

Synthetic Rubbers and Butadiene - Untangling the two markets

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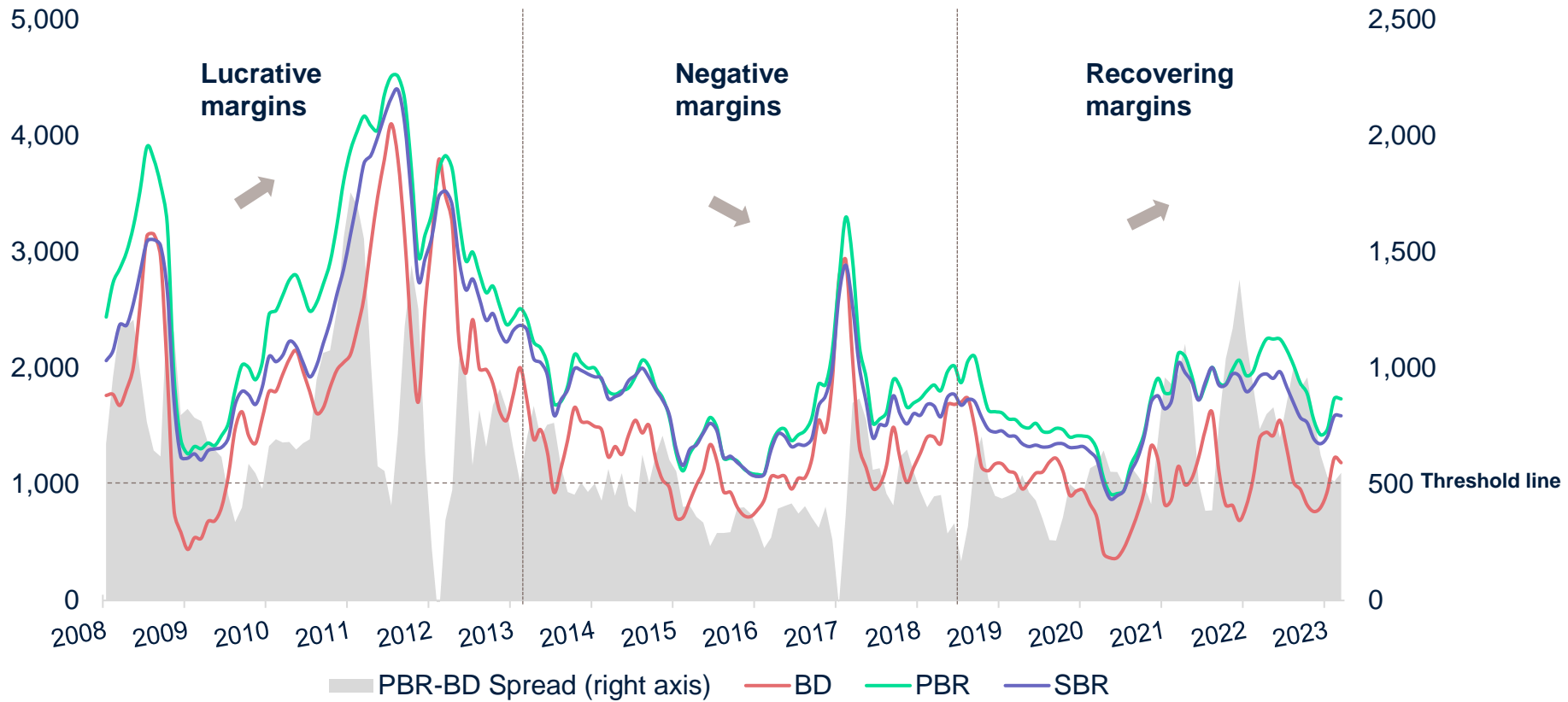
APIC 2023, New Dehli, India

19 May 2023

Overview of butadiene (BD) and synthetic rubber (SR) market



Asia BD & SR prices
(in \$/tonne)



Source: ICIS

Agenda



- 01 SBR & PBR supply-demand balance
- 02 A focus on butadiene
- 03 New trends

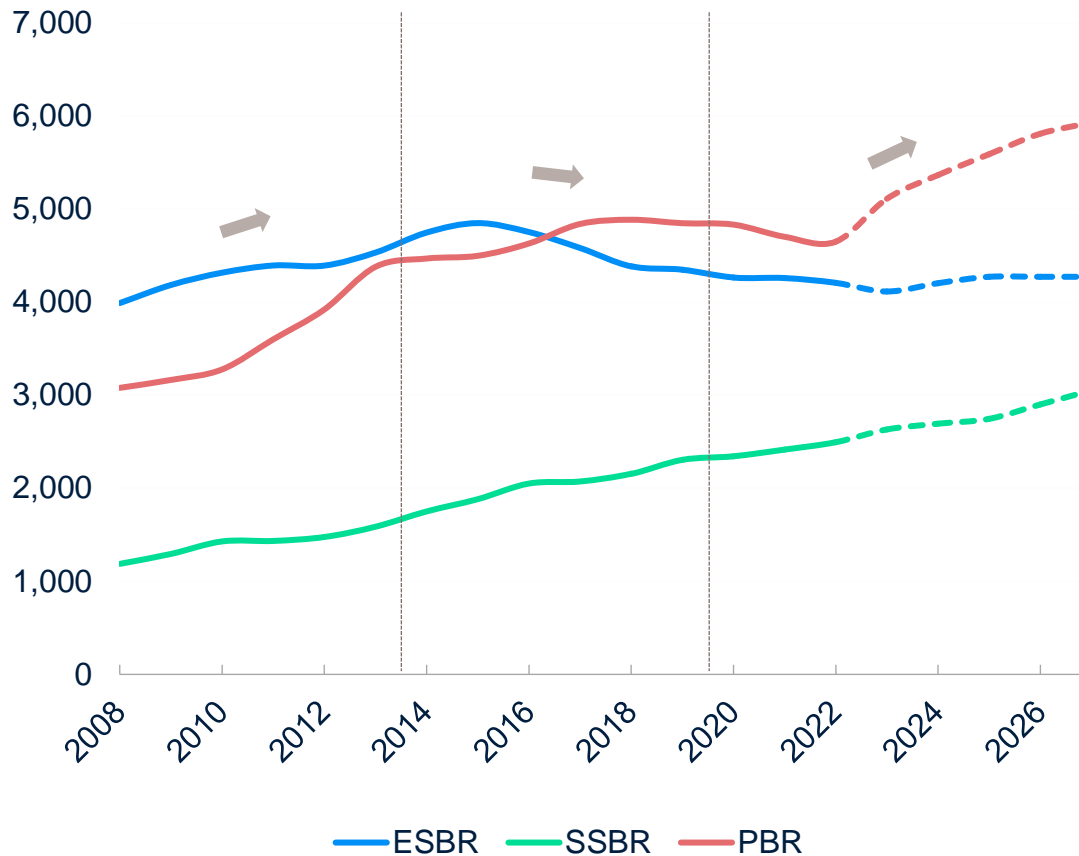
SBR & PBR supply- demand balance



SR capacity starting to expand again



Global SBR and PBR capacity
(in thousand tonnes)



PBR

Capacity grows after a plateau, both high-cis BR and low-cis BR

Emulsion-SBR

Stabilises after a period of decreases

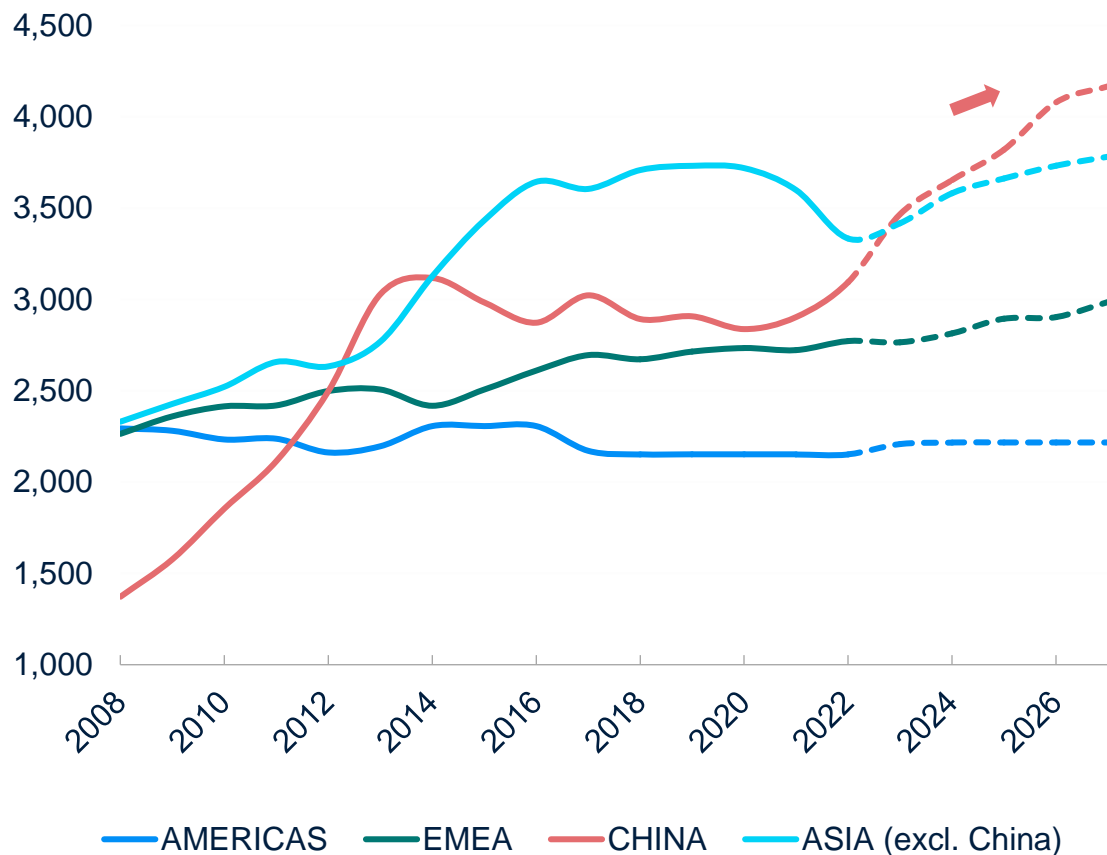
Solution-SBR

Maintains growth momentum to address increasing demand

China drives SR capacity expansion



Global SBR and PBR capacity by region
(in thousand tonnes)



Source: ICIS Supply and Demand Database

CHINA

Investment to address rising BD availability and robust domestic consumption

ASIA

Portfolio was optimised towards latex in South Korea; possible investment in SE Asia and India

EMEA

Debottlenecking and restarts of PBR units in Europe; plans in Iran and Kazakhstan

AMERICAS

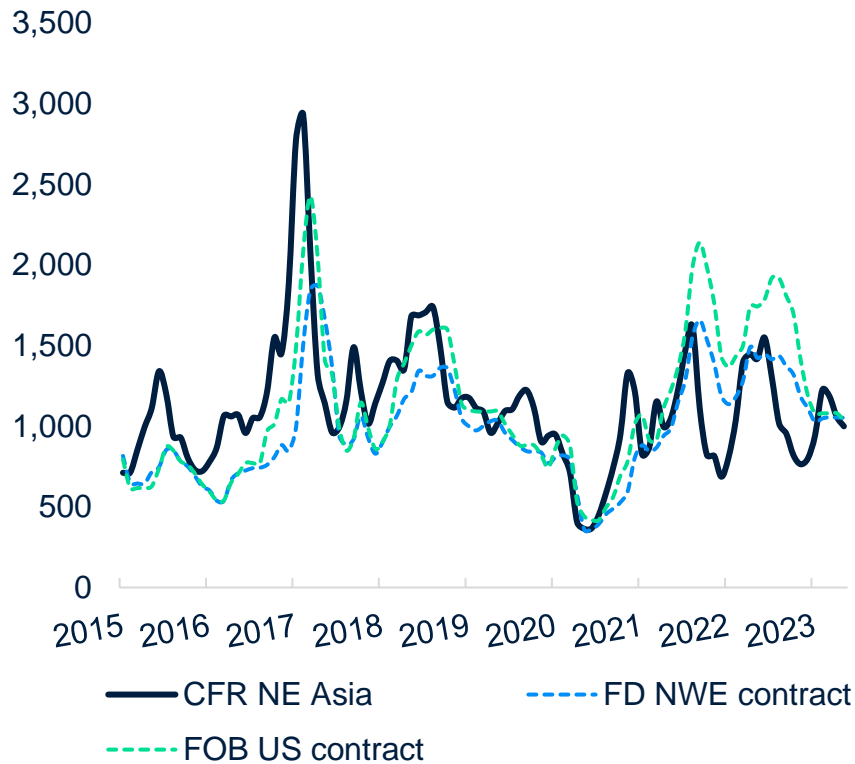
Opportunities in Brazil

China's increasing BD availability supports SR expansion

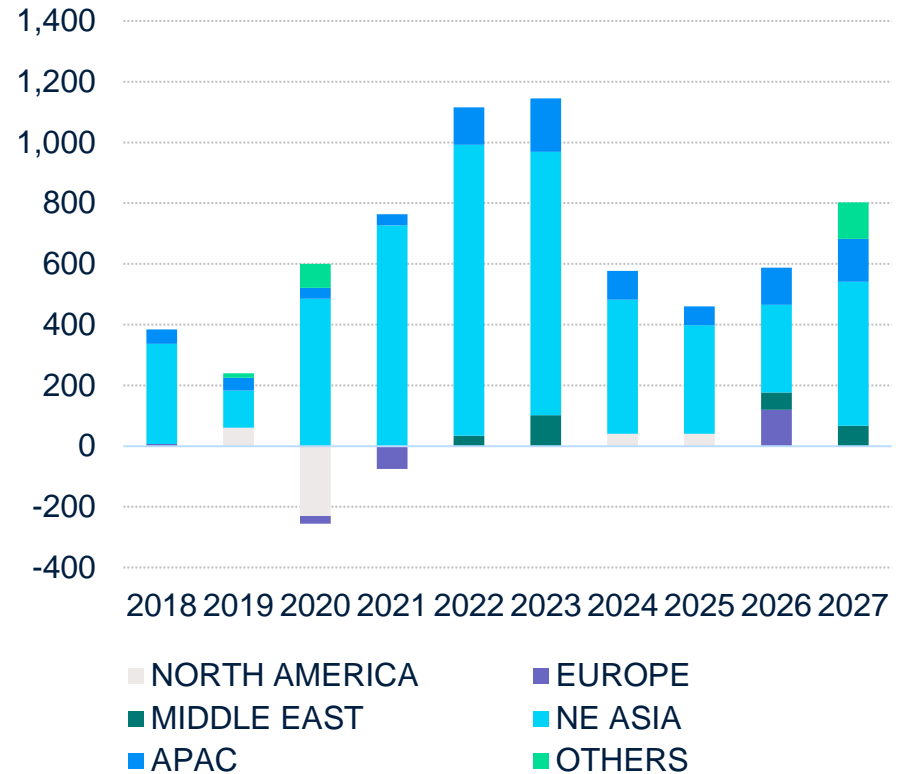


Asia gains BD price advantage since 2021 on increasing domestic supply, driving the competitiveness of SR production, although this is weakening

BD prices In Europe, US and Asia
(in \$/tonne)



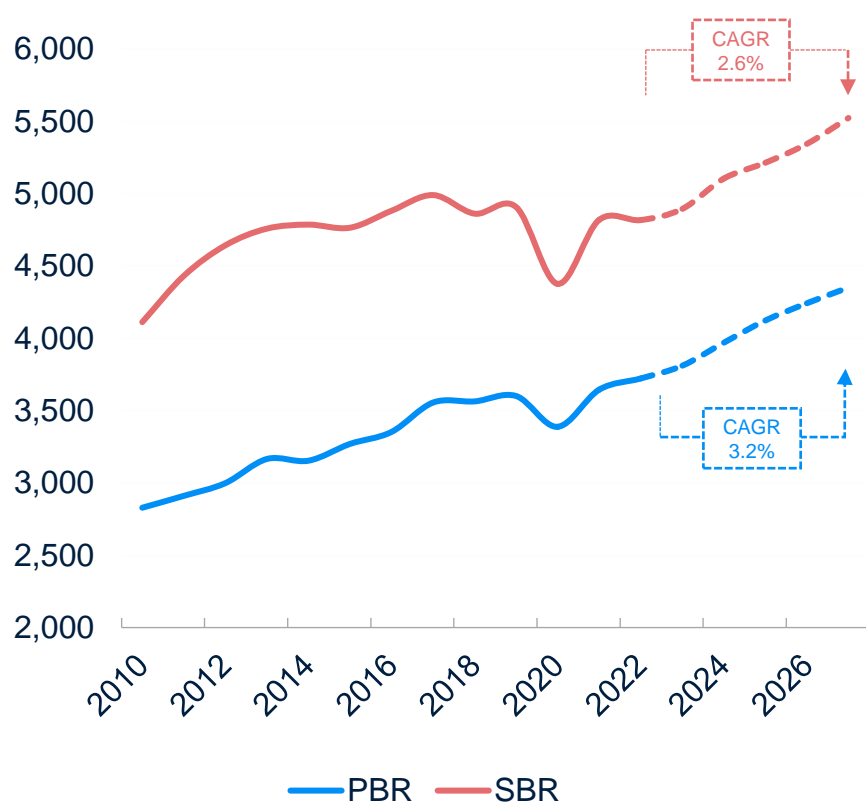
Incremental BD capacity growth
(in thousand tonnes)



SR demand recovers from the pandemic



Global SBR & PBR consumption
(in thousand tonnes)



SBR highlights

SSBR demand from OE tyre

Robust replacement tyre demand

Substitution of ESBR for NR

PBR highlights

Robust truck bus tyre demand

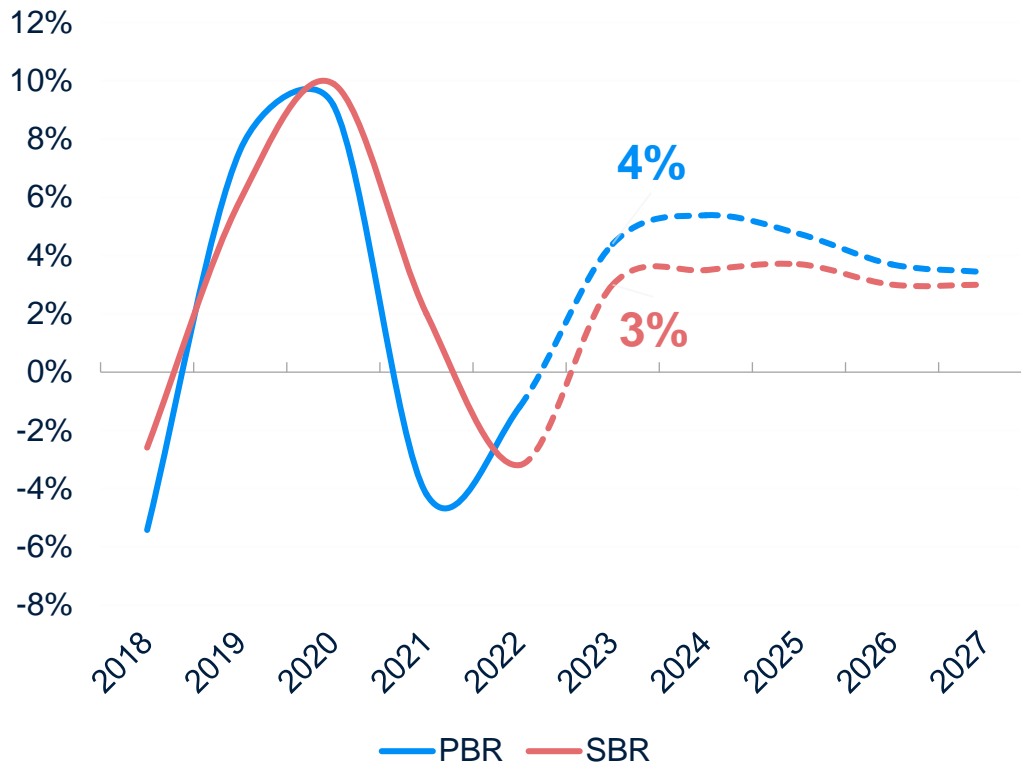
Polymer modification

Recovery in footwear

China is telling a different story amid its reopening



China SBR & PBR consumption growth



2023 highlights

- Strong replacement tyre demand for passenger car amid strong performance in travel sector
- Slight growth in OE tyre demand
- Opportunities for passenger car tyre exports due to the price advantages amid global inflation
- Truck and bus tyre production shifting to overseas due to trade barriers
- Increasing demand from ABS/HIPS sector amid the capacity expansion

Enhancing competitiveness of SR value chain for Asia, but rapid capacity expansion brings risks



Butadiene

China leads the large-scale capacity expansion in Asia



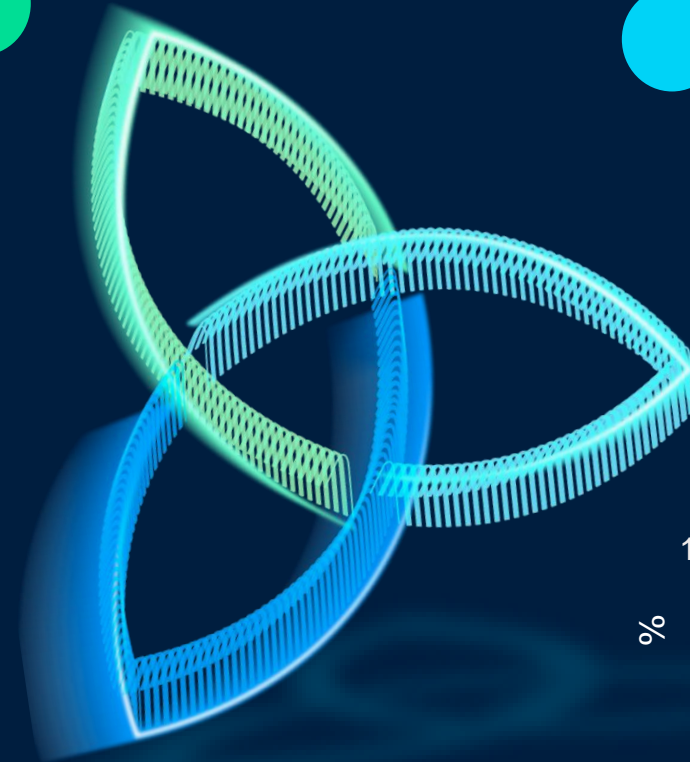
SBR/PBR

Opportunities arise, given increasing BD availability and robust tyre demand

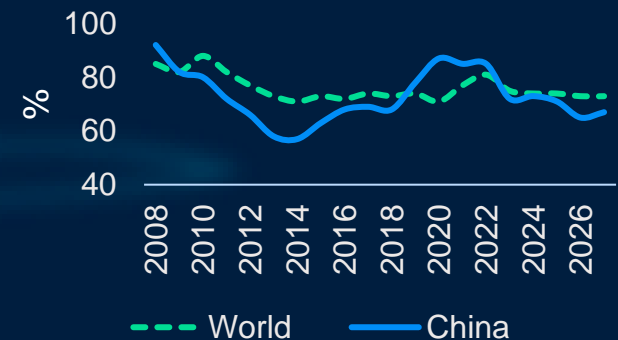


Tyre

Asia remains the production base, production to be re-allocated within Asia



PBR utilisation rate



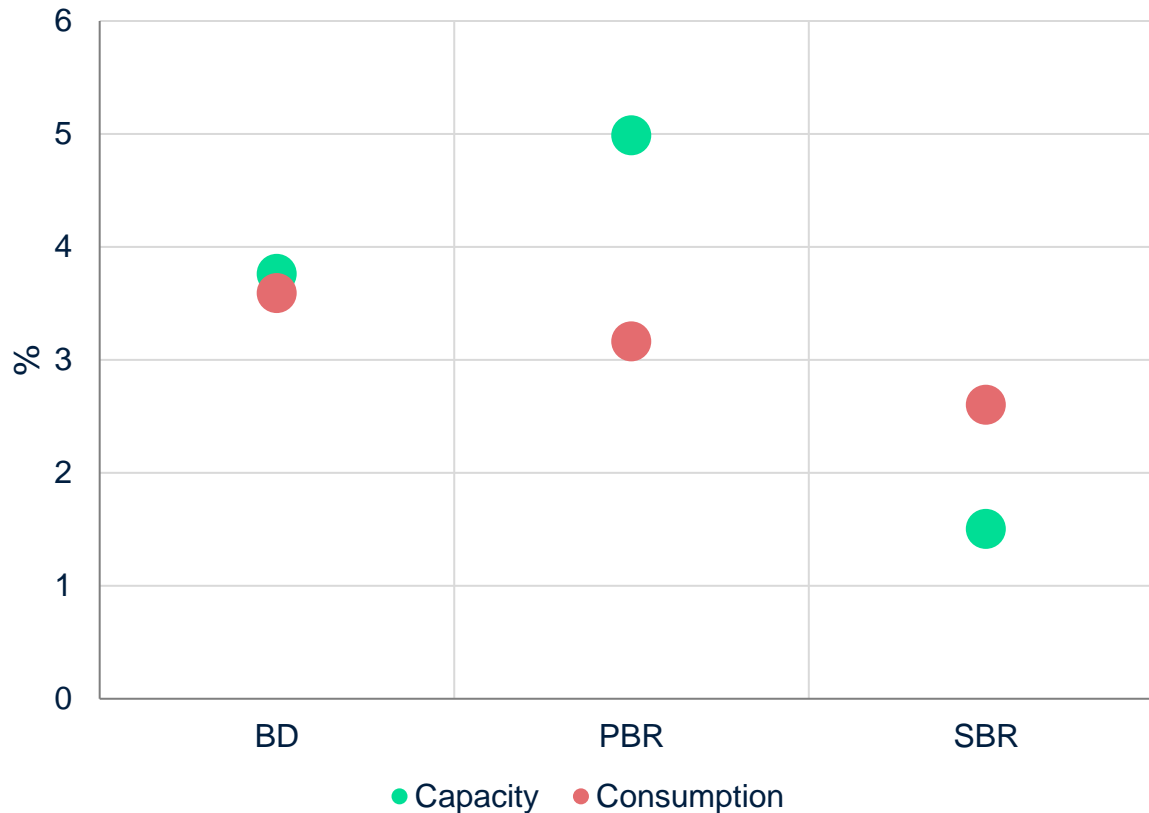
A focus on butadiene



Rebalance for BD and SBR/PBR



Global BD & SR capacity and consumption CAGR
2022-2027



Source: ICIS Supply and Demand Database and estimates

BD

Robust demand growth will keep BD supply tight, but more balanced among the regions

PBR

Rising risks of overcapacity following the China expansions

SBR

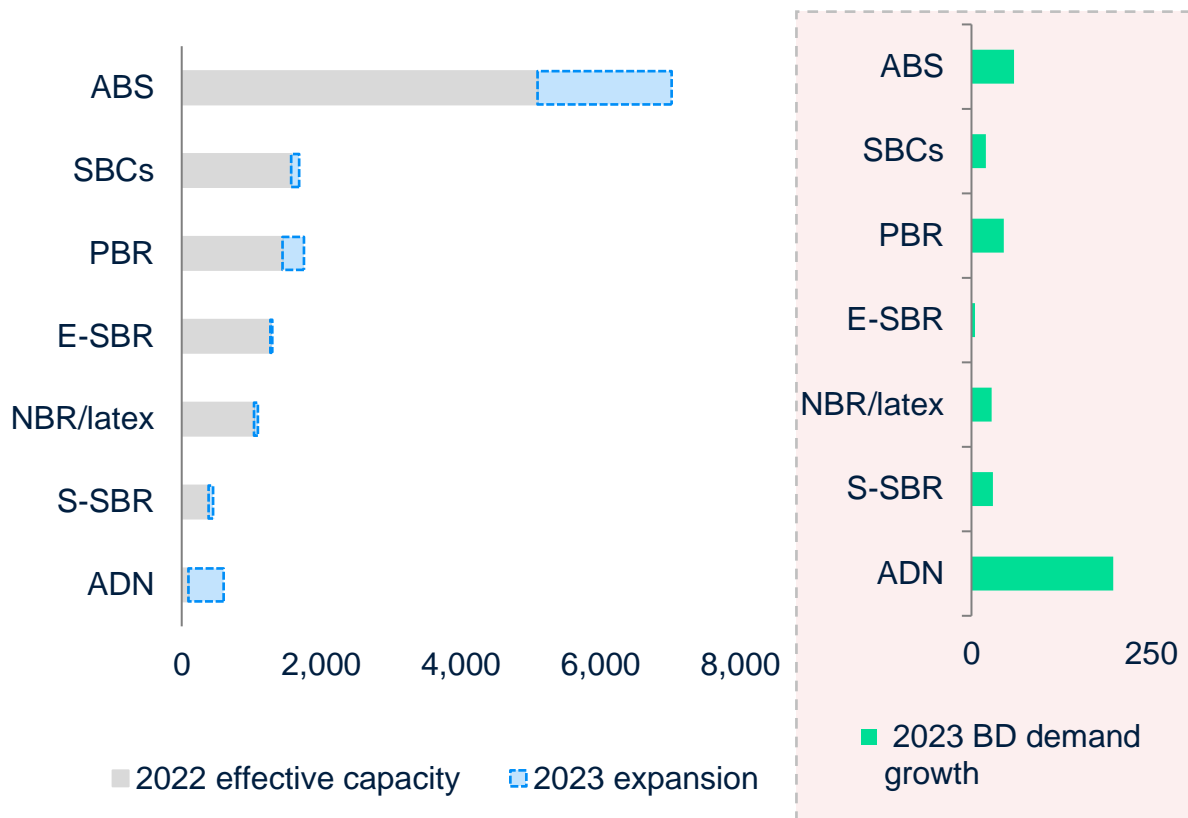
ESBR market more balanced with limited new capacity, opportunities expected when higher NR prices seen

SSBR to see healthier balance, following increasing requirements for performance elastomers

Different stories for the expansions of BD derivatives in China



Capacity expansions of BD derivatives in China & the impact
(in thousand tonnes)



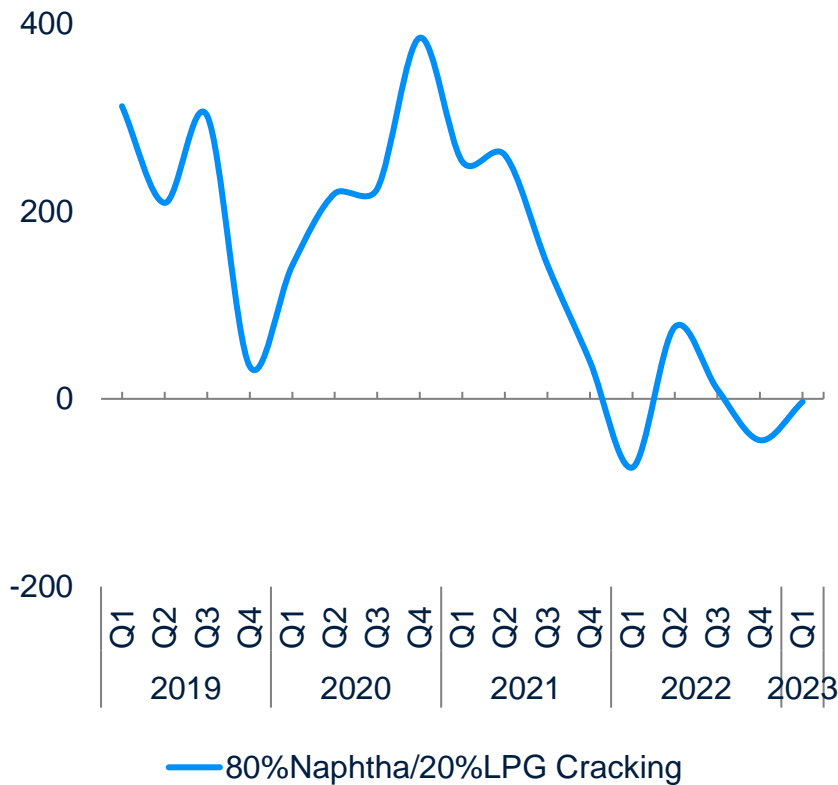
Capacity expansion brings limited demand increases in some derivatives; incremental demand mostly from adiponitrile

- Emerging BD-based **ADN** production in China, with high capacity utilisation
- Slow home appliance sales and **ABS** expansions result in ABS s/d imbalance, weighing down on run rates
- Short-term **PBR** exports unlikely to continue increasing without a lack of demand growth momentum

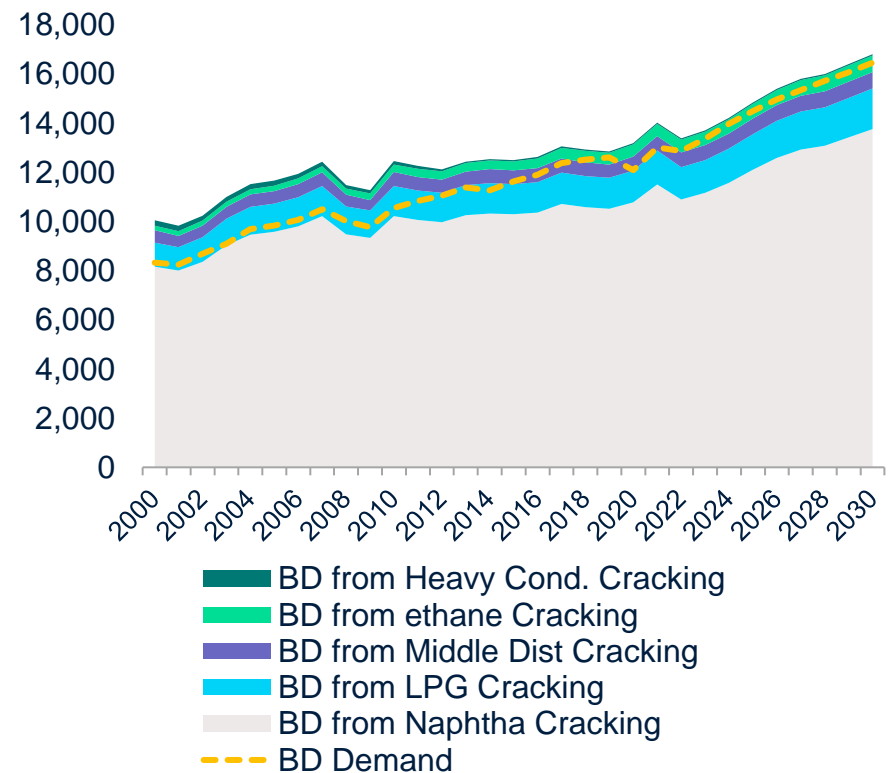
Margin-related run rate reductions at crackers and the lighter feedstock slate limits BD output



Northeast Asia light olefin margins
(in \$/tonne)



Global BD demand vs total contained BD in
produced crude C4s
(in thousand tonnes)



Note: ICIS Margins is published weekly

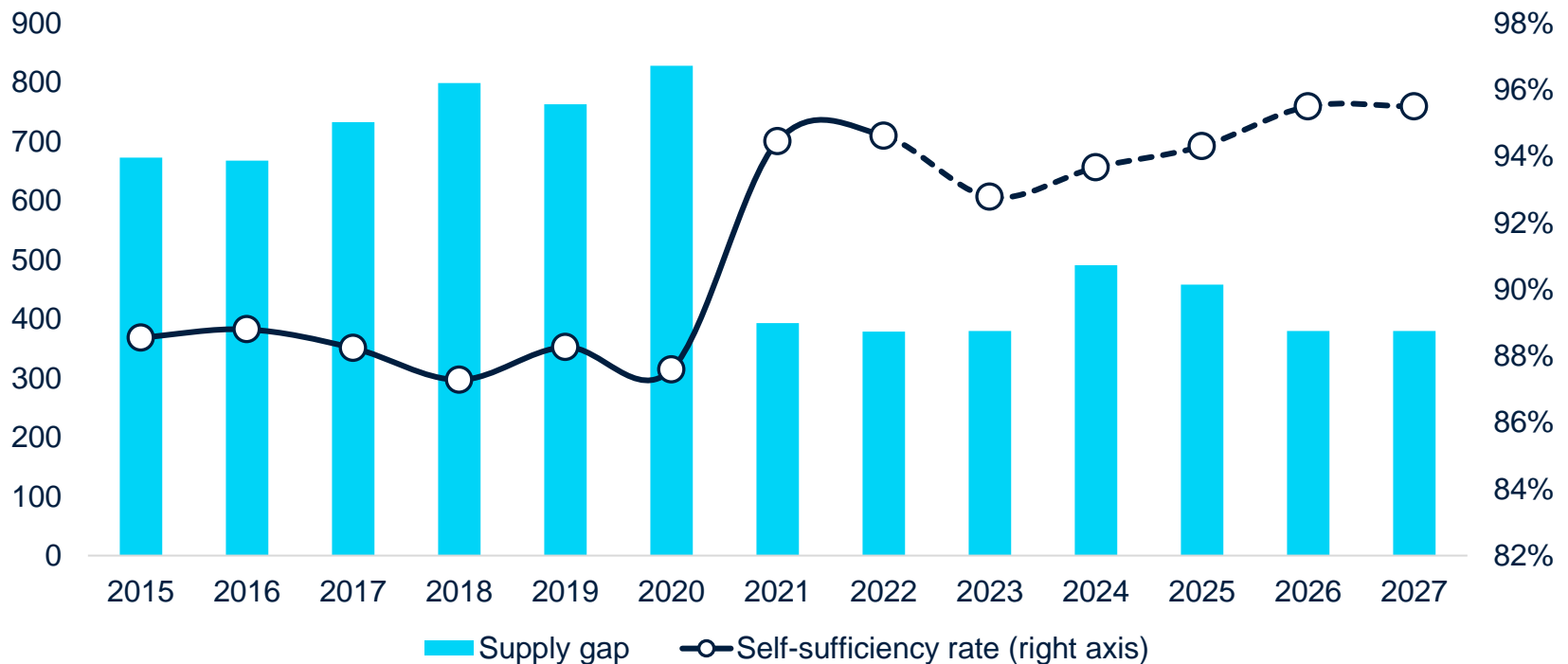
Source: ICIS Margins

Source: ICIS Supply and Demand Database

NE Asia becomes more self-sufficient on BD, but slight growing appetite for imports in 2024/2025



BD balance In NE Asia
(in thousand tonnes)



New trends



New trends in the BD-SR market



Rubber demand changes amid robust EV growth



- Rising requirements for green tyres
- Lower number of OE tyres per vehicle

Launch of PBR futures in China to bring new market dynamics



- More speculative non-industrial funds in the industry
- Possible change of pricing mechanism

More diversified BD demand in Asia to change the market dynamics



- Downstream SSBR, LCBR & adiponitrile markets are more affordable, driving the peak prices of BD when BD supply is tight

Increasing sustainability awareness

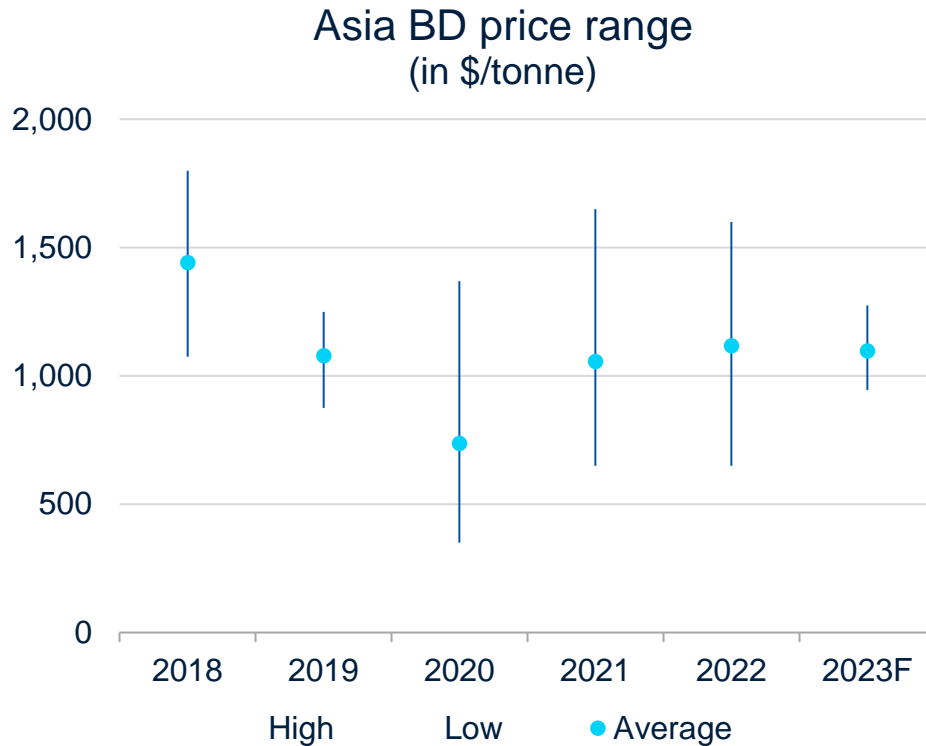


- Bio-based materials for tyre manufacturing
- Low carbon society
- EV development

Takeaways: More balanced BD and SR market expected



Less volatility in BD & SR prices seen, enabling producers to pay attention to more sustainable growth



Note: ICIS Price Forecast is published monthly; 2023 average price quotes the value from May 2023 issue

BD

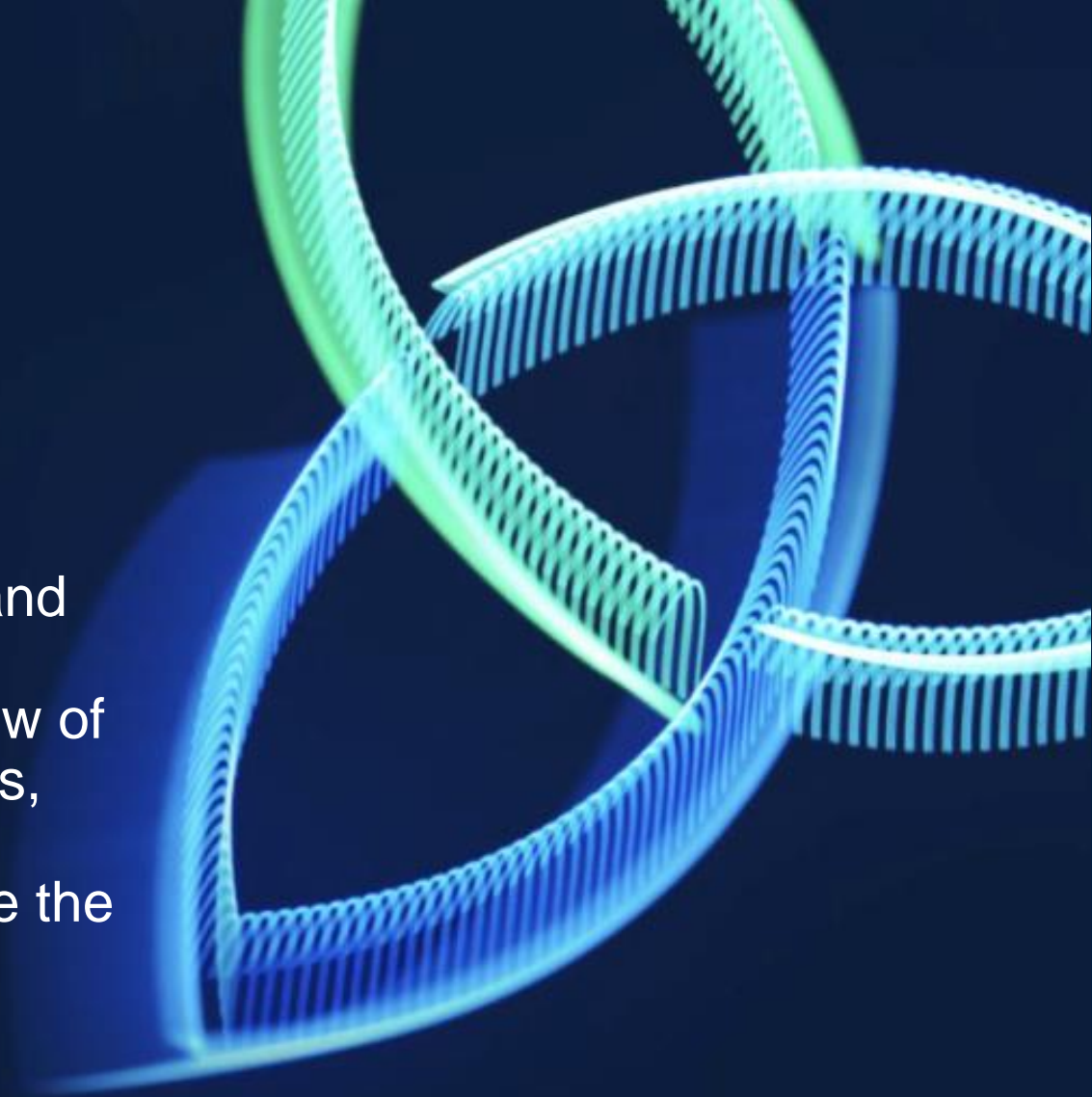
- China's BD expansion brings domestic investments in BD derivatives, keeping the BD market in a balanced-to-tight state
- New demand changing the pricing dynamics, attention required

SR

- Synthetic rubber margins being squeezed again amid the restarting capacity expansion
- More self-integrated BD & rubber producers to manage margins along the value chain as well as mitigate the risks

About us

ICIS is a global source of **Independent Commodity Intelligence Services** – connecting data, markets and customers to create a comprehensive, trusted view of global commodities markets, enabling smarter business decisions that help optimise the world's resources.



To deliver value where it matters most



Descriptive analytics

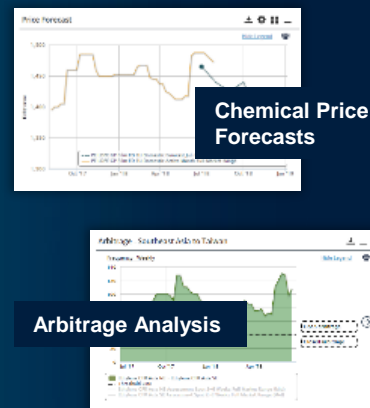
What happened?



- Regulatory and impact analysis
- Real time cargo tracking
- Real-time global news coverage
- Live Disruptions Tracker

Diagnostic analytics

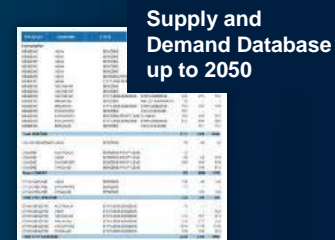
Why did it happen?



- Carbon Analytics
- LNG Supply Forecasts
- Price Driver Analytics

Predictive analytics

What will happen?



- Short-term Power Analytics
- Long-term Power Forecast
- Petchem, Energy and Fertilizer price forecasts
- LNG Supply and Demand forecasts
- Carbon Analytics

Prescriptive analytics

Why will it happen and what can I do?



- ICIS continues to invest in providing tools with prescriptive capabilities

Thank you



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