



Forest Product Price Drivers

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FAO/UNECE Working Party
Forest Economics and Statistics
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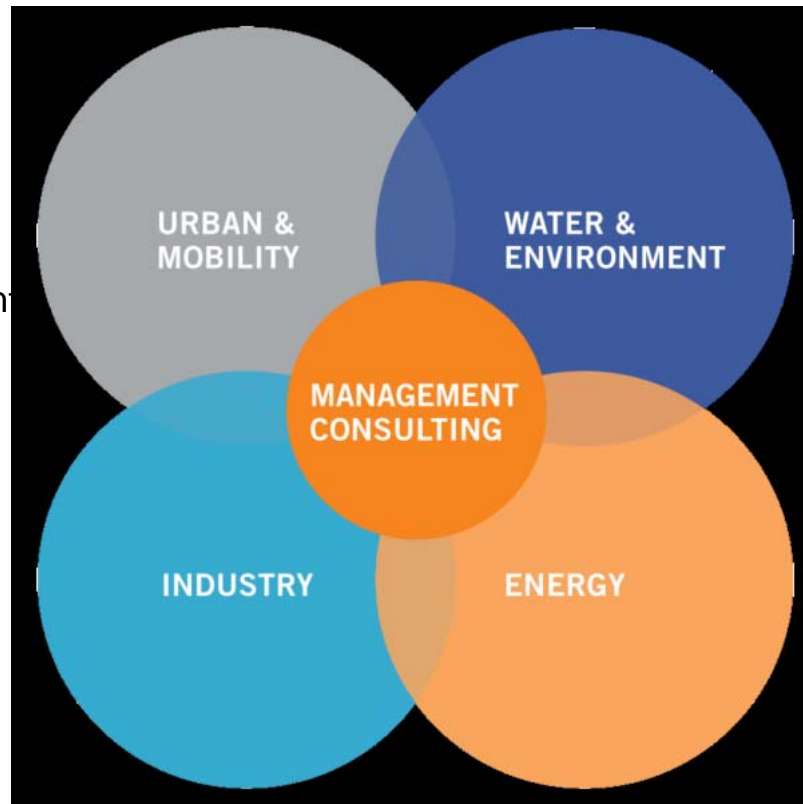
The global thought leader in engineering balanced sustainability for a complex world

- Engineering has always been at the core of Pöyry
- For decades we have been involved in projects with sustainable dimensions
- The key difference now is that sustainability is placed at the heart of everything we do

Wide range of deep expertise

- Urban planning
- Real estate development
- Transport planning
- Rail infrastructure
- Road infrastructure
- Construction management
- Building design

- Forest Industry
- Chemicals
- Biorefining

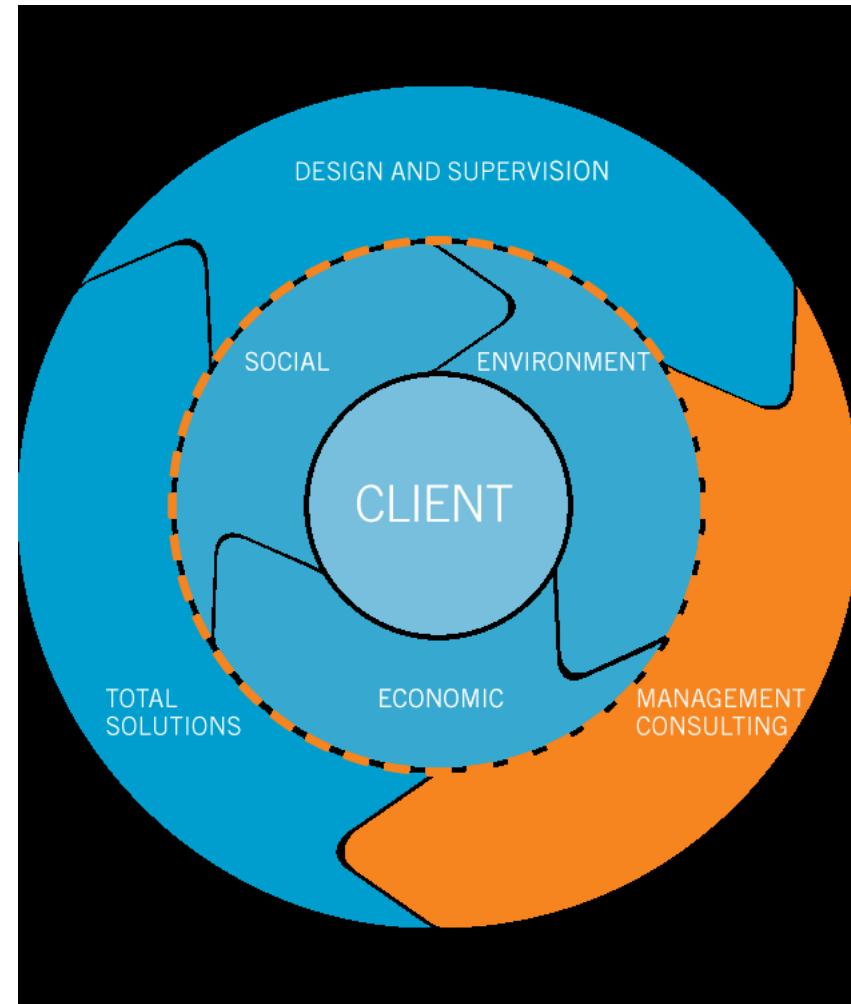


- Water supply and sanitation
- Water resources management
- Geosciences
- Environmental services
- Environmental consulting

- Hydropower
- Renewable energy
- Thermal power
- Oil and gas
- Nuclear energy
- Transmission & distribution

Integrated management consulting

- Our management consultants guide our clients and help them find solutions to complex business challenges.
- Over the years we have accumulated a vast source of industry-specific knowledge, thought leadership and expertise.
- We put that knowledge to work for our clients – adding insight and new ways to solve business-specific problems.



Multiclient studies



Economic growth prospects for both mature and emerging economies have deteriorated and in consequence, the outlook for pulp and paper markets is now substantially weaker than prior to the recession. New developments in the world paper-making fibre markets, as well as continuous inquiries from a large number of users of our earlier studies, have led us to publish our eighth long-term outlook for pulp and recovered paper demand and supply.

Uncertainty as to the speed of global economic recovery calls for a scenario based approach, which would enable readers of the report quantify virgin fibre, pulp and recovered paper (RP) demands between 2008 and 2025 for a range of economic and technical assumptions. In line with Pöyry's earlier fibre outlook reports, there will be a number of central themes and issues to be addressed, including the role of emerging regions in global fibre supply, impact of bio-energy demand on primary fibre raw material markets, competition for recovered paper, role of non wood pulps, substitution, papermaking pulp and RP price trends and future of specialty pulps, to mention but a few.

The key elements of the study are:

- Historical trends in pulp, total and market, and RP consumption, production and trade
- Main driving forces of the pulp industry and markets, including paper supply and demand, furnish changes, and availability primary fibre raw materials
- Demand, supply and net trade forecasts by main product area and region through 2025

- Pulp and RP trade flows between world regions
- Supply structure with particular emphasis on key players, industry concentration, mill technology, asset metrics, and long term changes in these factors
- Price trends in selected markets for key market pulps and RP grades
- Substitution trends and quality issues
- Global outlook for specialty pulps

Geographic coverage:

- Global by main region

Product areas:

- Wood pulps
 - Mechanical/semi chemical pulps
 - Bleached softwood kraft pulps (incl. full pulp)
 - Bleached hardwood kraft pulps
 - Unbleached kraft pulps
 - Sulphite pulps
- Non wood pulps
- Recovered paper (RP)
- Dissolving and other high alpha pulps

Deliverables:

- The study includes two volumes, (1) an Executive Report and (2) Statistical Annexes. All the data, text and graphs are available on a CD-ROM enclosed with the printed report.

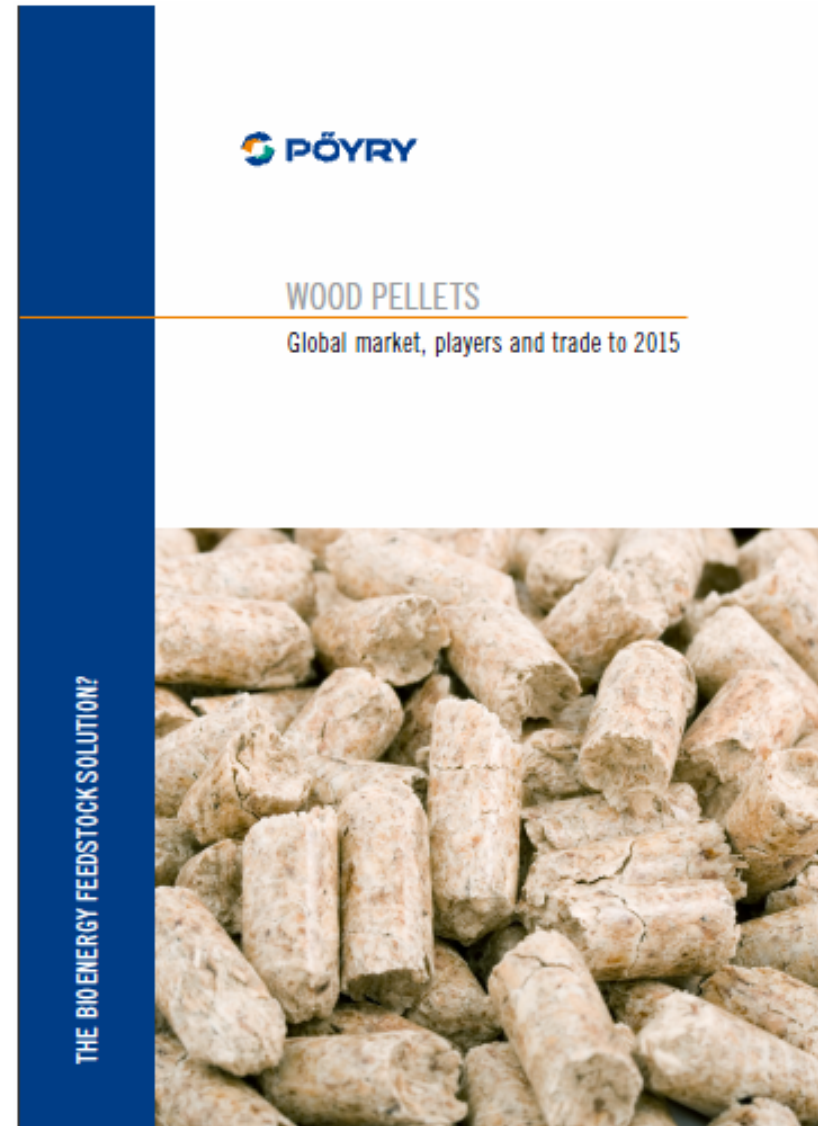
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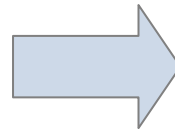
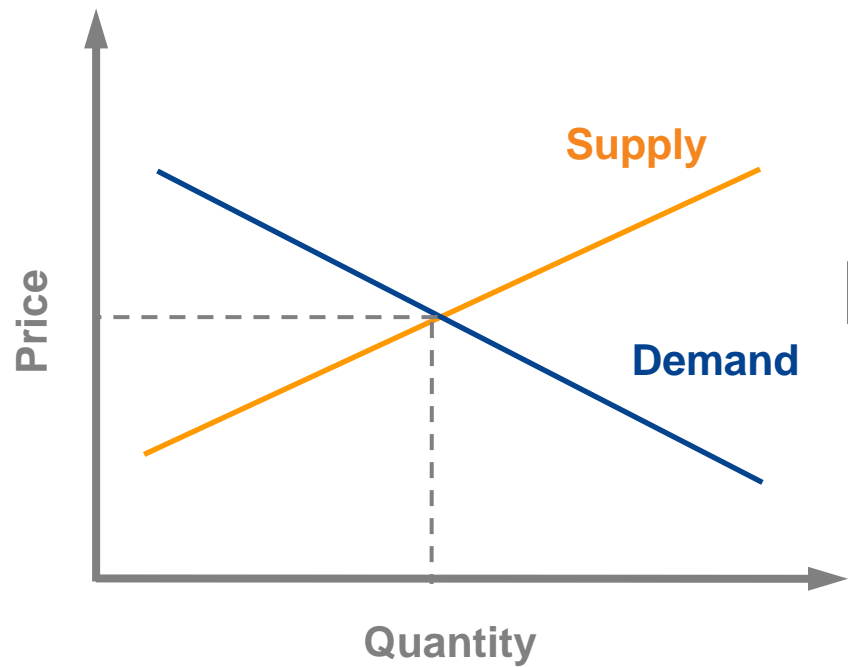
Pöyry Forest Industry Consulting's new pulp supply and demand forecast, scheduled to be published in October 2008, provides an invaluable strategic platform and essential business information for all business participants, including pulp and paper companies, chemicals, machinery and related suppliers, investors, financiers, institutions and pulp traders.



Contents

- Price drivers
- End-Uses
- Wood Products
- P & P
- Practical Examples

Pricing is simple, but...



Supply and Demand Drivers

...there are several variables that influence S/D and prices

Economics

- **Economic development** – Construction, consumer spending, exchange rates
- **Competition** – Raw material purchases, market shares, logistics
- **Costs** – Most important variable in long term price development
- **Substitution** – Within forest products and vs. other materials & medias
- **Psychology** – Inventory speculation

Politics

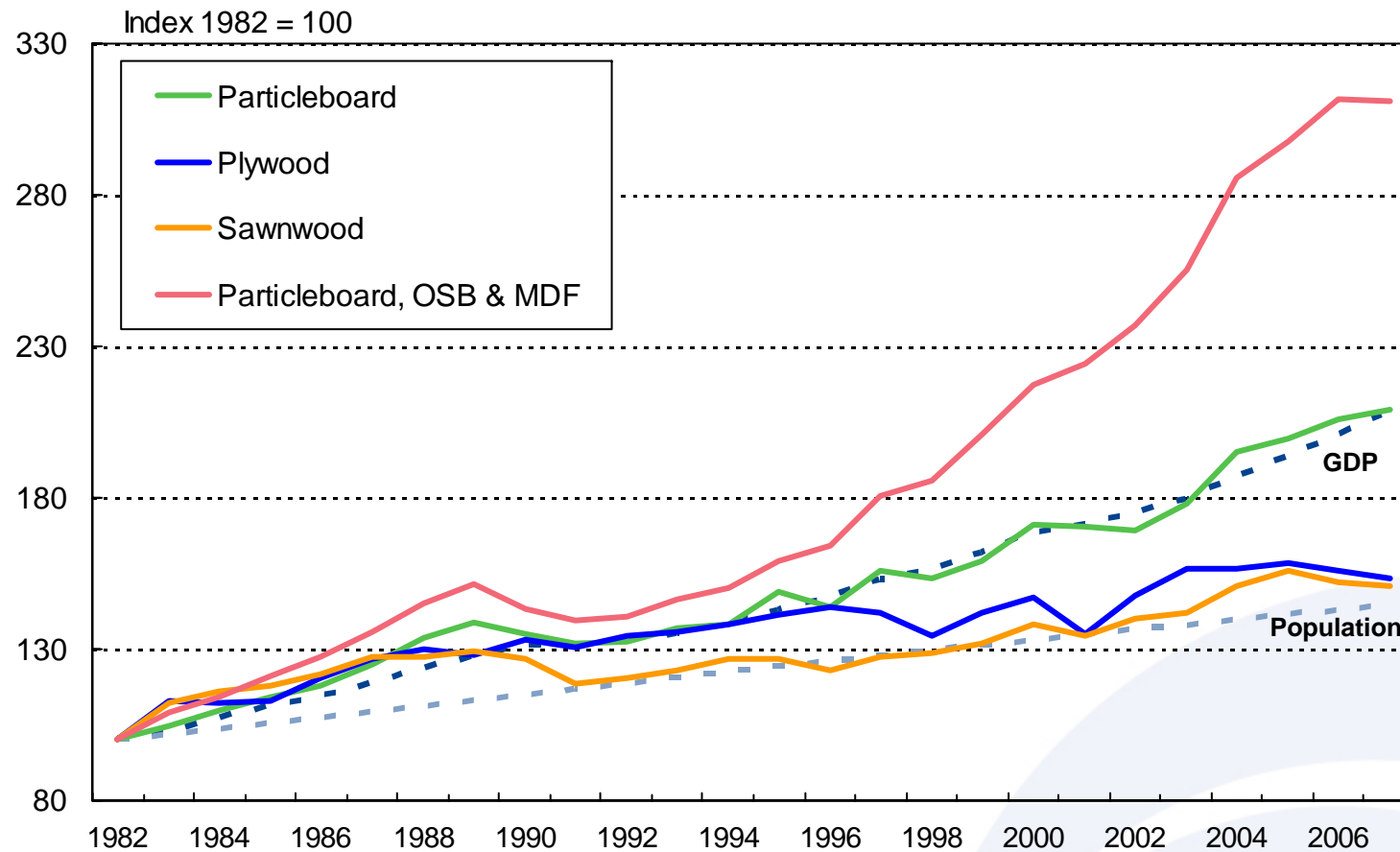
- **Green building** – Increasing wooden construction
- **Bio-energy** – Competition for raw material, subsidies, taxes
- **Trade Barriers** – Import, export and countervailing duties, quotas
- **Public investments** – Stimulus packages
- **Trade Unions** – Strikes, working methods/productivity, increasing costs

Mother Nature

- **Storms** – Raw material oversupply, lower cost, lower prices
- **Weather** – Raw material shortage, higher cost and prices
- **Natural Hazards** – Temporary local demand peaks due to rebuild, shut- downs
- **Four Seasons** – Seasonal demand of certain products
- **Geography** – Isolated location, import parity pricing

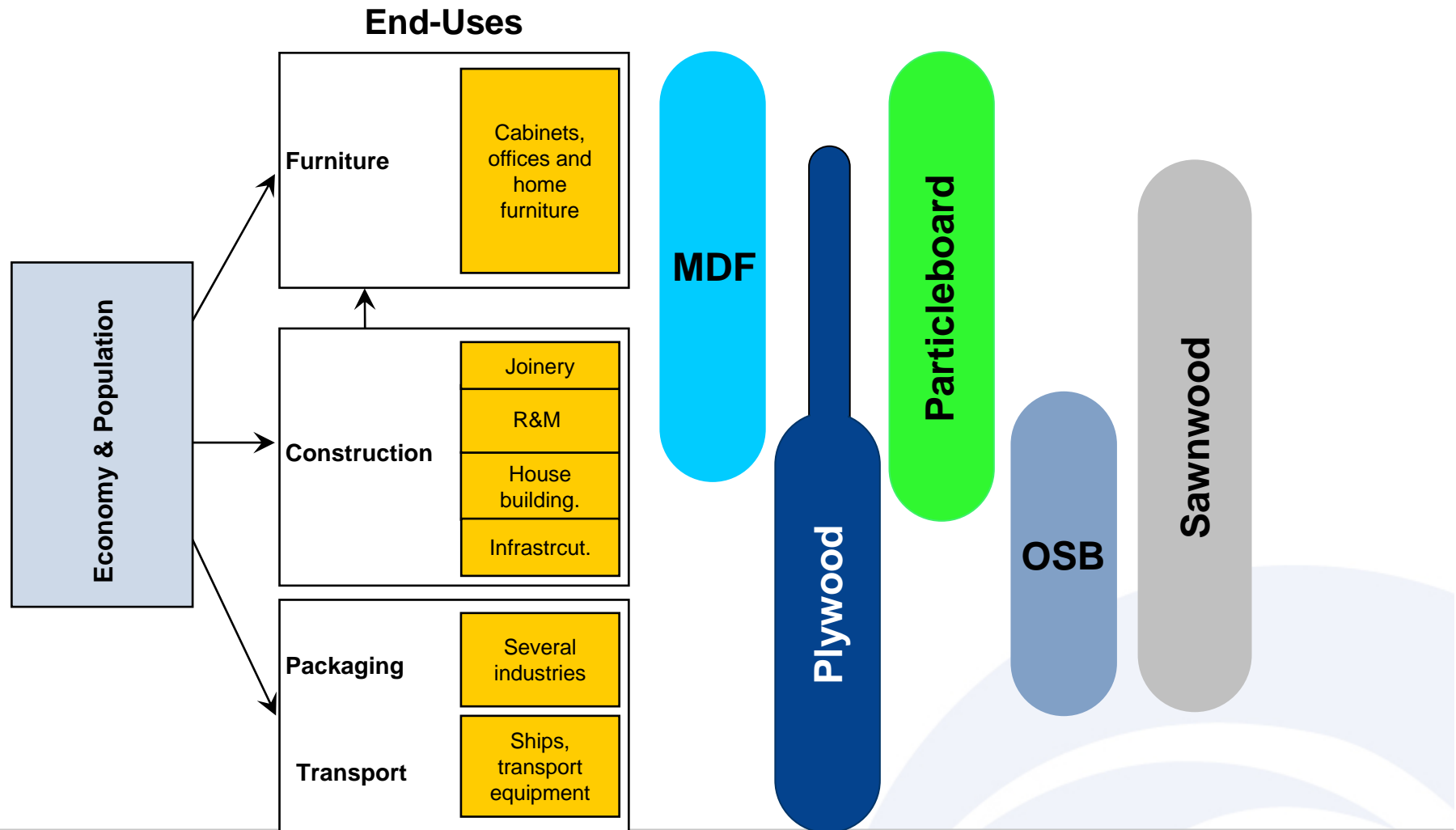
Demographics and Economy – Global Correlation

Mature products such as sawnwood, plywood and particleboard follow closely the demographic and economic indicators.



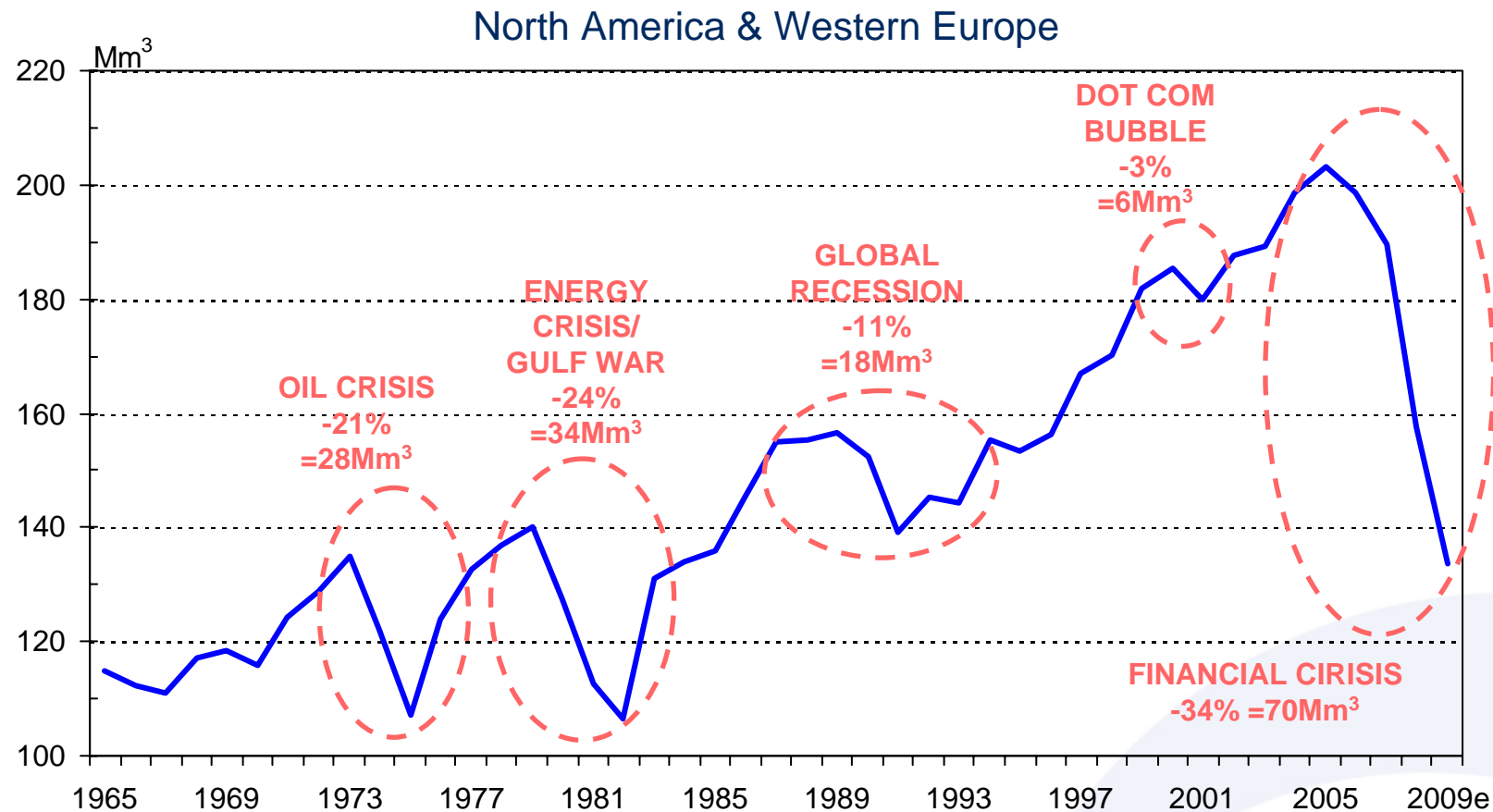
End-Uses for Wood Products

The development in the respective end-use segments drives the end-product demand



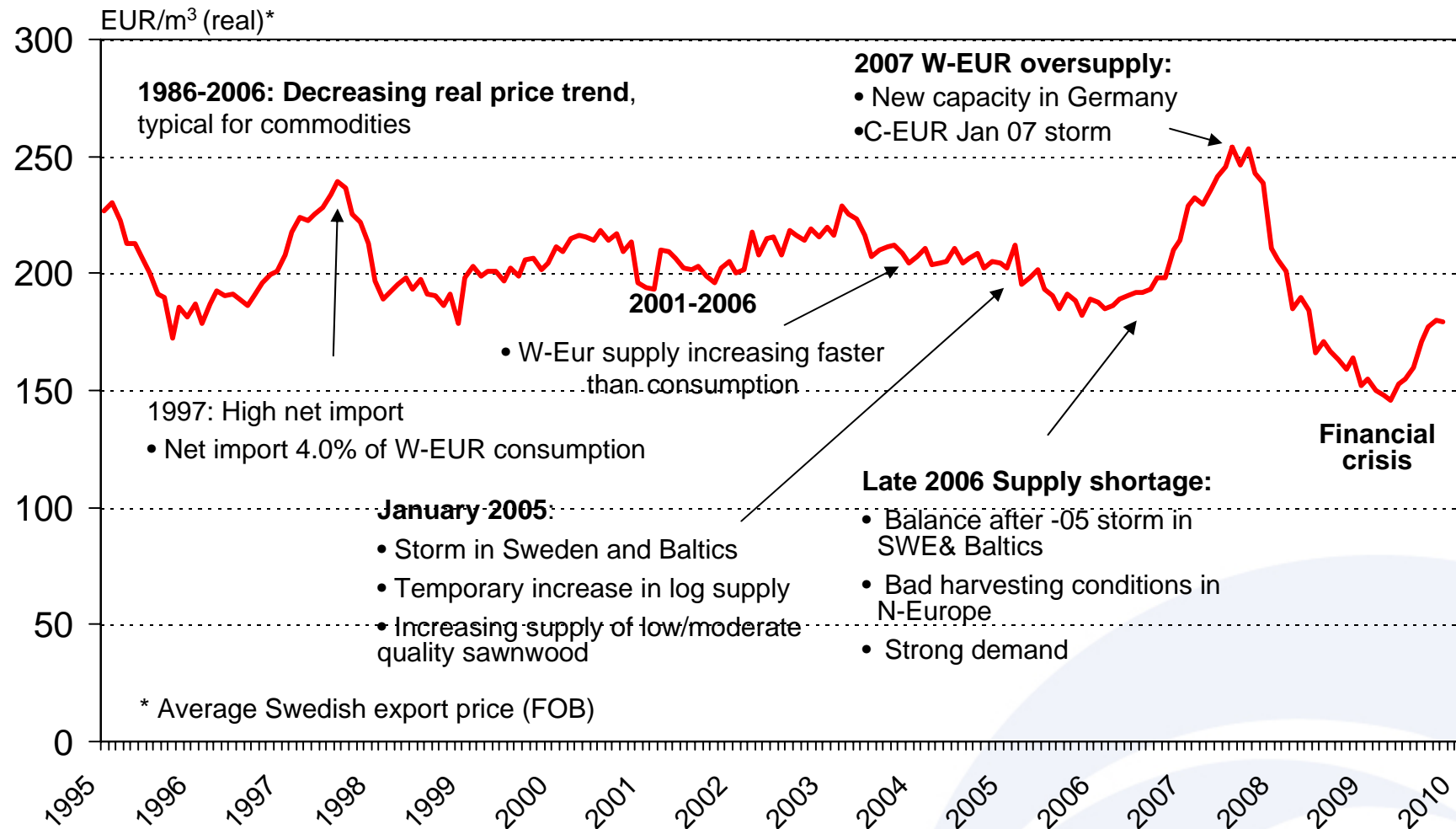
Sawn Softwood Demand Cycles

Sawn softwood is very sensitive to economic cycles.



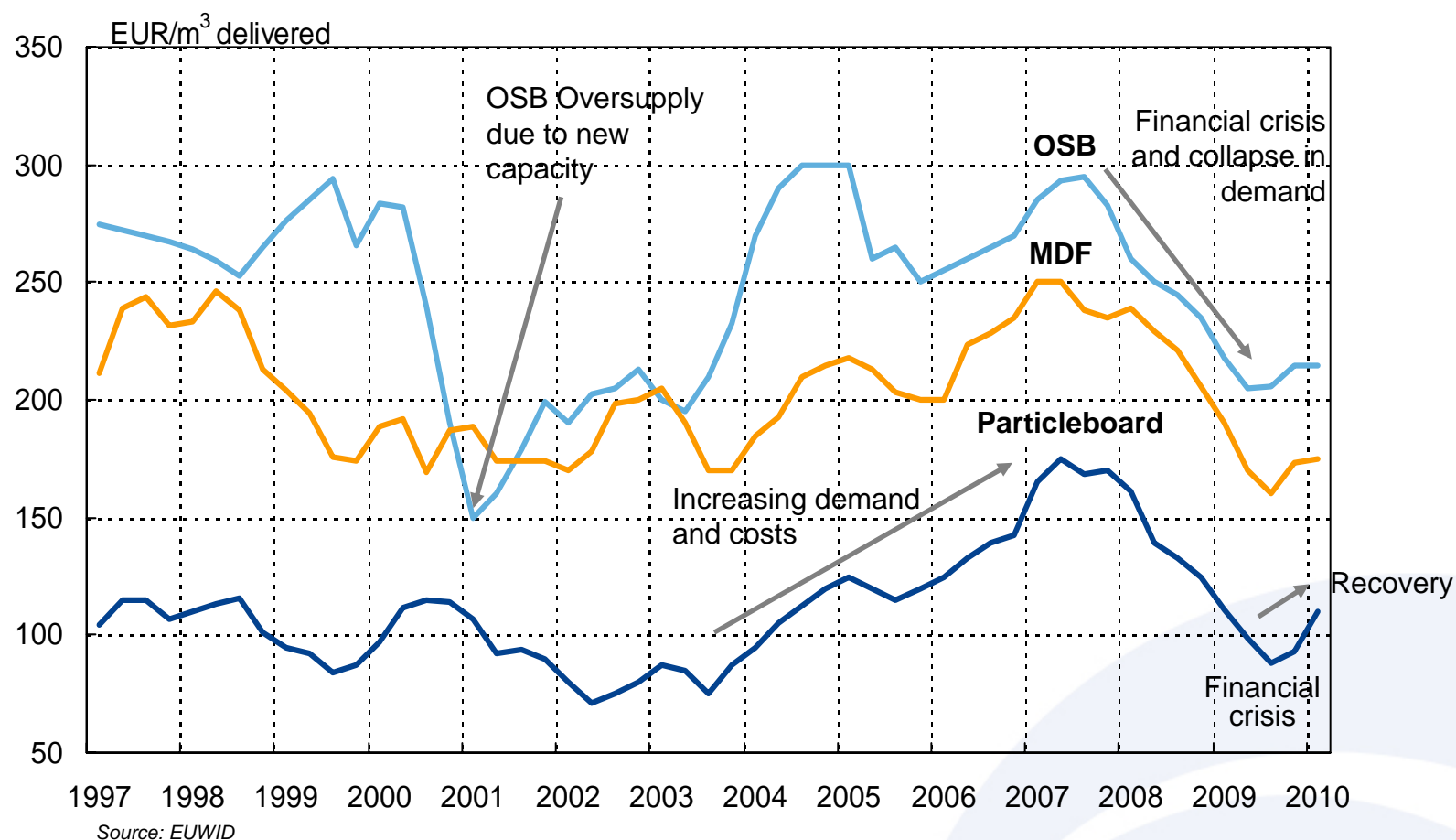
Price Trends - Sawnwood in Western Europe

In shorter perspective, prices react also to smaller supply demand balance changes.



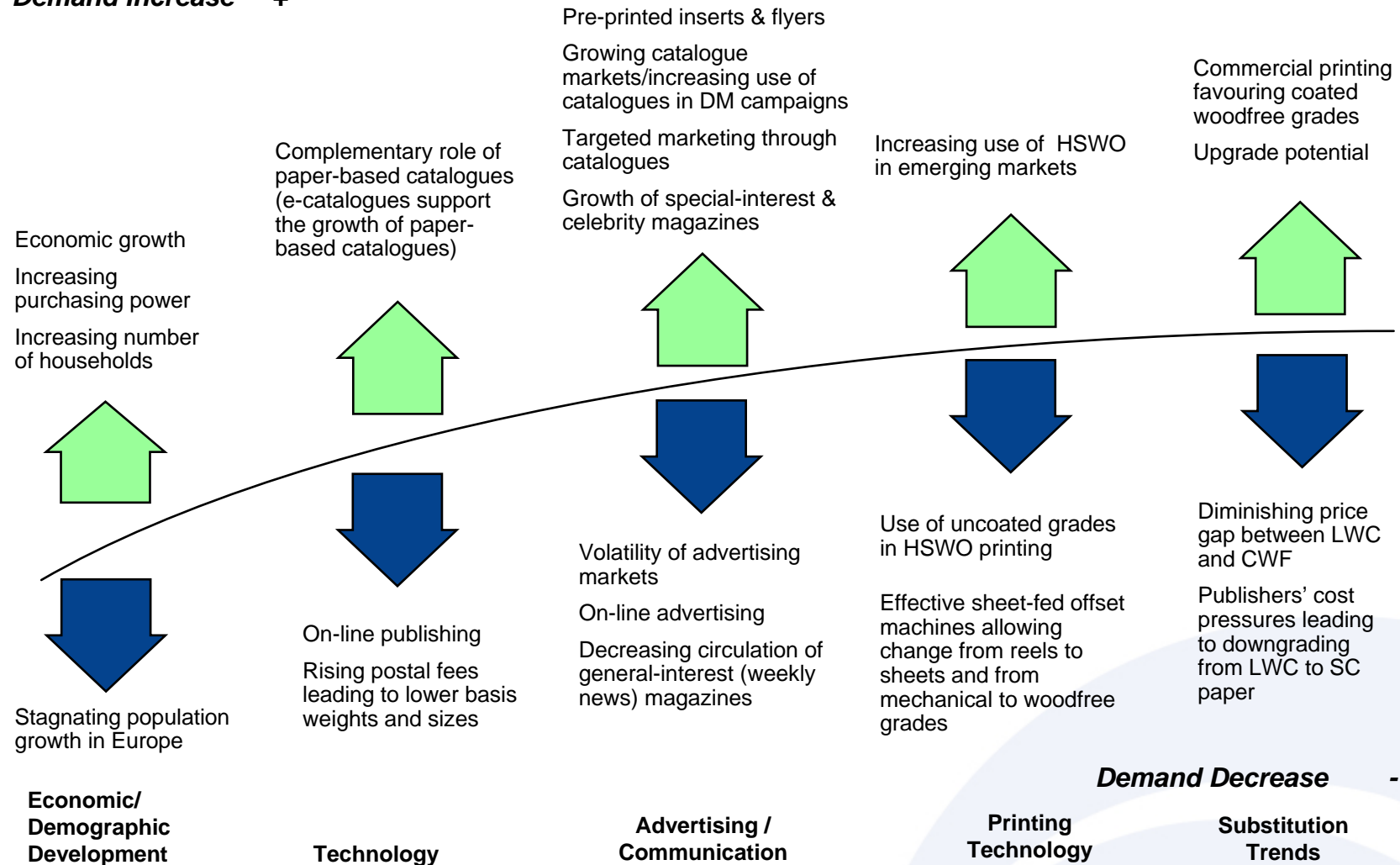
Price Trends – Wood Based Panels in Europe

Price variation for wood-based panels is significant. Products with smaller market such as OSB are very sensitive for supply and demand changes.



Demand Drivers for Coated Mechanical Paper in Europe

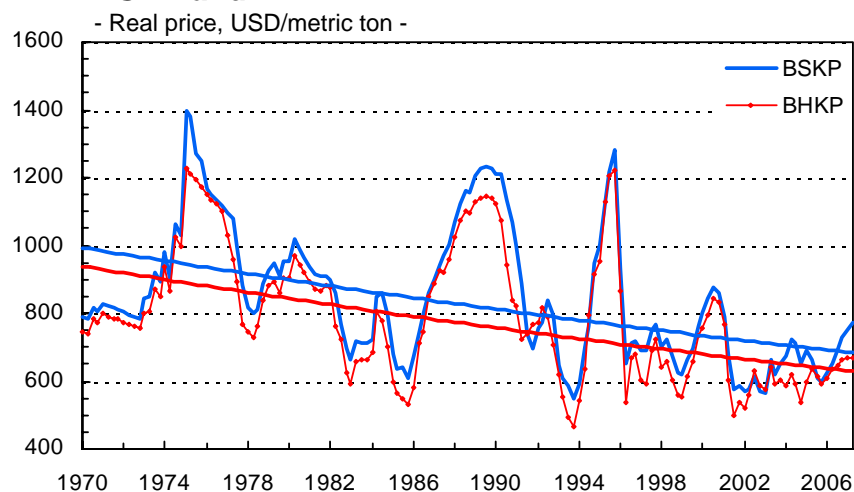
Demand Increase +



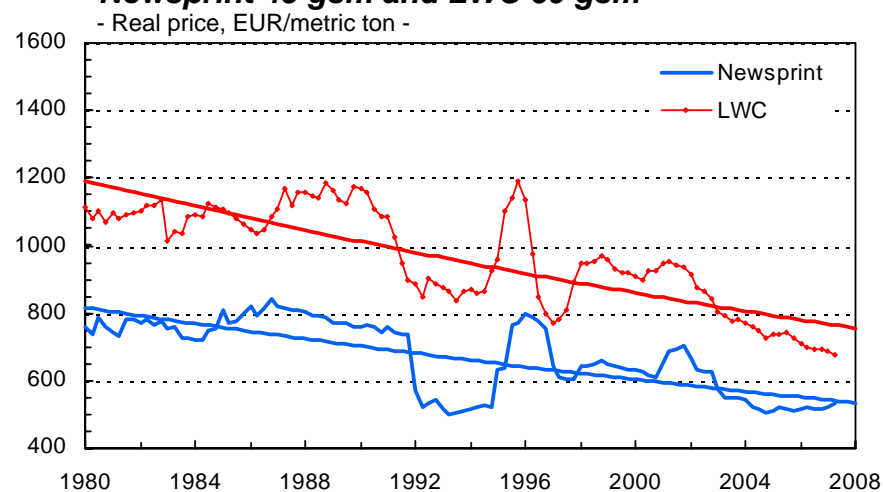
Price Trends in Western Europe

In the long term, the real prices of market pulps, paper and paperboard have been declining.

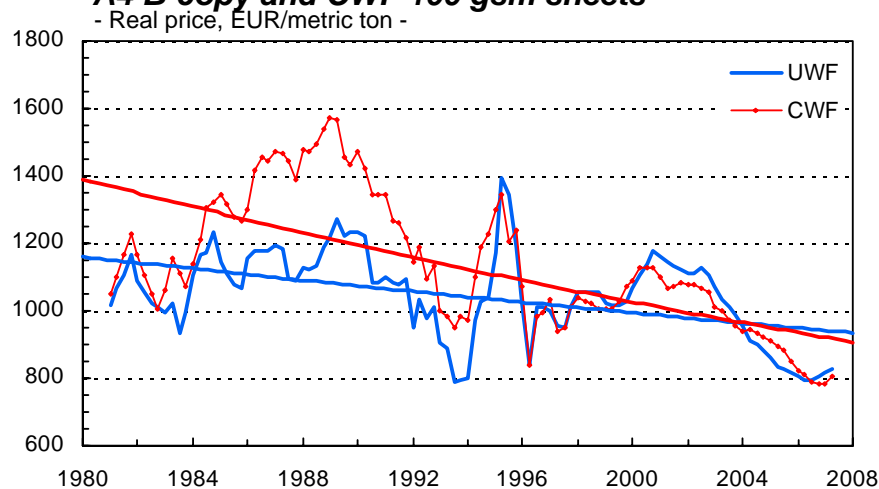
BSKP and BHKP



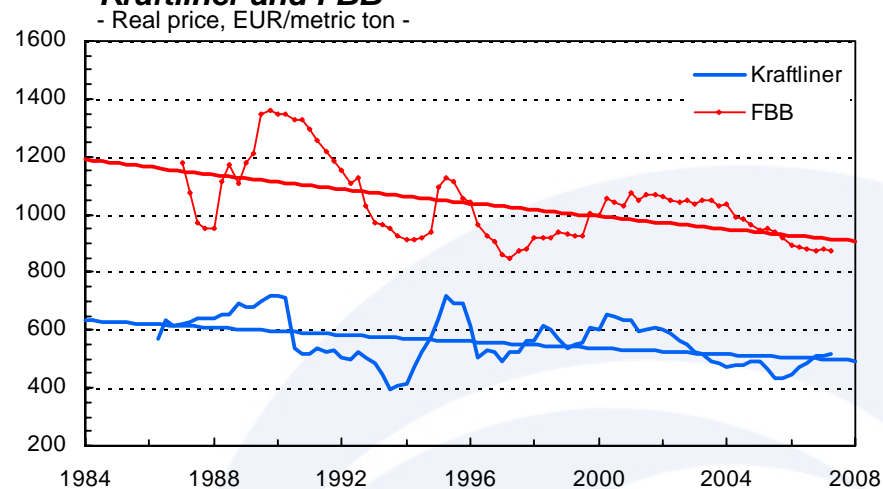
Newsprint 45 gsm and LWC 60 gsm



A4 B-copy and CWF 100 gsm sheets



Kraftliner and FBB



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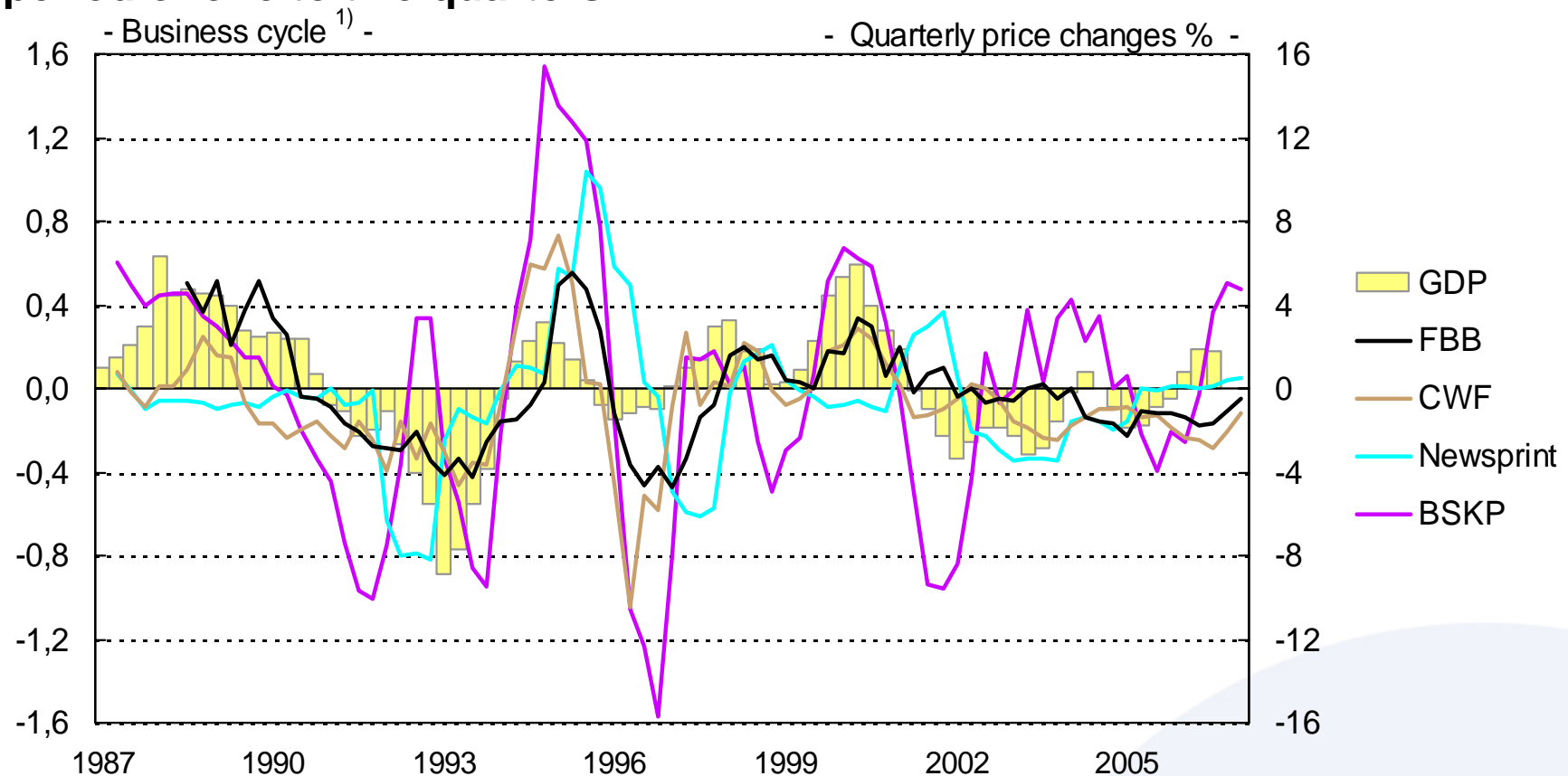
Conclusions: P&P Price Trends

The main drivers of declining real trend prices are:

- Good availability of main production inputs
 - Wood
 - Virgin fibre pulps and recovered paper
- Technological development
 - Advances in material saving technologies
 - Production efficiency
- Economies of scale
 - Higher machine speeds
 - Growing mill capacities
 - Lower manufacturing costs/ton of product
 - Lower investment costs/ton of capacity
- Cost savings passed on to customers

General Business Cycles¹⁾ and Quarterly Price Changes²⁾

Pulp and paper prices tend to fluctuate according to general business cycles. Prices typically respond to changing economic conditions within a period of one to two quarters.

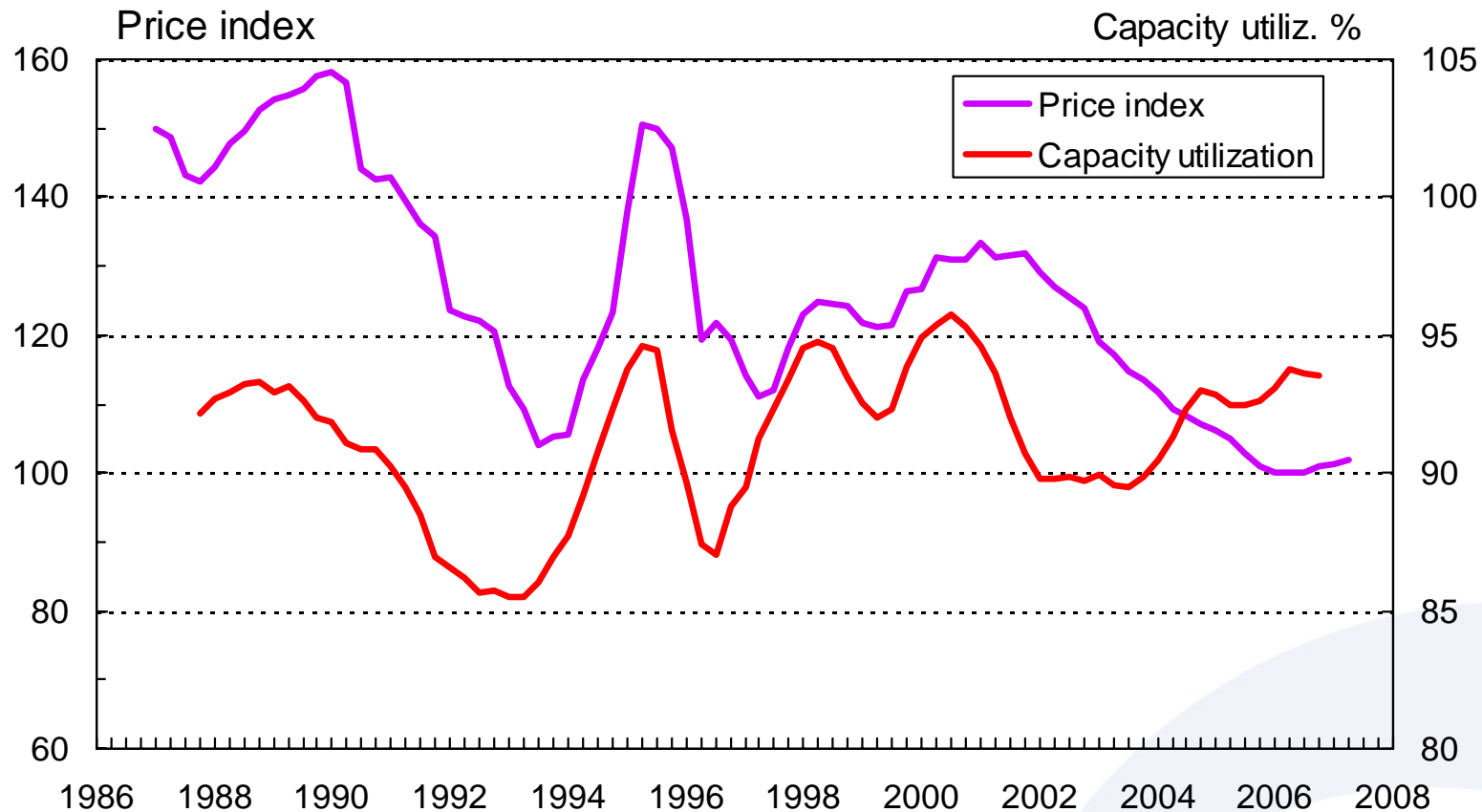


1) Business cycle is measured as a deviation in quarterly GDP growth (EU 15) from long-term quarterly average growth rate

2) Quarterly changes computed as four-quarter moving averages

Paper Price Index s vs. Capacity Utilization in W. Europe

Smoothed capacity utilization data (moving 4-quarter averages) reveal two significant things: (1) prices follow the industry's operating rates, but (2) the lag length is different in industry down-cycles and up-cycles. Recent improvements in capacity utilization have not resulted in significant price increases, though.



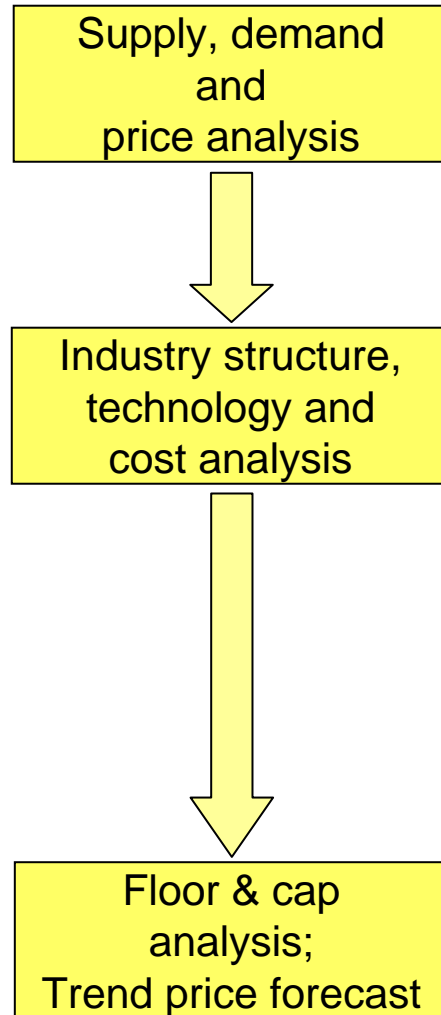
Note: price index based on weighted average prices of selected graphic and packaging grades in Western Europe; Capacity utilization based on graphic paper, containerboard and cartonboard production and capacity data

Conclusions: Price Variations

- Pulp and paper prices fluctuate according to general business cycles. Price movements and business cycles are not perfectly synchronized, though, because of other intervening factors such as supply shocks, inventory changes, trade balances and exchange rates.
- Prices tend to reflect the tightness of the market. The industry's operating rate on regional level has turned out to be a practical concept for measuring the markets' tightness and foreseeing movements in market prices.
- Exchange rate movements change the cost position for firms selling onto the international markets, and thus disturb the industry equilibrium and prices.

Price Forecasting Process – Long-term Trend Price Forecasts

Process components



Resources/methods

- Market and mill data banks
 - Pöyry's price files
 - Latest long-term supply/demand projections (e.g. paper & fibre multi-client studies)
 - Assessment of potential discontinuities
-
- Mill data banks (supplier identification)
 - Unit cost data
 - Input market analysis (cost outlook for wood/fibre, power etc.)
 - Cost competitiveness model: updated cost (supply) curves for relevant markets & product areas
 - Evaluation of technological changes, scale economies & their impact on costs/prices
 - Assessment of potential discontinuities (technology, costs etc.)
-
- Mathematical fitting of historical prices against time & cost data
 - Cost scenarios

Work products/documentation

Economic outlook/assumptions

- GDP
- Exchange rates

Long-term S/D projections
Historical (real) price trends

Industry structure metrics
Entry/exit lists
Unit cost tables
Stated assumptions (unit costs technological change)
Estimated supply curves

- landed and full costs
- past, present and future

Position of new entrants and marginal suppliers
Trend price scenarios



*"Thank you
for your attention!"*

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