



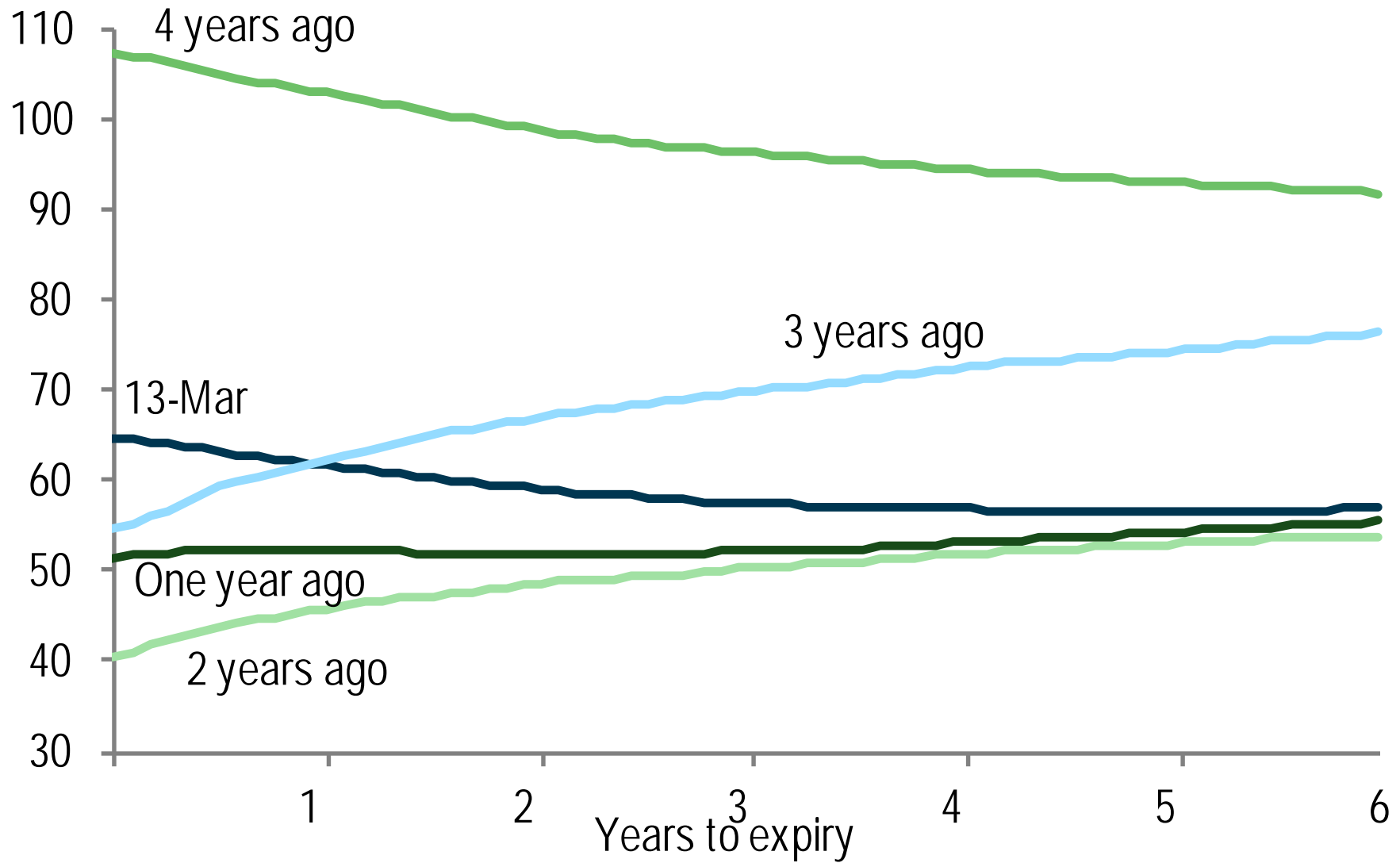
Recent oil market volatility

6th Joint IEA-IEF-OPEC Workshop on the interactions
between physical and financial markets

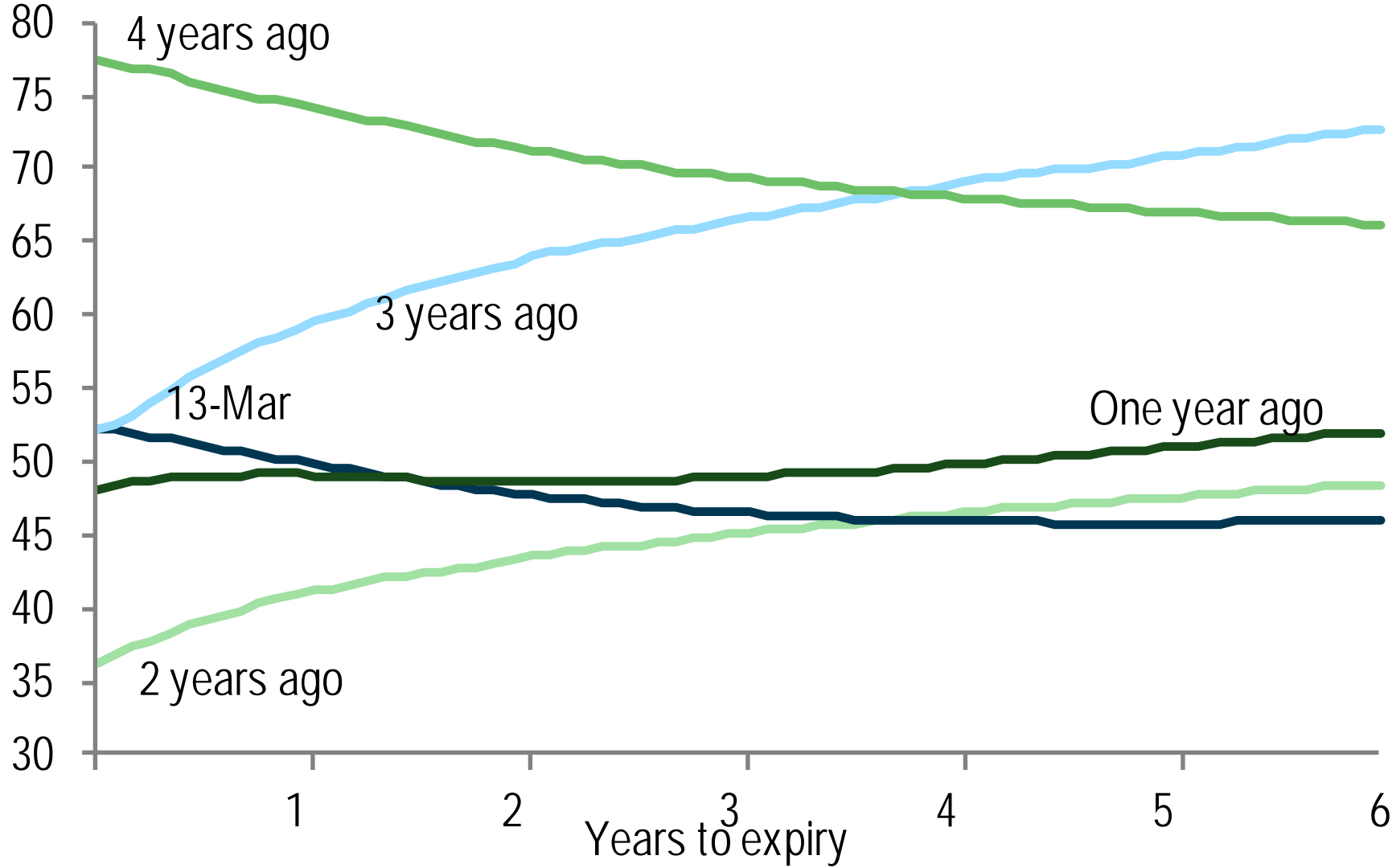
15 March 2018

Paul Horsnell
Standard Chartered Bank

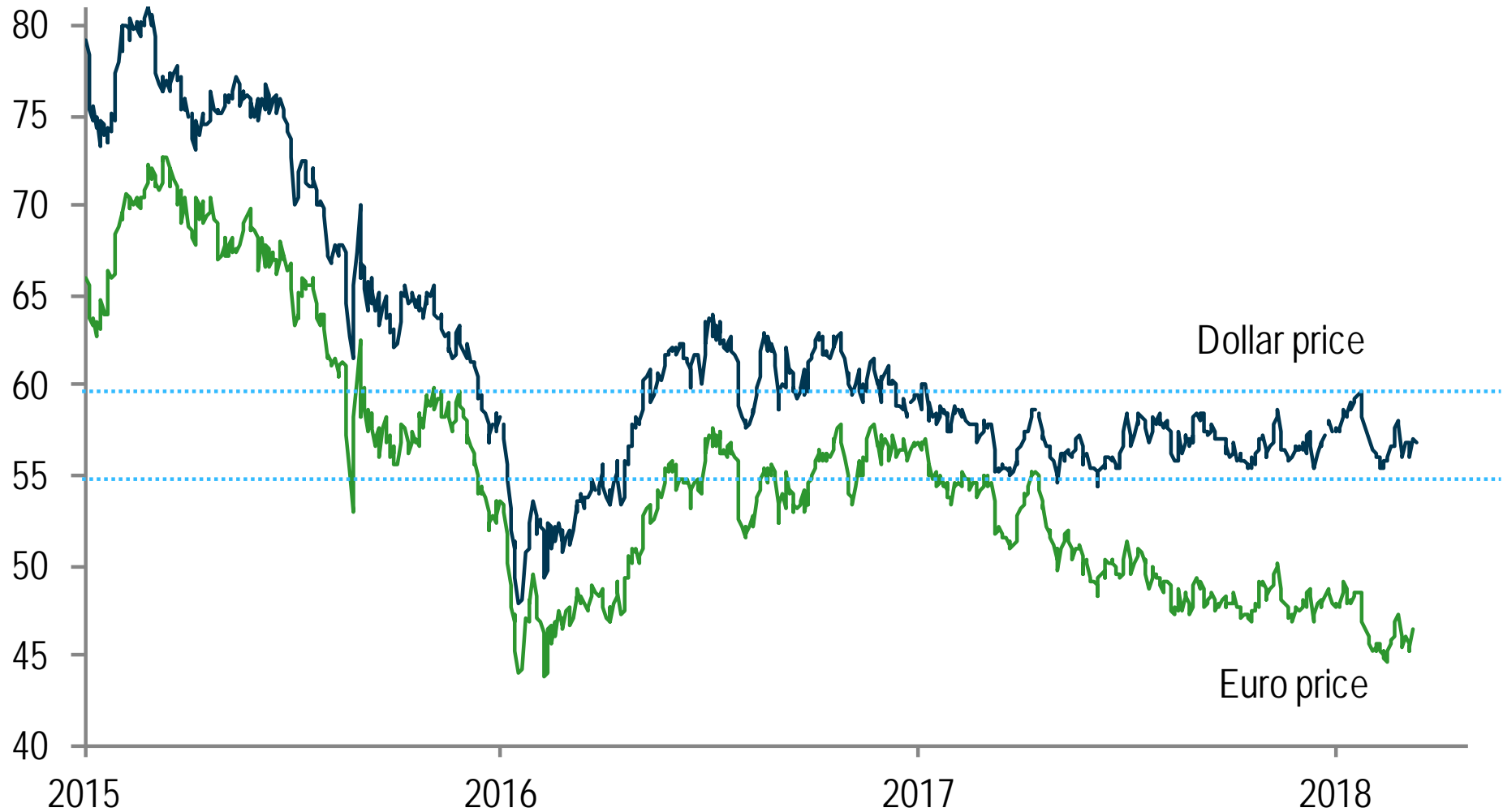
Brent curve (in dollars)



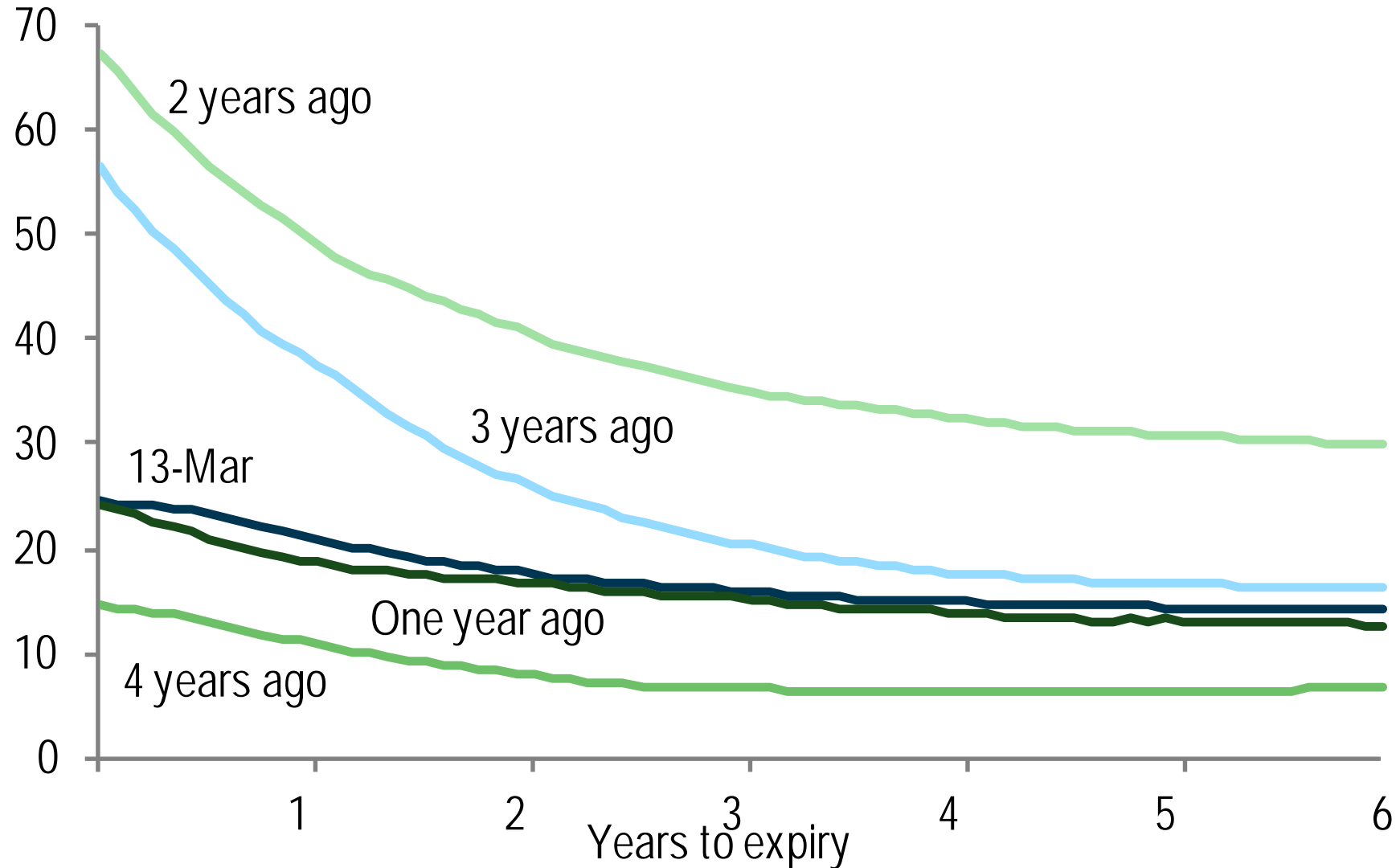
Brent curve (in euros)



Back of the Brent curve (price six years out)



Brent volatility curve, annualised %



Three key determinants for 2018-19

1. Perceived global balances, their pivot and the inventory surplus
2. Producer hedging behaviour and price feedbacks
3. Structural components, regulation, market participation and new futures contracts

Supply-demand balances and the price expectations pivot

■ Main supportive factor for prices will remain demand

- Demand growth to outpace non-OPEC supply growth in 2018 and 2019
- Even allowing for rapid US shale output growth

■ Demand:

- Global oil demand to increase by 1.69mb/d to average 100.1mb/d in 2018
 - 2017 growth 1.63mb/d
- H2-2018 demand to reach 100.8mb/d
- Growth heavily skewed towards emerging markets

Standard Chartered global oil market balances; 2017-2019

Crude oil and natural gas liquids (mb/d)

	2017	y/y ch	H1-18	H2-18	2018	y/y ch	H1-19	H2-19	2019	y/y ch
Demand	98.4	1.63	98.9	100.8	100.1	1.69	100.3	102.3	101.6	1.43
OECD demand	48.0	0.42	47.6	48.7	48.2	0.25	47.6	48.8	48.3	0.07
non-OECD demand	50.4	1.20	51.4	52.1	51.9	1.44	52.7	53.5	53.2	1.36
non-OPEC Supply	58.7	0.55	59.1	59.9	59.7	1.01	60.0	60.8	60.6	0.90
North America	21.2	0.69	22.0	22.7	22.4	1.18	23.2	24.0	23.7	1.26
non-OPEC excl N. America	37.4	-0.14	37.1	37.2	37.3	-0.17	36.7	36.8	36.9	-0.35
OPEC NGLs and condensates	6.9	0.34	7.0	7.1	7.0	0.15	7.1	7.2	7.2	0.12
Call on OPEC crude and inventories	32.9	0.74	32.9	33.8	33.4	0.53	33.2	34.3	33.8	0.41
OPEC crude oil output	32.4	-0.39	32.6	32.9	32.9	0.42	33.2	33.4	33.4	0.55
Implied stockbuild	-0.5		-0.3	-0.9	-0.6		0.0	-0.8	-0.4	

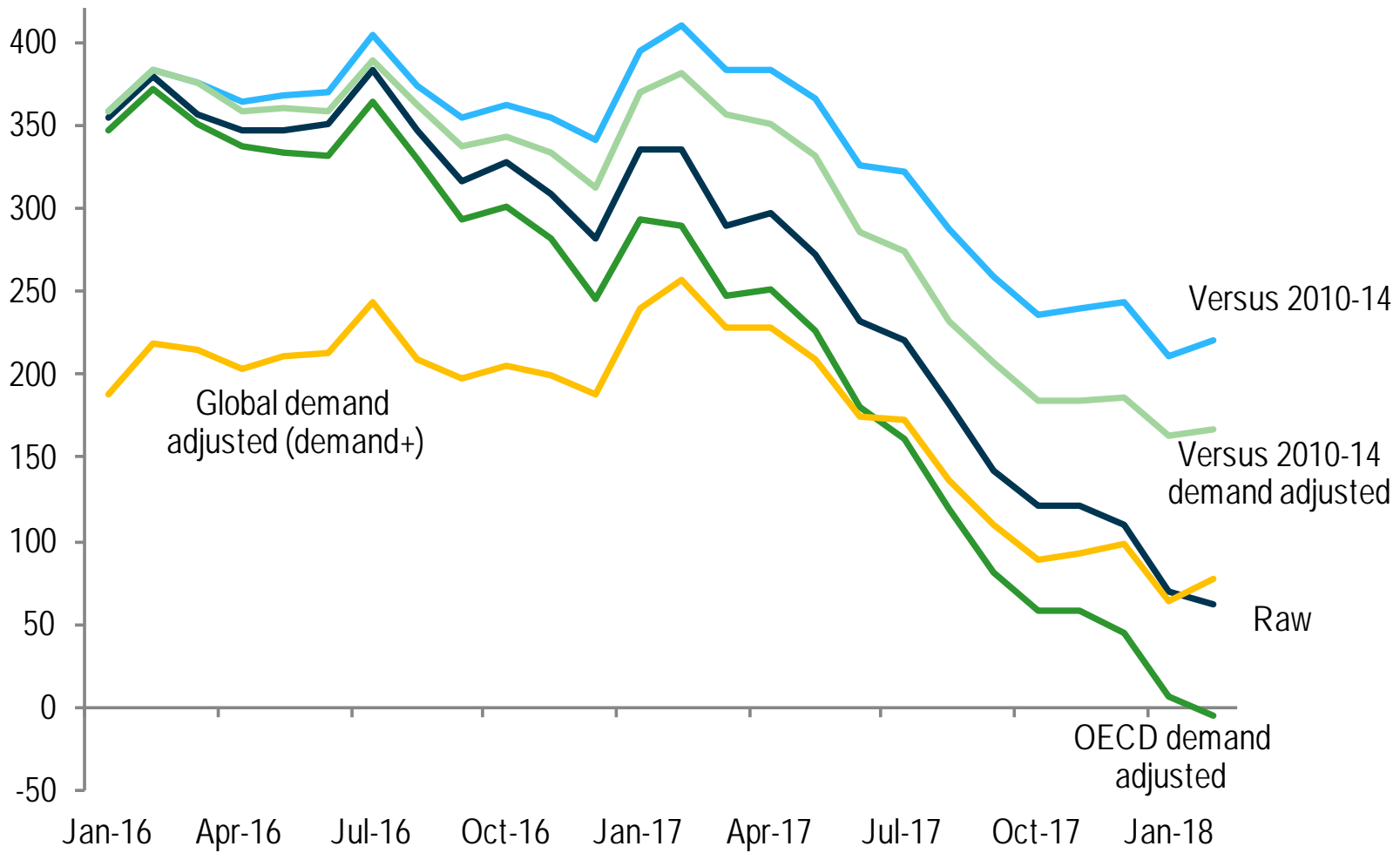
Source: Standard Chartered Research

■ Supply:

- Non-OPEC oil liquids supply to grow 1.18mb/d in North America to 22.4mb/d in 2018
 - Shape of the supply curve for US shale remains critical for oil price dynamics
- Non-OPEC oil liquids supply to fall 170kb/d in other regions to 37.3mb/d
 - Three lost years of investment in many conventional long-cycle oil plays
- Call on OPEC crude to increase by 530kb/d to 33.4mb/d

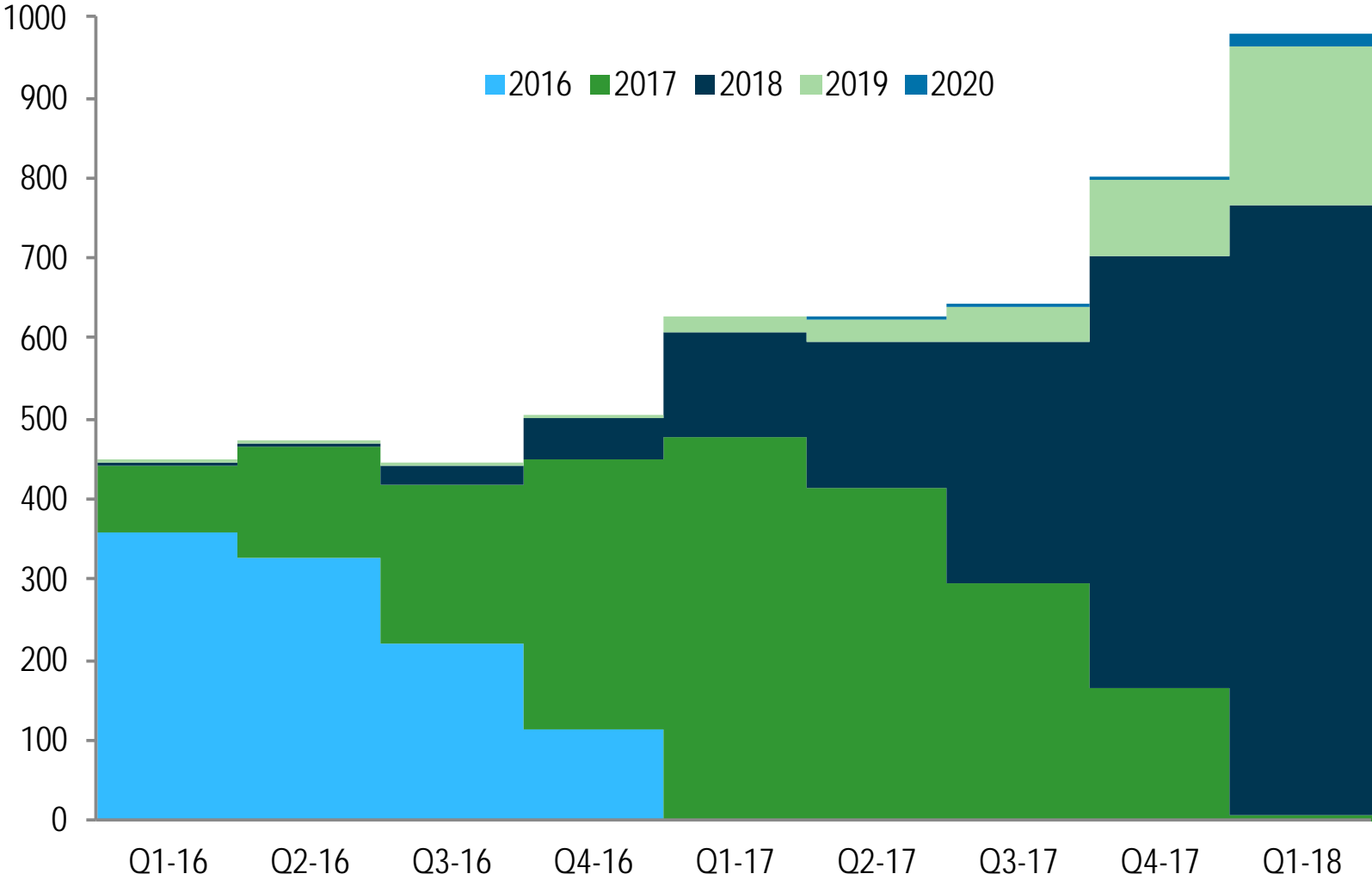
Defining the OECD oil surplus

Five measures of OECD inventory surplus versus 5-year average, mb



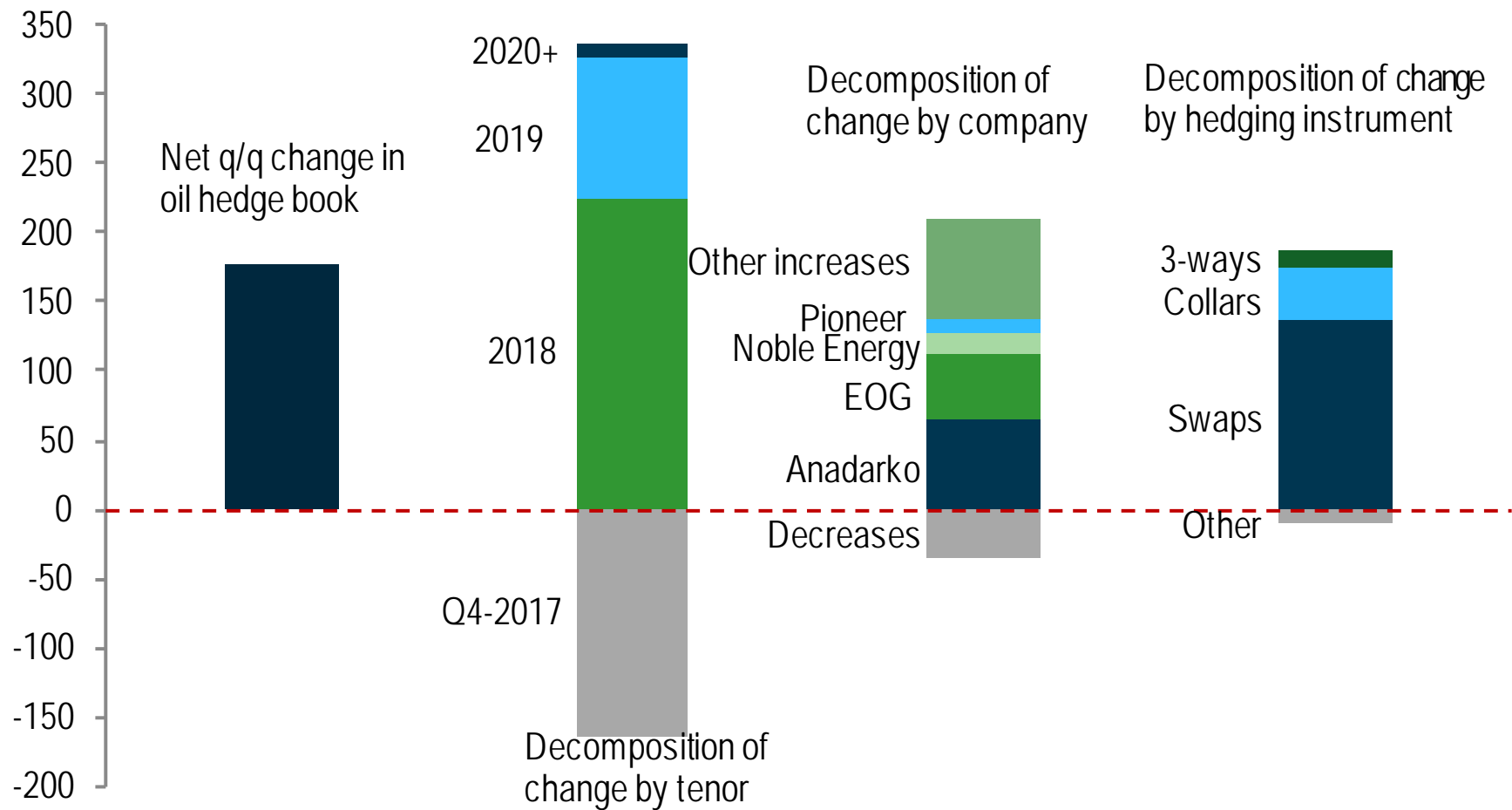
The US oil hedge book

Oil hedge book, mb, from sample of 73 companies



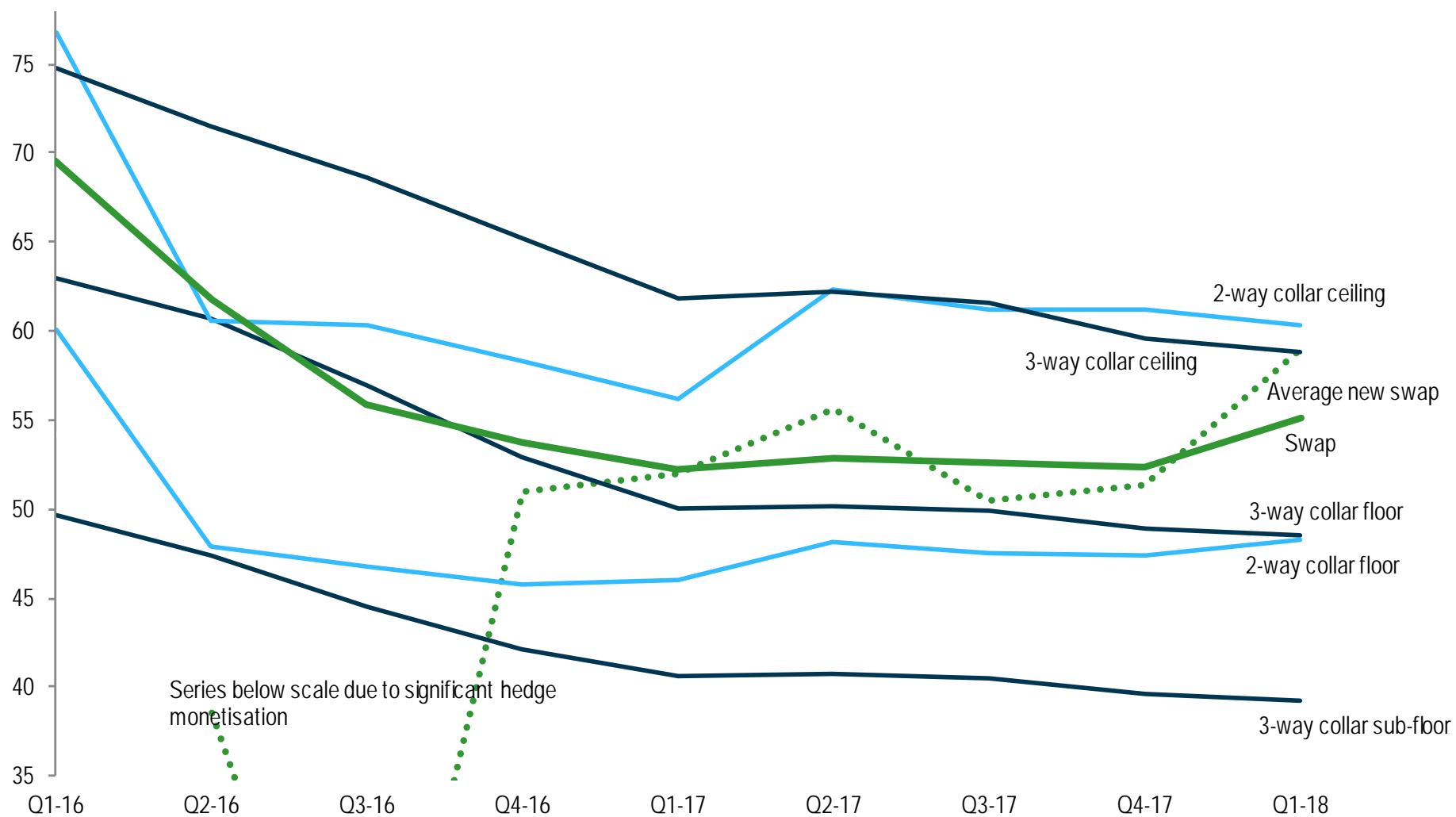
Disaggregations of changes in hedge book changes

Oil hedge book, changes in 3 months to 1 February 2018



Average hedge protection characteristics for next four quarters

WTI USD/bbl



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