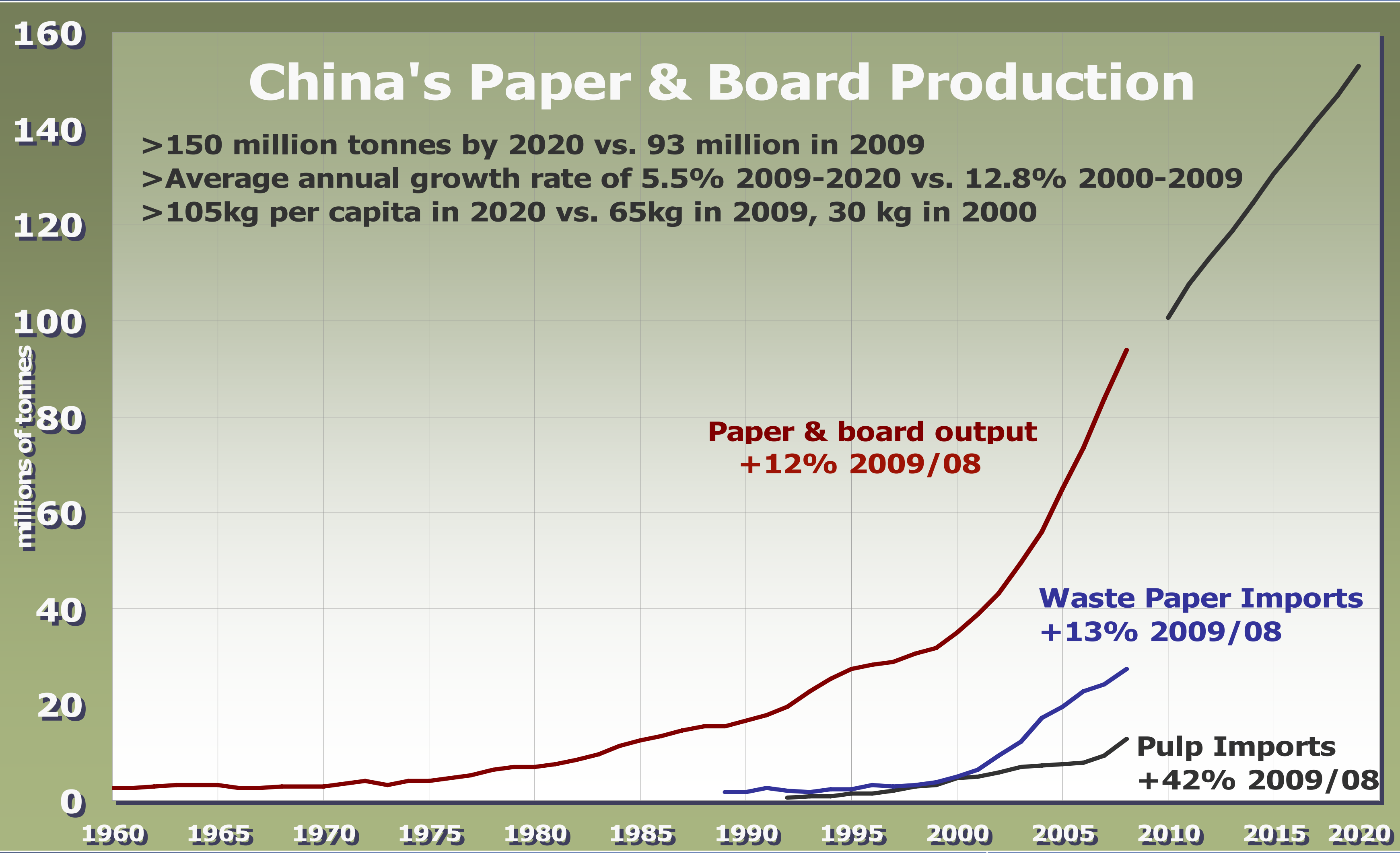
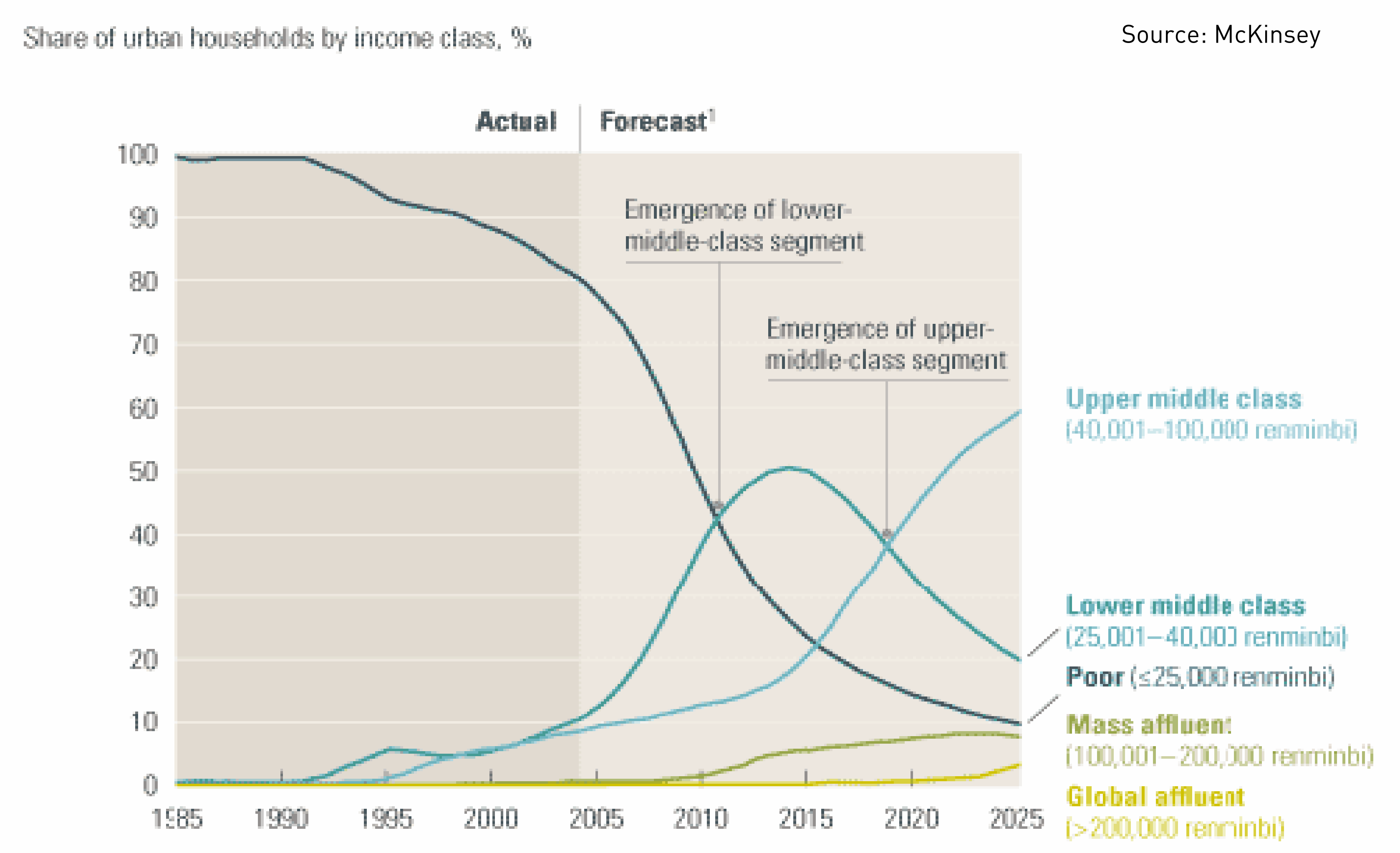
China's continued ascendancy

World's #1 P&B producer/consumer



China's continued ascendancy

Demand for paper and board driven by surging middle-class



Chinese paper production (official)
中国纸产量（官方数据）

thousand tonnes	Production					2009	
	2001	2006	2007	2008	2009	Net trade	Demand
Newsprint	1,730	3,750	4,500	4,600	4,800	-190	4,610
Printings	8,000	12,200	13,400	14,000	15,100	-120	14,980
Coated graphic	1,300	4,600	5,100	5,700	5,900	-1415	4,485
Tissue	2,700	4,700	5,200	5,600	5,800	-90	5,710
Packaging	4,000	5,200	5,300	5,800	5,750	405	6,155
Cartonboard	3,000	9,400	10,500	11,500	11,500	5	11,505
Linerboard	4,600	11,500	13,600	15,300	17,300	770	18,070
Medium	6,000	11,300	13,400	14,800	17,150	125	17,275
Specialities	670	2,350	2,500	2,800	3,100	-65	3,035
TOTAL	**32,000**	**65,000**	**73,500**	**80,100**	**86,400**	**-575**	**85,825**

Source: China Paper Association 来源：中国造纸协会

- **NBS says production is +13% Jan-Sep…97 million tonnes in 2010?**
  国家统计局公布：2010年1月至9月，总产量增长了13%即9700万吨？
- **= Growth of 65 million tonnes in 9 years or 7.2 million tpa**
  相当于9年内6500万吨的增量或每年7.2万吨

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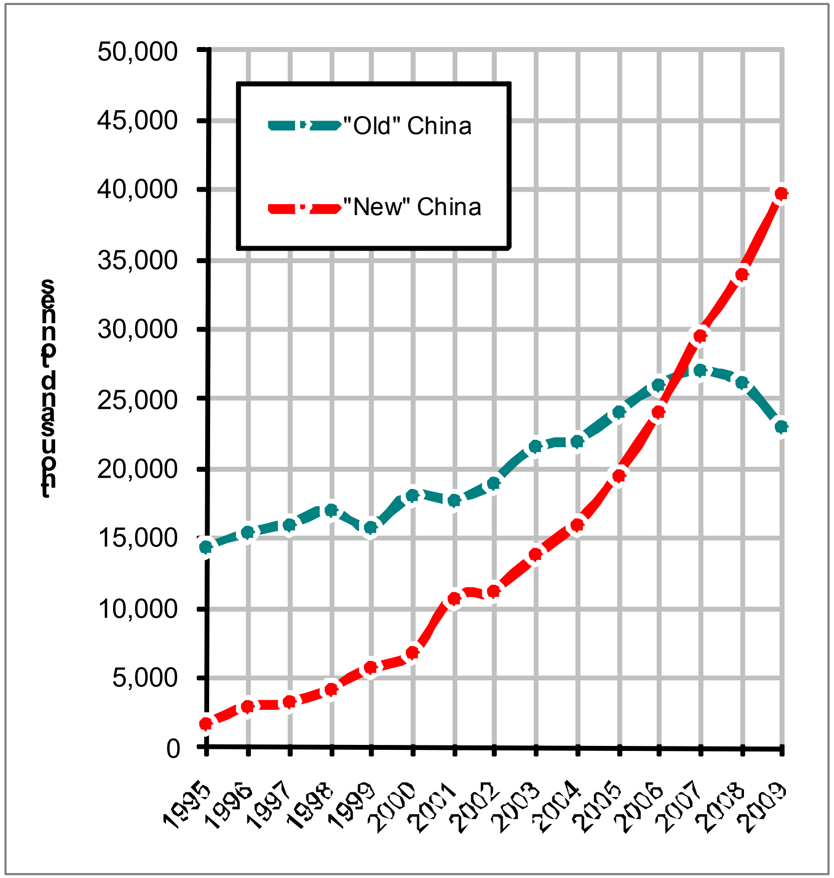
Investment decisions are based on official data 根据官方数据来做投资决定

- We can show that production is about 62 million tonnes, not 95 million t 我们可以证实实际产量是6200万吨而非9500万
- Calculated from 计算结果来自

  - installed paper and board machines 纸与纸板设备的安装数量
  - fibre consumption 纤维的消费量
  - GDP components GDP的组成
  - intensity of P&B consumption v GDP 纸和纸板消费与GDP
  - income distribution and per capita demand 收入分配以及人均需求

China overview
中国概览



The New China industry “新中国”产业

- International quality paper and board 国际品质纸与纸板
- Competes with imports, and in export markets 进口与出口市场竞争
- Mills built since 1996 1996年起建立的工厂 (APP, UPM, Chenming, Sun, Vinda, Hengan, 9 Drags, Lee & Man etc.)
- Large scale machines using imported fibre (wood pulp & wastepaper), supplied by Metso, Voith, Andritz etc Mosto, Voith,Andritz等公司提供的使用进口纤维的大型机器

The Old China industry “旧中国”产业

- Lowerquality paper made by mills using predominantly non-wood fibres and domestic wastepaper 主要使用非木纤维和国产废纸生产的低品质纸
- Mills built before 1996 1996年建造的工厂
- Fragmented, largely cash market, serving state owned sectors (e.g. school books etc.) 不健全的大量的现货市场，主要提供给国家部门（如教科书等）
- We cannot define ‘Old China’ accurately, but market is overstated by official statistics 我们并不能明确定义“旧中国”，但国家官方统计言过其实
- Old China 21 million t in 2002 – since then 10 million t capacity closed down 旧中国2002年产量为2100万吨-自此以后削减了1000万吨。
- **Old China is a domestic market. Its gradual displacement by New China may boost demand for imported fibre. However, it is a largely separate market** 旧中国只有国内市场。新中国的逐渐取代会带来进口纤维的需求增长。不过这是个很大程度上被分割的市场。

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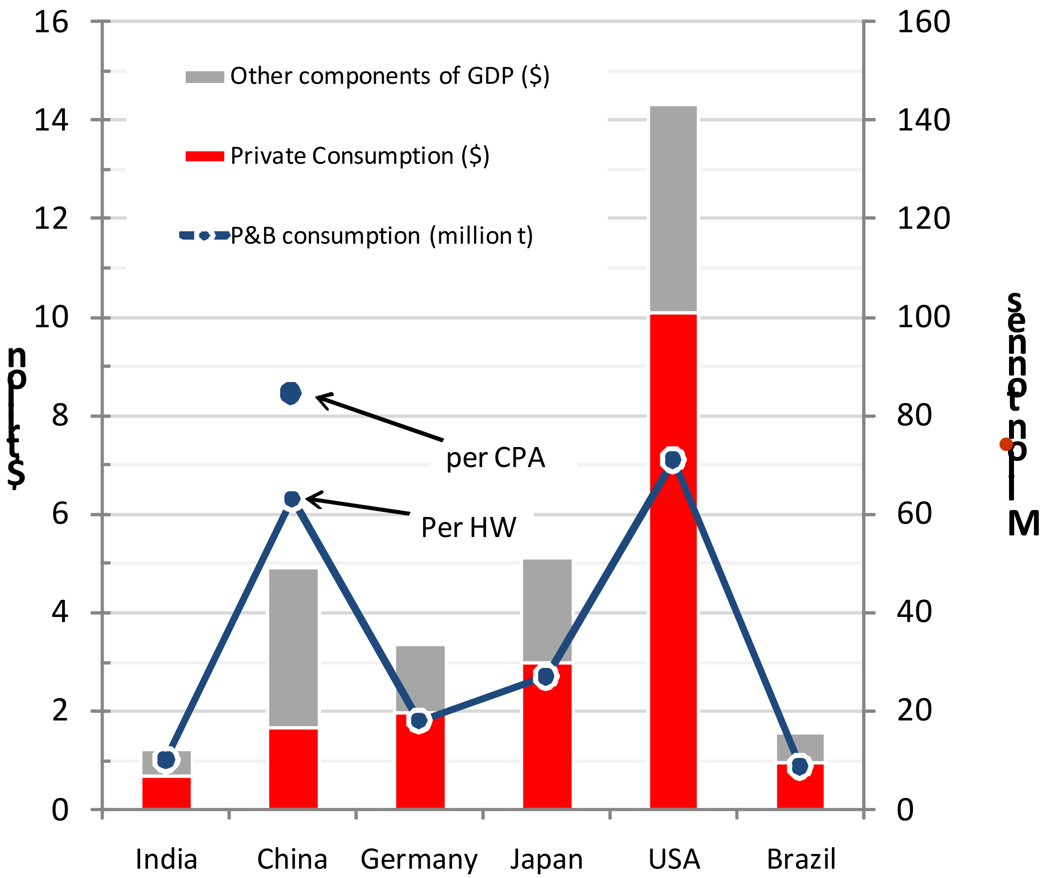
Chinese Paper industry is smaller than most people think

中国造纸工业比人们想象的小得多



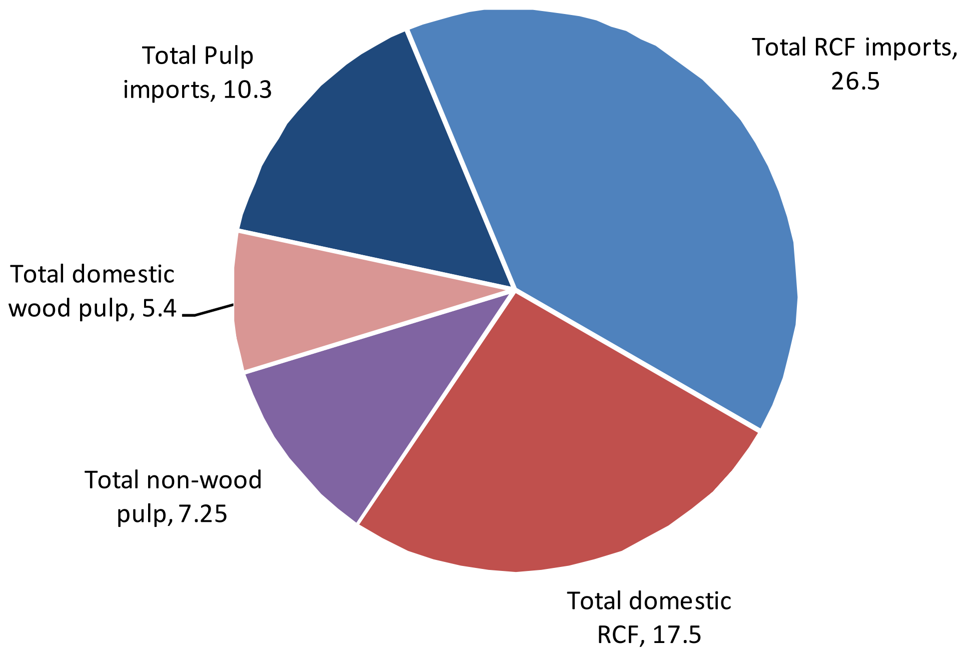
- Correlation between P&B demand and private consumption is very strong in most countries except China 纸与纸板的需求与个人消费在多数国家有着紧密的联系，在中国却并非如此
  - USA has become a low intensity consumer, possibly as it is at the forefront of technological innovation which substitutes paper 美国已经成为纸张低消费密度国家，他们先进的科技革新取代了纸张的使用
  - US also imports much of its paper in converted form 美国随着中国产品的进口，也进口了很多包装纸
- Even our more conservative estimates of Chinese demand suggest China is a very intensive user of paper per $ of GDP. Why? 即使是最保守的估计，中国的纸张需求依然表明中国是一个纸张高密度消费的国家。为什么呢？
  - China's private consumption might grow by 83% using PPP (GDP = $9.7 trillion)
  - China's export sector was $1.2 trillion in 2009, and this consumes both packaging and printing and writing paper

Fibre
纤维

- Quantifiable fibre demand in 2010 will be around 42 million tonnes 2010年可计算的纤维需求量将会是4200万吨左右
- A further 25 million tonnes might be based on domestic waste and non-wood pulps which is mostly low quality 另外可能会有2500万吨由国内的废纸浆以及非木浆生产的低品质纸
- We can identify around 5.3 million tonnes of non-wood pulp by mill 我们能确认有530万吨的非木浆

	000 t/y
Straw	2,500
Bamboo	985
Bagasse	1,000
Reed	610
Other (cotton,kenaf,other)	250
Total	**5,345**

Total fibre 2010: 67 million tonnes



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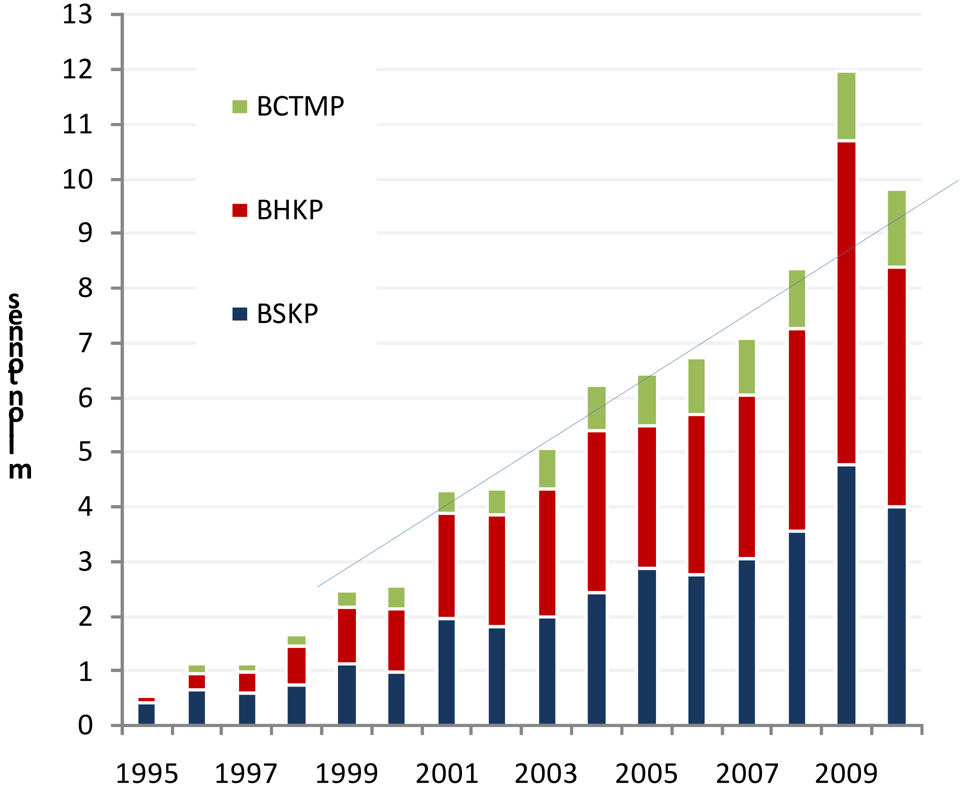
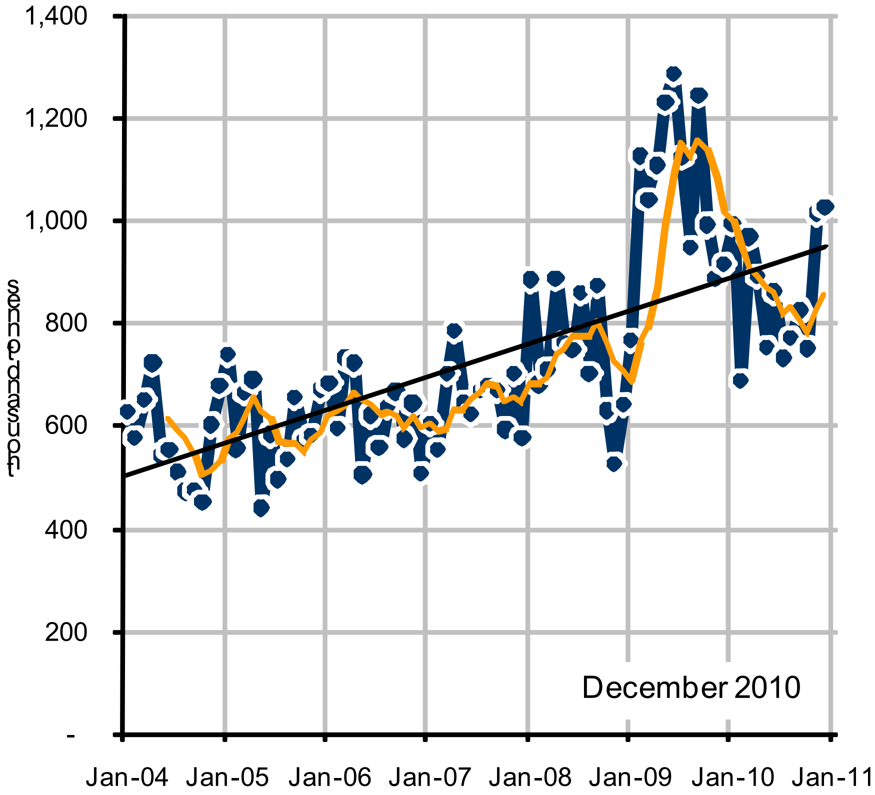
Chinese pulp imports
中国纸浆进口





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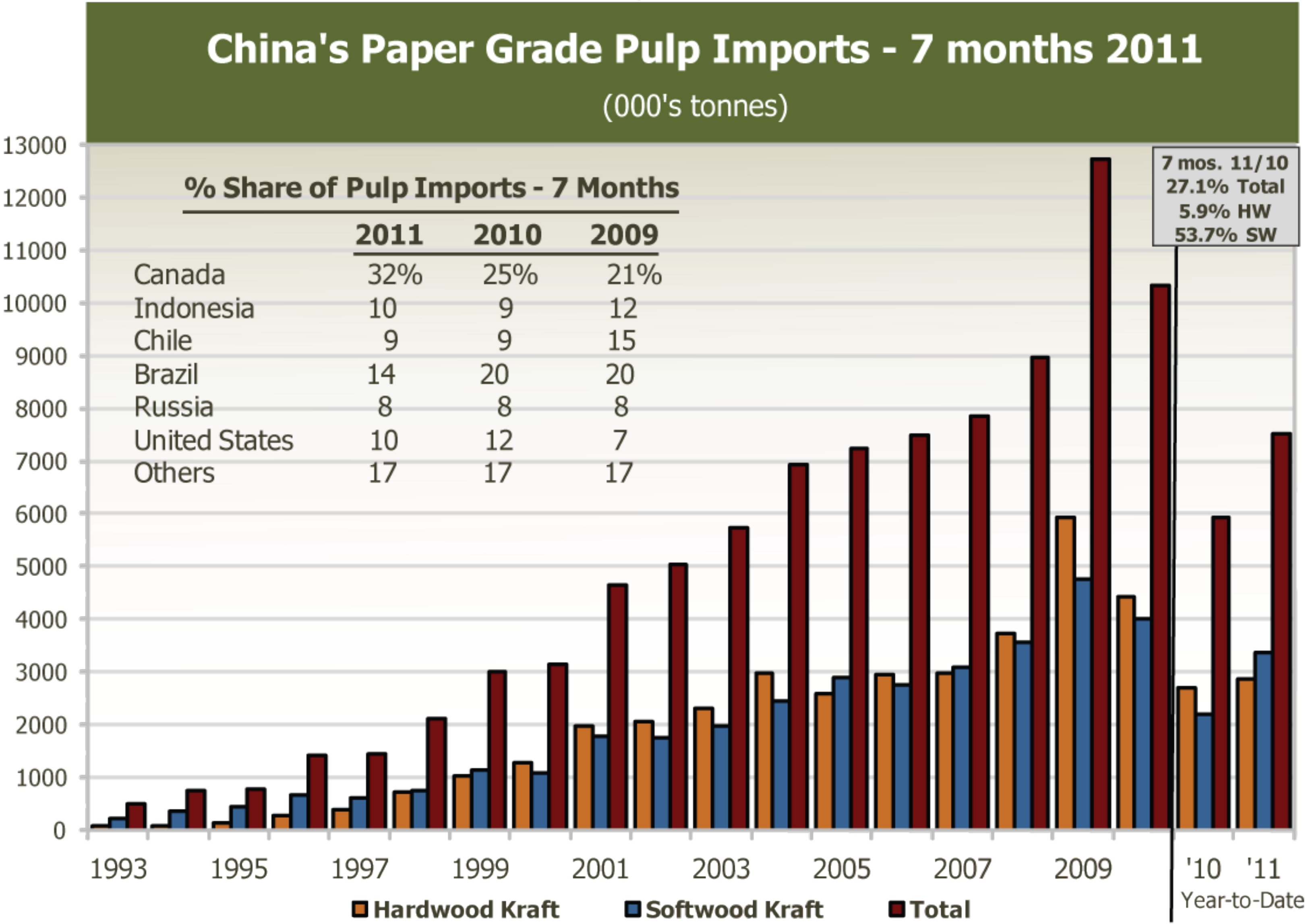
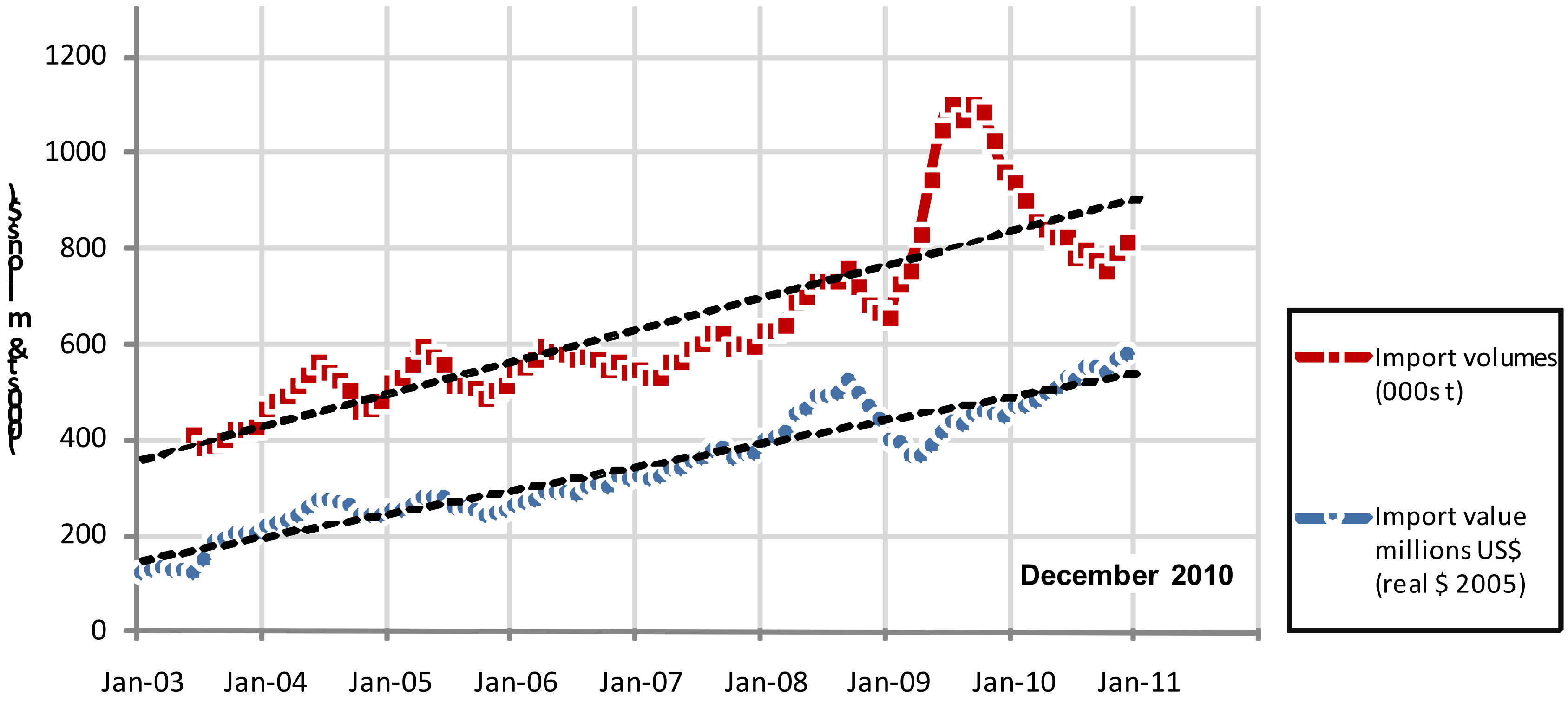
Source: China Customs Bureau & B McClay



Chinese pulp demand is price sensitive
中国纸浆需求容易受价格变化影响

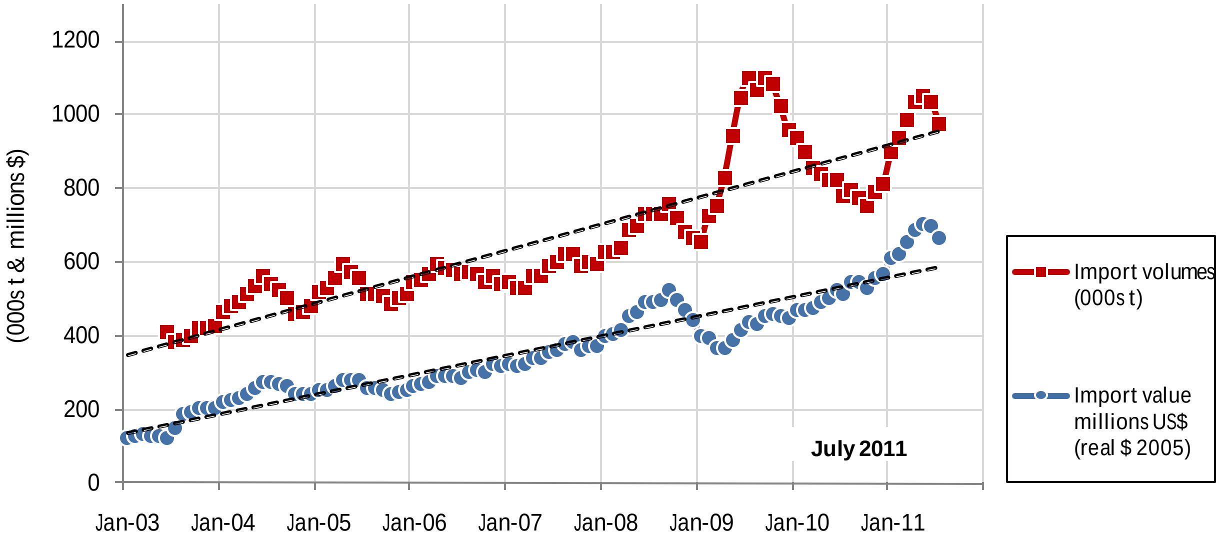
China BCP import volumes and market values (6 month moving average, real prices)



Source: HW estimates, China Customs Data

In 2010, volume contracts by 19%, whilst value rises by 27%!

China BCP import volumes and market values (6 month moving average, real prices)



Source: HW estimates, China Customs Data

China overview
中国概览

	Paper & board production			Measurable Fibre			
	"New" China	"Old" China	Total defined	Recycled import	Pulp import	Pulp prod	Total
2001	10,700	17,700	28,400	6,418	4,739	1,650	12,807
2002	11,250	19,000	30,250	6,873	5,021	1,650	13,544
2003	13,750	21,500	35,250	9,162	5,720	1,800	16,682
2004	16,000	22,000	38,000	12,300	6,860	1,600	20,760
2005	19,500	24,000	43,500	17,040	7,180	2,650	26,870
2006	24,000	26,000	50,000	19,500	7,440	3,800	30,740
2007	29,500	27,000	56,500	22,800	7,850	4,675	35,325
2008	33,830	26,170	60,000	24,000	8,700	4,900	37,600
2009	39,650	23,000	62,650	27,500	12,600	3,950	44,050
2010	**43,730**	**21,000**	**64,730**	**24,400**	**10,300**	**6,500**	**41,200**
2001-2010	*33,030*	*3,300*	*36,330*	*17,982*	*5,561*	*4,850*	*28,393*
CAGR %	*16.9%*	*1.9%*	*9.6%*	*16.0%*	*9.0%*	*16.5%*	*13.9%*

In addition, we estimate 7 million t of non-wood and 17 million t of domestic wastepaper in 2009 = 65 million tonnes of fibre in total 另外，我们预计**2009**年非木纤维的产量是**700**万吨，国产废纸的产量是**1700**万吨，相当于总共**6500**万吨的纤维

Total paper production has increased by 10.4% pa since 2001, broadly in line with GDP growth.

Growth in **New China** production has been around 17% pa, a rate which corresponds to the growth in the manufacturing export sector and private consumption in many urban areas along the Eastern seaboard.

Until 2007, **Old China** production was growing at a more modest single figure rate which corresponded to economic growth in the poorer regions of inland China. During this time some of the smallest pulp and paper mills were closed down for environmental reasons, however these closures were offset by the addition of locally made machines. Closures have accelerated as the threshold on emissions and capacities has been raised. Furthermore, some of the Old China sector is starting to be displaced by New China production on commercial and economic, as well as environmental, grounds.

New China apparent demand
新中国的显著需求

2009	Production	Import	Export	Apparent consumption
Newsprint	2,800	20	205	2,615
Printings				
Coated	4,470	305	1,635	3,140
Uncoated	3,880	385	505	3,760
Tissue & Specia	3,995	15	475	3,535
Cartonboard	6,505	750	625	6,630
Liner	16,700	990	100	17,590
Other Packagin	1,300	455	50	1,705
Total	**39,650**	**2,920**	**3,595**	**38,975**

- China has an export surplus of 1.3 million tonnes in coated paper. This represents around 30% of its current output. There are also small export surpluses in newsprint and uncoated woodfree. 中国有130万吨的涂布纸出口过剩，占其总产量的30%左右。新闻纸和未涂布纸业出口过剩
- China is a net importer of boards, although some of this may be misclassified roll pulp or off-grade for re-pulping.中国是纸板的净进口国，尽管有些错误理解卷筒纸浆或等外品木浆
- However, China exports a further 3 million tonnes of converted and semi-converted paper products under customs HS code 4811-23 (envelopes, labels, stationery, wallpaper, filter papers, etc.). China exports a further 1 million tonnes of printed material under HS code 49 (books, magazines, maps etc). 与此同时，根据海关编码4811-23，中国出口了300万吨的再生纸和办公再生纸（信封、标签纸、办公纸、墙纸、滤纸等等）。另外，根据海关编码HS code 49，中国还进口了100万吨的印刷类产品（书本，杂志，地图等）
- It is impossible to accurately estimate the volume of Chinese board which is ultimately exported as packaging, but our best guess is around 40%, or 7.2 tonnes. 几乎无法准确计算中国最终用于出口包装纸板的数量，但我们的猜测是40%也就是7.2吨

This implies that the amount of high quality paper and board actually consumed by Chinese population is around 28 million tonnes.
这表明中国消费掉的高品质纸大约有2800万吨。

Overcapacity of P&W in China
中国书写印刷纸产能过剩

Company	Location	Capacity	Start	Grade
Puyang Longfeng	Henan	300	Jan-09	Swing
Nanping	Fujian	280	Jan-09	Uncoated
Yueyang	Hunan	200	Aug-09	Swing
MCC Yinhe	Shandong	200	Sep-09	Uncoated
Tralin	Shandong	150	Sep-09	Uncoated
Yueyang	Hunan	200	Nov-09	Swing
Total 2009		**1,330**		
Sun Paper	Shandong	350	Apr-10	UWF
APP Hainan	Hainan	1,200	Jun-10	CWF
Oji Paper	Jiangsu	400	Jun-10	CWF
Huatai	Shandong	500	Dec-10	CWF
Total 2010		**2,450**		
Huacheng	Guangxi	240	2011	Uncoated
Chenming	Shandong	800	Mar-11	CWF
MCC Meili	Ningxia	300	Mar-11	LWC
Sun Paper	Shandong	300	Mar-11	Uncoated
Yongkai Sugar	Guangxi	300	Sep-11	Uncoated
Jindaxing	Guangxi	200	Jan-11	Uncoated
Zhumadianshi Baiyun	Henan	200	Apr-11	Uncoated
Chenming	Zhanjiang	500	Jun-11	UWF
APRIL	Guangdong	450	Dec-11	UWF
Others	n/a	400	n/a	Uncoated
Total 2011		**3,690**		
Total		**7,470**		

These investments boosted demand for imported pulp in 2008-09 (along with lower domestic pulp production)
2008至**2009**年，这些投资促进了对进口纸浆需求的增加（包括当地低质浆产品）

Total production of woodfree papers was 6.4 million tonnes and local demand was around 4.9 million tonnes in 2009
2009年，所有化学浆纸的总产量为**640**万吨，而本地需求在大约**490**万吨

The impact of new capacity is now evident
新产量所带来的影响是显著的

Expect some delays to future projects 将来有些项目可能会延后

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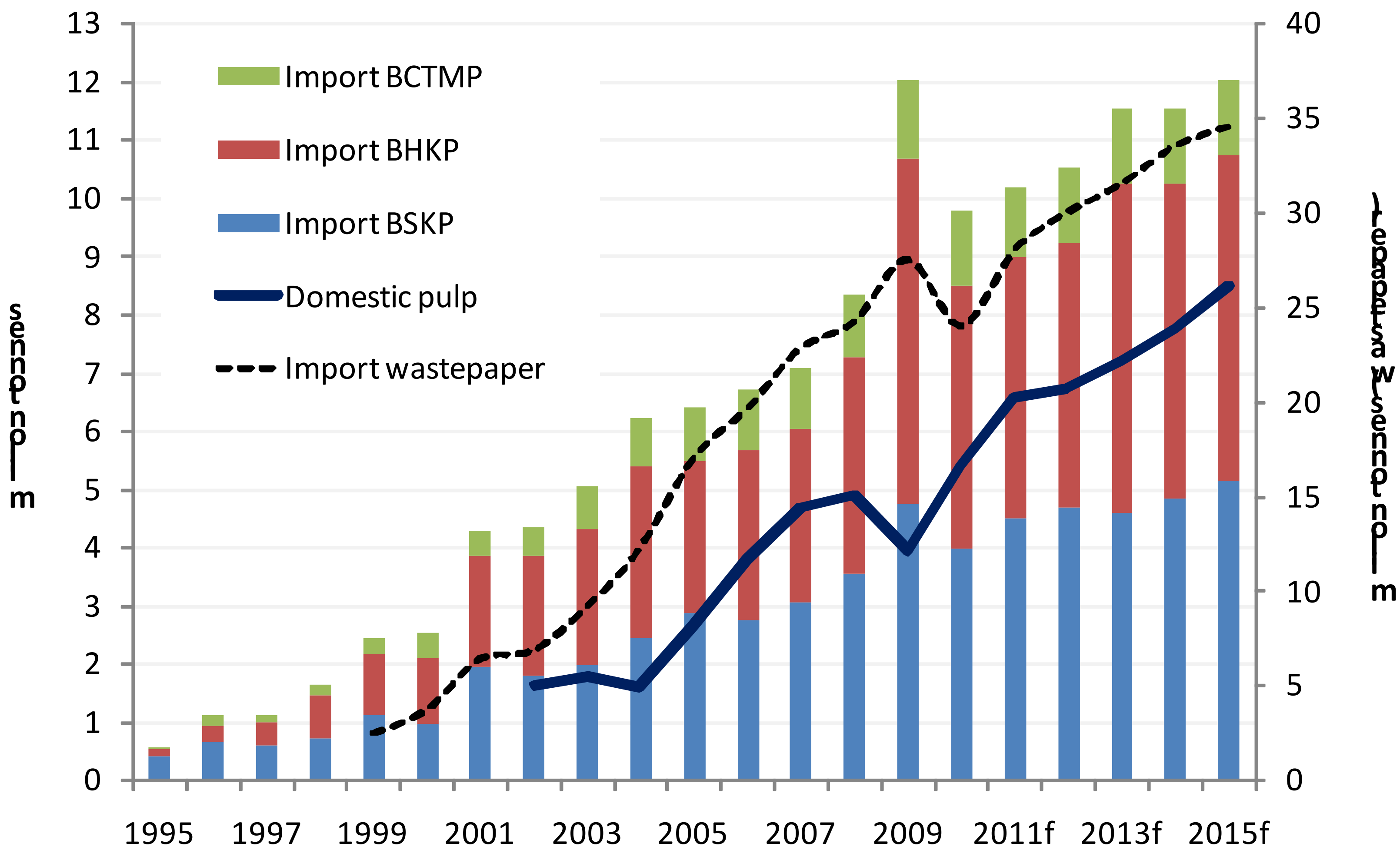
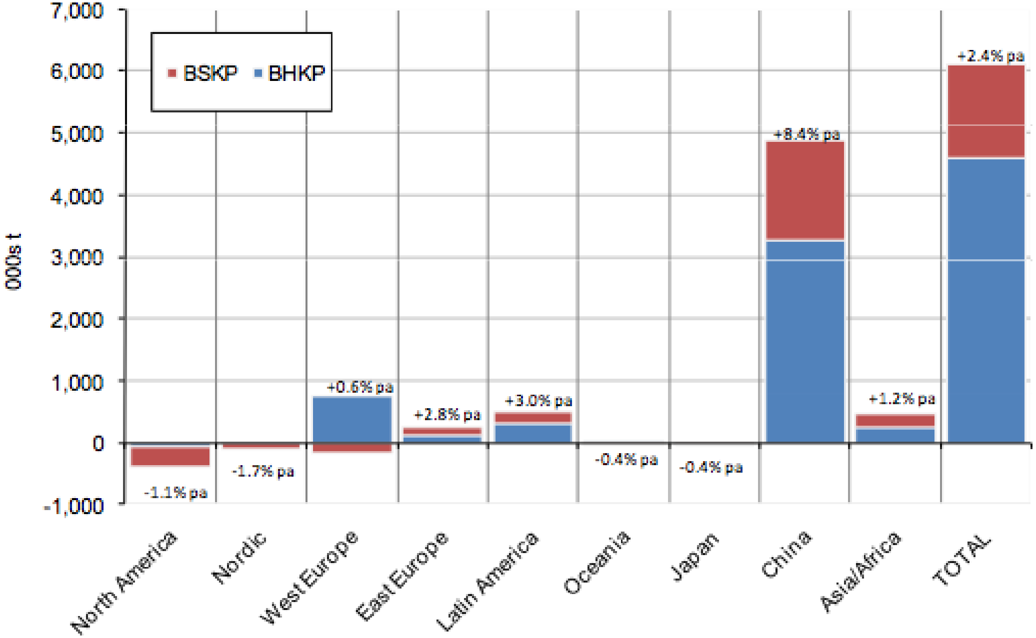
Fibre import forecast
纤维进口预测



BCP Demand growth by region, 2010-2015



Source: Hawkins Wright

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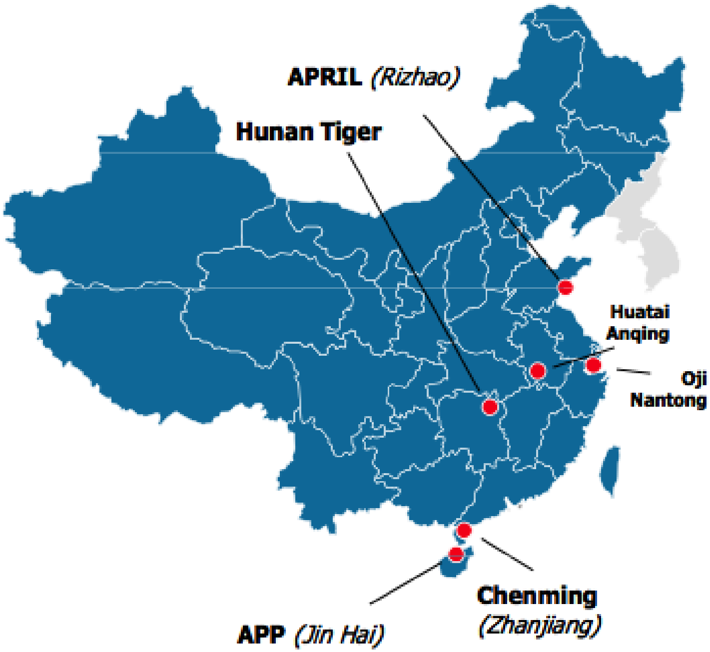
China

- APRIL Rizhao: 1.45 million t/y, Q3 2010
- APP Guangxi: 2x 300,000t/y BCTMP 2H-2010
- Chenming Zhanjiang: 700,000t/y Q3-Q4 2011
- Oji Nantong: 700,000t/y 2013
- Huatai Anqing, 200,000t/y 2013?
- Stora Enso Guangxi??

- More high yield in Shandong

- But pulp production is not low cost, as evidenced by rise in imports through 2009
- (cash costs of $470-$540/t)

- Hardwood chip imports increased from 1 million BDMT in 2008 to ~4.5 million BDMT in 2010.



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