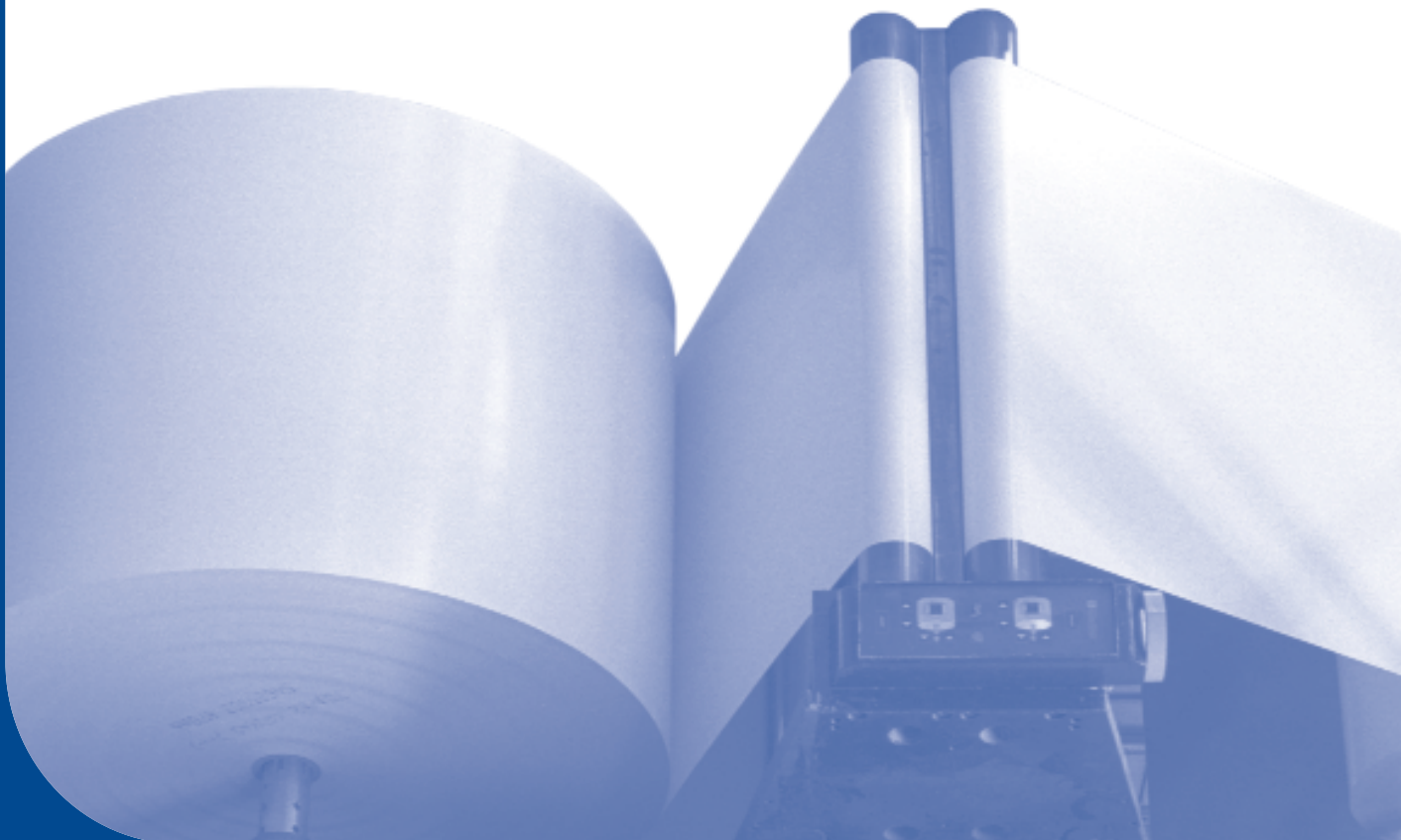




BOOK PRINTING

CHINA vs EUROPE

JULY 2021



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Definitions

Paper activity data are based on volumes as sold, measured in metric tonnes (data have been converted from short tons to metric tonnes where appropriate).

The grades referred to in this study encompass Printing & Writing Paper grades (plus **Coated Board**) as described below in their respective definitions (*some regional differences in definition do exist*).

Coated Woodfree (CWF) - includes coated Woodfree printing & writing papers (<10% mechanical pulp), generally in the basis weight range 80-300gsm; both 1 & 2-side coated free in sheets & reels are included.

Uncoated Woodfree (UWF) - includes uncoated Woodfree printing & writing papers (<10% mechanical pulp), generally in the basis weight range 60-150gsm; in folio sheets, reels and cut-size, covering both bulk grades and uncoated specialities.

Uncoated Mechanical (UM) - includes offset and gravure uncoated woodcontaining printing & writing papers, generally in the basis weight range >54gsm (e.g. SC Magazine), but including Directory, Improved Newsprint and other lightweight grades.

Coated Mechanical (CM) - includes offset and gravure coated woodcontaining printing & writing papers (>10% mechanical pulp), generally in the basis weight range 54-80gsm; but also includes ultra-lightweight coateds & heavyweight coated woodcontaining (as well as LWC & MWC) in sheets & reels.

Coated =	Coated Mechanical + Coated Woodfree
Woodfree =	Uncoated Woodfree + Coated Woodfree
Printing & Writing (PW) =	Uncoated Mechanical + Coated Mechanical + Coated Woodfree + Uncoated Woodfree

<u>Demand / Consumption</u> -	calculated as Production + Imports - Exports
<u>Production / Output</u> -	paper mill saleable production
<u>Trade</u> -	Net Exports, i.e. Production - Consumption
<u>Capacity</u> -	Annual Machine Capacity (technical, not market, conditions)
<u>Operating Ratio</u> -	Theoretical Ratio of Production to Capacity
<u>PM</u> -	Paper Machine
<u>tpa</u> -	tonnes per annum (capacity)

Introduction

Book printing in China versus Europe

This study provides an assessment of the current and future risks involved in a book publisher's strategy of printing in China.

One of the main reasons for printing in China is that Chinese printers are usually lower-cost than their European competitors. In addition, they are often more familiar with non-standard/advanced formats (e.g. "add-on" books).

However, there are also potential downsides/risks to printing in China. These risks could be classified as Market, Financial, Environmental and Social.

Regarding **Market** risks, paper can represent a significant proportion of a publisher's production costs. This study assesses any potential supply issues (will China's ban on wastepaper imports affect the supply of paper to the printers that a publisher uses, what is the outlook for the paper and board supply/demand balance in China generally?)

The **Environmental** risks involve greenhouse gas emissions. A large proportion of a publisher's emissions can come from book and paper manufacturing, but there is often low transparency on which paper mills in China supply the printers that publishers use. We therefore assess the carbon footprint of Chinese paper mills (e.g. do they use highly-polluting coal or cleaner power sources?).

The **Financial** risks include the rapid rise of salaries in China, and the publisher's need to take a position on whether China's current price advantage could disappear. Paper prices are potentially an additional financial risk and we have included some comparative European/Chinese price data for information purposes.

The eventual goal is for the publisher to carry out an "If / Then" exercise, to decide whether to continue printing in China or whether it would make sense in the longer term to pull some or all of their printing back to Europe.

Where EMGE has made any forecasts, these will use 2020 as the starting year and an outlook over the term of 5 years (i.e. 2020-2025).