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Price outlook for Asian gasoline & petrochemical blendstocks

Thomas Giaever-Enger

Managing Editor

Asian Petrochemicals

亚洲石化编辑负责人

Shenzen, China

May 14th, 2007

Agenda

- **Market trends affecting petrochemical feedstocks**
- **Developments in the Asian gasoline marketplace**

  - US summer driving season demand impact on gasoline & petchem blendstock prices

  - Quality changes affecting gasoline in Asia
- **Developments in the Asian naphtha marketplace**

  - Naphtha crack hits 2-year high

  - Supply / demand balance tightening

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Market trends affecting petrochemical feedstocks

- **Outright prices remain high relative to long-term average**
- **Prices remain extremely volatile**
- **Trend for convergence of energy markets continues**
- **Trading activity still at unusually high levels**

- **Arbitrage improving market efficiency**
- **Niche markets harder to find**
- **Product qualities continue to tighten**

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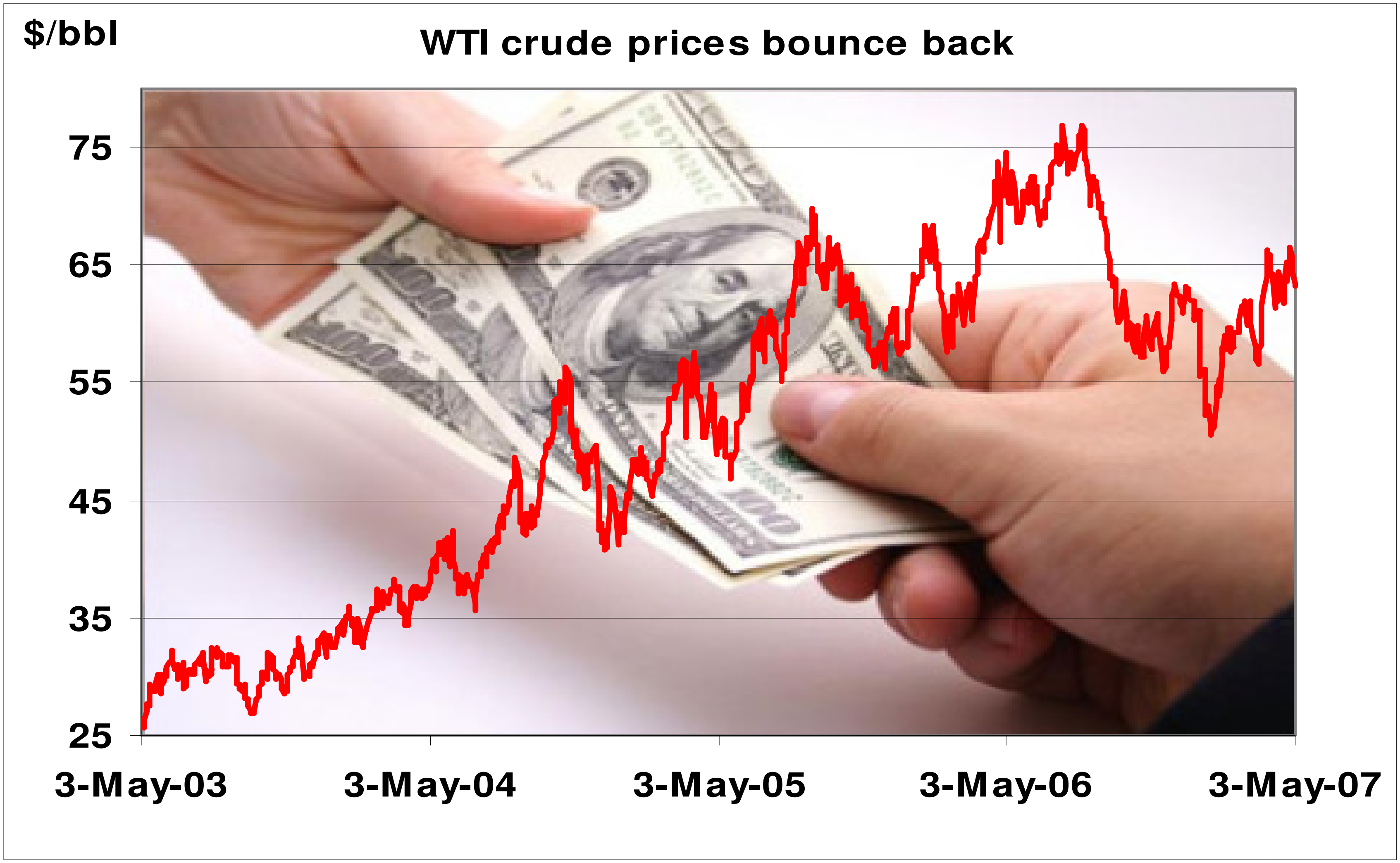
Crude price rally and correction



Sentiment has turned more bullish recently

- Geo-politics: Iranian situation took a turn for the worse; British soldiers captured, tougher sanctions

- US gasoline stocks declined sharply
- Late winter in the US, cold weather until March

- OPEC compliance relatively high at around 66%
- Saudi production down 1-mil b/d from last year

- Equities volatility initially caused economic concern
- Hedge fund/pension investments view commodities as a "safe haven“ again

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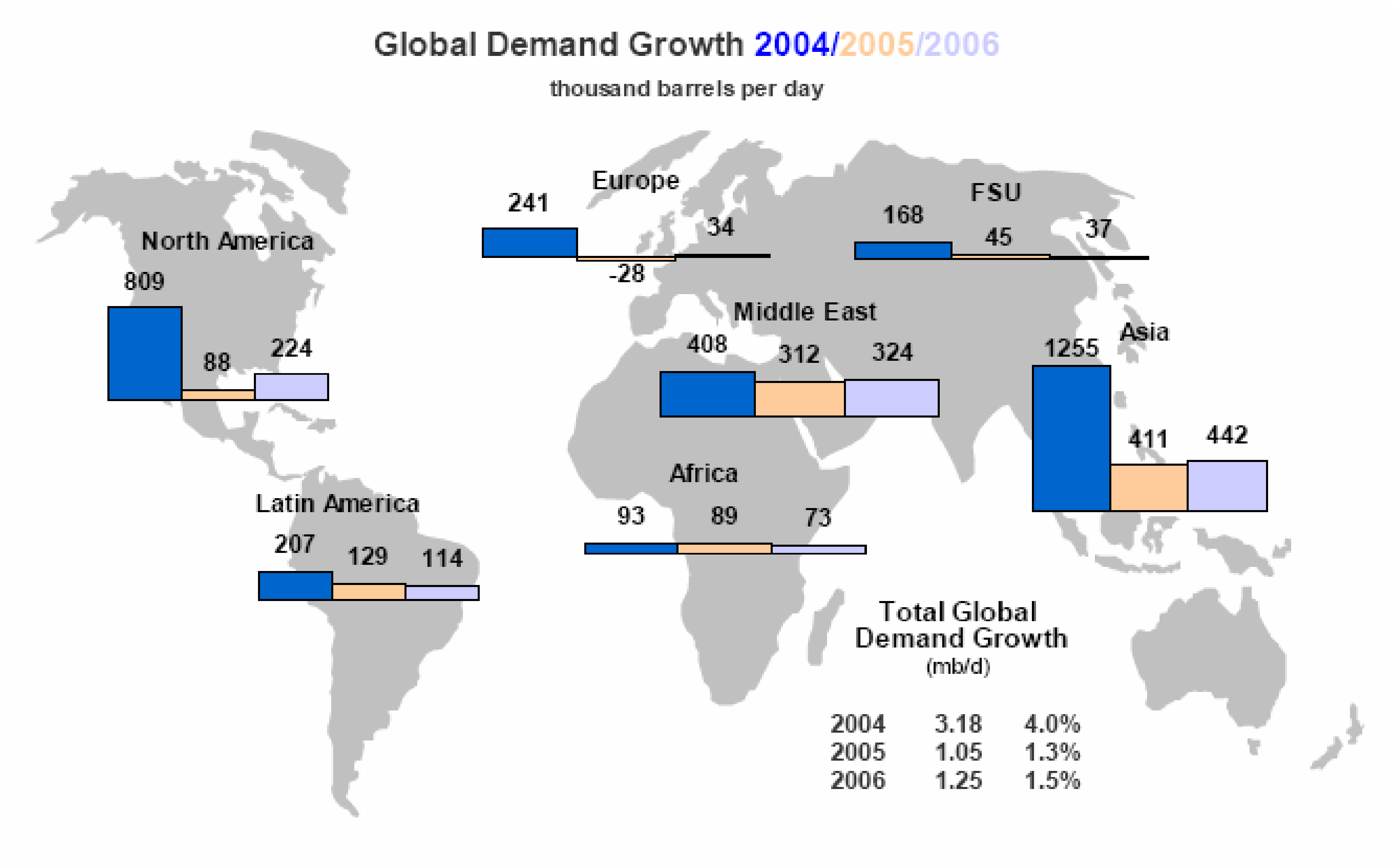
Asia, Middle East now demand drivers



Source = image and statistics from IEA Oil Market Report, May 2006

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Feedstock price drivers in 2007

- **Iran standoff remains at the forefront of supply concerns**
- **Nigeria elections in April were controversial**
- **Can Iraq production be maintained at 2 million b/d?**
- **Overall economic growth; are China, US faltering?**
- **Maintaining US Gulf output through hurricane season**

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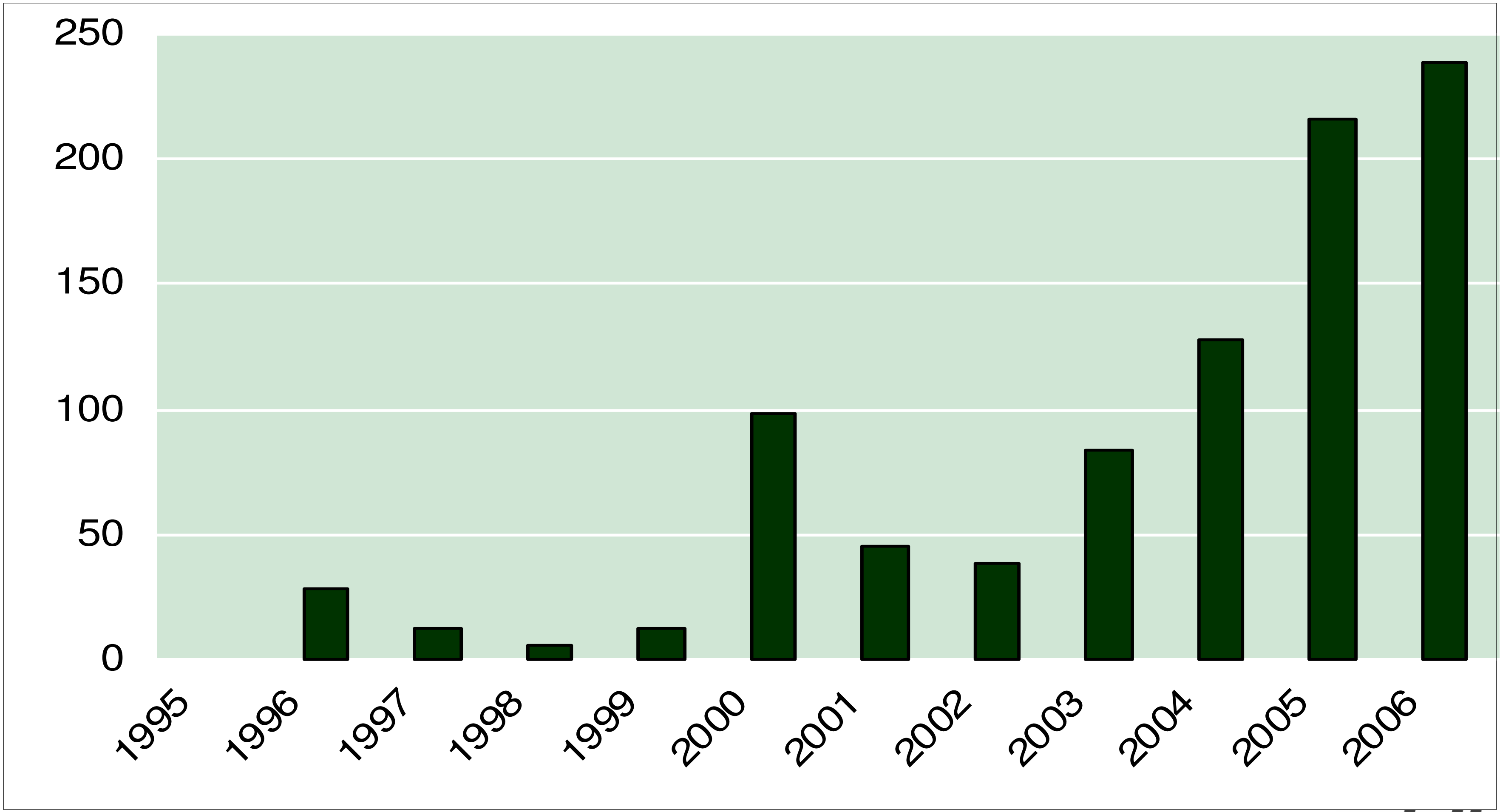
Upstream price volatility is greater than ever

(Number of NYMEX crude trading days per year with price swings of $1/barrel or higher)



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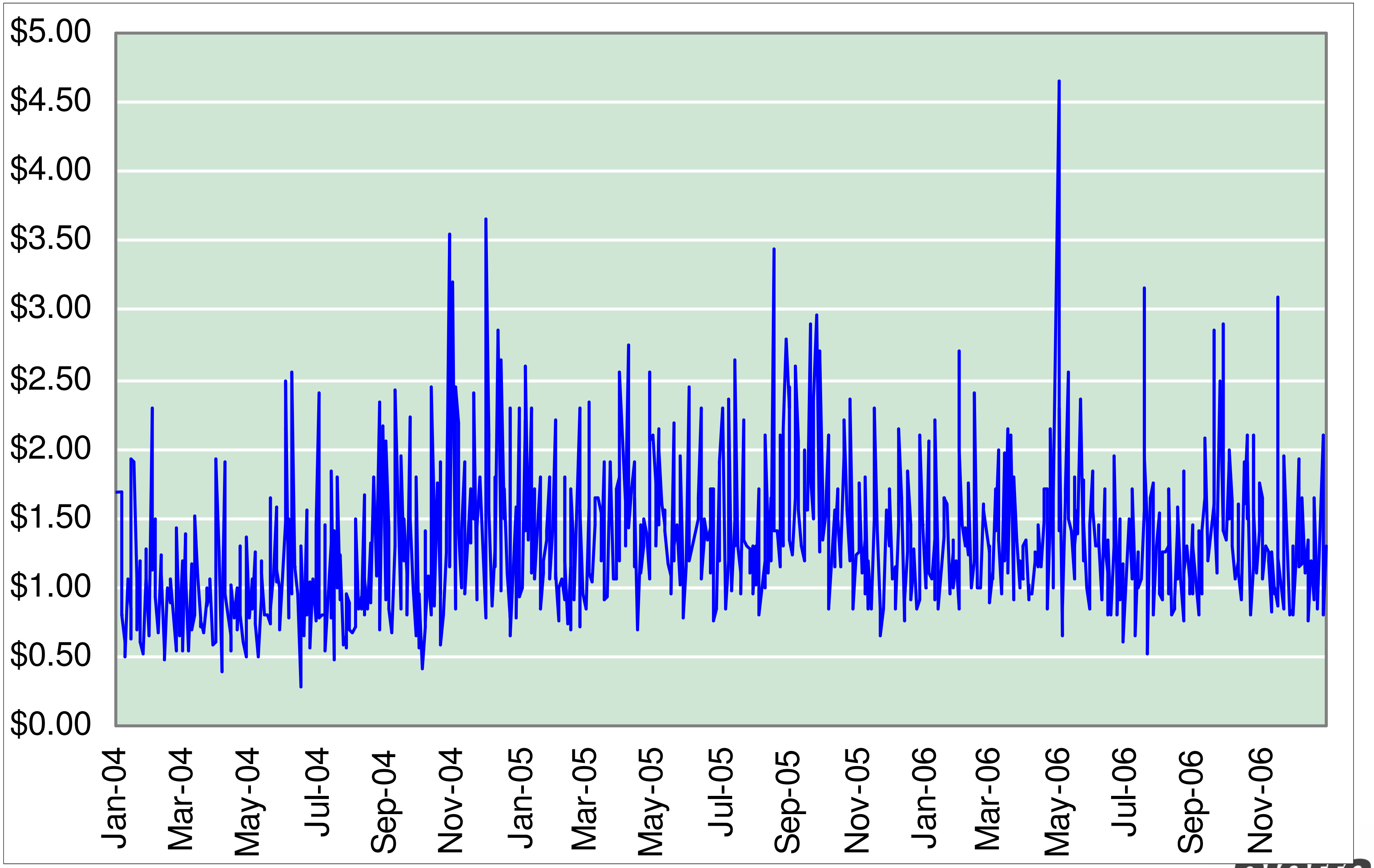
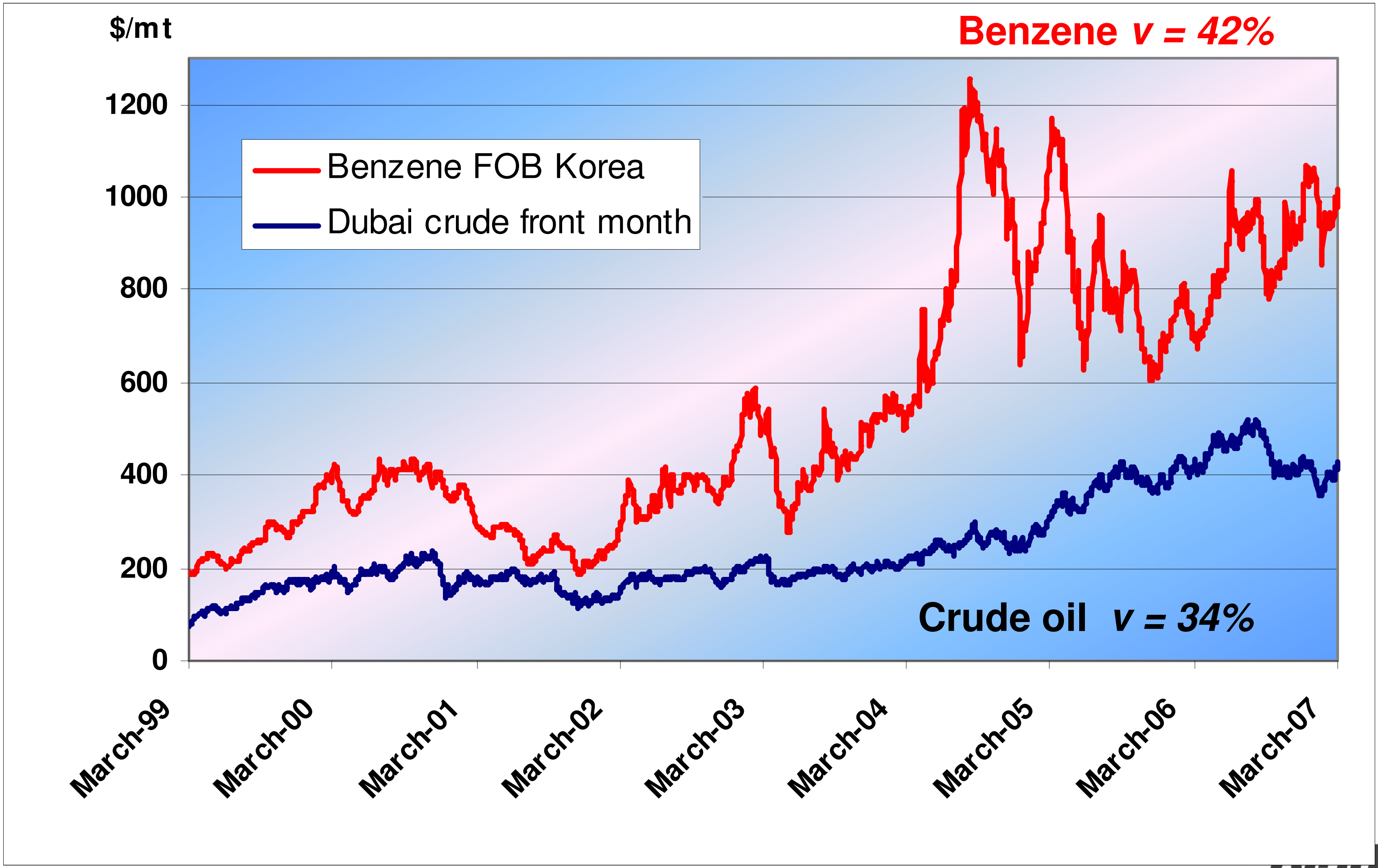
Extreme price volatility in petchems from feedstocks



Petchem prices are even more volatile than oil



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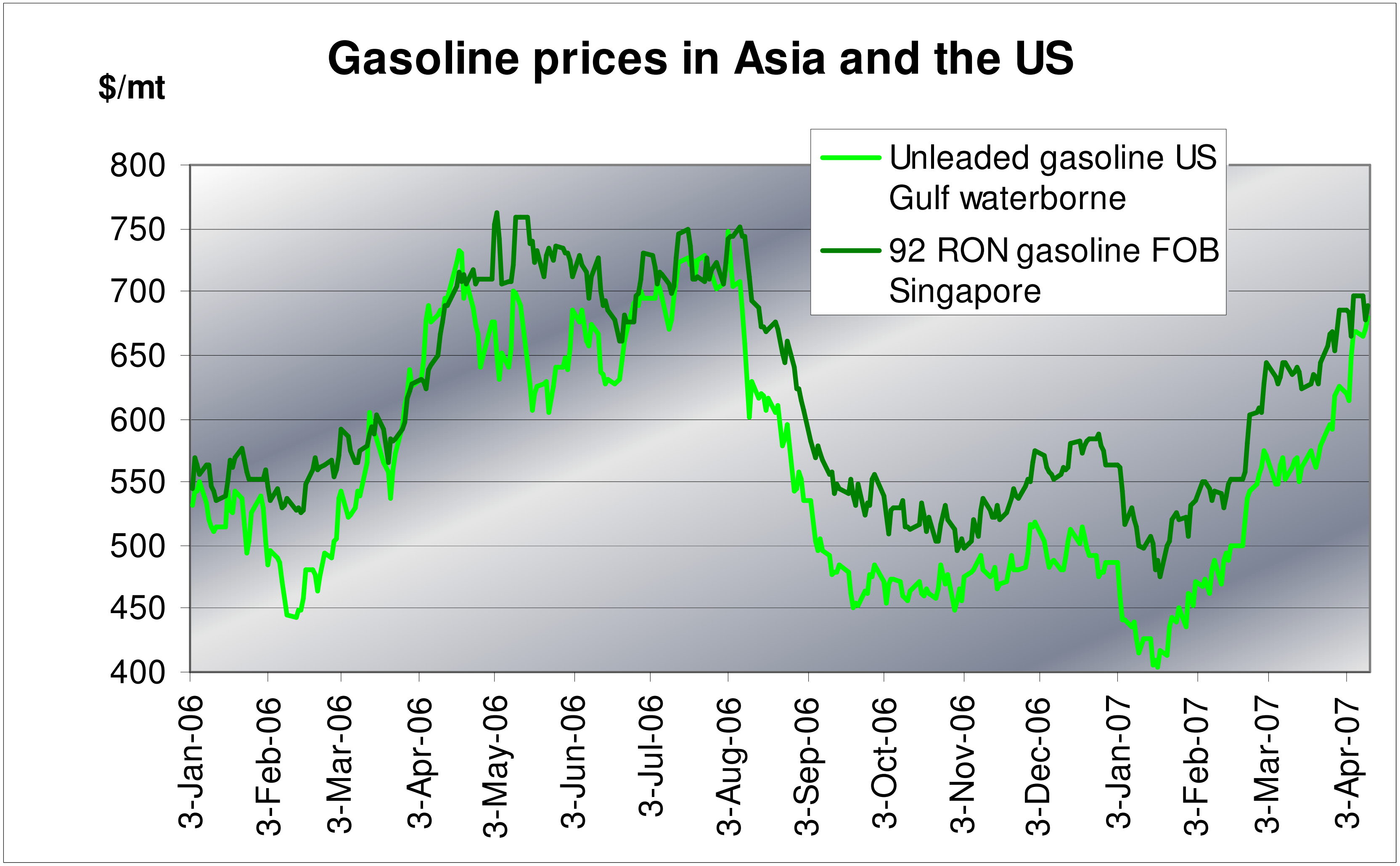
Mogas prices surging into US summer driving season



Mogas capacity expansions in China

Sinopec Hainan built new reformer Jan 2007; exporting 10 kt/month 98 RON reformate, 93 RON

PetroChina Dalian units up Sep 2007; 3-mil mt/yr FCC, 2.2-mil mt/yr CCR

Sinopec Qingdao building new 201 kb/d refinery in 2007; 2.9-mil mt/yr FCC, 350 kt/yr light naphtha reformer

Sinopec Fujian plans 500 kt/yr mogas hydrogenation unit in 2008-9

Sinopec Maoming plans 640 kt/yr FCC, 1-mil mt/yr reformer

Mogas capacity expansions in Korea

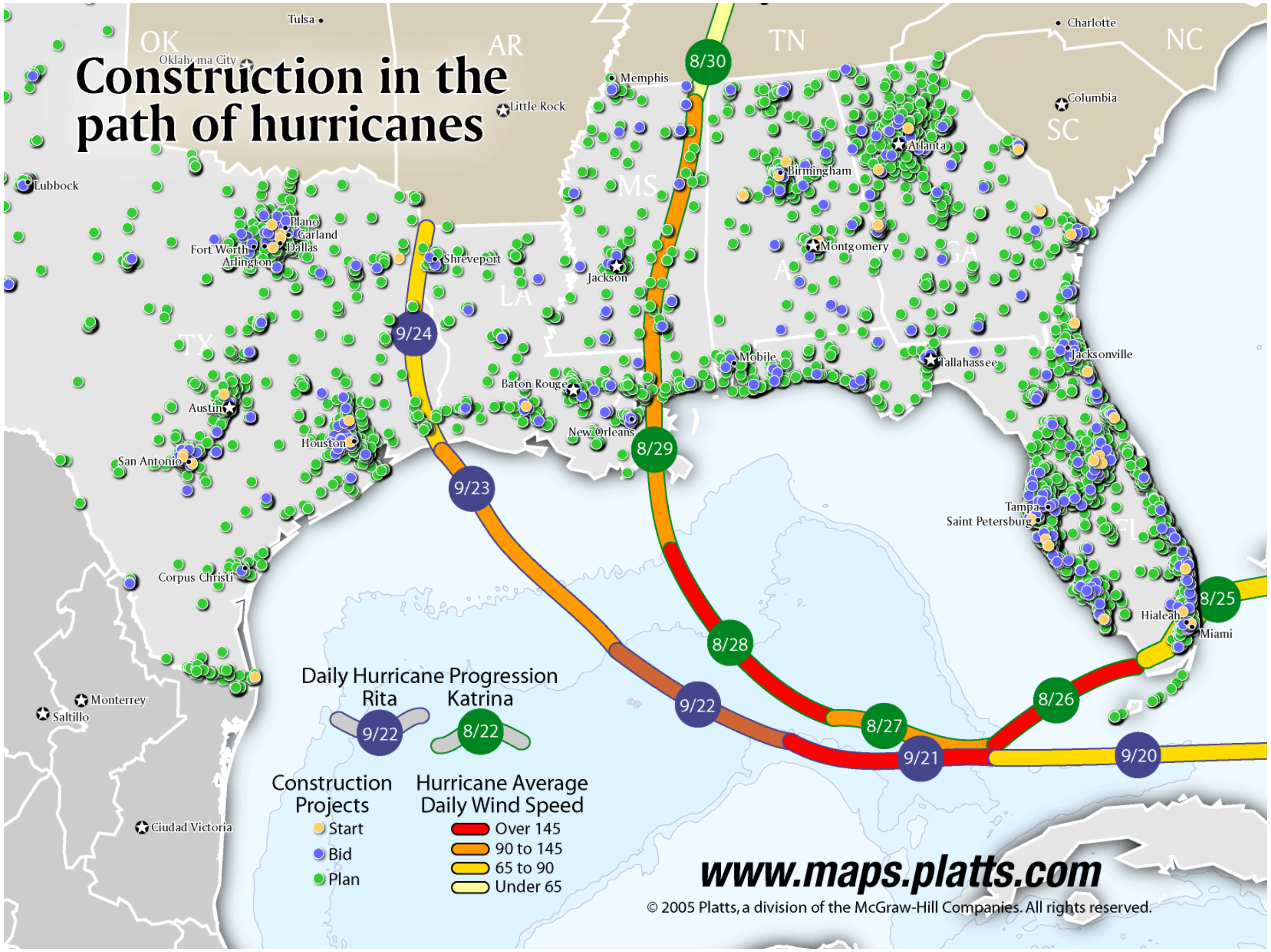
SK upgrading Ulsan topping unit with 60 kb/d RFCC by July 2008, exporting 10ppm sulfur mogas to USWC

GS-Caltex to build aromatics reformer, expand RFCC from 110 to 140 kb/d; expand BTX capacity from 2.2 to 2.7-mil mt/yr by 2009/10

S-Oil planning new export-oriented 480 kb/d refinery in Seosan with 85 kb/d RFCC by 2010

Hyundai planning 70 kb/d RFCC in Daesan by 2011

Fear of production constraints: US weather



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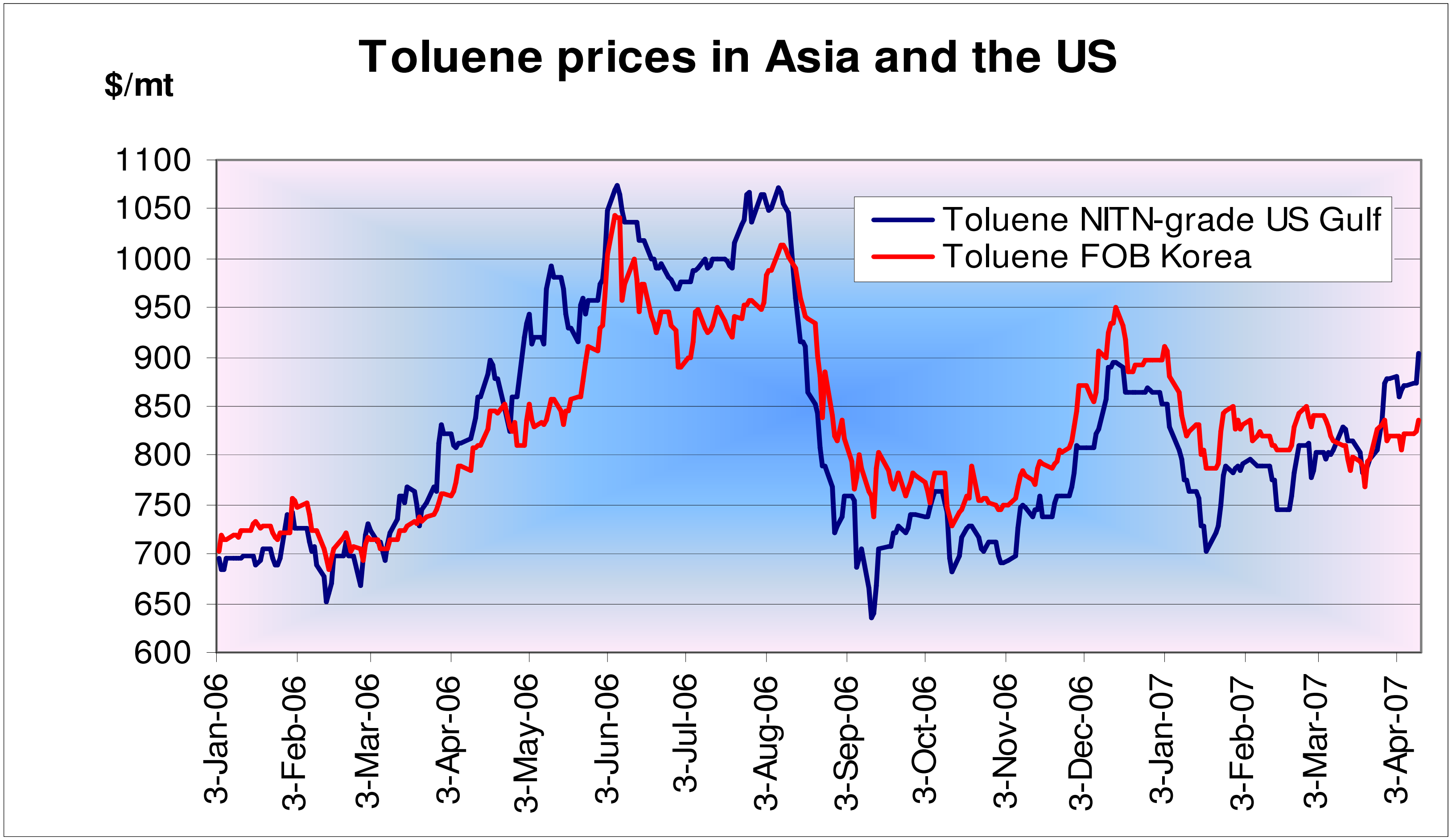
Toluene prices supported by seasonal mogas spike



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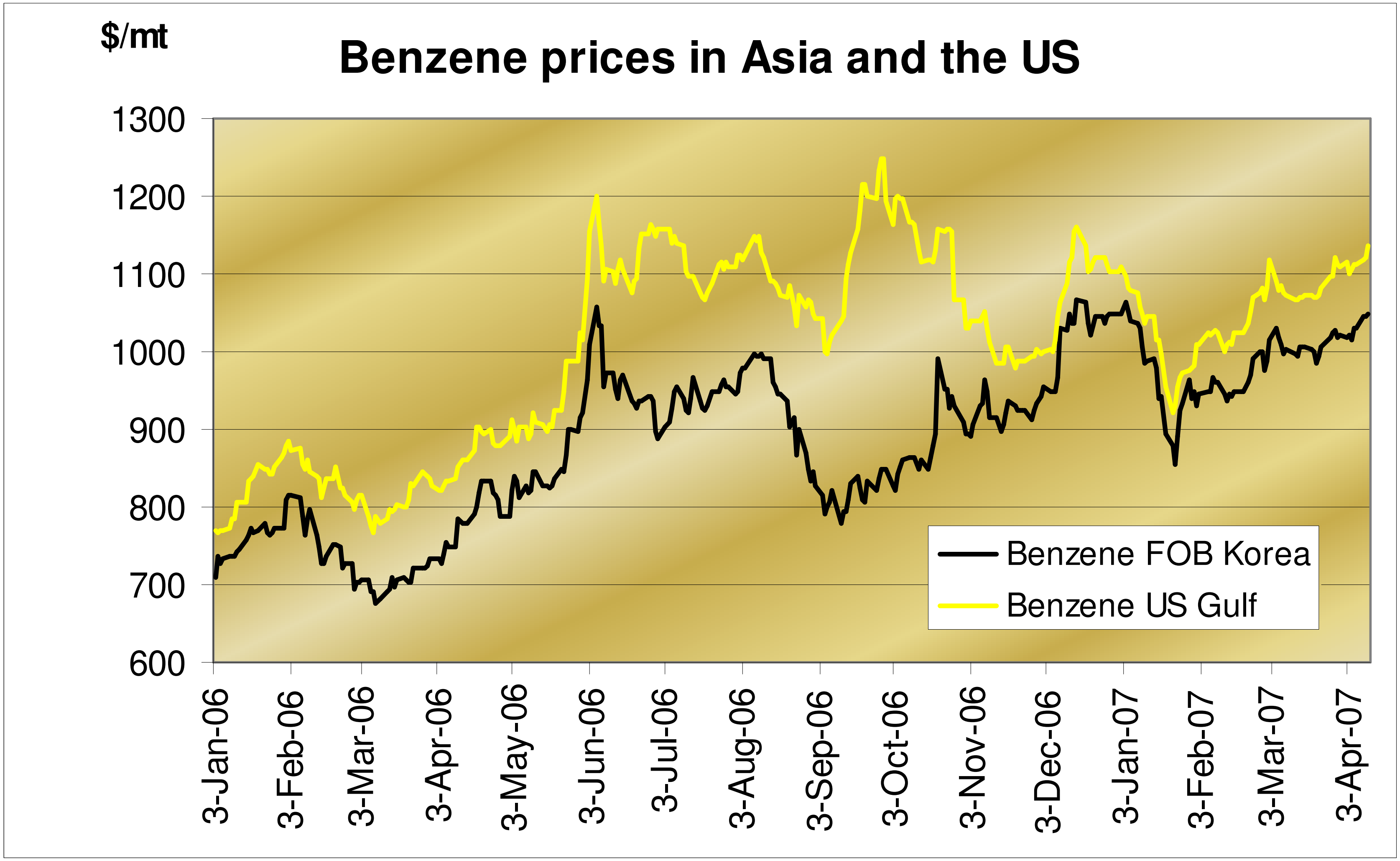
Asian benzene pricing to arbitrage West



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Global trend towards cleaner fuels

Europe

Gasoline

- **Sulfur**
- **Aromatics**
- **Olefins**

Diesel

- Sulfur, Polyaromatics, SG, Cetane, distillation
- Biofuel content

Alternative fuels

Vehicle fleet changes

Auto Oil Program

National regulations

United States

Gasoline

- **Oxygenates**
- **Additives**
- **RVP**
- **Sulfur**

Diesel

- Sulfur
- Aromatics
- Biofuel content

Alternative fuels

Vehicle fleet changes

Clean Air Act

Federal regulations

Asia

Gasoline

- **Sulfur**
- **Aromatics**
- **RVP**
- **Oxygenates**

Diesel

- Sulfur

Alternative fuels

Vehicle fleet changes

National regulations

Fuel Specifications tightening in Europe

Product	2000	2005	2006	2007	2008	2009
Gasoline	150	50/10	50/10	50/10	50/10	10
Diesel	350	50/10	50/10	50/10	50/10	10
Gasoil	2000	2000	2000	2000	1000	1000

Table shows max level of sulfur in parts per million (ppm) allowed in fuels within the European Union.

Gasoline qualities are to tighten substantially from 2009.

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Challenges for Asian gasoline quality specs

- Lack of standardization in mogas grades:

    Vietnam, Indonesia and Malaysia migrating to Euro II 500ppm sulphur (from 1000ppm)

    Taiwan moves to 50 ppm sulphur

- Spot market becoming fragmented over quality:

    Metal based additives cut from standard mogas

    Indonesia bans acetone in gasoline

    Traders advocate low oxygenate content in gasoline

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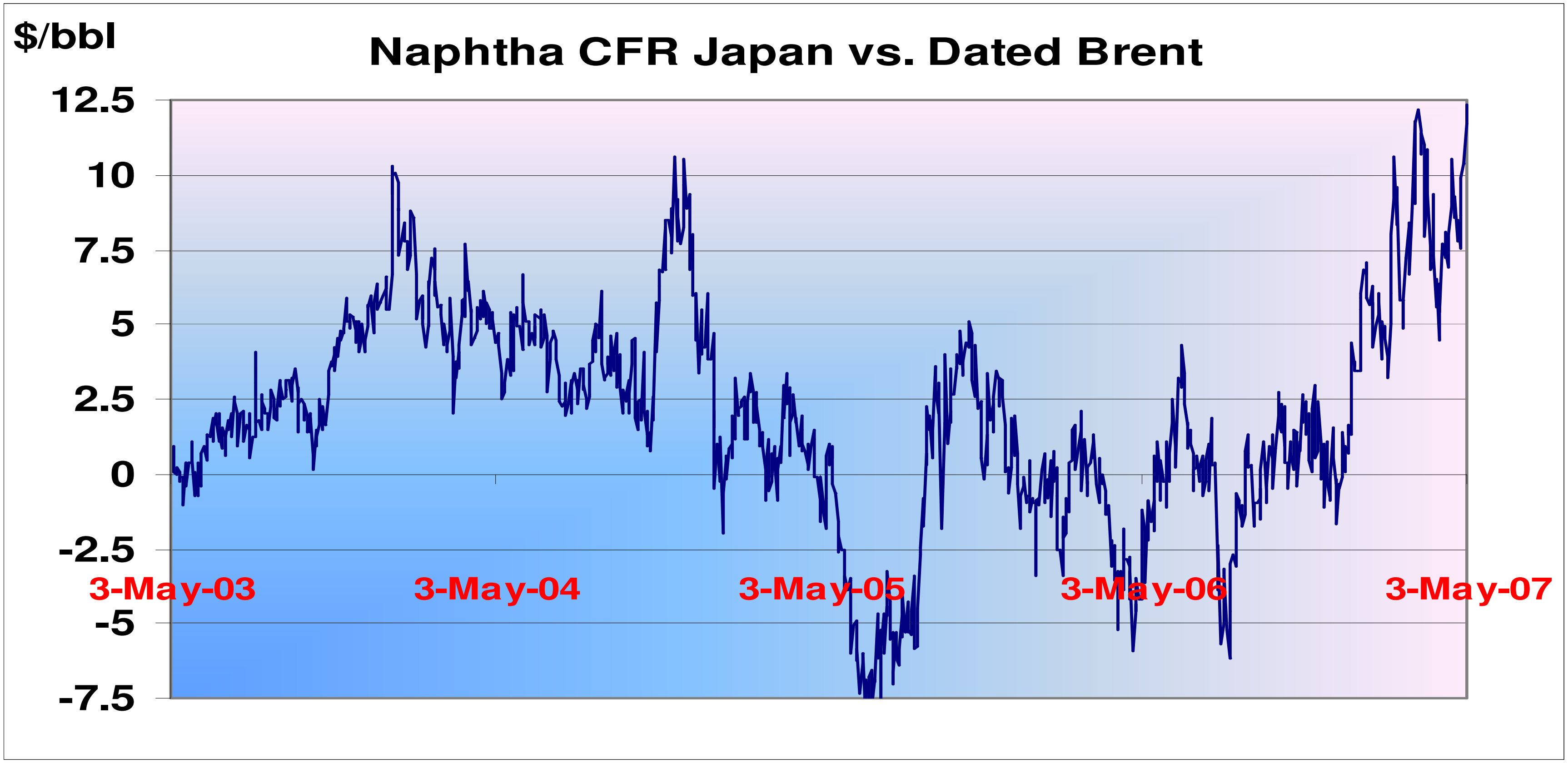
Naphtha cracks hits 2-year high



- Supported by Middle East production problems
- Encouraging more West-East arbitrage volume this year

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Developments in Asia's naphtha marketplace

- India has become a major export center of naphtha, second behind the Middle East, since the second half of 2006 due to increased refinery runs and more refinery start-ups

- Term naphtha supply premiums fell drastically in 2007 due to increased exports from India, compared to 2005 and early 2006.

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Developments in Asia's naphtha marketplace

- Middle East supply curtained in Jan/Feb.

- China become net importer since Jan.

- More ethylene capacity coming up in South Korea: YNCC, LG Daesan, Samsung Total.

- Taiwan Formosa's new cracker due onstream late-May, buying spot cargoes in advance.

- Is it enough to tilt the naphtha supply-demand balance? Naphtha prices should stay firm this year.

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Thankyou.

Thomas Giaever-Enger
Managing Editor, Asia Petrochemicals
tom_enger@platts.com
www.platts.com
+65 6530 6584

● Singapore ● Guangzhou ● Tokyo ● Sydney ●