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<u>5:</u>				
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5.1			57
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μμ 4.3		μ μ .	.55
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μμ 5.1.2	–		.57
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μμ 5.2.1		&	2017 .59
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μμ 5.3.2	μ	Suezmax.	.61

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 μ), μ 9.693.200 / μ (13.09%
 μ) μ 7.441.200 / μ (12.23%
 μ) (Wikipedia, 2014).

Area	Production (thousand barrels per day and %)
World Total	86,808 100
Middle East	28,358 32.7
Eurasia	17,281 19.9
North America	16,826 19.4
Africa	8,818 10.1
Asia Pacific	8,232 9.5
South America	7,293 8.4

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: Haidar A. M. Al Dulaimi, Collapse of Crude Oil Prices: Cyclical Evolution or Market Manipulation? July 2015

2.2 , μ
 , μ
 2013.

Area, Country	Consumption (mil.m.t.)
World Total	4566.55
North America	1164.6
- USA	944.3
- Canada	119.2
South & Central America	338.7
- Brazil	148.6
Europe & Eurasia	932.2
- Germany	119.1
- France	84.1

- Italy	65.4
- United Kingdom	75.1
- Spain	60.0
- Russia	165.6
Middle East	426.3
- Saudi Arabia	153.7
- Iran	100.1
Africa	181.2
Asia & Pacific	1523.5
- China	537.8
- Japan	227.5
- India	186.3
- South Korea	123.0

2.2

Source: BP Statistical Review of World Energy, June 2014

2.6 **μ** **μ** **2014.**

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μ 1986 μ 2010,

Clarkson’s Research Studies, μ , μ

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μ μ μ μ Suezmax tankers, μ

μ , μ , μ

second-hand ,

μ scrap . μ

3.1

Year	Seaborne trade (1)	Freight rate (2)	Fleet size (3)	New building vessel price (4)	Second-hand vessel price (5)	Scrapping vessel price (6)
1987	1343	54.33	31.9	36	25	4.92
1988	1488	62.37	32.11	45	35	6.24
1989	1661	82.04	32.62	54	42	5.76
1990	1587	87.88	34.34	66	39	4.56
1991	1551	89.73	35.33	68	40	4.08
1992	1641	59.95	37.29	62.5	32.5	3.36
1993	1783	72.98	40.13	62	33	3.72
1994	1802	73.27	40.49	51	34	4.32
1995	1844	82.47	40.08	54	38	4.8
1996	1942	92.69	39.63	51	42.5	4.08
1997	2041	96.83	38.89	52	44	3.94
1998	2070	85.28	40.42	44	36.5	2.9
1999	2108	75.91	41.7	42.5	35	3.46
2000	2180	160.96	40.79	52.5	49	4.39
2001	2237	110.53	41.51	46.5	39	3.22
2002	2223	80.5	39.39	43.75	38	4.32
2003	2356	135	41.3	51.5	47	6.6
2004	2486	196.99	42.71	71	75	9.36
2005	2576	159.52	44.62	71	75	7.92
2006	2686	151.68	48.21	80.5	82	9.84
2007	2764	118.75	51.83	90	92	12.6
2008	2760	180.34	54.08	91	78	6.84
2009	2659	65.53	54.82	62.5	56.5	8.16
2010	2767	98.78	59.5	66.75	59	11.88

3.1 μ μ

Source: Clarkson Research and Studies

1. Seaborne tanker trade in million tons
2. World scale rate is a weighted average of spot prices.
3. Fleet size in million deadweight tons
4. New building vessel price in million USD
5. Second-hand five-year vessel price in million USD
6. Scrapping vessel price in million USD

3.2 4 μ - .

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- Suezmax, μ
- , 4 - , μ
- . μ μ
- μ μ μ :
- 1. , μ μ
- μ μ
- 2. μ new-building, Suezmax, μ
- μ
- 3. μ second-hand, μ
- , μ
- μ μ μ
- 4. μ scrapping, μ
- scrappers μ

3.3 μ (trade volume) (fleet size).

μ , .

μ μ μ

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μ μ μ

Independent Variable	Dependent Variable		p
Freight rate	Fleet size	0.408	0.048
Freight rate	Seaborne trade	0.654	0.001
Seaborne trade	Fleet size	0.902	0.000

3.3 μ μ freight rate fleet size.

: Y.H. Venus Lun, The Tanker Shipping Market / Chapter 2

μ μ , μ
 μ fleet size μ freight rate
 μ 5% ($p=0.048 < 0,05$) μ μ
 μ μ :

{ } Fleet Size= 0.408*Freight rate + error

error μ μ , μ
 μ .

{ }, μ μ
 freight rate μ (fleet size),

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 μ (3.1), :

freight rate 1WS (wordscale) fleet size
 0,408 million dwt. μ
 fleet size.

$\mu\mu$ freight rate fleet size,
 μ

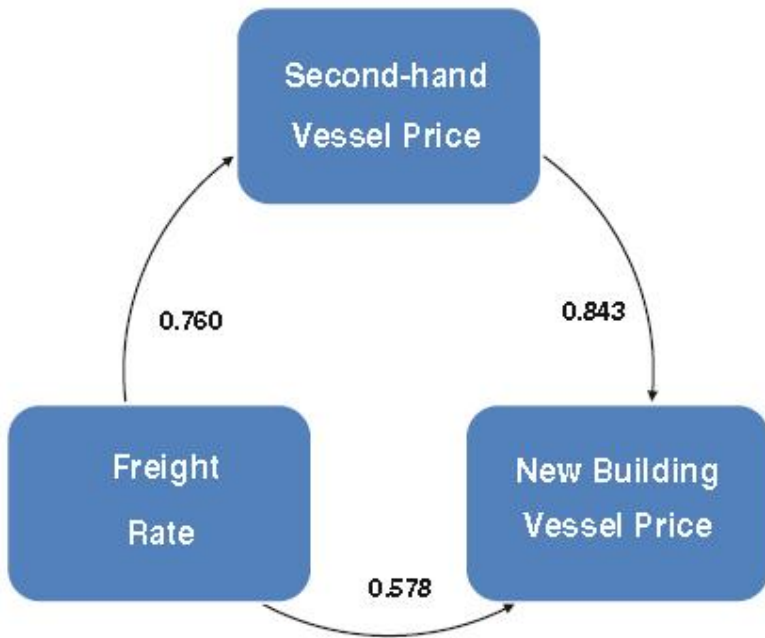
(seaborne trade) μ fleet size.

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3. μ second-hand μ μ new-building vessel,
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 μ new-building Suezmax, μ path analysis μ μ
 μ second-hand Suezmax. 3.6,
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Path	μ	$\mu\mu$
Freight rate -> New building vessel price	0.578	-
Freight rate -> SH Price -> NB price	-	0.760 x 0.843 = 0.641

3.6 $\mu\mu$ new building price.

: Y.H. Venus Lun, The Tanker Shipping Market / Chapter 2

μ $\mu\mu$ freight rate new-
building price, μ μ 0,641 0,578.
second-hand prices μ -
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μ μ new-building ,
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μμ μ μ
Suezmax.

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μμ 4.1 μ
: , Short-term Energy Outlook, September 2016

	2015	2016	2017	2018	2019	2020	2021
World Demand	94.4	95.6	96.9	98.2	99.3	100.5	101.6
Non-OPEC Supply	57.7	57.1	57.0	57.6	58.3	58.9	59.7
OPEC Crude*	32.0	32.8	33.0	33.0	33.2	33.5	33.6
OPEC NGLS etc	6.7	6.9	7.0	7.1	7.1	7.1	7.2
Total World Supply*	96.4	96.7	97.0	97.8	98.7	99.5	100.5
Implied Stock Change	2.0	1.1	0.1	-0.4	-0.7	-1.0	-1.1

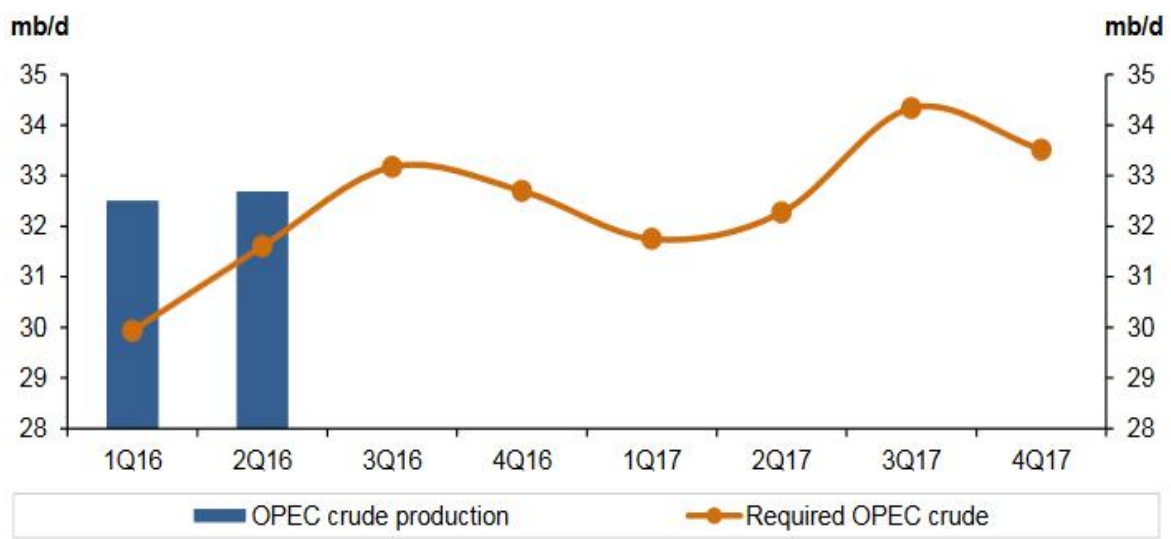
4.1 “Global balance summary” (million barrels per day)

: OPEC Annual report 2015

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: OPEC Annual Report 2016

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: OPEC Annual Report 2016

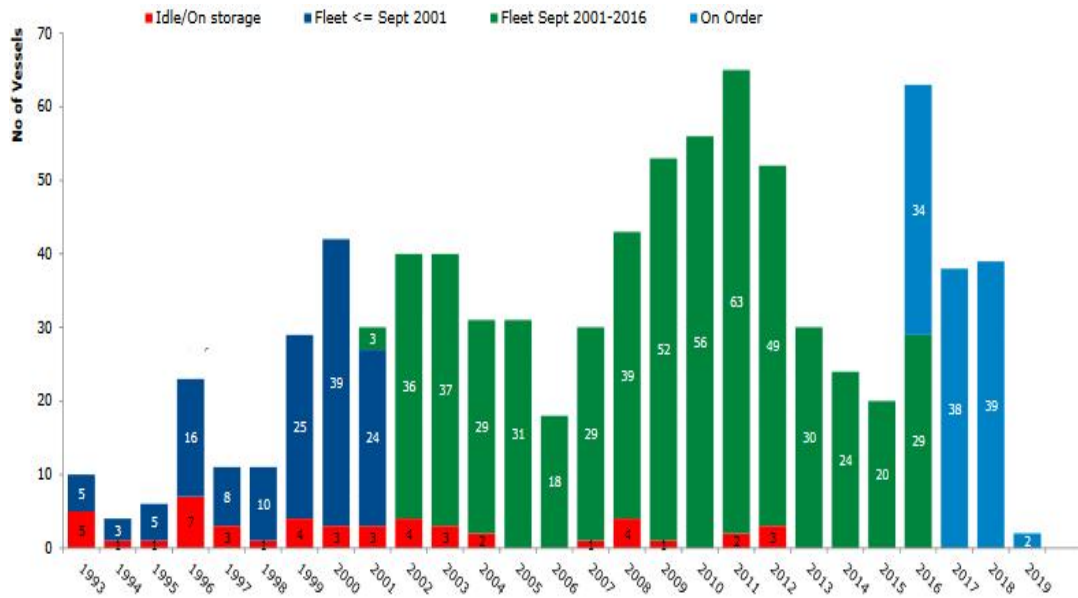
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current orderbooks

Suezmax (51) VLCC's (38) 2017.

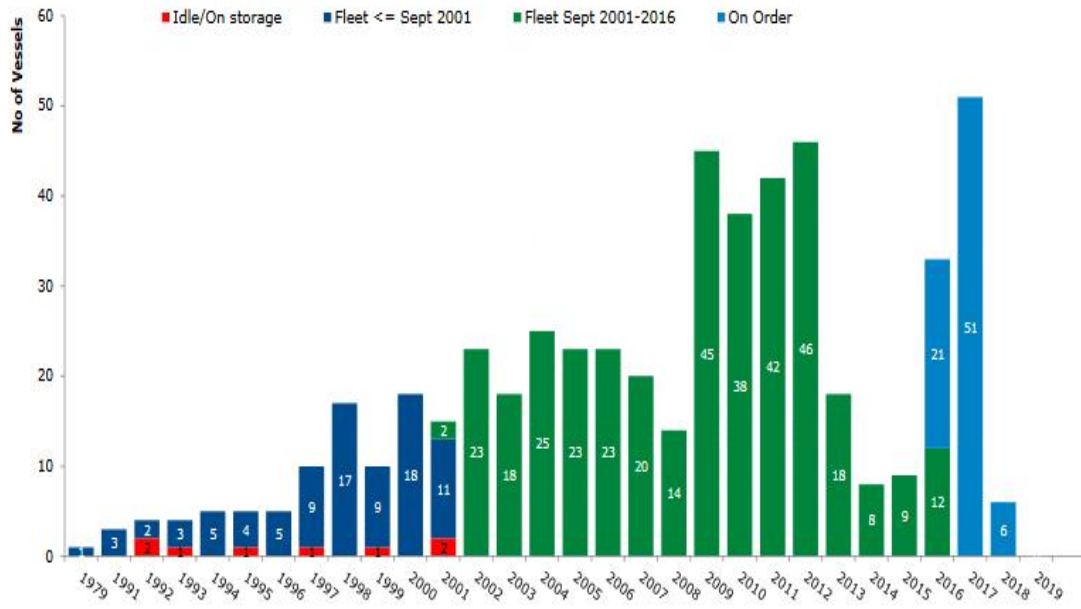
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: Clarksons Research and Studies



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: Clarksons Research and Studies

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