



Industry Overview

Presentation to ASA

June 25, 2012
Adam Pilarski
AVITAS, Inc.
Seattle, WA

Topics to be covered

- **The Bet**
- **Production Levels**
- **Fearless Forecast – Oil**
- **Assorted Topics**

The Bet



I believe Boeing will re-engine this year



Bet was for a bottle of wine

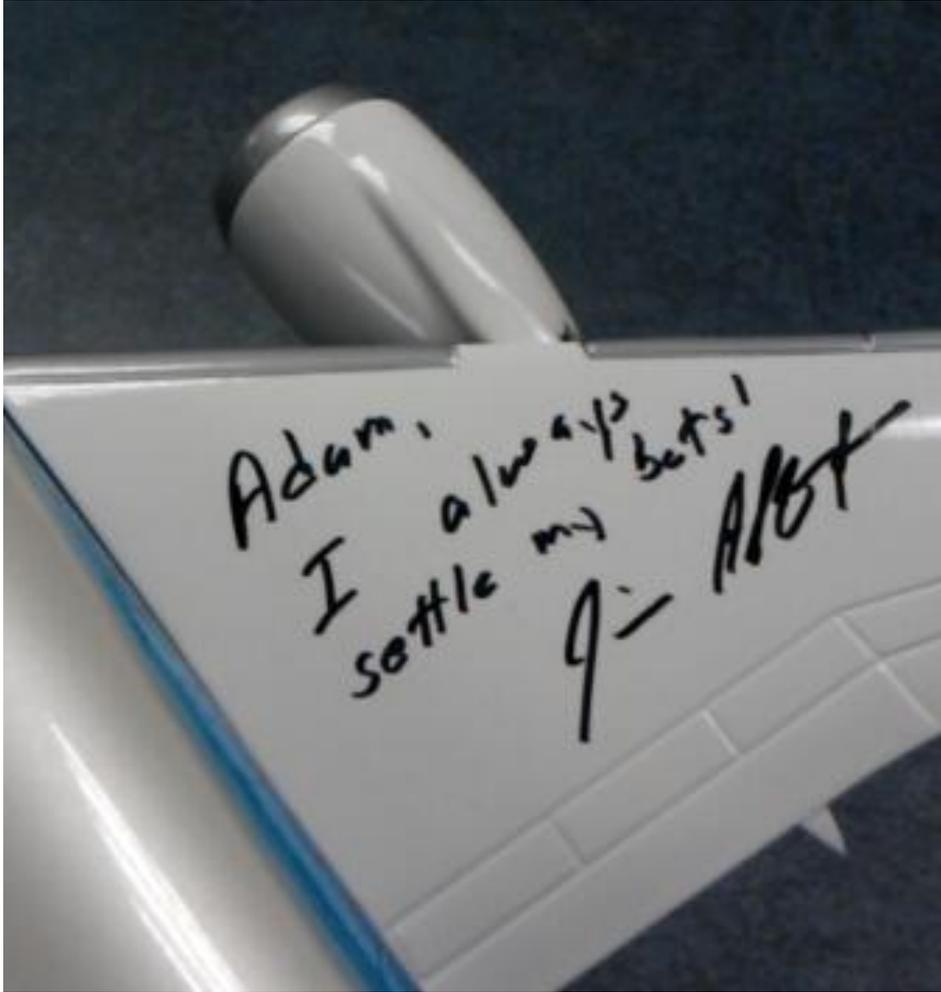
but

I prefer models















Showing True Class



GABY'S

AWESOME

龙泉

Tiger Wine

小曲



Johannesburg Riesling
2010

יין לא כשר
אבל טוב

11% Alcohol

“It was the best bet I ever lost”

**Jim Albaugh
Private Correspondence
December 16, 2011**

- **Do long term predictions by analyzing trends**
- **Do not do short term predictions**

Typical Forecast (Long Term)

- **There will be a demand for**
 - 33,248 aircraft from 2011-2030
 - worth \$4,128,645,811.78

**The world will end December 21, 2012
(in the afternoon)
(3:48pm)**

The Maya

*“The analysts aren’t the guys who buy the airplane”,
Udvar-Hazy added, smiling broadly. “I am the guy who
has to buy the airplane and live with these decisions”*

Seattle Times, June 19th, 2011
Dominic Gates

How did this happen?

- **Even a blind squirrel finds a nut sometimes**
- **A broken clock is correct twice a day**
- **I'd rather be lucky than good**
- **Boeing was nice to me and decided to re-engine to boost my ego**

Production Levels

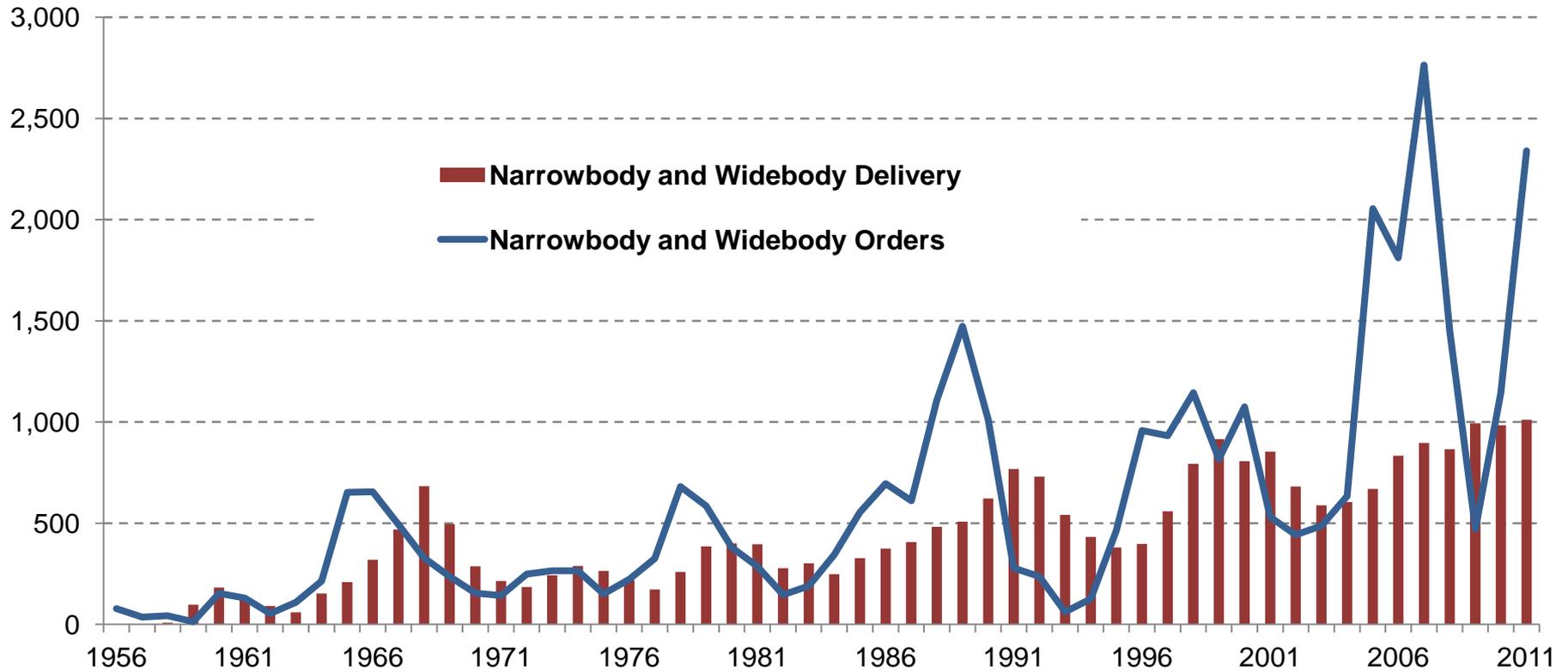
Another Perfect Storm Possible

- **Iran flare-up**
- **Oil prices go through the roof**
- **European recession/China slowdown**
- **Lack of financing**
- **Bubble of orders**

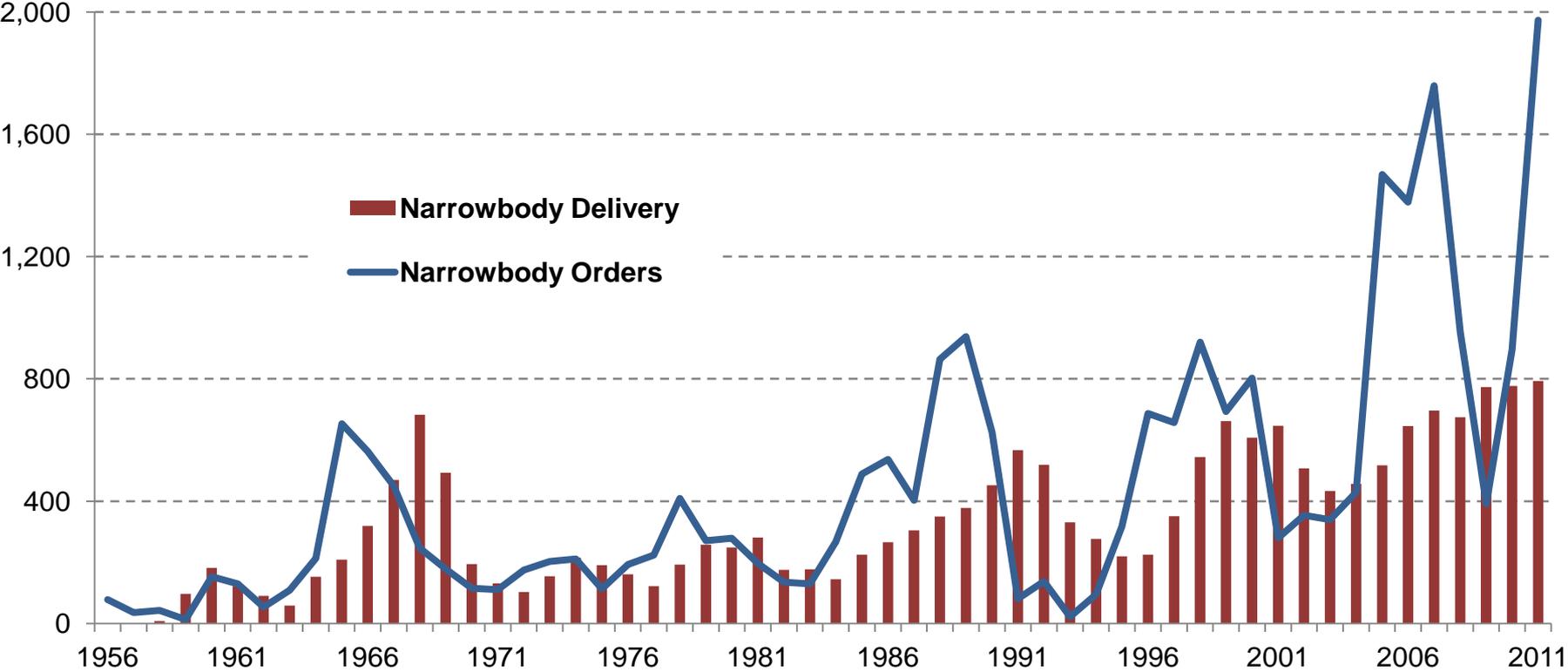
How is this cycle different?

- **Low interest rates**
- **ExIm/ECA financing**
- **High oil prices, need for newer aircraft**
- **Manufacturers need money**
- **Declining military expenditure**
- **Airbus/Boeing want to slow new entrants**
- **New aircraft types**
- **Leahy not retiring yet**

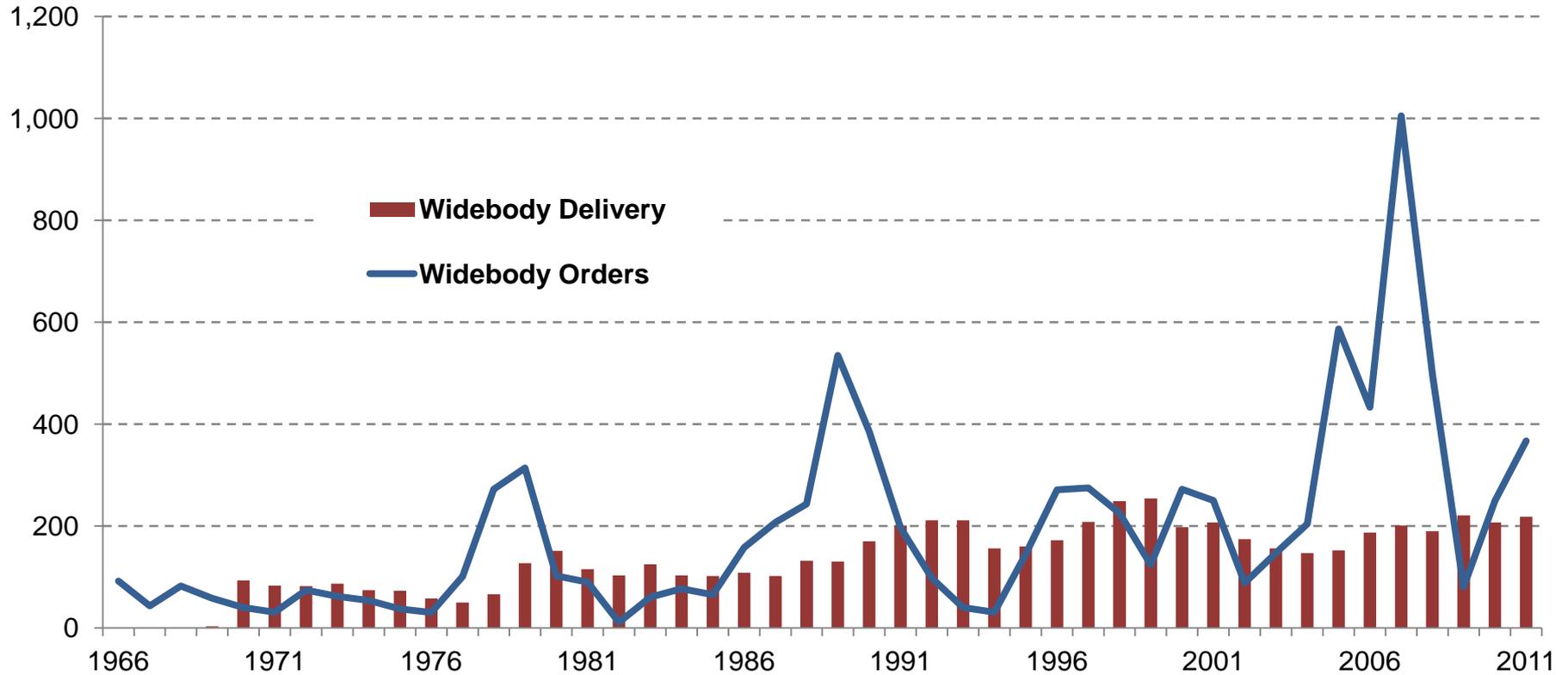
Orders and Delivery, Narrowbody and Widebody Jets



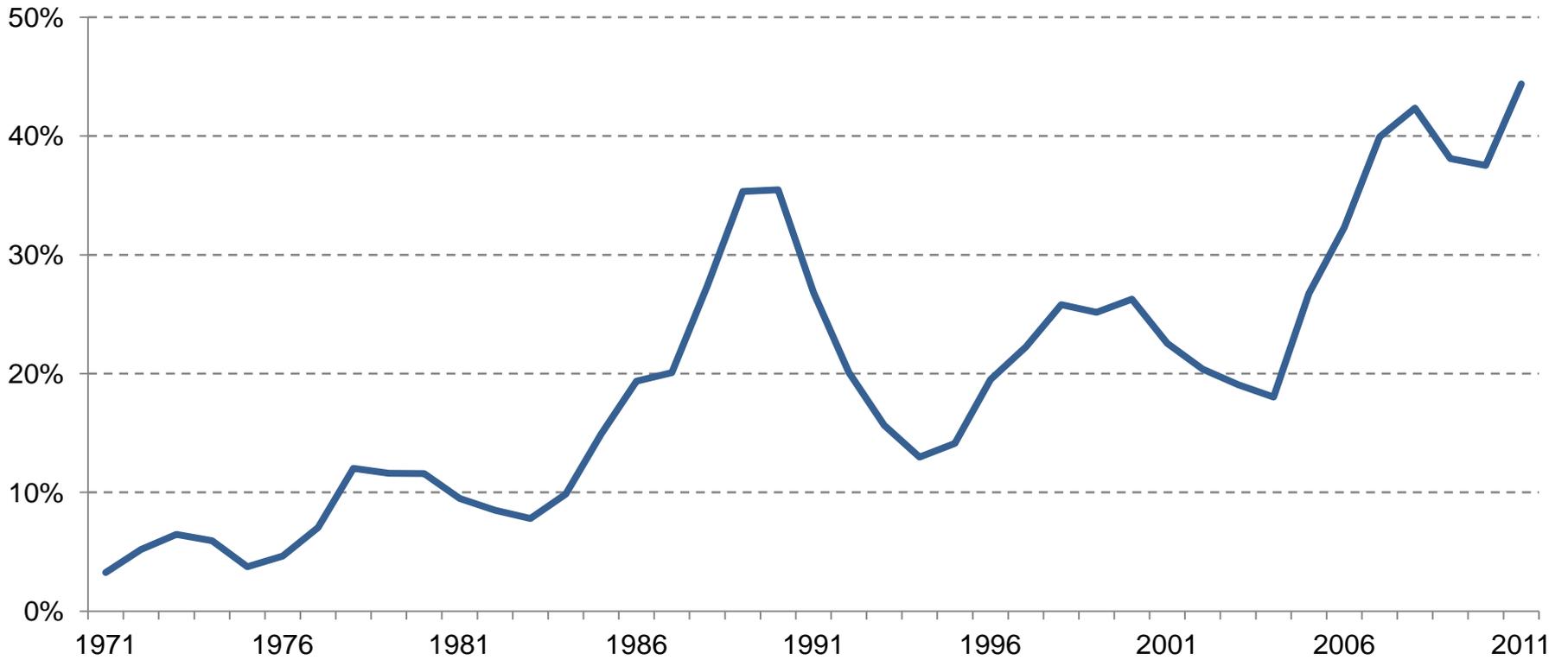
Orders and Delivery, Narrowbody Jets



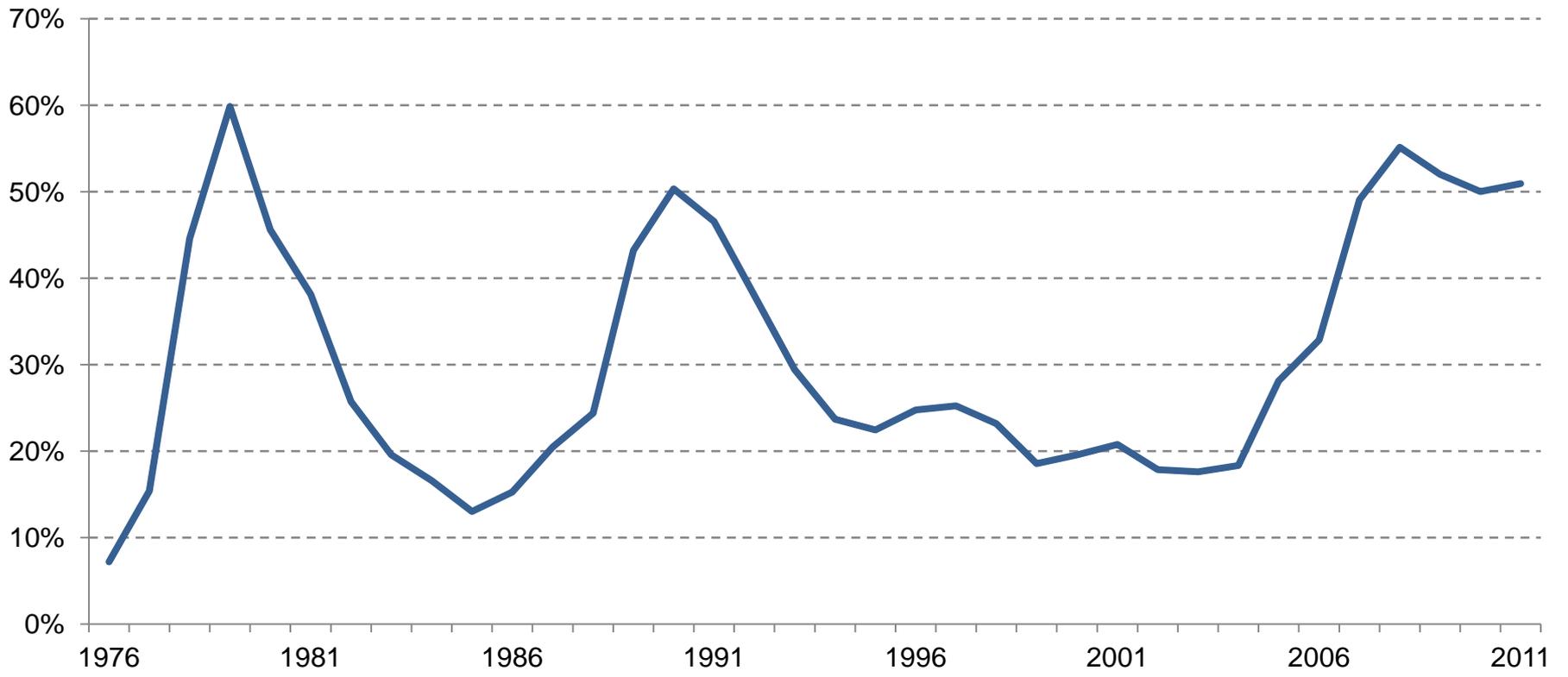
Orders and Delivery, Widebody Jets



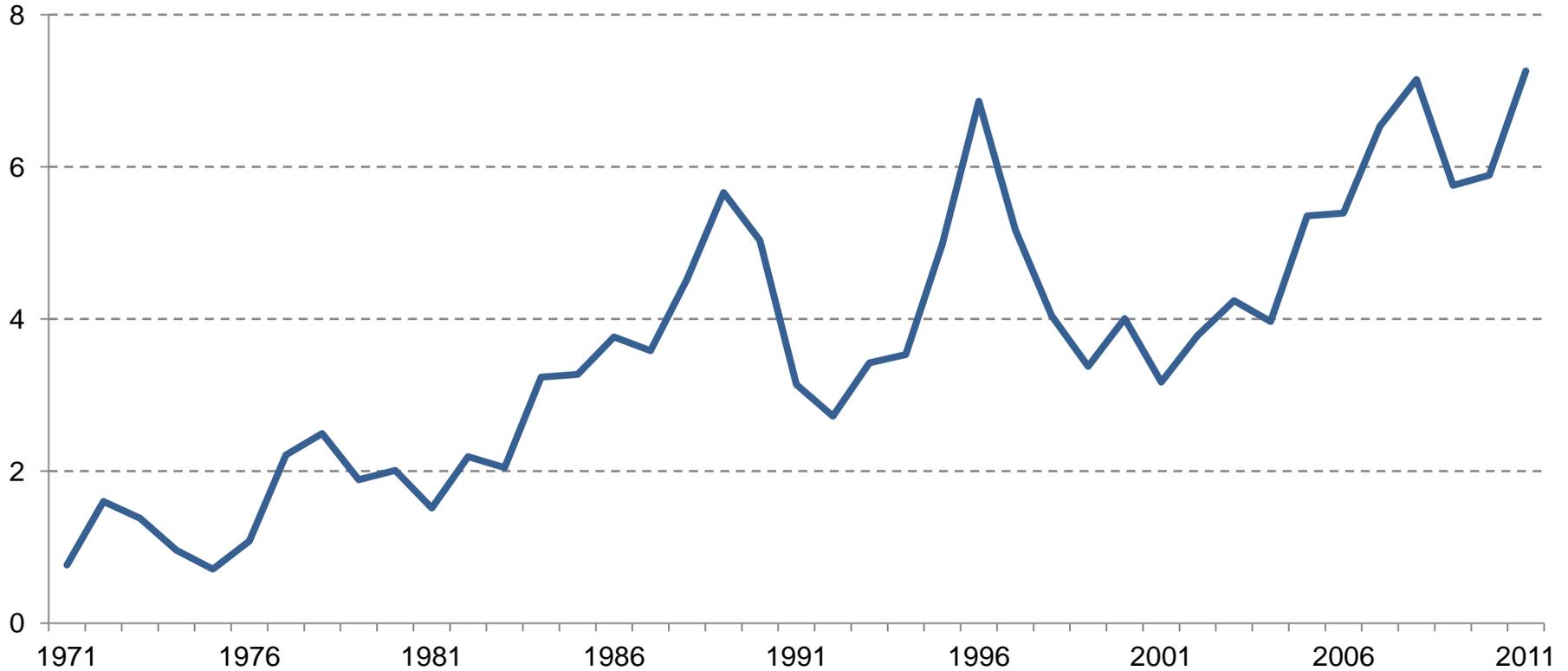
Backlog as Percentage of Active Fleet, Narrowbody Jets



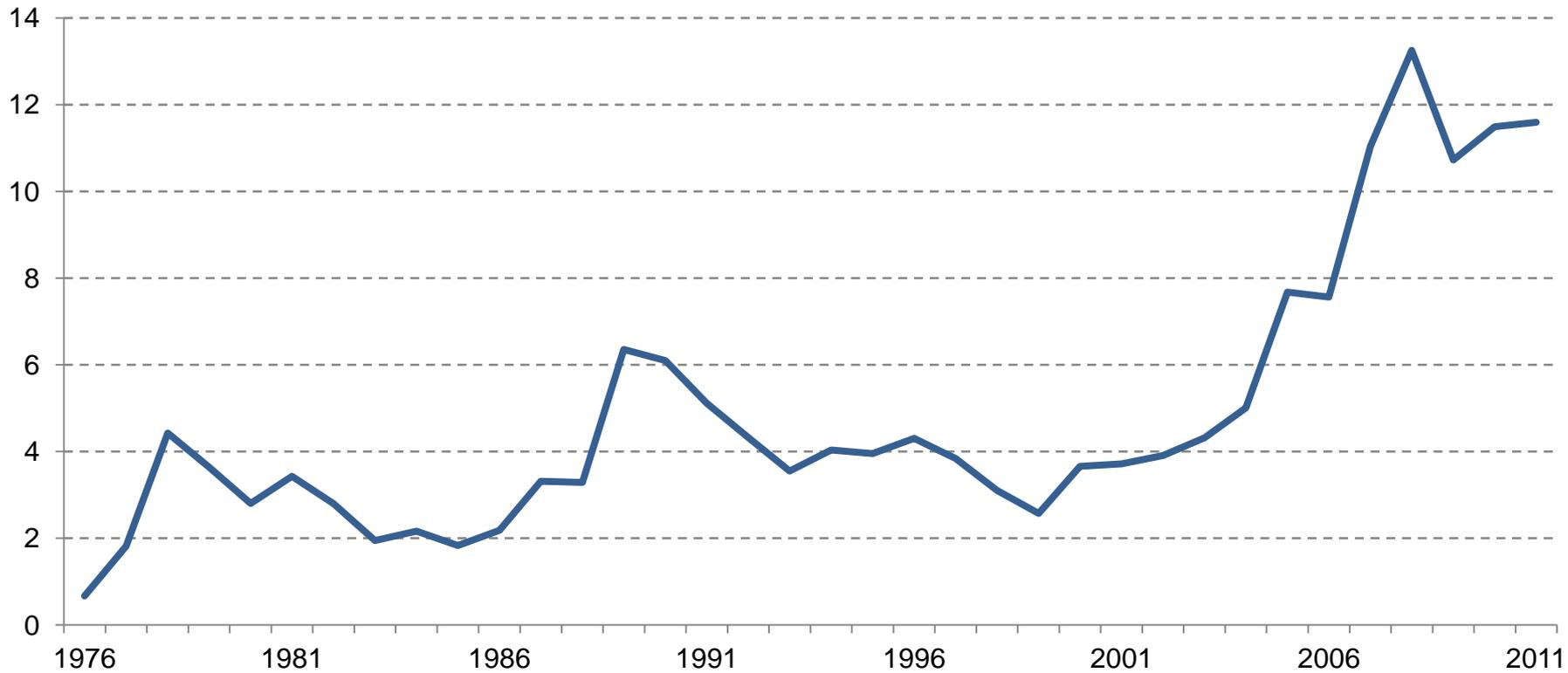
Backlog as Percentage of Active Fleet, Widebody Jets



Backlog as Multiples of Annual Production, Narrowbody Jets



Backlog as Multiples of Annual Production, Widebody Jets

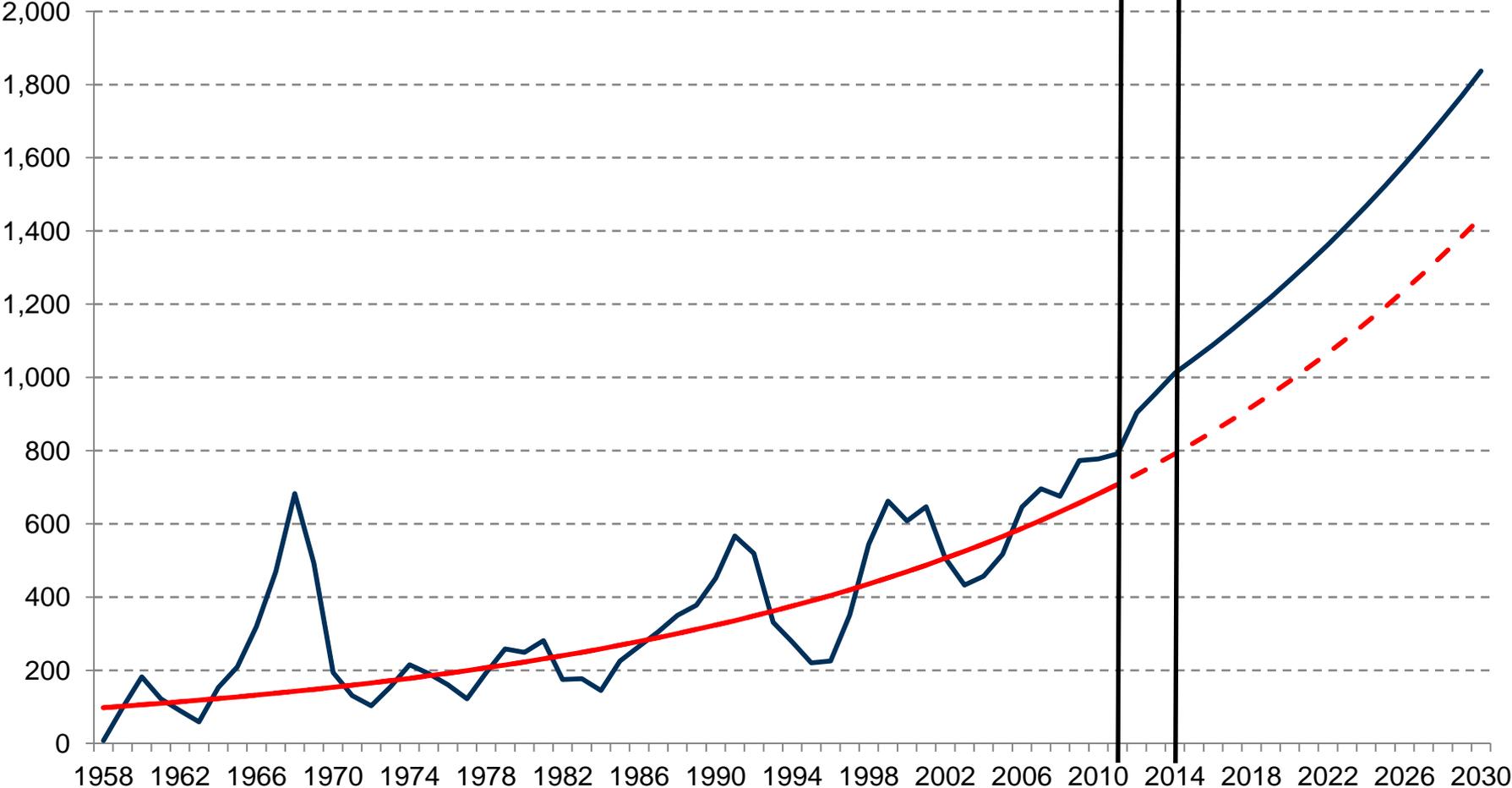




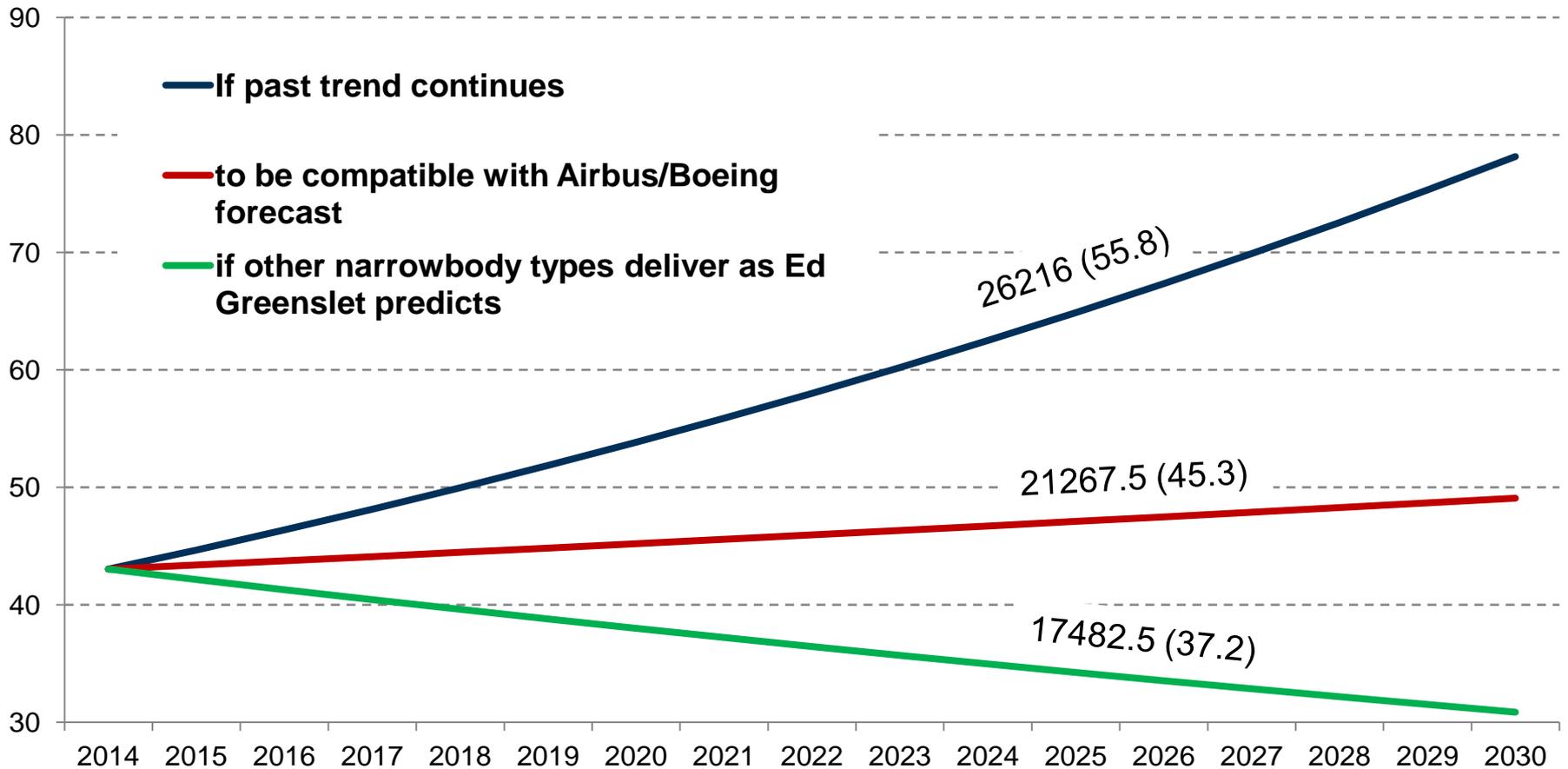
**I believe we are in a bubble environment
with too many orders**

- **Historical production growing at 2.9% annually**
- **Announced production rates of 42/month by 2012 (Airbus) and 2014 (Boeing)**
- **Talk of rates of 60 aircraft/month**
- **C Series, 919 and MS21 not included**

Narrowbody Delivery, History and Forecast



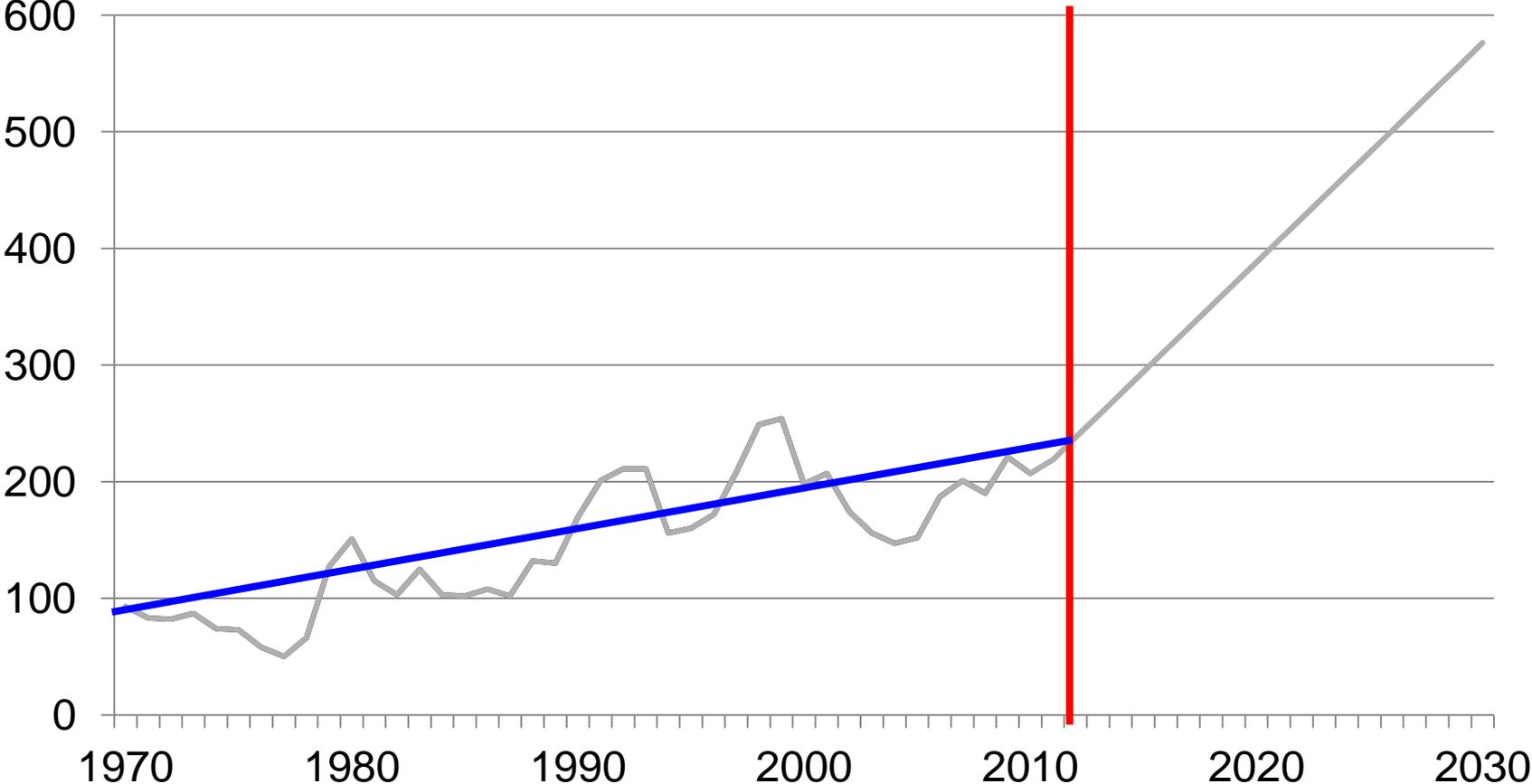
Forecast of Narrowbody Monthly Production Rate, By Duopolists



- **Announced rates not compatible with Airbus/Boeing forecasts**
- **Possibility of much higher retirements, shorter economic life – depends on oil prices**

Widebody production needs to grow from 1% to 5.9% annually to satisfy Airbus/Boeing forecasts

Widebody Delivery, History and Forecast





Fearless Forecast - Oil

By the time the neo/797 is delivered, oil prices will be below \$40 per barrel

“Did you mean \$400?”

Nico Buchholz email message while I was speaking

- **Concept of scarcity**
- **Importance of price mechanism**
- **Competitive vs non-competitive markets**

“The Coal Question”

In 1906, Stanley Jevons predicted we will run out of coal by the 1940's

Years of production left today

118 Years

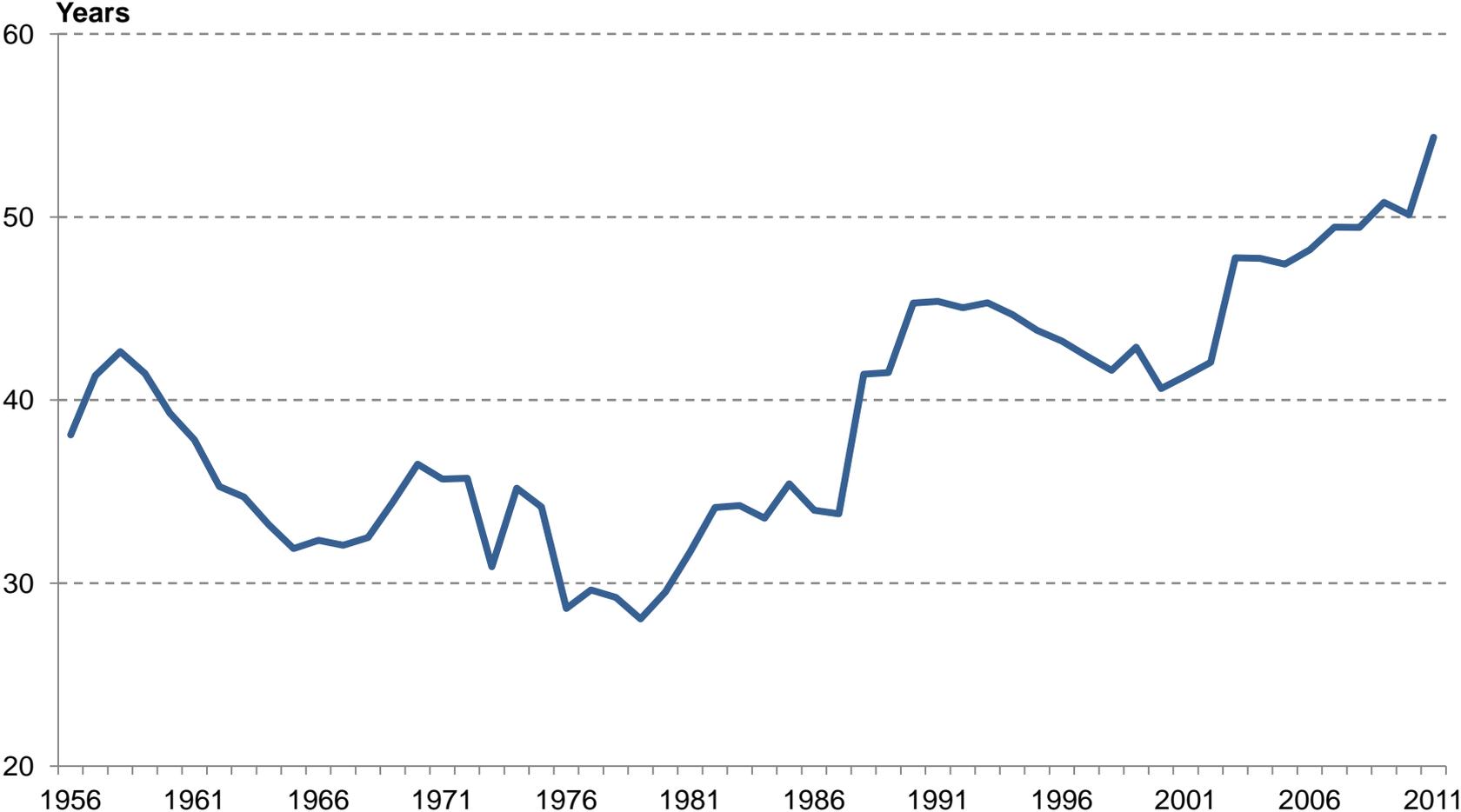


Are we running out of oil?

NO

Years of reserves left

Years of Crude Oil Reserves Left



Source: U.S. Department of Energy, Energy Information Administration

**Are price increases result of demand push?
(aka all Chinese now driving cars)**

NO

■ Oil Price Increase	77%
■ China Oil Consumption	54.3%
■ China GDP	86.2%
■ World GDP	14.7%
■ World Oil Consumption	0.5%

Oil Prices up	198.9%
Traffic up	53%
Jet Fuel Demand up	3%

Source: Airbus



Clearly the price mechanism works

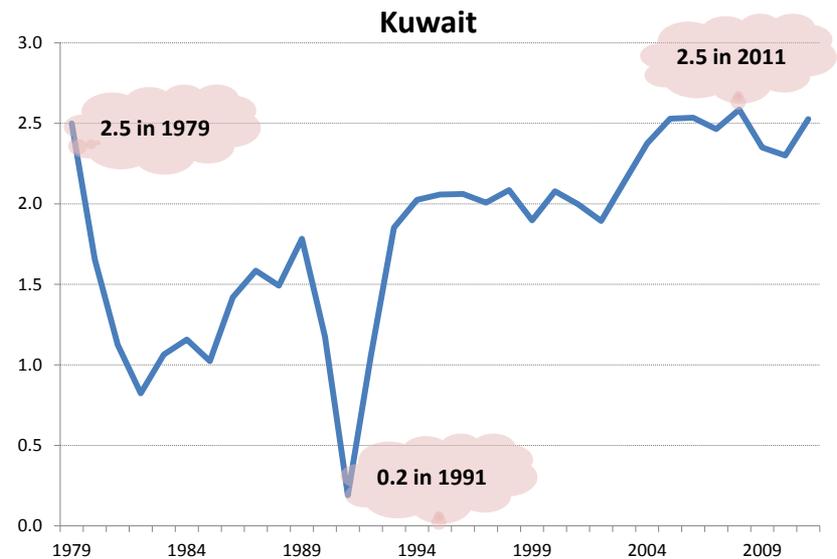
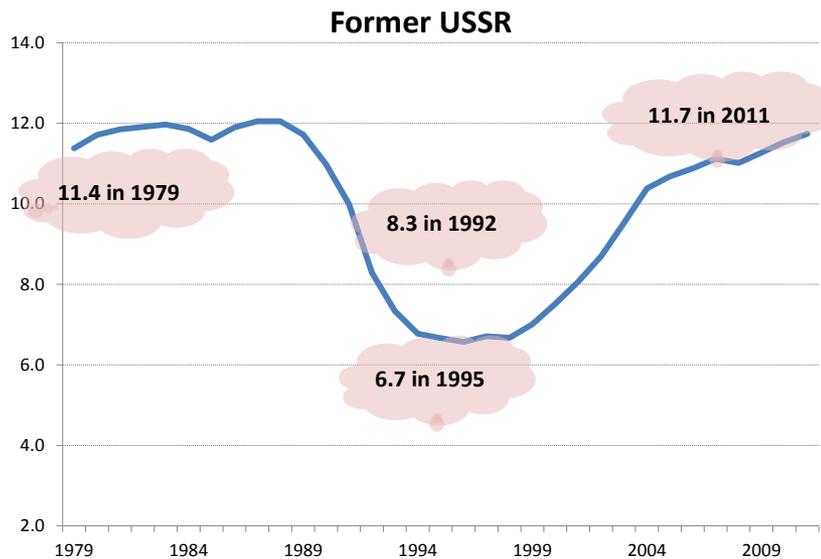
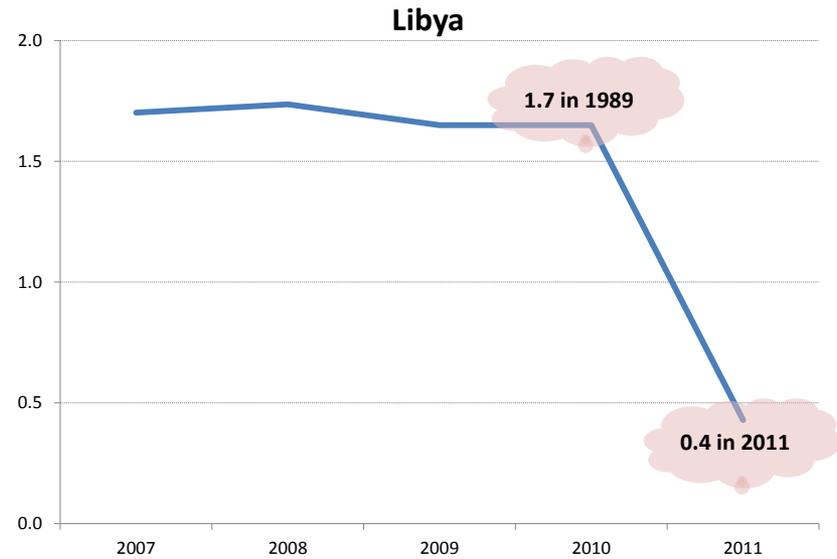
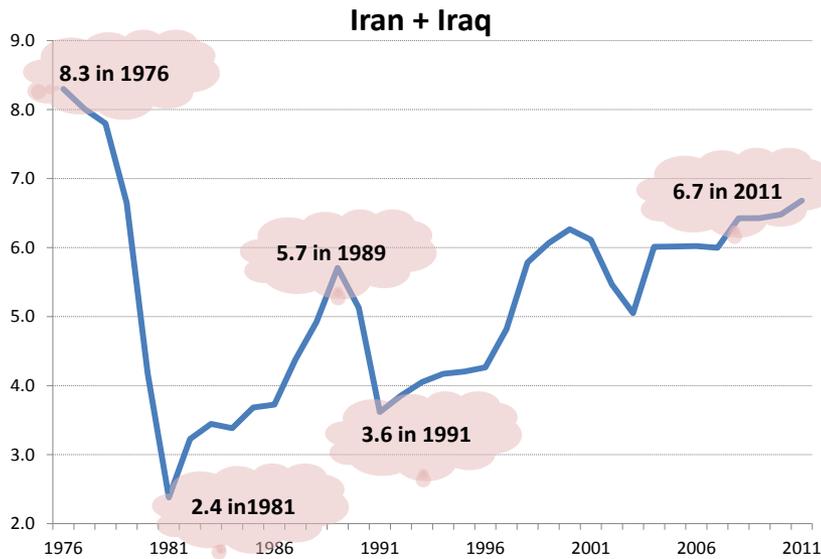


**Historically production disruptions caused by
supply rather than demand factors**

Millions of barrels a day

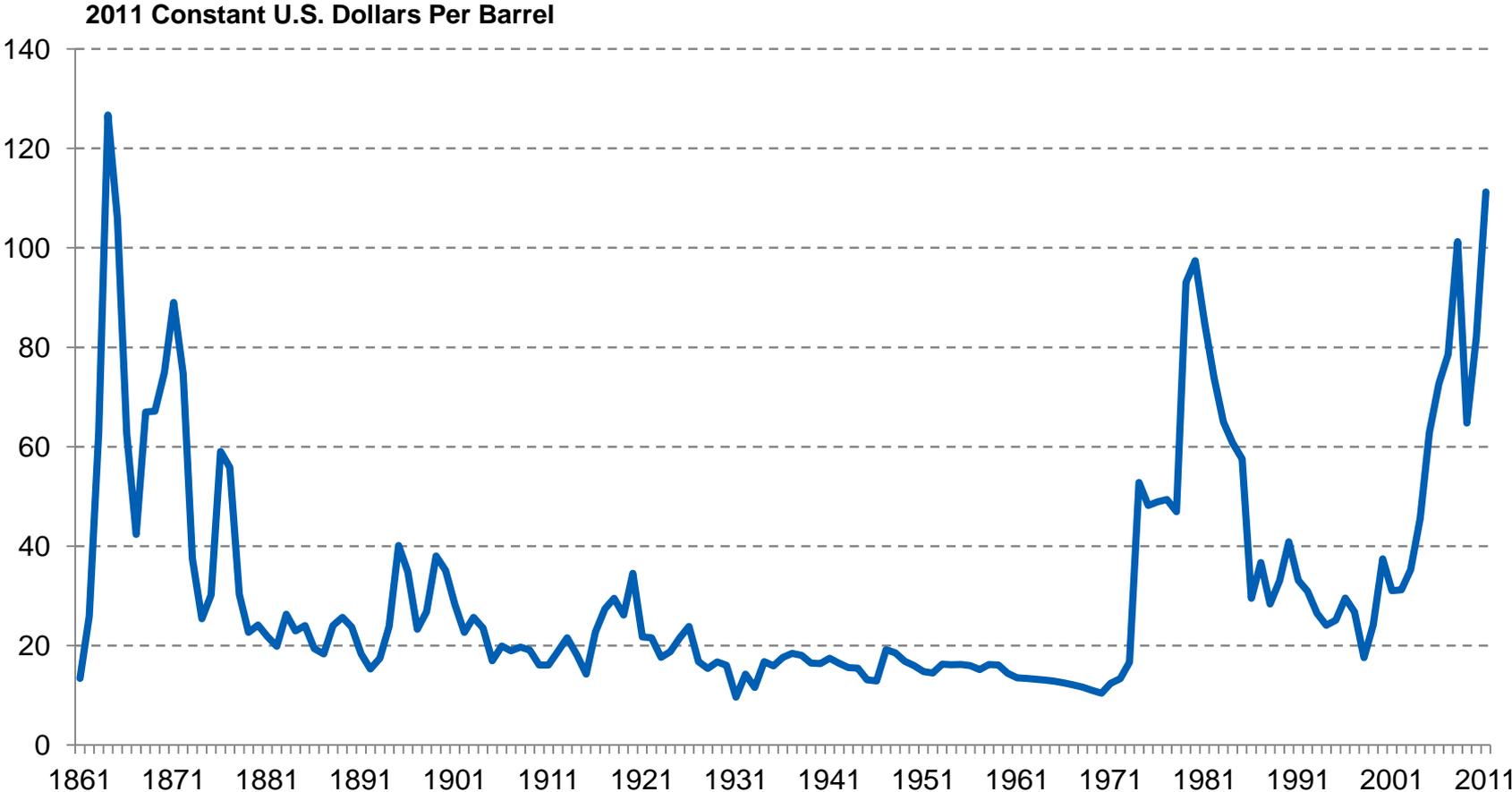
Iran + Iraq				
1976	1981	1989	1991	2011
8.3	2.4	5.7	3.6	6.7
Libya				
2010	2011			
1.7	0.4			
Former USSR				
1979	1992	1995	2011	
11.4	8.3	6.7	11.7	
Kuwait				
1979	1991	2011		
2.5	0.2	2.5		

Millions of barrels a day



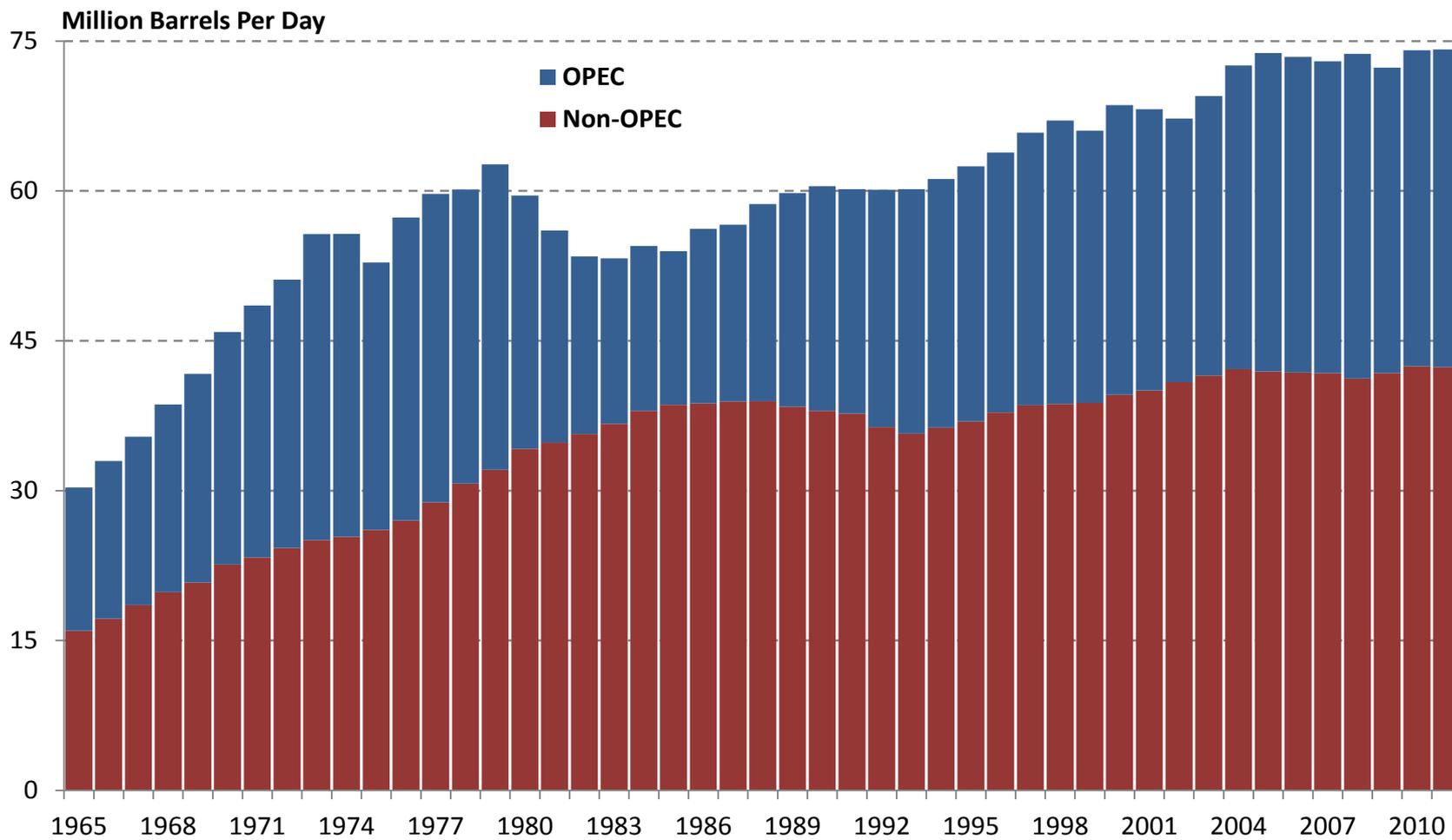
Historical Oil Prices

Historical Oil Prices



Source: BP Statistical Review of World Energy. 1861-1944 US Average; 1945-1983 Arabian Light posted at Ras Tanura; 1984-2011 Brent dated.

World Crude Oil Production, OPEC vs. Non-OPEC Countries, 1965 - 2011



Source: U.S. Department of Energy, Energy Information Administration

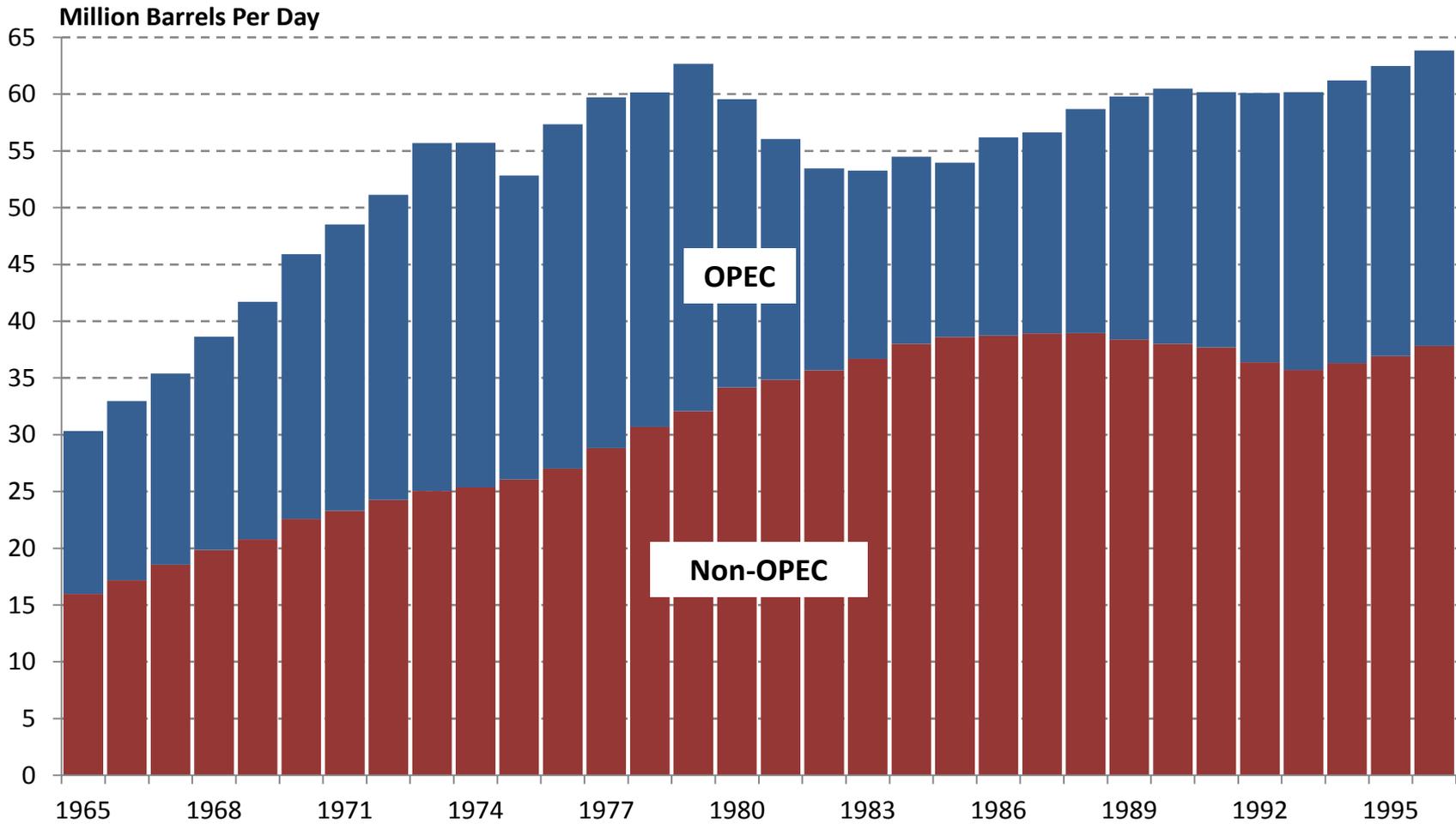


**Last time oil prices went sky-high – OPEC II
(1979-1986)**

The level of World oil production did not recover to 1979 levels until 1996

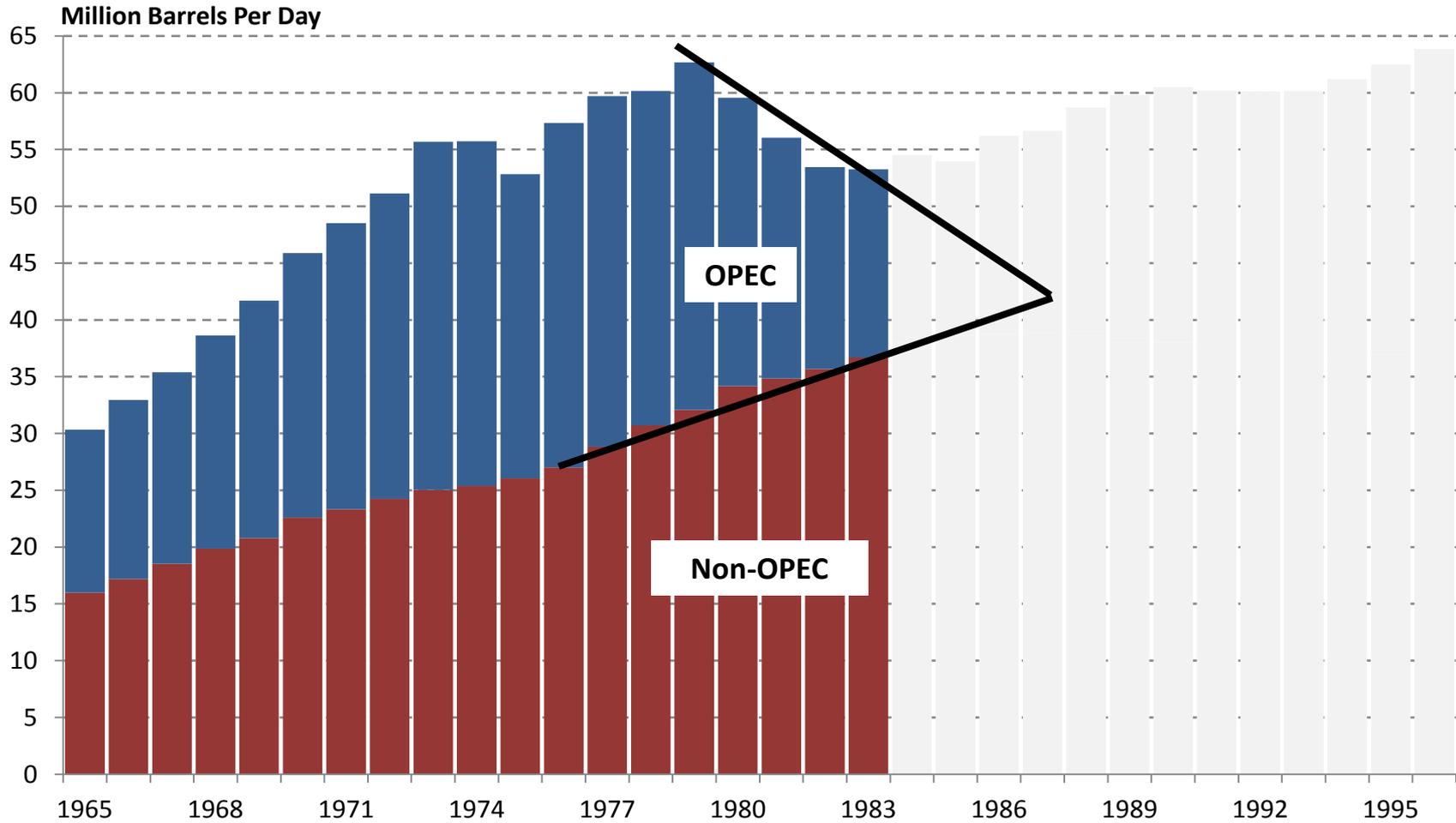
During this time GDP at same time rose 60.8%

World Crude Oil Production, OPEC vs. Non-OPEC Countries, 1965 - 1996



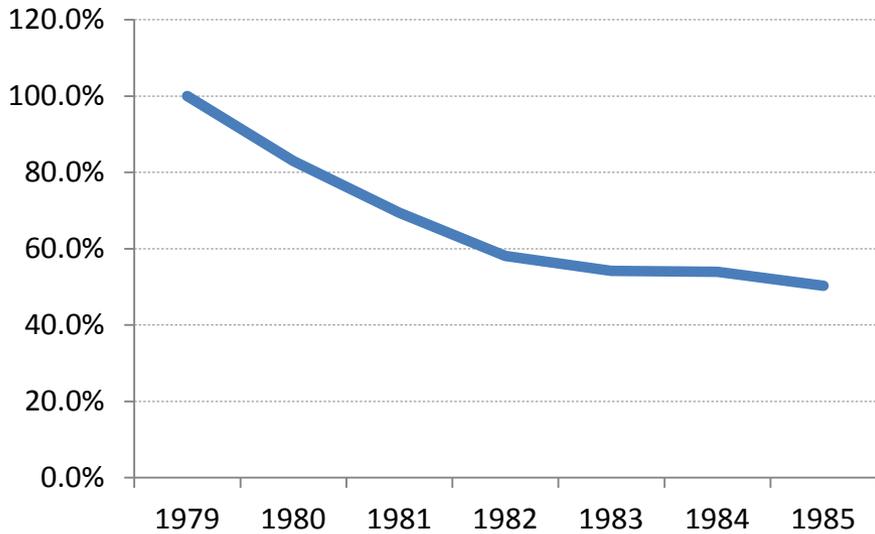
Source: U.S. Department of Energy, Energy Information Administration

World Crude Oil Production, OPEC vs. Non-OPEC Countries, 1965 - 1996

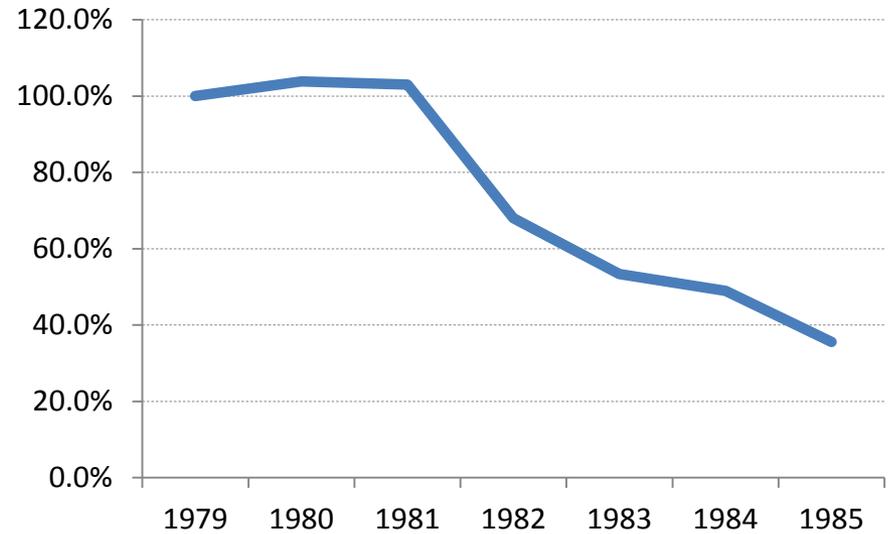


Source: U.S. Department of Energy, Energy Information Administration

OPEC Production (1979 = 100%)



Saudi Production (1979 = 100%)





How is today's situation different from OPEC II?



Are we in a competitive oil market?

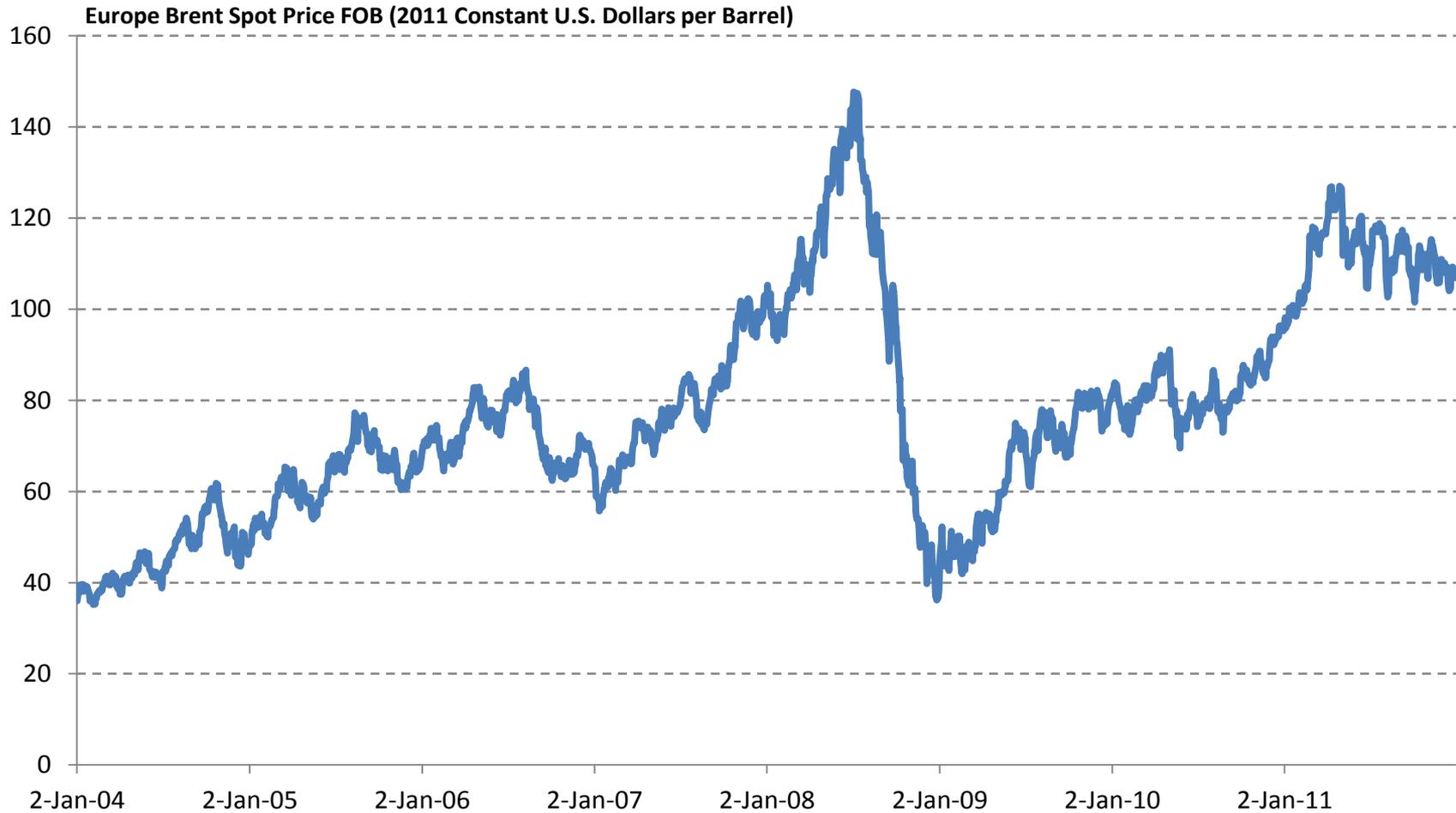
Can you spell cartel?

Power of OPEC (% share)

	1980	2000	2011
Production	42.6%	42.3%	42.9%
Reserves	66.5%	79.2%	72.4%

Recent Realities (2004-2011)

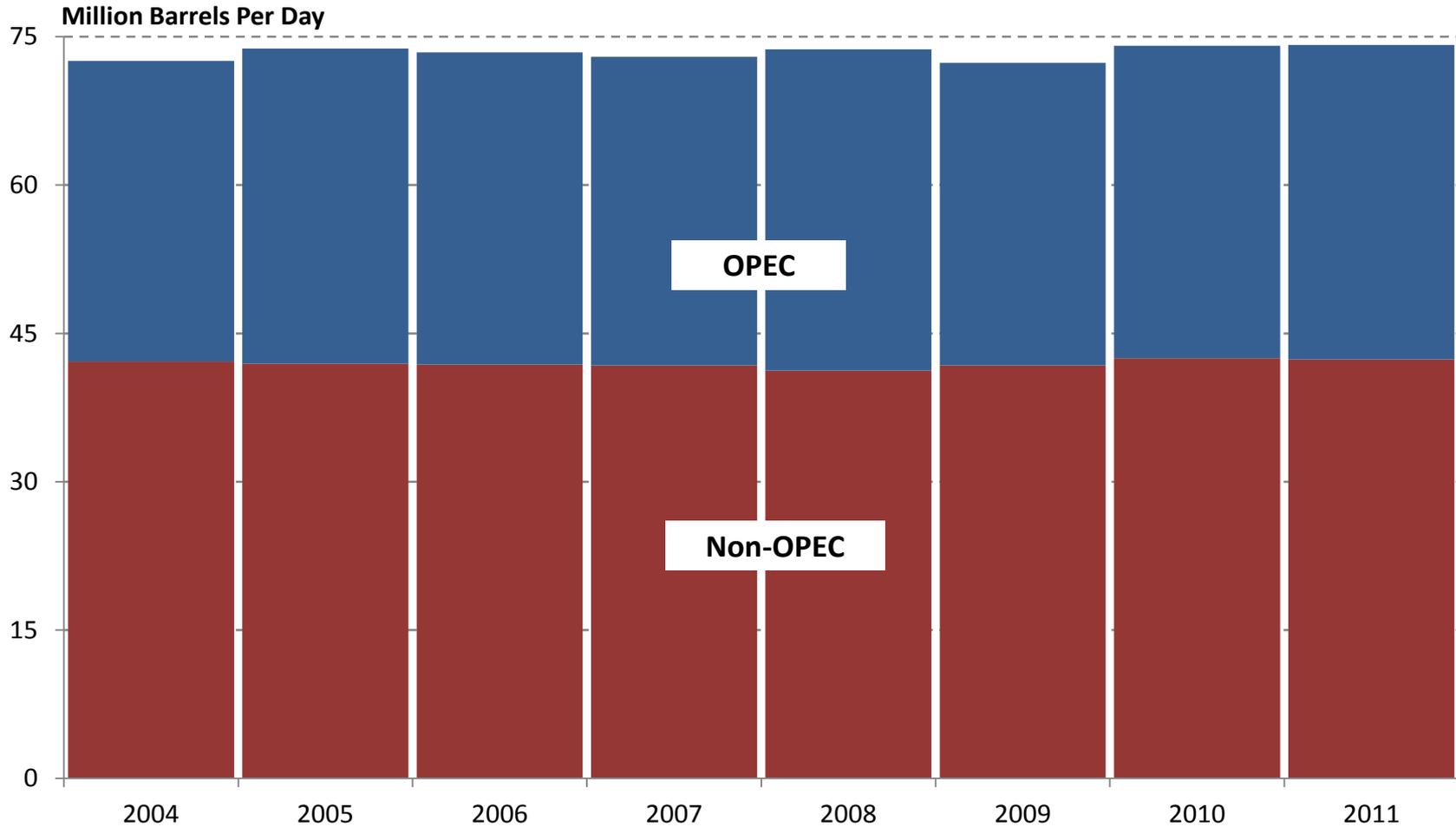
2004 - 2011 Crude Oil Price



Source: U.S. Department of Energy, Energy Information Administration

Recent Realities (2004-2011)

World Crude Oil Production, OPEC vs. Non-OPEC Countries, 2004 - 2011



Source: U.S. Department of Energy, Energy Information Administration

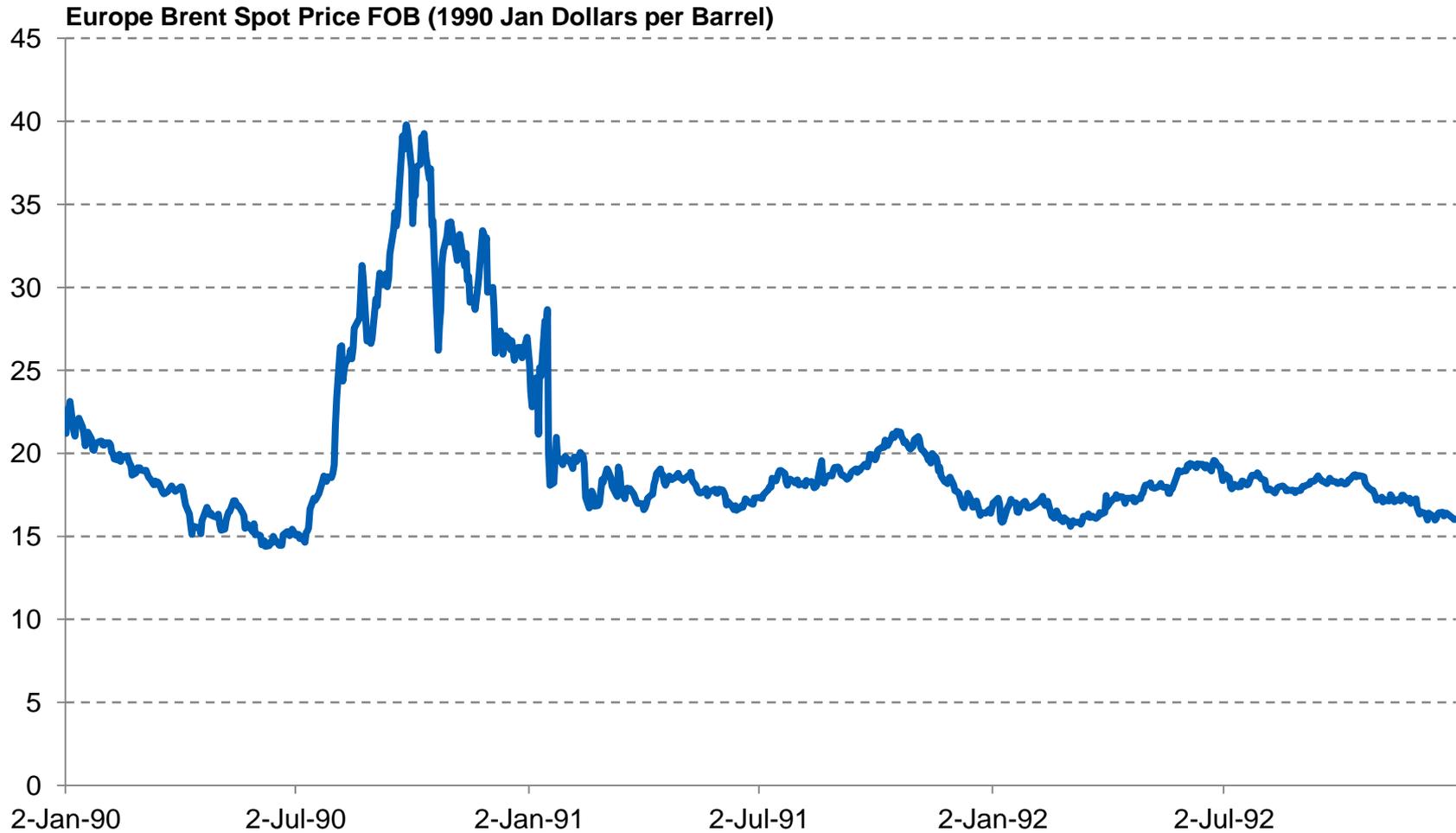
Reasons

- **Political uncertainties**
- **Middle East unrest**
- **The dangerous troika**



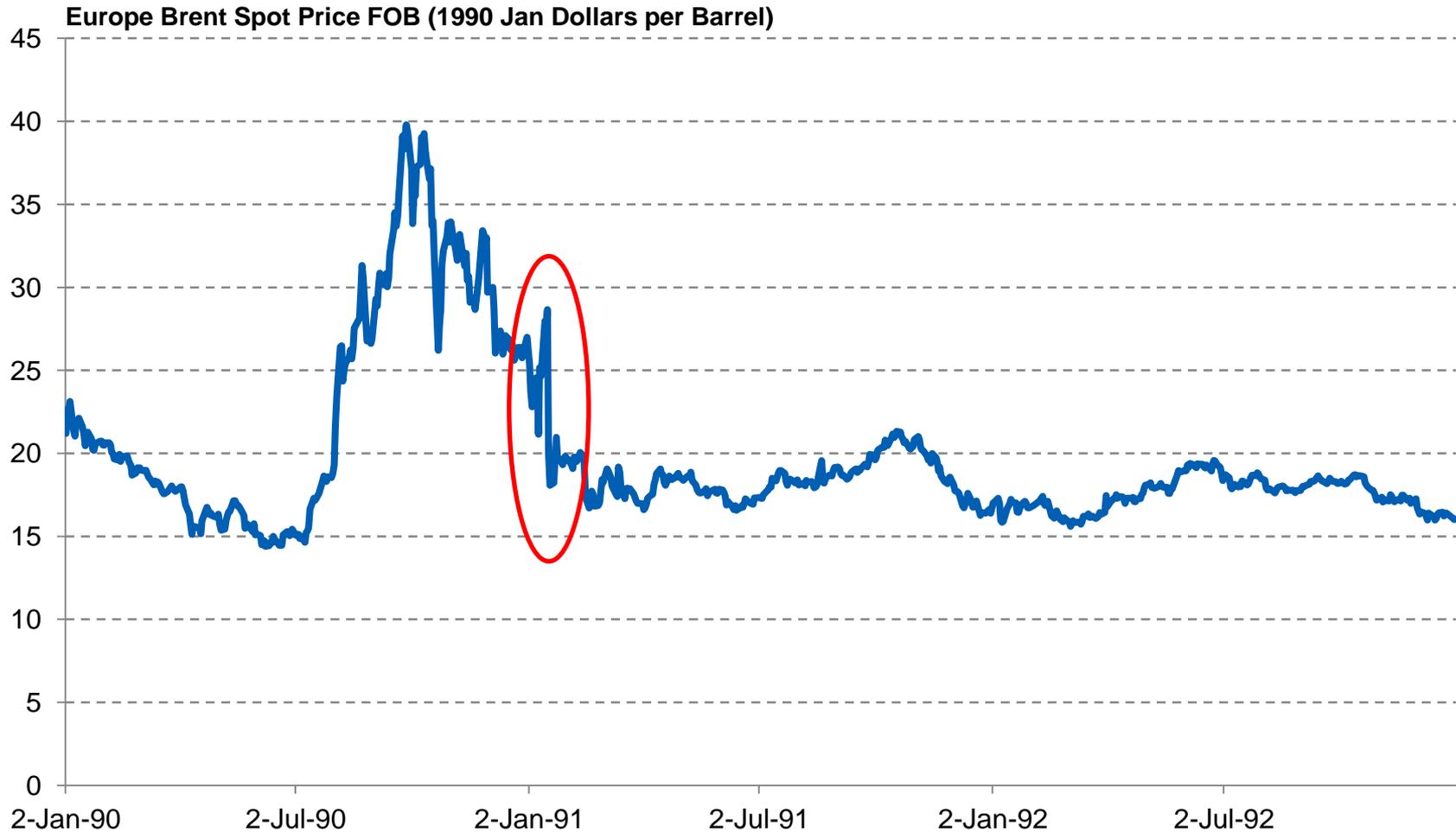
- **Saudis unwilling to act**
- **Speculations**

Historical Daily Oil Prices, 1990 - 1992



Source: U.S. Department of Energy, Energy Information Administration

Historical Daily Oil Prices, 1990 - 1992



Source: U.S. Department of Energy, Energy Information Administration

Forecasts

Summary of forecasts in real terms collected in 1983

29 forecast increases in oil prices

7 forecast stable or lower oil prices

Present Predictions—US Energy Information Administration 2011

Projection	2015	2020	2025	2030	2035
Department of Energy	All continuous rise				
Deutsche Bank					
Univ. of Maryland					
International Energy Agency					
Energy Ventures Analysis					
ICF International					
IHS Global Insight	Rise to 2015, then lower				



Non-economic factors decide the price of oil

The solution to high oil prices are high oil prices

“Oil prices should be somewhere between \$70 and \$80 a barrel, rather than the current level of over \$100 a barrel.”

“We don’t want the west to go and find alternatives because, clearly, the higher the price of oil goes, the more they have incentives to go and find alternatives.”

29th May, 2011

Prince Al-Waleed bin Talal

Grandson of Founding King of Saudi Arabia

26th richest person on earth



My bold forecast

By October 16th, 2018 oil prices will be \$40



Assorted Topics

ISTATA Update



\$600K Boeing Lamborghini inspired by Dreamliner





Another specific forecast



John will retire before September 1st, 2015