

Qifeng Fiber

Migration to raw carbon fiber production

to summarize...

- Qifeng sources a crude product to produce acrylic fiber for textile industry
- Qifeng reversed losses with improved capacity utilization in 2009
- Capacity leadership in China expected to widen beyond 2009
- Qifeng is migrating itself to a major raw carbon fiber producer in China
- Raw carbon fiber business may drive profit and valuation in 2-3 years
- Qifeng is currently trading at a discount to book value at 0.69x P/B

Sector and company background. Jilin Qifeng Chemical Fiber principally engaged in production and sales of acrylic fiber (orlon) since 1998. Company products were mainly sold to wool yarn manufacturers in more than 10 China provinces under the brand name Baishan (白山) to produce a wide range of apparel and home furnishings with technology patented from an Italian peer, Montefibre. The company was listed in HK in June 2006. By the time the company got listed, it ranked the second in China and fifth in the world in terms of acrylic fiber capacity.

- Qifeng input acrylonitrile together with vinyl acetate and water to produce acrylic fiber by adopting a series of procedures. Acrylonitrile, a chemical product from crude oil processing, is the most important ingredient in the process, which makes up 80% to 90% cost of sales including depreciation. Although the proportion of global acrylonitrile consumption by acrylic fiber was decreasing in recent years, in 2009 acrylic fiber still consumes half of acrylonitrile output.
- Jilin Qifeng formed a 50-50 JV with the Italian peer, Montefibre in Dec 2005. It continued to utilize patented technology from Montefibre and maintained their JV with further plan to expand capacity in 2010.
- Demand for acrylic fiber generally stalled since 2006 and was expected to stay unchanged until at least 2018, according to a report by PCI Acrylonitrile published in 2009. While capacity in Pan-Asian area slightly declined, capacity in China was gradually increasing between 2006 and 2008.
- In 2008, on one hand, the industry faced keen competition and overall capacity utilization rate in China fell from ~90% in 2006 to ~70% in 2008, partly due to largely reduced overseas textile demand in 2008. On the other hand, crude oil prices rose to historical high level which put upward cost pressure on its raw materials, acrylonitrile. Between 2007 and 2009, estimated 20% to 30% capacity in China was closed down during market consolidation.
- Qifeng has been testing raw carbon fiber production. Qifeng developed raw carbon fiber technology domestically together with Changchun University of Technology and potentially become a raw carbon fiber provider in China. Until 2009, however, essentially all profit was still generated from acrylic fiber.
- AKSA, Montefibre and Qifeng are 3 major acrylic fiber producers:

Table 1. P/B multiples of major acrylic fiber producers

Company	Ticker	Mkt Cap (US\$m)	Fiscal Year End	P/B (x)	ROE (%)
JILIN QIFENG-H	549 HK	94.5	12/2009	0.69	27.1
AKSA	AKSA TI	64.1	12/2009	0.68	7.0
MONTEFIBRE	MF IM	4.6	12/2009	0.80	(76.8)
Average				0.72	n.a.

Source: Bloomberg

Ticker	0549 HK
Rating	Not Rated
Price (HK\$)	0.85
Target Price (HK\$)	n.a.
12m Price Range (HK\$)	0.32-1.32
Market cap. (US\$m)	94.5
Daily t/o (US\$m)	0.3
Free float (%)	27.1

Financial summary

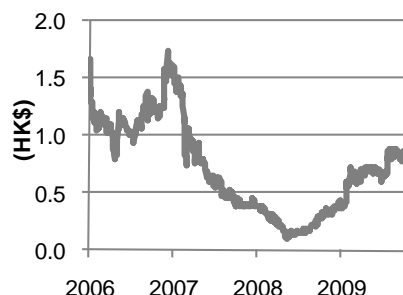
Year to Dec	07A	08A	09A
Turnover (RMBm)	1,765	1,187	1,256
Net Profit (RMBm)	(123.8)	(312.6)	223.5
EPS (RMB)	(0.14)	(0.36)	0.26
P/E (x)	n.a.	n.a.	2.9
P/B (x)	0.6	0.9	0.7
EV/EBITDA (x)	17.6	(26.3)	4.6
Yield (%)	n.a.	n.a.	n.a.
ROE (%)	(0.11)	(0.36)	0.27
ROCE (%)	(0.11)	(0.36)	0.27
N. Gear. (%)	1.21	1.57	1.12

Source: Bloomberg, company data

	09A	10F	11F
Consensus EPS (RMB)	-	-	-
Previous earnings (RMBm)	-	-	-
Previous EPS (RMB)	-	-	-

Price performance

Year to Dec	1m	3m	12m
Relative to HSI (%)	8.10	1.50	120.7
Actual price changes (%)	(1.20)	1.20	161.5



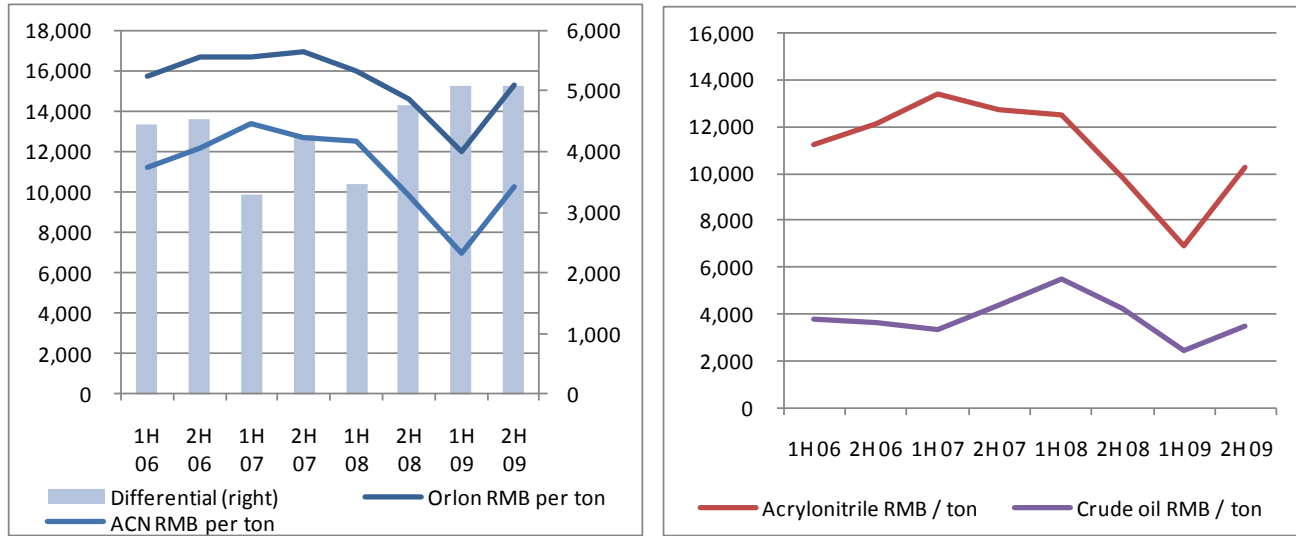
Source: Bloomberg

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Reversing losses in 2009. At current level of capacity and 90% utilization rate, we estimate its break-even price differential between acrylic fiber (orlon) and acrylonitrile (ACN) to be around RMB4,000 per ton, excluding other net income from utility facilities. The price differential fell to as low as ~RMB3,000 per ton in 2007 and 2008. Qifeng recognized losses in the 2 years. In 2009, demand-supply is better balanced. Average price differential in 2009 rebounded strongly to RMB5,000+ per ton. Together with significant reversal of impairment of key operating asset up to RMB84.6m, the company's net profit reached a historical high at RMB223.5m for FY12/09A. In 1Q 2010, due to seasonality, market differential per ton was around RMB4,000 per ton. However, we believe on average, differential would be well above 1Q level and the specific differential for Qifeng could be RMB500 per ton higher than lower-end peers due to Qifeng's widening leadership in acrylic fiber market in China. Profitability should be maintained beyond 2009.

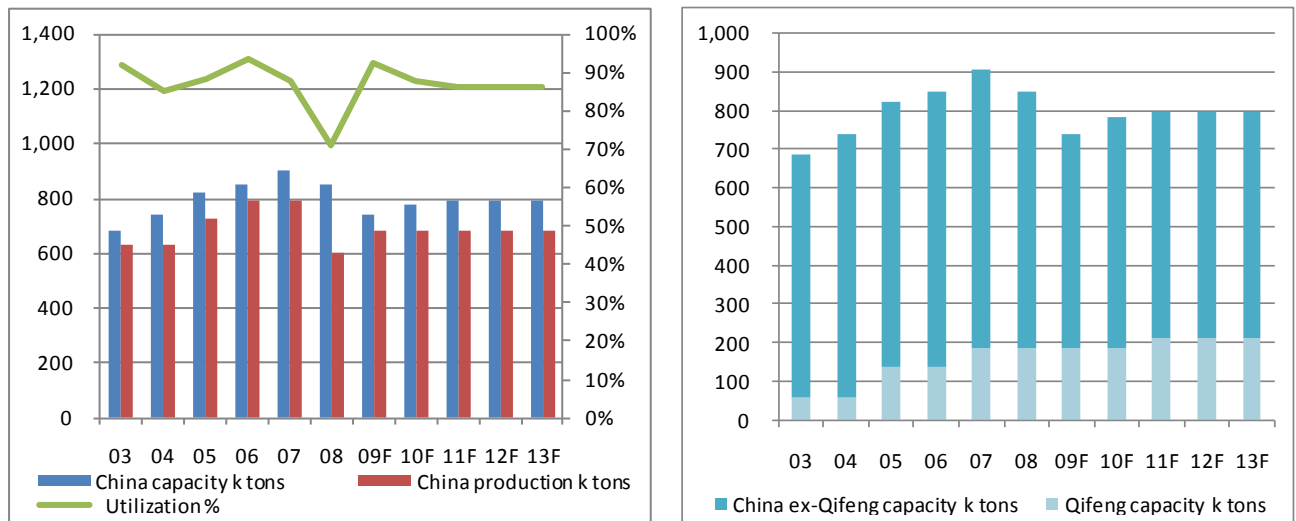
Chart set 1. Orlon price, CAN cost and WTI crude quote in RMB per ton



Source: Company data, SBI E2-Capital

Widening capacity leadership with expected capacity share of ~25% in China by the end of 2010. Between 2003 and 2006, acrylic fiber production capacity gradually increased on the back of growing demand for textile. Utilization rate during the period generally stayed high at 85%+ despite a growing capacity. In 2007, however, capacity in China was going up to ~900m tons but shrinking textile demand was quickly reflected in reduced demand for acrylic fiber in 2008. 20% to 30% capacity in China was closed during industry consolidation. At current recovery stage, by expanding another 50,000 tons to achieve a total capacity of 150,000 tons by its JV with Montefibre, Qifeng expects to have a total attributable capacity of 211,000 tons by 2011 (while 30,000 capacity was utilized in research in other fibers such as carbon fiber production), equivalent to ~25% capacity share in China. With this leading position, we believe Qifeng would realize a higher price differential. In 2009, major domestic acrylic fiber producers agreed to stop capacity expansion by new construction in the coming 3 years. Qifeng aims to be one of most profitable acrylic fiber leading producers in the world.

Chart set 2. Qifeng's capacity share of acrylic fiber in China



Source: Company data, SBI E2-Capital

Net profit sensitivity of acrylic fiber business. Assuming a stabilized demand from textile industry and considering the leading position of Qifeng, we mostly concern the cost of raw material, which is largely dependent on crude oil price. We perform a simple scenario analysis to determine profitability under different crude prices. We are applying the analysis on 2010, 2011 and 2012. Acrylic fiber capacity of company and JV for the three years is presented in table 2. Sensitivity on aggregate acrylic fiber profit plus other net income from utility facilities is presented in table 3 based on production volume outlined in table 2. Noted that although we believe Qifeng should receive a higher company specific differential than market differential, we do not factor in the expected differential premium in the following.

Table 2. Acrylic fiber capacity of company and JV for next 3 years

	2010F	2011F	2012F
Company capacity for orlon production	106,000	106,000	136,000
Utilization rate	90%	90%	90%
Expected production volume	95,400	95,400	122,400
JV capacity total	100,000	150,000	150,000
JV utilization rate	90%	90%	90%
Attributable production volume	45,000	67,500	67,500

Source: Company data, SBI E2-Capital

Table 3. Estimated net profit of acrylic fiber business plus utility facilities

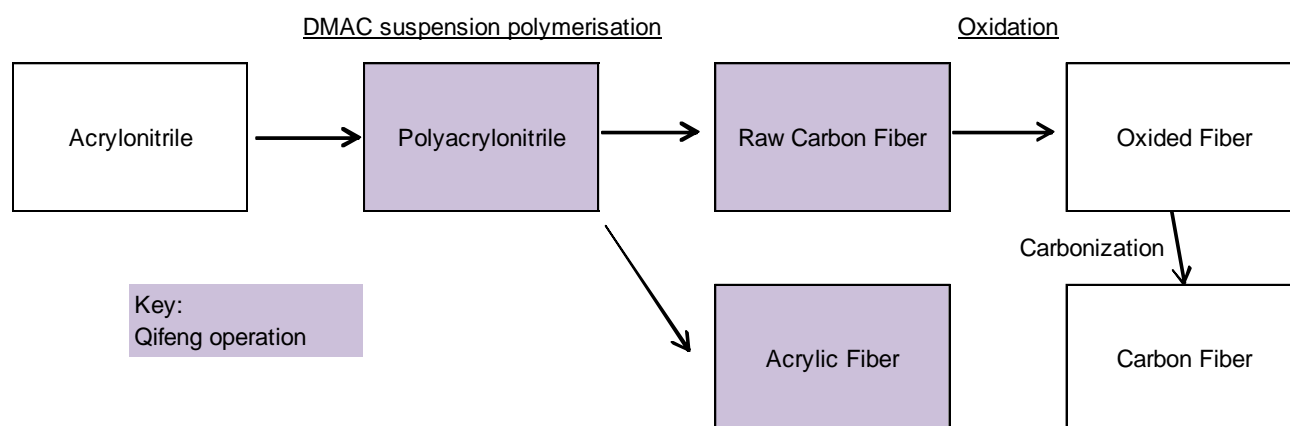
	Orlon-ACN-differential	Gross margin (%)	2010F RMB m	2011F RMB m	2012F RMB m
Crude at US\$60 / barrel	5,500	16.9%	165.2	191.6	232.0
Crude at US\$80 / barrel	5,000	14.2%	112.5	130.5	160.8
Crude at US\$100 / barrel	4,500	11.4%	59.9	69.4	89.6

Source: SBI E2-Capital

Introducing raw carbon fiber into product portfolio. Carbon fiber is a high performance new fiber material with exceptional strength and widely used for military, industrial and civic purposes. Core technology involves production of quality raw carbon fiber. At the end of 2009, with the core technology knowhow, 3 leading Japanese companies, Toray Industries (3402 JP), Mitsubishi Rayon (3404 JP) and Toho Tenax (private) together captured 70% market share of global carbon fiber market. In China, without foreign technology support, inefficient small scale domestic production provided insignificant annual supply due to limitation on raw carbon fiber, far below 6,000 tons demand in China in 2009. At RMB100,000 per ton ASP for 12K carbon fiber price (as compared to as high as RMB500,000 per ton of 1-3K price for military use), currently the carbon fiber market in China represents at least RMB600m revenue a year.

- Qifeng in excellent position to tap raw carbon fiber market.** Qifeng began research on raw carbon fiber in 2006. It trail-produced small volume in 2008 and the carbon fiber products received good demand. In particular, 1-3K raw carbon fiber for military use received especially strong demand. Overall realized ASP of raw carbon fiber was above RMB100,000 per ton in the past 2 years. In 2009, Qifeng received patent on raw carbon fiber technology and received a lump-sum government subsidy of RMB16m. In fact, the company was not the first Chinese company to develop raw carbon fiber. However, previous domestic research did not capture the core technology. Instead, Qifeng is in a better position to engage in raw carbon fiber development largely because raw carbon fiber is an acrylic fiber-based material. Indeed, leading Japanese carbon fiber producers such as Toray Industries and Mitsubishi Rayon were acrylic fiber producers in the past. We believe Qifeng was experienced in acrylic fiber production and well positioned to upgrade itself to a raw carbon fiber producer.

Chart set 3. Qifeng production of PAN based raw carbon fiber



Source: Company data, SBI E2-Capital

- **Profit projection for raw carbon fiber segment in 2012.** The management targets to install 3,500 tons raw carbon fiber production facilities by 2H 2011. Here we conservatively assumes ASP of RMB50,000 per ton based on 12K raw carbon fiber price and production cost of RMB30,000 per ton. At 90% utilization rate (as of year beginning capacity) due to high expected demand for raw carbon fiber, raw carbon fiber segment should bring RMB158m revenue and RMB63m in 2012. Our ASP assumption is subject to adjustment based on market environment, and an extra profit of RMB31.5m will be recognized for every RMB10,000 increment on ASP per ton in 2012. The company was granted 5,000 tons permit where further expansion is possible.

Table 4. Raw carbon fiber segment profit estimates

	2010F	2011F	2012F
ASP RMB per ton	50,000	50,000	50,000
Cost of production RMB per ton	35,000	32,500	30,000
Gross profit margin	30.0%	35.0%	40.0%
Year-begin capacity ton	150	1,500	3,500
Utilization rate	90%	90%	90%
Segment revenue RMBm	6.8	67.5	157.5
Segment profit RMBm	2.0	23.6	63.0
ASP + RMB 10,000 per ton			
Segment profit increment RMBm	1.4	13.5	31.5

Source: SBI E2-Capital

- **Raw carbon fiber segment valuation discussion.** Qifeng may migrate itself into a raw carbon fiber producer beyond 2012. Besides profit incremental to the company, we believe valuation multiples applied on raw carbon fiber segment would stay high. Peers producing acrylic fibers are generally trading near book value with P/B ~0.7x, while carbon fiber producers were generally trading much higher than 1.0x. Initially Qifeng plans to further invest RMB300m in the new segment.

Table 5. Market valuation of carbon fiber producers

Company	Ticker	Mkt Cap (US\$m)	Fiscal Year End	P/B (x)	ROE (%)
TORAY INDUSTRIES	3402 JP	96,728.3	03/2010	1.6	(3.0)
MITSUB RAYON CO	3404 JP	29,249.4	03/2010	1.4	(16.7)
HEXCEL CORP	HXL US	215.1	12/2009	2.9	10.4
SGL CARBON SE	SGL GR	212.5	12/2009	2.2	(8.0)
ZOLTEK COS	ZOLT US	47.5	09/2009	1.2	(1.3)

Source: Bloomberg

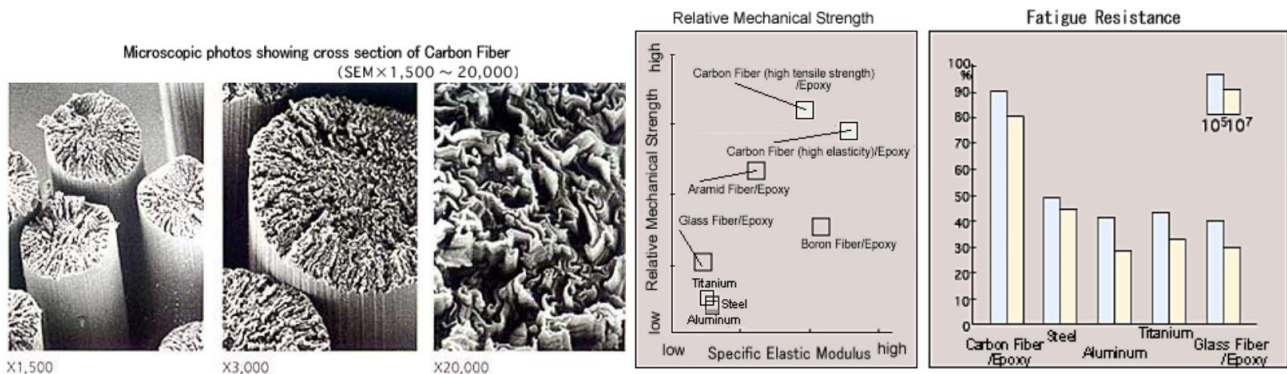
Firm-wide valuation discussion. We prefer to value the acrylic fiber segment and raw carbon fiber segment separately. Although acrylic fiber market is relatively mature, Qifeng is currently trading at a discount to book value at 0.69x P/B, which is less-than-fair, in our view. We expect acrylic fiber segment deserves at least its par book value due to its ongoing profitability. On top of acrylic fiber business, Qifeng is migrating itself towards raw carbon fiber production. The company stands a good chance to breach a critical mass and delivers RMB63.0m EBIT in 2012, which is ~30% overall EBIT. Raw carbon fiber segment could receive a just valuation upon successful migration.

Risk factors. There are risks associated with acrylic fiber products as well as raw carbon fiber to be launched: 1) Orlon-ACN-price differential may fall unexpectedly below RMB4,000 per ton; 2) The company may fail to mass produce raw carbon fiber in 2012; 3) The company may fail to capture local demand due to competition from abroad.

Reference material – carbon fiber and its application. Carbon fiber is widely adopted in different areas such as aircrafts, aerospace, missiles, buildings, civil engineering, automobile, power generation, electronics, industrial equipments and medical devices mainly because of its unique characteristics:

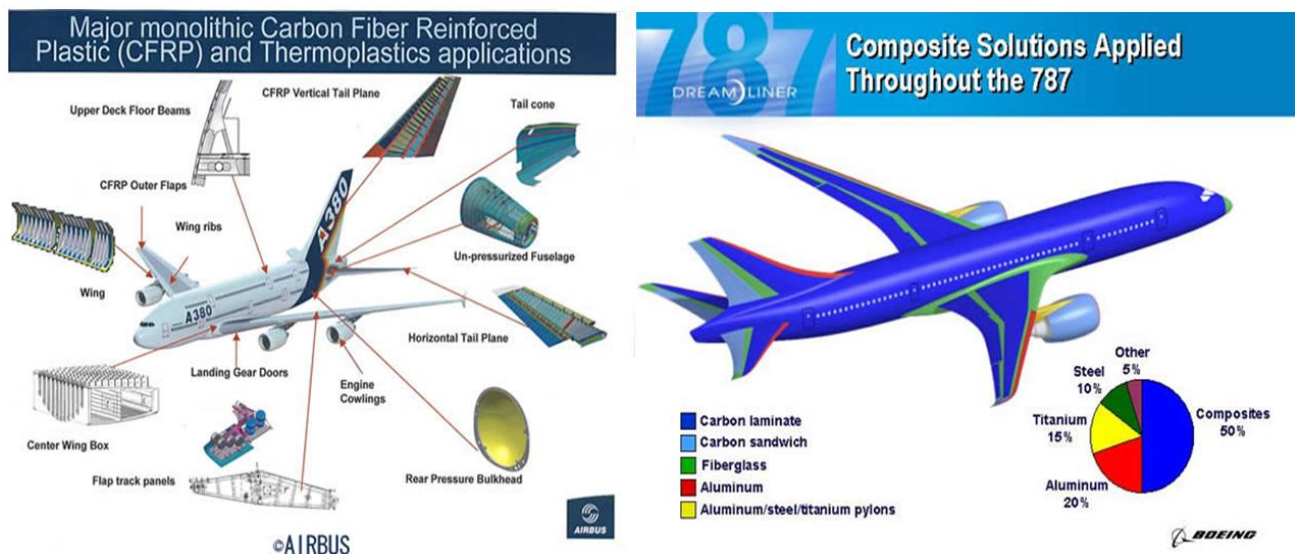
- ❑ Mechanical performance. Carbon fiber is light in weight yet strong and fatigue resistant.
- ❑ Thermal characteristics. Carbon fiber has low expansion ratio and high heat resistance
- ❑ Electric behaviour. Carbon fiber has high electric conductivity and excellent EMI shielding property
- ❑ Others. Carbon fiber has magnificent X-ray permeability

Chart set 4. Carbon fiber characteristics



Source: The Japan Carbon Fiber Manufacturers Association

Chart set 5. Carbon fiber on Airbus A380 and Boeing B787



Source: Airbus, Boeing, The Japan Carbon Fiber Manufacturers Association

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