# ASEAN Pulp and Paper Industry – Looking into its Cost Competitiveness

Ho Chi Minh City
November 2025

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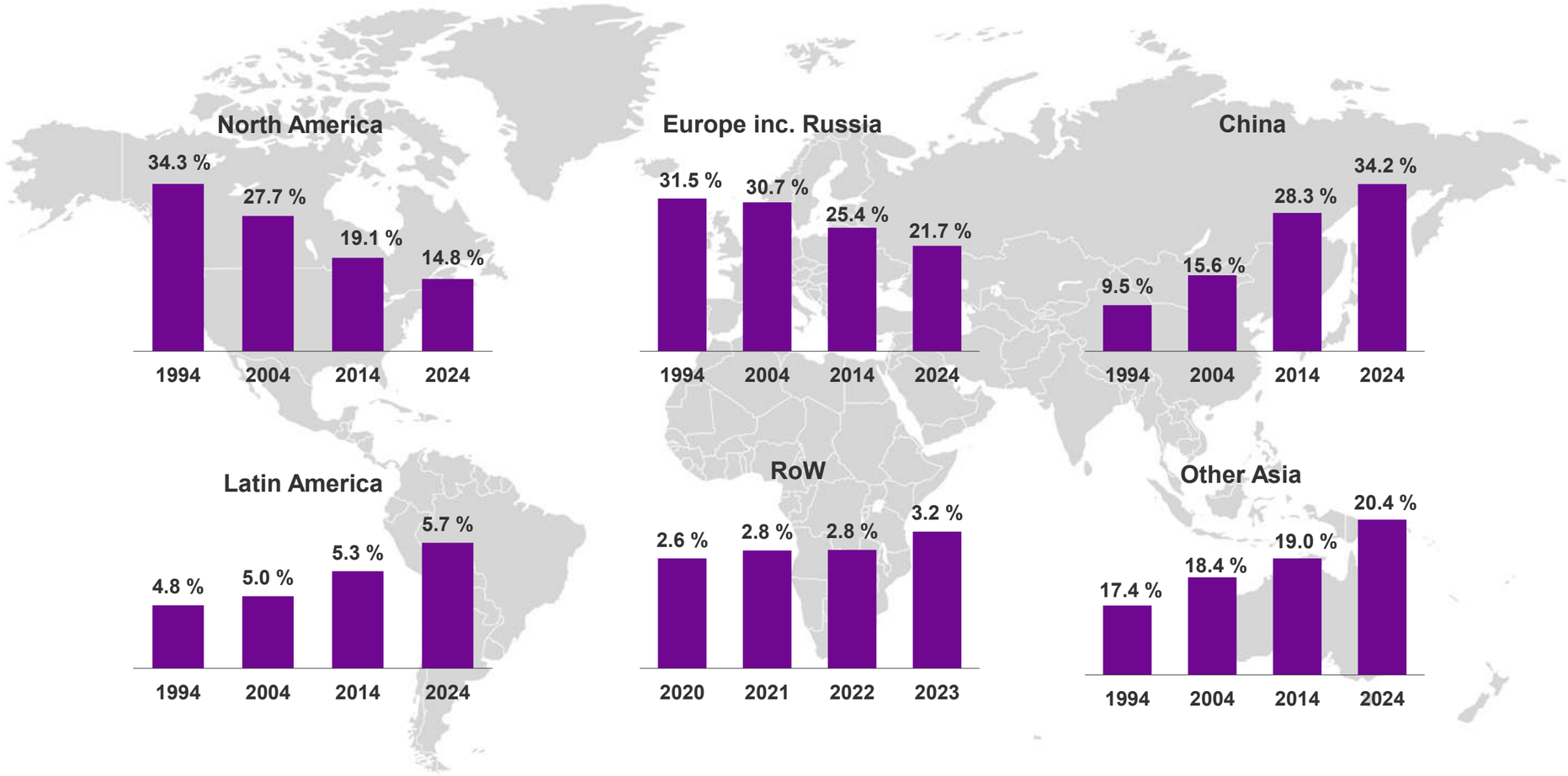
**Fastmarkets RISI**

# Agenda

- Global capacity trends and regional shifts
- Containerboard: asset quality and cost competitiveness
- Energy, fuel mix and carbon intensity

# Global paper and board capacity shifting steadily toward Asia, driven mainly by investment in China and other Asia

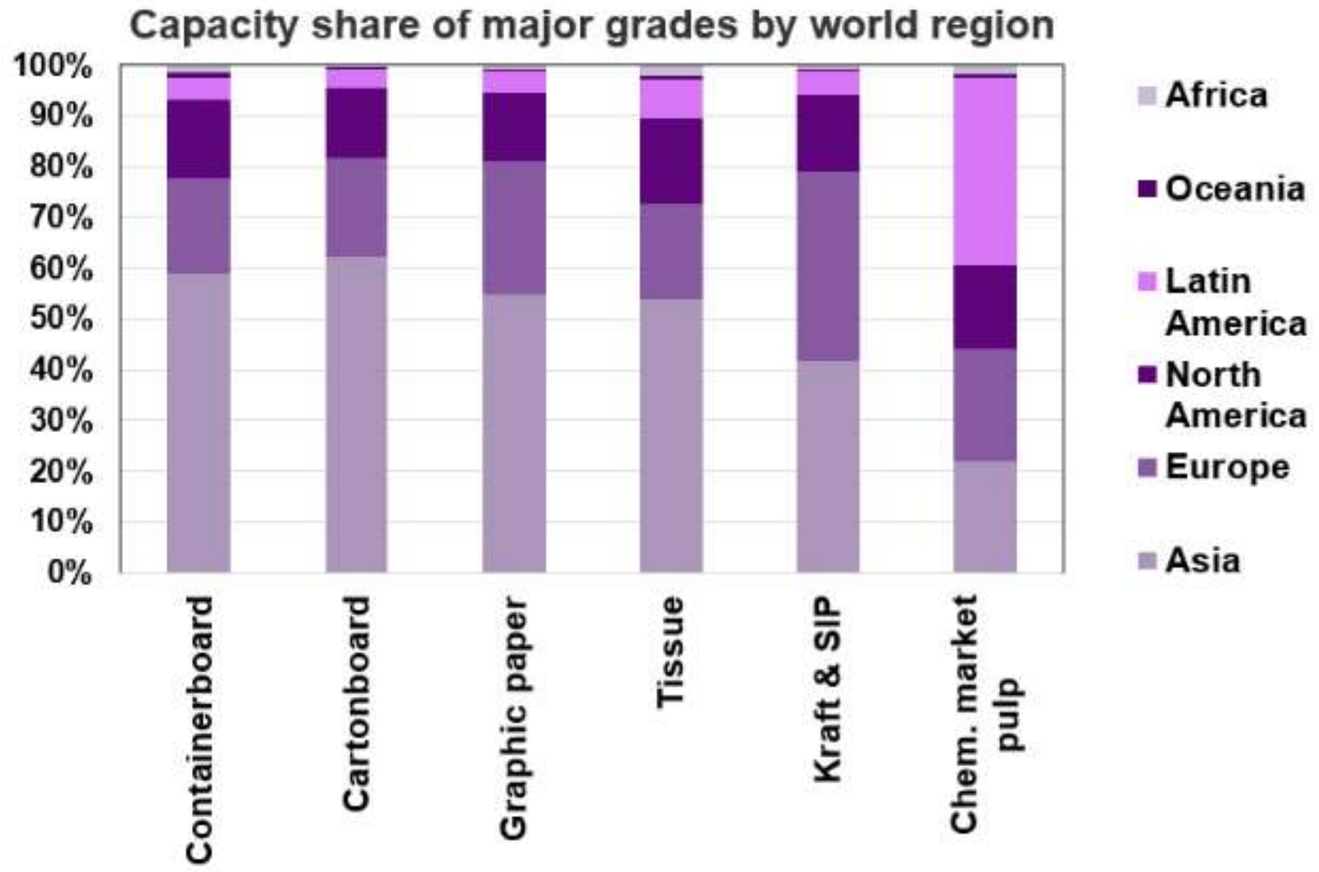
Share of global paper production capacity by region



# Asia now has the largest capacity share in all paper and board grades, Latin America leads in market pulp

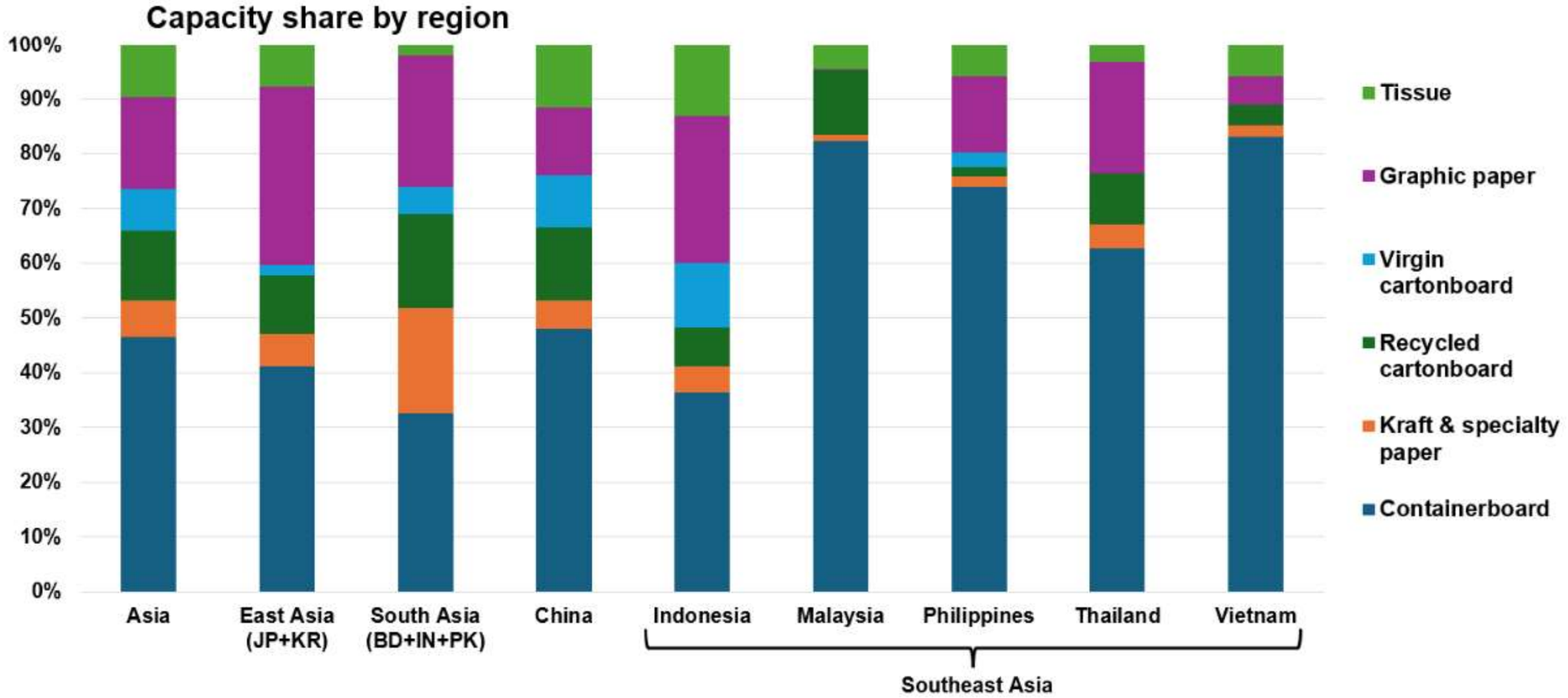
## CONTAINERBOARD IS THE LARGEST GRADE

- Cartonboards and graphic paper are of similar size, while tissue, and kraft & specialty paper are much smaller markets.
- In the past decade, global capacity has increased for all grades except graphic paper, which is declining in most regions.
- Latin America has the highest chemical market pulp capacity while Europe (including Russia) and Asia are nearly equal.




Source: Fastmarkets

# China accounts for nearly two-thirds of Asia's* paper and board capacity, other major Asian regions evenly matched



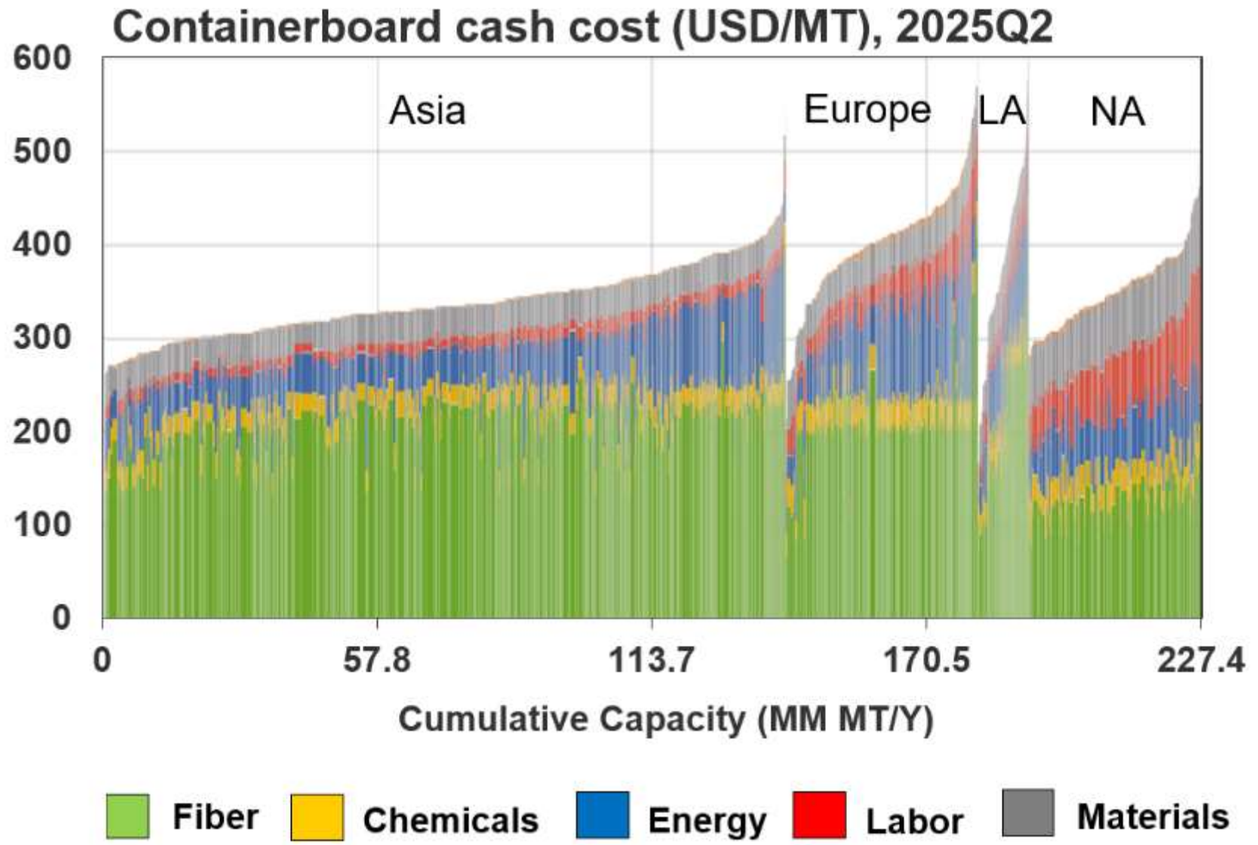

Source: Fastmarkets

*Asia excluding Middle East and Central Asia*

# Unbleached containerboard cost curve shows Asia's dominant market share and highlights regional differences

## REGIONAL COST PROFILES ARE DISTINCT

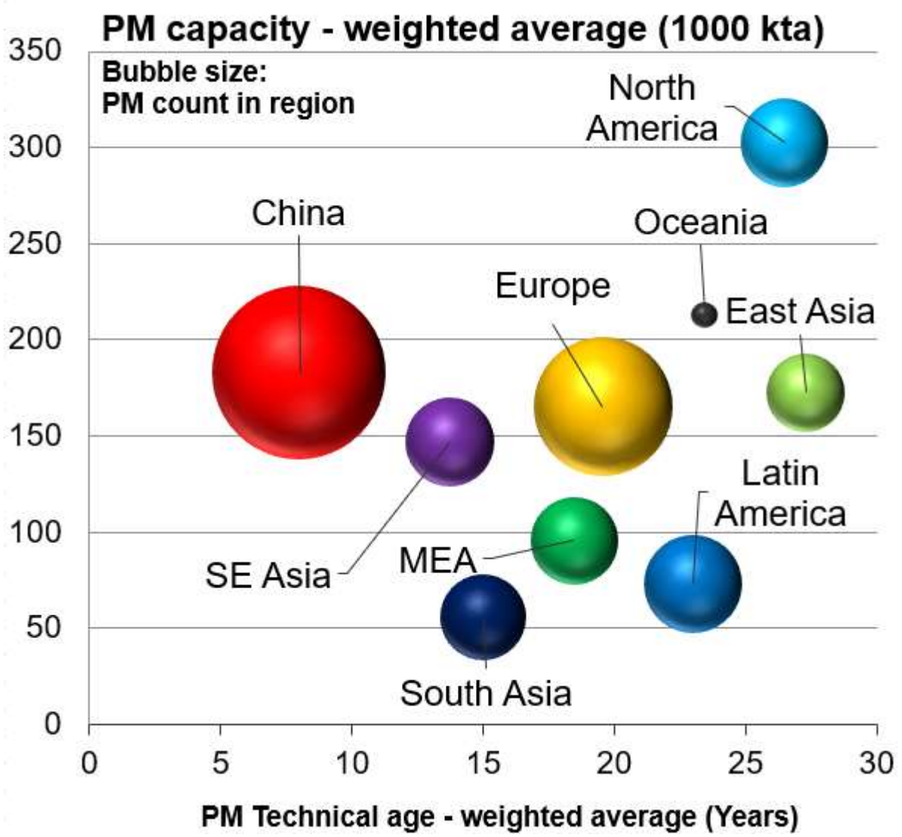
- **Production costs** vary significantly between regions; typically, fiber is the main cost driver in every region
- **Energy and labor costs** are often the ones that make the difference in regional competition, while logistics do play their part
- **Volatility is the greatest in fiber and energy costs;** especially market pulp, recycled fiber and energy costs tend to fluctuate due to local and global drivers

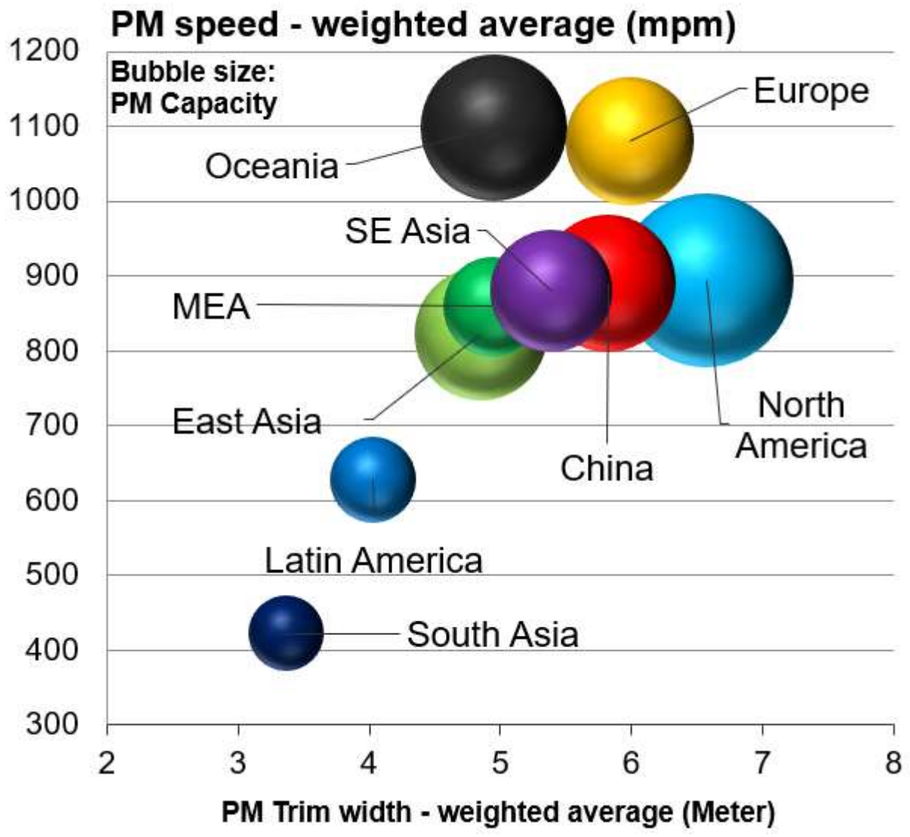



Source: Fastmarkets

# Asset quality of global containerboard machines varies significantly by region

## THE AVERAGE MACHINE IN CHINA AND SE ASIA IS RELATIVELY NEW, NA MACHINES ARE LARGE BUT AGEING

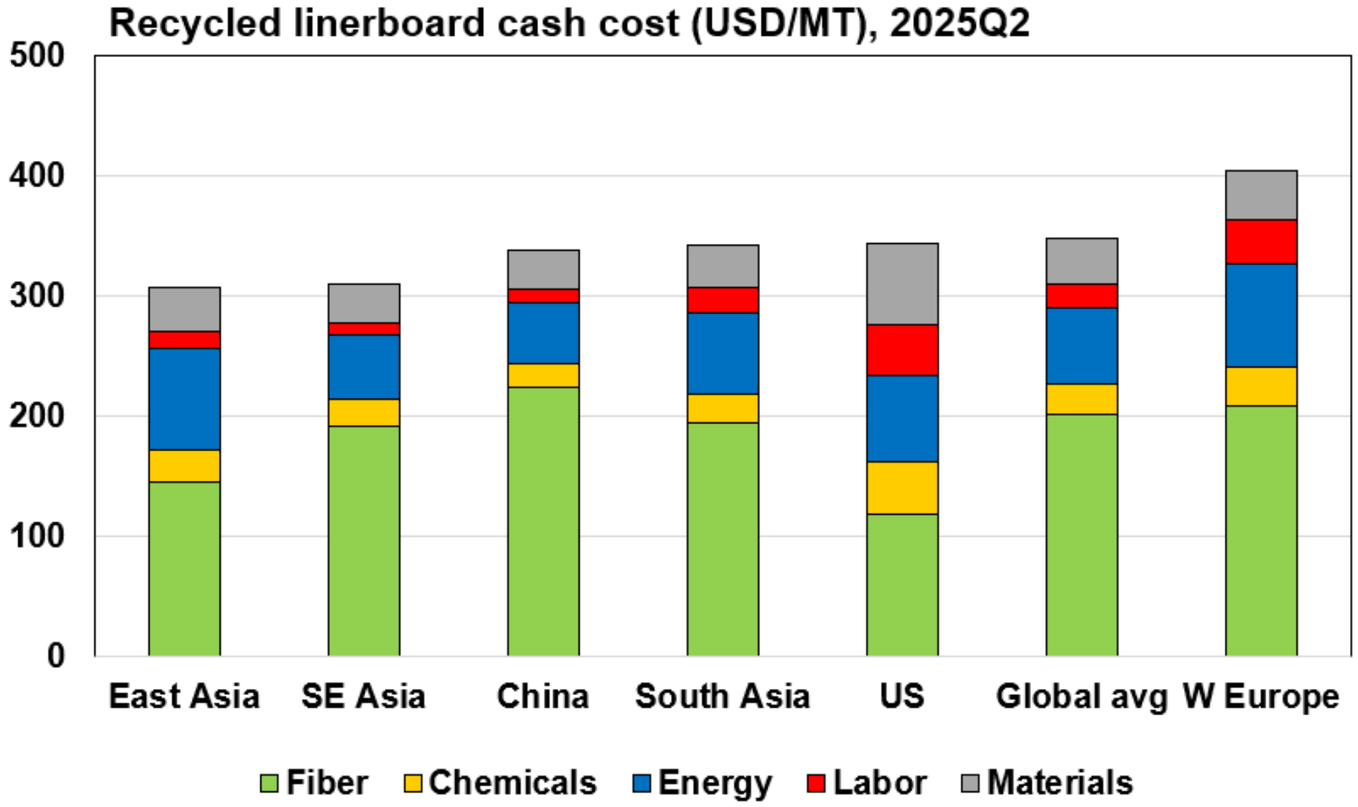


# Recycled linerboard is a global commodity well-suited to benchmark cost competitiveness across regions

## FIBER AND ENERGY ARE THE KEY COST DRIVERS

- **Fiber cost** in recycled linerboard production is determined by local and/or import recovered paper prices; share of fiber cost from total production cost varies widely between regions
- **Chemical** usage is relatively consistent in similar containerboard products, but input costs differ from region to region
- **Energy cost** combines consumption of fuel and electricity with regional energy prices. These can vary significantly between regions and are often highly volatile, which makes them an important cost item to monitor
- **Labor costs** combine the regional manhour cost with labor productivity — in general Asian countries have an advantage against Western Europe and North America



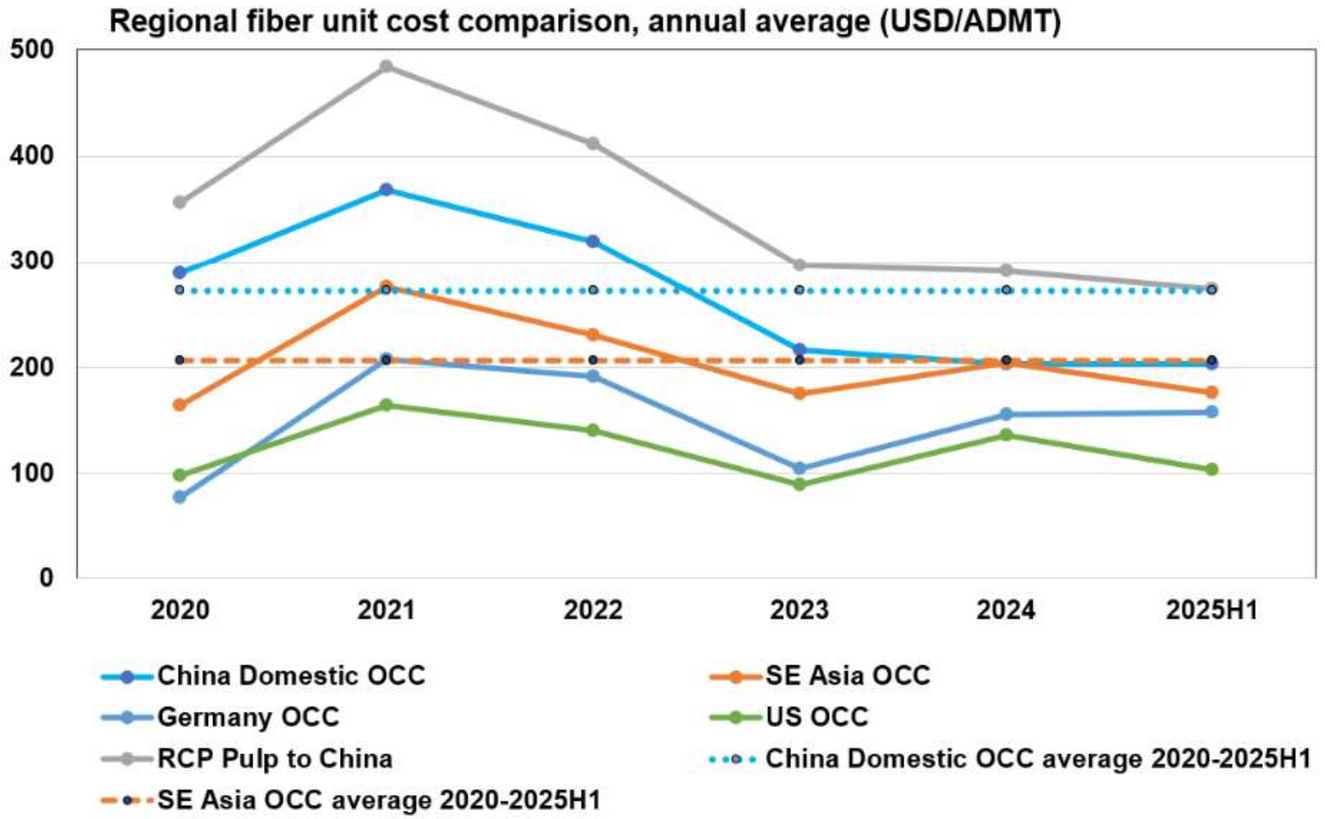

Source: Fastmarkets

# In global comparison, Chinese and Southeast Asian recovered paper prices higher than in Europe or North America

## CHINESE DOMESTIC OCC PRICES RELATIVELY STABLE SINCE 2023

- The **price gap** between Chinese domestic OCC and Southeast Asian OCC is key for the latter's competitiveness, especially if aimed for export markets

- Since the 2021 recovered paper import ban, Chinese containerboard mills have imported virgin UKP and recycled pulp; some have also built integrated pulp lines to complement their fiber needs

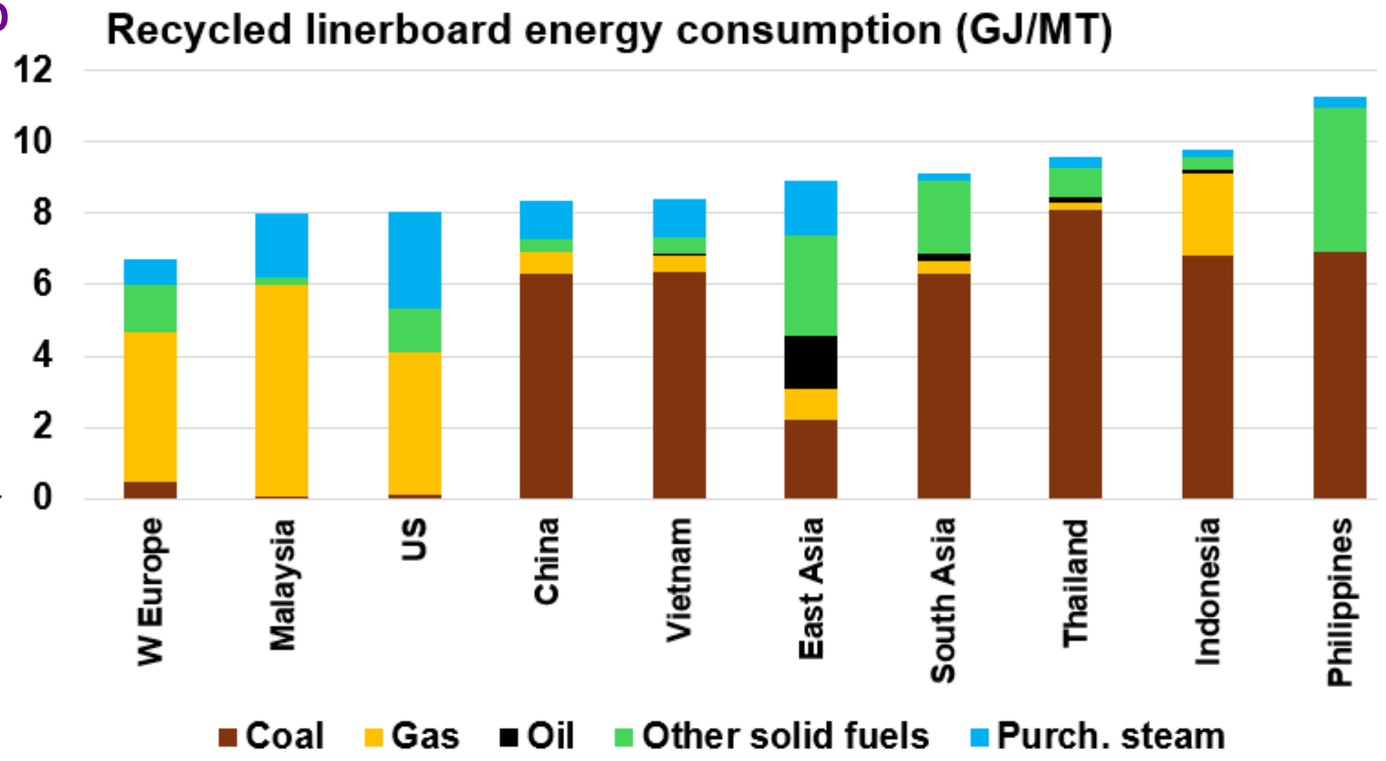



Source: Fastmarkets.

# Recycled linerboard total energy consumption is relatively stable while the average fuel mix varies significantly by region

## ASIA USES MORE COAL WHILE US AND EUROPE RELY ON GAS

- A mill's energy profile is affected by many factors: regional fuel and electricity costs, their availability, taxation, capex, regional policy etc.
- Recycled fiber-based mills do not have the advantage of "free fuels," such as black liquor or bark, which increases the need for purchased (fossil) fuels




Source: Fastmarkets

# Mill electricity and steam generation are directly linked to its fossil $CO_2$ emissions

## FOSSIL $CO_2$ EMISSION CATEGORIZATION BY GHG PROTOCOL

### Scope 1

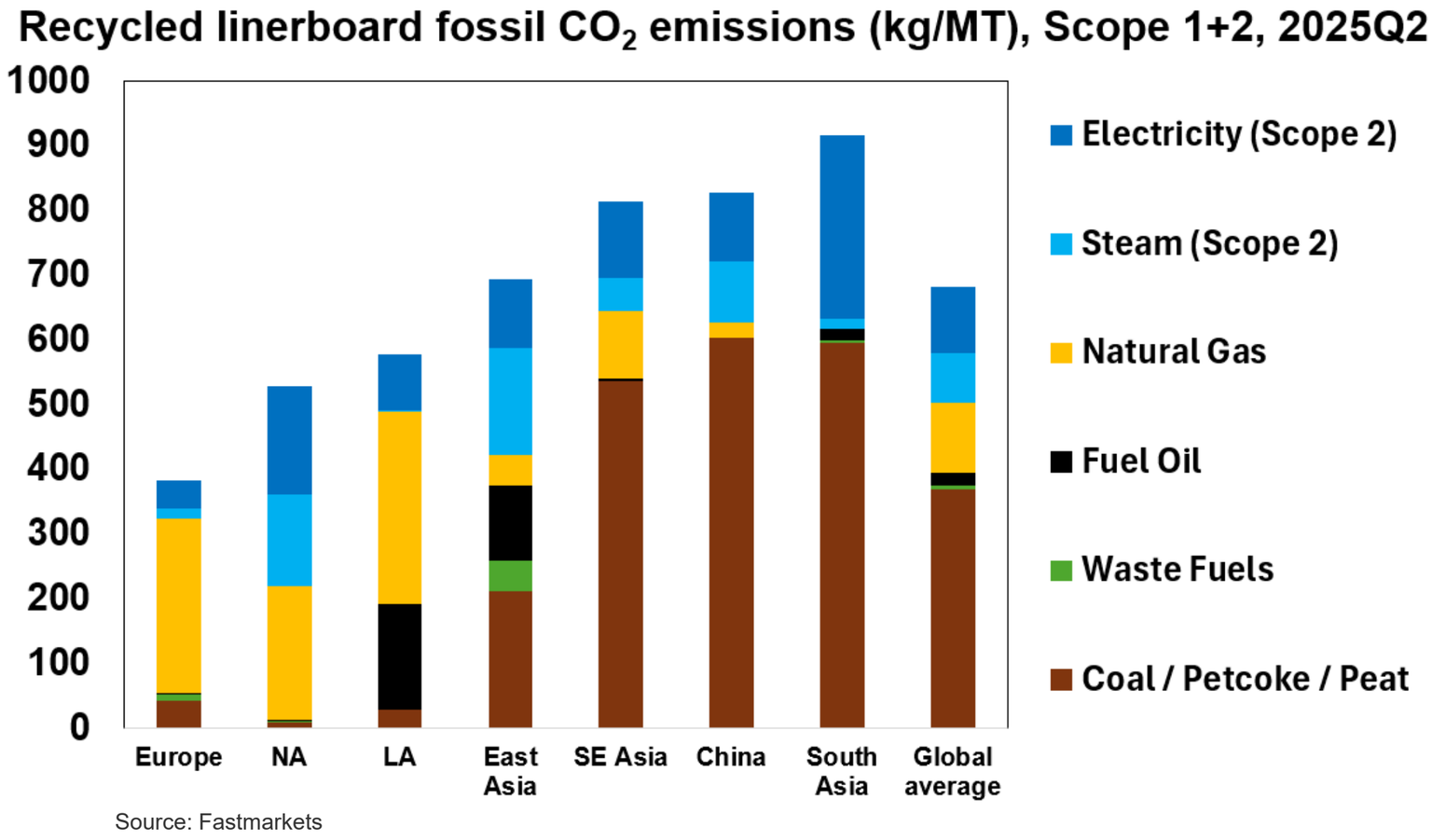
- Direct fossil $CO_2$ (or $CO_2e$) emissions owned or controlled by a company, essentially related to burning fuels at the mill

### Scope 2

- Indirect fossil $CO_2$ (or $CO_2e$) emissions related to externally purchased electricity and purchased steam

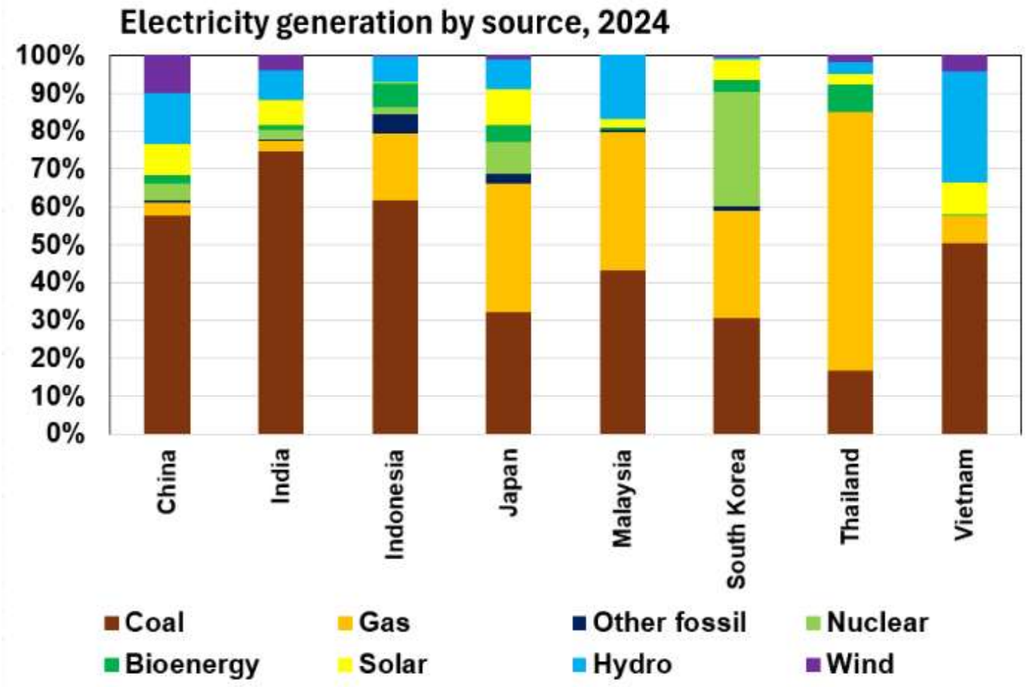
### Scope 3

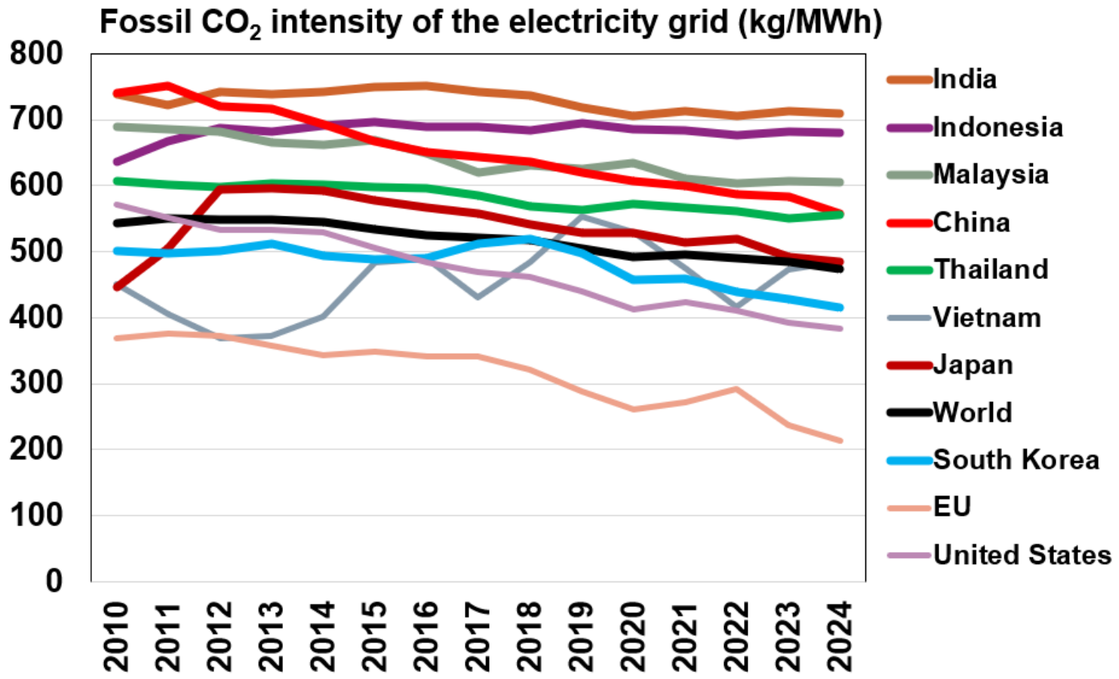
- All other indirect GHG emissions generated by a company's value chain, e.g., purchased fiber, chemicals, packaging, etc.




Source: Fastmarkets

# Many Asian countries have fossil $CO_2$ intensity above the world average due to high fossil fuel usage in electricity generation




Source: Ember Electricity Data Explorer, ember-energy.org

# Cost competitiveness and carbon footprint are important factors in evaluation of potential pulp and paper suppliers

## COST POSITION

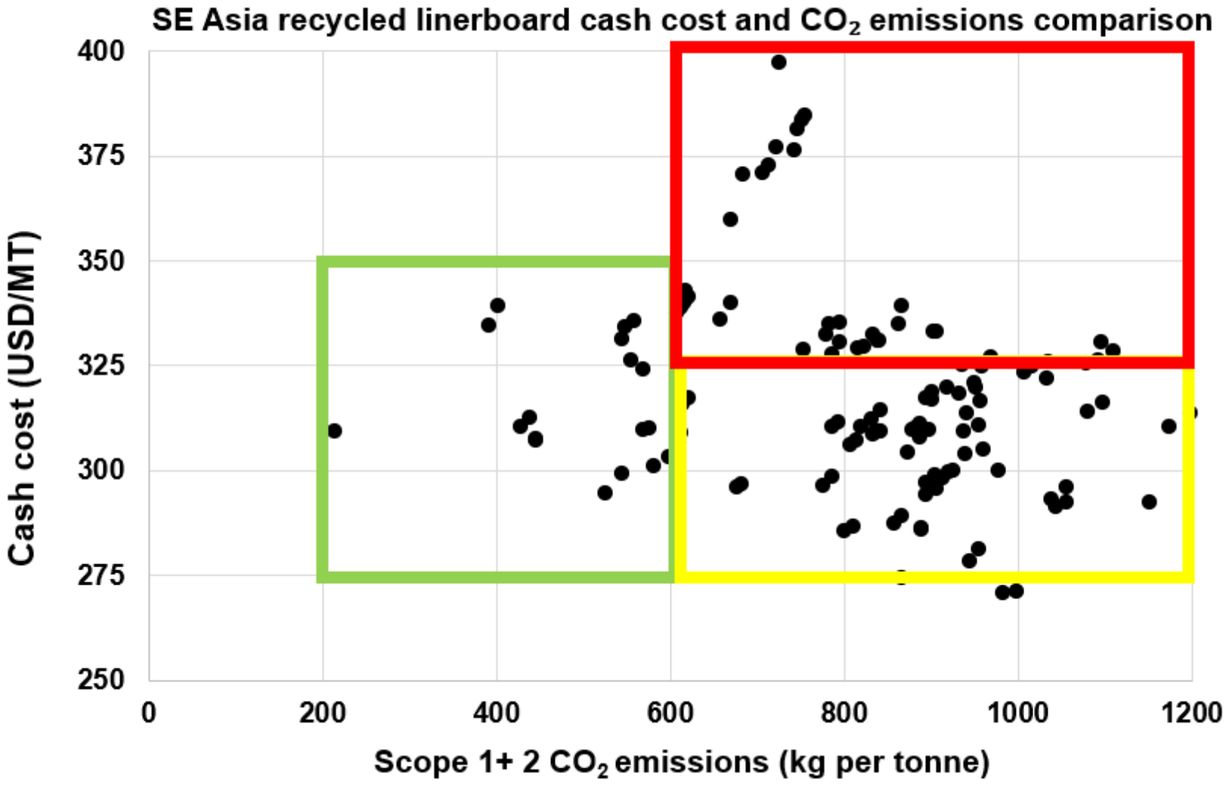
- Low-cost mills may not offer lower prices, but lower risk
- Low-cost mills are more likely to survive cyclicality
- Competitiveness often reflects being well-capitalized

## CARBON FOOTPRINT

- Could more biofuel usage be a solution for ASEAN mills' high carbon emissions?
- Fuel mix is the key to cut costs and Scope 1 emissions
- Scope 2 emissions significantly vary between regions

## CASH COST VS. $CO_2$ EMISSIONS MATRIX

- Matrix may help to decarbonize the supply chain
- Ideal suppliers have both low cost and emissions




Source: Fastmarkets

# Summary

## KEY TAKEAWAYS

- Asia continues to expand as the leading paper and board producing region
- Cost competitiveness varies across regions and products; Southeast Asia remains globally competitive
- Fiber and energy costs are the key drivers to monitor, as they can change rapidly
- High share of fossil fuels in both electricity generation and paper mill heating poses a challenge to reducing carbon intensity in Asia
- Low carbon footprint can be a competitive advantage

# Thank you for your attention!

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