



Printing and Writing Paper Grades: Opportunities and Threats from Emerging Markets

Presentation to PIMA

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Today's discussion

While demand for printing and writing papers is growing healthily on a global level, the **North American total demand growth is slowing, even if pockets of continued strong growth exist**

In a stagnating market with **increased pressure from capacity expansions in emerging markets**, the situation is becoming more challenging for North American producers. The effects have already been seen for coated finepaper and in the longer term might also be the case for uncoated finepaper

In this environment, North American producers need to **respond with multiple measures**

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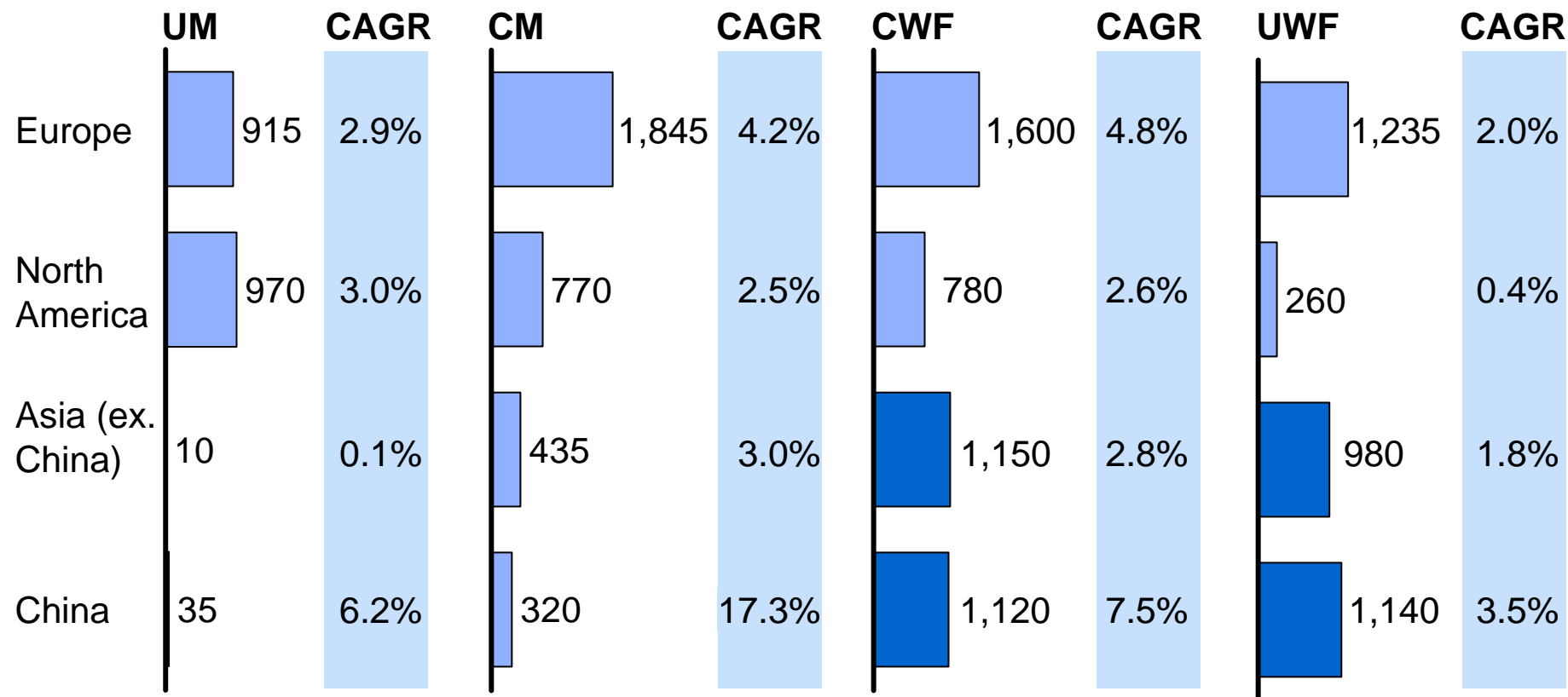
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Asia emerging as growth engine in printing and writing papers 2005–2010, particularly in woodfrees

Total growth in thousand tonnes



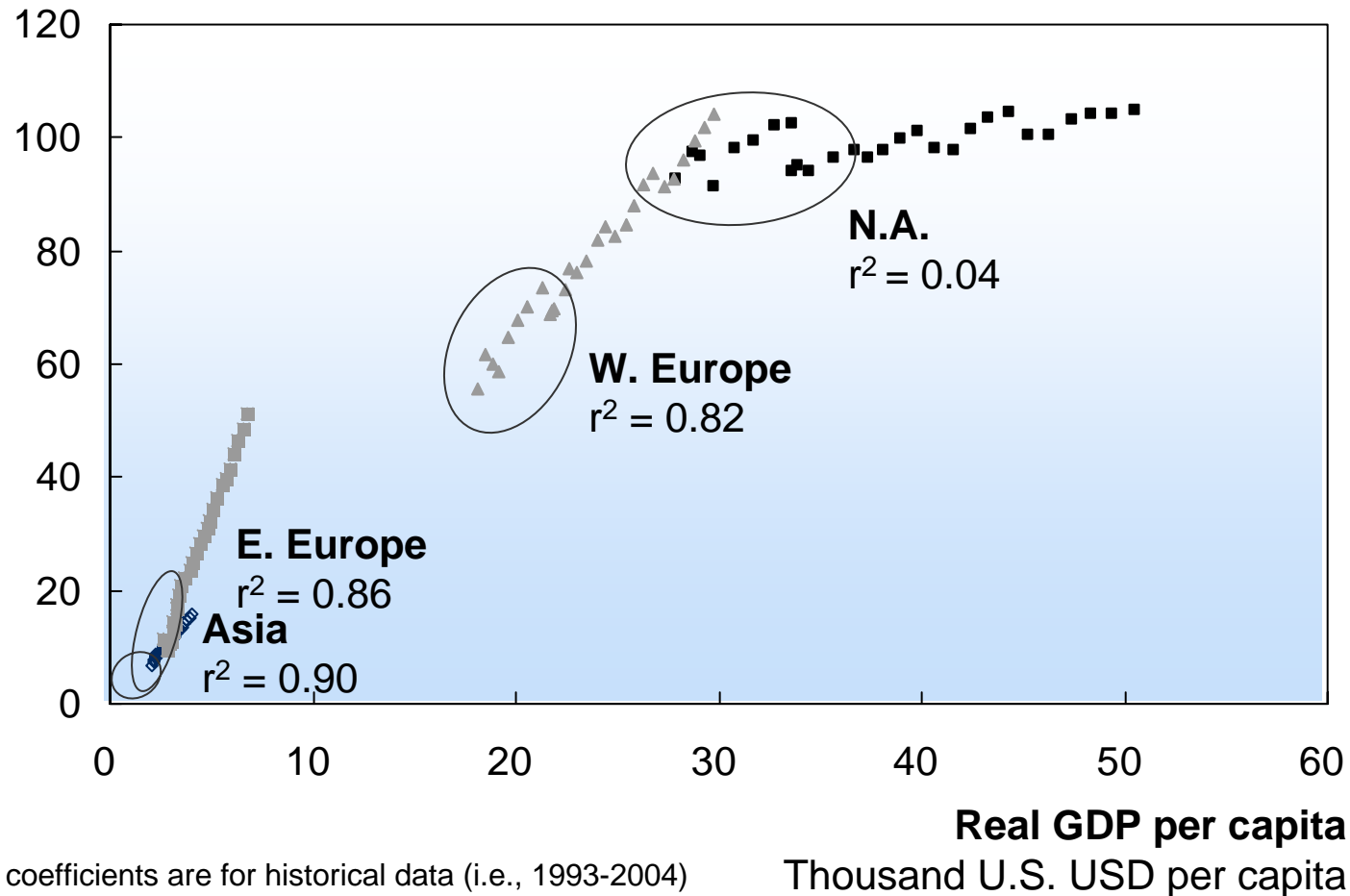
Printing and writing paper consumption correlated with GDP per capita except for maturing North America

Kg per capita, thousand USD per capita

○ 1993–2004
historic data

P&W apparent consumption, 1993–2020

Kg per capita



*Correlation coefficients are for historical data (i.e., 1993-2004)

Source: Global Insight; RISI; Team analysis

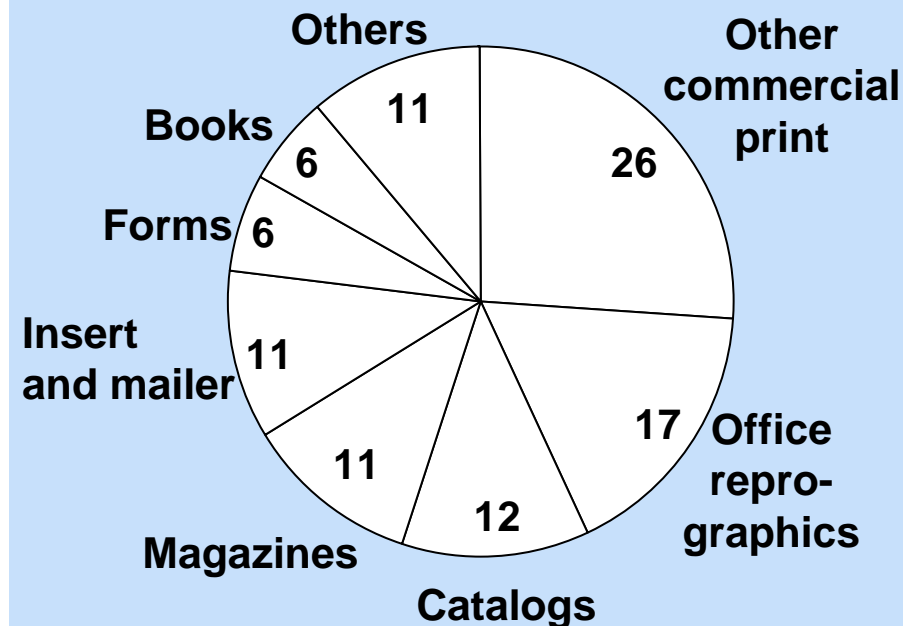
Printing and writing end use application and grade mix

Percent

NORTH AMERICA

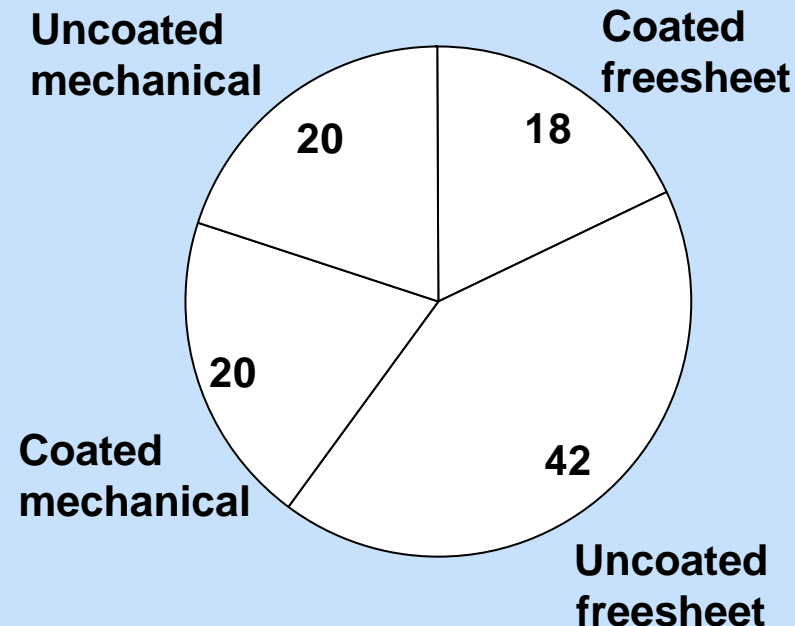
End use applications

100 = 31 million tons



Grade mix

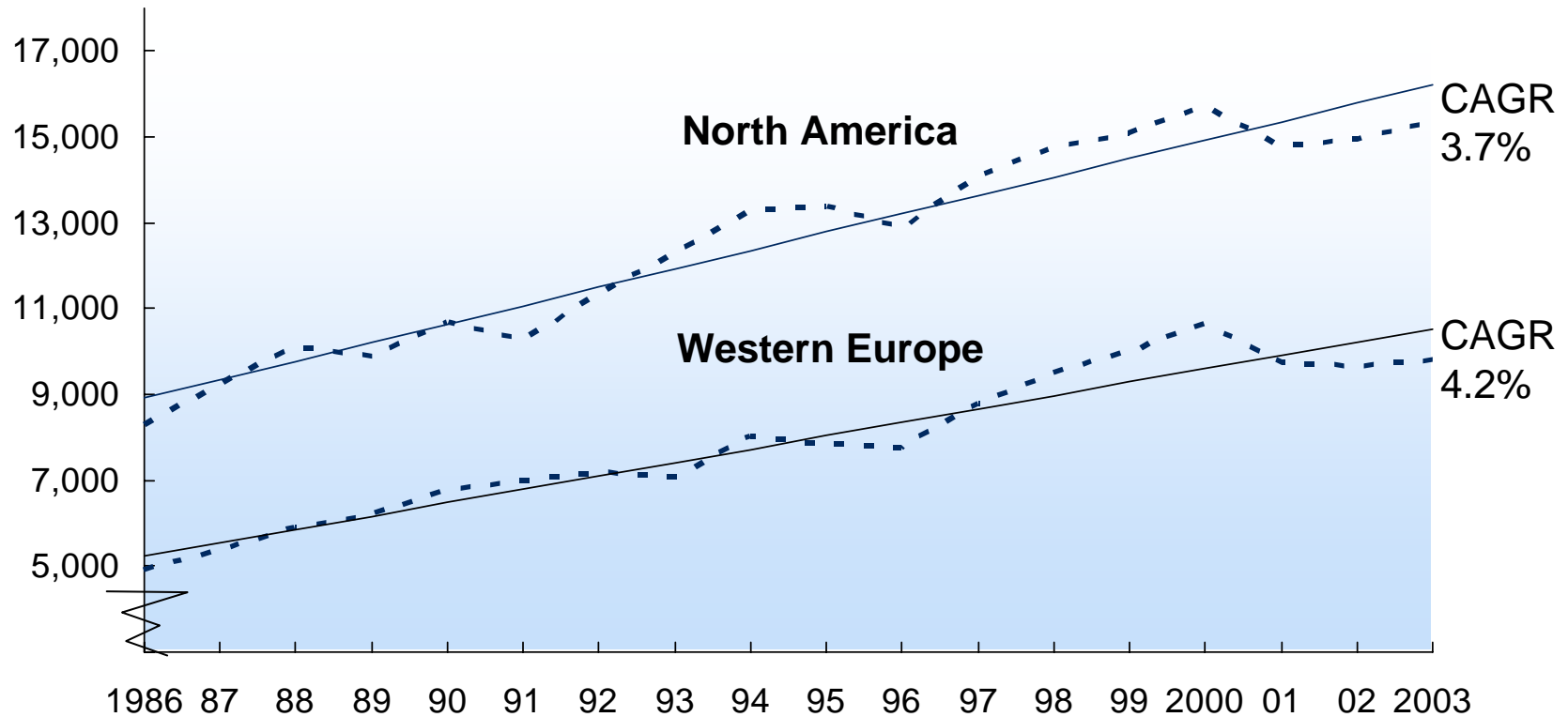
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Strong growth in the commercial print segment

Thousand metric tons, consumption in commercial print segment

— Trend line
- - - Actual

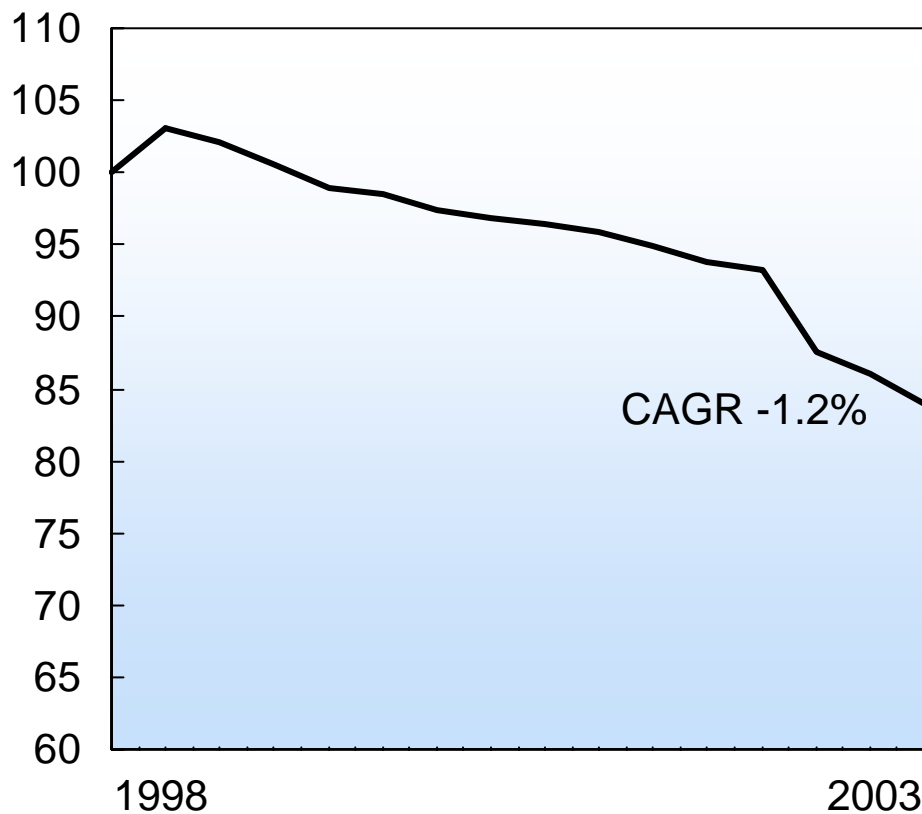


Declining magazine readership is only partly offset by population growth

NORTH AMERICA

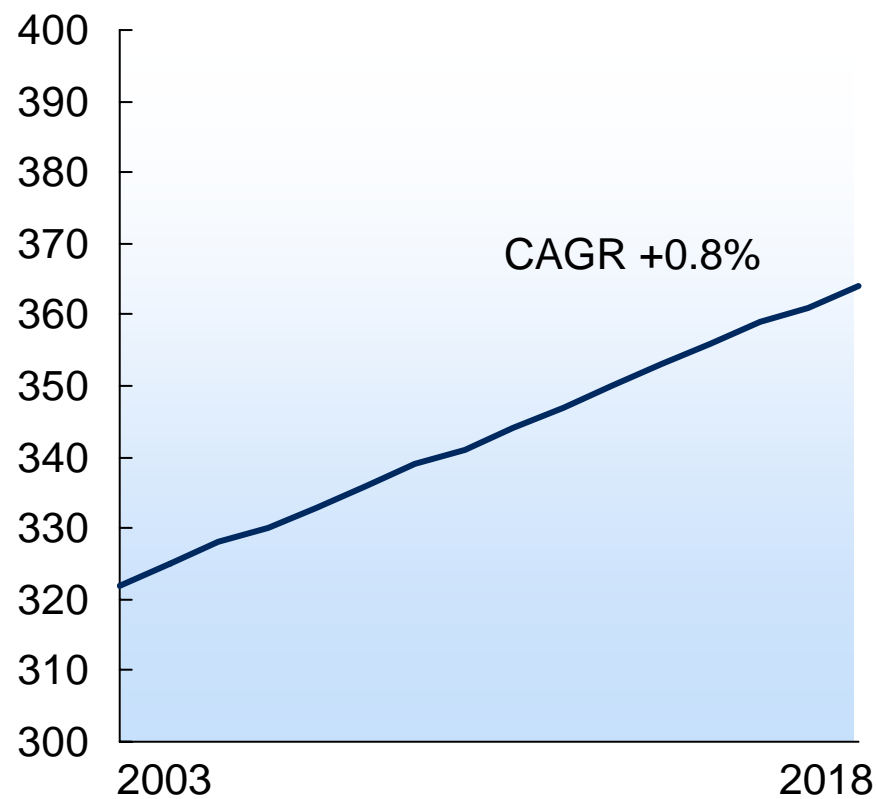
Copies per capita

Index, 1988 = 100



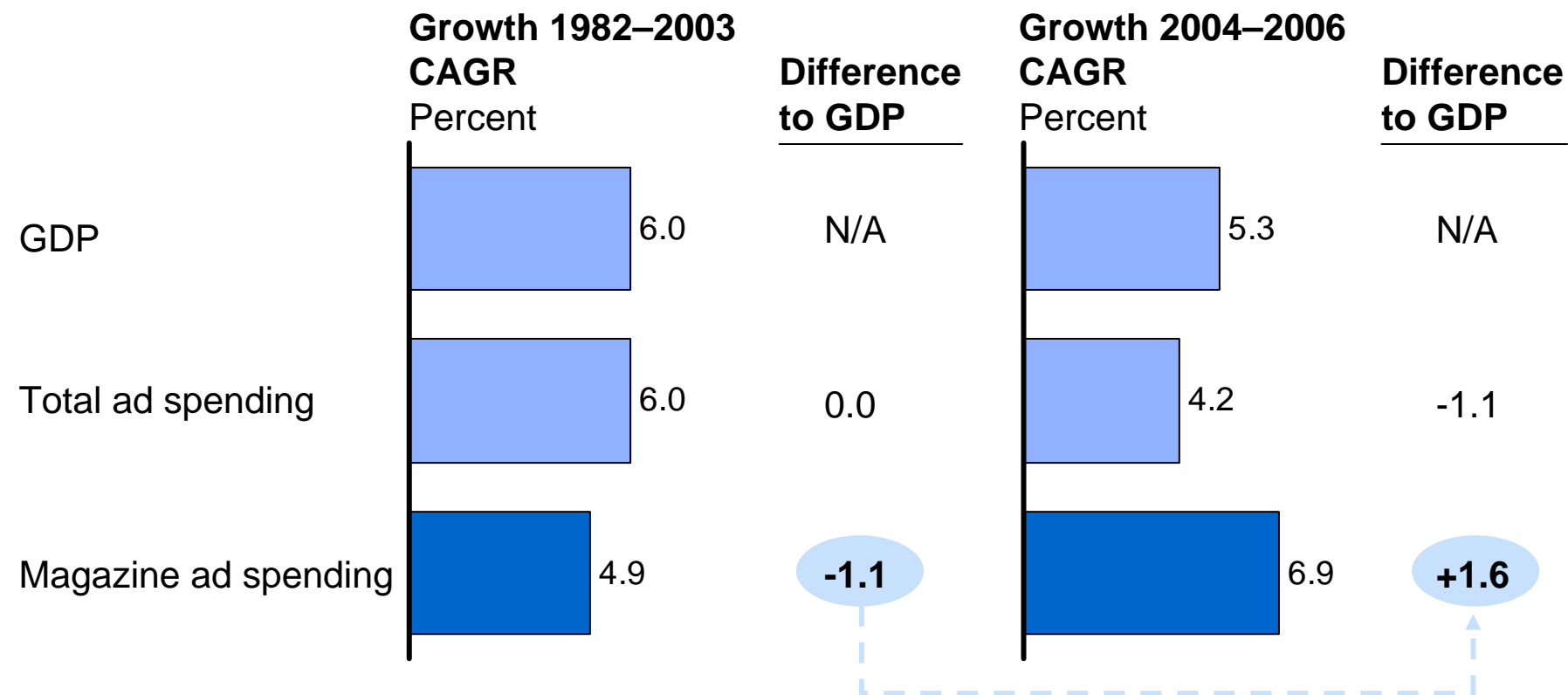
US population

Million inhabitants



However, modest magazine outlook supported by increased advertising spending, particularly in the short-term

NORTH AMERICA



* 1982–2003 US; 2004–06 North America

** Including newspaper, magazines, TV, Radio, Cinema, Outdoor, Internet

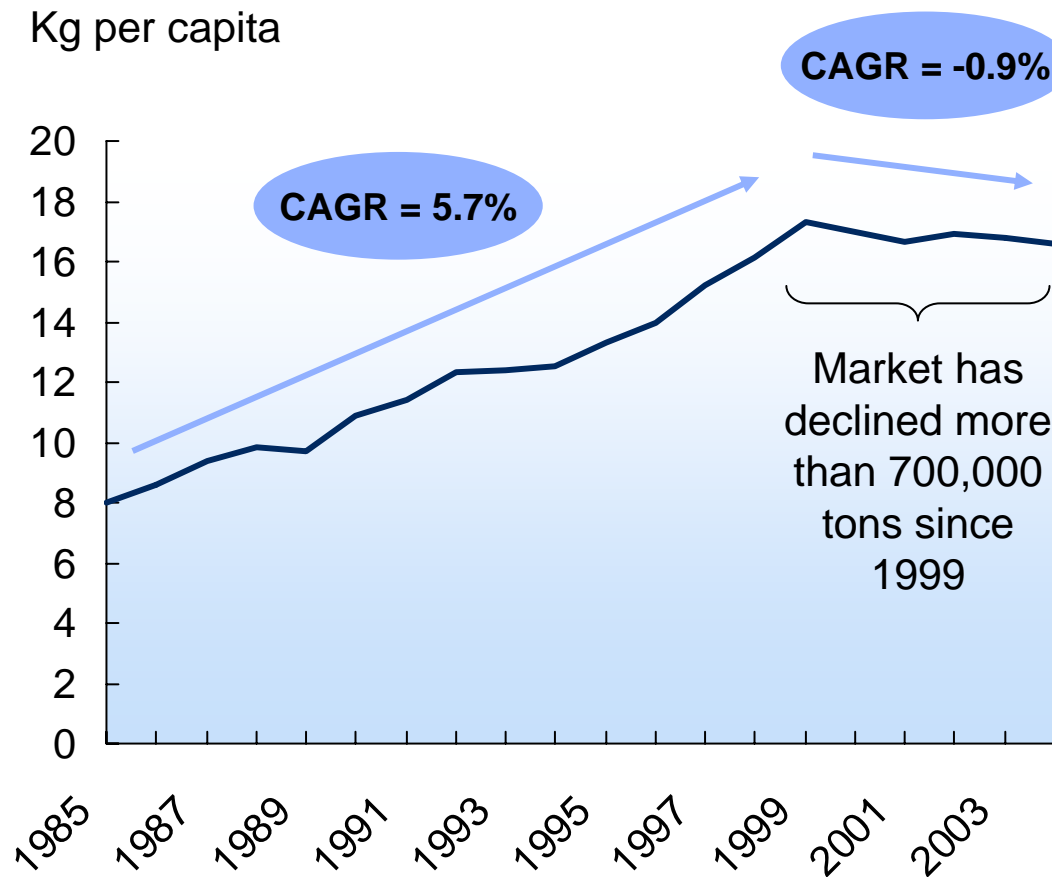
Source: Global Insight; US Bureau of Economics Analysis; Zenith Optimedia; McKinsey analysis

Office paper consumption peaked in 1999, and has been in decline since

Key trends impacting office paper demand

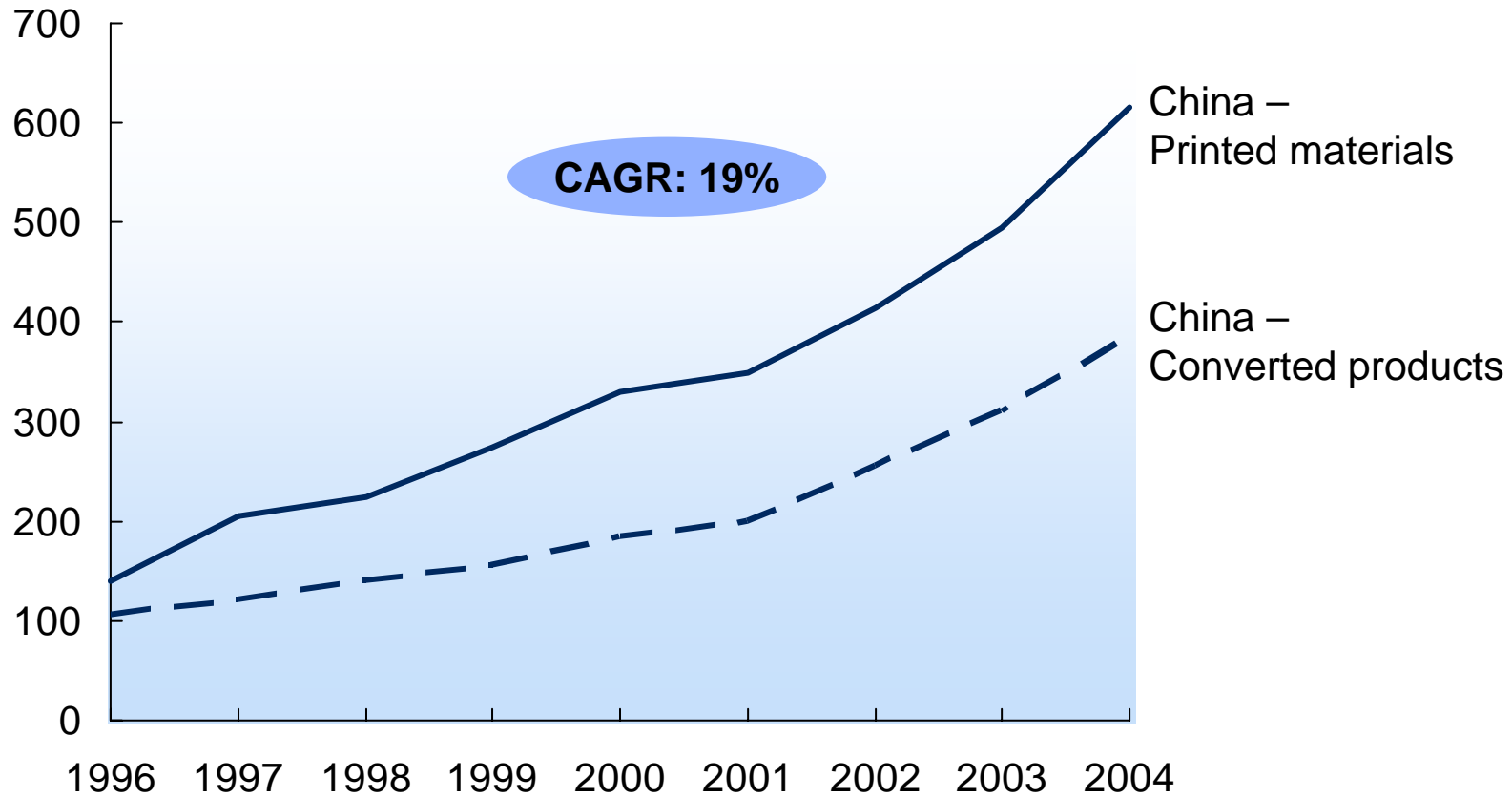
- Slowing employment growth in white collar, steady for blue collar
- Technology substitution (e.g. digital storage, electronic workflow, etc.)
- Changes in print technologies/ models (e.g. digital printing, controlled office networks, etc.)
- Substitute paper products (e.g. super bright mechanicals, etc.)

U.S. office paper consumption per capita Kg per capita



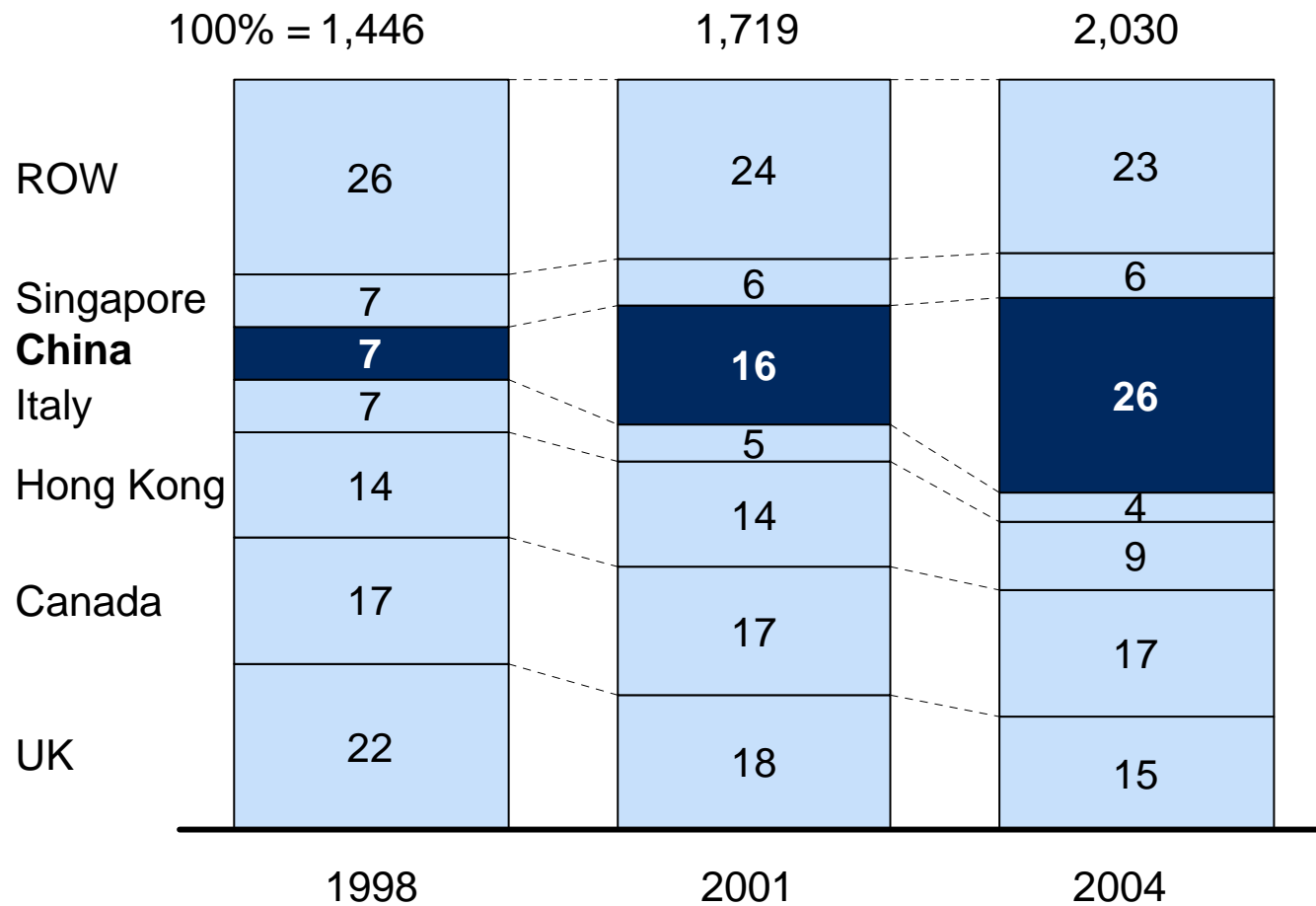
Asian export of *converted* UFS products (books, note pads etc.) reduces western demand for UFS in home market

Thousand tonnes



China is already a fast-growing producer of printed books for the U.S. market

U.S. book imports, country of origin; Percent; USD millions



* HTS 4901 (NAIC 323117): printed books, brochures, leaflets and similar printed matters

Source: U.S. International Trade Commission

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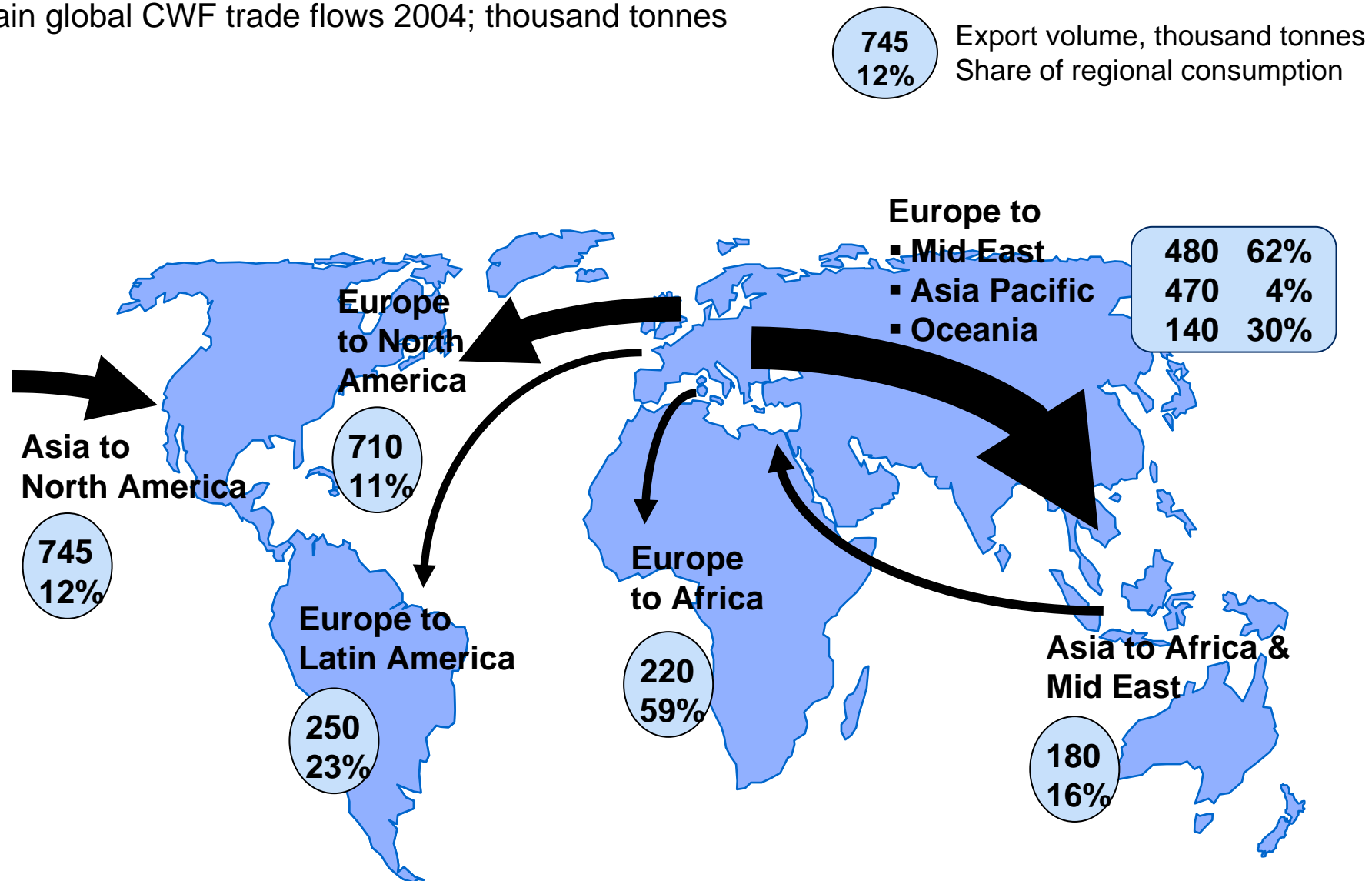
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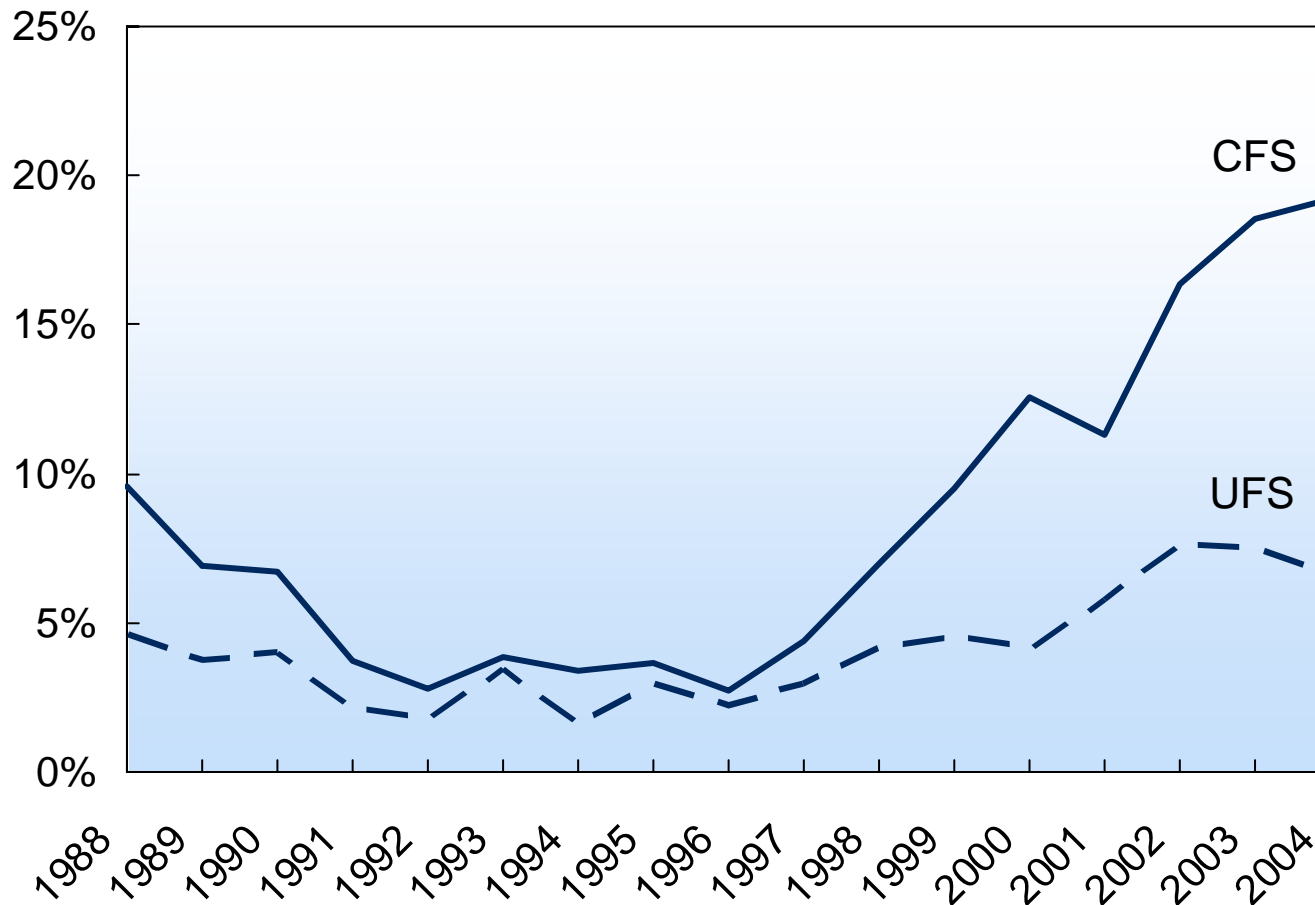
The CFS market is already global with significant trade flows

Main global CWF trade flows 2004; thousand tonnes



Imports share of the North American CFS market has increased significantly over the last years

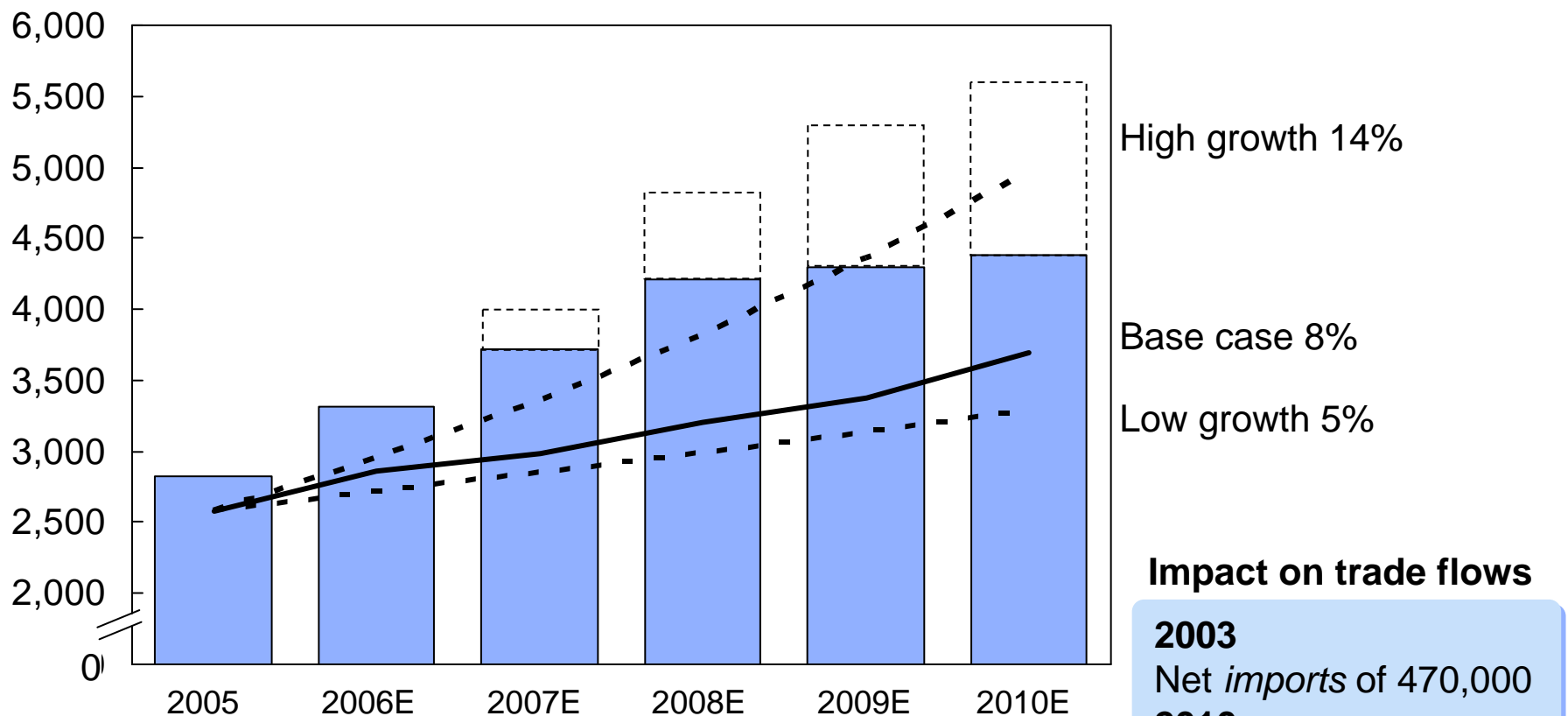
Overseas imports share of North American markets



China will develop overcapacity in CFS through rapid capacity expansion

Coated freesheet

Thousand tonnes



Impact on trade flows

2003

Net imports of 470,000

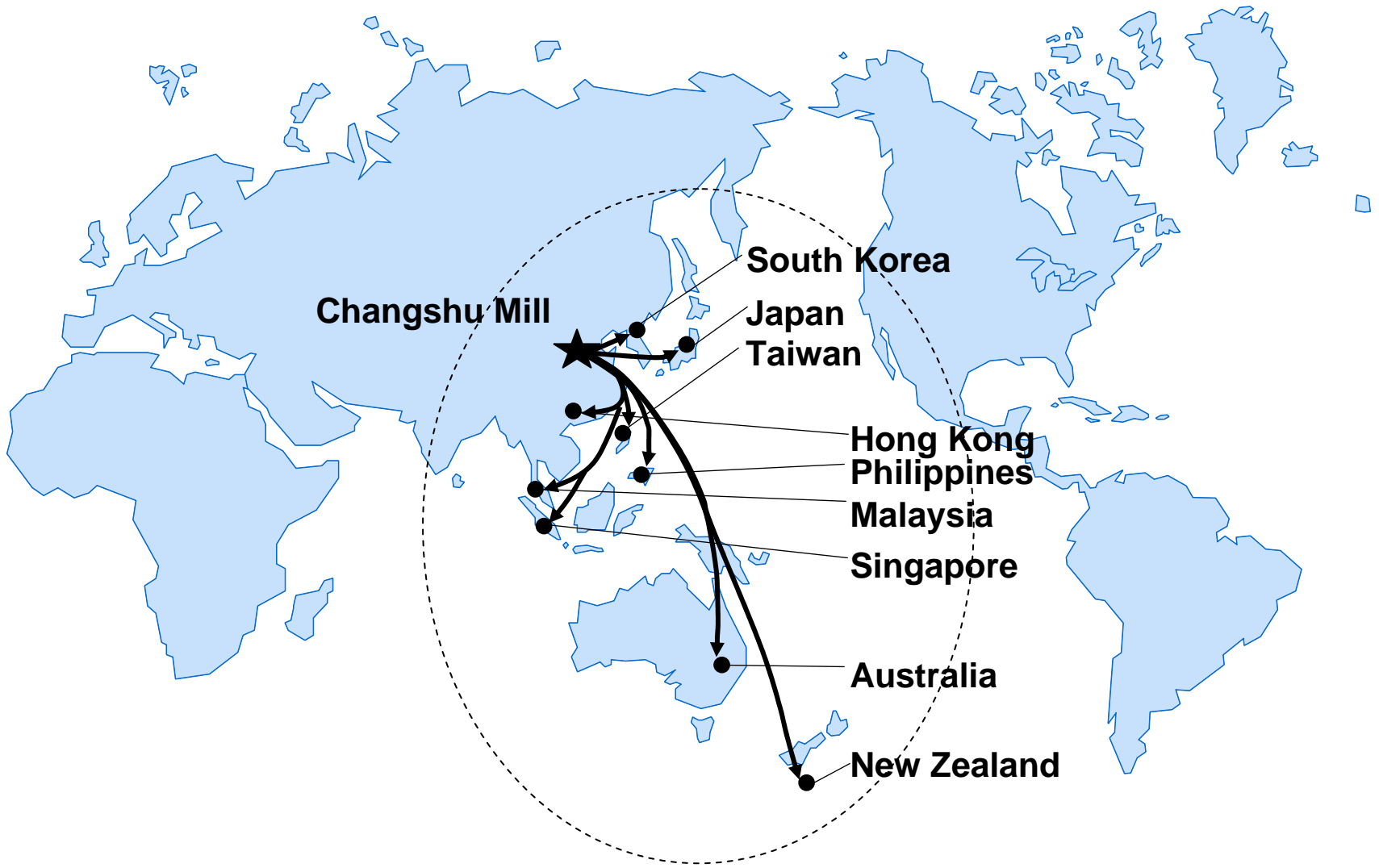
2010

Net exports of 680,000

New Chinese capacity will periodically seek new markets in anticipation of growing domestic market

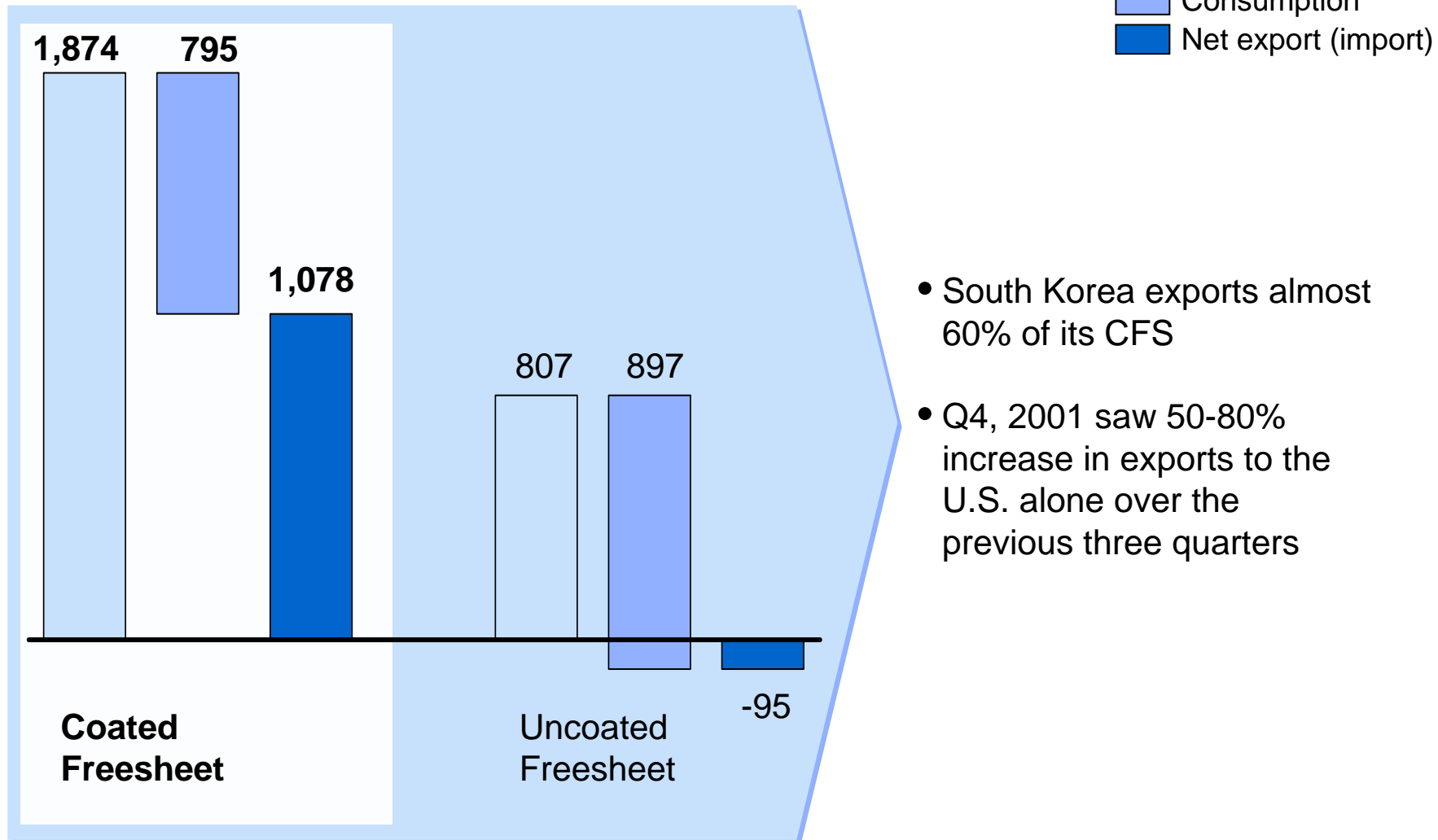
CHANGSHU EXAMPLE

○ Main export area



South Korea's exported overcapacity in CFS will be key to future global trade flows

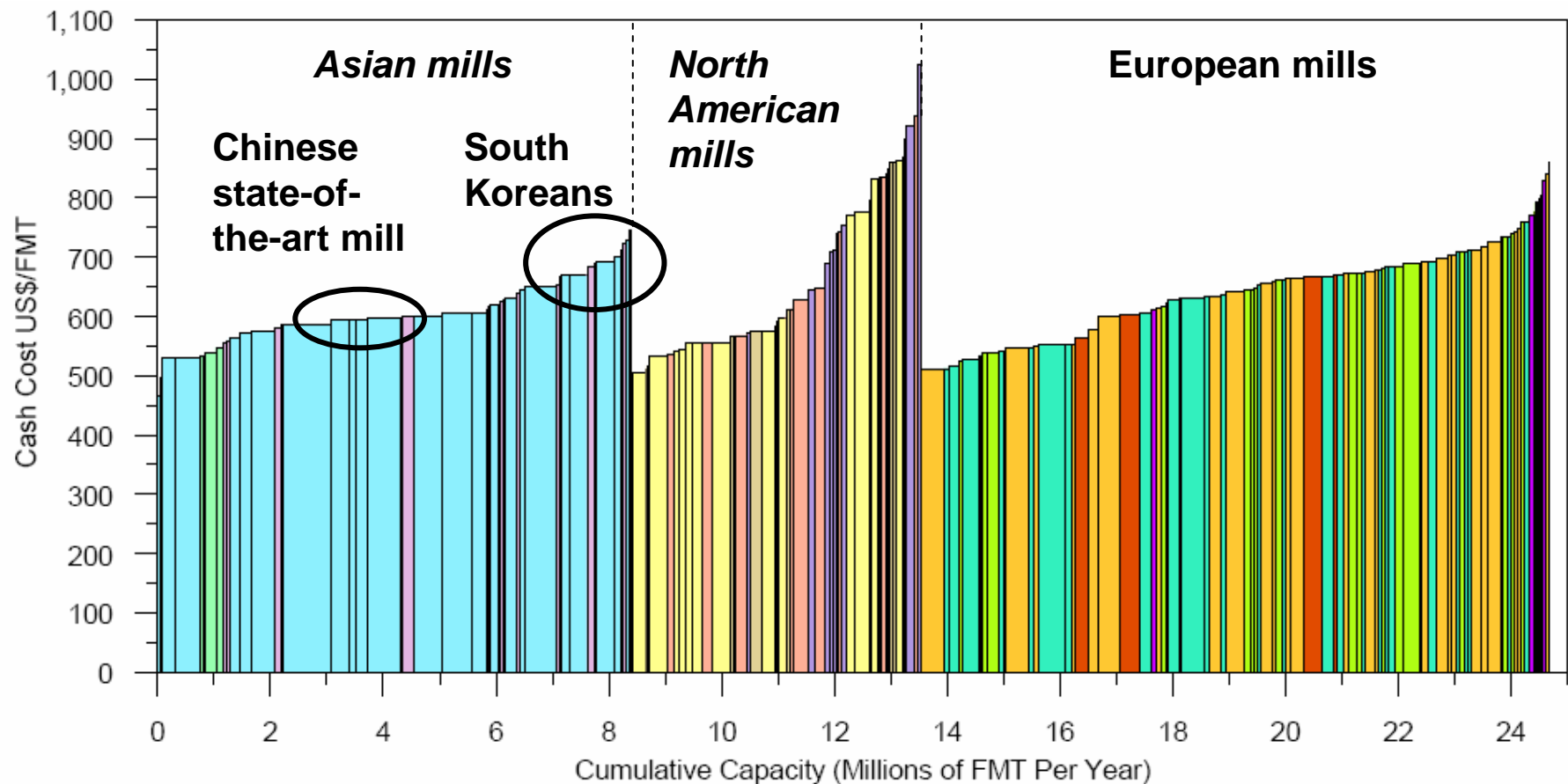
South Korean production and consumption – 2005; Thousand tonnes



- South Korea exports almost 60% of its CFS
- Q4, 2001 saw 50-80% increase in exports to the U.S. alone over the previous three quarters

South Koreans are the global marginal producers setting the price to the detriment of high cost North American assets

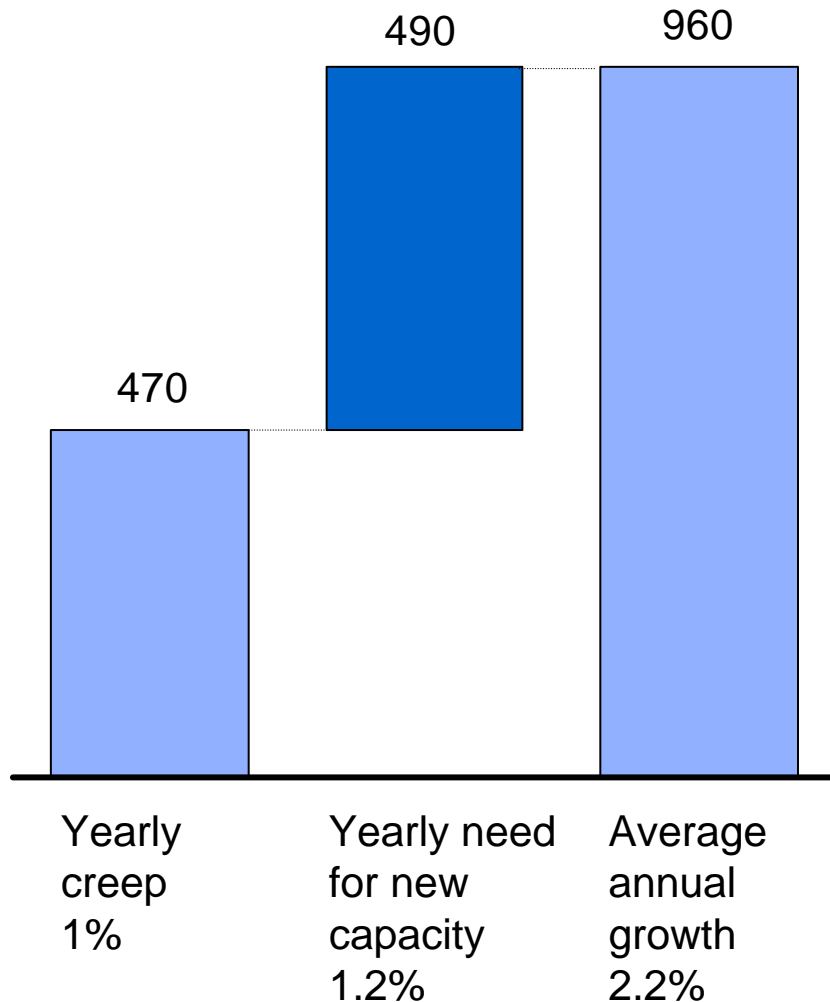
Cash manufacturing cost CWF



Currently, UFS producers build new capacity gradually, keeping current fragile supply and demand balance

Demand growth and new capacity 2004-08; Thousand tonnes

GLOBAL UFS



Major UFS expansions 2005-11

UPM	China	450,000 t	2005
Portucel	Portugal	500,000 t	2008
Oji	China	600,000 t	2009-11

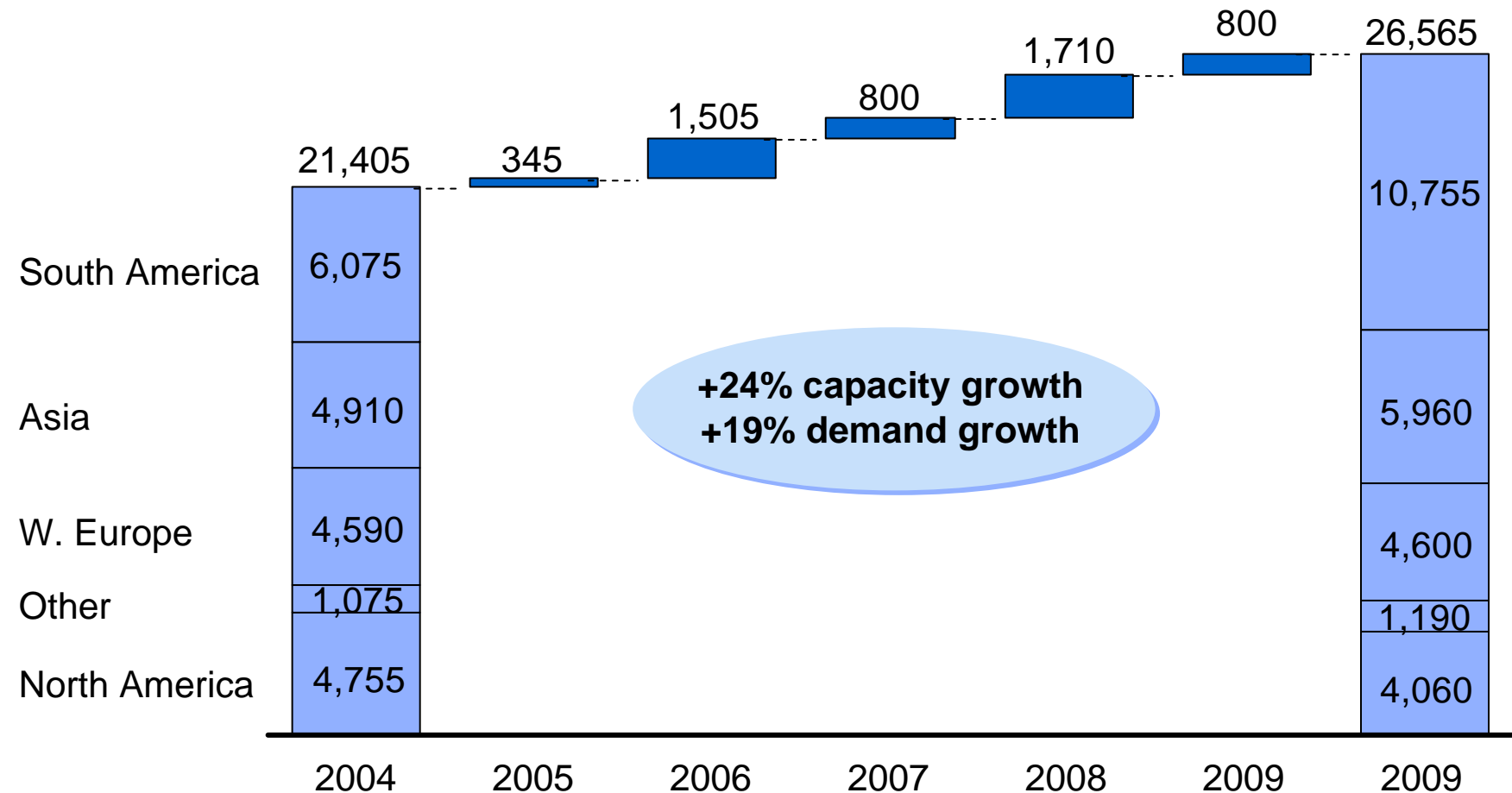
Potential new capacity 2005-08

VCP	Brazil	450,000 t	?
IP	Brazil	450,000 t	?
Stora Enso	Brazil	450,000 t	???

Current expansion of pulp capacity could be the seed for future dynamic changes within freesheet

Net expansions of existing and new pulp mills 2004-2009; Thousand tonnes

HARDWOOD



Note: Capacity withdrawals are also included in the total sums per year

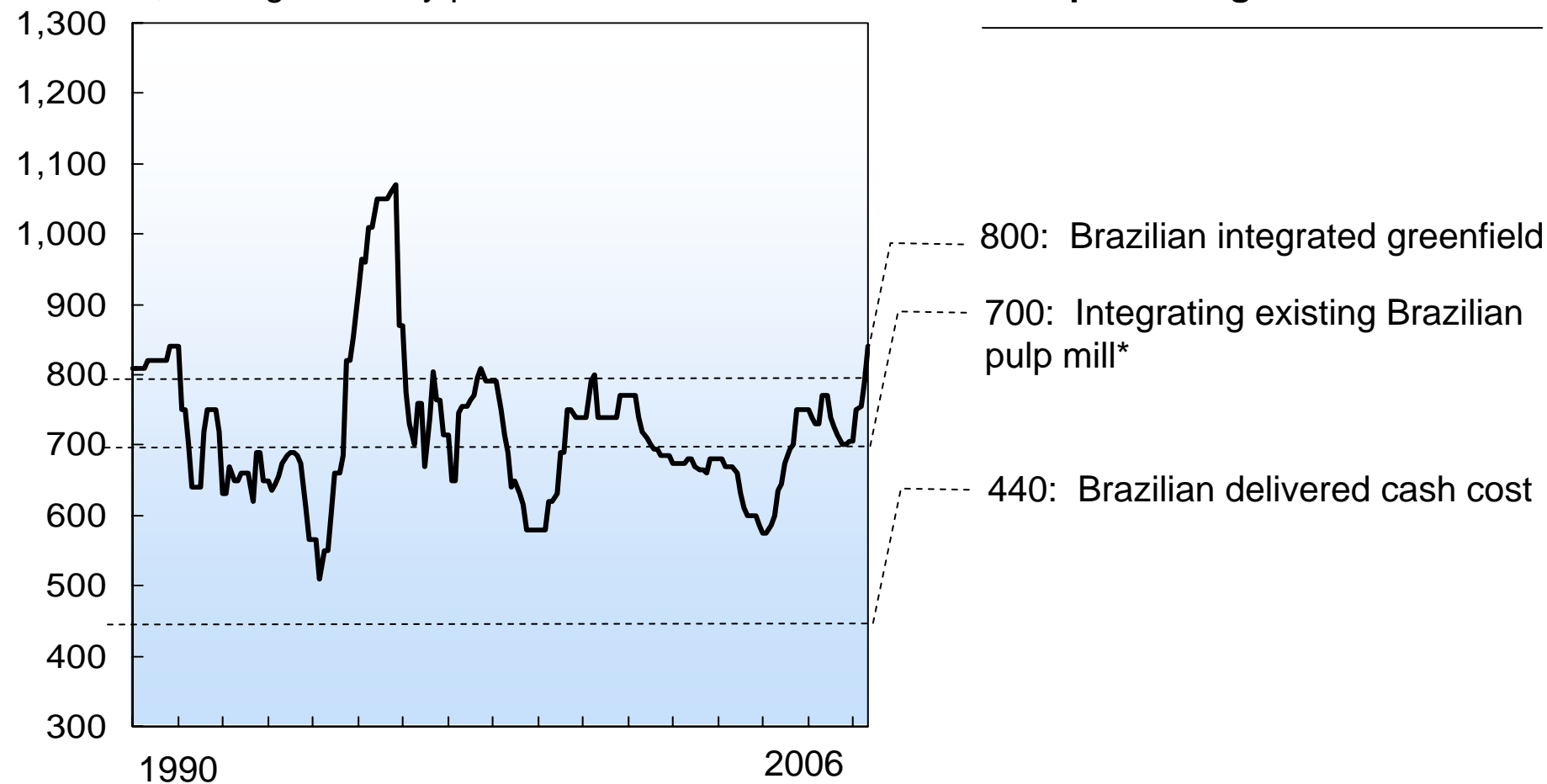
Source: Hawkins Wright; team analysis

Current prices make Brazilian UFS investments attractive

EXAMPLE

Uncoated woodfree reels 70g/50lb, US East
USD/ton, average monthly price

**Full cost incl. shipping and
all capital charges 2005 Q4**



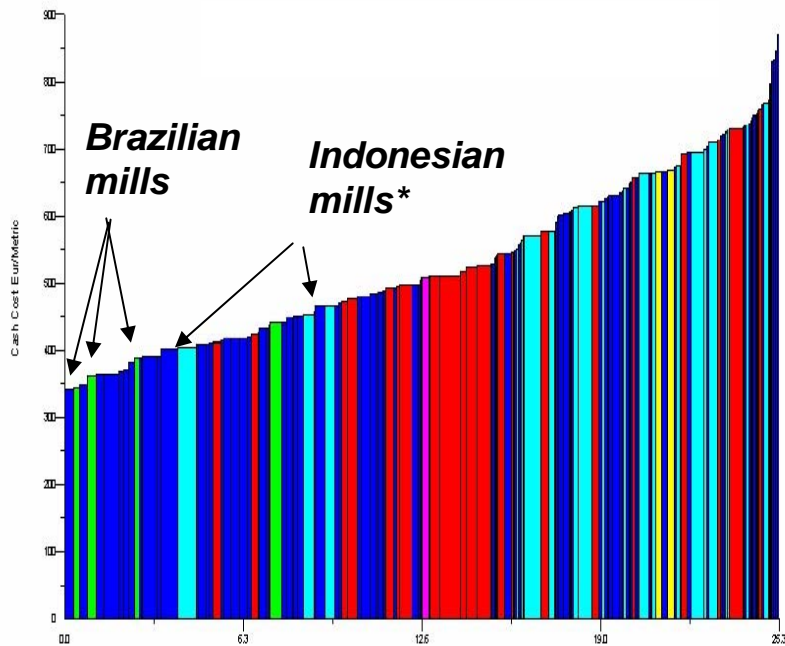
* Cash cost for integrated unit adjusted to ensure capital cost for existing pulp mill is covered

Source: RISI, McKinsey Analysis, IP

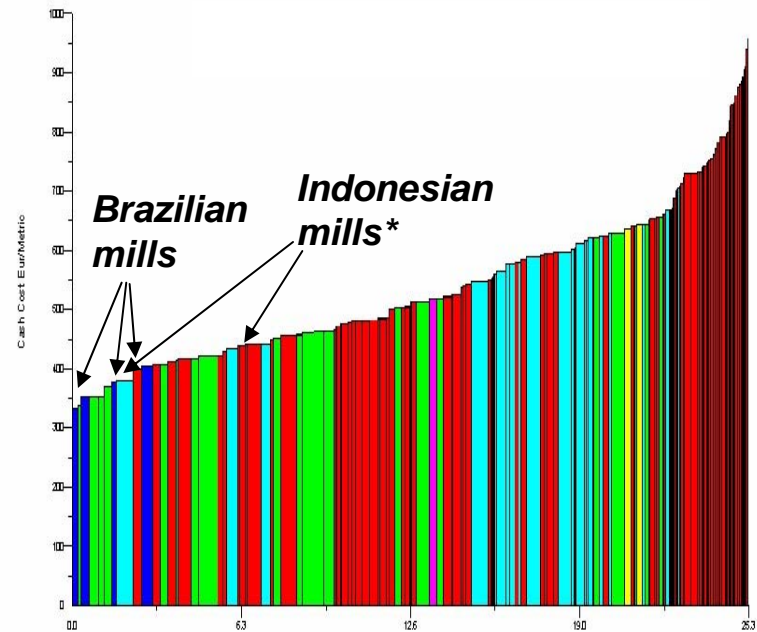
Brazilian and Indonesian mills will be well positioned to export to major markets

UNCOATED WOODFREE

Cash Cost – delivered Chicago
EUR/tonnes



Cash Cost – delivered Frankfurt
EUR/tonnes



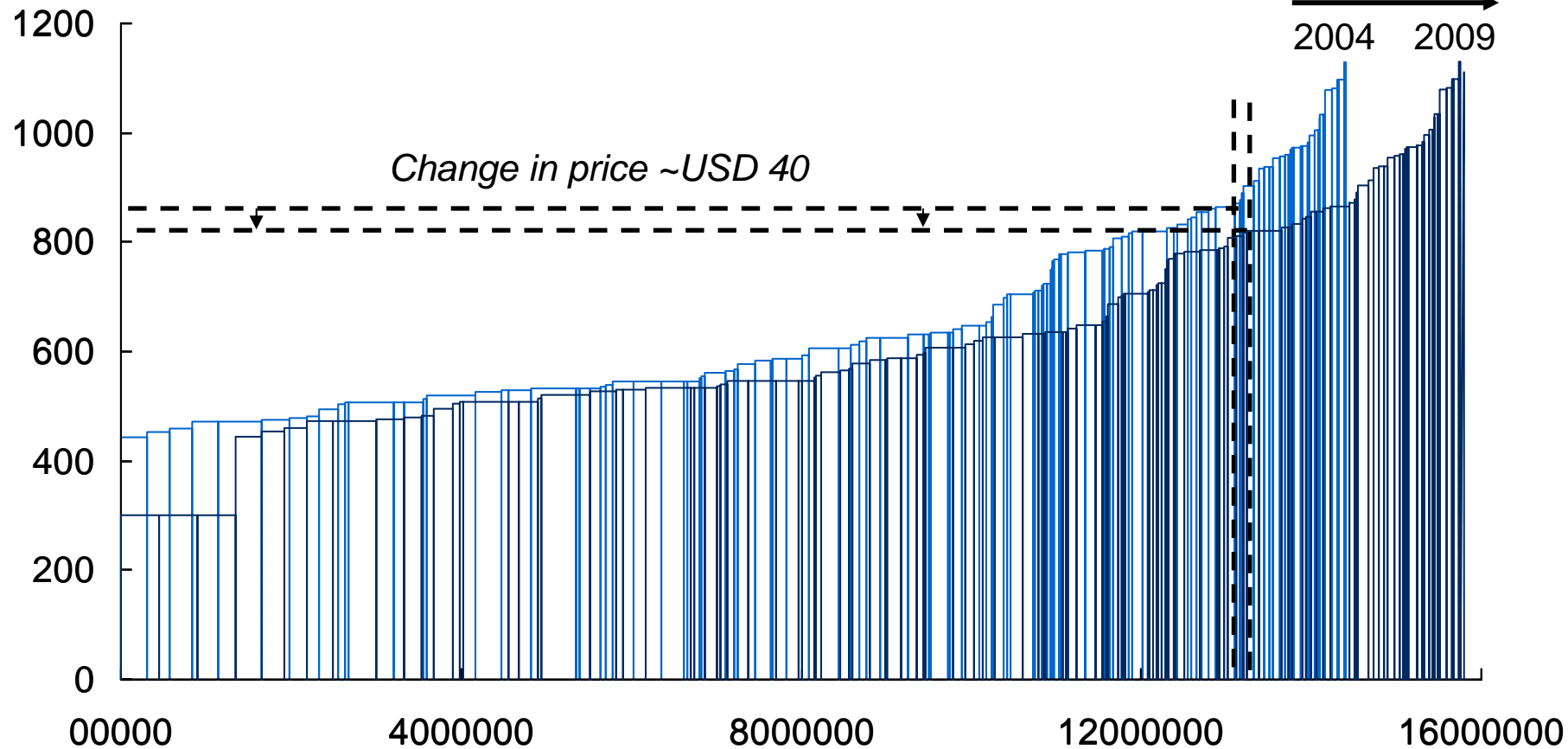
* Integrated mills

A rapid capacity expansion could easily push down prices, increasing restructuring need

NORTH AMERICAN UFS MARKET

Cash cost

USD/metric tonne



*All capacity in 2004 increased with yearly creep of 0.5%, including IP's Tres Lagoas mill and announced shutdown of two US mills and assuming two more new machines, 450,000 tonnes each, are built in Brazil for the North American market

**Capacity
Tonnes**

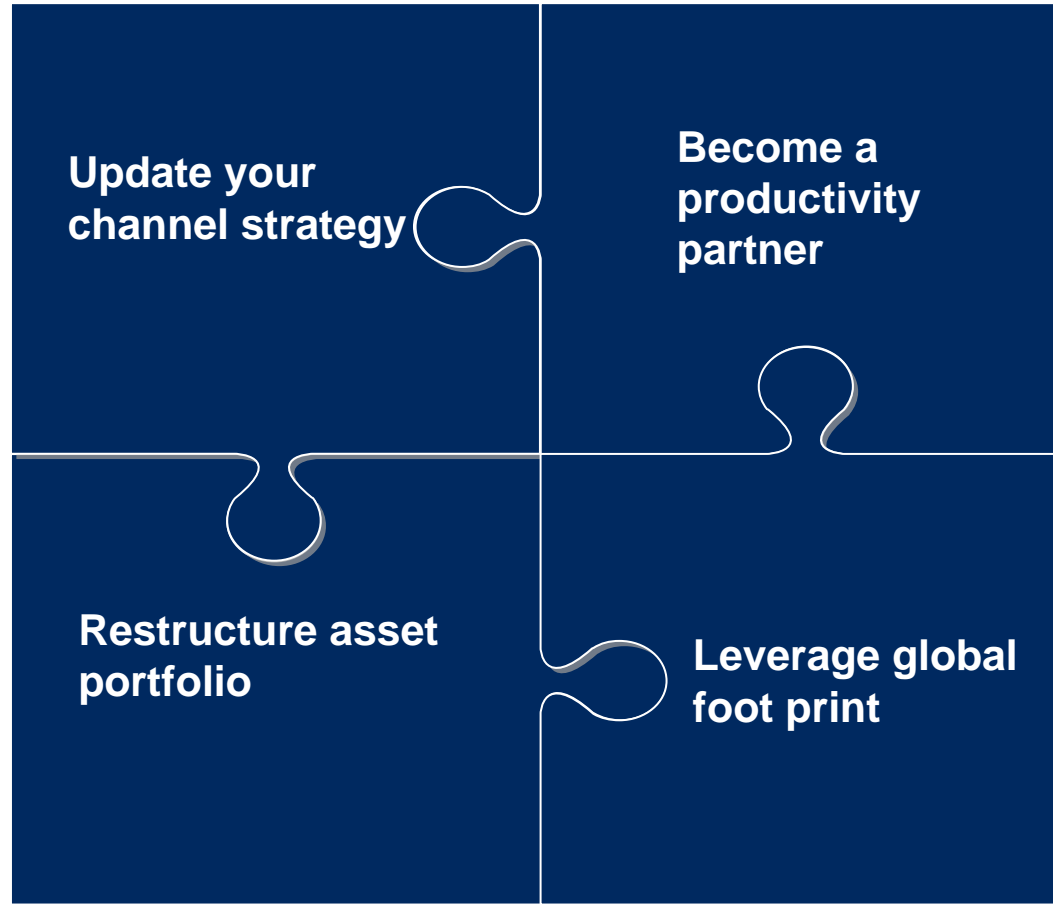
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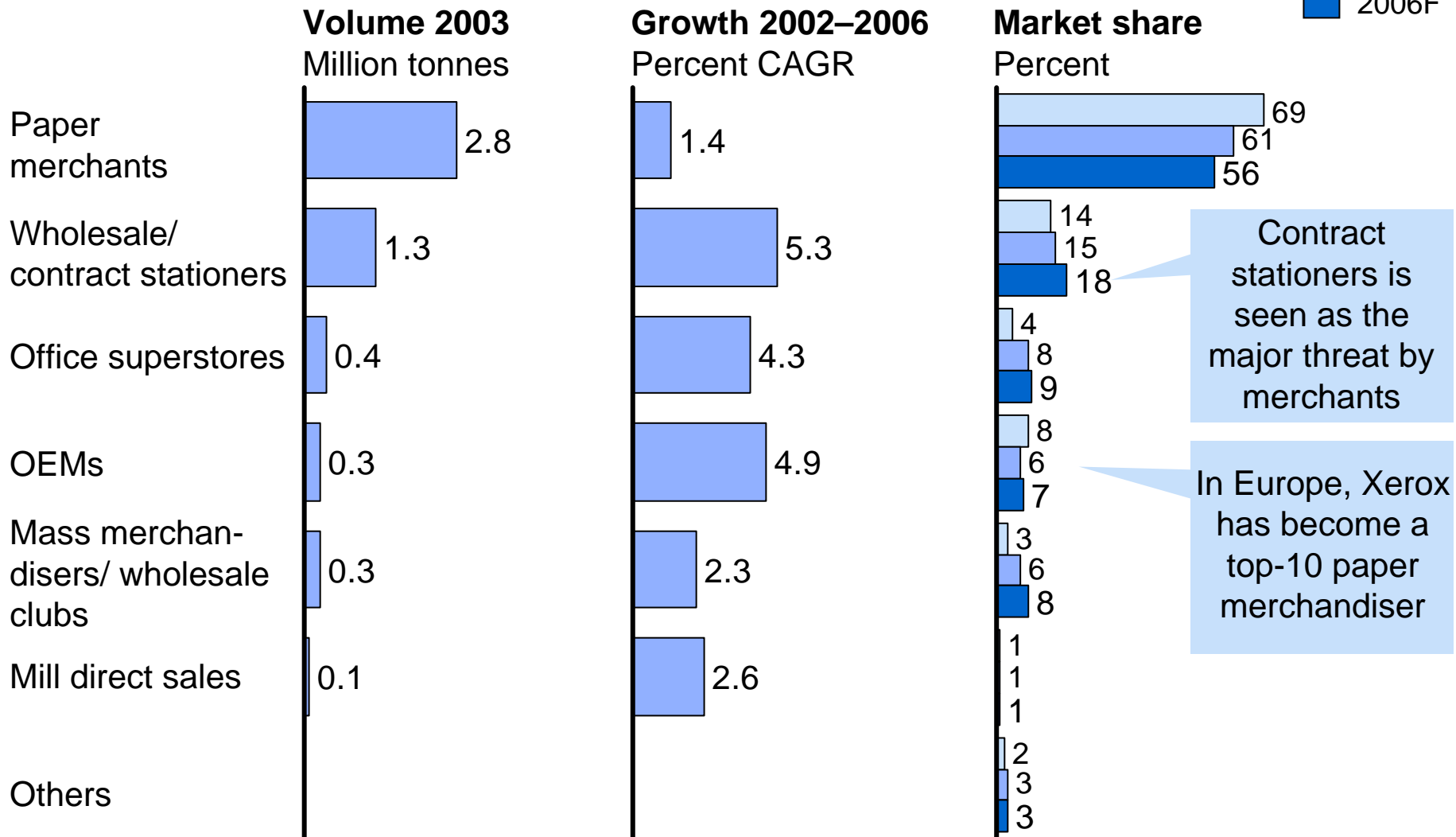
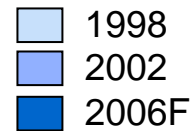
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NA producers need to respond with multiple measures



Other distribution channels grow at the expense of traditional merchants

US office paper example



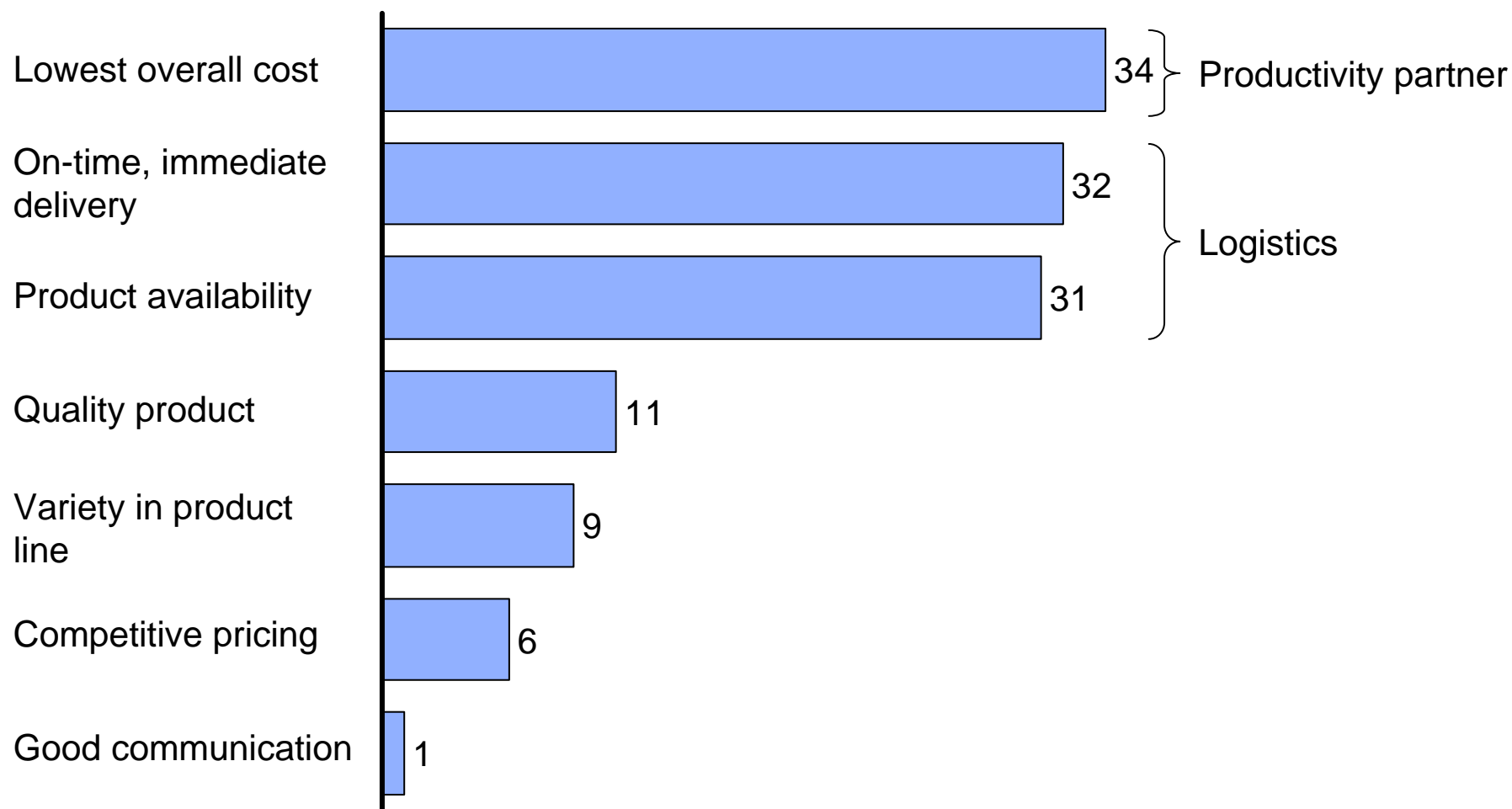
* 1.1 million tonnes through contract stationers, 0.2 through wholesale (same growth)

** 1998 statistics do not include all channels, this year have estimate figures from the total 9% for "others"

Source: Lyra cut-sheet paper market analysis; AF&PA; McKinsey analysis

Commercial printers focuses on lowering overall cost, therefore, there is an opportunity to be a productivity partner

% of 370 interviewees giving highest rank



* Total interviews – 370

Source: The HR Chally Group; team analysis

The improvement opportunity is significant in the coated freesheet value chain

EXAMPLE

**Total
improvement
% of CFS price**

	Description	What if?		
1	Reduction of waste at printer	<ul style="list-style-type: none"> • 25% of paper is being wasted due to Web breaks, changeovers, washes, adjustments, trimming, and scrap 	Waste reduced by 50%	~10-20
2	Reduction of product range complexity	<ul style="list-style-type: none"> • Excessive SKUs due to new paper grade development, decentralized decision making and numerous reel widths • SKUs drive large safety stocks, long lead times and increase the number of changeovers 	Number of SKUs cut by 50%	~5-10
3	Optimization of basis weight	<ul style="list-style-type: none"> • Improved paper properties and production technology have enabled the use of lower basis weight papers • Clear opportunity to save in paper and mailing costs 	Basis weight reduced by 10%	~5-10

* Partly overlapping standalone improvements

Pulp & Paper companies are restructuring continuously to address deteriorating prices and margins

EXAMPLES

Profitability improvements

Estimated savings

EUR millions

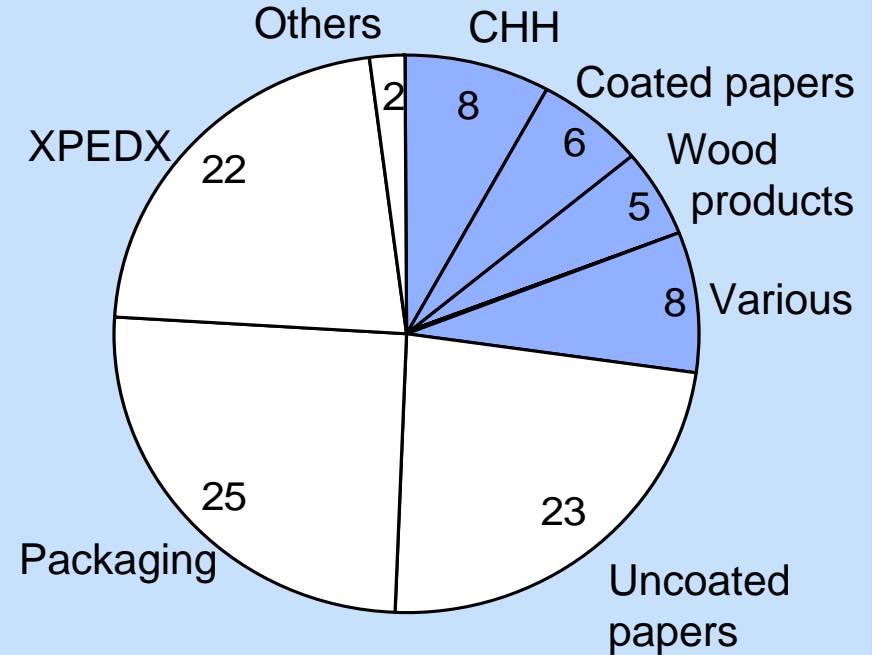
Stora Enso	300+	• European profit improvement plan
	150+	• North American profit enhancement plans 1 & 2
SCA	165	• Improvement program
Norske Skog	n/a	• Asset restructuring
	250	• 2003 improvement program
M-Real	200	• 2004-2006 imp. Program
	205+	• 2001-2003 imp. program
IP	400	• Profit improvement initiative

Company restructuring

IP

100%= 27.5 USD billions

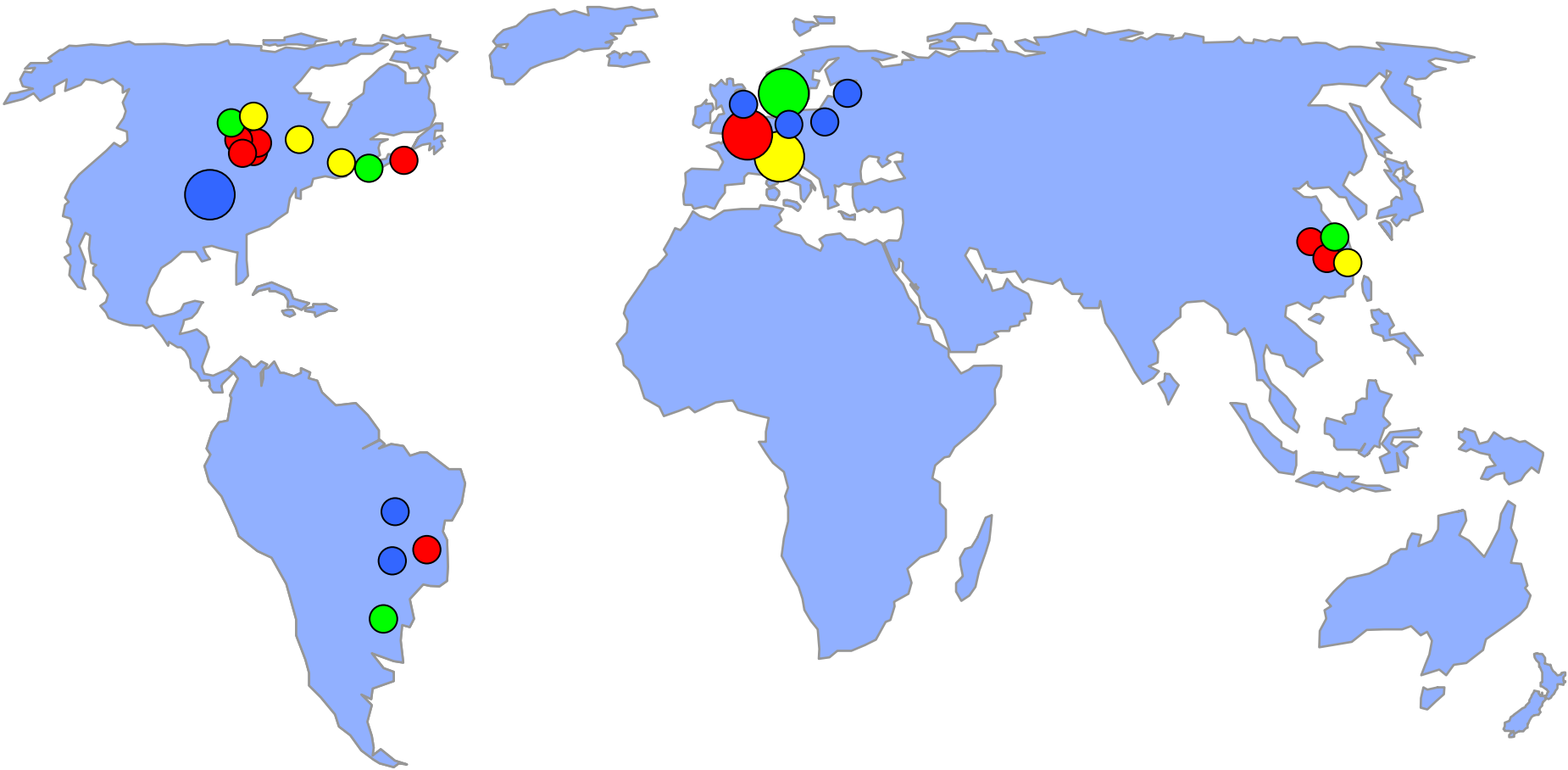
For sale



Major companies are increasingly global in paper production and fiber sourcing

Printing and writing paper mills and eucalyptus pulp mills

○ Home market
○ Overseas mills



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