

US Aromatics: Fundamentals behind volatility and outlook

Editor – John Calton

Agenda:

Aromatics production and derivatives

Importance to Latin America

Benzene, toluene, MX & styrene price volatility

Contributing factors behind declines

Arbitrage opportunities decide fate of demand

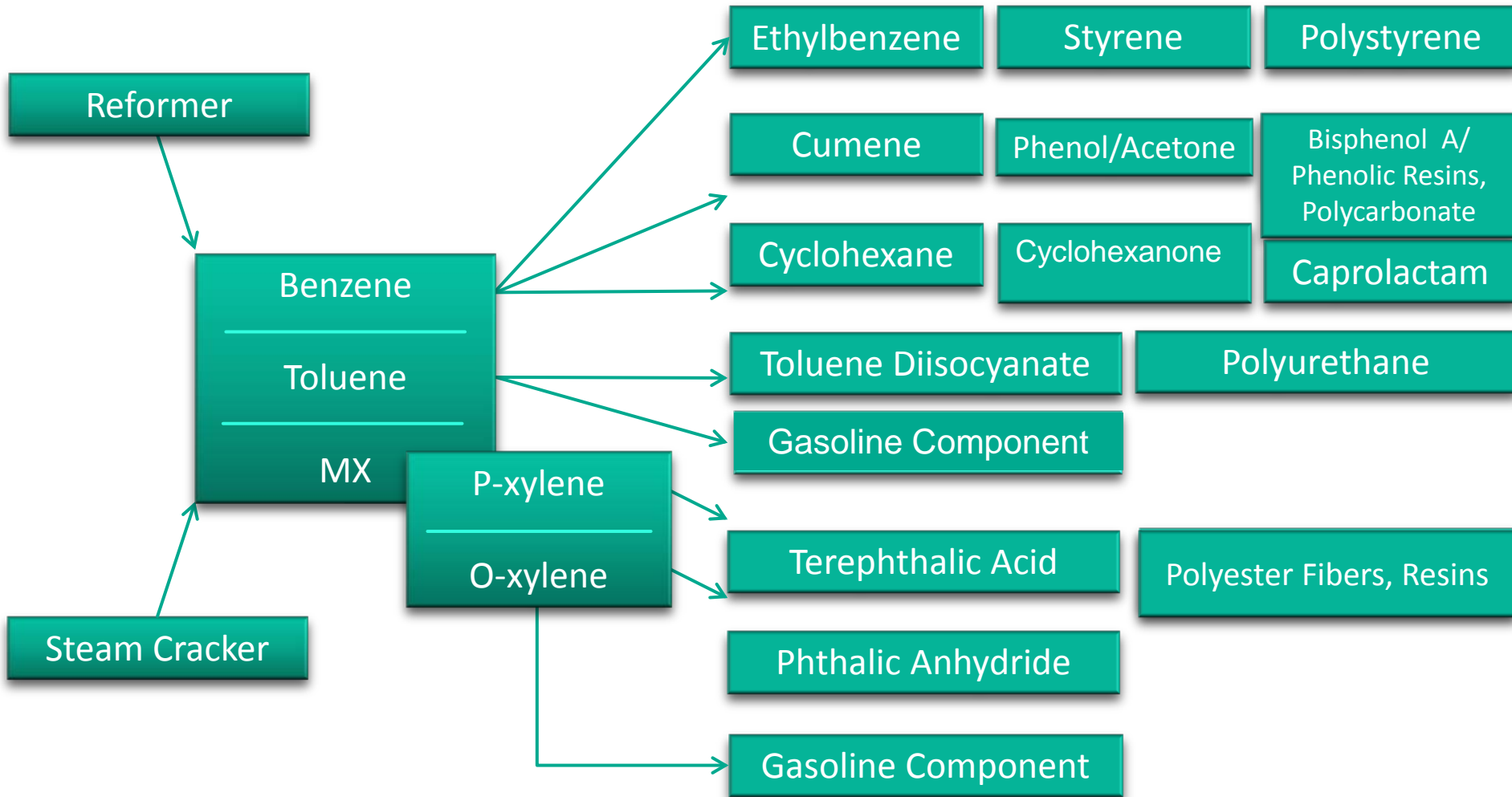
Short-term factors

US benzene supply to tighten

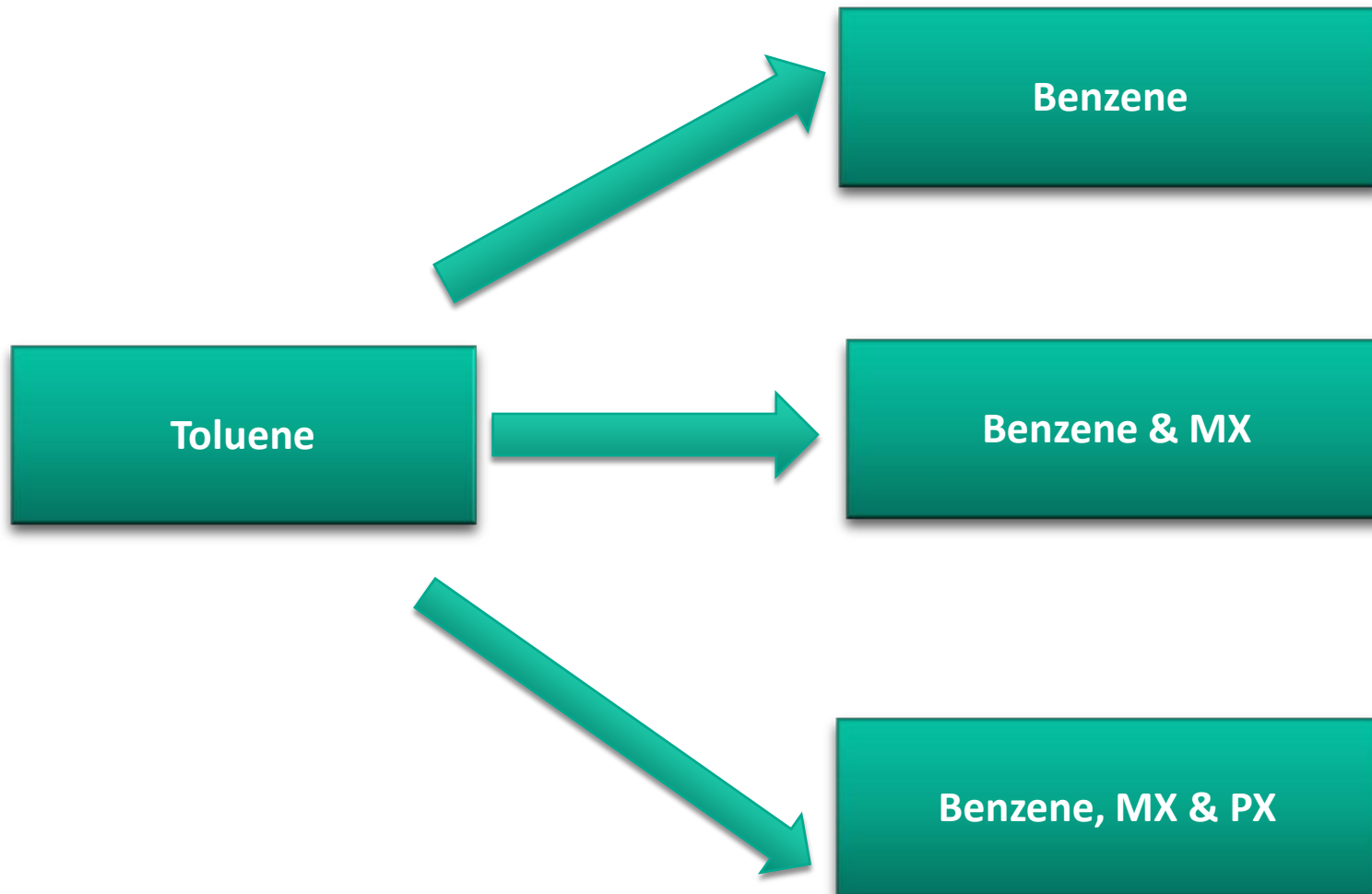
US toluene, MX driven by gasoline

Q&A

Aromatics 101: The Chain



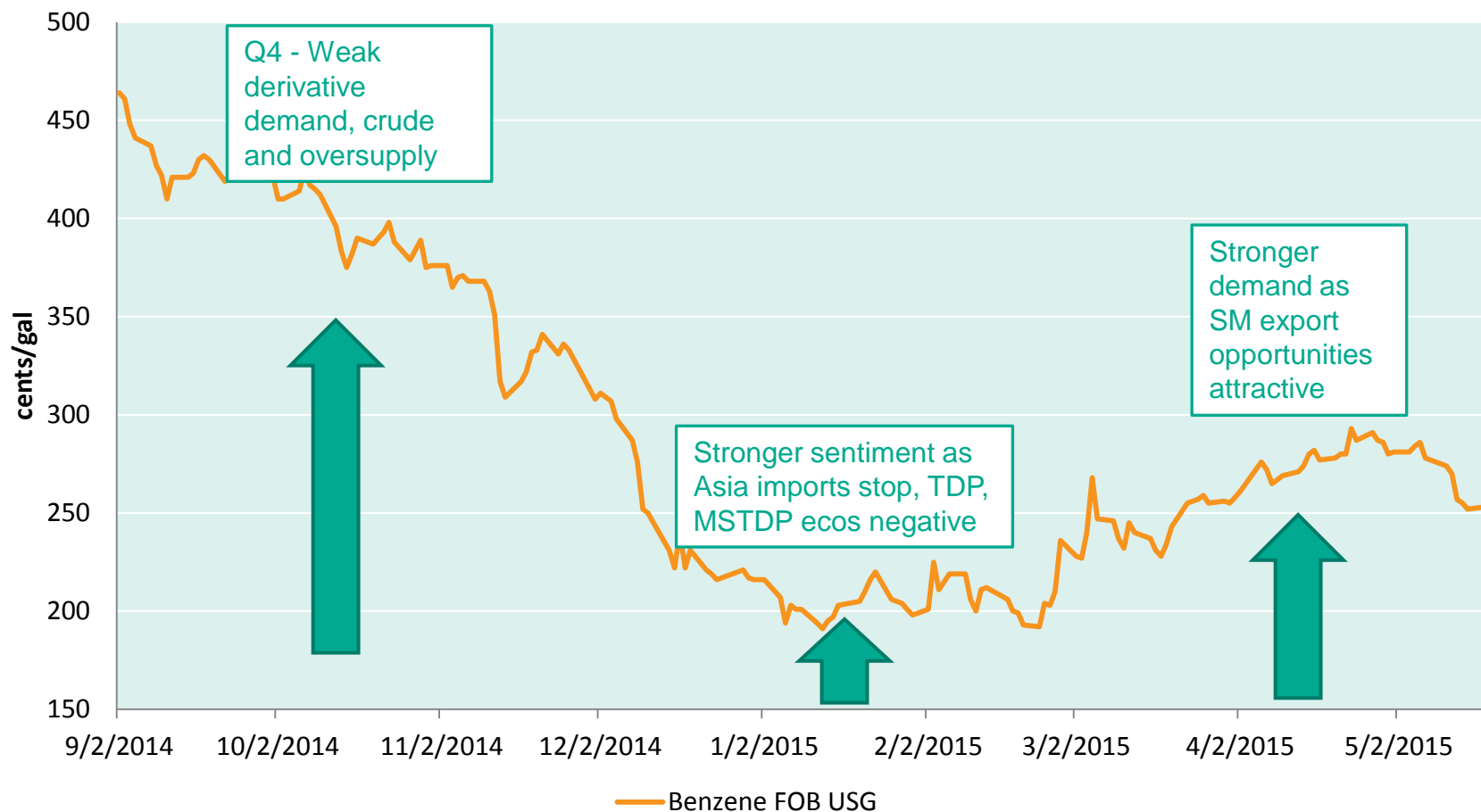
Toluene as a feedstock



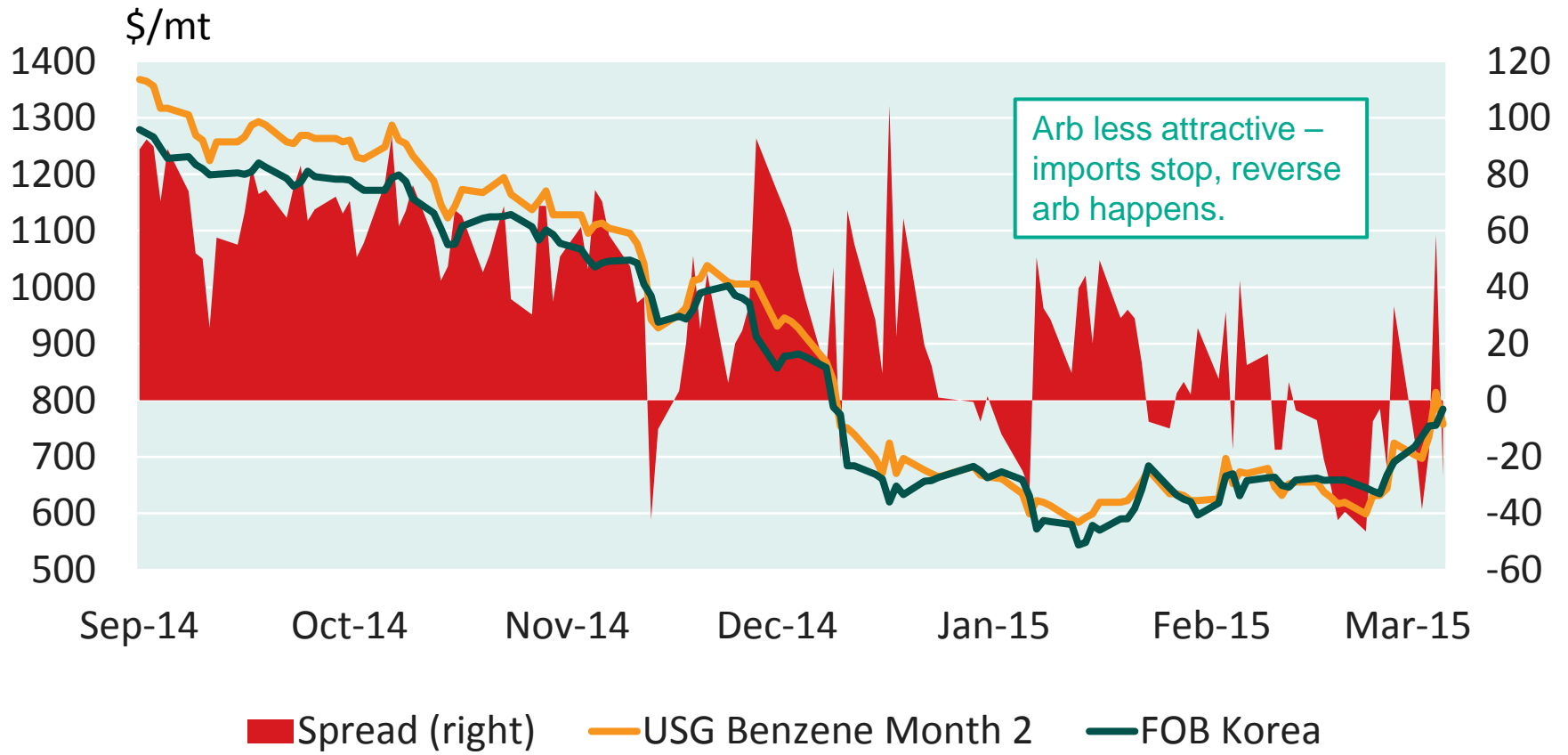
Importance to Latin America

- Prices track US movement
- Beneficiary of US supply tightness
- Bearish markets in US oversupply

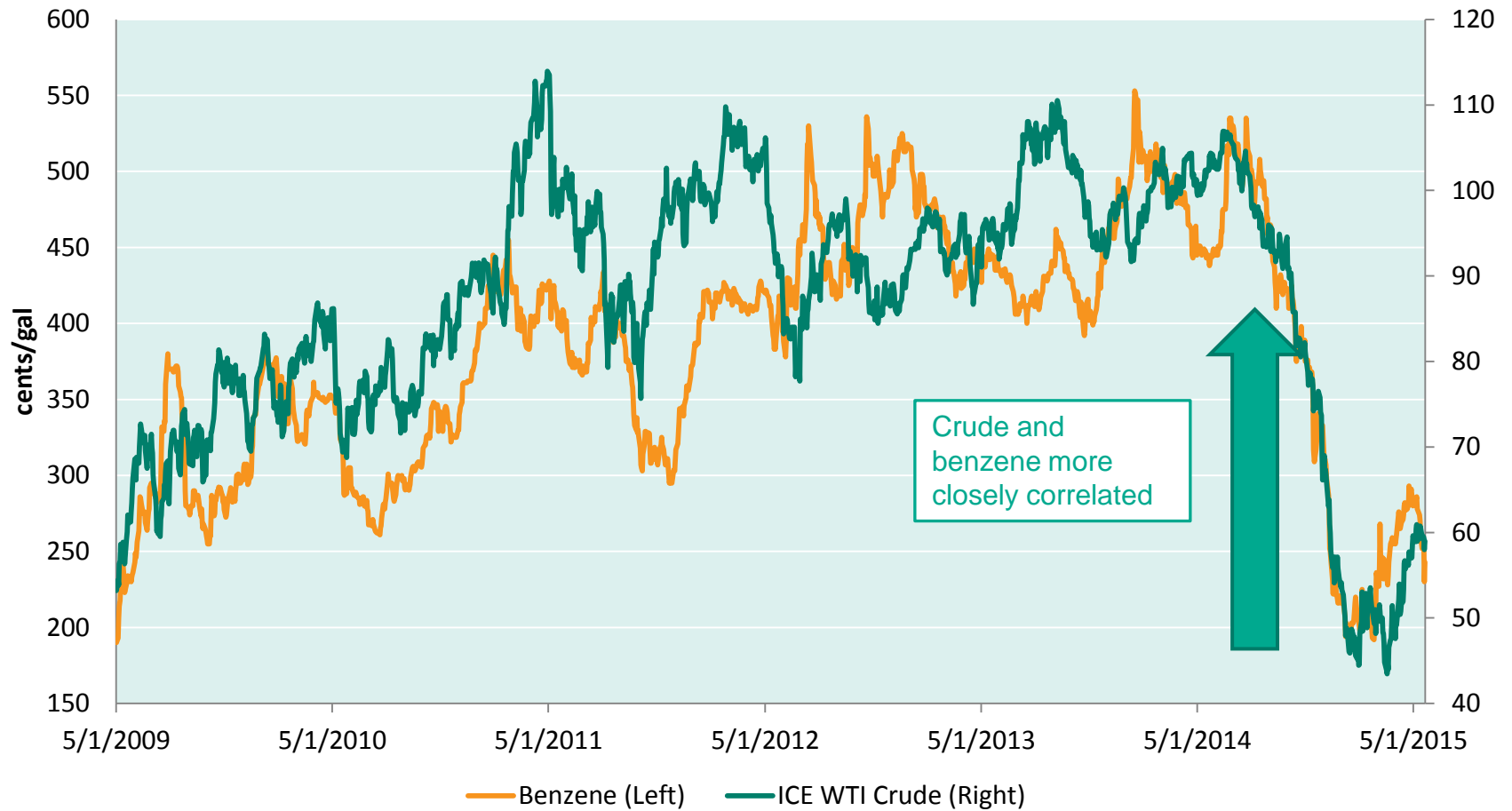
US Benzene Volatility



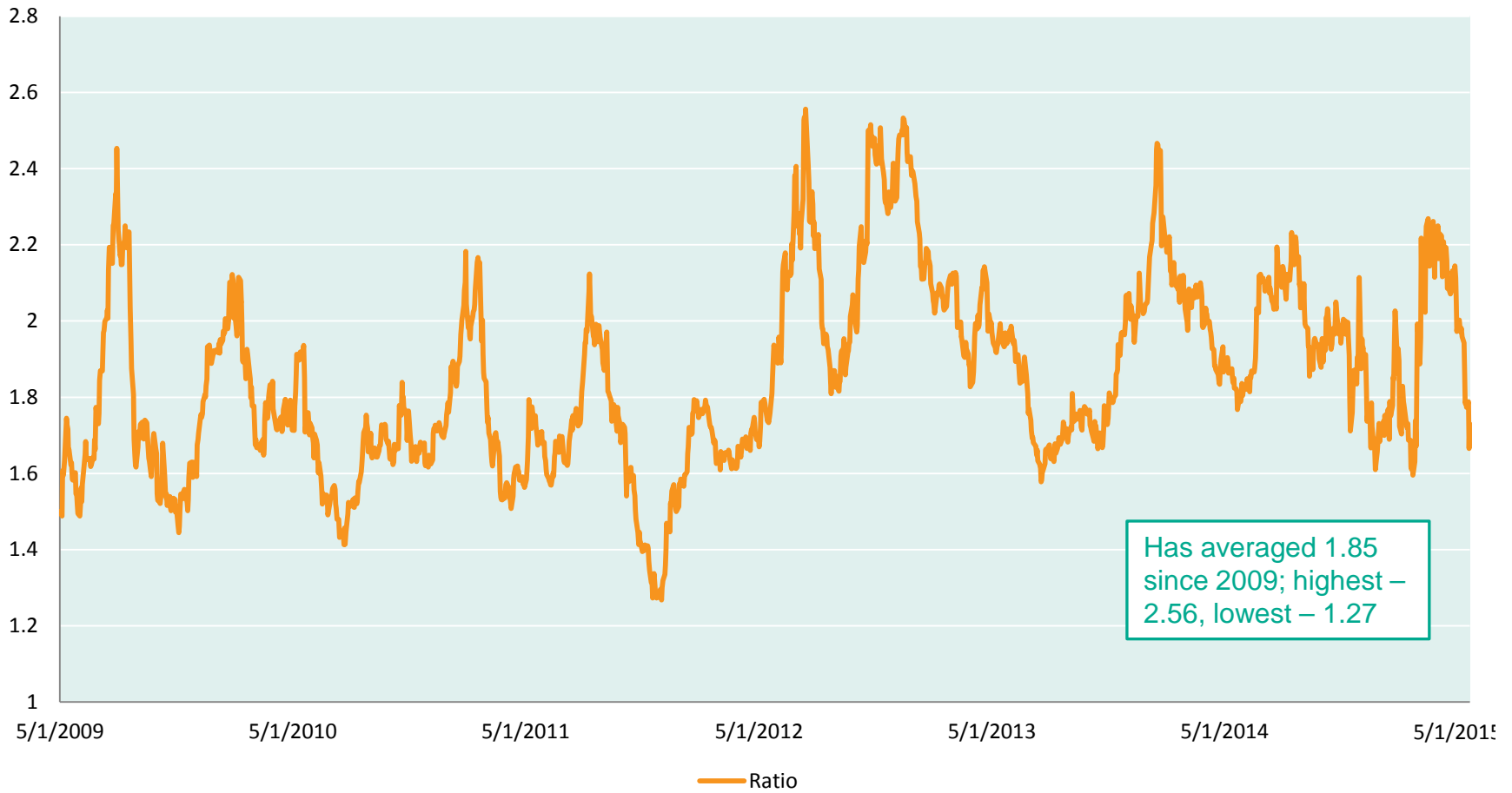
FOB Korea vs. US benzene



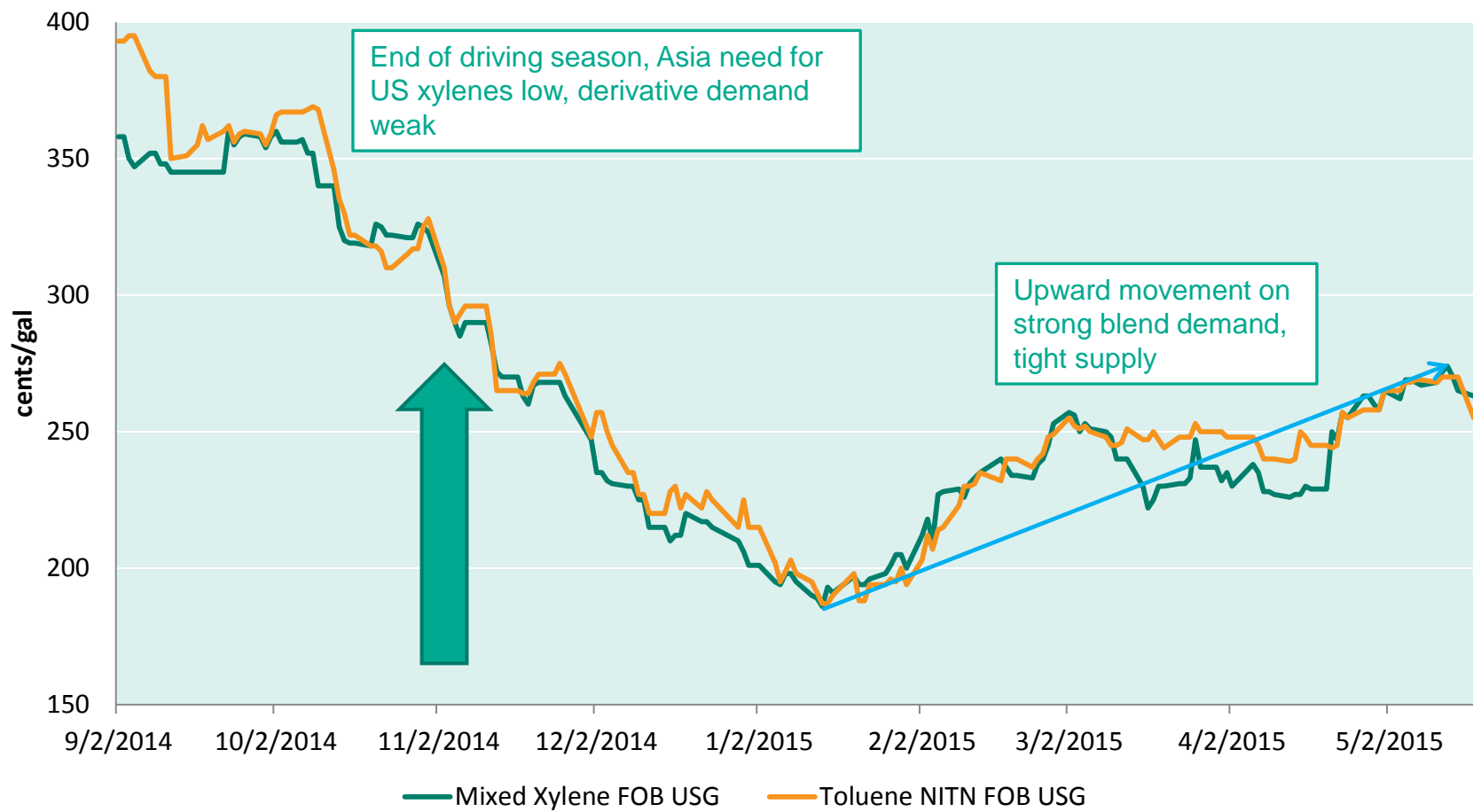
Benzene vs. WTI Crude



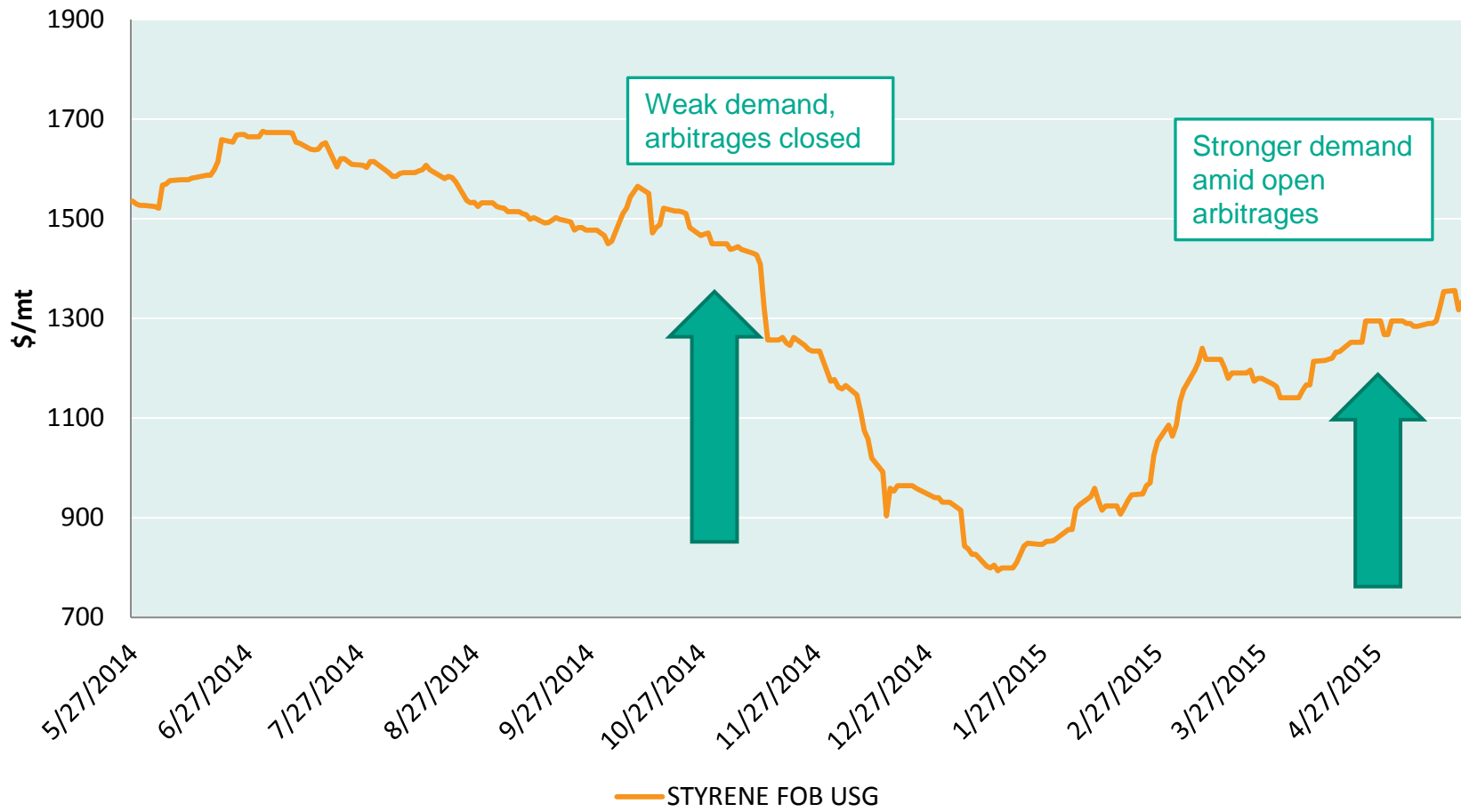
Benzene to Crude Ratio



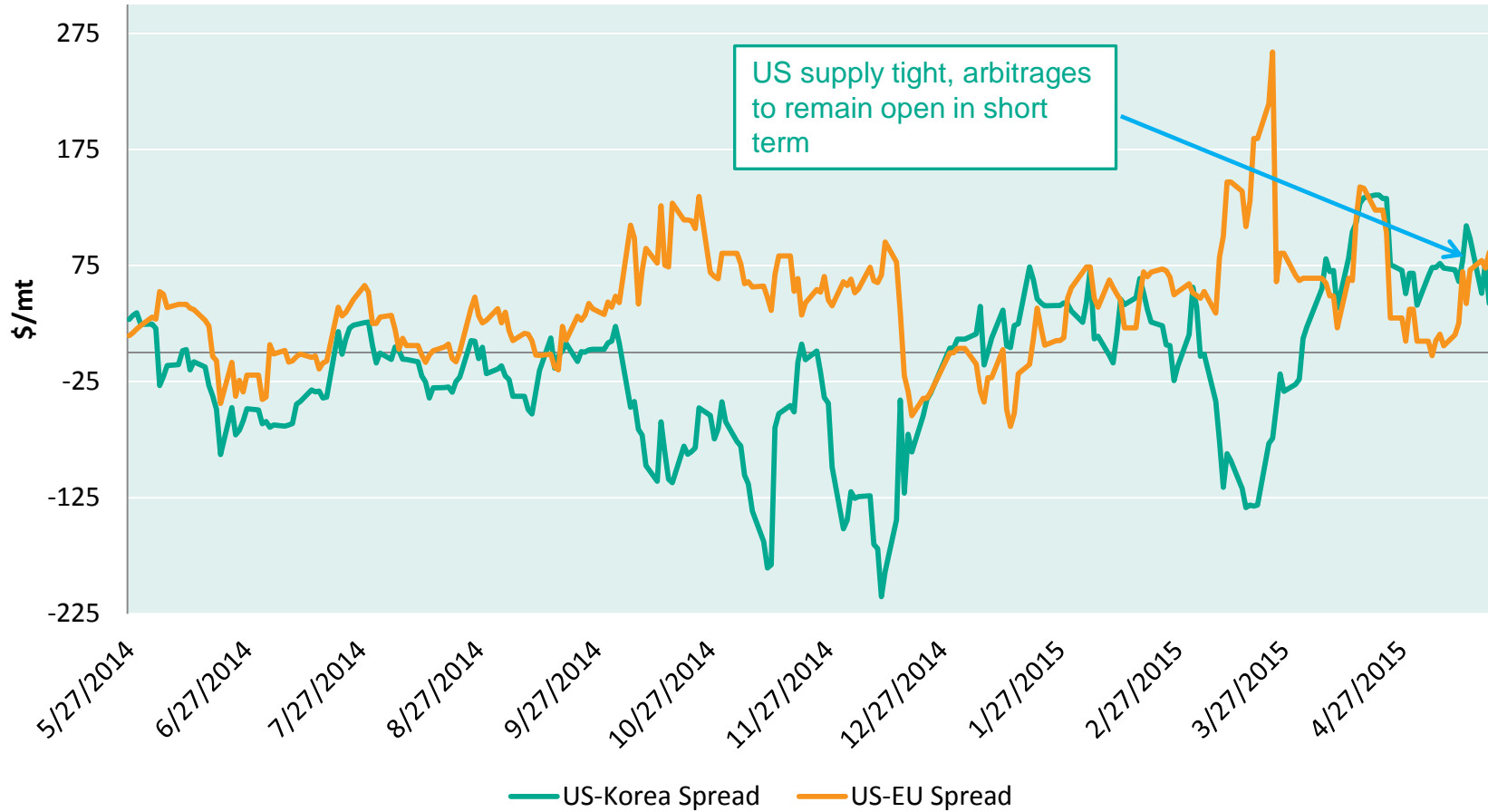
Toluene & MX Volatility



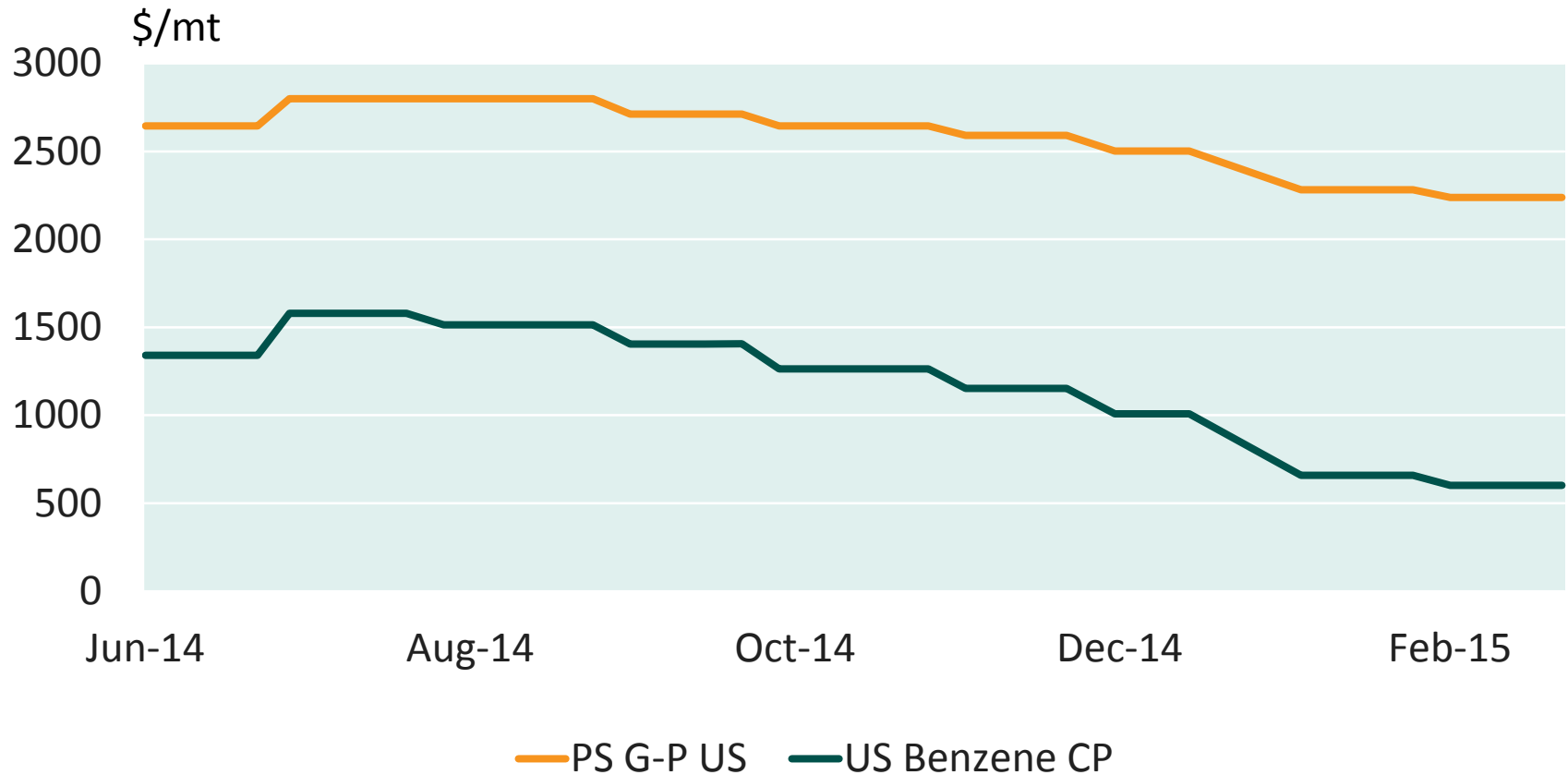
US Styrene Prices



US styrene export opportunities



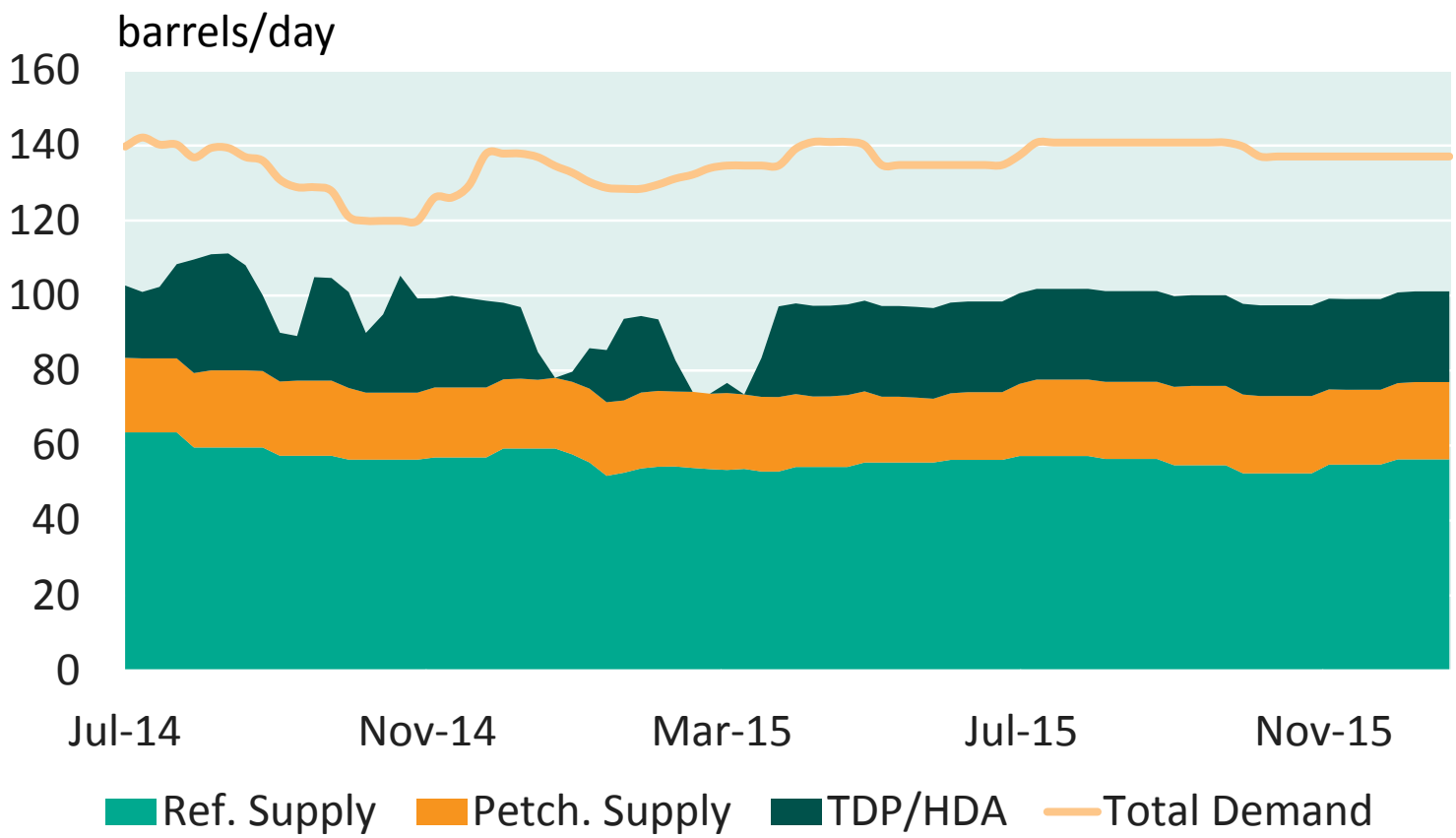
GPPS vs. Benzene contracts



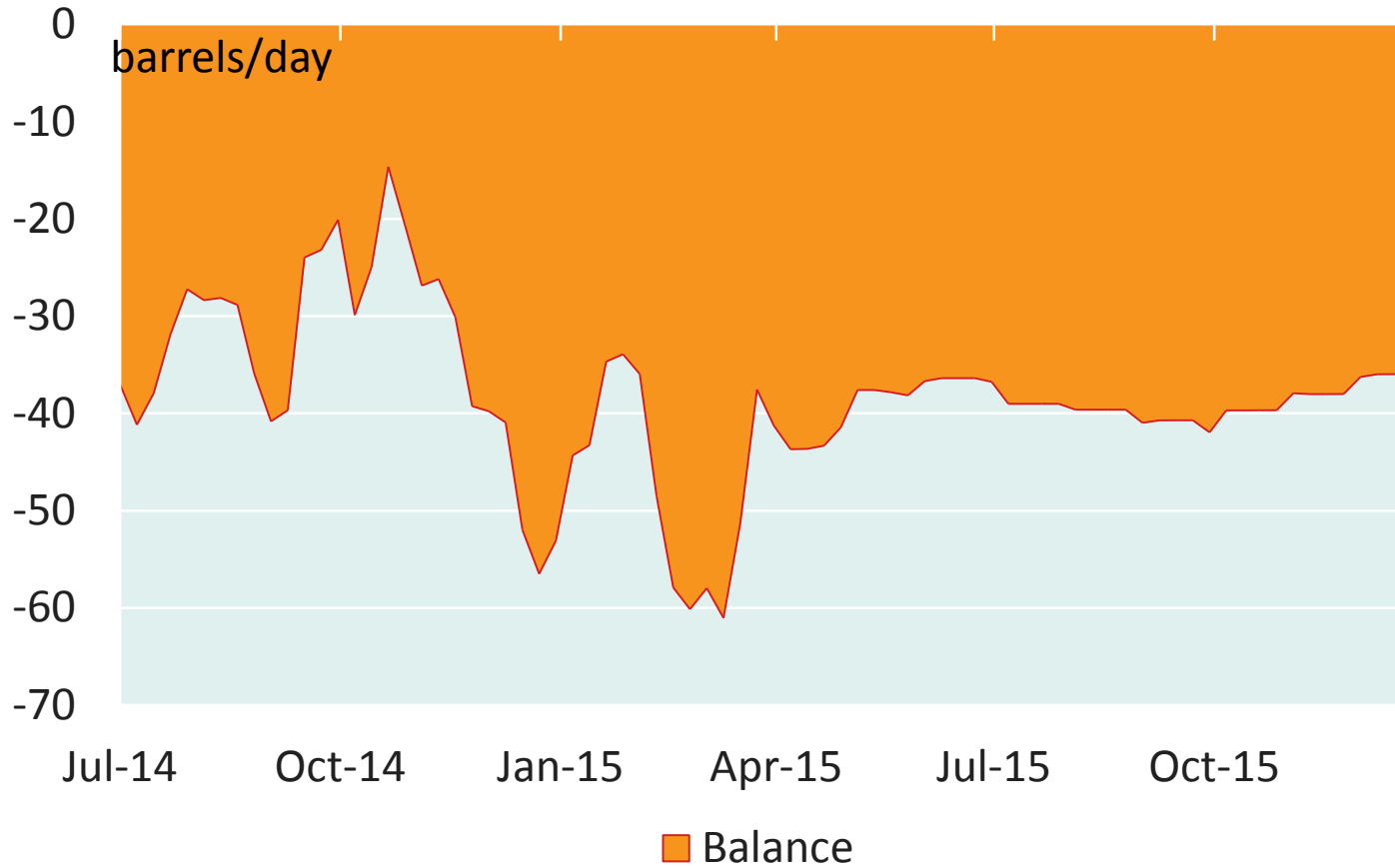
US Aromatics Outlook

Benzene supply tightens, toluene and xylene blend values remain higher

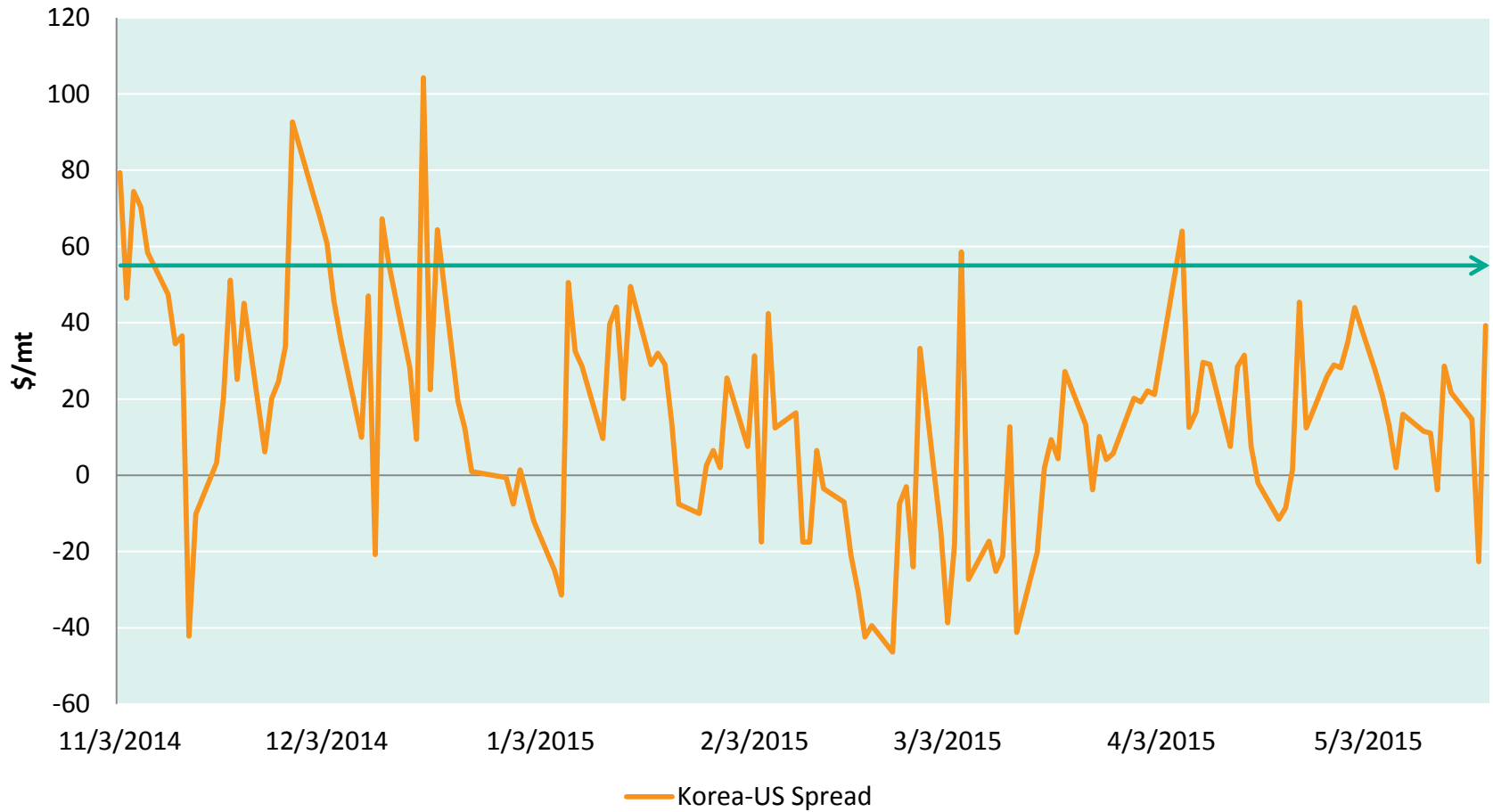
Benzene Supply/Demand



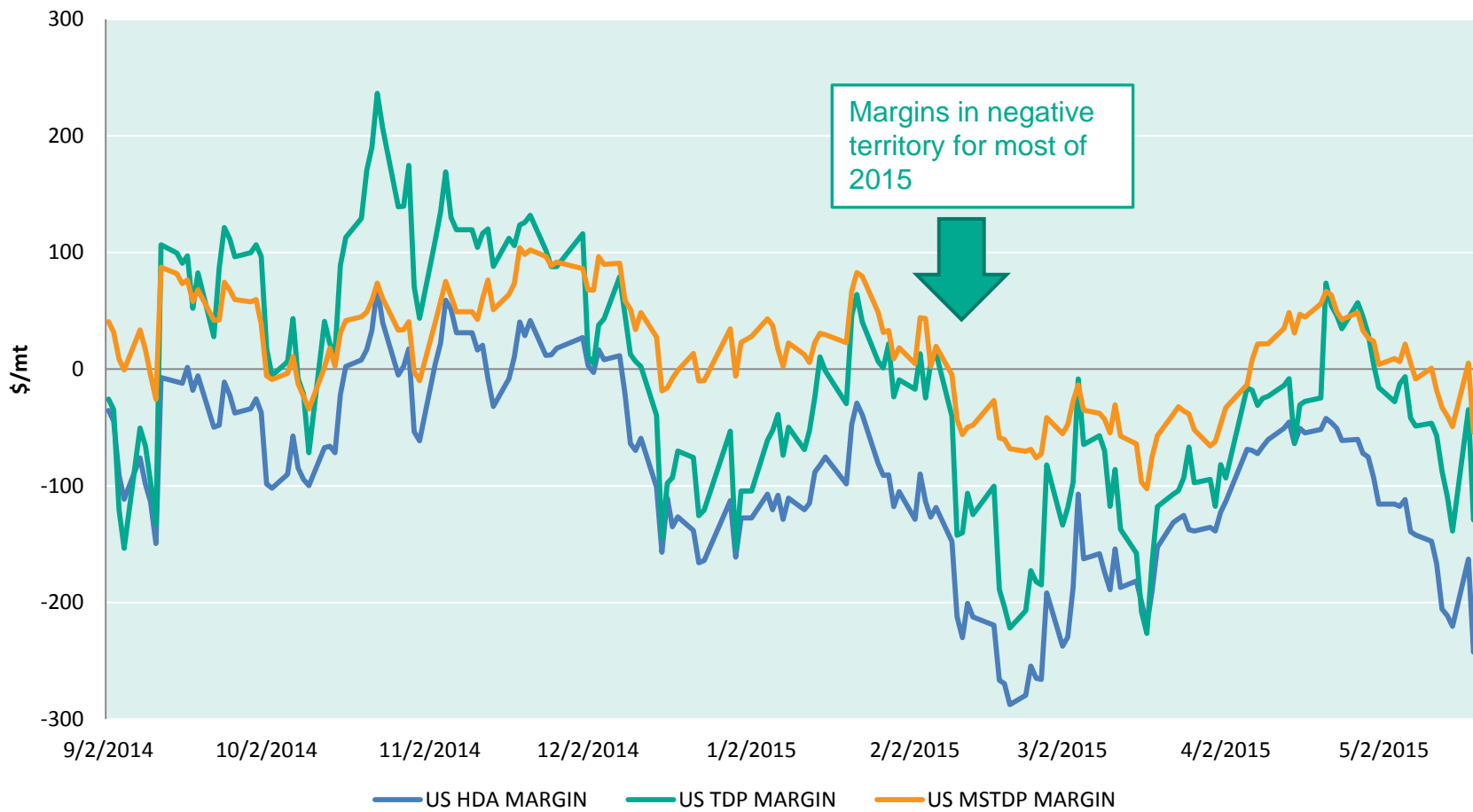
Low imports.....negative balance



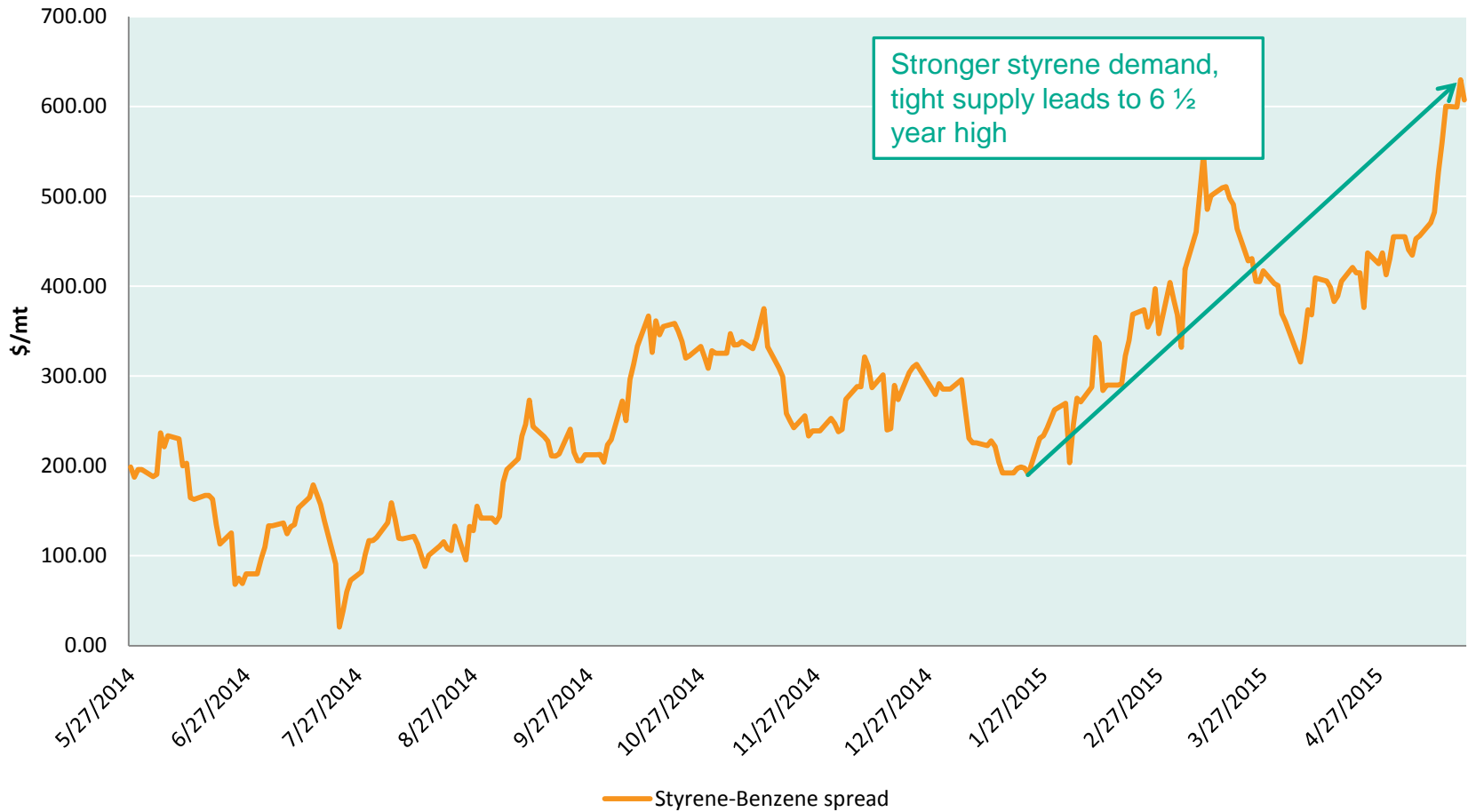
Arbitrage from Asia remains negative



Negative benzene production economics



Attractive styrene production economics

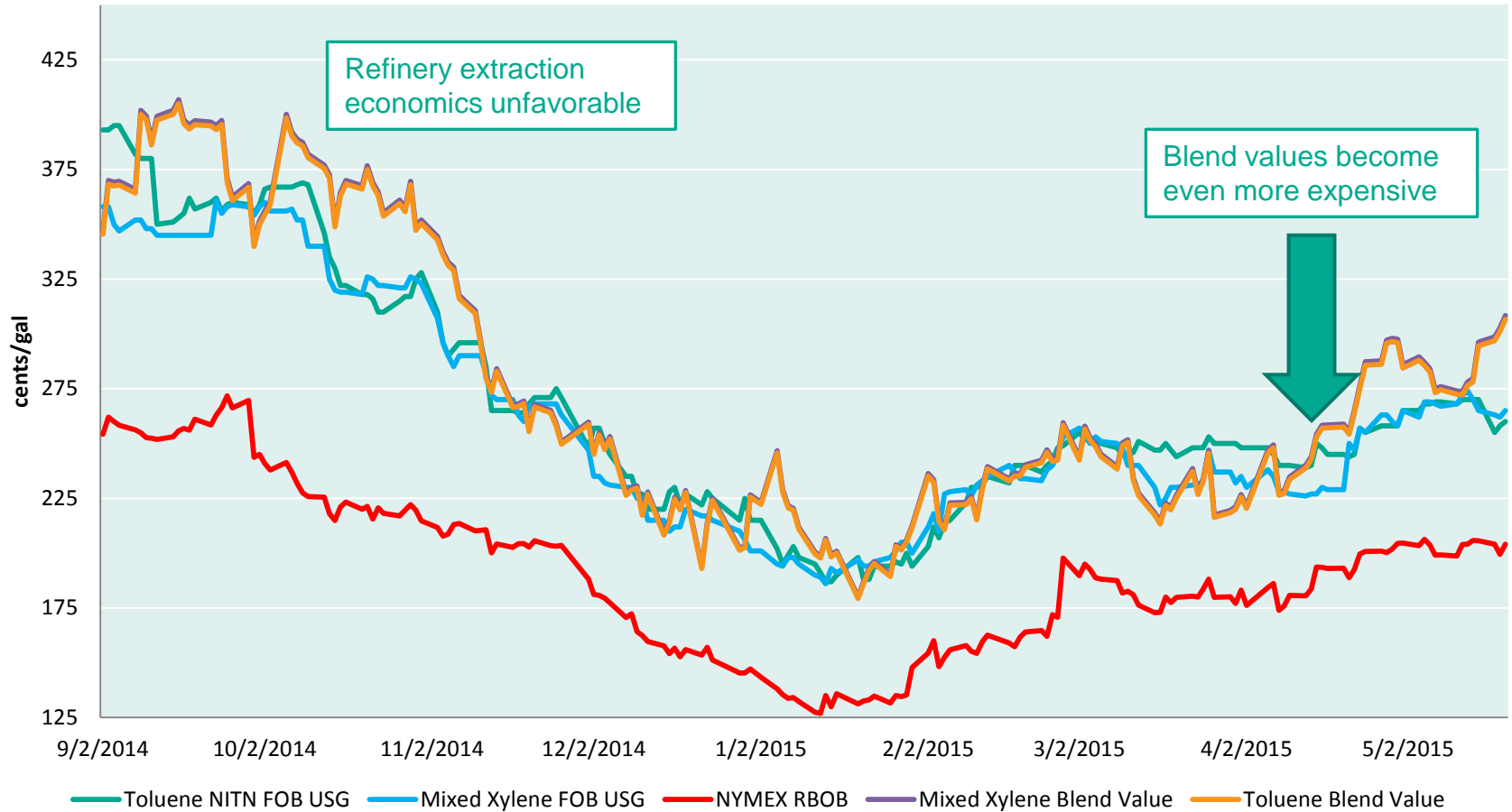


Benzene plant start-ups over 2014-2017

Country	Company	Location	Quarter	2014		2015		2016		2017	
				BZ	PX	BZ	PX	BZ	PX	BZ	PX
China	Sinopec	Hainan	Q1		600						
	Ningbo Zhongjin	Ningbo	Q1			<200	1600				
	PetroChina	Pengzhou	H1		680						
	Sinopec	Zhenhai	-		1600						
China Total				0	2880	200	1600	0	0	0	0
S.Korea	SK Innovation (July)	Incheon	Q3	450	1300						
	SK Global Chemical/JX Nippon Oil (June)	Ulsan	Q3	300	1000						
	Samsung Total (June)	Daesan	Q3	420	1000						
	GS Caltex/Taiyo Oil/Showa Shell	Yeosu	-					400	1000		
S. Korea Total				1170	3300			400	1000		
India	ONGC (Aug/Sep)	Mangalore	Q3	270	900						
	Reliance	Jamnagar, Gujarat	Q4			500	2200				
	Indian Oil Group	Vadodara, Gujarat	Q1								400
India Total				270	900	500	2200				
SEA	Jurong Aromatics (Q3)	Singapore	Q2	400	800						
	PetroViet	Vietnam	Q2							240	700
	PTT Global Chemicals	Thailand									
SEA Total				400	800					240	700

Total BZ start up in 2015: 700,000 mt

Toluene, MX vs Gasoline



Key Takeaways

- US benzene supply tightens in July
- Toluene needed for TDP, MSTDP
- Periods of limited MX supply due to gasoline blending

Thank you for your time!

- Questions ?

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