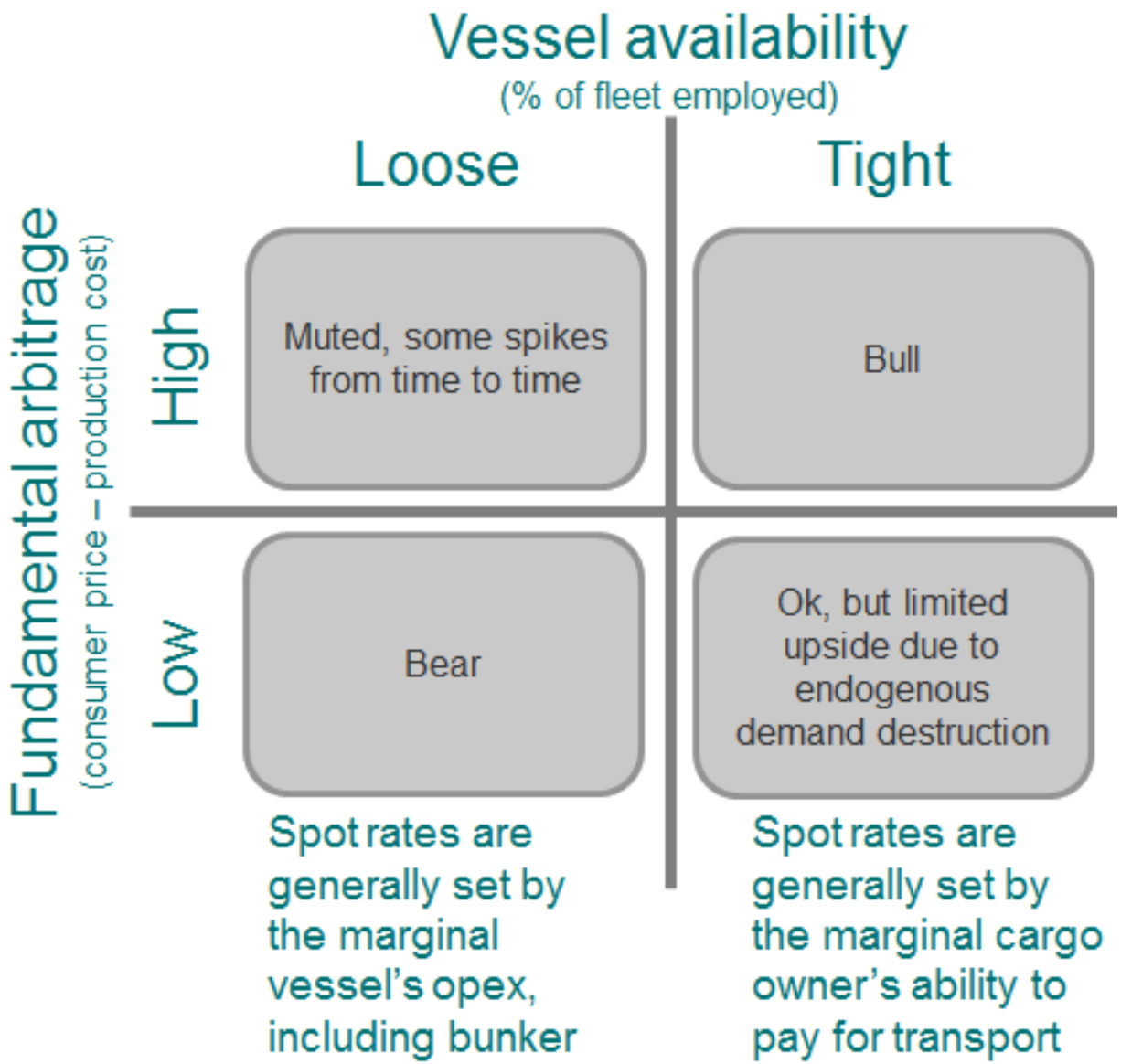
How we look at spot rate formation in shipping



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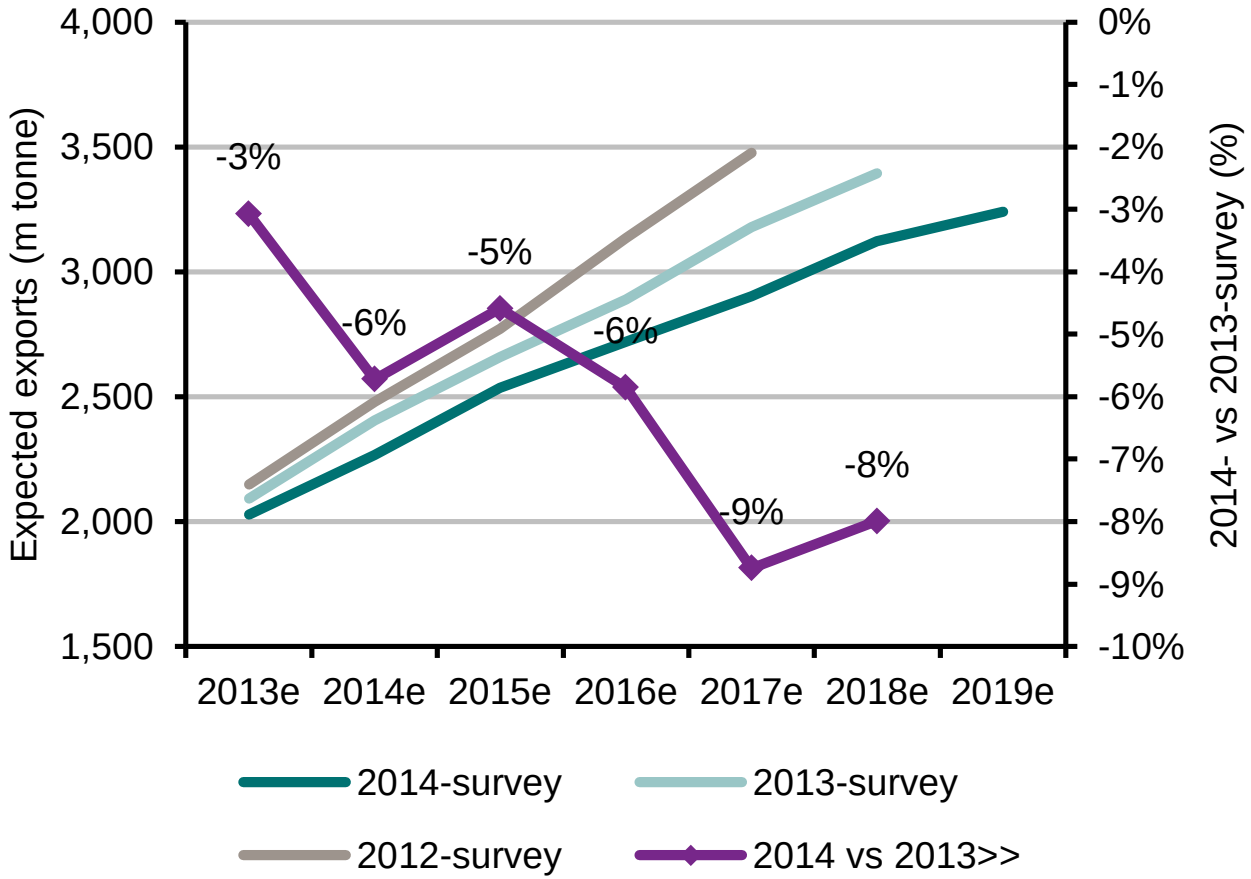
Our positive view on iron ore imports is taken from our annual iron ore and coal survey where we contact 90% of the industry



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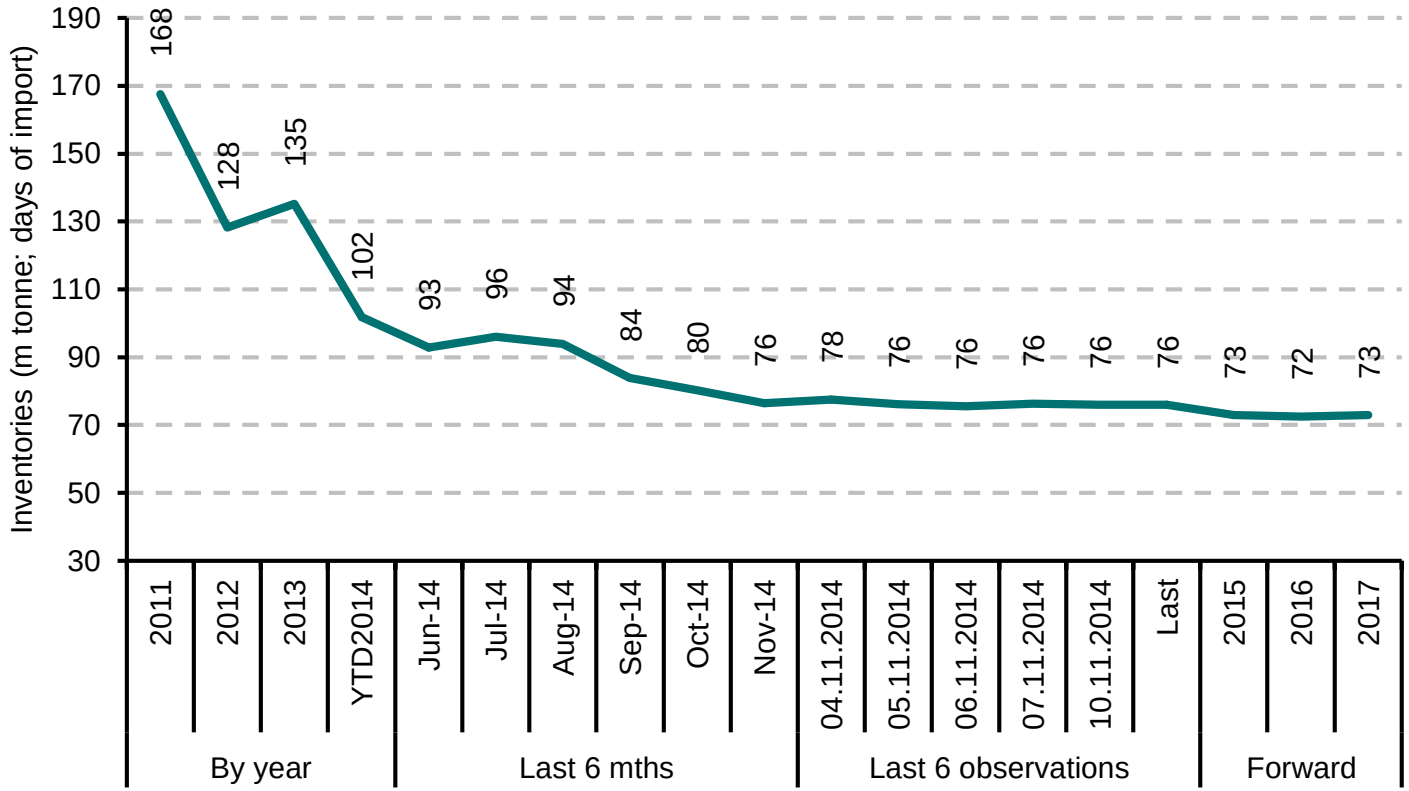
Lower Chinese iron ore prices has been good for Chinese import substitution



Source: Bloomberg (various)

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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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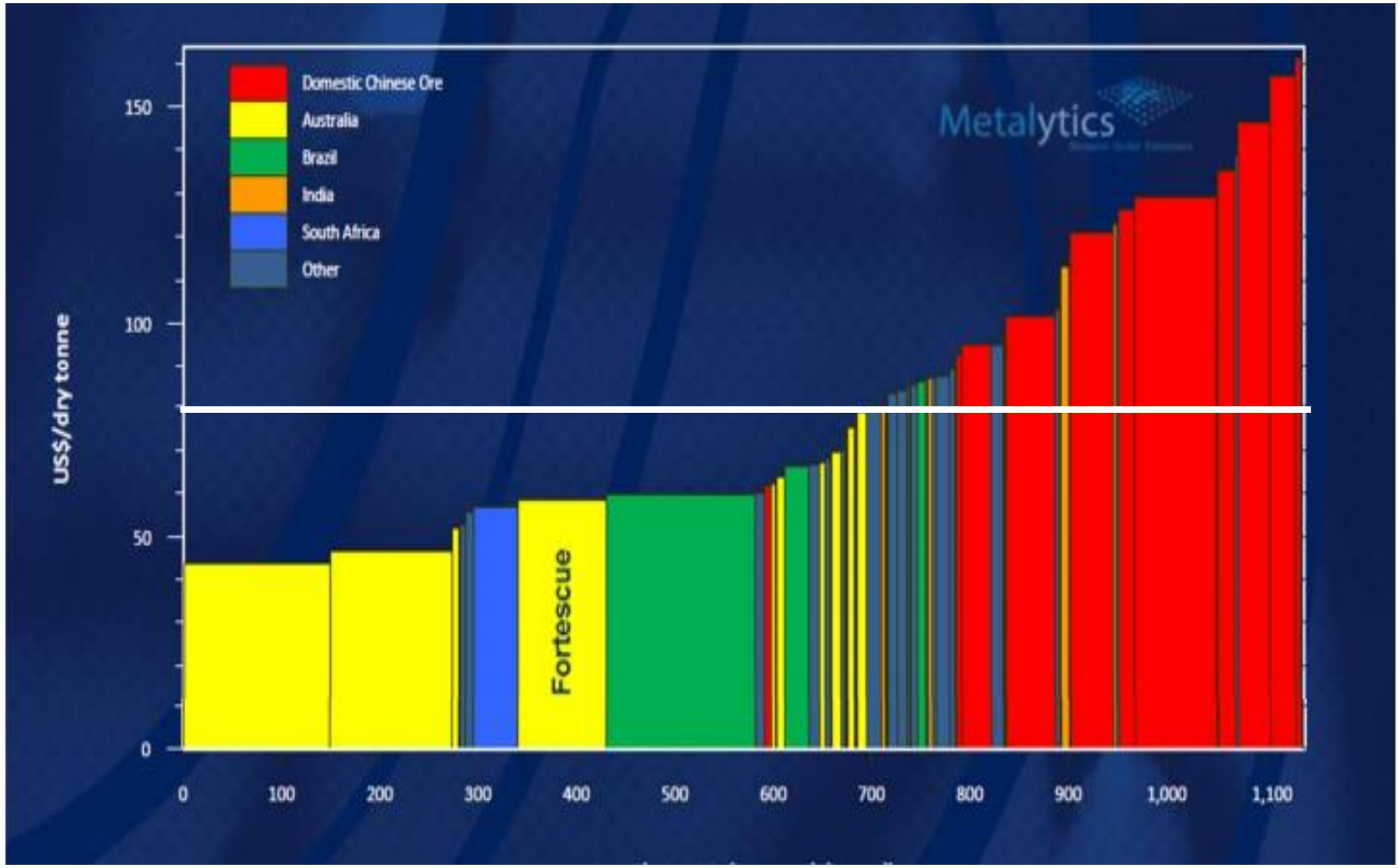
Current level on iron ore prices makes most of Chinese domestic production loss-making (CIF China, USD/tonne)



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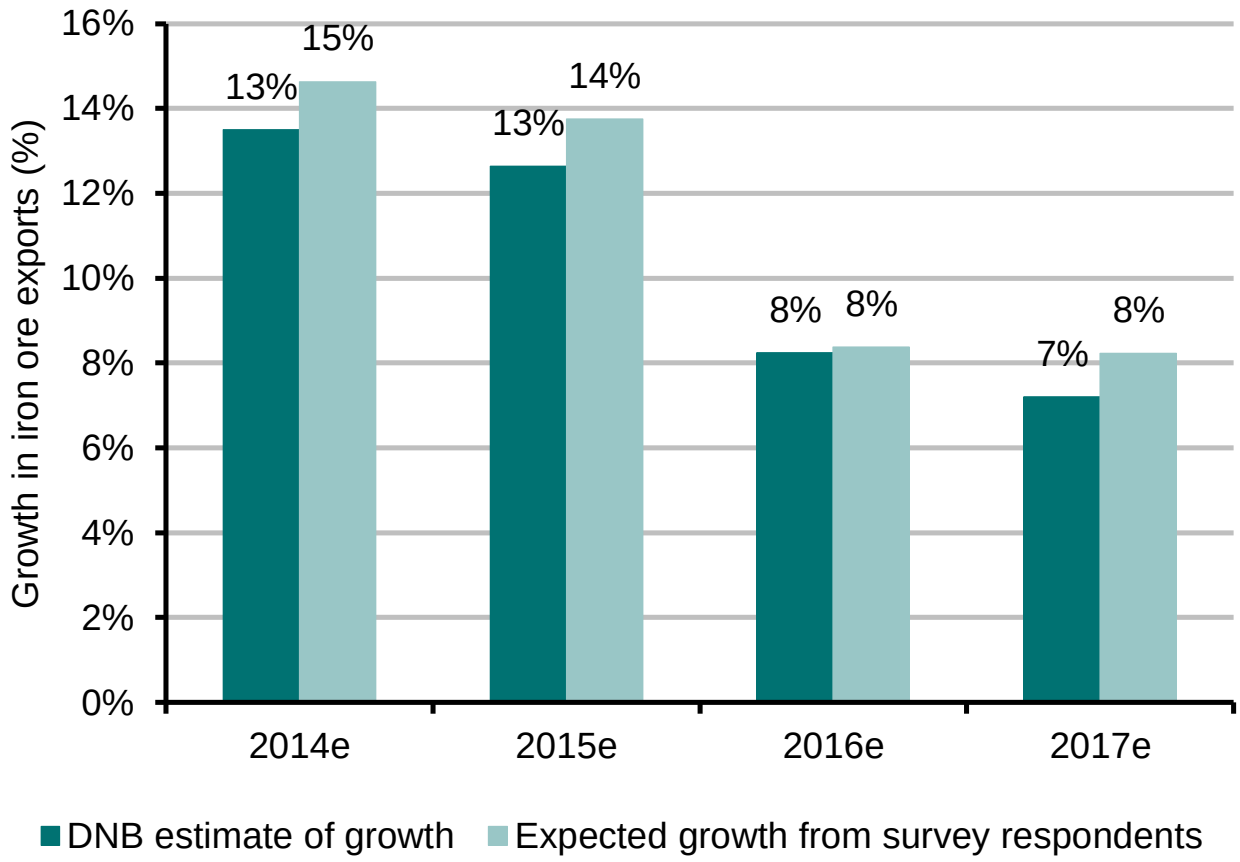
Expected growth in iron ore exports based on our survey



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USD80/tonne is not a problem, but USD65/tonne would be

CIF China (USD/tonne)	FOB Brazil (USD/tonne) 30	35	40	45	50	55
50	16,168	5,571	-5,027	-15,625	-26,223	-36,821
55	26,766	16,168	5,571	-5,027	-15,625	-26,223
60	37,364	26,766	16,168	5,571	-5,027	-15,625
65	47,962	37,364	26,766	16,168	5,571	-5,027
70	58,560	47,962	37,364	26,766	16,168	5,571
75	69,158	58,560	47,962	37,364	26,766	16,168
80	79,755	69,158	58,560	47,962	37,364	26,766
85	90,353	79,755	69,158	58,560	47,962	37,364
90	100,951	90,353	79,755	69,158	58,560	47,962
95	111,549	100,951	90,353	79,755	69,158	58,560
100	122,147	111,549	100,951	90,353	79,755	69,158
105	132,745	122,147	111,549	100,951	90,353	79,755
110	143,342	132,745	122,147	111,549	100,951	90,353

Assumptions

Intake	180	k tonne
Distance	12000	n miles
Vsl speed	13	knot
Voy length	76.9	days
Port days	8	days
Bunker price	600	USD/tonne
Cons per day	45	tonne/day

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Coal

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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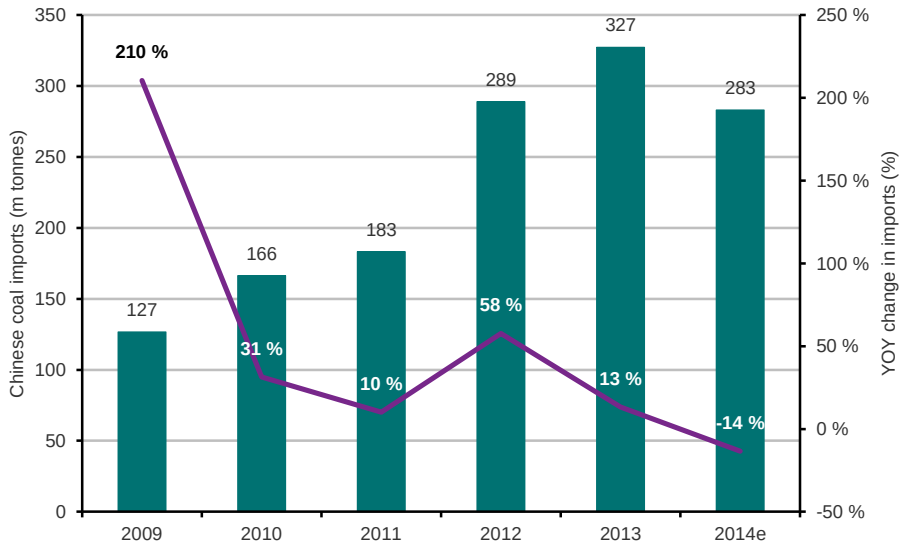
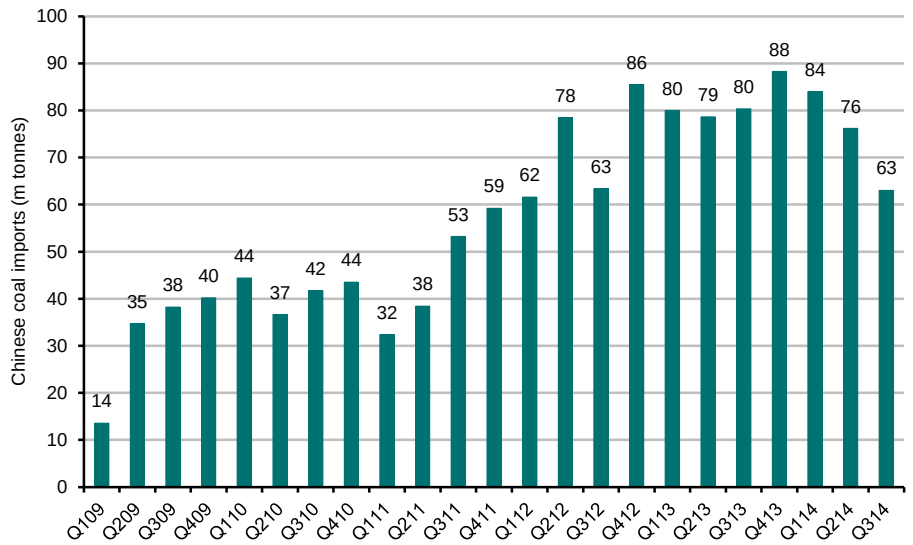
Chinese coal imports set for a 14% YOY decline (run-rate)

Chinese coal imports (m tonnes)



Chinese coal imports by quarter (m tonnes)



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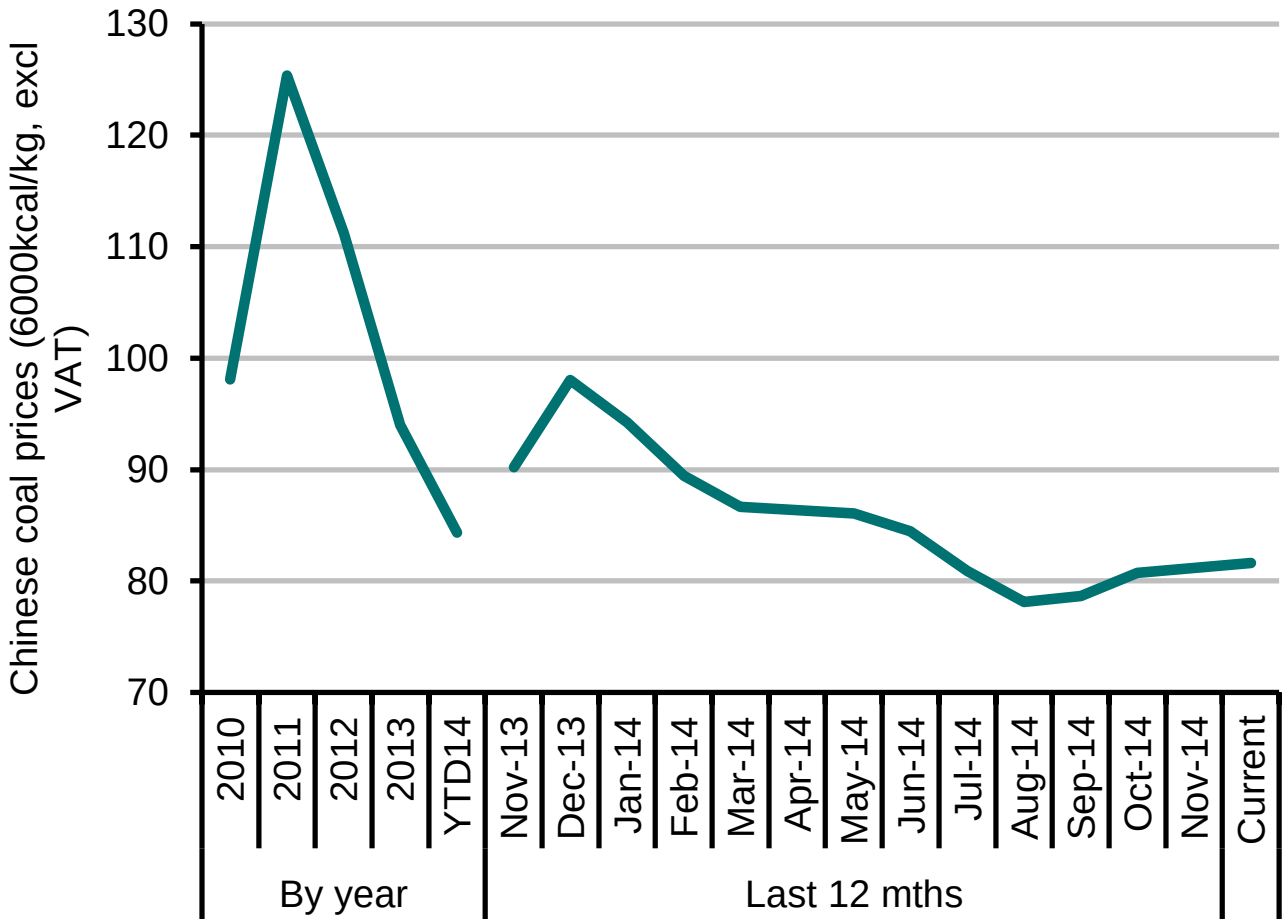
Chinese coal prices; average 2014 price 10% below 2013 (full-year) average



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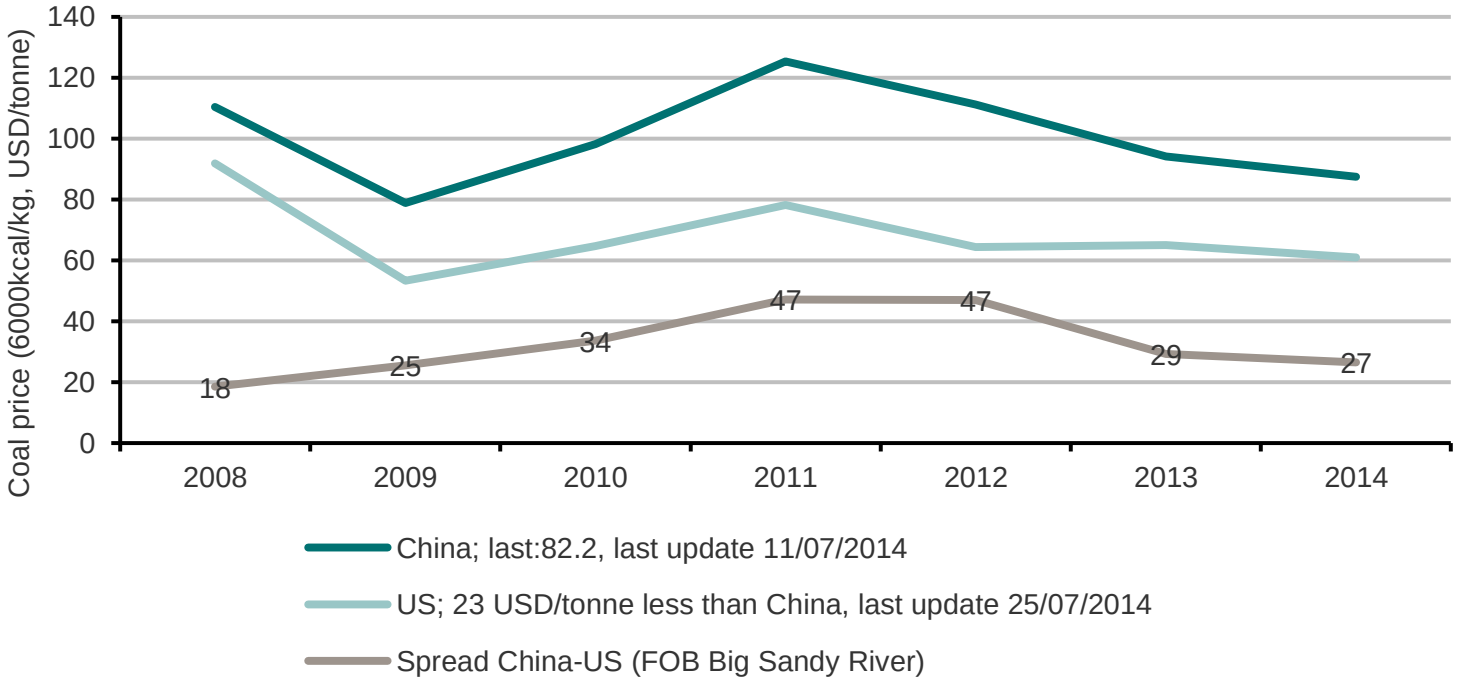
…which again is caused by weak coal prices …

Chinese coal prices are down about 50% from 2011, taking away the arbitrage for Atlantic coal



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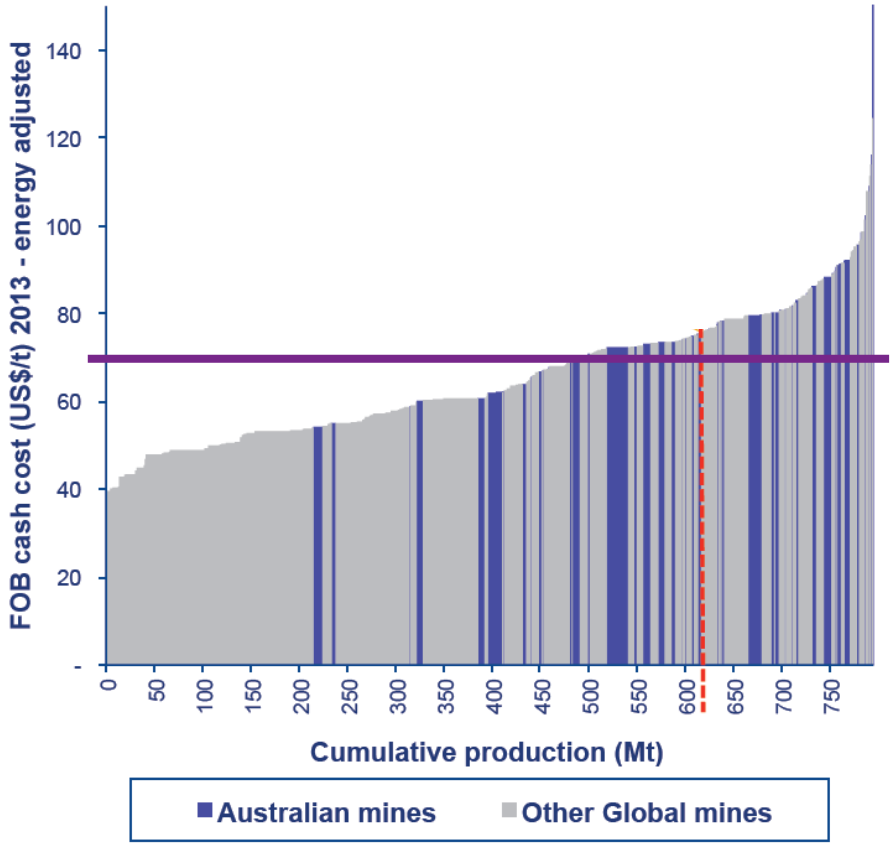
…as the global supply curve relatively expensive compared with iron ore (these are FOB prices, i.e. excluding freight)



BEIJING, July 24 (Reuters) - **More than 70 percent of China's coal firms are making losses**, the head of the coal industry association said on Thursday, with prices eroded by falling demand growth, a worsening supply glut and a war on smog.

Spot coal price in China is now USD78/tonne (6000kcal/kg), Cape spot is USD8/tonne (i.e. would need FOB Aussie USD70/tonne or less)

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
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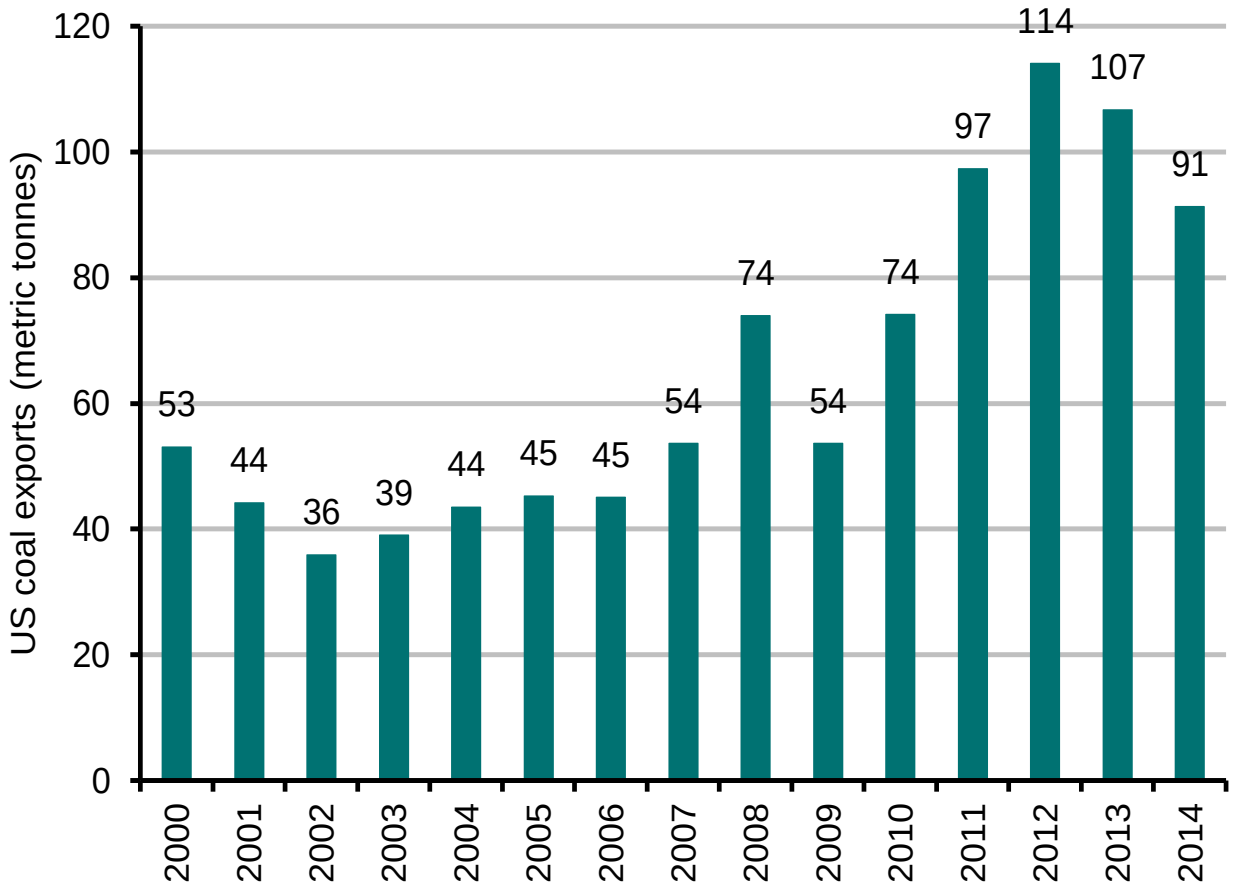
DNB MARKETS

US coal exports down 17% YTD (2014 annualized)



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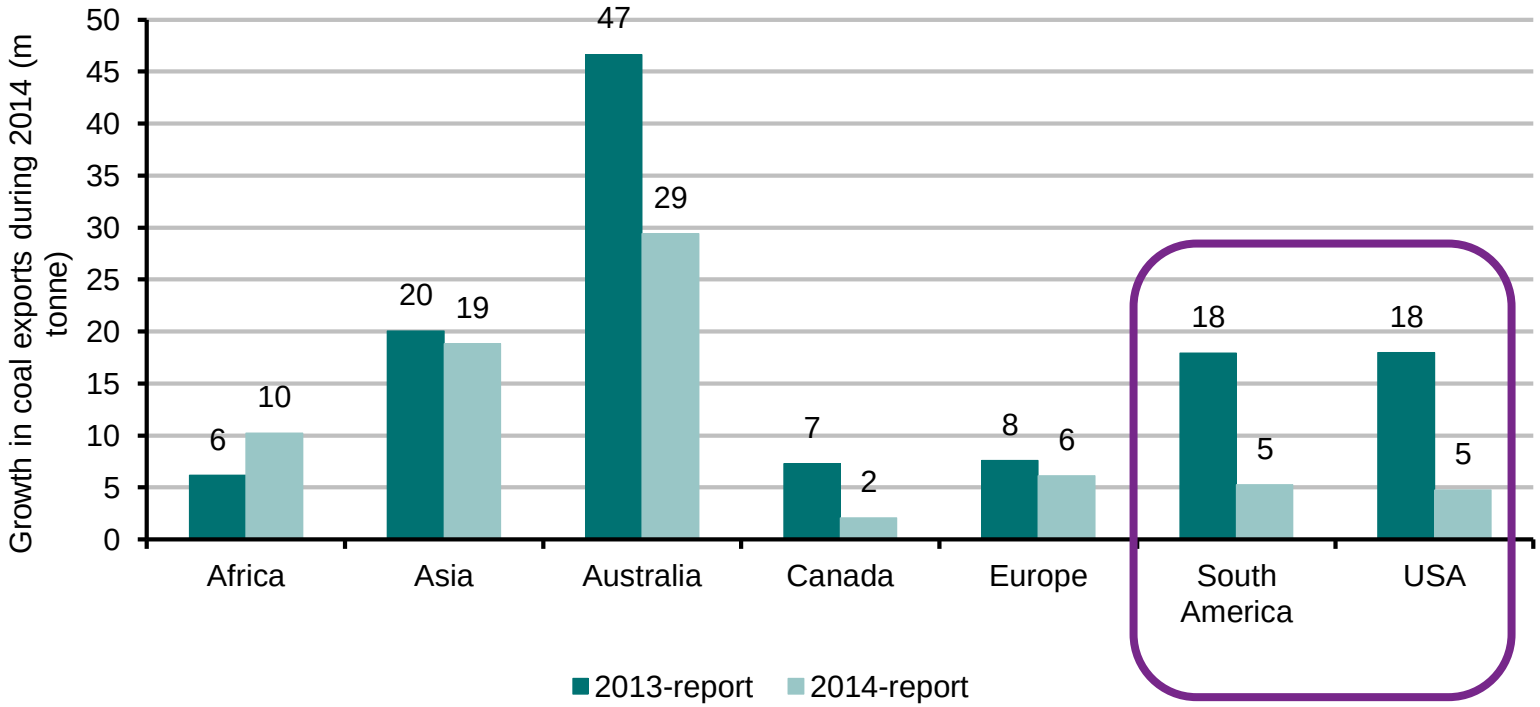
DNB MARKETS

2014e growth from the long haul Atlantic based exporters is down 70% in this year's survey



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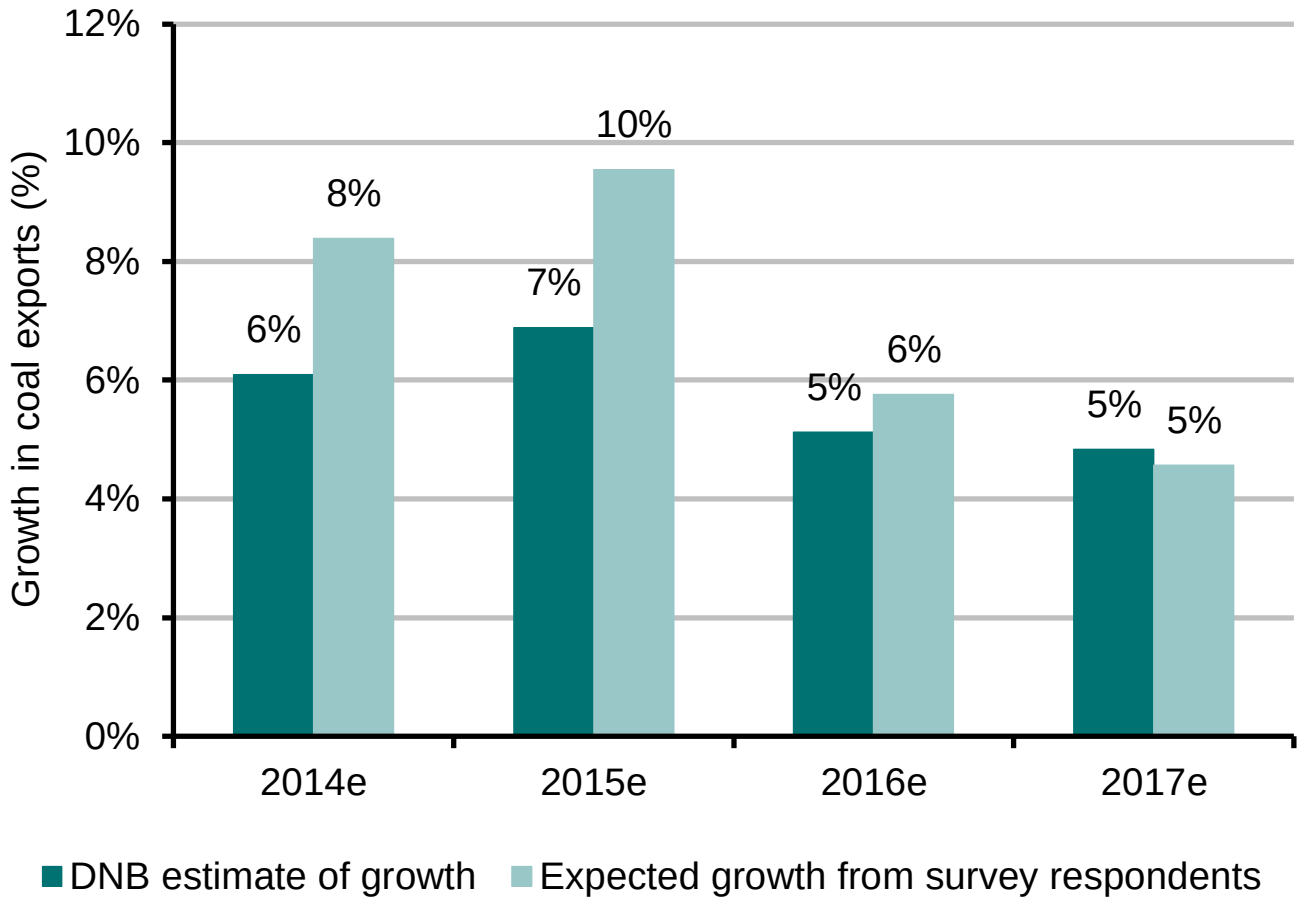
DNB MARKETS

Summarizing coal: we forecast continued growth, but believe our survey respondents are too optimistic



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DNB MARKETS

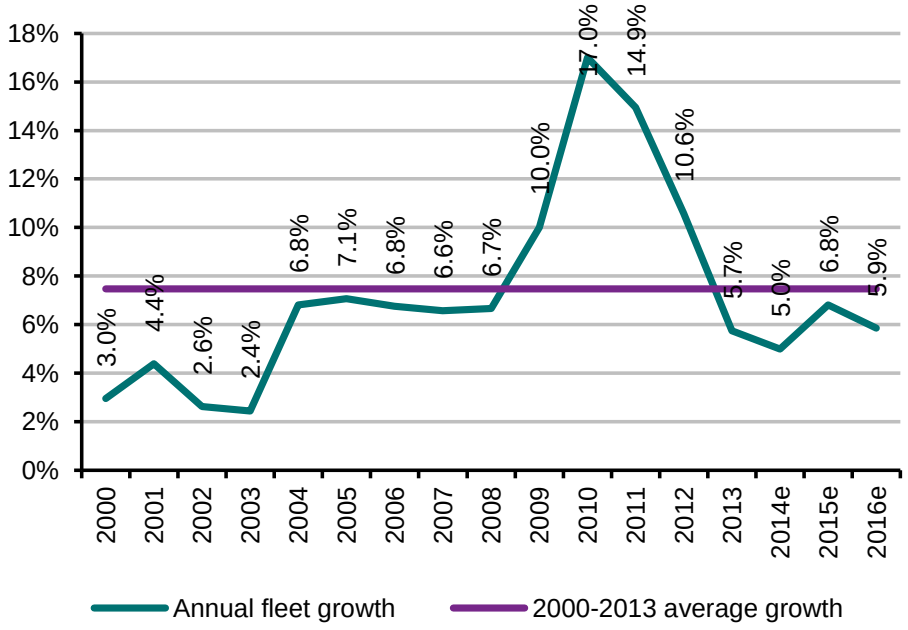
Supply/demand

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

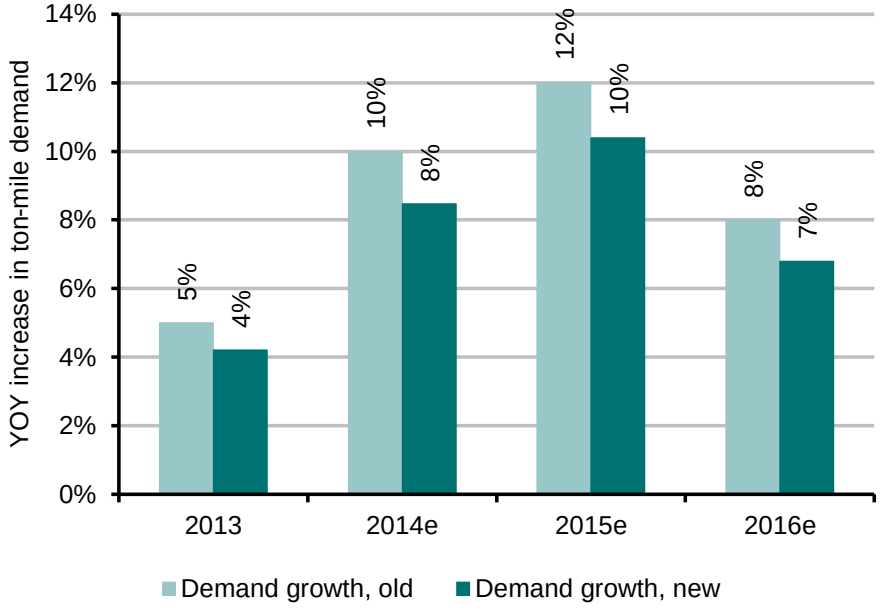
DNB MARKETS

Dry bulk investment case still applies as we believe China will act (economically) rational and not subsidise domestic miners

Fleet growth set to hit 11-year low and…



…demand looks solid (old=prior to August 2014)



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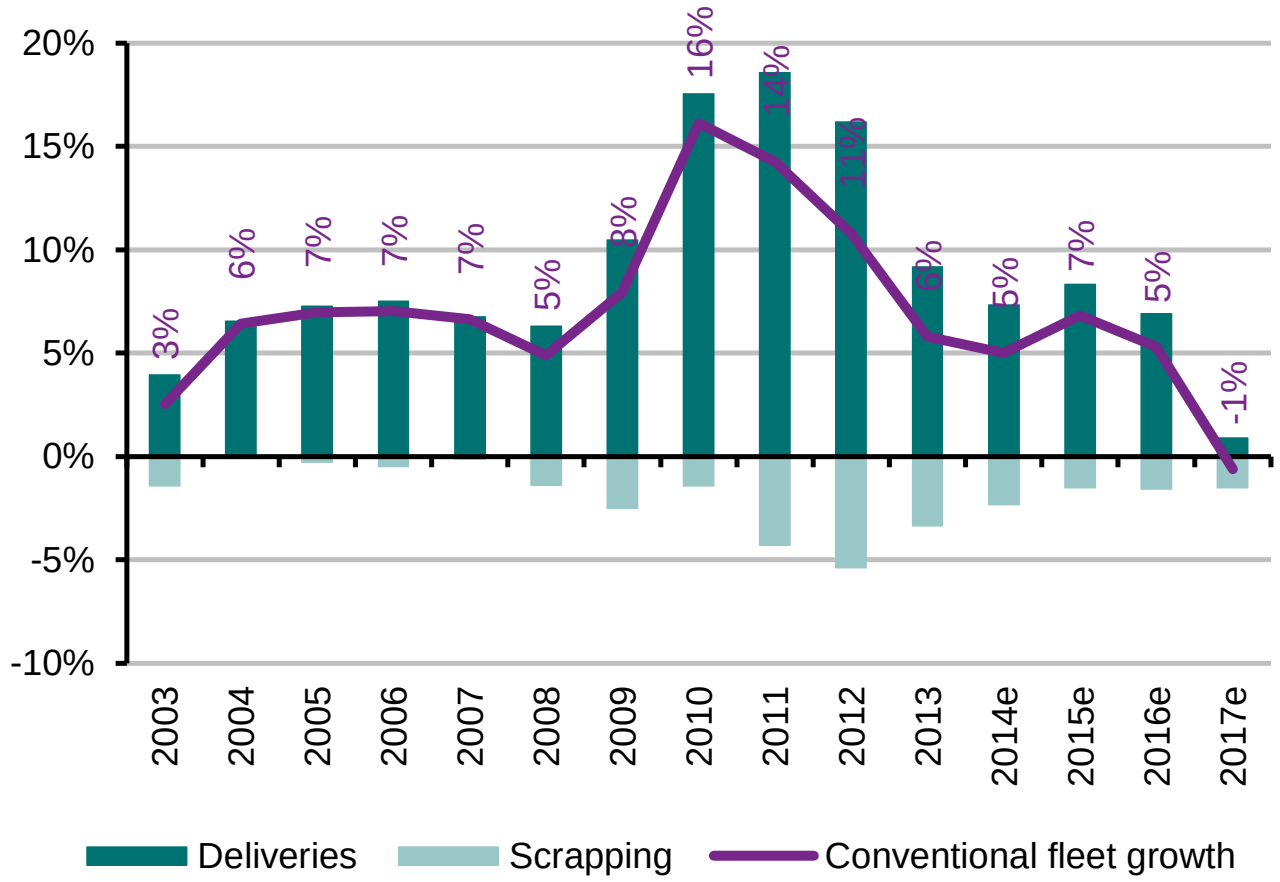
DNB MARKETS

Without new ordering 2016e fleet growth is 5% when assuming ~1% scrapping while 2017e orderbook has yet to fill up



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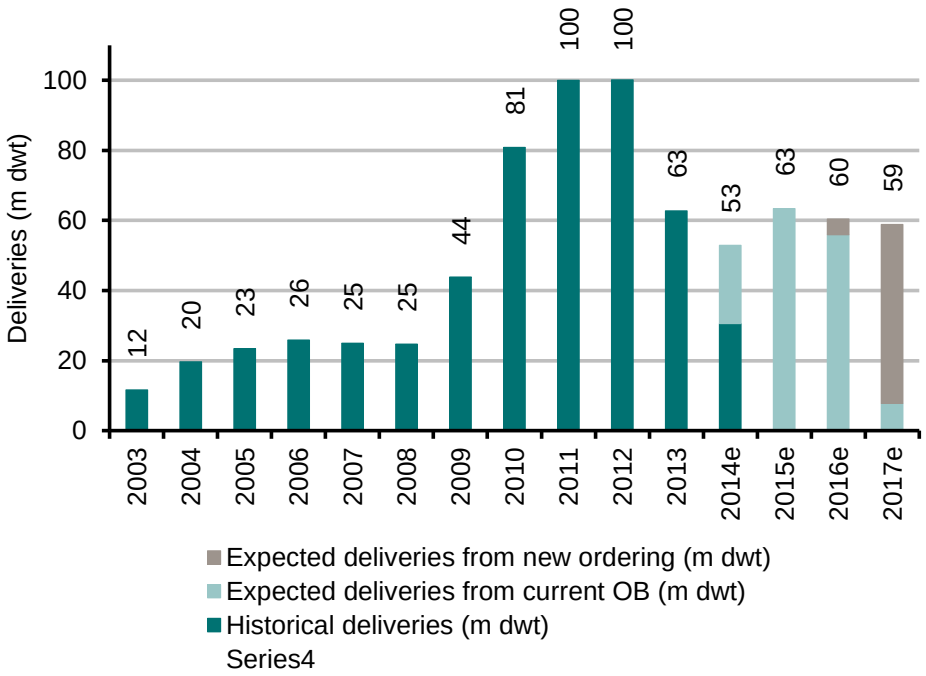
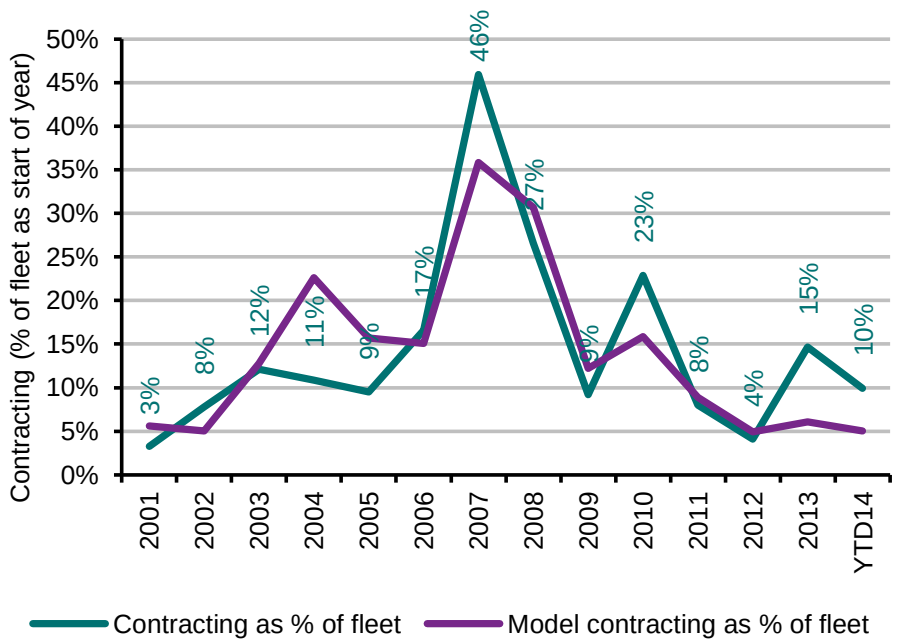
DNB MARKETS

…but high rates will be accompanied by more ordering, we think; YTD ordering has overshot our model.





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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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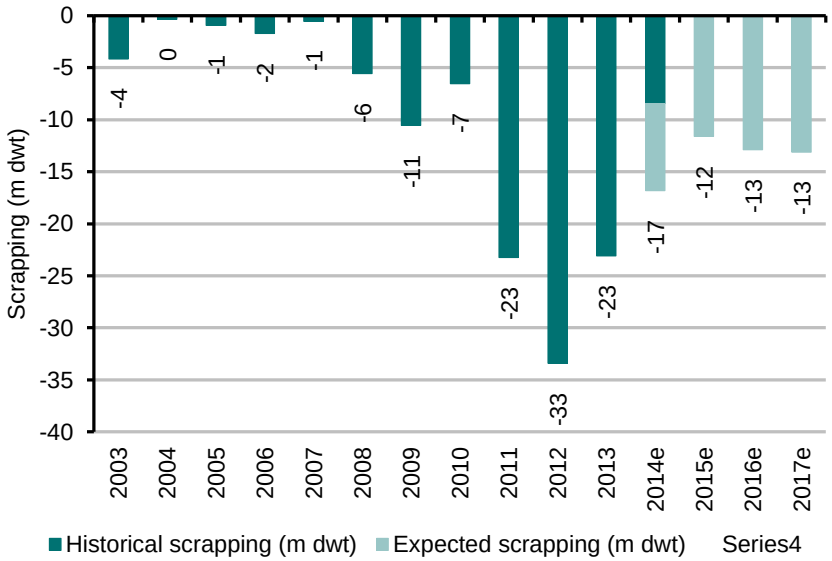
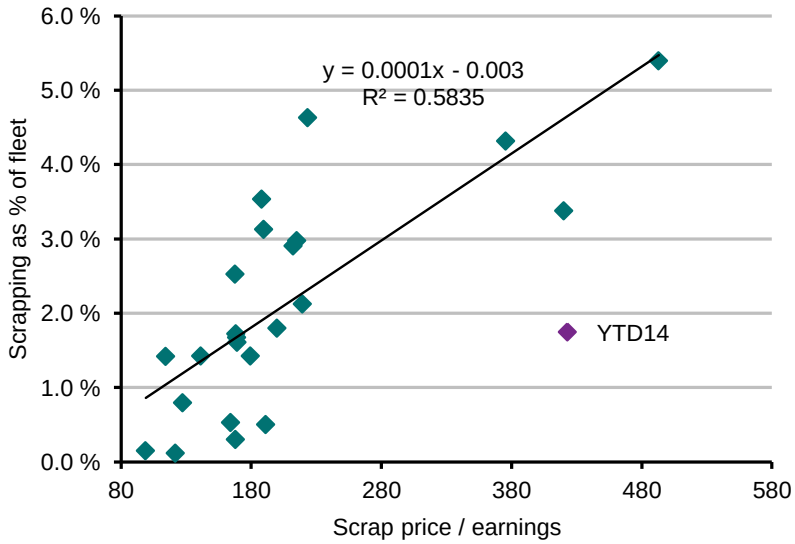
DNB MARKETS

We expect scrapping of 17m dwt in 2014e, while YTD14 scrapping is lagging our model

We expect 17m dwt scrapped this year



Our scrapping model



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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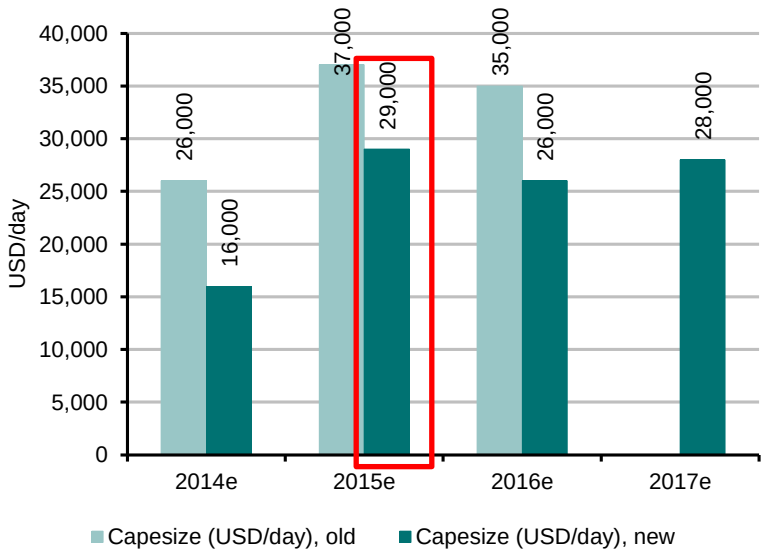
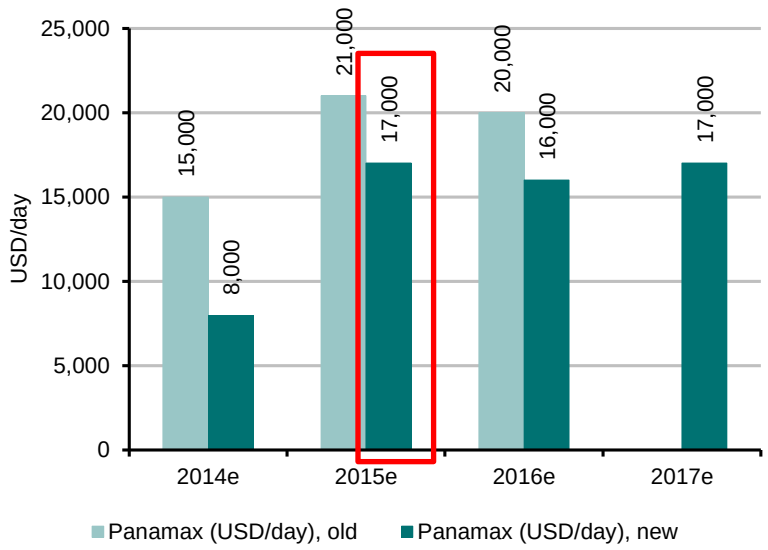
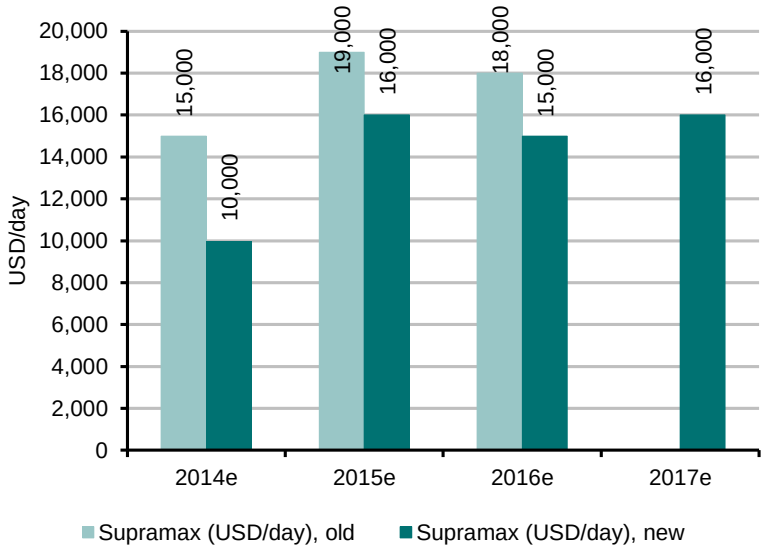
DNB MARKETS

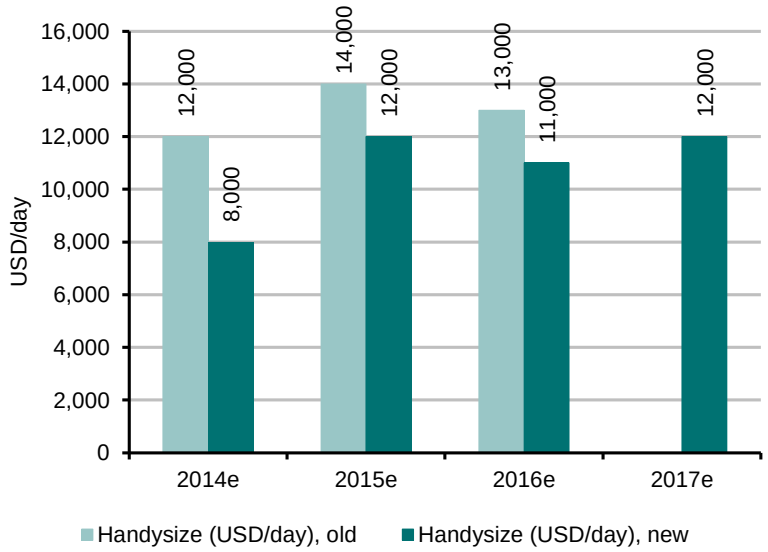
Dry bulk market balance

Spot rate estimates (old = prior to 14 August)



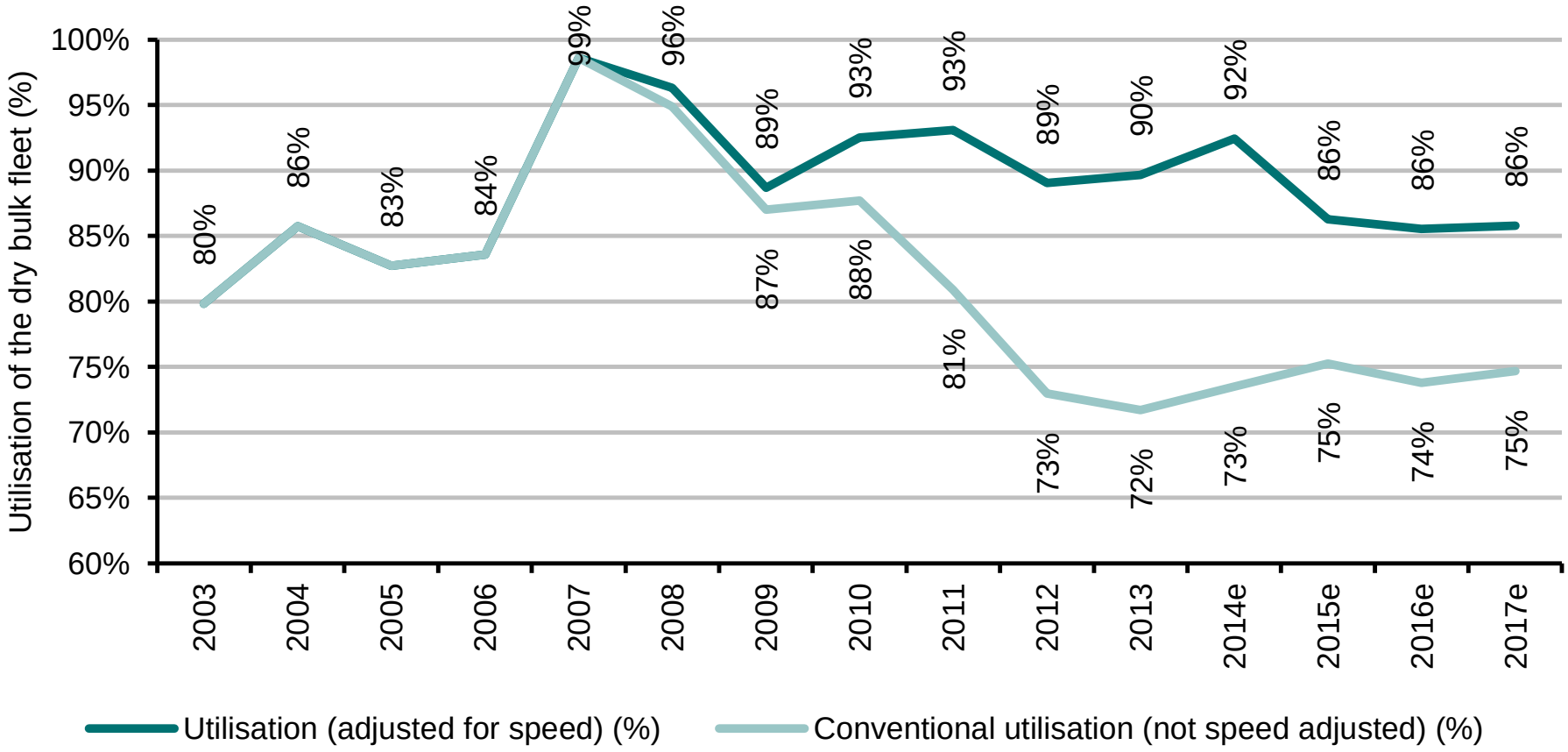






DNB MARKETS

Dry bulk market balance; actual utilisation is rather flat, because…



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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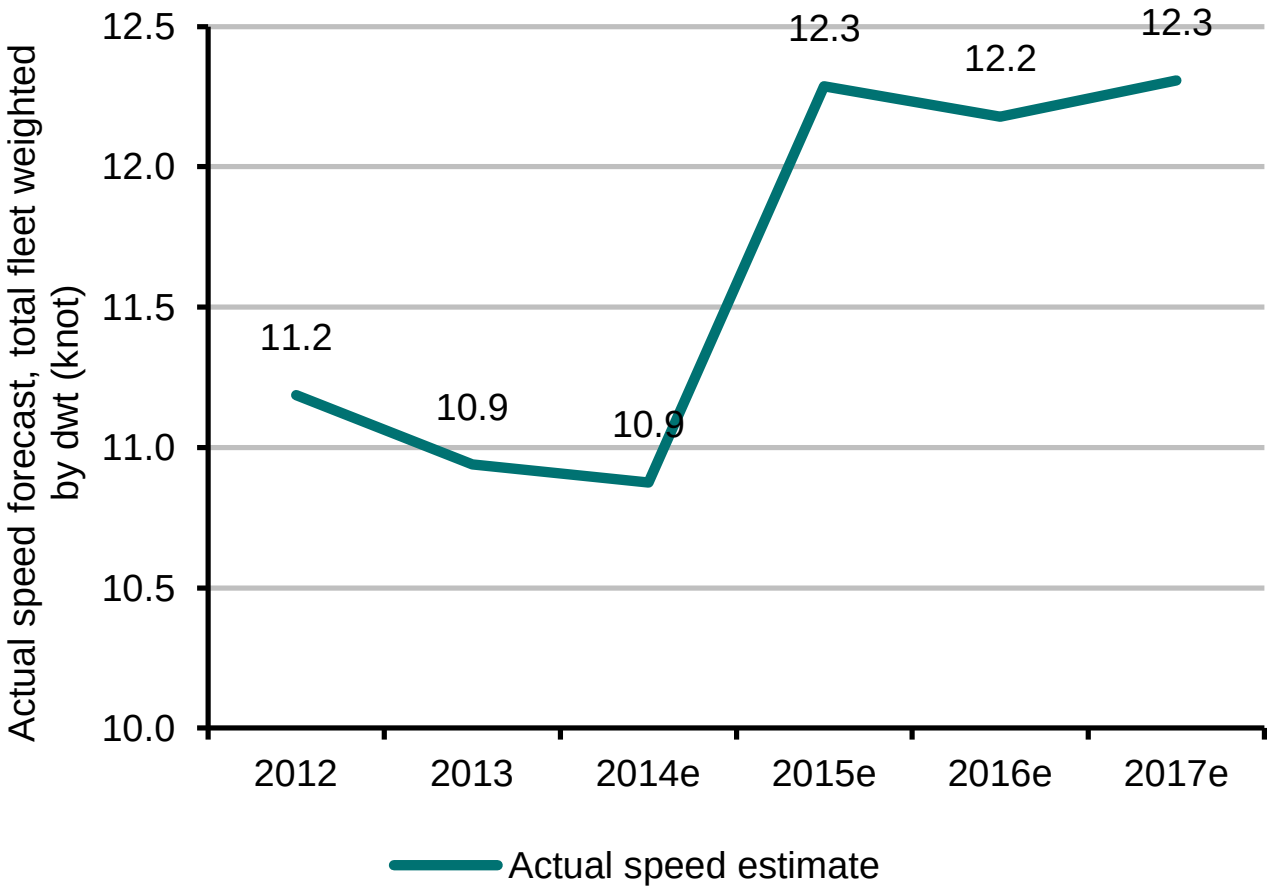
DNB MARKETS

…higher speed will add supply



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

DNB MARKETS

Crude tankers

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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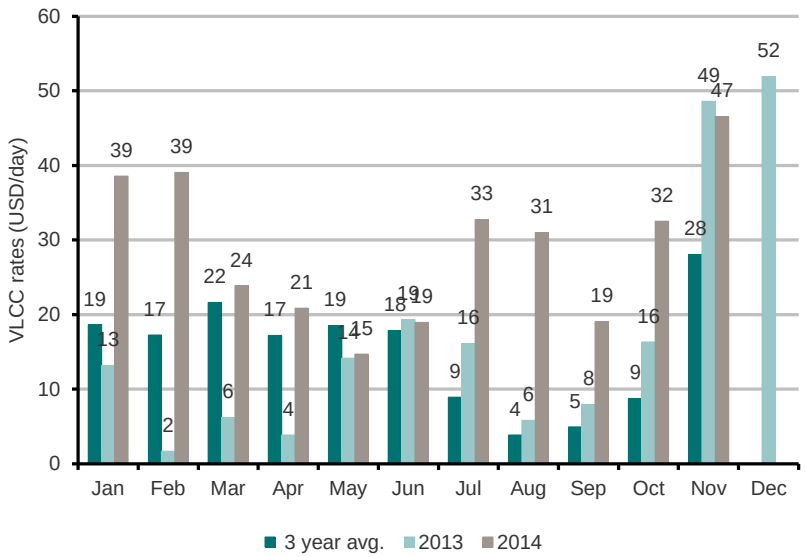
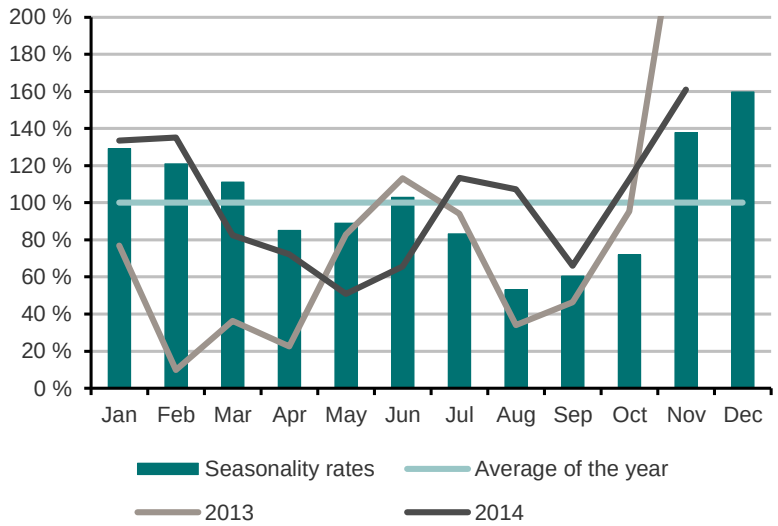
DNB MARKETS

VLCC spot rates showing strength into high season

Monthly VLCC rates (1,000/day



VLCC seasonality compared to yearly average



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

DNB MARKETS

Demand outlook

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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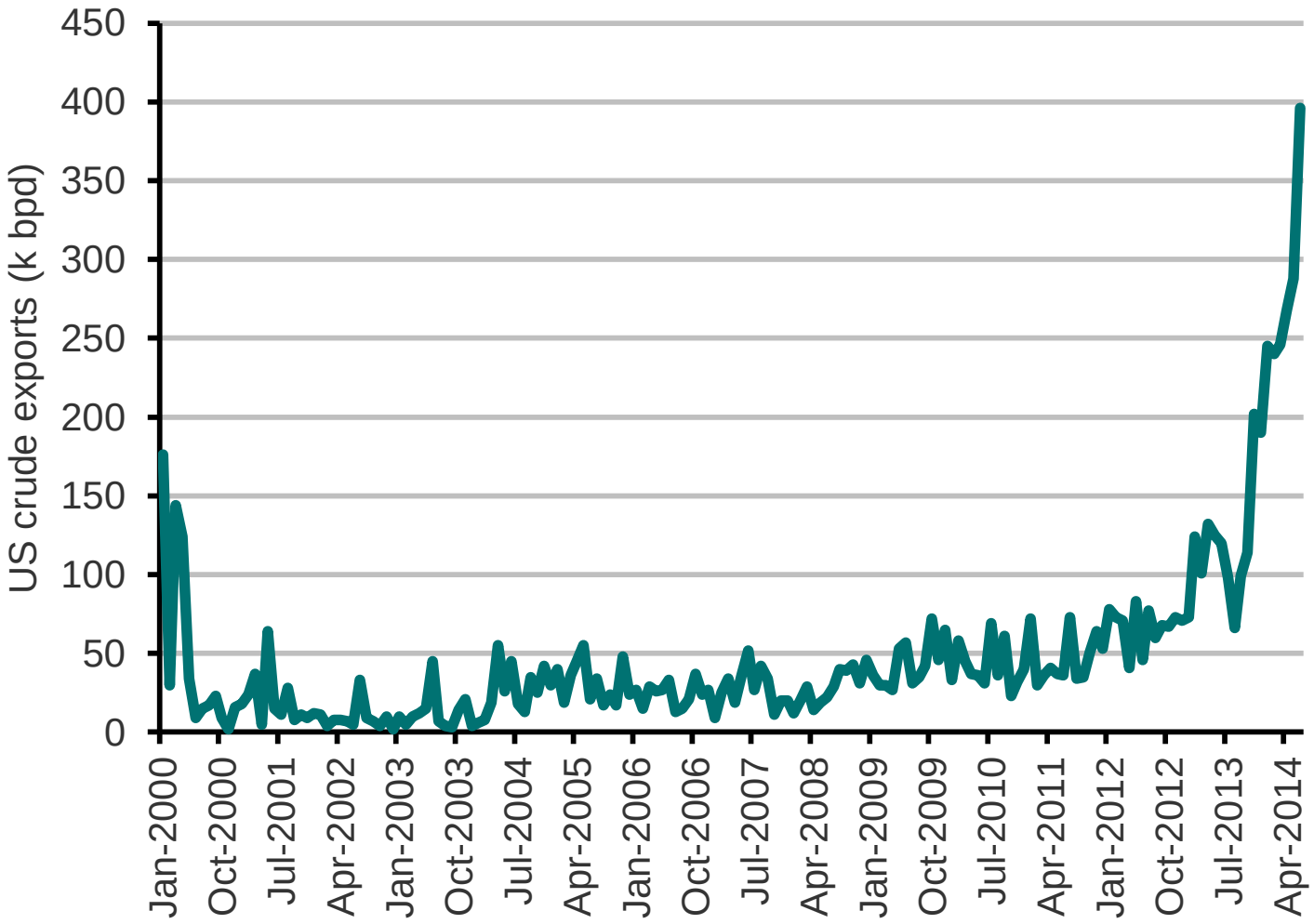
DNB MARKETS

US crude export, 2000–YTD



In our previous outlook report on 21 March, we expected US exports of 375k bpd for 2016e.

But since then we have become more confident on US exports, as we observed a steep increase of exports in June and July of close to 0.4m bpd.

More or less all exports go to Canada, but regardless of the destination this means that US imports – in particular from the Middle East – have not declined as much as they would have.

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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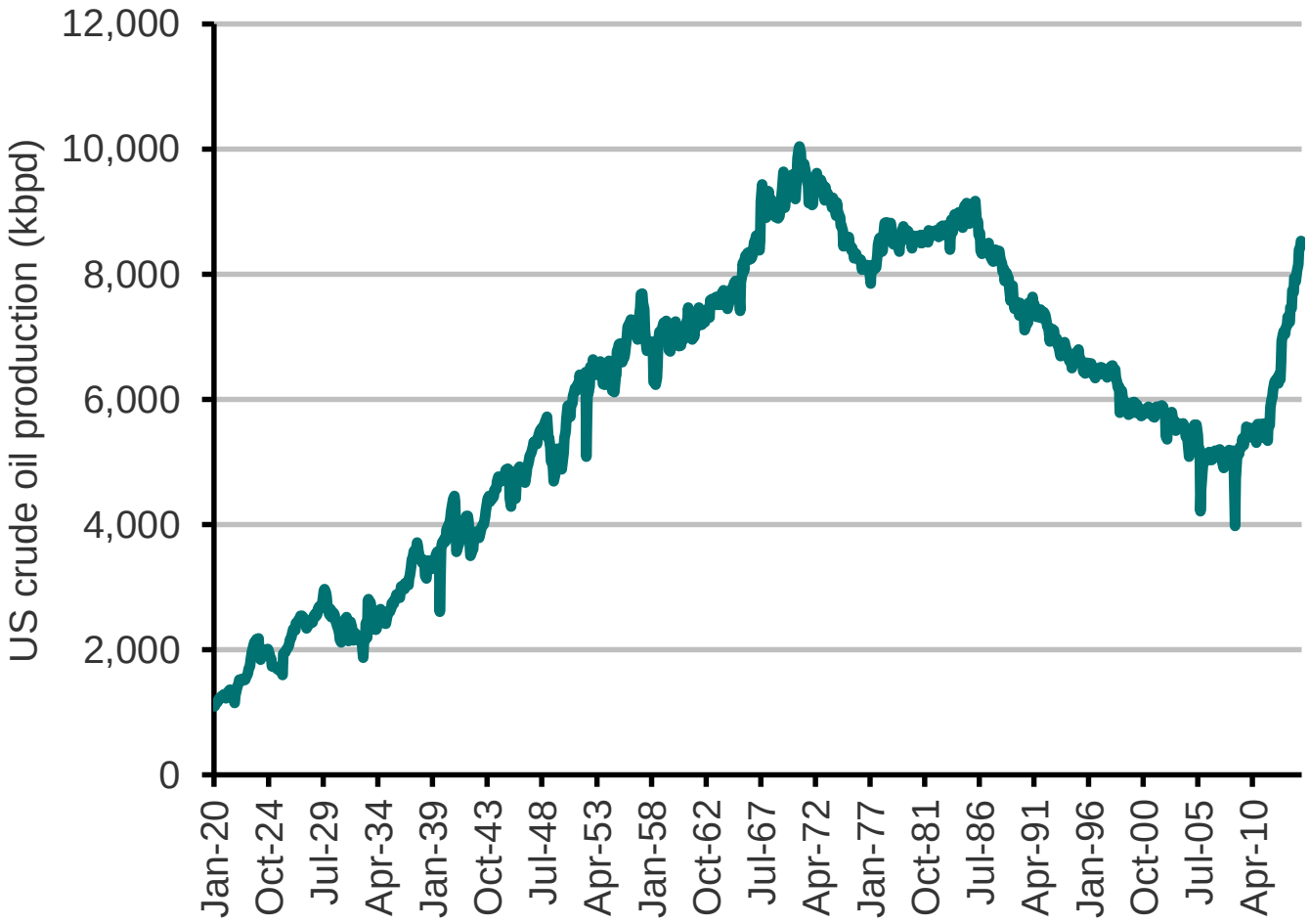
DNB MARKETS

US crude production at its highest level since 1986 as its has grown by an average of 985kbpd over the past three years



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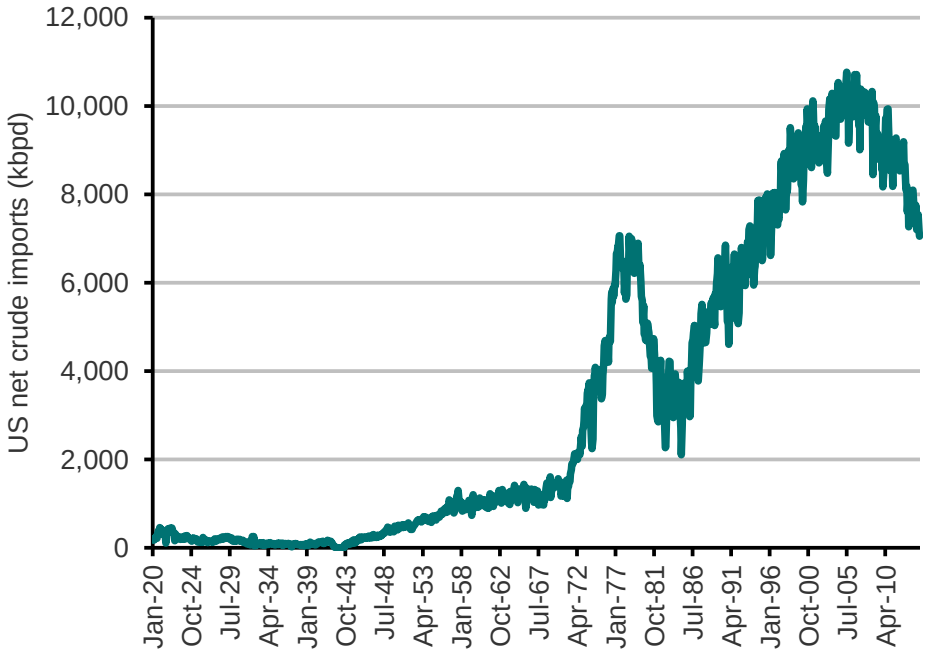
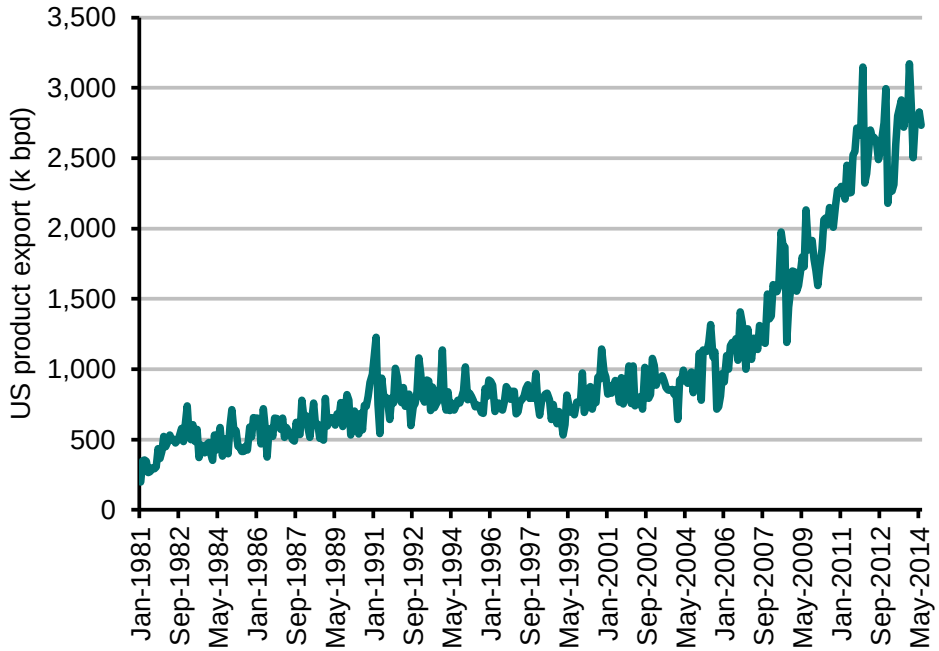
DNB MARKETS

…which has reduced imports, but not 1:1 mainly due to increased export of petroleum exports…





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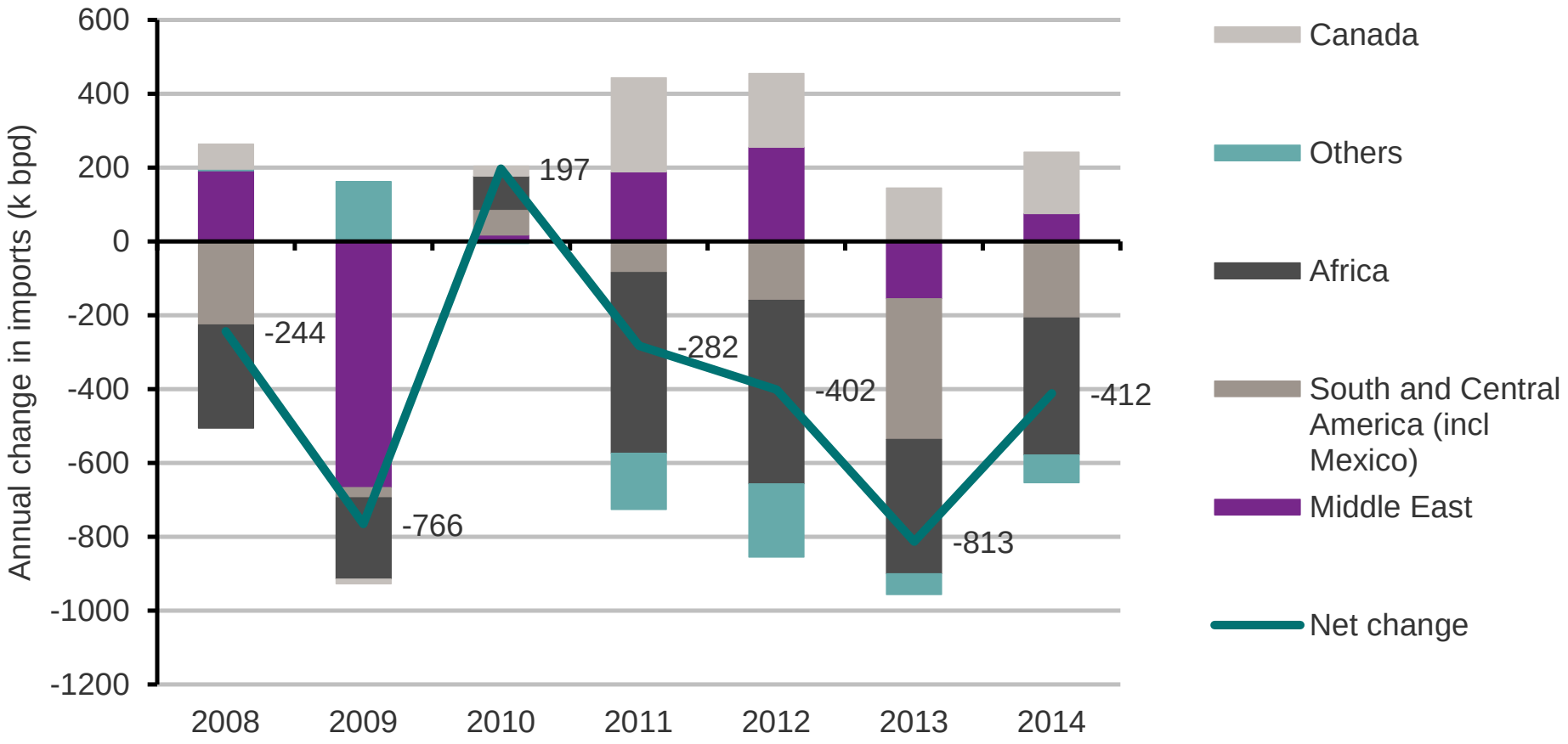
DNB MARKETS

…and the reduction is mainly from near-distance sources



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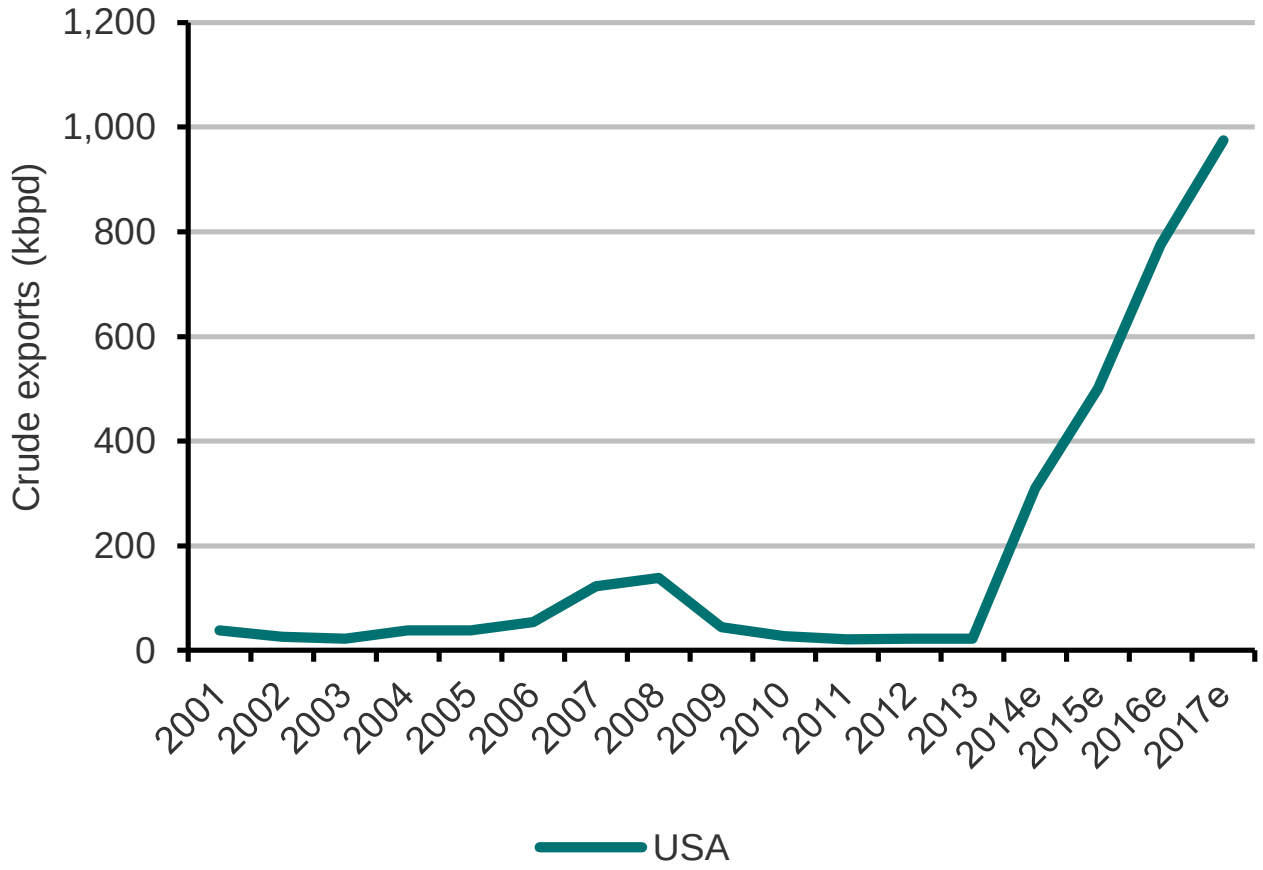
DNB MARKETS

DNB now forecasts US crude exports of USD1m bpd in 2017 for mainly **3 reasons**



In our new forecasts, we expect US crude exports of:

0.3m bpd for 2014e (almost all for Canada)

0.5m bpd for 2015e (0.4m for Canada)

0.8m bpd for 2016e (0.2m for Canada. 0.2m to Asia and 0.4m to Europe)

1m bpd for 2017

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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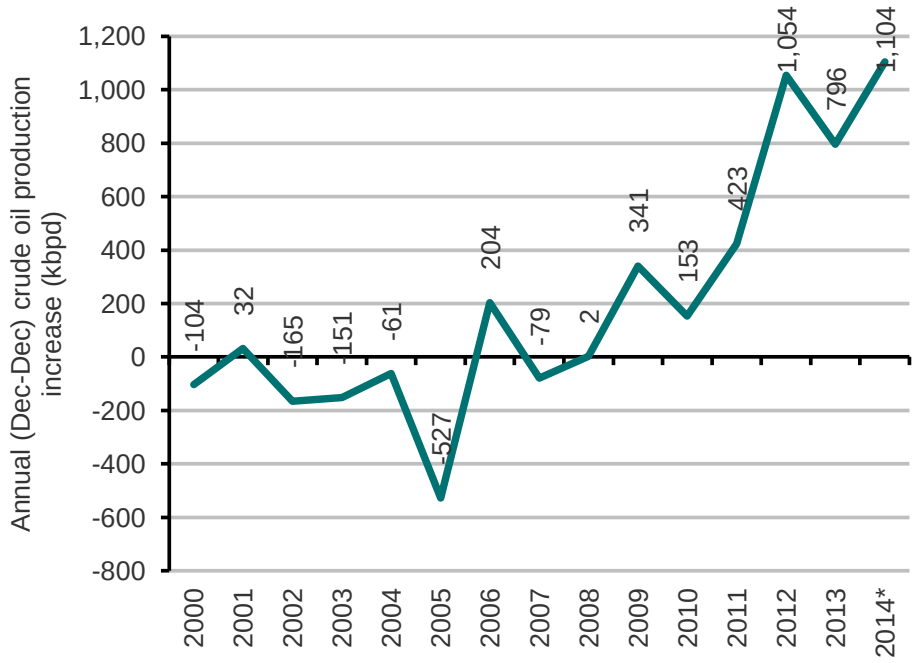
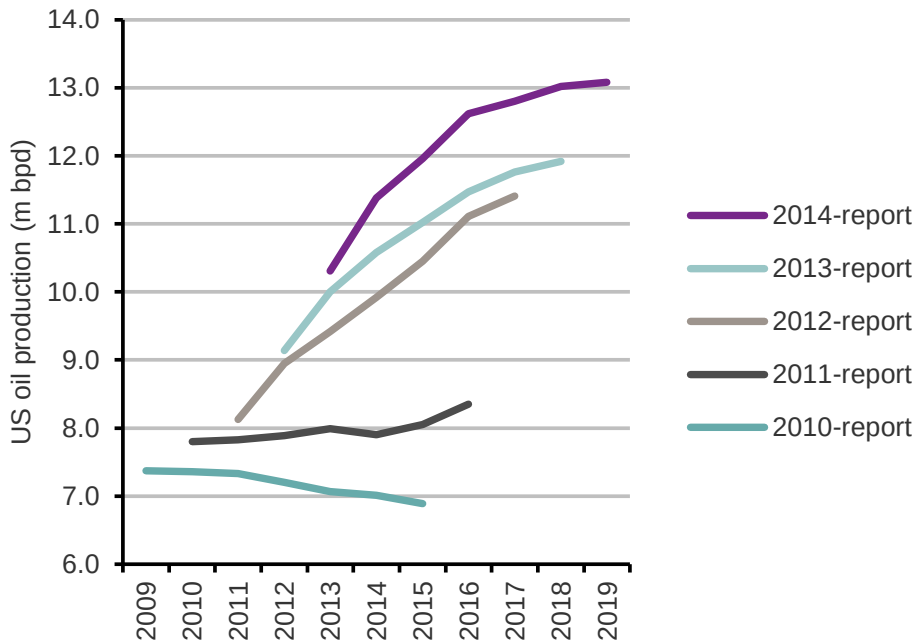
DNB MARKETS

1) US crude oil production continues to surprise on the upside (annual change in kbpd)



IEA's estimates for US oil production (including NGL)



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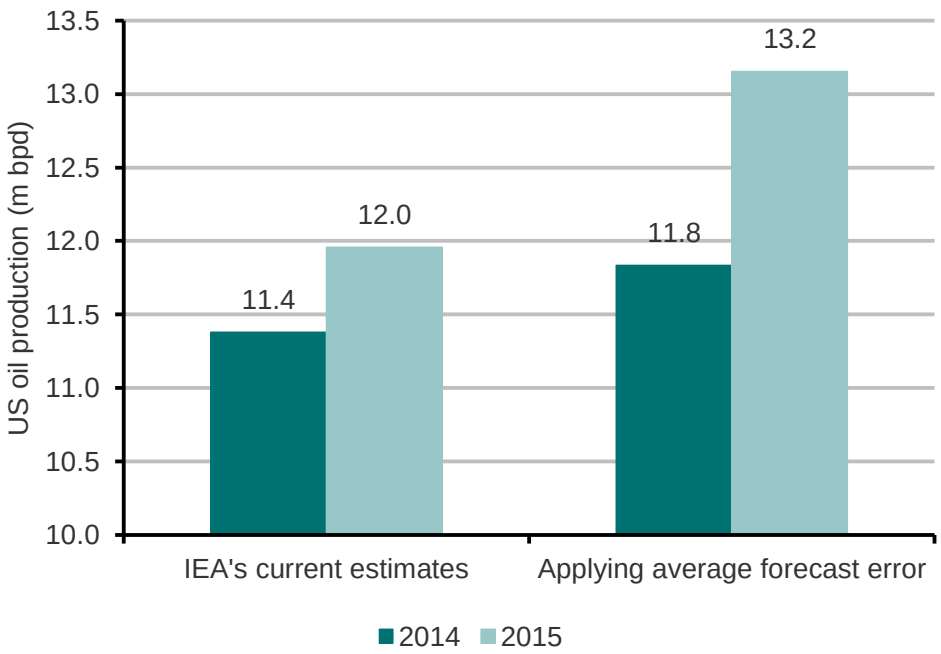
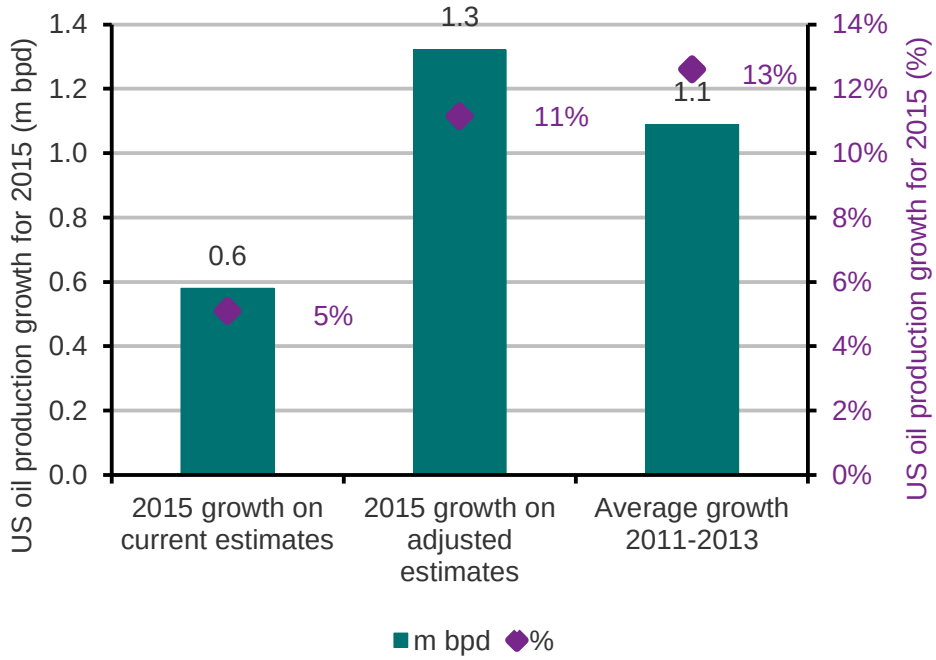
DNB MARKETS

1 continues) US crude oil production continues to surprise on the upside (annual change in kbpd)

IEA expects 0.6m bpd increase from 2014 to 2015, but adjusting for historical forecast error this increases to 1.4m bpd…



…which is in-line with past three years of production increase.



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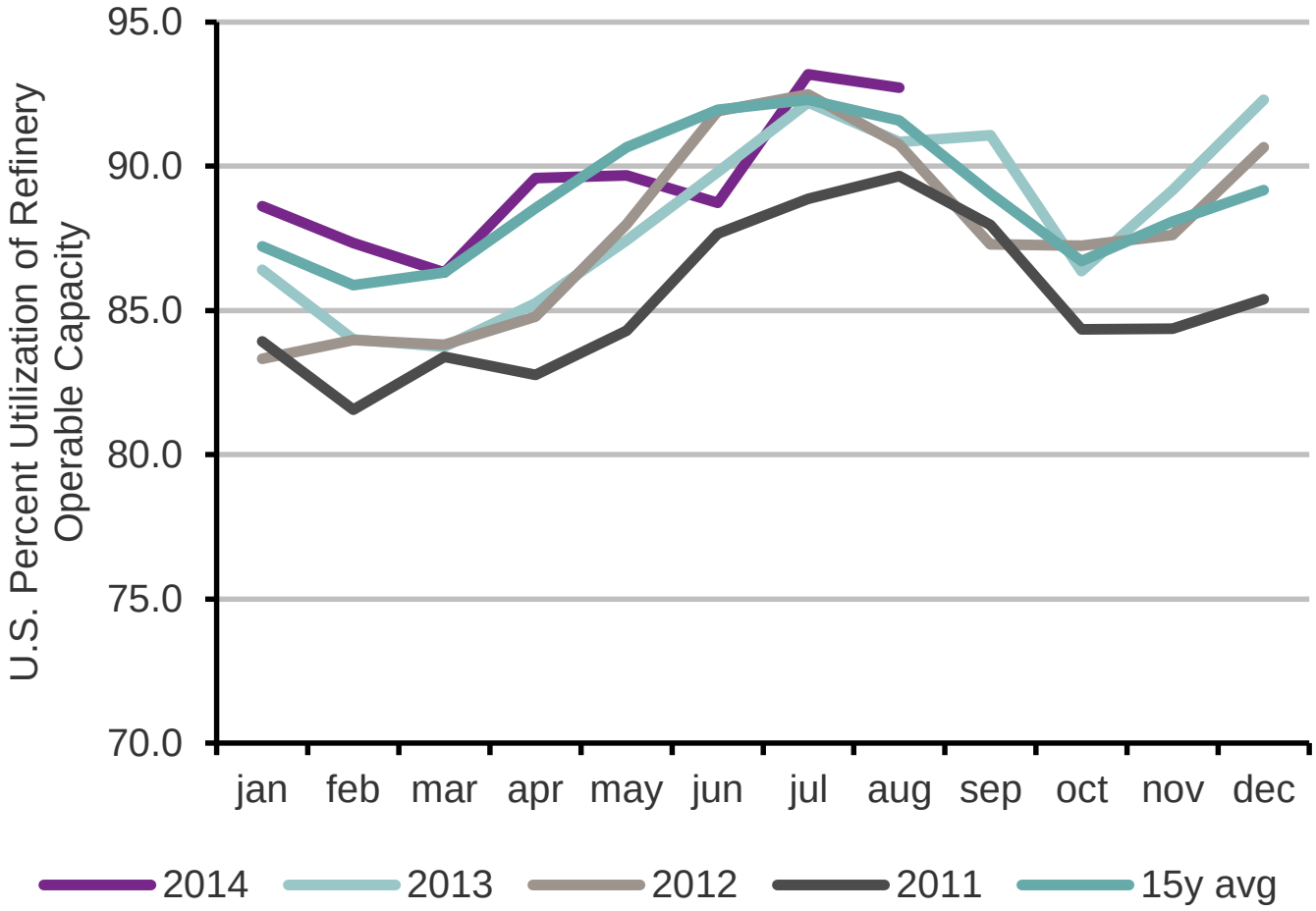
DNB MARKETS

2) and as US refineries are running at very high utilization…



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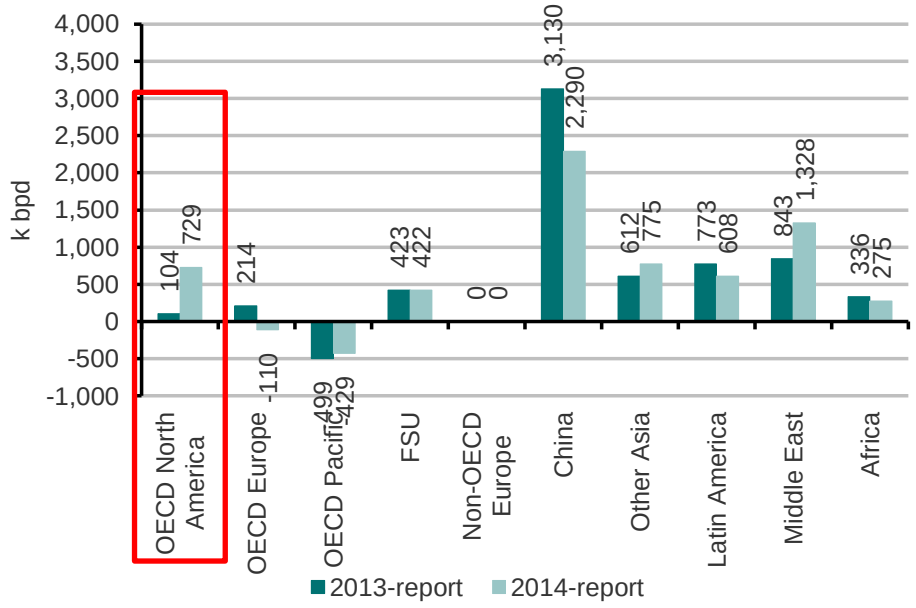
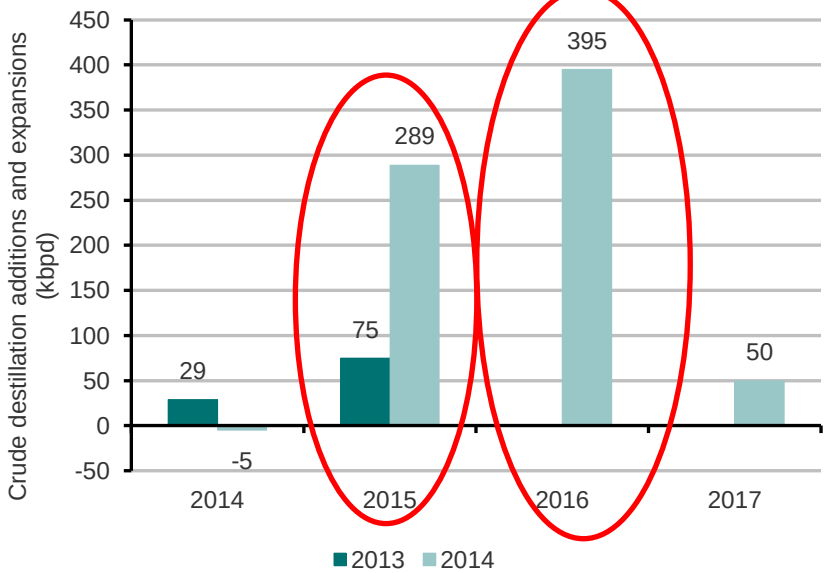
DNB MARKETS

3) and as new refining capacity in the US is not sufficient to process the large amount of new US crude and we do not expect a curb in US oil production

Total refinery additions for 2014-2017



Refinery expansion in North America



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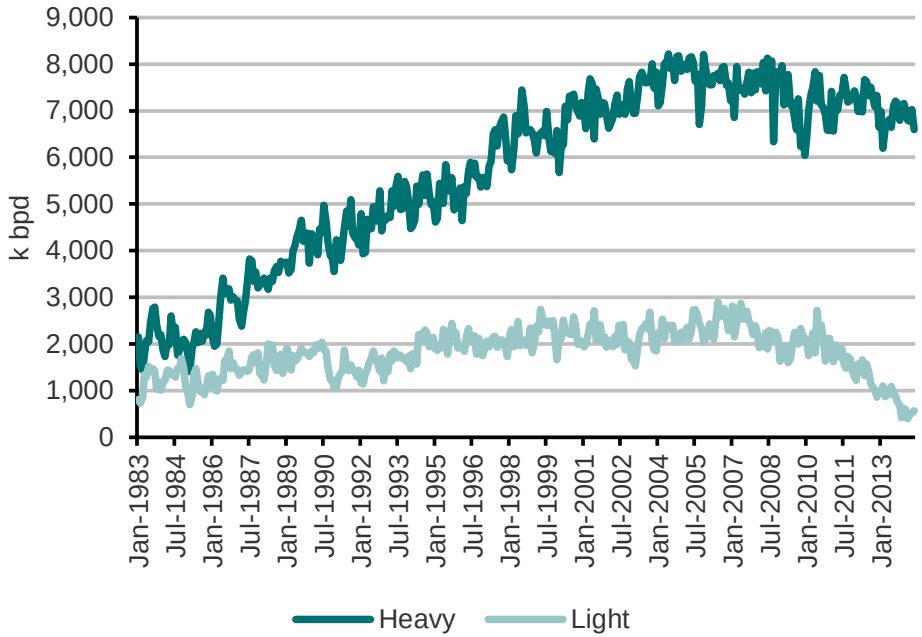
DNB MARKETS

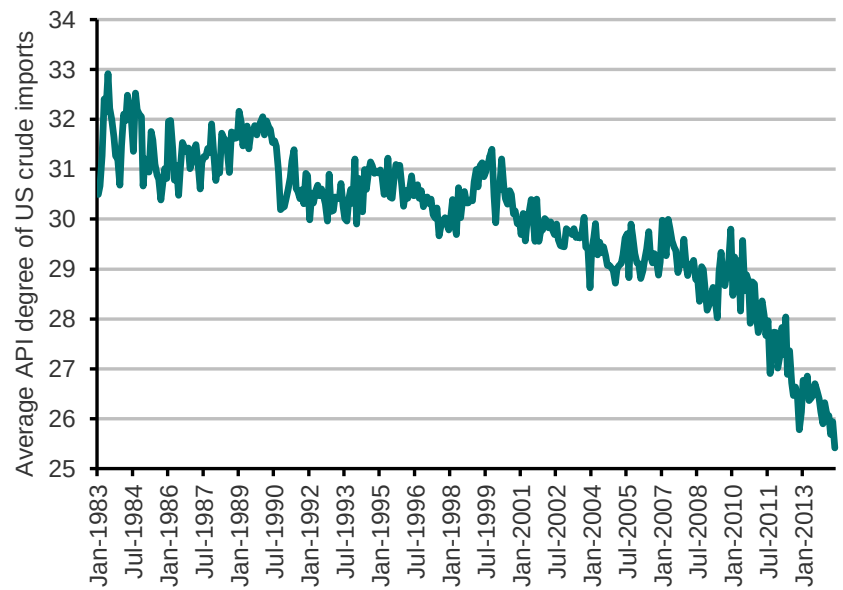
US crude imports by quality

US crude imports by quality, 1983–YTD



The main reason for the changes in the sourcing pattern is crude oil quality. US refineries have significant coking and cracking capacity, which requires heavy crude as feedstock to be fully utilised.

Average API degree for US imports, 1983–YTD



Higher share of heavy oil imports

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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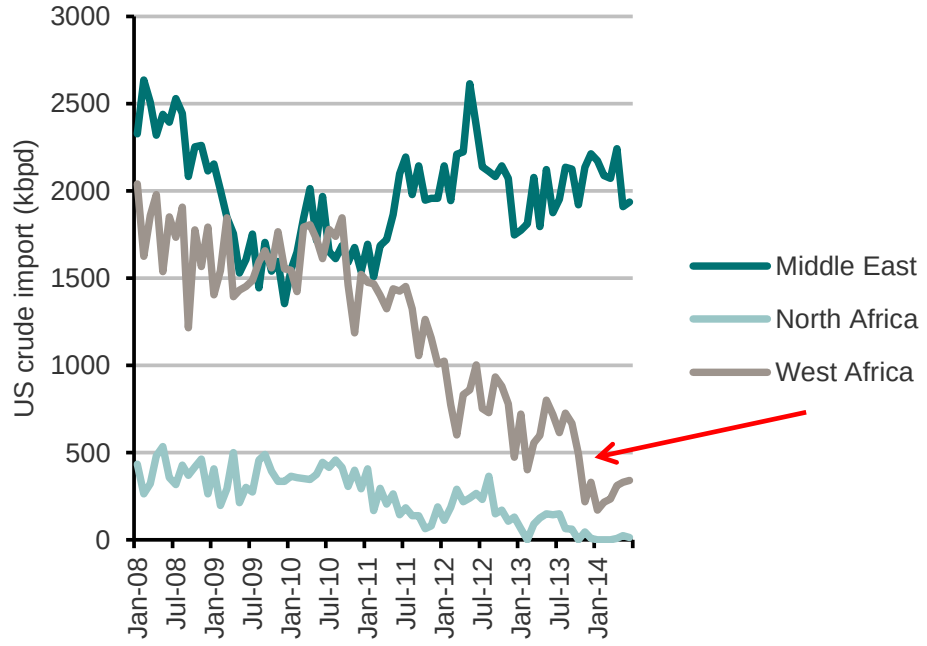
DNB MARKETS

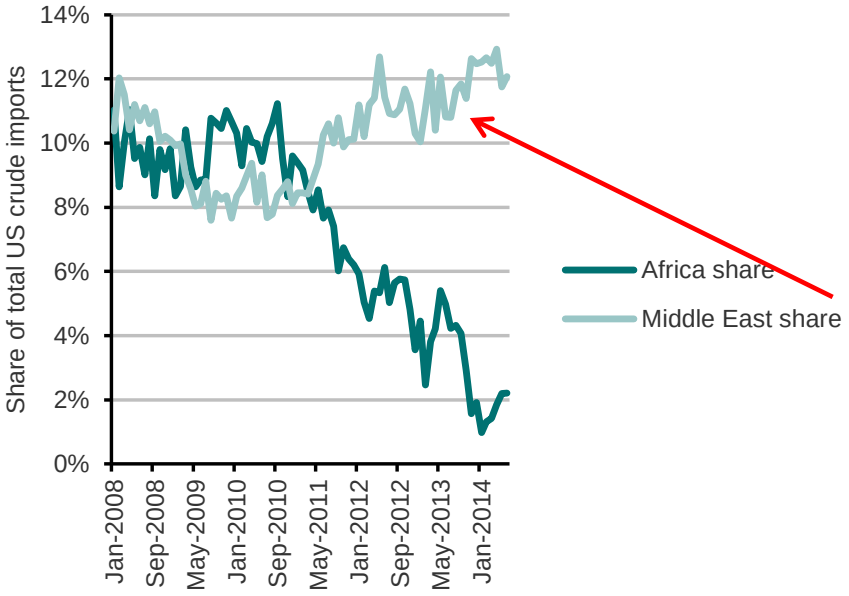
US crude imports by selected countries

US crude imports, selected countries, 2008–YTD



US sourcing of imports has changed significantly in recent years, particularly since 2008 when 10% of US imports came from Africa, while this has fallen to about 1–2% in 2014.

US crude imports, Africa and Middle East, 2008–YTD



The share supplied from the Middle East is increasing.

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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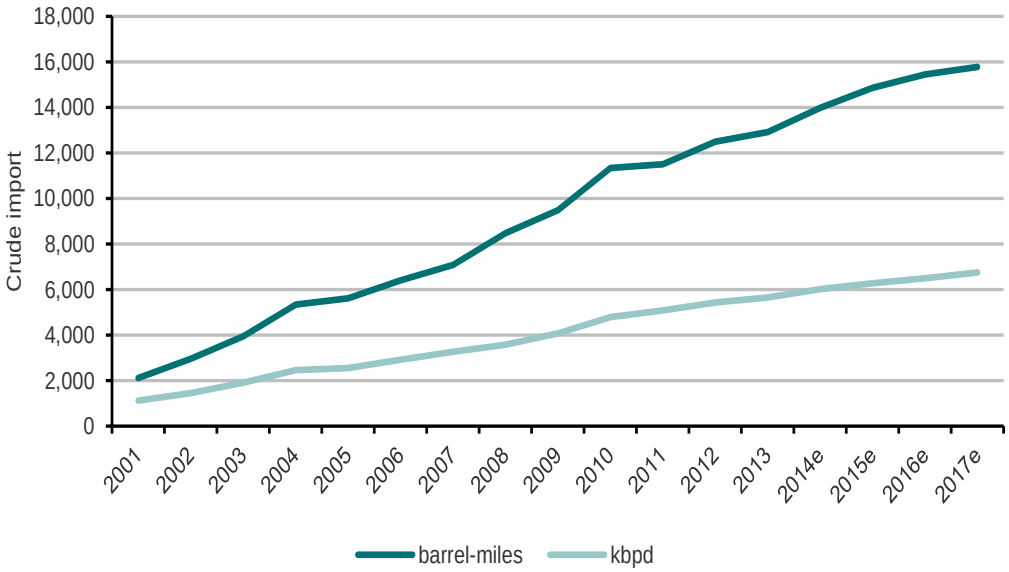
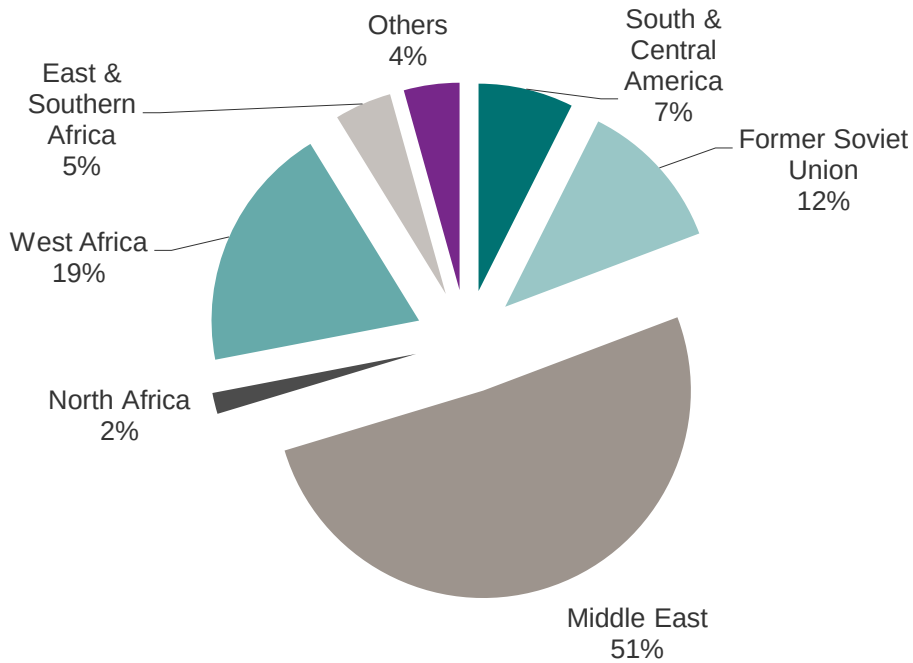
China crude imports by source and ton-mile demand increases

China crude imports, kbpd and barrel miles



China crude imports by source, 2016e



From 2010 to 2013, Chinese imports rose by 18% or **14%** when adjusted for distance to source.

On our forecasts, imports in 2017e will be 19% above the 2013 level and the barrel-mile metric **22%**

<u>A potential upside for crude tankers would be if the import increase was tilted more towards Atlantic-based crude.</u>

Dependent on how the Middle East responds to potentially weaker prices on the back of the increase in US production; if the Middle East (Saudi Arabia) cuts back on exports to support the oil price (or scales up refineries faster than generally expected)

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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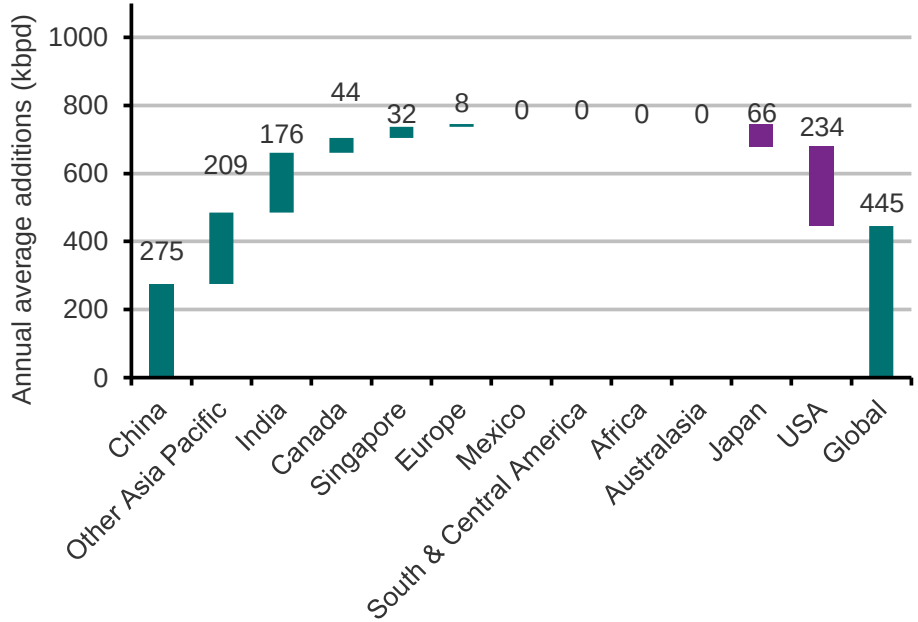
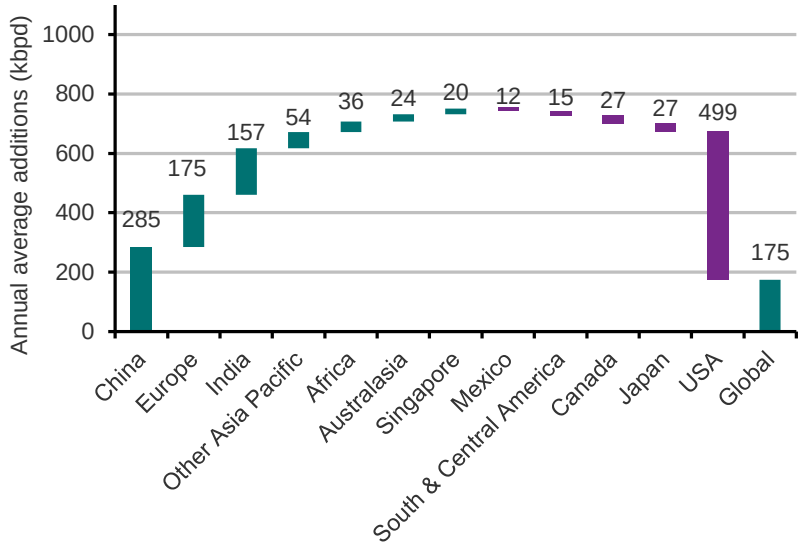
Base-case trade forecast by **importer**

Forecast average annual change 2014–2017e by importer



Historical average annual change 2011–2013 by importer



For 2015 we forecast a 275kbpd (previously 525kbpd) decline in US crude oil imports YOY driven by a 175kbpd decline from Africa, a decline of 170kbpd from South and Central America (including Mexico), and imports from the Middle East still at 2m bpd.

For 2016 we forecast a 195kbpd (previously 164kbpd) decline in US crude oil imports YOY driven by a decline of 100kbpd from South and Central America and a decline of 500kbpd from the Middle East, and an increase in imports of 500kbpd from Canada.

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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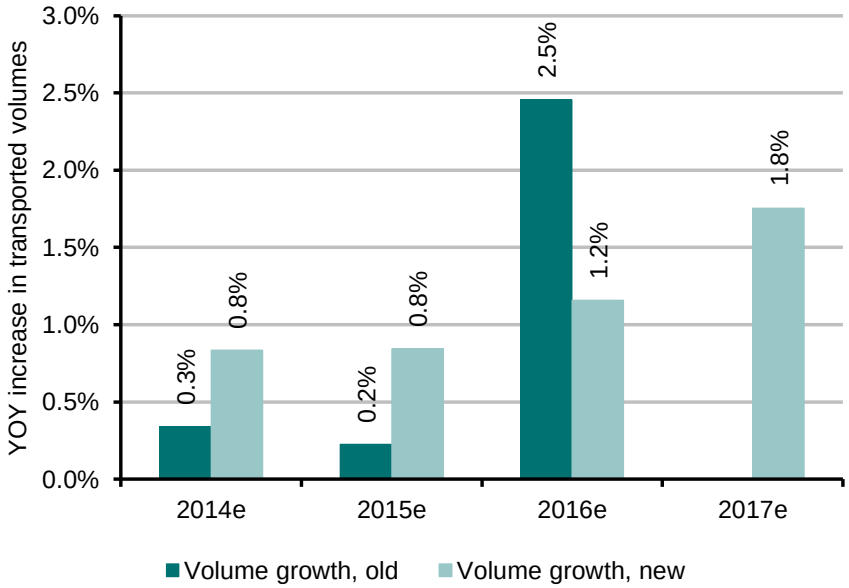
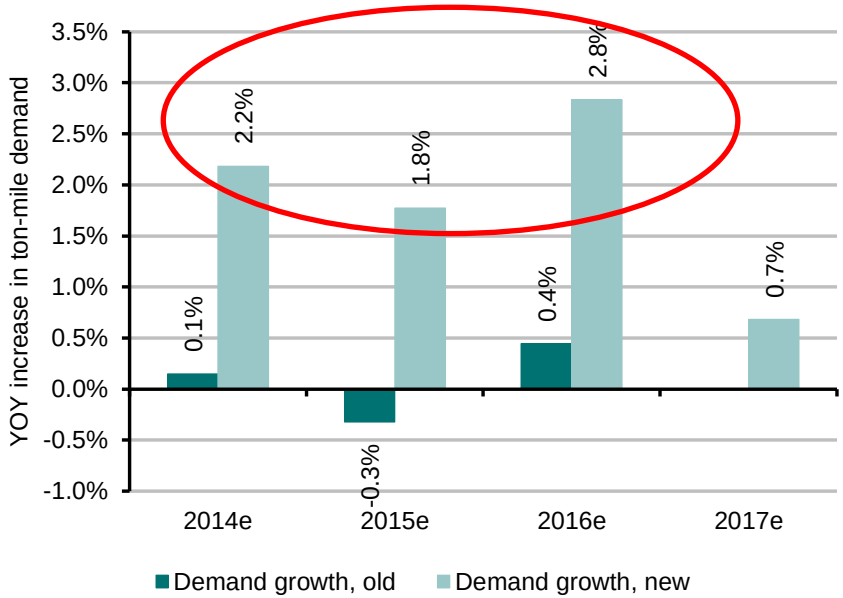
We forecast 2x ton-mile growth over volume growth

Old vs. new volumes transported (incl. pipeline)



Old vs. new tonne-mile demand



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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Supply

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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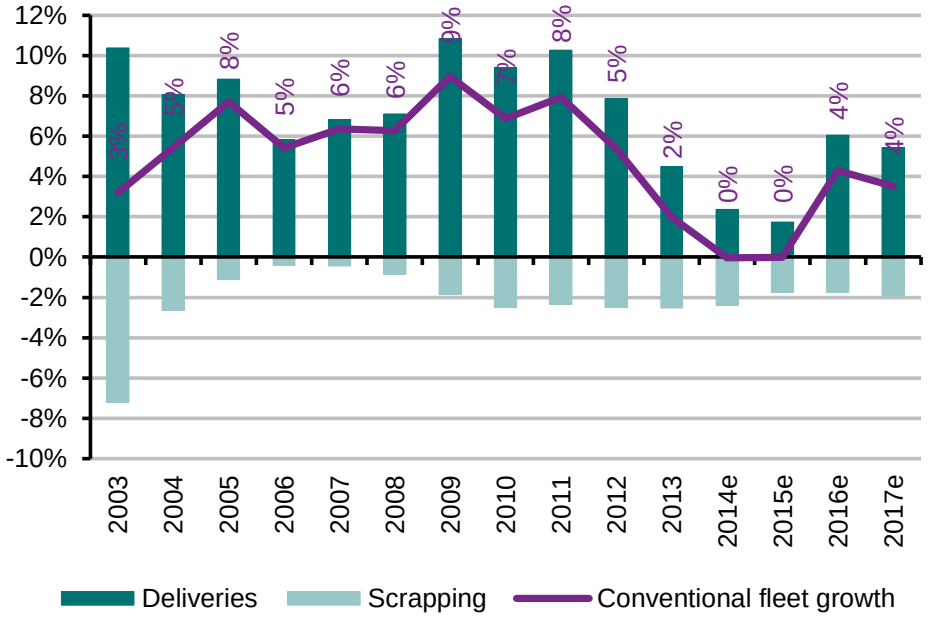
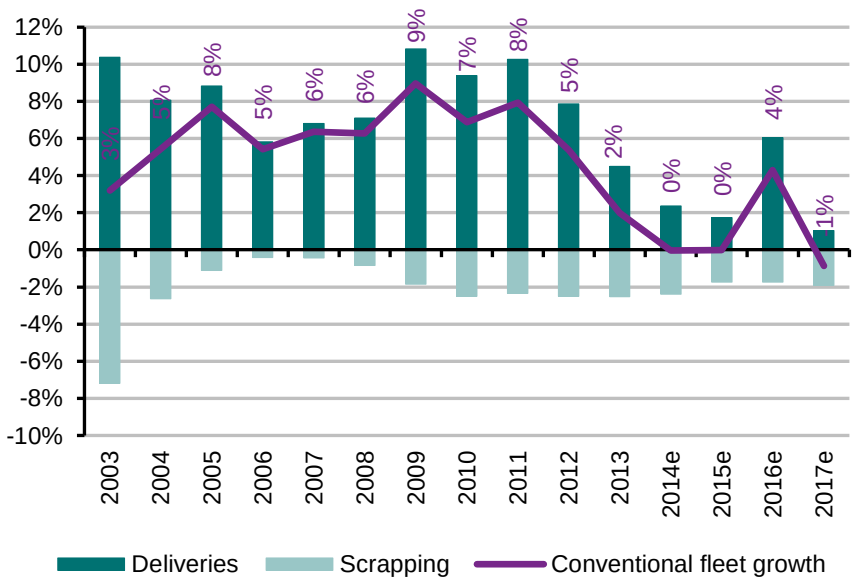
Crude tanker supply

Zero fleet growth for two consecutive years in 2014 and 2015…



…and a meagre fleet growth of 1% in 2017e excluding our contracting forecast



Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
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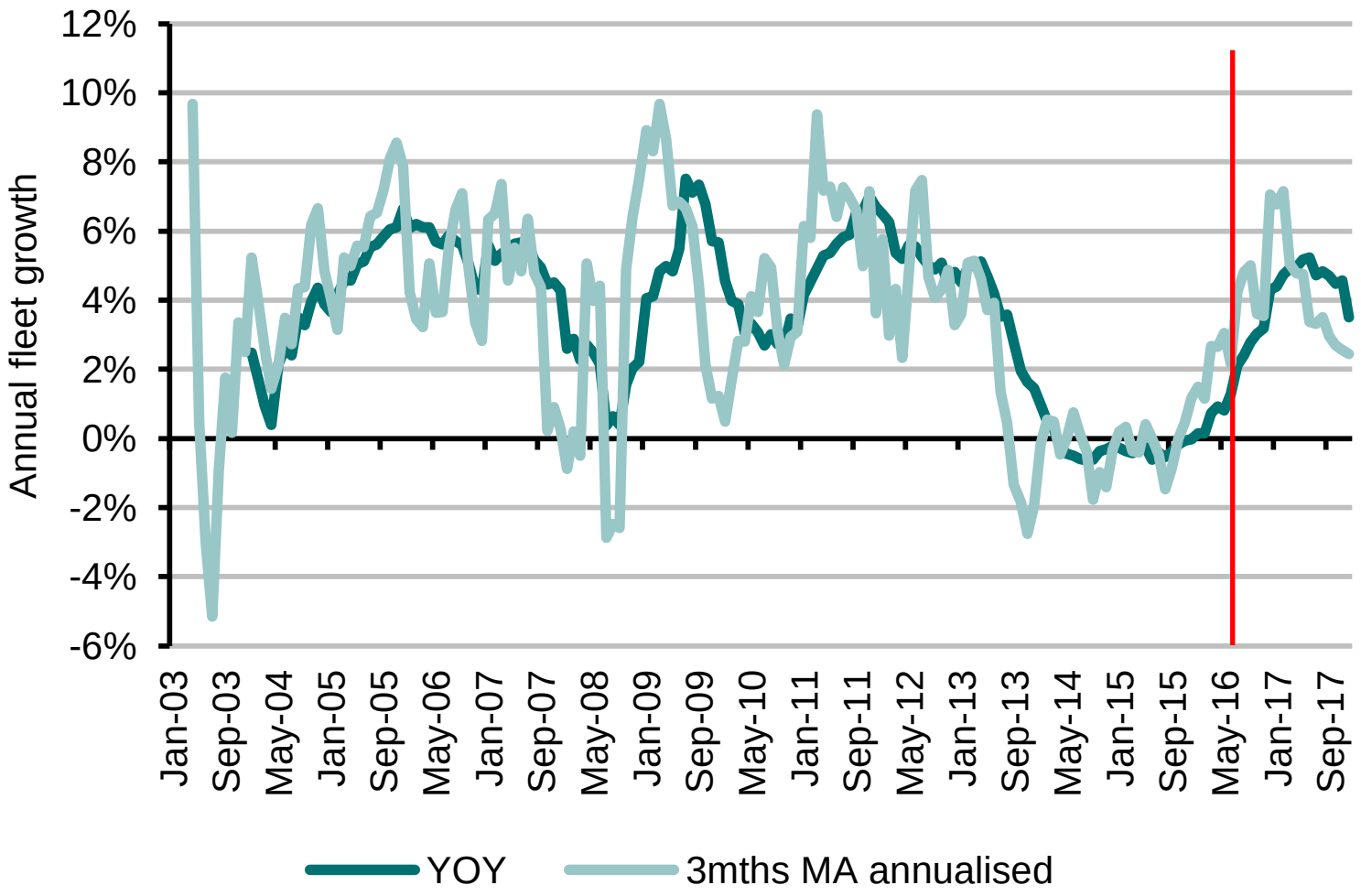
Annualised, smoothed monthly growth versus YOY growth shows very low fleet growth over next 24 months



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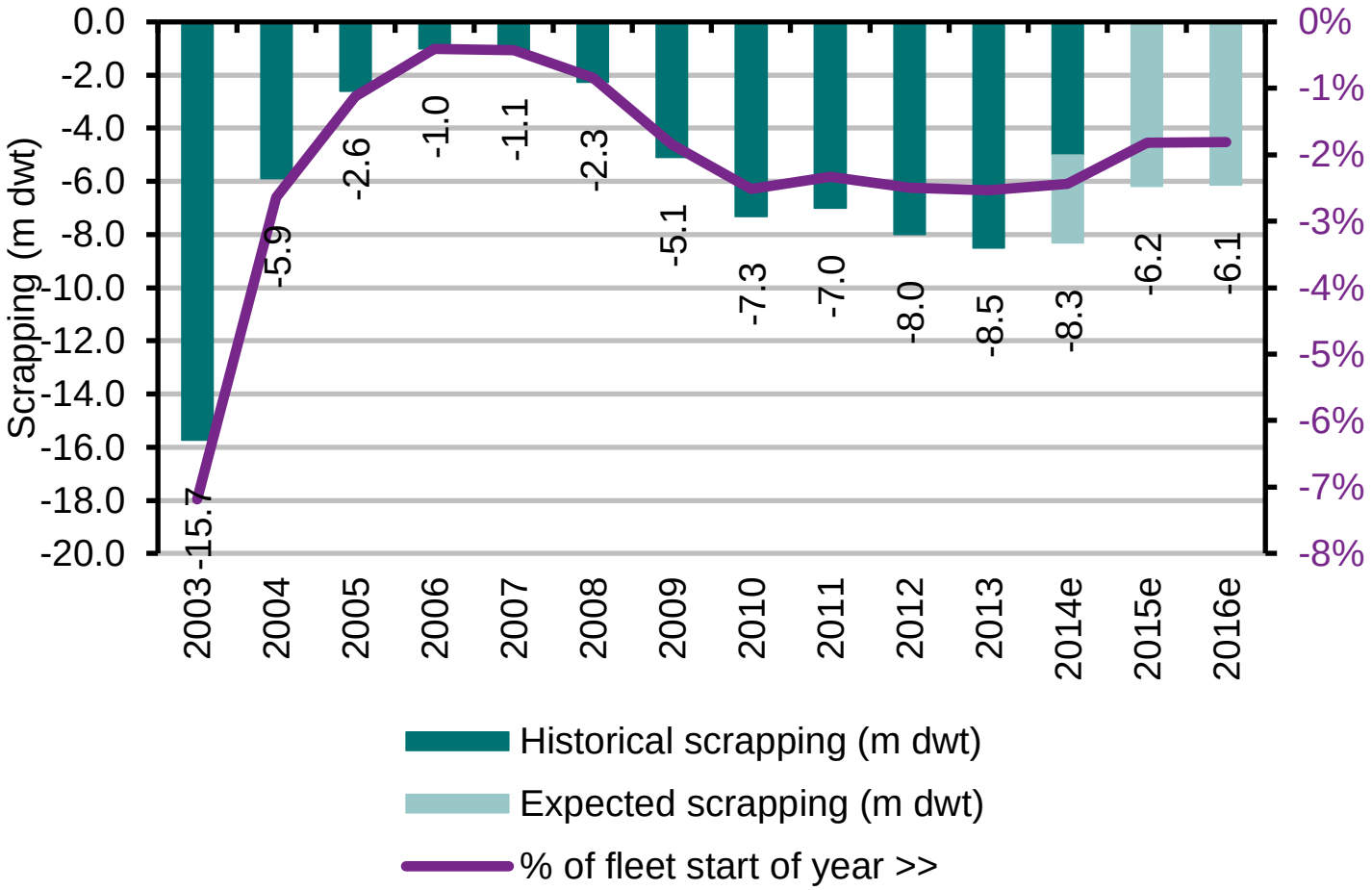
Scrapping forecasts



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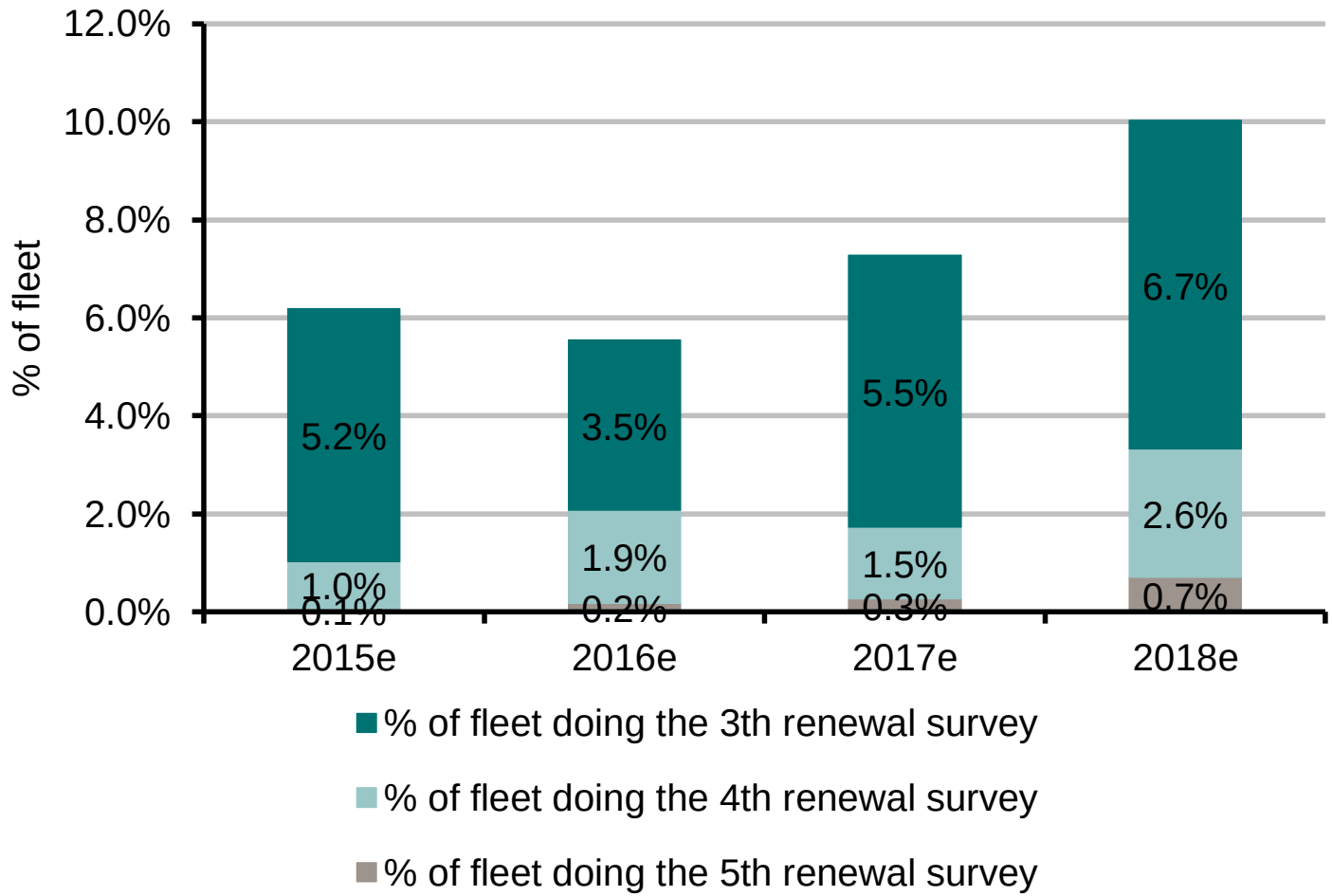
Renewal survey schedule for the current fleet



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Rates & utilization

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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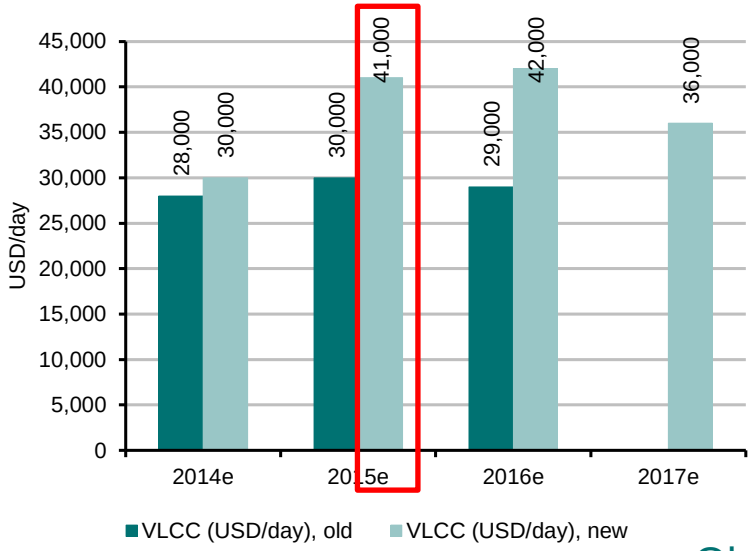
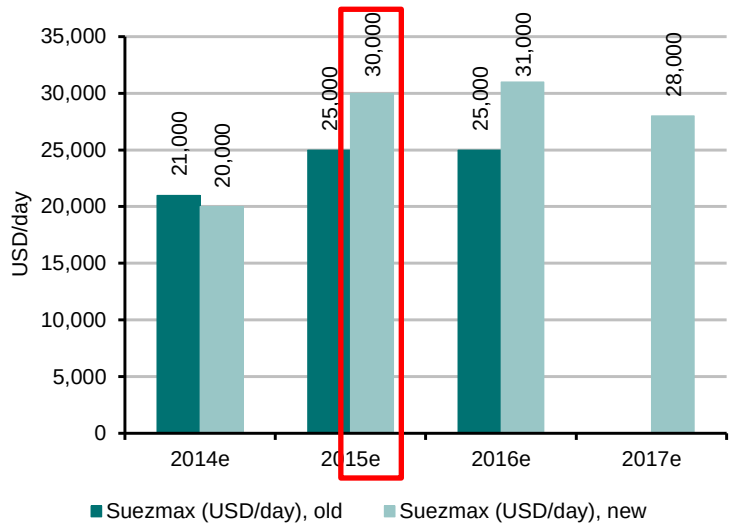
2015 VLCC rate forecast raised by 40% and by 50% for 2016…

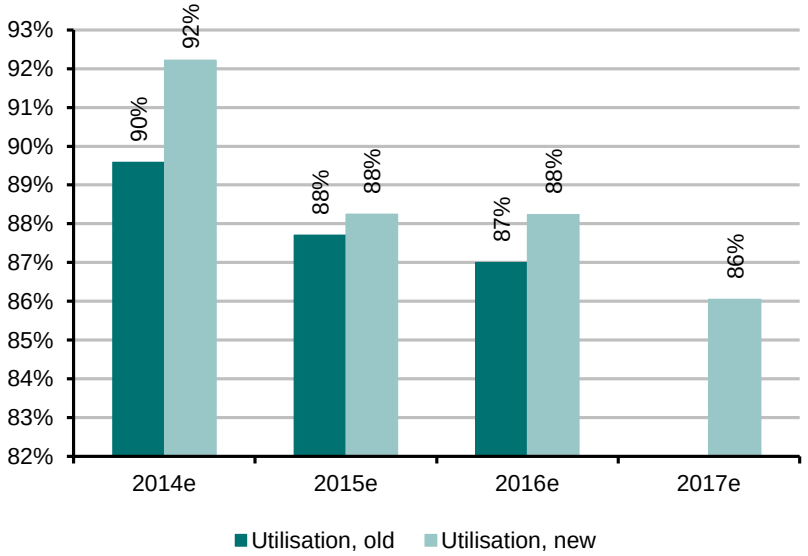
Old vs. new VLCC spot rate forecast



Old vs. new suezmax spot rate forecast



Old vs. new speed adj. utilization (%)



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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Selected crude market slides

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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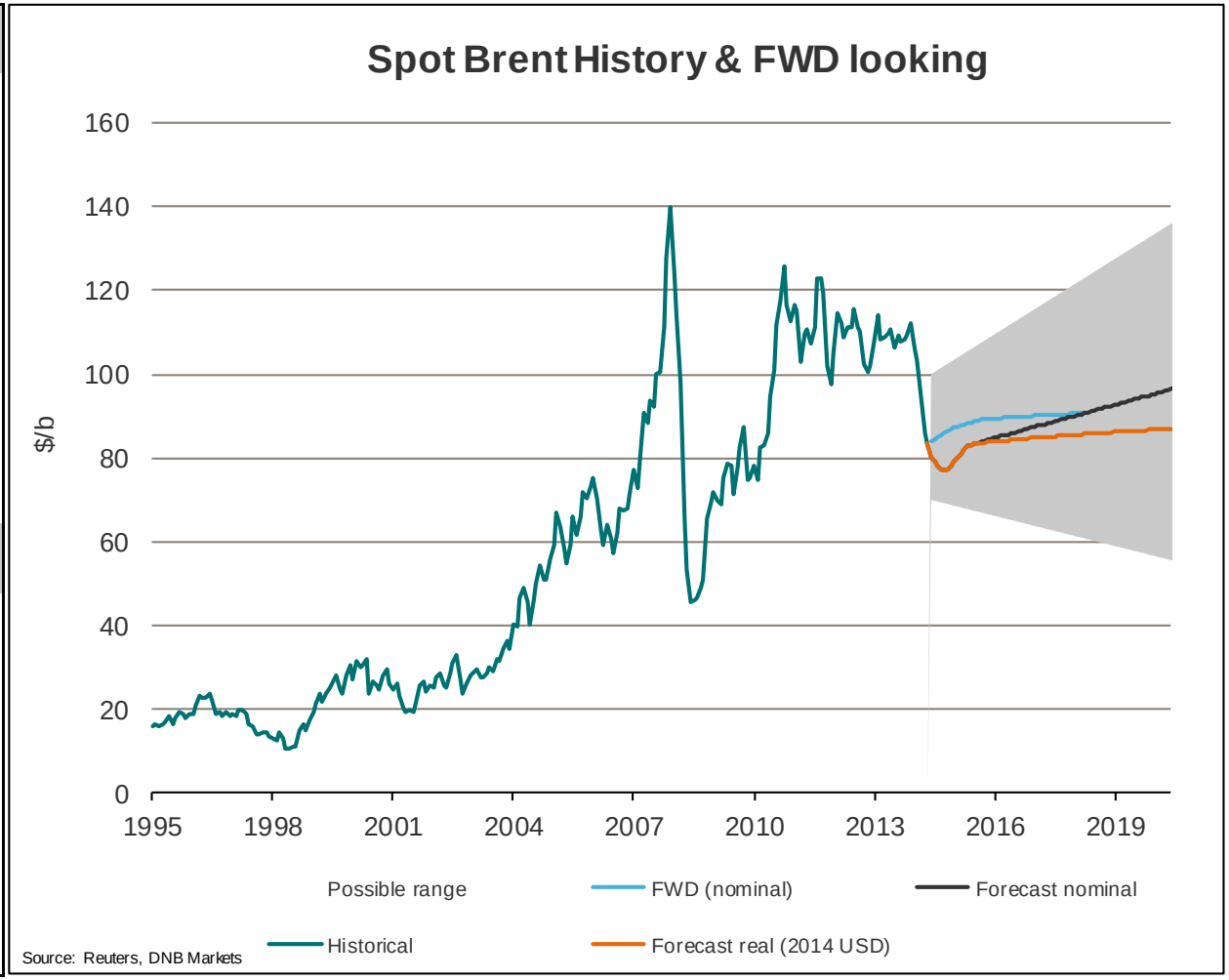
Long Term Oil Price Forecast – New

	Historical Nominal $/b	Historical Real (2013) $/b
2001	24.4	32.2
2002	25.0	32.4
2003	28.8	36.5
2004	38.3	47.2
2005	54.5	65.0
2006	65.1	75.3
2007	72.4	81.3
2008	97.3	105.2
2009	61.7	67.0
2010	79.5	84.9
2011	111.3	115.2
2012	111.7	113.3
2013	108.7	108.7
	Forecast Nominal $/b	**Forecast Real (2014) $/b**
Q1-14	108	108
Q2-14	110	110
Q3-14	104	104
Q4-14	85	85
2014	102	102
2015	80	80
2016	85	84
2017	88	85
2018	90	85
2019	93	86
2020	95	86



Source: Reuters, DNB Markets

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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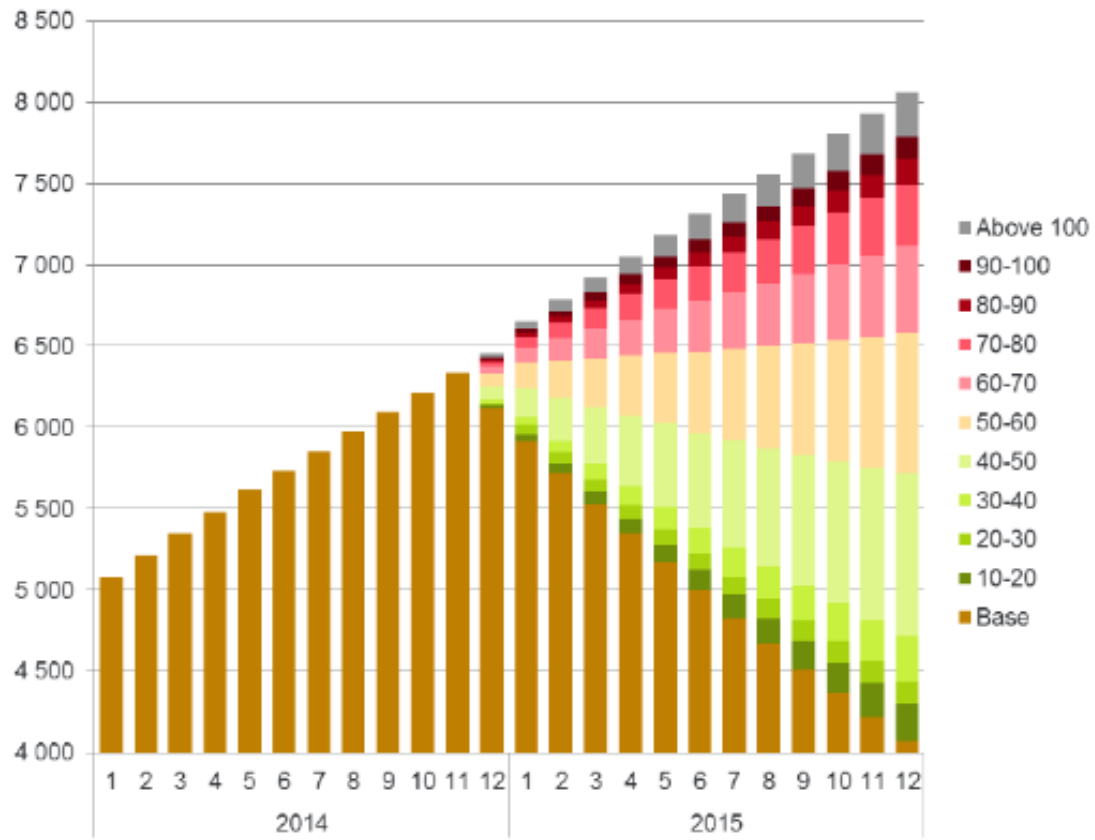
70-90 $/b Brent Required For Further Growth

Exhibit 1: North American shale production split by Brent equivalent break-even oil prices through 2015 (thousand barrels per day, including NGLs)



Source: Rystad Energy

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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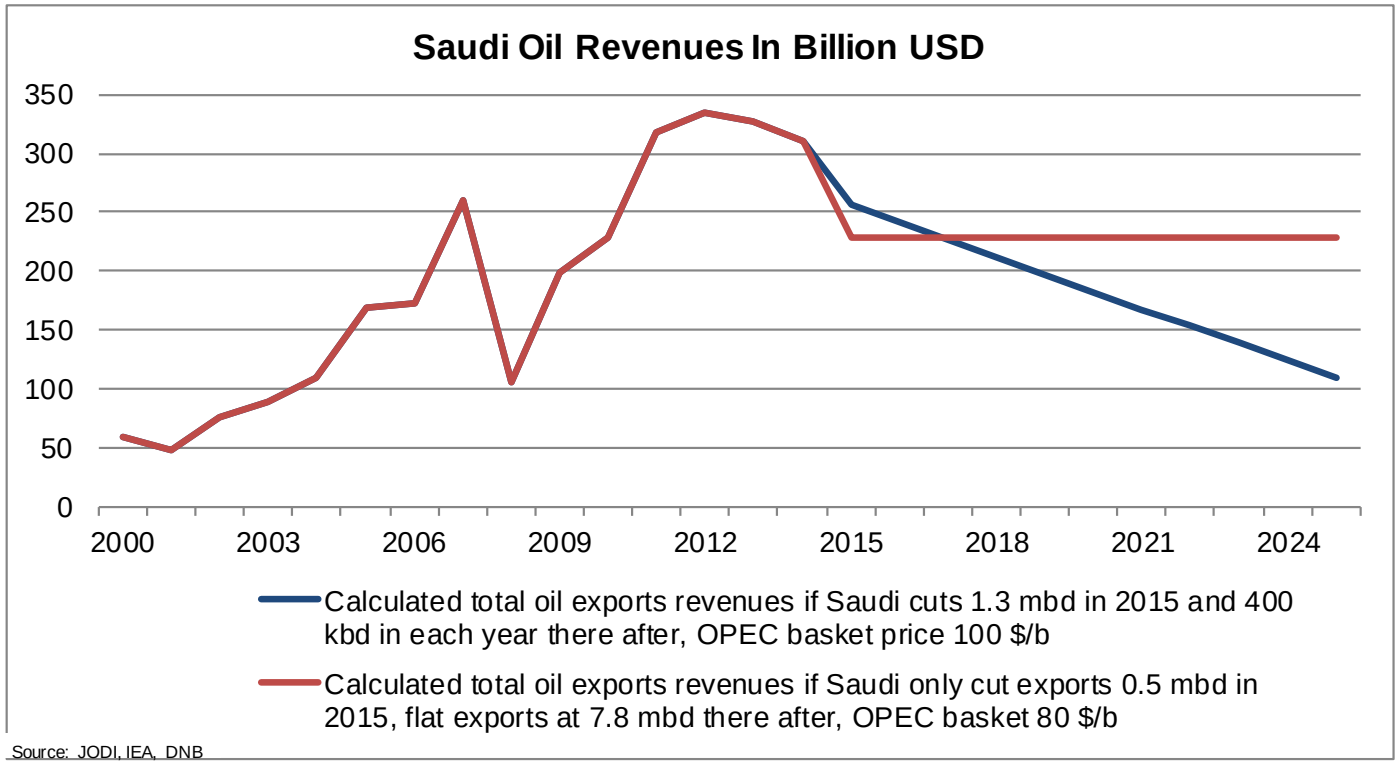
Why Should Saudi Cut Its Exports?

- Same revenues in 2015 by keeping exports and letting oil prices slide to 85 $/b

Volume cut: 2015	Million b/d	$/b price	Revenue billion $
Saudi oil exports 2014:	8.3	100	**303**
Saudi exports cut 2015:	**1.3**		
Saudi production after cut:	7.0	**100**	**256**

No volume cut: 2015	Million b/d	$/b price	Revenue billion $
Saudi oil exports 2014:	8.3	100	**303**
Saudi no exports cut:	**0.0**		
Saudi exports after cut:	8.3	**85**	**258**



Source: JODI, IEA, DNB

Saudi is better off by 2017 when cutting 0.5mbd in 2015 with flat exports at 7.8mbd at oil price of USD80/b…

…than cutting 1.3mbd with an oil price of USD100/b

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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Saudi Benefits Of A Lower Oil Price
-Saudi can afford to think a bit more long term

- Better global oil demand
- Lower growth in US shale oil production
- The shale industry will spread slower to the rest of the world
- Iran will be significantly hurt by lower oil prices
- Lower investments also in the offshore industry
- Negative for alternative energy sources and hence good for Saudi Arabia
- Discipline the rest of the cartel

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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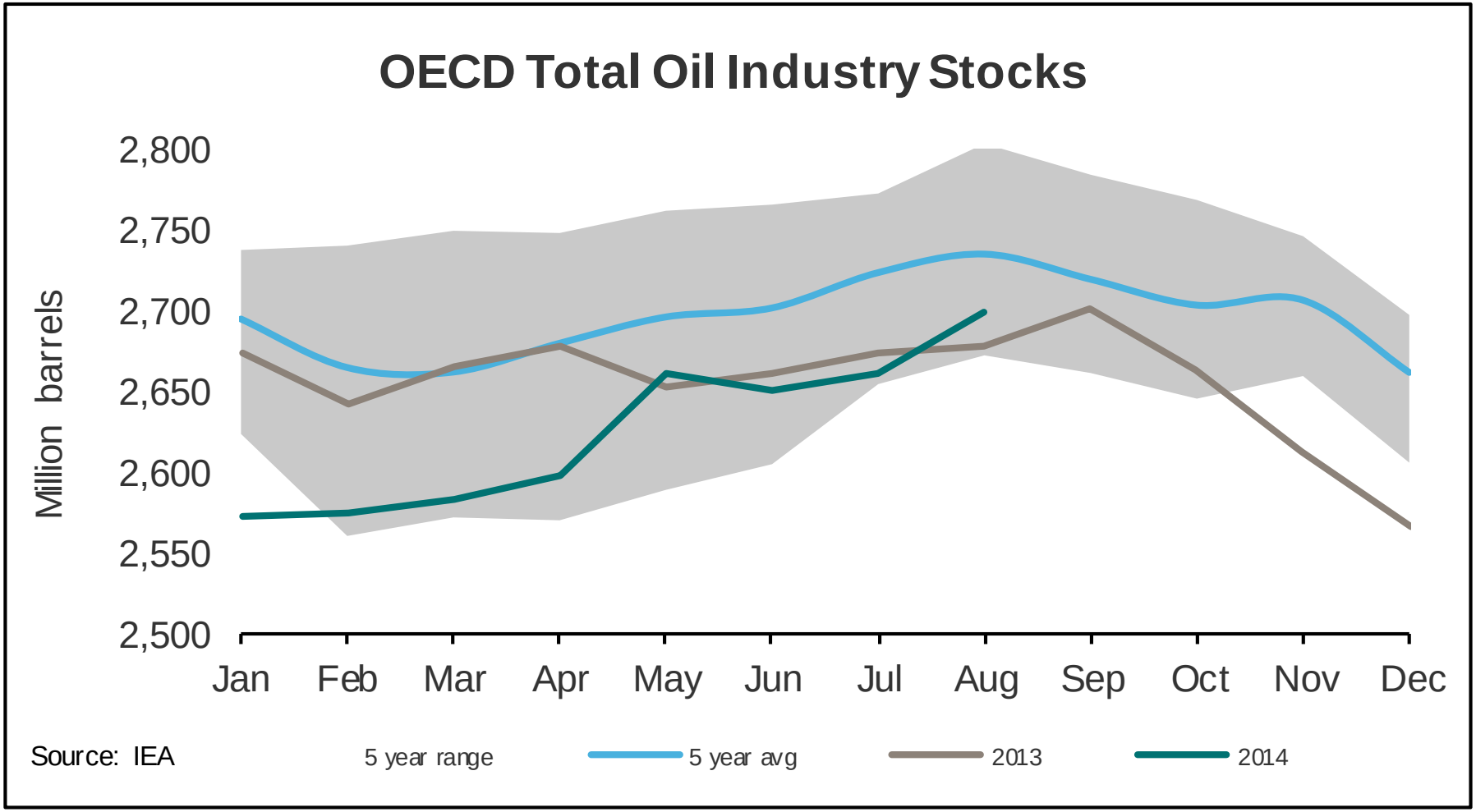
Oil Stocks Have Been Building So Far In 2014

- OECD oil stocks are up 131 million barrels Jan-Aug (0.54 mbd)



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Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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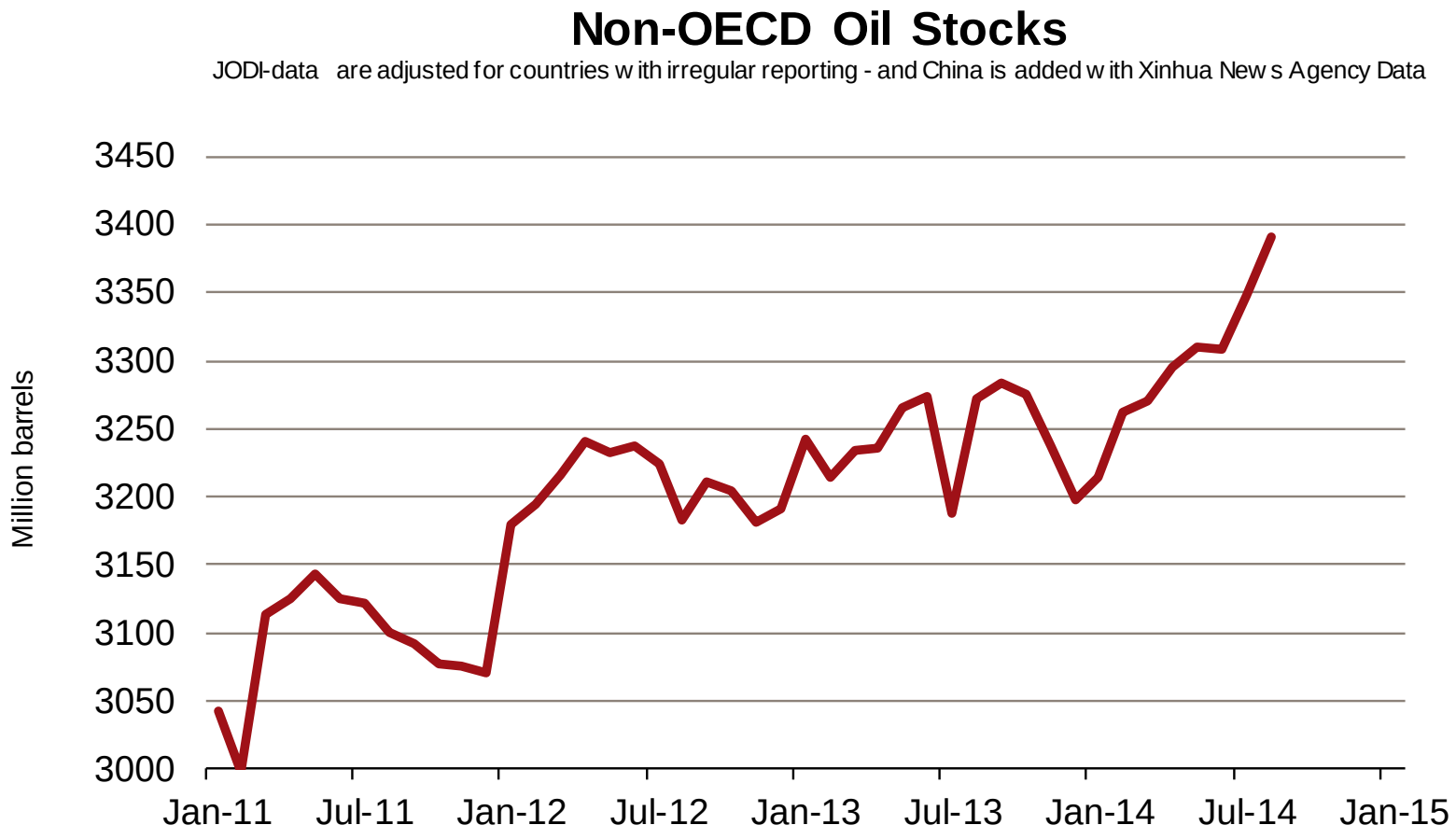
Non OECD Oil Stocks Building 194 Million Barrels Jan-Aug 2014

- This equals 0.81 million b/d over supply so far in 2014 – And since July the market has been in steep contango…



Source: JODI, DNB Markets

Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no
Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no
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Nicolay Dyvik +47 24 16 91 87 | nicolay.dyvik@dnb.no

Øyvind Berle, PhD +47 24 16 91 88 | oyvind.berle@dnb.no

Petter Haugen +47 24 16 91 86 | petter.haugen@dnb.no

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