

Basic Materials

China Glassmakers: Margin Expansion Continues; Initiate with Positive Stance

Key Takeaway

We believe margin expansion for the glass industry seen in 1H16 will continue, led by positive supply/demand dynamics and lower natural gas costs. We believe the construction upcycle has not peaked and glass ASP can sustain during 4Q. Natural gas cost can fall further as the government eliminates 'middle men' costs. We initiate with a Buy on Xinyi and Fuyao, with Xinyi Glass as our preferred name as it is more leveraged to the margin expansion theme.

Similar but better than the cement industry: We see a strong correlation between demand for float glass and cement, as they are both closely tied to construction demand in China. However, we believe supply/dynamics for float glass industry is moderately better given there is much less state-owned enterprise (SOE) involvement, and the government has historically allowed major glass companies to file for bankruptcy.

Strong price hike in August to sustain till year-end: The average float glass price has gone up by >10% in August alone, which we believe is driven by the upbeat construction demand. We think the most recent property upcycle has not peaked, despite the recent property price curbing measures in Nanjing, Suzhou (and speculation in Shanghai). We think the magnitude of growth should slow in 4Q16 but will still be considerably higher vs last year. We expect glass ASP to sustain during the traditional 4Q peak season.

Natural gas cost can go down further: To cope with the falling oil price in 2H14, NDRC has cut natural gas price by >20% in November 2015. Overall gas demand growth has recovered YoY since the cut; however, it is still not at government's expected level, according to our Oil and Gas Analyst, Laban Yu (see [here](#)). The government may try to lower gas prices further by eliminating the unjustified 'middle men' costs, which accounts for ~22% of the retail gas price. For every 5% decline in natural gas cost, we estimate earnings of Xinyi Glass and Fuyao Glass can increase by 7% and 5% for 2017, respectively.

New capacity to put pressure on ASP only in 2017: The mismatch in demand/supply has resulted in >25% YTD increase in float glass price. We believe the mismatch was due to some glass manufacturers' decision to close down or put their capacity into major maintenance this year following negative demand in 2015. Going forward, we expect construction demand to remain strong in 1H17 and new float glass capacity to outpace demand growth slightly, which could put pressure on ASP, but we don't expect ASP to fall dramatically again, like in 2014.

Xinyi Glass is our preferred pick: We initiate on Xinyi Glass at Buy, as we expect the margin expansion to continue on positive supply/demand dynamics. It would be a key beneficiary if natural gas cost goes down further. We prefer Xinyi to Fuyao, as it is more leveraged to the margin expansion theme. Our PT of HK\$8.6 is based on SOTP valuation, implying 9x 2017E P/E, slightly above the historical average. Xinyi Glass' shares currently offer a dividend yield of 5%, which looks attractive.

We initiate with Buy on Fuyao: We like Fuyao Glass's stable auto glass business with less fluctuation in ASP and sales volumes, and margin upside from its value-added functional glass product. Fuyao should also benefit if natural gas cost goes down further. However, the overseas capacity expansion could put pressure on margin in the near term. Our PT of HK \$24.0 is based on DCF with 8.9% WACC. Fuyao Glass is currently trading at 14x 2017E P/E with a dividend yield of 5%, still moderately attractive, in our view.

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^Prior trading day's closing price unless otherwise noted.

Company Name	Ticker	Mkt. Cap (MM)	Rating	Price	Price Target	Cons. Next FY	Current EPS Estimates			Valuation (P/E)	
							2015	2016	2017	2016	2017
Fuyao Glass	3606 HK	HK\$52,563.6	BUY	HK\$20.95	HK\$24.00	RMB1.20	RMB1.10	RMB1.18	RMB1.24	15.3x	14.5x
Xinyi Glass	868 HK	HK\$29,335.1	BUY	HK\$7.48	HK\$8.60	HK\$0.72	HK\$0.53	HK\$0.79	HK\$0.92	9.5x	8.1x

Table of Contents

INDUSTRY OVERVIEW	4
Float glass demand/supply dynamics	4
Global automotive glass industry.....	13
China's automotive glass industry.....	14
Construction glass overview	17
FINANCIAL COMPARISON	19
XINYI GLASS (868 HK, BUY, PT HK\$8.6)	21
Business Update.....	22
Production Complexes at Strategic Locations	24
Product differentiation	24
PT of HK\$8.6.....	27
Risks	27
Shareholding structure	29
Management Background.....	30
FUYAO GLASS(3606 HK, BUY, PT HK\$24.0)	32
Business Update.....	33
How to gain market share in auto market?.....	34
High Entry Barriers	35
PT of HK\$24.0.....	38
Risks	38
Shareholding structure	41
Management background.....	42
APPENDIX 1: CHEMISTRY OF GLASS MAKING	44
APPENDIX 2: DEFINITION OF WEIGHT CASE	46

Initiating coverage of glass sector

We initiate coverage of China glass sector with a positive outlook. We expect the margin expansion seen in the first half of 2016 to continue, led by positive supply/demand dynamics and lower natural gas costs. The recent up-cycle in property construction has not peaked, in our view. Glass price should hold up during traditional 4Q peak season. In addition, we believe the government may try to generate lower gas price by eliminating ‘middle men’ costs. Our order preference is Xinyi Glass followed by Fuyao Glass, as we believe Xinyi Glass is more leveraged to the margin expansion theme.

Table 1: Glass companies – valuation comparison

Company	Ticker	Mkt cap (US\$ bn)	Price (local curr.)	Target (local curr.)	Upside to Rec. target	P/E (x)		P/B (x)		EV*/EBITDA (x)		ROE (%)		Div Yield (%)		
						2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	
Glass - H																
Fuyao Glass	3606 HK	6.2	20.95	24.00	Buy	15%	15.2	14.5	2.4	2.3	7.0	6.3	17.0	16.8	4.8	5.4
Consensus							15.1	13.3	2.5	2.3	8.8	7.6	17.3	18.3	4.3	4.8
Xinyi Glass	868 HK	3.7	7.36	8.60	Buy	17%	9.3	8.0	1.9	1.7	9.7	8.7	20.8	21.3	5.3	6.2
Consensus							10.0	8.6	2.0	1.8	9.3	8.1	20.9	22.0	4.6	5.4
Flat Glass	6865 HK	0.4	1.90		NC		5.6	5.3	0.8	0.8	nmf	nmf	19.1	17.0	nmf	nmf
Average							10.1	9.3	1.7	1.6	8.4	7.5	19.0	18.4	5.1	5.8
Glass - A																
Luoyang Glass - A	600876 CH	1.3	25.61		NC		nmf	nmf	nmf	nmf	nmf	nmf	4.5	6.2	nmf	nmf
Fuyao Glass - A	600660 CH	6.2	16.19		NC		13.9	12.3	2.3	2.1	8.9	7.7	16.9	17.8	4.7	5.1
CSG Holdings	000012 CH	2.9	11.31		NC		28.1	22.3	2.7	2.6	13.2	10.4	9.8	11.5	2.7	2.7
Zhuzhou Kibing Group	601636 CH	1.5	3.74		NC		14.8	15.4	1.6	1.5	8.5	7.6	11.1	10.6	nmf	nmf
Jinjing Group	600586 CH	1.0	4.53		NC		40.1	32.6	1.6	1.8	9.6	8.9	3.8	4.4	nmf	nmf
Average							24.2	61.7	3.5	3.4	10.0	8.6	6.7	9.1	3.7	3.9

Source: Company data, Jefferies estimates, NC data from Bloomberg, closing prices as of 20 Sept. 2016

We initiate coverage of Xinyi Glass (868 HK) with a Buy rating and PT of HK\$8.6. We arrive at our PT based on SOTP valuation methodology, valuing its glass business (float/auto/construction glass) at 11x 2017E earnings and Xinyi Solar at the current market price. Out PT of HK\$8.6 implies 9x 2017E P/E and 2.0x 2017E P/B, slightly above the historical average. Xinyi Glass is an integrated glass company with most of its float glasses production (~80%) sold externally, directly benefiting from the recent float glass ASP hike and lower natural gas costs. We expect the margin expansion we saw in 1H16 to continue on the back of positive supply/demand dynamics. The company would be a key beneficiary if natural gas cost goes down further. Xinyi Glass’s shares are currently trading at 8x 2017E PE with a dividend yield of 5%, which looks attractive.

We initiate coverage of Fuyao Glass (3606 HK) with a Buy rating and PT of HK\$24.0. We arrive at our PT based on DCF with 8.9% WACC. Our PT of HK\$24.0 implies 16x 2017E P/E and 2.7x 2017E P/B. Fuyao Glass is a major automotive glass manufacturer, directly benefitting from robust auto sales growth in China and worldwide. We like Fuyao Glass’ stable auto glass business with relatively more stable ASP and sales volumes, as well as margin upside from value-added functional glasses. Fuyao should also benefit if natural gas cost goes down further. However, the overseas capacity expansion could put pressure on margin in the near term. Fuyao Glass’s shares are currently trading at 14x 2017 PE with a dividend yield of 5%, still moderately attractive, in our view.

Risks

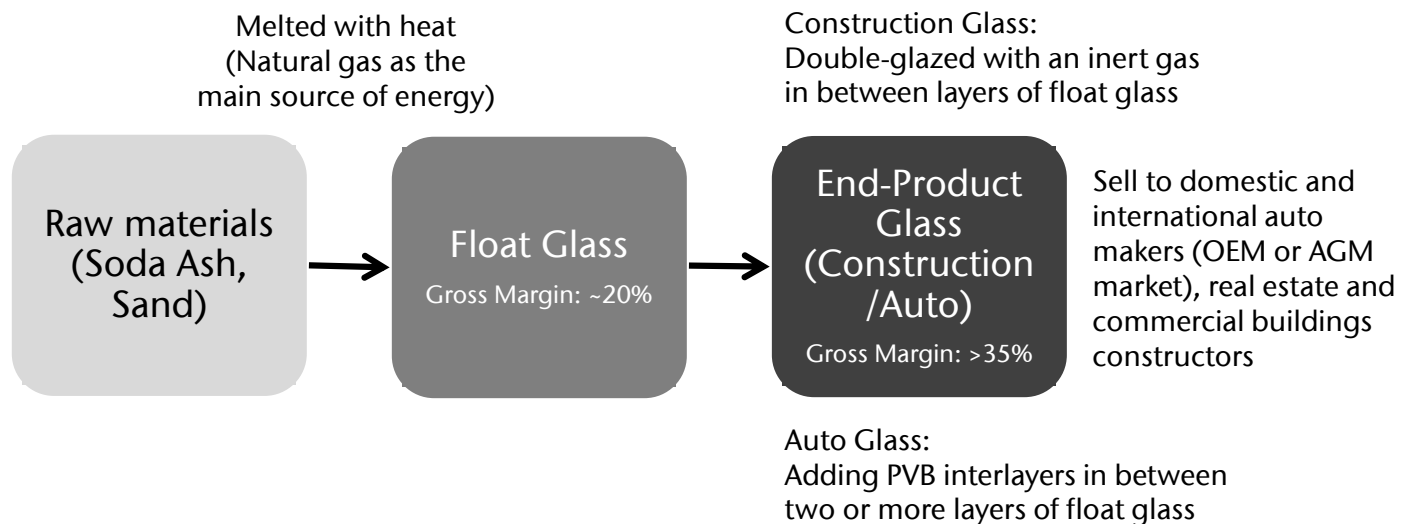
Xinyi Glass: 1) New liquidity tightening policies; 2) collapse in glass price due to oversupply; 3) delay in commencement of new capacity in Malaysia.

Fuyao Glass: 1) Delay in overseas capacity expansion; 2) increase in expenses due to overseas capacity expansion; 3) intensifying competition in the functional glass segment

Industry overview

The value chain of the glass industry can be divided into three parts: raw materials (soda ash & sand), float glass and end-product glass (construction glass and auto glass, among others). Xinyi and Fuyao procure raw materials from external suppliers, manufacture float glass and then turn these into end-product glasses. Xinyi sells some of its float glass directly to customers and manufactures the remainder into end-product glass (80%), while Fuyao uses most of its float glass internally to manufacture to end-product auto glass for customers. End-product glass has higher gross margin vs float glass due to its less commoditised nature, superior technological know-how, and differentiated qualities.

Table 2: Manufacturing value chain for glass



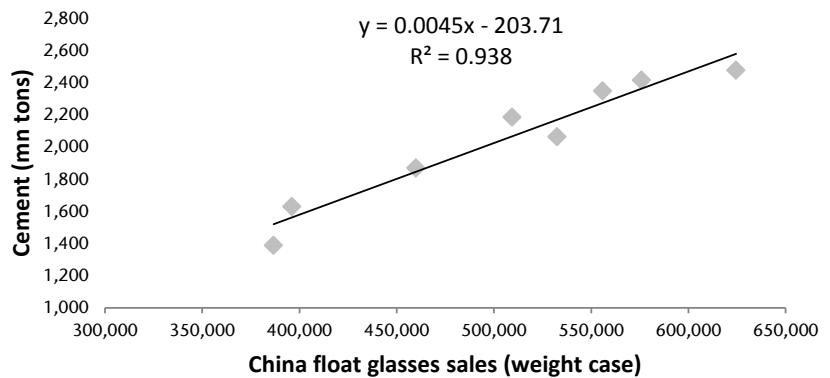
Source: Company data, Jefferies

Float glass demand/supply dynamics

Float glass demand

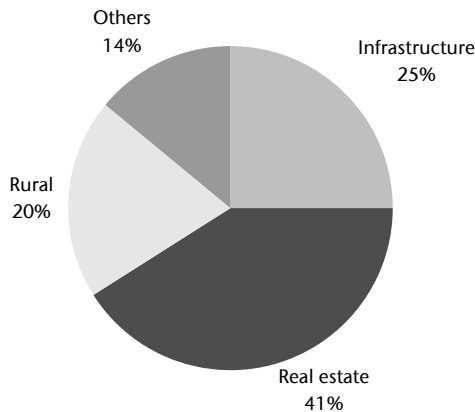
We will first explore the supply/demand dynamics for float glass, the largest cost component of end-product glass, accounting for 30-50% of end-product glass's cost. In China, the largest driver for float glass demand is construction, accounting for ~70% of the total float glass demand. Similar to float glass, cement demand in China is mainly driven by real estate and infrastructure, with the two segments accounting for more than 60% of total cement demand in China. Chart 1 shows China's float glass and cement demand has a very strong correlation – R square of 0.94 for the past eight years.

Chart 1: China float glass demand (horizontal) vs cement (vertical): R square is high at 0.94



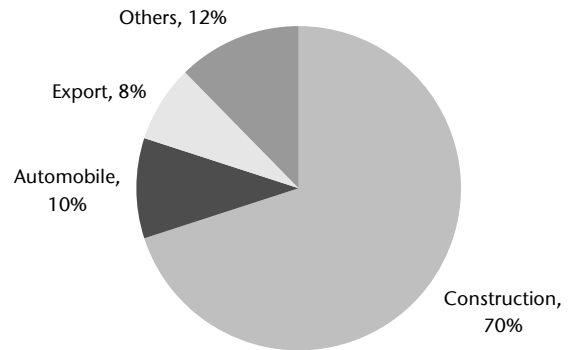
Source: WIND, Jefferies

Chart 2: Cement demand breakdown – real estate and infrastructure combined account for >60% of demand



Source: Digital Cement, Jefferies estimates

Chart 3: Glass demand breakdown – construction accounts for >70% of demand



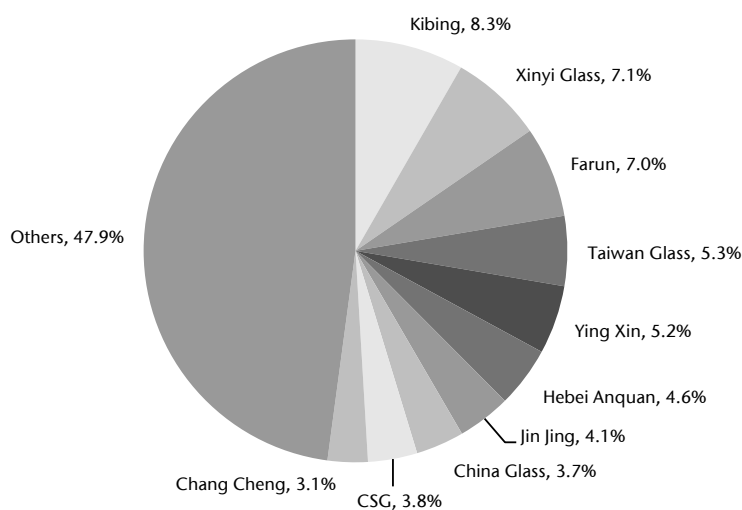
Source: GlassinChina, Jefferies estimates

Float glass price has risen >25% YTD, as construction demand has picked up since the beginning of the year, although we think the magnitude of construction growth would slow in 4Q16. However, we believe it will still be considerably higher compared with last year. For 2017, we believe there is risk that construction demand would slow down in the second half but shall be offset by growth from auto demand. In summary, we believe float glass demand would be flat next year.

Float glass supply

Unlike the cement industry, there is lesser SOE involvement in the glass industry. The government is determined to fix the overcapacity issues and does not bail out loss-making glass companies. For example, in October last year, Jiangsu Farun Glass, a major float glass manufacturer with 20+ production lines (7% of total capacity) and >8,000 employees, announced bankruptcy. The company was the largest float glass manufacturer by sales volumes in 2013. In addition, float glass producers in China are very fragmented, with top-10 players accounting for only ~50% of the total market share.

Chart 4: Top-10 float glass producers in China (2014): very fragmented; top-10 players control just slightly above 50% market share



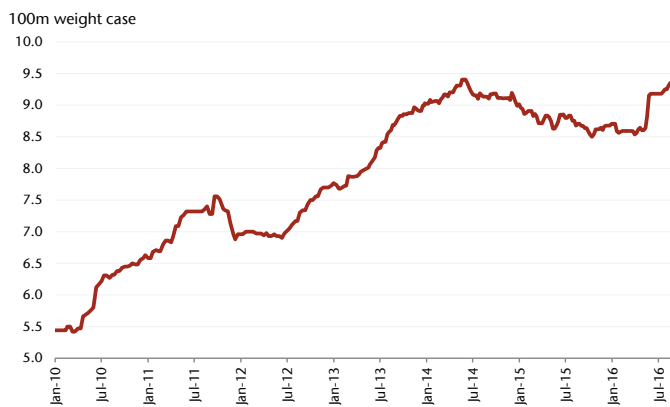
Source: SCI99, Jefferies

Table 3: China float glass supply and demand: operating capacity to be flat YoY in 2016 while utilization increase driven by demand growth from construction and auto

		2010	2011	2012	2013	2014	2015	2016E	2017E	2018E
Capacity - Operation	m weight case	601	692	719	842	916	875	892	919	919
Operational Capacity YoY Chg.	%	29%	15%	4%	17%	9%	-5%	2%	3%	0%
Production	m weight case	481	549	510	592	636	567	580	597	597
YoY %		20%	14%	-7%	16%	7%	-11%	2%	3%	0%
Utilization Rate	%	80%	79%	71%	70%	69%	65%	65%	65%	65%
Demand	m weight case	469	534	504	582	627	562	586	591	596
		15%	14%	-5%	15%	8%	-10%	4%	1%	1%
Construction	m weight case	333	386	360	409	437	394	409	409	409
		42%	16%	-7%	13%	7%	-10%	4%	0%	0%
Domestic Automobile	m weight case	62	63	66	75	81	84	92	96	99
		32%	2%	4%	14%	7%	5%	9%	4%	4%
Export	m weight case	35	37	35	39	44	43	44	45	46
		5%	8%	-6%	11%	12%	-2%	2%	2%	2%
Others	m weight case	39	46	43	58	65	41	41	41	41
		-59%	20%	-8%	37%	11%	-36%	0%	0%	0%

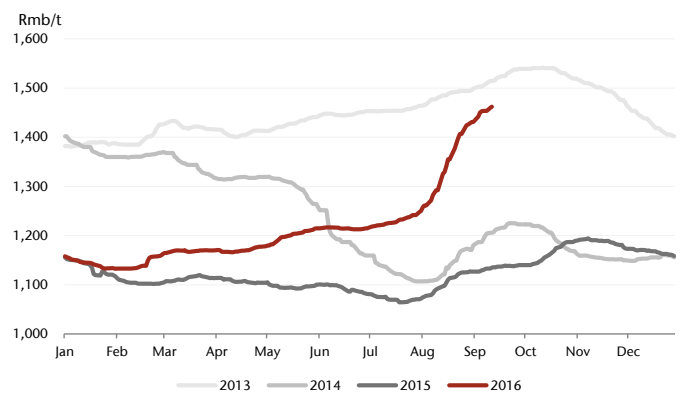
Source: Glass info, Wind, GlassinChina, Jefferies estimate

Chart 5: Capacity in operation has gone up with ASP increase



Source: Wind, Jefferies

Chart 6: National average ASP jumped in August driven by the upbeat construction demand



Source: Wind, Jefferies

Policies to curb new capacity

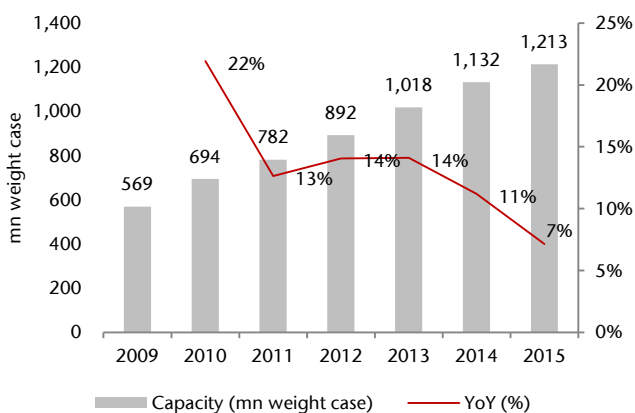
Similar to other basic material industries, the float glass industry has been facing oversupply issues for the last couple of years. Despite the continued efforts by the government to eliminate old capacity, we expect the growth of operating capacity to still outpace demand growth slightly going forward, putting pressure on glass price next year, but we don't expect ASP to fall dramatically again like 2014. In Table 4, we list the key historical policies for glass industry capacity.

Table 4: Key historical policies for glass industry capacity

Date:	Policy	Government Agencies:	Details:
2016	Guidance to Increase Efficiency and Steady Growth of the Building Materials Industry	State Council	No new lines approval or replacement by 2020
2015	Elimination Targets of Backward Capacity (2015)	MIIT	Listed the name and size of companies with backward capacity
2013	Guidance to Resolve the Serious Overcapacity Issue	State Council	Eliminate 20mt weight case of backward flat glass production capacity by 2015
2010	Notice of Further Strengthening the Elimination of Backward Production Capacity	State Council	Eliminate backward flat glass production capacity using horizontal drawing process

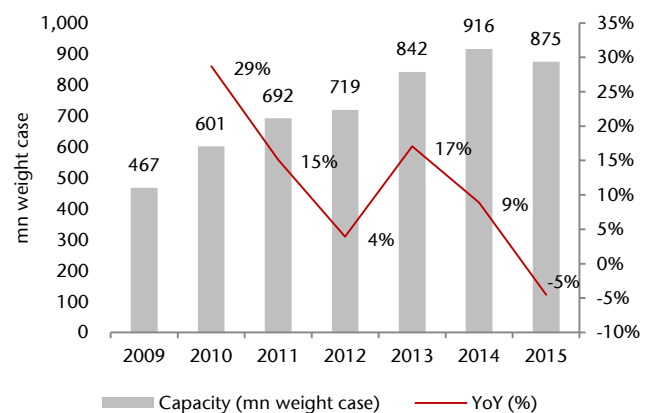
Source: State Council, MIIT, Jefferies

Chart 7: Total glass capacity: still grew by 7% in 2015



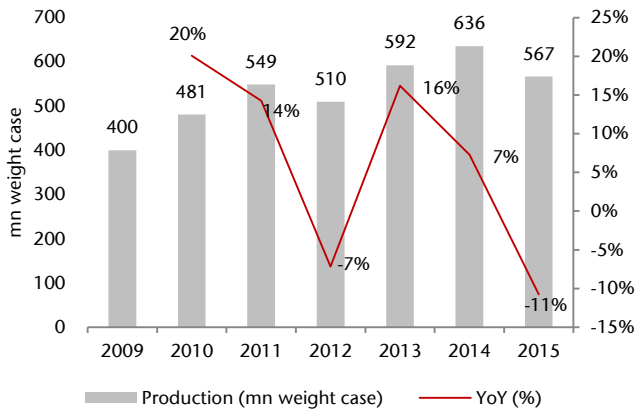
Source: Wind, Jefferies

Chart 8: Operating glass capacity down by 5% yoy in 2015



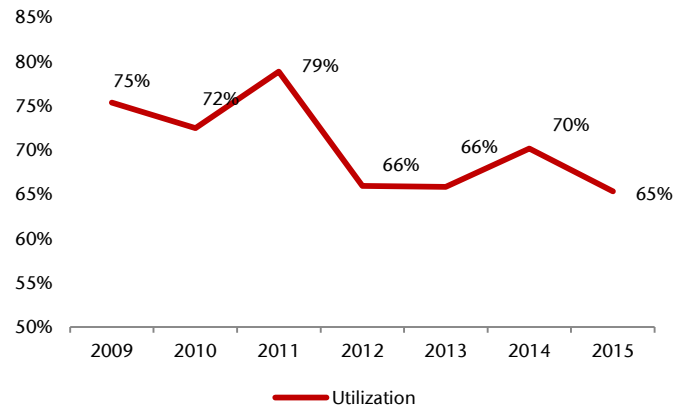
Source: Wind, Jefferies

Chart 9: Total glass production in China: down 11% yoy in 2015



Source: Wind, Jefferies

Chart 10: Glass facilities utilization rate: fell to 66% in 2015



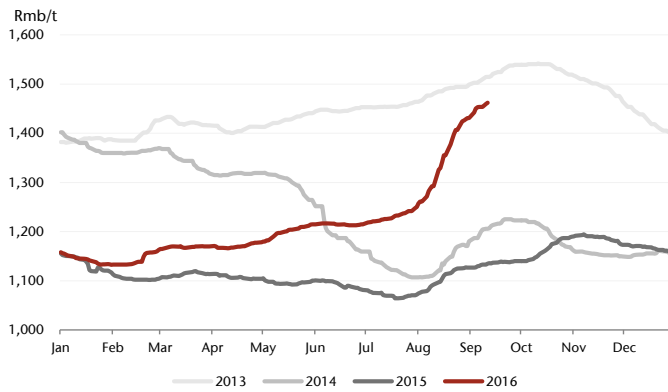
Source: Wind, Jefferies

Glasses prices – ASP

The strong construction demand came as a surprise to most glass manufacturers this year, as some of them have decided to close down or put their capacity into major maintenance after seeing the negative production in 2015. Construction demand growth combined with auto glass demand growth has resulted in a mismatch between demand and supply, leading to glass price rising by >25% YTD. We believe the magnitude of growth should slow in 4Q16 but will still be considerably higher compared to last year. Glass ASP should hold up during the traditional 4Q peak season.

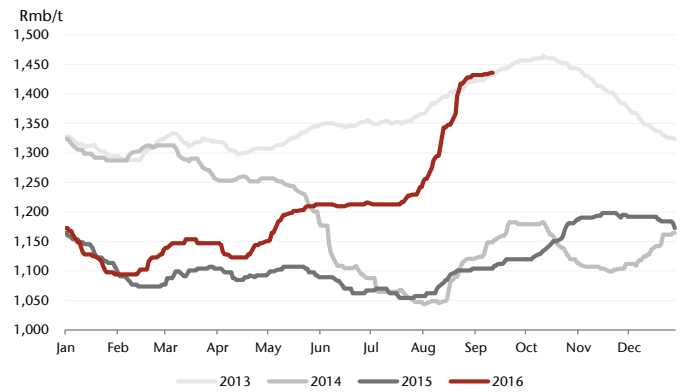
However, as a result of under-utilized capacity and the new capacity this year, the price hike we saw may come to an end by next year as we enter the traditional low season/CNY holiday.

Chart 11: National average float glass price in China (5mm; Rmb/t)



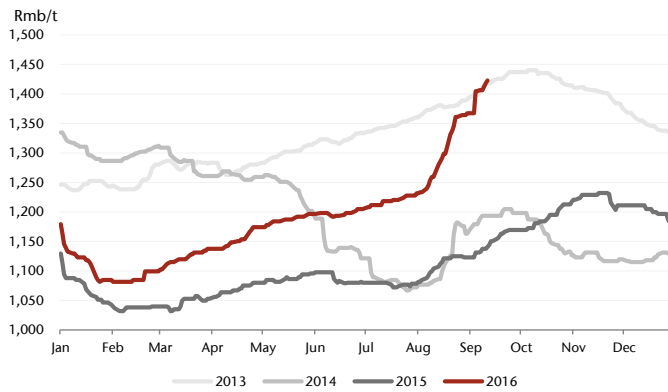
Source: Wind, Jefferies

Chart 12: Beijing float glass price in China (5mm; Rmb/t)



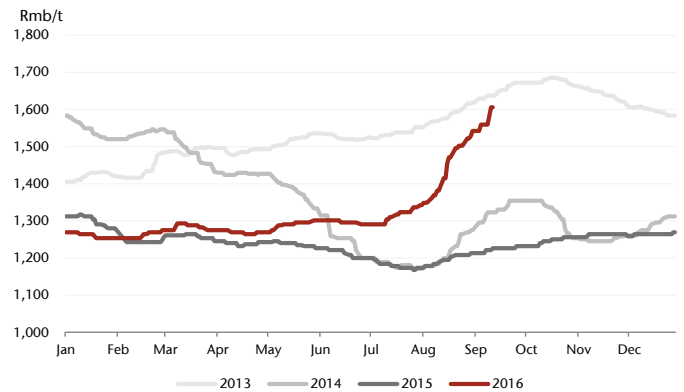
Source: Wind, Jefferies

Chart 13: Shanghai float glass price in China (5mm; Rmb/t)



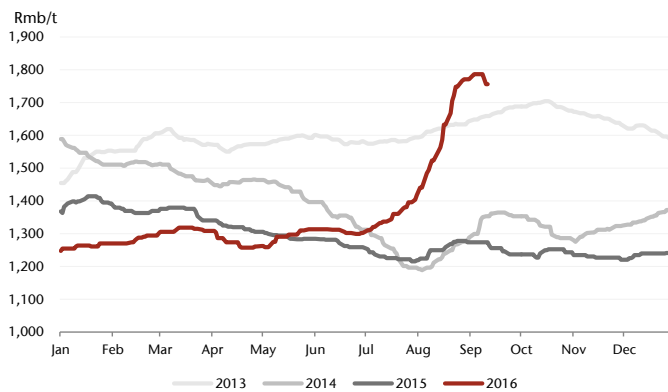
Source: Wind, Jefferies

Chart 14: Guangzhou float glass price in China (5mm; Rmb/t)



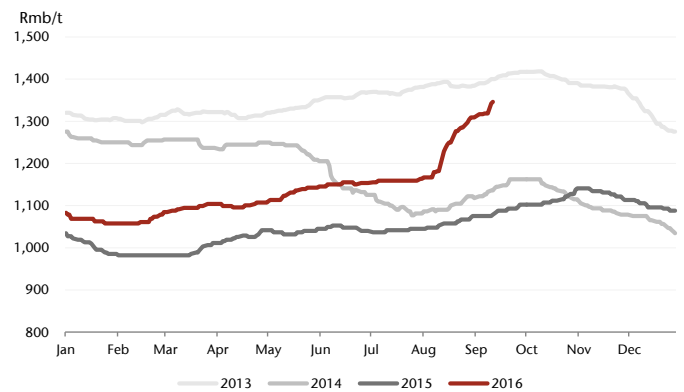
Source: Wind, Jefferies

Chart 15: Chengdu float glass price in China (5mm; Rmb/t)



Source: Wind, Jefferies

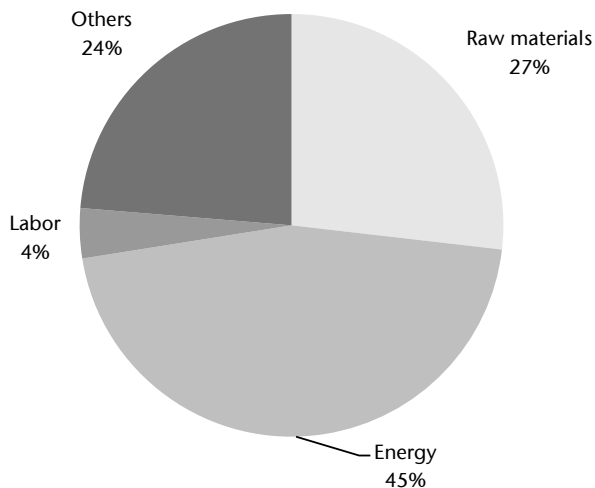
Chart 16: QHD float glass price in China (5mm; Rmb/t)



Source: Wind, Jefferies

Cost of float glass

Chart 17: Energy (mainly natural gas) and raw materials (mainly sodium ash) accounts for >70% of the cost of Float Glass



Source: Company data, Jefferies

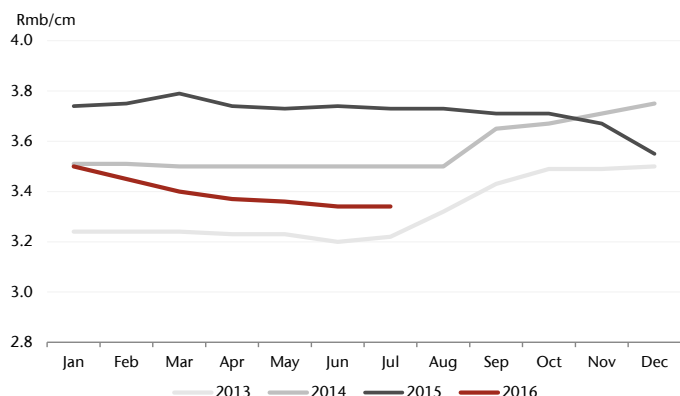
Both Fuyao and Xinyi use natural gas as their main source of energy in their float glass production due to 1) better quality control and 2) compliance with the latest environmental policies. Glass plants along the coast use LNG while inland glass plants use mainly piped gas. While LNG is set by the market (highly correlated to oil price), piped natural gas is set by the NDRC based on oil price but with a 6-12-month lag. To cope with the falling oil price in 2H14, the NDRC announced a >20% reduction in natural gas price in November 2015. Gas demand growth has recovered since the cut. However, it is still not at satisfactory levels, according to our Oil and Gas Analyst, Laban Yu ([see here](#)). The government may try to generate lower gas prices by eliminating ‘middle men’ costs, which cannot be attributed to upstream or midstream distributions, and accounts for 22% of the retail gas prices. We estimate that for every 5% decline in natural gas cost, earnings of Xinyi Glass and Fuyao Glass can increase by 7% and 5% for 2017, respectively

Chart 18: YTD Brent is still 20% lower than FY2015 average price



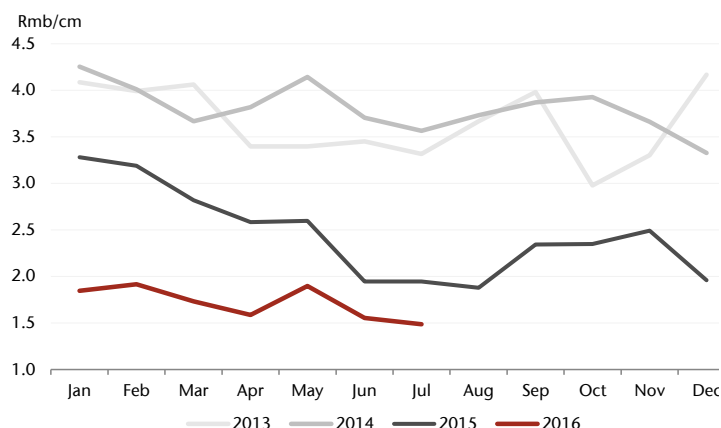
Source: Bloomberg, Jefferies

Chart 19: YTD average natural gas price (Rmb/cm) down ~9% YoY...



Source: Wind, Jefferies

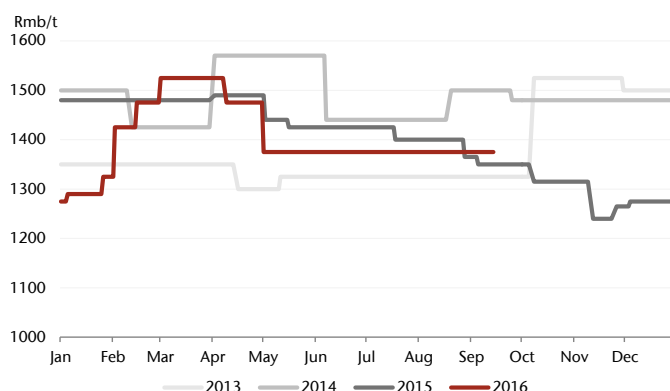
Chart 20: ...while YTD spot LNG (Rmb/cm) down ~35% YoY



Source: Wind, Jefferies

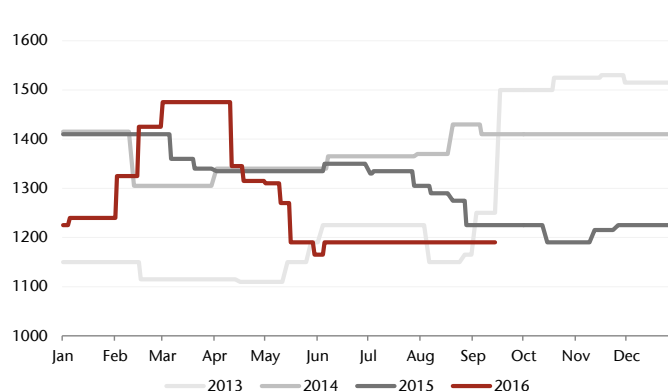
The other major cost component for float glass is soda ash, ~20% of cost. The average annual price of soda ash has been moving within the plus/minus 10% YoY range in the past five years. Given that soda ash accounts for only ~20% of total cost, the impact on overall gross margin fluctuates by less than 2% every year. Based on our cost assumptions, we would expect cost of soda ash to be flat going forward.

Chart 21: Tangshan Sanyou Soda Ash Price; YTD down 3% YoY



Source: Wind, Jefferies

Chart 22: Hubei Shuanghuan Soda Ash Price; YTD down 1% YoY



Source: Wind, Jefferies

Chart 23: Margin spread (ASP minus soda ash and natural gas cost)



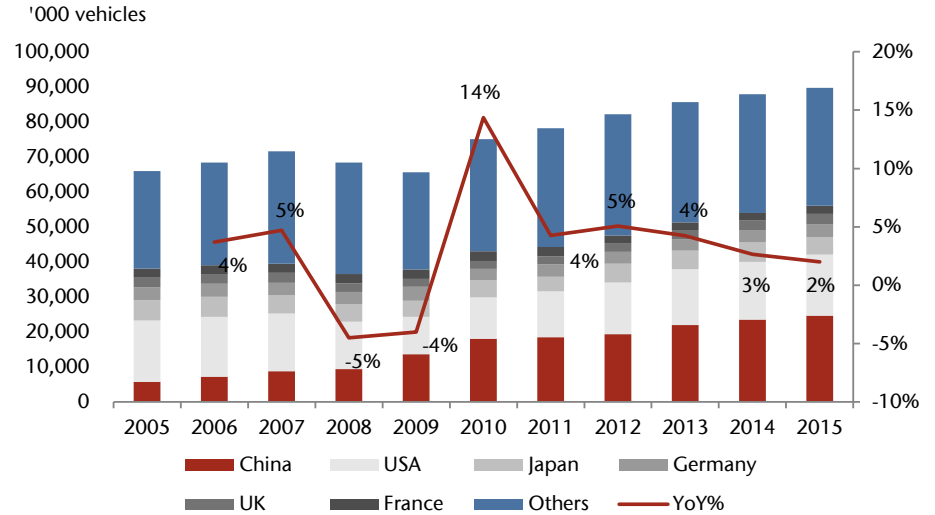
Source: SCI99, Jefferies

With overall natural gas prices coming down and slight fall in soda ash cost, we expect overall float glass cost to come down by 7% and 4% YoY for Xinyi and Fuyao, leading to 12% and 6% expansion in their float glass gross margins in 2016. However, margin expansion would slow to 1-2% in 2017 unless the government lowers natural gas prices further.

Global automotive glass industry

The global auto market has been growing at low single digits in the past five years. China and the US now account for >45% of total market sales in 2015. Roland Berger (independent market research used by Fuyao's H-share IPO) expects global auto sales to grow by **4% CAGR** and reach 105mn vehicles in 2018E, driven by the economic recovery in the US and Europe, and increasing demand in emerging markets. However, we adopt a more conservative stance and expect global auto sales to grow at ~3% per annum.

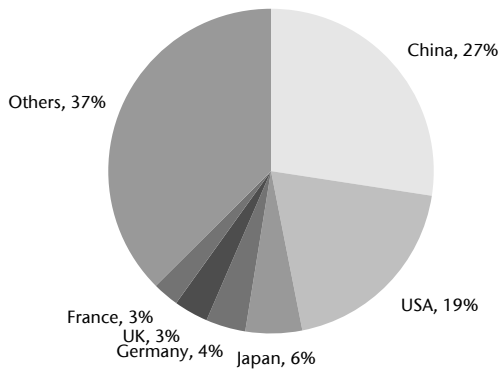
Chart 24: Global auto sales stabilize at low, single-digit growth rate with China continuing to increase share



Source: OCIA, Jefferies

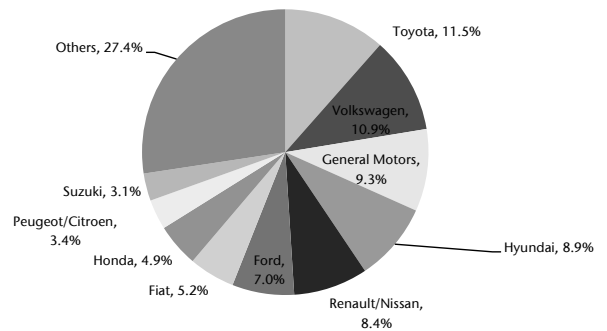
In terms of auto brand names market share, Toyota and Volkswagen are the largest in the world with 12% and 11% of the total market share globally. The top-10 brands account for ~75% of the total auto production.

Chart 25: Breakdown of auto sales by country: China is the largest, accounting for 27% of the total in 2015



Source: Roland Berger Report, Company data, Jefferies

Chart 26: Breakdown of auto production by brands: Toyota and Volkswagen are the largest in the world

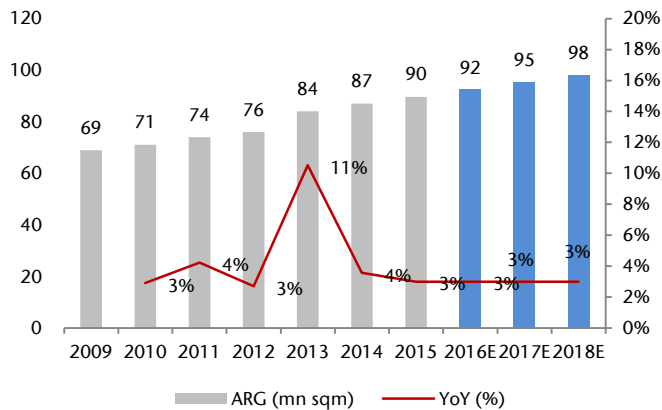


Source: Roland Berger Report, Company data, Jefferies

Expect global auto glass sales growth to be in line with auto sales

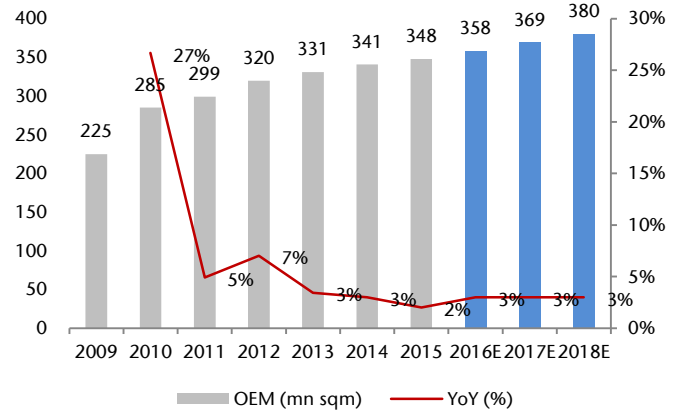
The size of the global auto glass market was about 430m square meters in 2015, with original equipment manufacturers (OEMs) accounting for 80% of the total sales. We would expect auto glass market to see growth rate similar to auto sales. The breakdown of OEM and aftermarket replacement glass (ARG) should also remain stable, with OEM accounting for 80% of the total auto glass sales.

Chart 27: ARG market: about ~90mn sqm in 2015 and should grow by roughly 3% in 2015-18E



Source: Company data, Jefferies

Chart 28: OEM market: about ~340mn sqm in 2015 and should grow by around 2% in 2015E-18E as well

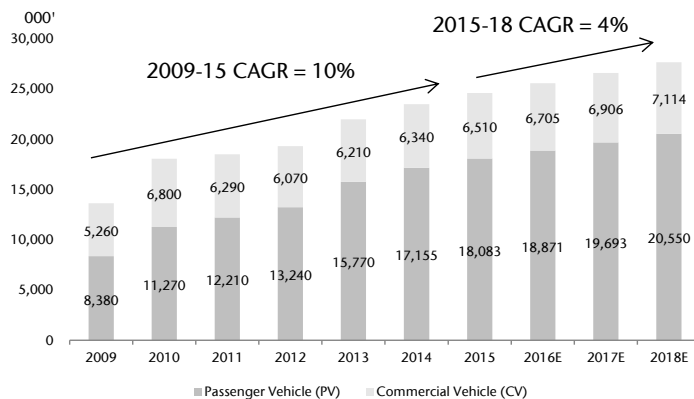


Source: Company data, Jefferies

China's automotive glass industry

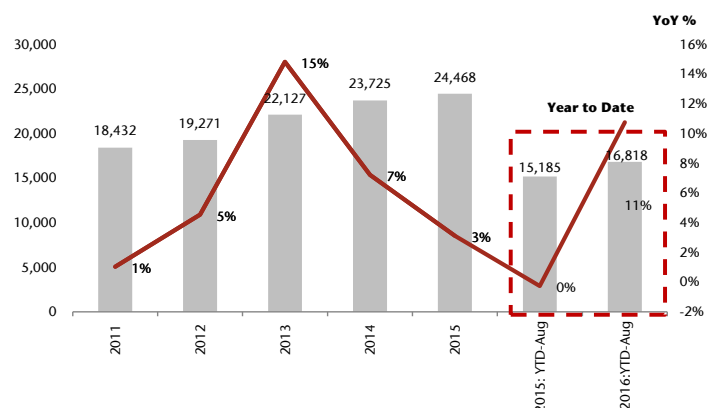
Roland Berger (independent market research used by Fuyao) expects China's auto market to grow 7% CAGR to ~31mn units in 2018E, much faster than the global auto production growth. YTD auto production growth in China was +11% YoY, exceeding the 3% growth we saw in 2015. However, we adopt a conservative stance and expect China auto sales to grow at around 4% going forward, continuing to outperform global market growth.

Chart 29: China's auto market sales to grow at 4% CAGR going forward; roughly 30% of the sales are commercial vehicle



Source: Company data, OCIA, Jefferies

Chart 30: YTD China auto production was up by 11% YoY, outperforming the +1% we saw in 2015

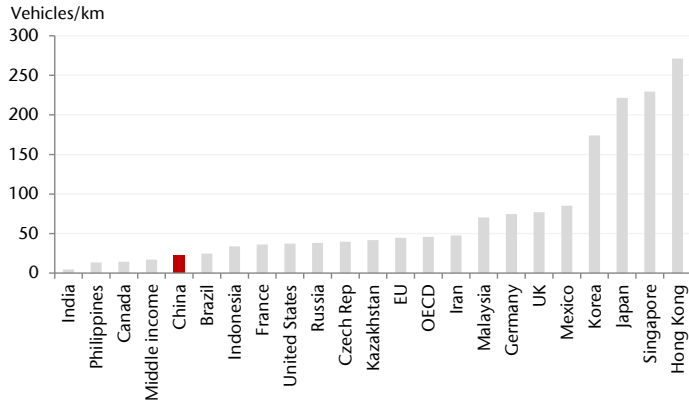


Source: Company data, Jefferies

Penetration still low

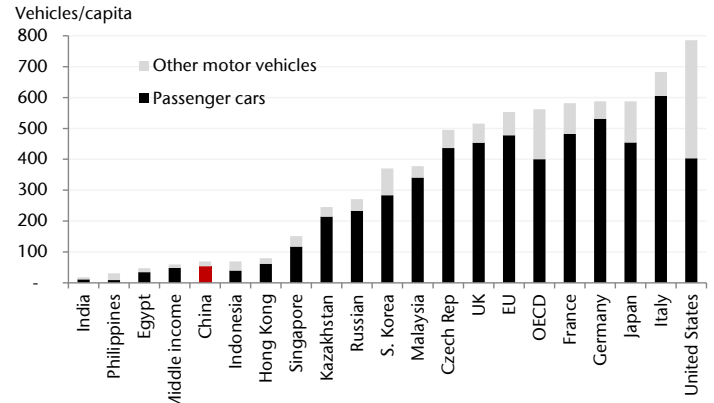
Although China's car market is the world's largest with 25m vehicles sold in 2015 and every multinational car maker is setting up JVs with local companies and building engineering and manufacturing centres in China, PV penetration still very low compared with developed countries. China's passenger car penetration is a mere 7.8 vehicles per 100 people as of 2011 (the US is at ~70).

Chart 31: Vehicle density on roads, 2011



Source: Word Bank, Jefferies

Chart 32: Vehicle penetration, 2011

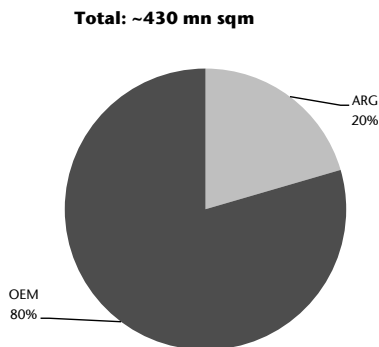


Source: World Bank, Jefferies

China – expect auto glass to outgrow auto production

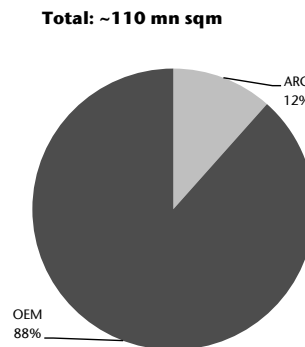
We expect China's OEM automotive glass sales volumes to grow at a CAGR of >4%, outpacing the expected growth of China's automobile production, primarily driven by increased usage of automotive glass per vehicle, due to increasing popularity of vehicle sunroofs as well as the increasing demand for luxury vehicles and value-added vehicle options and features. We expect auto glass for replacement (ARG) in China to grow by double digits given its low base.

Chart 33: Global: Breakdown of automotive glass market: 80% is OEM



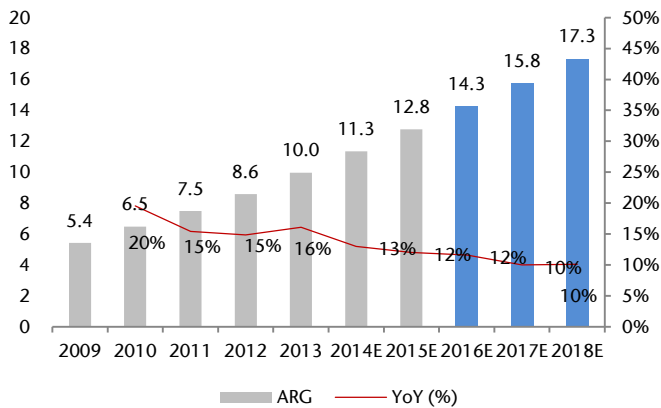
Source: Roland Berger Report, Company data, Jefferies

Chart 34: China –breakdown of automotive glass market: 88% is OEM



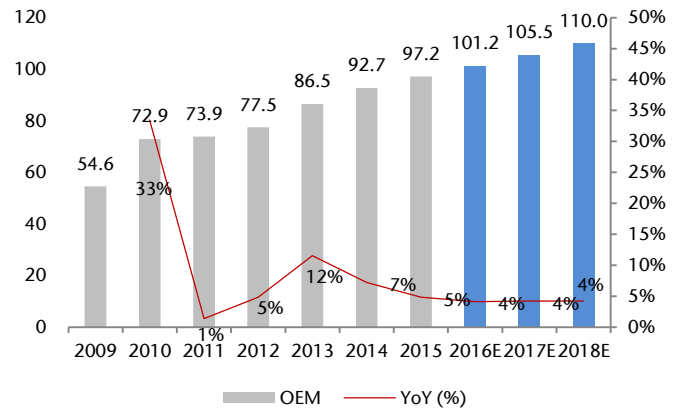
Source: Roland Berger Report, Company data, Jefferies

Chart 35: China's ARG market: expect double-digit growth on low base



Source: Company data, Jefferies estimates

Chart 36: China's OEM auto glass market: expect ~4% growth going forward

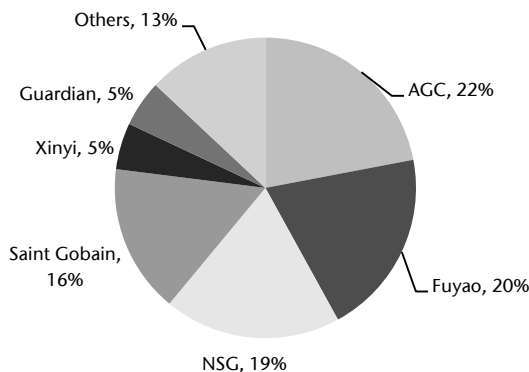


Source: Company data, Jefferies estimates

Pricing and cost

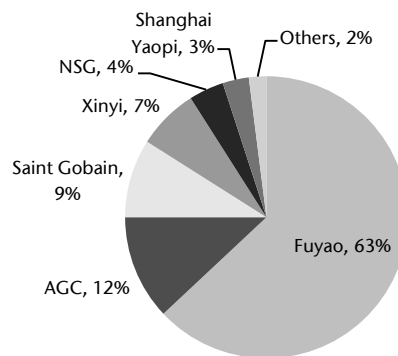
Auto glass industry has high entry barriers. It requires long-term business relationships with OEM customers, a comprehensive sales network, and advanced technology to meet the stringent technological requirements. As the entry barriers are high, auto glass market is much more concentrated compared with float glass, with the top-four players accounting for 77% of global auto glass sales and the top-five players accounting for 95% of China auto glass sales. As a result, auto glass' ASP is rather stable, as auto glass sellers have better bargaining power compared with float glass manufacturers.

Chart 37: Automotive glass market share: top-4 players account for 77% of global auto glass sales; concentrated market with larger bargaining power



Source: Fuyao Glass

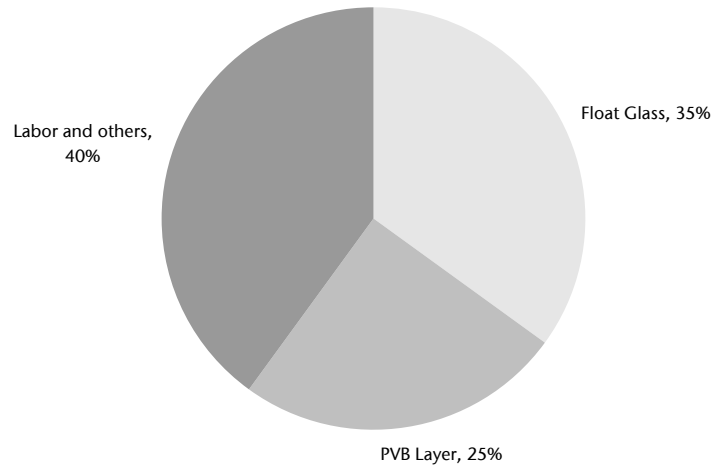
Chart 38: Market share of automotive glass manufacturer in China: top-five account for about 95% of sales



Source: Fuyao Glass

In terms of cost, float glass and polyvinyl butyral (PVB) are the two primary cost components of auto glass production. Float glass accounts for approximately **35-40%** of the production costs, and PVB accounts for **20-25%** of the laminated automotive glass production. Automotive glass manufacturers generally enter long-term supply contracts with major PVB manufacturers. As a result, production cost for PVB has seen a marginal increase of not more than 3% over the span of the past three years, according to Fuyao. We expect expansion in margin driven by lower cost of float glass in 2016.

Chart 39: Cost breakdown of laminated glass, float glass and PVB accounts for 60%

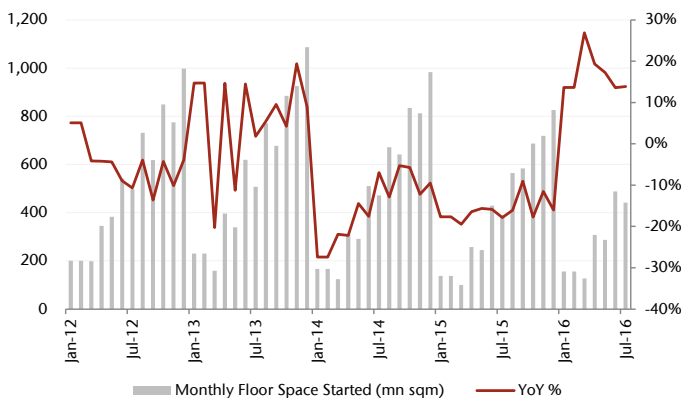


Source: Company data, Jefferies estimates

Construction glass overview

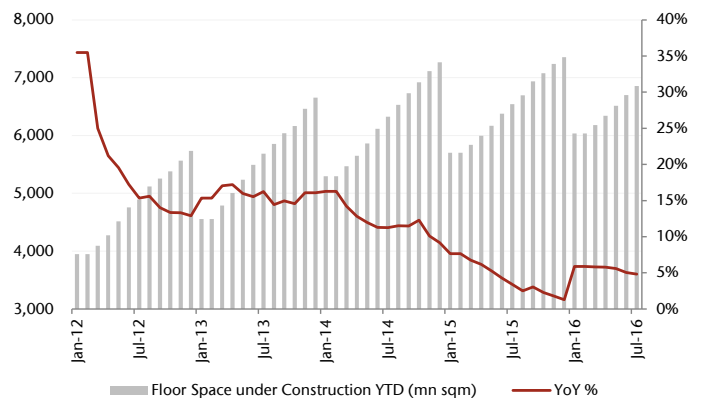
Construction glass is used in property, commercial building and infrastructure projects. Similar to cement, demand for construction glass closely ties in with property construction activities in China. Construction glass mainly sells domestically with little exports. As seen in Chart 40 and Chart 41, property construction activities in 1H16 were stronger than expected and have fully recovered from the sluggish growth we saw in 2015. Although recent data is showing signs of slowdown in the past two months, newly started floor space growth has slowed by 3ppts from this year’s peak to 14%, while growth for floor space under construction has stabilized at 5%. We think the most recent upcycle has not peaked. Despite the recent property price curbing measures in Nanjing, Suzhou (and speculation in Shanghai), we think the magnitude of growth should slow in 4Q16 but would still be considerably higher compared to last year.

Chart 40: Growth for new floor space has started turning positive since the beginning of the year



Source: Digital Cement, Jefferies estimates

Chart 41: Growth of floor space under construction stabilised at ~5% YTD



Source: GlassinChina, Jefferies estimates

Low-E construction glass with more resilient demand

In addition to conventional construction glass, glass companies manufacture higher quality construction glass known as low-emissivity glass (low-E glass). Low-E glass is a standard clear construction glass with a special coating. The coating of Low-E glass is intended to minimize the amount of ultraviolet and infrared light that can pass through without lowering the visibility of the glass. It is intended to maintain the temperature in the building to decrease the use of heaters and air conditioners. As a result of its environmental friendly nature, low-E glass is classified as green building material.

Low-E is promoted by the government

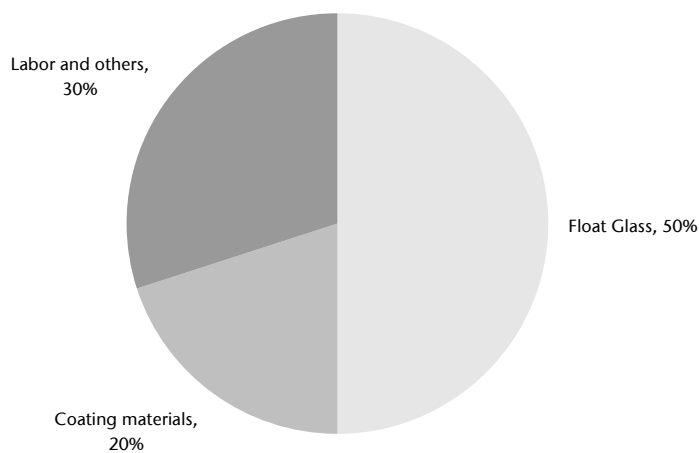
The government has announced policies to promote the use of Low-E glass. For example, according to the “Energy Development Strategy Action Plan (2014-2020)” announced by the State Council, 50% of new buildings developed in cities and towns will meet green building codes by 2020. MIIT has also announced an action plan for promoting the use of green building materials last year, stating that green building materials will account for 20% of industry revenue in 2018.

Pricing and cost

Pricing of construction glass is more volatile than auto glass, given lower technological know-how, weaker business relationship, and lower bargaining power. Pressure in decreasing price due to the lower cost and slowdown of real estate demand could hurt pricing. We would expect construction glass price to be similar to float glass and to come down as well next year.

In terms of cost, float glass is the primary cost components of low-E construction glass production, accounting for approximately **50%** of the production costs. Coating materials accounts for **~20%** of construction glass production, and glass manufacturer usually has long-term supply contracts with coating material manufacturers. Coating material price is generally stable, according to Xinyi. We expect margin expansion, driven by lower cost of float glass in 2016.

Chart 42: Cost breakdown of construction glass, float glass and coating materials accounts for 70%



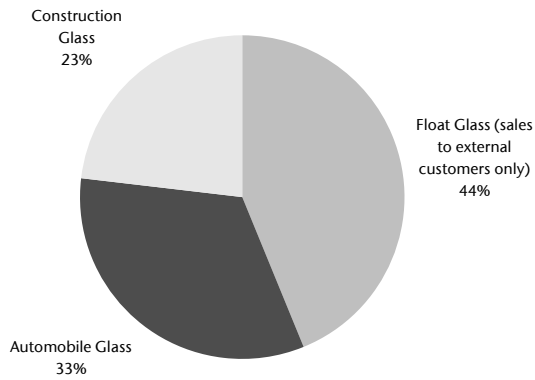
Source: Company data, Jefferies estimates

Financial comparison

Revenue mix

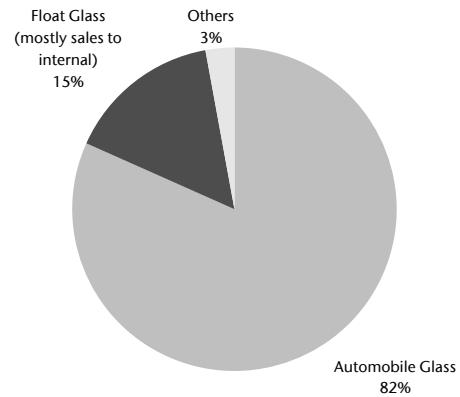
Xinyi Glass' sales consists of float glass, auto glass and construction glass, with float glass accounting for the most – 44% of sales in 2015. Unlike Xinyi Glass, almost all of Fuyao's float glass is sold internally for the manufacturing of auto glass. As a result, almost all of Fuyao Glass' sales comes from auto glass, with less than 5% coming from others, including architecture and other functional glasses.

Chart 43: Xinyi Glass Sales Mix in 2015



Source: Company data, Jefferies

Chart 44: Fuyao Glass sales mix in 2015

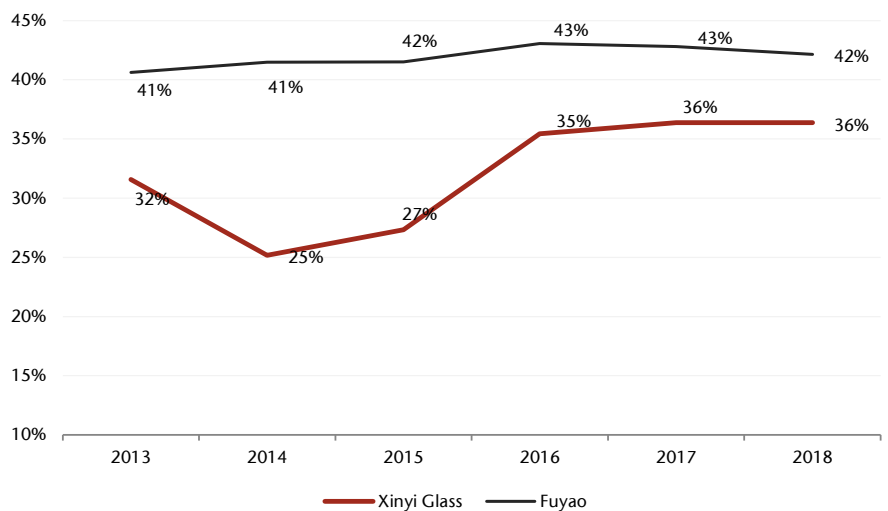


Source: Company data, Jefferies

Gross margin

Xinyi's gross margin is lower, as the lower margin float glass (~GM: 20%) accounts for a larger portion of its sales. We expect Xinyi's gross margin to expand significantly in 2016, driven by lower natural gas cost and soda ash cost. Fuyao Glass has a much higher gross margin compared to Xinyi, as most of its sales come from the higher margin auto glass (>40%). While the ASP of auto glass is relatively stable as glass manufacturers usually sign long-term contracts with auto companies, costs usually also come down as float glass accounts for ~35% of the cost of auto glass.

Chart 45: Gross margin



Source: Company data, Jefferies estimates

ROE analysis

We expect Xinyi and Fuyao to see margin expansion in 2016, driven by lower natural gas and soda ash cost, as well as rising ASPs. The asset turnover and leverage ratio of the two companies are similar. We expect Xinyi's ROE to remain stable with upside risk if natural gas cost declines further, offsetting pressure from ASPs going forward. The proceeds from Fuyao's IPO last year were mainly used for overseas capacity expansion in the US and Russia. Asset turnover and overall ROE could rise if overseas expansion is better than expected.

Table 5: DuPont ROE Analysis (2013-18E)

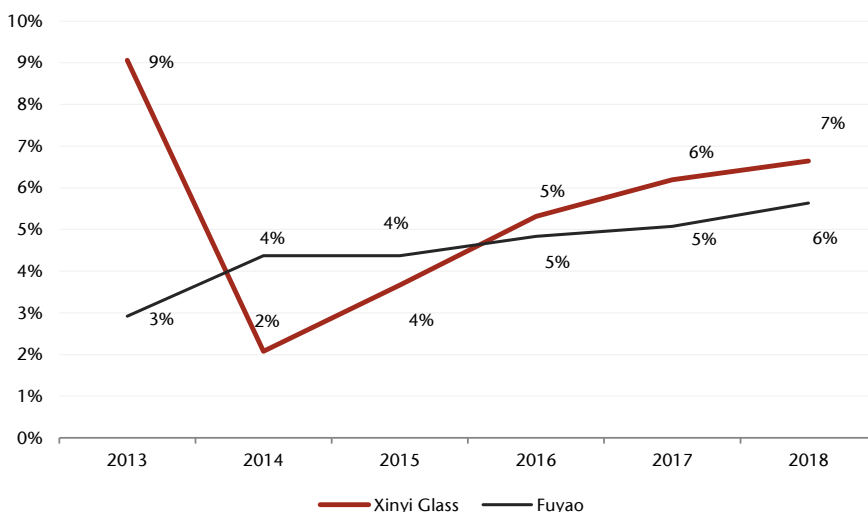
DuPont ROE analysis	2013	2014	2015	2016E	2017E	2018E
Xinyi	27%	11%	17%	21%	21%	20%
Fuyao	24%	25%	16%	17%	17%	17%
Net Margin						
Xinyi	33%	13%	18%	24%	26%	27%
Fuyao	17%	17%	19%	19%	18%	17%
Asset Turnover						
Xinyi	0.51	0.52	0.53	0.55	0.54	0.52
Fuyao	0.78	0.77	0.55	0.58	0.61	0.65
Leverage Ratio						
Xinyi	1.61	1.71	1.68	1.59	1.53	1.48
Fuyao	1.87	1.92	1.51	1.53	1.55	1.57

Source: Jefferies estimates, company data

Dividend yield

Both companies are generous in dividend distribution, with a payout ratio of close to 50% for Xinyi Glass and 70% for Fuyao Glass. Dividend payout has been on an uptrend since 2012. The exceptionally high dividend yield of Xinyi Glass in 2013 was due to the special dividend received from the spin-off of Xinyi Solar.

Chart 46: Dividend yield



Source: Company data, Jefferies

Xinyi Glass (868 HK, Buy, PT HK\$8.6)

Key Takeaway

Xinyi Glass is an integrated glass company with most of its float glass production (~80%) sold externally, directly benefitting from the recent ASP hike and lower natural gas costs. We expect the margin expansion we saw in 1H16 to continue on the back of positive supply/ demand dynamics. The company would be a key beneficiary if natural gas costs go down further. We prefer Xinyi Glass to Fuyao Glass, as it is more leveraged to the margin expansion theme. Xinyi Glass is currently trading at 8x 2017E PE with dividend yield of 5%, which looks attractively valued. We initiate with a Buy rating and PT of HK\$8.6.

Margin expansion to continue: ASP of float glass has gone up by >10% in August alone, driven by upbeat construction demand. We think the most recent property up-cycle has not peaked. Despite the recent property price curbing measures in Nanjing, Suzhou (and speculation in Shanghai), we believe the magnitude of growth should slow in 4Q16 but will still be considerably higher compared with last year. We believe glass ASP should hold up during the traditional 4Q peak season.

Natural gas cost may go down further: To cope with the falling oil price in 2H14, the NDRC has cut natural gas price by >20% back in November. With the cut, gas demand growth has recovered YoY. However, it is still not at a satisfactory level, according to our Oil and Gas Analyst, Laban Yu (see [here](#)). The government may try to generate lower gas prices by eliminating the "middle men" cost, the costs that don't attribute to upstream or midstream distributions, and accounts for 22% of the retail gas prices.

Float glass is a key beneficiary: Xinyi Glass is the largest supplier of high-quality float glass in China. Unlike Fuyao Glass, whose float glass is mainly manufactured for internal use, only ~20% of Xinyi's float glass is used internally, with the remainder sold externally to other glass companies for further manufacturing. As a result, Xinyi's float glass business directly benefits from the recent ASP hike and lower natural gas costs.

Earnings sensitivity to ASP and natural gas cost changes: For every 1% increase in ASP and every 5% decrease in natural gas cost, we estimate Xinyi Glass's earnings will increase by 3% and 7% for 2017, respectively.

Additional income from Xinyi Solar: In 2013, Xinyi Glass spun off its solar business into a separate listco., and the solar company has been delivering strong earnings growth in the past two years. We expect the associate company to maintain strong earnings growth (in line with consensus), driven by volume growth of solar glasses and earnings from its solar farm projects.

Capacity expansion: The float glass capacity in Malaysia, which is expected to be completed this year, is the only existing major investment project. Xinyi may try to acquire other existing glass plants in the future as new plants are not permitted in China any longer. We believe Xinyi may increase dividend payout in the future if no attractive acquisition is available.

Valuation/risks

We initiate Buy with a PT of HK\$8.6 based on SOTP valuation methodology, valuing its glass business (float/auto/construction glass) at 11x 2017E earnings and Xinyi Solar at current market price. Our PT HK\$8.6 implies 9x 2017E P/E and 2.0x 2017E P/B, slightly above the historical average.

Upside catalysts

1) Lower natural gas tariff; 2) construction demand remaining strong in 2017; 3) increase in dividend payout.

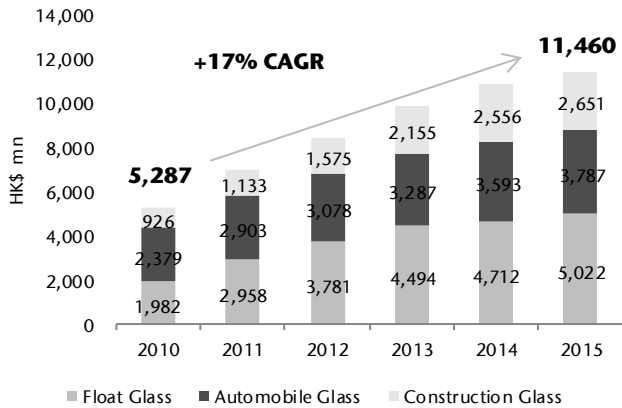
Key risks

1)) New liquidity tightening policies; 2) collapse in glass price due to oversupply; 3) delay in commencement of new capacity in Malaysia.

Business Update

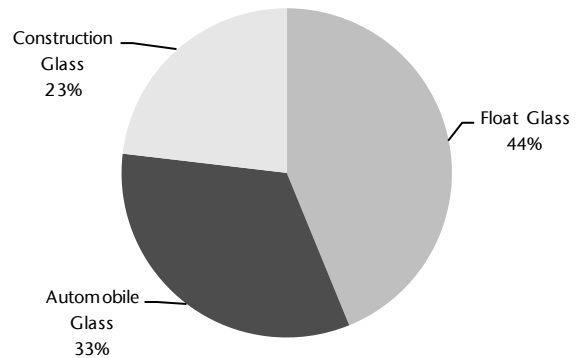
Xinyi Glass is an integrated glass company with float, auto and construction glass capacities across China. It is the largest supplier of high-quality float glass in China and also the largest exporter of automobile glass in the aftermarket sector. Unlike Fuyao, whose float glass is mainly manufactured for internal use, only ~20% of Xinyi's float glass is used internally with the rest sold externally to other glass companies for further manufacturing.

Chart 47: Xiyi Glass sales almost doubled in 2010-15, mainly driven by growth in float glass sales



Source: Company data, Jefferies

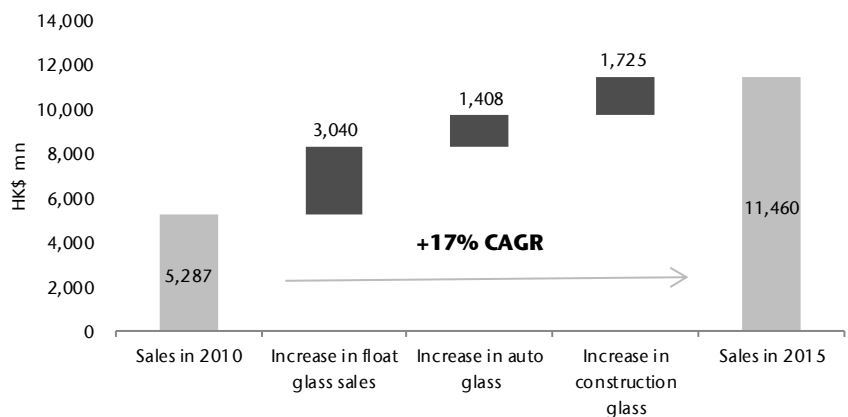
Chart 48: Float glass is the largest segment by sales, accounting for >40% of total sales



Source: Company data, Jefferies

In the past five years, Xinyi Glass's sales have doubled as the company has actively built out new capacity. Float, auto and construction glass capacities have increased by ~60%, ~33% and ~150% over the period, respectively. Although ASP of glasses has declined in general over the period, the increase in volume has led to float glass sales to more than double. As a result, float glass has been the largest sales growth driver in the past five years, contributing to about 50% of the company's total sales growth.

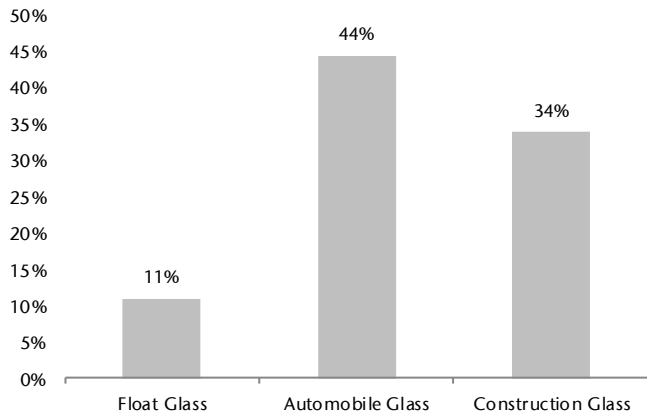
Chart 49: Float glass was the largest sales growth driver, accounted for about 50% of the company's total sales growth in the past 5 years



Source: Company data, Jefferies

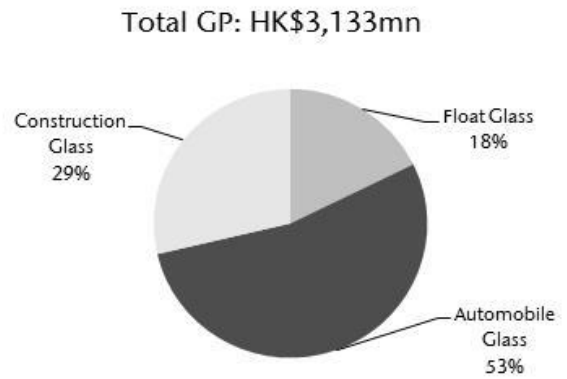
Float glass has the lowest gross margin among the three products, as there is lower value add and technological know-how required for it, while auto glass enjoys the highest margin. However, as >40% of the cost of float glass comes from energy, it benefits directly from the lower natural gas price we saw last year; therefore, its margin has expanded by the most compared to the other two glass products.

Chart 50: GP margin of Xinyi Glass's products; auto glass has the highest GP margin...



Source: Company data, Jefferies

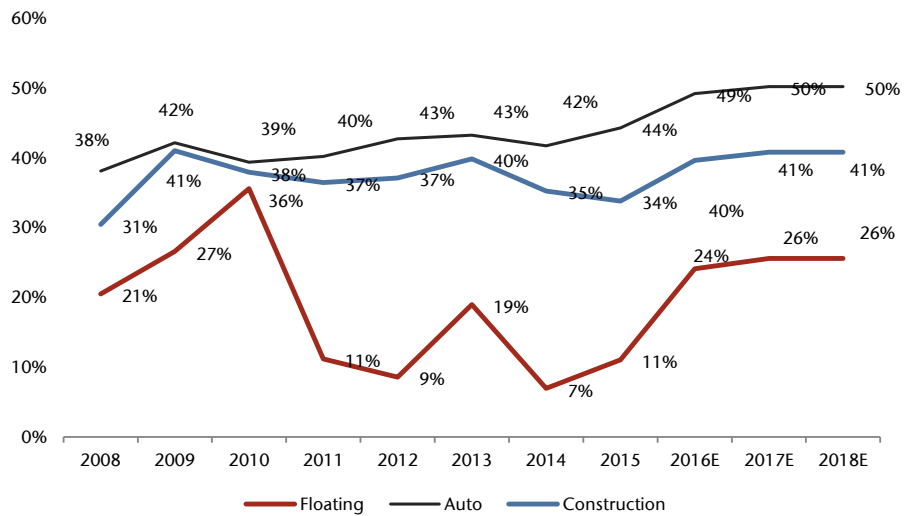
Chart 51: ... as a result, automobile glass accounts for >50% of the company's gross profits



Source: Company data, Jefferies

Auto segment's gross margin is 44%. After-market auto glass gross margin is >50% and OEM gross margin is below 40%. The company is also a float glass provider to one of its largest competitor, Fuyao. With only 11% gross margin, the float glass business is hardly making money as before; however, the business turned around in 2016 with the decline in natural gas prices last November. We expect gross margin to expand for all products in 2016 due to lower energy costs.

Chart 52: Xinyi glass' gross margins depends on three business segments: float glass gross margin is the most volatile and has collapsed since 2011 but we expect a turnaround this year

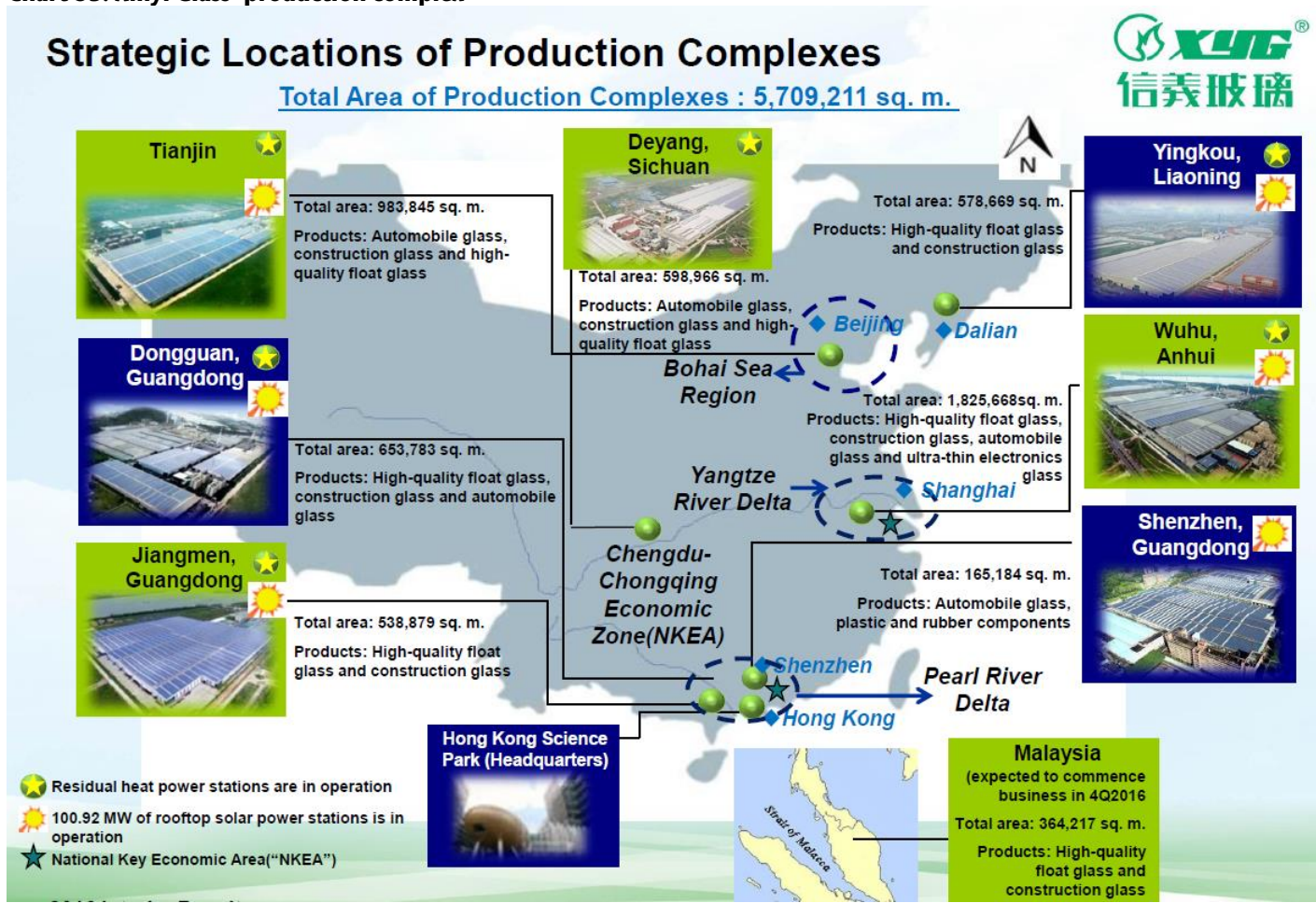


Source: Company data, Jefferies estimates

Production Complexes at Strategic Locations

Xinyi currently has float, auto, and construction (low-E) glass production capacity of ~5mt, ~16m pcs and ~42m sqm per annum. The production facilities are located in Shenzhen, Guangdong, Anhui, Liaoning and Sichuan, covering almost all major regions in China. In addition, the company is building new capacity in Malaysia to expand its footprint in other countries.

Chart 53: Xinyi Glass' production complex



Source: Company data

Product differentiation

Float glass: Xinyi Glass is one of the largest suppliers of quality float glass in China. There are three major types of float glass products from Xinyi Glass.

- **Clear float glass:** Clear float glass is the most basic type of float glass with a smooth surface and no ripples, and is used in buildings, mirrors, furniture and decoration, optical instrument and automobiles. The thickness of clear float glass (Chart 54) varies from 2mm-19m.
- **F-Green glass** – F-Green glass is a specific colour of tinted float glass (Chart 55). Tinted glass is formed when molten glass is mixed with an appropriate amount of pigment. F-Green glass has low transmission for ultraviolet rays, and can therefore provide good shading effect or increase the change in colour of

building appearance. The thickness range for F-Green glass is much lesser than that for Clear Float Glass. It ranges between only 2.1mm and 12mm.

- **European Grey Glass:** European Grey glass is another colour of tinted float glass (Chart 56). Similar to F-Green glass, it has low transmission characteristic for ultraviolet rays and therefore provides good shading effect or increased change in the colour of building appearance. The thickness range for European Grey is 4mm-12mm. It is usually used in buildings, cars or furniture and decorations.

Chart 54: Clear float glass – White glass



Source: Company data, Jefferies

Chart 55: F-Green glass



Source: Company data, Jefferies

Chart 56: European Gray Glass

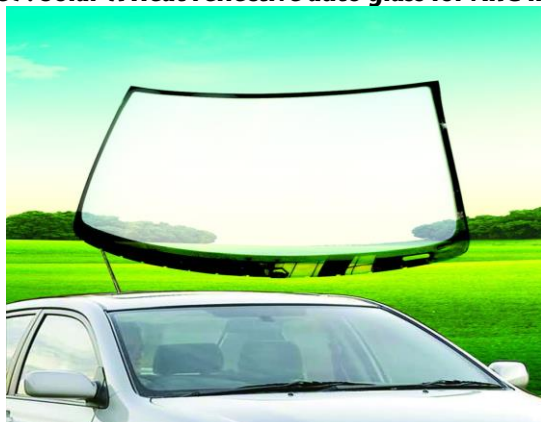


Source: Company data, Jefferies

Automobile glass: Xinyi Glass is one of the largest manufacturers of aftermarket replacement automobile glass (ARG) in the world. There are two product categories in automobile glass:

- **Original Equipment Manufacturer (OEM) Automobile Glass:** For OEM automobile glass, Xinyi Glass was selected by a vehicle manufacturer to supply automobile glass to their assembly plants. The automobile vendors are usually selected based on price, technology capabilities, quality control processes and production capabilities.
- **Aftermarket Replacement Automobile Glass (ARG)** – In the ARG market, Xinyi Glass’s products go to all vehicles for only aftermarket installation. These are not considered OEM products, as they do not produce auto glass for vehicle manufacturers’ assembly plants. The specifications necessary to produce a well-fitting auto glass part is obtained from an independent distributor.

Chart 57: Solar-X Heat reflective auto glass for ARG market



Source: Xinyi Glass

Chart 58: A list of Xinyi Glass OEM customers for Auto Glass

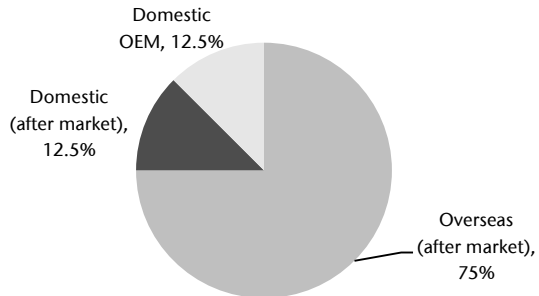


Source: Xinyi Glass

According to Xinyi Glass, the company controls >30% market share in the ARG market in North America and >20% market share globally.

Chart 59: Geographic breakdown of Xinyi Glass's auto glass sales by geography: overseas aftermarket is the largest segment

Total: 14,400 pieces in 2015



Source: Company management, Jefferies

Construction glass (Low-E glass): Xinyi Glass is one of the largest manufacturers of low-E energy-efficient coated glass in China. The company is focused on energy-saving and high value-added double-glazing low-E glass, which includes high performance and custom-made offline low-E glass. Xinyi's largest competitor is CSG Holdings (000012 CH, NC) whose market share is about 20-25%, while Xinyi's market share in construction glass is about 18%.

Chart 60: Xinyi Glass's construction glass products

Double-silver LOW-E Glass

Features:

- Higher visible light transmittance and natural daylight
- High appearance effects to meet various aesthetic requirements
- Lower heat-transfer coefficient, effectively reduction of indoor and outdoor heat transfer, and keep the indoor temperature steady
- Lower shading coefficient, effectively reduce solar heat gain and lower the cooling load in summer
- Suitable for various states where both daylight and shading are considered

Triple-silver LOW-E Glass

Features:

- Higher visible light transmittance and natural daylight
- Lower heat-transfer coefficient, effectively reduce indoor and outdoor heat transfer and keep the indoor temperature steady
- Very low shading coefficient, effectively reduce solar heat gain and lower the cooling load in summer
- Suitable for process where daylight and shading are extremely required

Reflective Coated Glass

Features:

- Rich appearance effects to meet various aesthetic requirements
- Effective control of direct solar radiation and provide shading effects
- Appropriate visible light transmittance to meet the daylight requirements

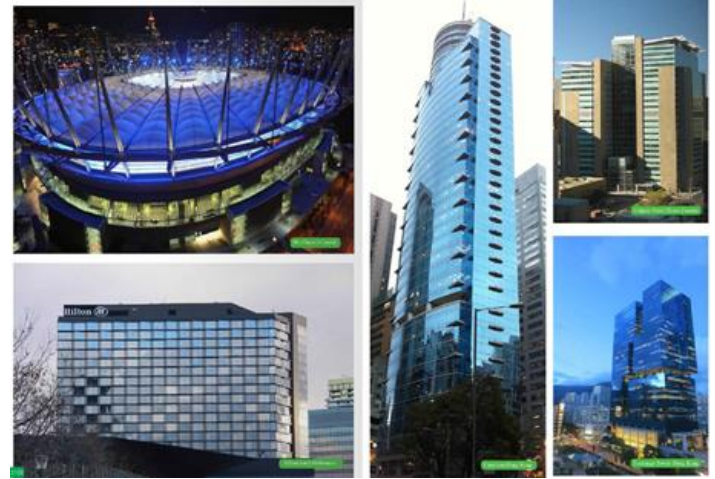
Temperable Coated Glass

Features:

- The processing, handling & tempering process can be similar of other coating
- Same appearance and energy-saving features like other line of products
- Including reflective, absorptive, double-silver and triple-silver products

Source: Xinyi Glass

Chart 61: Project reference for Xinyi's construction glass



Source: Xinyi Glass

PT of HK\$8.6

We value Xinyi Glass based on SOTP valuation methodology, valuing its glass business (float/auto/construction glass) at 11x 2017E earnings and Xinyi Solar at the current market price. Our PT of HK\$8.6 implies 9x 2017E P/E and 2.0x 2017E P/B, slightly above the historical average.

Chart 62: Xinyi Glass Valuation

Xinyi Glass	
Float/Auto/Construction Glass Business	
NPAT (2017E)	2,680
x Target multiple	11
Market Value (HK\$ m)	29,482
÷ Shares outstanding (m)	3,875
Share price (HK\$/share)	7.61
Xinyi Solar (968 HK)	
Current Share Price (HK\$)	3.31
XYG's shareholdings	30%
Market value of Xinyi Solar's holdings	0.98
Target Price	8.59
Rounded to HK\$0.10/share	8.60
Latest price	7.36
Upside	17%

Source: Jefferies estimates

Risks

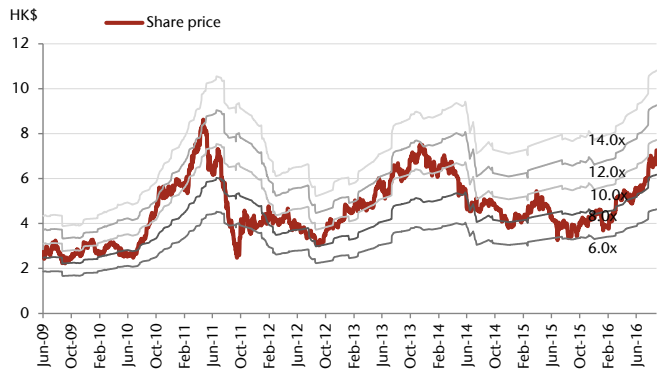
Key risks to our estimates and PT: Liquidity tightening policy, which could negatively impact new floor spaces started and construction demand; collapse in float glass prices due to more than expected new capacity in operation and slowdown in demand growth; intensifying competition of high quality float glass product; delay in commencement of new capacity in Malaysia which was scheduled this year; additional expenses due to overseas capacity expansion; trade disputes and currency fluctuations.

Table 6: Valuation comparison

Company	Ticker	Mkt cap (US\$ bn)	Price (local curr.)	Target (local curr.)	Upside to Rec. target	P/E (x)		P/B (x)		EV*/EBITDA (x)		ROE (%)		Div Yield (%)		
						2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	
Glass - H																
Fuyao Glass	3606 HK	6.2	20.95	24.00	Buy	15%	15.2	14.5	2.4	2.3	7.0	6.3	17.0	16.8	4.8	5.4
Consensus							15.1	13.3	2.5	2.3	8.8	7.6	17.3	18.3	4.3	4.8
Xinyi Glass	868 HK	3.7	7.36	8.60	Buy	17%	9.3	8.0	1.9	1.7	9.7	8.7	20.8	21.3	5.3	6.2
Consensus							10.0	8.6	2.0	1.8	9.3	8.1	20.9	22.0	4.6	5.4
Flat Glass	6865 HK	0.4	1.90		NC		5.6	5.3	0.8	0.8	nmf	nmf	19.1	17.0	nmf	nmf
Average							10.1	9.3	1.7	1.6	8.4	7.5	19.0	18.4	5.1	5.8
Glass - A																
Luoyang Glass - A	600876 CH	1.3	25.61		NC		nmf	nmf	nmf	nmf	nmf	nmf	4.5	6.2	nmf	nmf
Fuyao Glass - A	600660 CH	6.2	16.19		NC		13.9	12.3	2.3	2.1	8.9	7.7	16.9	17.8	4.7	5.1
CSG Holdings	000012 CH	2.9	11.31		NC		28.1	22.3	2.7	2.6	13.2	10.4	9.8	11.5	2.7	2.7
Zhuzhou Kibing Group	601636 CH	1.5	3.74		NC		14.8	15.4	1.6	1.5	8.5	7.6	11.1	10.6	nmf	nmf
Jinjing Group	600586 CH	1.0	4.53		NC		40.1	32.6	1.6	1.8	9.6	8.9	3.8	4.4	nmf	nmf
Average							24.2	61.7	3.5	3.4	10.0	8.6	6.7	9.1	3.7	3.9

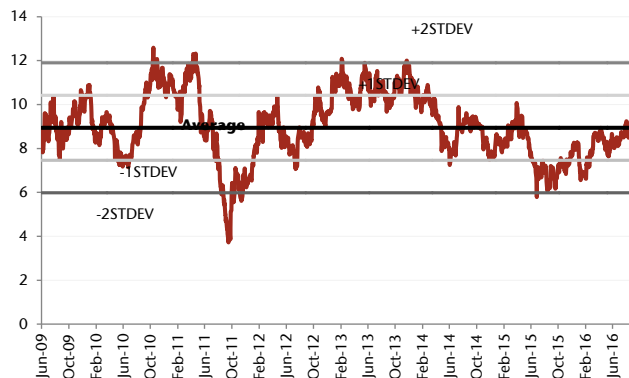
Source: Company data, Jefferies estimates, NC data from Bloomberg,

Chart 63: Xinyi Glass Historical PE Chart



Source: Bloomberg, Jefferies

Chart 7: Xinyi Glass Historical PE Chart



Source: Bloomberg, Jefferies

Chart 8: Xinyi Glass Historical PB Chart



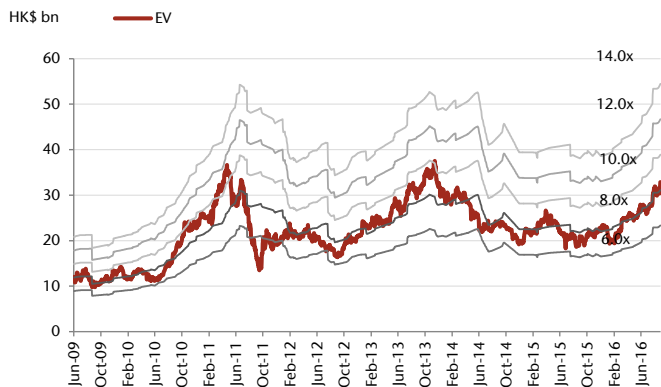
Source: Bloomberg, Jefferies

Chart 9: Xinyi Glass Historical PB Chart



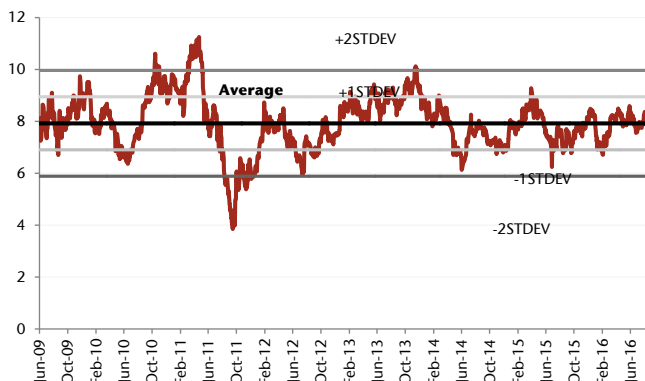
Source: Bloomberg, Jefferies

Chart 10: Xinyi Glass Historical EV/EBITDA Chart



Source: Bloomberg, Jefferies

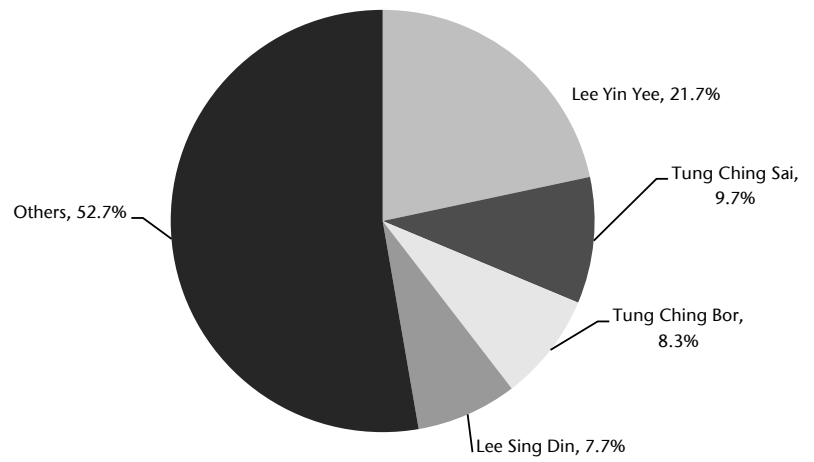
Chart 64: Xinyi Glass Historical EV/EBITDA Chart



Source: Bloomberg, Jefferies

Shareholding structure

Chart 65: Xinyi Glass shareholding structure



Source: Company data, Jefferies

Management Background

Table 7: Xinyi Glass management team background

Name	Position	Age	Experience
Datuk Lee Yin Yee, B.B.S.	Chairman & Executive Director	63	Mr. Lee is the founder of the company, responsible for the Group's business strategy. He has 25 years' experience in the automobile glass industry. Prior to establishing the Group, Datuk LEE Yin Yee, was involved in the trading of automobile parts. Mr. Lee is a national committee member of the Twelfth Chinese People's Political Consultative Conference. He is also the chairman and non-executive Director of Xinyi Solar.
Tung Ching Bor	Executive Director	53	Mr. Tung is the vice-chairman and chief purchasing officer of the company, responsible for managing the daily operations and overseeing the purchasing functions. Prior to joining the company in 2000, Mr. Tung had over 14 years' experience in automobile parts purchase. Mr. Tung is the brother-in-law of Datuk Lee Yin Yee and brother of Mr. Tung Ching Sai, the company's chief executive officer and executive Director.
Tung Ching Sai	Executive Director	50	Mr. Tung is the executive Director and chief executive officer of the company. He has been with the company for 25 years since its inception in 1988 and is responsible for overseeing the company's daily operations. Mr. Tung is also a committee member of The Chinese People's Political Consultative Conference of Fujian Province and vice chairman of the China Architectural and Industrial Glass Association. Mr. Tung is the brother-in-law of Datuk Lee Yin Yee and brother of Mr. Tung Ching Bor, and uncle of Mr. Lee Shing Kan, our executive Director.
Lee Shing Kan	Executive Director	36	Mr. Lee is the executive Director of the company and is responsible for overseeing the overseas automobile glass operation and the general manager of Xinyi Automobile Glass (Shenzhen) Company Limited. Mr. Lee joined the Company in 2005. He holds a bachelor's degree in commerce from The University of Melbourne, Australia and a master's degree in applied finance from Monash University, Australia. Mr. Lee is the son of Datuk Lee Yin Yee, nephew of Mr. Tung Ching Bor and Mr. Tung Ching Sai. Mr. LEE Shing Kan was appointed as the executive Director in 2008.
Li Ching Wai	Non-executive Director	58	Mr Li has been the non-executive Director of the company since 2001. Prior to joining, Mr. Li has worked in the trading of automobile parts industry.
Sze Nang Sze	Non-executive Director	61	Mr. Sze has been the non-executive Director of the company since April 2001. Prior to joining us, Mr. Sze has worked in the trading of automobile parts industry.

Source: Company data

Table 8: Xinyi Glass Financials Summary

Income statement					Cash flow				
HK\$ m	2015	2016E	2017E	2018E	HK\$ m	2015	2016E	2017E	2018E
Revenue	11,460	12,896	13,936	14,380	Profit before tax	2,380	3,611	4,212	4,514
COGS	-8,328	-8,327	-8,865	-9,150	D&A	749	794	854	864
Gross profit	3,133	4,569	5,071	5,230	Change in working cap.	500	-298	-159	-62
Operating expenses	-1,615	-1,934	-2,090	-2,157	Other	-992	-542	-632	-677
Operating profit	1,518	2,635	2,981	3,073	CF from operations	2,637	3,566	4,276	4,639
Other gains - net	634	367	422	481	Capex	-2,105	-1,700	-1,000	-1,000
Share of results of assoc. & JCE's	317	700	900	1,052	Acquisitions and others	584	0	0	0
Finance costs	-90	-91	-91	-92	CF from investing	-1,520	-1,700	-1,000	-1,000
Pre-tax profit	2,380	3,611	4,212	4,514	Equity raised/ (repaid)	-607	0	0	0
Tax	-266	-542	-632	-677	Debt raised/ (repaid)	16	30	30	30
Profit	2,114	3,070	3,580	3,837	Dividends, interest and others	-33	-1,039	-1,510	-1,761
Minority interest	0	0	0	0	CF from financing	-625	-1,009	-1,480	-1,731
Net profit	2,113	3,070	3,580	3,837	Net cash flow	492	856	1,796	1,909
Basic EPS (Rmb)	0.54	0.79	0.92	0.99	Exchange gain	-25	0	0	0
Diluted EPS (Rmb)	0.53	0.79	0.92	0.98	Cash at end of year	1,298	2,155	3,950	5,859
Balance sheet					Ratio & financial metrics analysis				
HK\$ m	2015	2016E	2017E	2018E		2015	2016E	2017E	2018E
Cash	1,298	2,155	3,950	5,859	Revenue Growth	5.5%	12.5%	8.1%	3.2%
Inventories	1,223	1,223	1,302	1,343	EBIT Growth	38.6%	73.6%	13.1%	3.1%
Receivables	2,381	2,680	2,896	2,988	EPS Growth	54.9%	47.0%	16.6%	7.2%
Other current assets	93	93	93	93	EBIT Margin	13.2%	20.4%	21.4%	21.4%
Fix assets	11,971	12,877	13,022	13,158	Net Profit Margin	18.4%	23.8%	25.7%	26.7%
Others assets	4,455	4,455	4,455	4,455	Payout Ratio	49.2%	49.2%	49.2%	49.2%
Total assets	21,422	23,482	25,719	27,897	Valuation metrics				
ST debt	2,514	2,514	2,514	2,514	PER (x)	13.6	9.2	7.9	7.4
Other current liabilities	2,445	2,445	2,582	2,654	EV/EBITDA (x)	14.6	9.4	8.0	7.3
LT debt	3,514	3,544	3,574	3,604	Price to Book (x)	2.2	1.9	1.7	1.5
Other LT liabilities	223	223	223	223	Balance Sheet Ratios				
Total liabilities	8,696	8,726	8,892	8,995	ROE	16.6%	20.8%	21.3%	20.3%
Shareholder's equity	12,718	14,749	16,819	18,895	ROCE	7.7%	12.0%	13.4%	13.6%
Minority interests	7	7	7	7	Net debt to Equity	37.2%	26.5%	12.7%	1.4%
Total liability & equity	21,422	23,482	25,719	27,897	Interest coverage (x)	25.1	37.8	42.1	43.0
					Book value per share	3.2	3.8	4.3	4.9

Source: Company data, Jefferies estimates

Fuyao Glass(3606 HK, Buy, PT HK\$24.0)

Key takeaway

Fuyao Glass is a major automotive glass manufacturer, directly benefiting from the robust auto sales growth in China and worldwide. We like Fuyao Glass' stable auto glass business with stable ASP and sales, as well as potential margin upside from its value-added functional glass products. Fuyao should also benefit if natural gas cost goes down further. However, the overseas capacity expansion could put pressure on its margins in the near term. Fuyao Glass is currently trading at 14x 2017 PE with dividend yield of 5%, still moderately attractive, in our view. We initiate coverage with a Buy rating and PT of HK\$24.

Auto sales growth remains robust: Fuyao Glass is China's No. 1 and world's No. 2 automotive glass manufacturer. YTD auto production in China has grown 11%, compared with only 3% in 2015. Production was more backend-loaded last year; as a result, we expect auto sales growth rate in China to slow down moderately in 4Q, but estimate this will remain at high single digit for 2016. For global auto sales, we expect growth rate this year to accelerate to ~3% YoY, vs only 2% last year. We expect Fuyao's overseas auto glass sales to grow even faster given its new capacity in the US and Russia.

Lean towards value-added functional glass: Fuyao Glass has industry-leading equipment and product design capabilities. In recent years, the company has been actively promoting valued added functional glass products. As a result, average selling prices of its auto glass have been rising since 2012. We expect the trends to continue, and the company should sell more of the higher margin functional glass in the future, partially offsetting margin pressure from its overseas businesses.

Benefit from lower natural gas costs: Fuyao Glasses also benefits from the rise in ASP of float glass and decline in natural gas cost but it is less sensitive compared with Xinyi Glass. As we believe that the government can try to generate lower gas prices by eliminating "middle men" costs in the future, which is ~22% of the retail gas prices, Fuyao Glass should also benefit if natural gas cost goes down further.

Earnings sensitivity to auto glass ASP and natural gas costs: For every 1% increase in ASP of auto glass and 5% decrease in natural gas cost, Fuyao Glass' earnings could increase by 4% and 5% for 2017.

New footprint in overseas: Fuyao has been actively expanding its overseas production capacities in the US and Russia since H-share IPO last year. The new capacities are aimed to fulfilling the newly developed orders from overseas. We believe there could be pressure on margins, as it ramps out its overseas facilities in the near term. Management expects the US facilities to breakeven by October while the Russian plant has already turned profitable.

Dividend payout: Given its stable income stream and well scheduled capex plan, dividend payout has been close to 70% in the past two years. We would expect the payout ratio to remain at this level. The company is currently offering dividend of ~5% this year.

Valuation/risks

We initiate at Buy and PT of HK\$24.0 based on DCF with 8.9% WACC. Our PT of HK\$24.0 implies 16x 2017E P/E and 2.7x 2017E P/B.

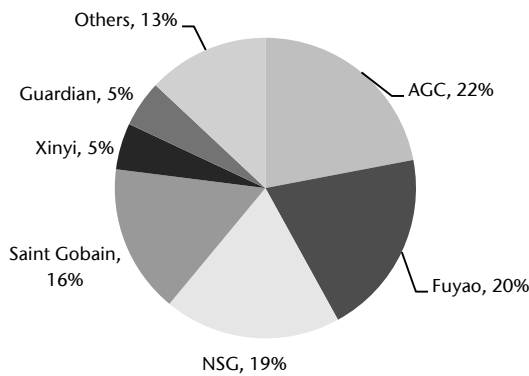
Upside catalysts: 1) Lower natural gas tariff; 2) auto sales growth remaining robust; 3) more sales from higher margin functional glasses

Key risks: 1) Delay in overseas capacity expansion; 2) increase in expenses due to overseas capacity expansion; 3) intensifying competition in the functional glass segment.

Business Update

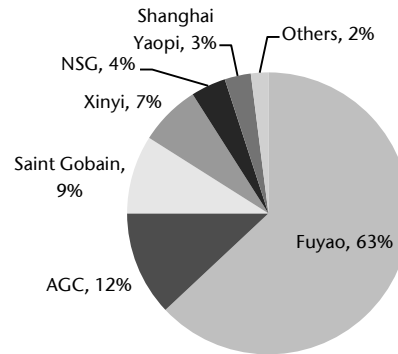
Fuyao Glass is China's No.1 and world's No. 2 auto glass manufacturing by sales volumes; the company accounts for ~20% of global auto glass sales and ~63% of China auto glass sales. Unlike Xinyi Glass, which focuses on the aftermarket replace glass (ARG) market, Fuyao is more focused on the OEM market with strong relationship with major vehicle manufacturers in China and overseas. The OEM customers sales account for 84% of the total auto glass sales in 2015.

Chart 66: Automotive glass market share: top-4 players account for 77% of global auto glass sales in 2013; concentrated market with larger bargaining power



Source: Fuyao Glass

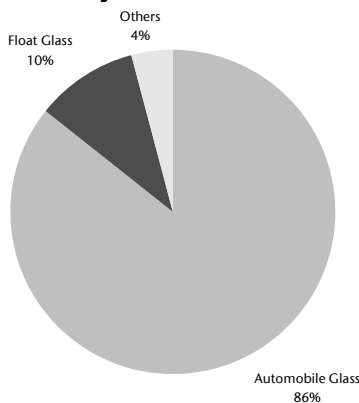
Chart 67: Market share of automotive glass manufacturer in China: top-five account for about 95% of sales in 2013



Source: Fuyao Glass

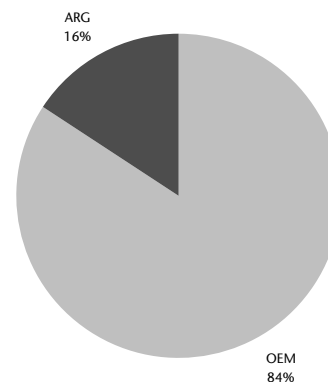
Self-supplied float glass. Fuyao Glass is more than just a pure auto glass manufacturer; it has its own float glass capacity and can supply >80% of the float glass it needs. The self-supplied business model allows it to control the quality and pricing of its float glass supply. The company's strategic target is to supply >90% of float glass internally in the future.

Chart 68: 86% of gross profit comes from auto glass compare to 50% for Xinyi



Source: Company data, Jefferies

Chart 69: >80% of the auto glasses are sell directly to OEM in 2015



Source: Company data, Jefferies

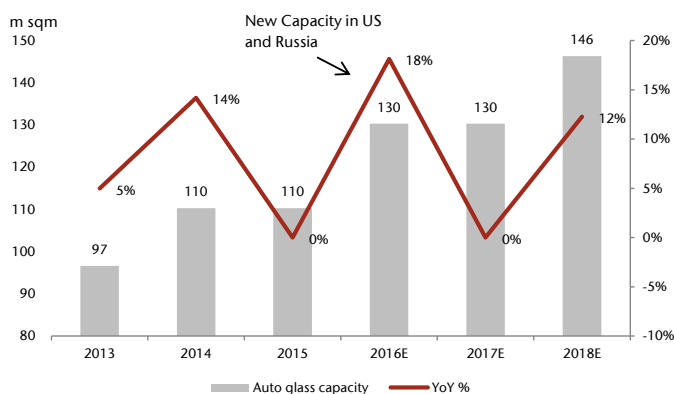
How to gain market share in auto market?

Overseas market as a key future driver

Fuyao Glass has been actively expanding its overseas production capacities since H-share IPO last year. The new capacities in the US and Russia are aimed at fulfilling the newly developed orders from customers in America, Russia and European countries. The company already has 4.0m sqm of capacity in Russia in operation (first phase) with another 8.1m sqm expected to commence commercial operations in 4Q16. The company also completed construction work of 12.1m sqm of auto glass capacity in Ohio, US, which has already commenced operations.

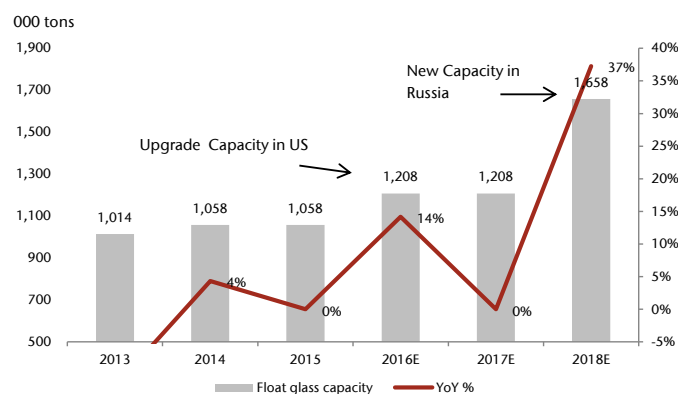
The upgraded float glass capacity in the US (0.15mt) completed last year and the planned float glass capacity in Russia next year (0.45mt) is designed to self-supply float glass for its auto glasses manufacturing facility. Management expects the US facilities to break even by October while the Russian plant has already turned profitable.

Chart 70: Auto glass capacity growth mainly comes from overseas markets (US and Russia)



Source: Company data, Jefferies estimates

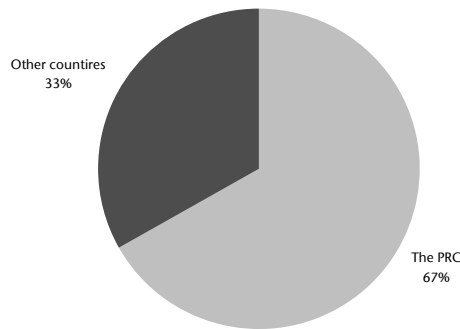
Chart 71: New float glass capacity also comes from overseas markets (US and Russia)



Source: Company data, Jefferies estimates

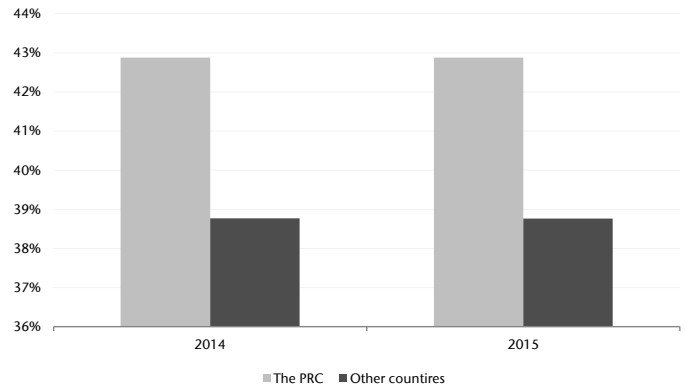
Currently, domestic sales account for 67% of the company’s sales but we would expect the sales mix to change, as its overseas capacity ramps up. However, overseas sales’ gross margin is lower than domestic sales. As a result, there could be risk of margin contraction in the beginning years. Management guided that gross margin of overseas sales will be similar to domestic sales, as sales volumes increase.

Chart 72: Domestic sales account for 67% of sales now but the mix would change as its overseas capacity is completed



Source: Company data, Jefferies

Chart 73: Gross margin of domestic sales are higher, but we expect overseas margin to improve with new capacity



Source: Company data, Jefferies

High Entry Barriers

Strong relationship with OEM

Fuyao Glass has strong relationships with major auto manufacturers in China and globally. The company has an average business relationship of 10 years with its top-10 customers. They are also the only few automotive glass manufacturers in China that have obtained product certification from European, American, Japanese as well as South Korean automobile manufacturers.

Chart 74: Relationship of top-three auto glass manufacturers and top-10 auto producers: Fuyao has the most extensive customer base

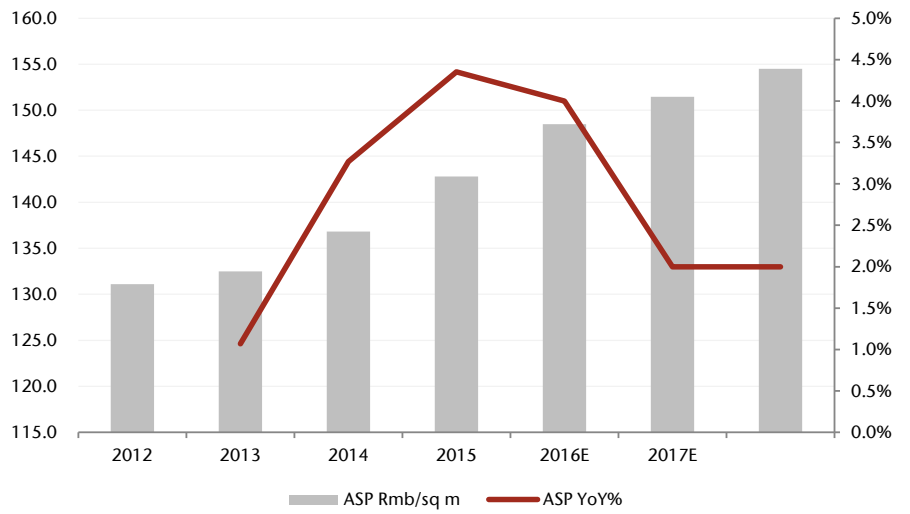
		Top 3 auto glass manufacturers		
		Fuyao	AGC	Saint Gobain
Top 10 Auto manufacturers in China	SGM	x	x	x
	FAW VW	x	x	
	SVW	x	x	
	Beijing Hyundai	x	x	x
	Dongfeng Nissan	x	x	x
	Chervy	x		
	FAW Toyota	x	x	
	Changan Ford	x		x
	Geely	x		x
	Great Wall	x		x

Source: Company data, Jefferies

Industry leading technology

Fuyao Glass has industry-leading equipment and product design capabilities, working closely with their OEM customers to satisfy both functionality and production schedule. In recent years, the company have been actively promoting valued added or higher-end glass products, including sunroof glasses, electrochromic glasses and coated glasses. As a result, the average sell prices of its glass products have been on an uptrend since 2012.

Chart 75: Geographic location of China's auto manufacturers; Fuyao's extended sales network covers all of the major automobile production bases



Source: Company data, Jefferies

Extensive sales network

Fuyao Glass has an extensive sales network with 12 automotive glass productions bases located in eight provinces, which provides a comprehensive geographic coverage of all of the major automobile manufacturing bases in China.

Chart 76: Geographic location of China's auto manufacturers, Fuyao extensive sales network covers all of the major automobile production bases



Source: Company data, Jefferies

PT of HK\$24.0

We value Fuyao Glass based on DCF methodology with WACC of 8.9%. We forecast terminal growth of 1%, and capex spending of Rmb3.0bn for the next two years and stay flat at Rmb2.0bn going forward. Our PT of HK\$24.0 implies 16x 2017E P/E and 2.7x 2017E P/B.

Table 9: DCF Valuation

Rmb m		2015	2016E	2017E	2018E	2019E	2020E
Valuation		Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20
Group revenue		13,573	15,483	17,623	20,253	20,719	20,719
EBIT		3,327	4,034	4,548	5,089	5,181	5,163
NOPAT		2,851	3,457	3,866	4,326	4,404	4,388
Share of results from associates & JCE's, net of tax		6	6	6	6	6	6
Capex, net	-	3,343	3,000	3,000	2,000	2,000	2,000
Depreciation & amortization		1,021	1,247	1,446	1,622	1,667	1,706
Change in working capital	-	412	483	525	641	113	1
Free Cash Flow (FCF)		122	1,227	1,792	3,312	3,963	4,101
Discount factor			0	1	2	3	4
Discounted FCF		122	1,227	1,645	2,793	3,068	2,916
Group revenue, YoY	%	5.0%	14.1%	13.8%	14.9%	2.3%	0.0%
EBIT, YoY	%	-0.7%	21.3%	12.7%	11.9%	1.8%	-0.3%
FCF, YoY	%	-84.9%	903.2%	46.1%	84.8%	19.6%	3.5%
EBIT margin	%	24.5%	26.1%	25.8%	25.1%	25.0%	24.9%
Net capex as a % of revenue	%	-24.6%	-19.4%	-17.0%	-9.9%	-9.7%	-9.7%
Depreciation as a % of Capex	%	-30.6%	-41.6%	-48.2%	-81.1%	-83.3%	-85.3%
Normalised tax rate	%	14.3%	14.3%	15.0%	15.0%	15.0%	15.0%
DCF Parameters					Parameters		
WACC			8.9%		Terminal FCF growth		1.0%
NPV of FCF			11,648		Risk-free rate		3.2%
+ Terminal value			37,256		Market risk premium		7.2%
+ Net cash (debt), current			1,186		Beta		1.2
- Minority shares		-	6		Target Debt weight		40.0%
					Tax rate		25.0%
					Cost of debt (pre-tax)		6.0%
					FX		0.86
= Equity value			50,084				
/ Number of shares	mn		2,509				
= NPV per share	HK\$		24.00				
Current share price							20.95
Upside							15%

Source: Company data, Jefferies estimates

Risks

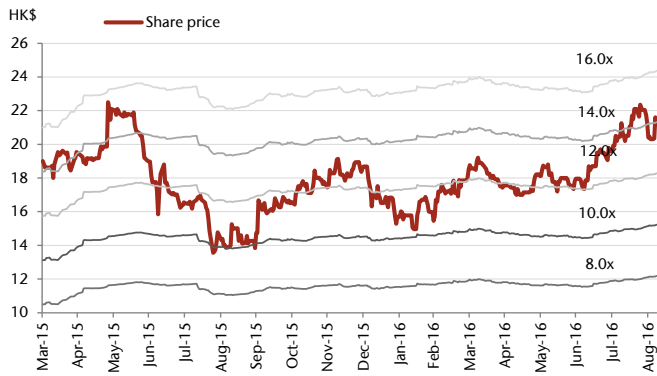
Key risks to our estimates and PT: Delay in overseas capacity expansion, resulting in slower-than-expected sales volume growth and potential market share loss; overseas sales negatively impacting company's overall margin due to additional expenses; intensifying competition in the functional glass segment; slowdown in auto sales in China and overseas markets; trade disputes between China and other countries; and currency fluctuations.

Table 10: Valuation comparison

Company	Ticker	Mkt cap (US\$ bn)	Price (local curr.)	Target (local curr.)	Upside to Rec. target	P/E (x)		P/B (x)		EV*/EBITDA (x)		ROE (%)		Div Yield (%)		
						2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	2016E	2017E	
Glass - H																
Fuyao Glass	3606 HK	6.2	20.95	24.00	Buy	15%	15.2	14.5	2.4	2.3	7.0	6.3	17.0	16.8	4.8	5.4
Consensus							15.1	13.3	2.5	2.3	8.8	7.6	17.3	18.3	4.3	4.8
Xinyi Glass	868 HK	3.7	7.36	8.60	Buy	17%	9.3	8.0	1.9	1.7	9.7	8.7	20.8	21.3	5.3	6.2
Consensus							10.0	8.6	2.0	1.8	9.3	8.1	20.9	22.0	4.6	5.4
Flat Glass	6865 HK	0.4	1.90		NC		5.6	5.3	0.8	0.8	nmf	nmf	19.1	17.0	nmf	nmf
Average							10.1	9.3	1.7	1.6	8.4	7.5	19.0	18.4	5.1	5.8
Glass - A																
Luoyang Glass - A	600876 CH	1.3	25.61		NC		nmf	nmf	nmf	nmf	nmf	nmf	4.5	6.2	nmf	nmf
Fuyao Glass - A	600660 CH	6.2	16.19		NC		13.9	12.3	2.3	2.1	8.9	7.7	16.9	17.8	4.7	5.1
CSG Holdings	000012 CH	2.9	11.31		NC		28.1	22.3	2.7	2.6	13.2	10.4	9.8	11.5	2.7	2.7
Zhuzhou Kibing Group	601636 CH	1.5	3.74		NC		14.8	15.4	1.6	1.5	8.5	7.6	11.1	10.6	nmf	nmf
Jinjing Group	600586 CH	1.0	4.53		NC		40.1	32.6	1.6	1.8	9.6	8.9	3.8	4.4	nmf	nmf
Average							24.2	61.7	3.5	3.4	10.0	8.6	6.7	9.1	3.7	3.9
China OEMs																
Guangzhou Auto-H	2238 HK	17.8	10.98	9.80	Hold	-11%	8.7	7.7	1.4	1.2	28.5	21.8	16.6	16.5	3.3	4.0
Great Wall Mot-H	2333 HK	12.3	7.93	8.90	Buy	12%	7.2	7.0	1.4	1.2	6.7	6.4	20.8	19.0	4.3	4.4
Dongfeng Motor-H	489 HK	8.9	8.04	10.70	Buy	33%	4.9	4.7	0.6	0.5	21.1	19.2	13.4	12.5	3.1	3.4
Chongqing Chan-B	200625 CH	10.3	13.03	19.80	Buy	52%	4.6	4.3	1.2	1.0	27.8	12.1	28.8	25.8	7.0	7.9
Baic Motor-H	1958 HK	8.1	8.24	5.70	Hold	-31%	10.8	9.0	1.4	1.3	6.4	5.1	13.3	14.2	3.3	4.0
Brilliance China	1114 HK	5.9	9.06	8.10	Hold	-11%	11.2	9.2	1.7	1.5	nmf	nmf	16.5	17.1	1.0	1.3
Geely Automobile	175 HK	8.2	7.19	4.30	Hold	-40%	14.3	10.8	2.4	2.0	7.8	5.9	17.3	19.1	0.9	1.2
Average							8.8	7.5	1.4	1.3	16.4	11.7	18.1	17.7	3.3	3.7
China OEMs - A																
Saic Motor-A	600104 CH	35.4	21.45	19.70	Buy	-8%	7.5	7.1	1.2	1.1	9.2	8.0	17.1	16.7	6.7	7.1
Guangzhou Auto-A	601238 CH	17.8	23.16		NC		18.6	15.9	3.3	2.9	22.4	17.2	16.9	18.0	1.3	1.7
Great Wall Mo-A	601633 CH	12.3	10.13		NC		10.3	9.5	2.1	1.8	6.6	6.1	21.5	19.9	3.1	3.1
Chongqing Chan-A	000625 CH	10.3	15.53	20.30	Buy	31%	6.4	6.0	1.7	1.4	27.8	12.1	28.8	25.8	4.7	5.2
Faw Car Co Ltd-A	000800 CH	2.6	10.72		NC		315.3	466.1	1.9	1.9	22.3	18.1	3.8	3.6	0.0	0.0
Jiangling Moto-A	000550 CH	3.1	29.10		NC		10.7	8.5	1.9	1.6	4.5	3.5	18.4	19.7	3.4	4.3
Dongfeng Auto-A	600006 CH	2.4	7.84		NC		27.0	22.4	2.3	2.1	nmf	nmf	6.6	7.9	nmf	nmf
Anhui Jianghua-A	600418 CH	3.9	13.61		NC		18.5	15.1	2.0	1.9	12.4	11.9	11.2	12.7	1.7	1.9
Average							51.8	68.8	2.1	1.8	15.0	11.0	15.5	15.5	3.0	3.3
Dealers and Autoparts Manufacturers																
Weichai Power-H	2338 HK	5.3	10.50	7.00	UNPF	-33%	19.2	16.2	1.1	1.0	6.2	5.6	5.8	6.6	1.8	2.1
Minth Group Ltd	425 HK	4.0	27.40		NC		16.0	13.4	2.5	2.2	11.0	9.3	16.6	17.6	2.4	2.9
Nexteer	1316 HK	3.7	11.44		NC		13.7	11.7	3.5	2.8	6.9	6.1	29.3	26.9	1.4	1.6
Baoxin Auto Grou	1293 HK	1.4	4.24		NC		17.2	13.6	1.6	1.5	8.1	7.1	9.0	10.4	0.7	1.0
Sinotruk Hk Ltd	3808 HK	1.5	4.10	4.10	UNPF	0%	24.3	19.1	0.5	0.5	4.1	4.0	2.2	2.7	1.4	1.7
Zhongsheng Group	881 HK	2.2	7.93		NC		14.6	12.3	1.2	1.1	8.8	7.8	8.9	9.5	1.3	1.7
China Harmony Au	3836 HK	0.8	4.03		NC		8.0	7.1	0.8	0.8	4.5	3.9	10.3	11.1	3.4	3.9
Dah Chong Hong	1828 HK	0.8	3.30		NC		9.4	8.1	0.6	0.6	6.7	6.1	7.1	7.6	4.2	4.8
China Zhengtong	1728 HK	0.7	2.58		NC		7.9	6.3	0.5	0.5	7.6	6.6	7.2	8.1	3.3	3.9
Xingda Intl	1899 HK	0.6	3.05		NC		14.6	8.2	0.8	0.7	5.6	4.0	7.4	12.5	5.0	8.8
Average							14.5	11.6	1.3	1.2	6.9	6.0	10.4	11.3	2.5	3.2

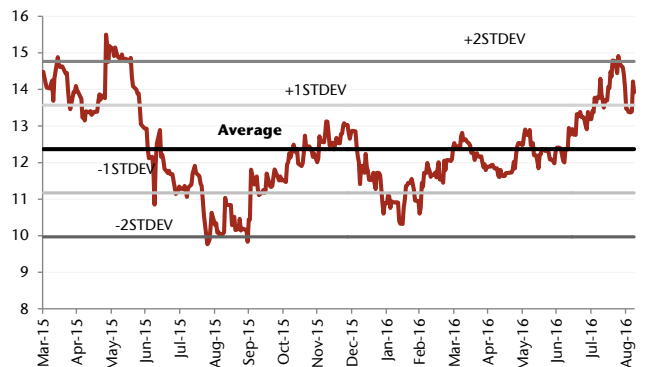
Source: Company data, Jefferies estimates, NC data from Bloomberg, closing prices as of Sept 20, 2016

Chart 77: Fuyao Glass Historical PE Chart



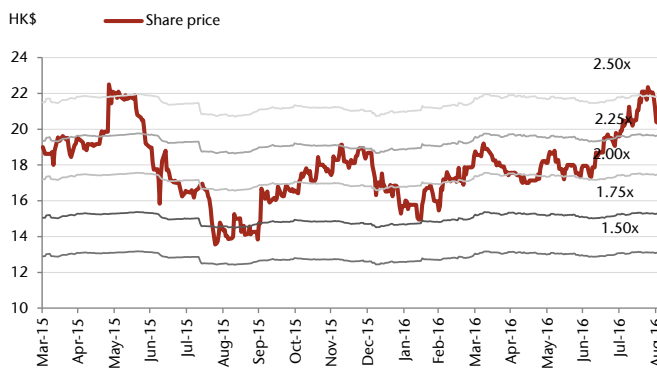
Source: Bloomberg, Jefferies

Chart 7: Fuyao Glass Historical PE Chart



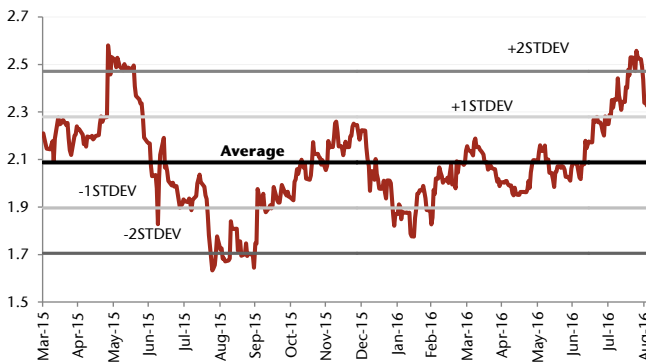
Source: Bloomberg, Jefferies

Chart 8: Fuyao Glass Historical PB Chart



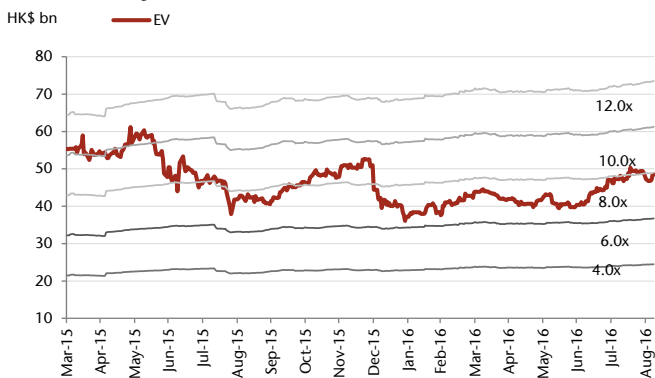
Source: Bloomberg, Jefferies

Chart 9: Fuyao Glass Historical PB Chart



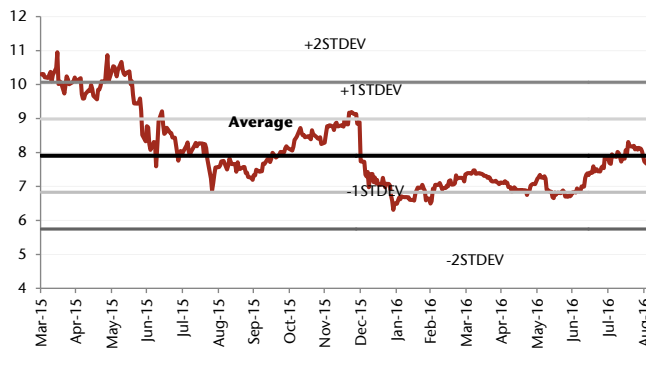
Source: Bloomberg, Jefferies

Chart 10: Fuyao Glass Historical EV/EBITDA Chart



Source: Bloomberg, Jefferies

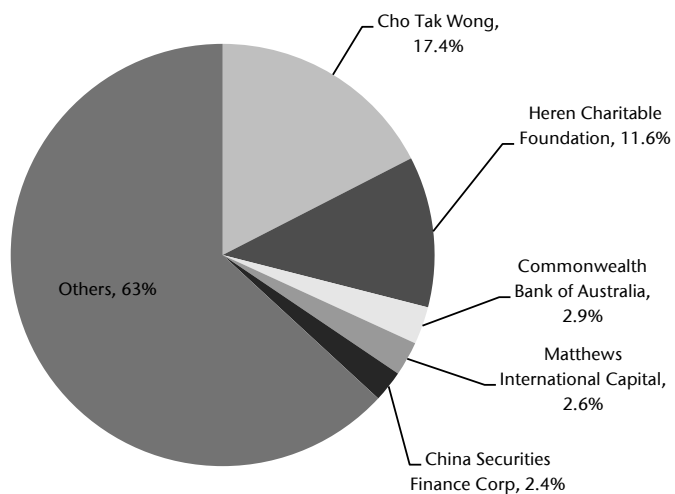
Chart 78: Fuyao Glass Historical EV/EBITDA Chart



Source: Bloomberg, Jefferies

Shareholding structure

Chart 79: Fuyao Glass shareholding structure



Source: Bloomberg, Company data, Jefferies

Management background

Table 11: Fuyao Glass — management team background

Name	Position	Age	Experience
Cho Tak Wong	Chairman & Executive Director	69	Mr. Cho has served as the executive director and chairman of the Board of Directors of the Company since 1999. He is also one of the major founders, operators and investors of the Company. Mr. Cho is also a member of the National Committee of the 12th Chinese People's Political Consultative Conference, the executive vice president of the China Overseas Chinese Entrepreneurs Association. Mr. Cho served as managing director of the Company from 1994 to 1999, vice chairman of the Board of Directors of the Company from 1988 to 1994 and president of the Company from 1987 to 2003.
Chen Xiangming	Executive Director	45	Mr. Chen has served as an executive director since 2003, the chief financial officer since 2015. He joined the Company in 1994. Mr. Chen graduated from Nanjing Forestry University in 1991 with a college diploma in finance and accounting, he obtained the qualification as an accountant as approved by the Ministry of Personnel of the PRC in 1996 and the qualification as a senior economist as approved by the Fujian Provincial Bureau of Civil Servants and the Office of Human Resources Development of the Fujian Province in 2012.
Chen Jicheng	Executive Director	44	Mr. Chen has served as an executive director since 2015 and the vice president of the Company since 2011 and the general manager of the commerce department since 2004. Prior to joining the Company, Mr. Chen was employed in Putian Jinshi Group in various senior positions including the executive vice president of Putian Jinshi Glass Products Co., Ltd. Mr. Chen graduated from Nanjing Institute of Political Studies, majoring in economics and administration. He also obtained an executive master of business administration degree from each of the Tsinghua University in Beijing and INSEAD Business School in France, respectively.
Tso Fai	Non-executive Director	45	Mr. Tso was an executive director of the Company from August 1998 to August 2015 (has been reassigned as a non-executive director since August 2015), and the president of the Company from September 2006 to June 2015, and he has served as the vice chairman of the Board of Directors of the Company since August 2015. Mr. Tso joined the Company in 1989. He received a master's degree in business administration from Baker College in the United States in 2005. Mr. Tso obtained the qualification of senior economist as approved by Fujian Provincial Bureau of Civil Servants and the Office of Human Resources Development of the Fujian Province in 2012. Mr. Tso is the son of Mr. Cho Tak Wong, the chairman and a substantial shareholder of the Company.
Wu Shinong	Non-executive Director	59	Mr. Wu has served as a non-executive director of the Company since 2005. Mr. Wu is currently a council member of Heren Charitable Foundation. He is also an independent director of Xiamen Xiangyu Co., Ltd., Xiamen ITG Group Co. and Midea Group Co., Ltd. Mr. Wu served as the vice principal of Xiamen University from 2001 to 2012. He served in School of Management of Xiamen University from 1999 to 2003 with his last role as a dean. Mr. Wu obtained a master's degree in business administration from Dalhousie University in Canada in 1986 and a doctorate in economics from Xiamen University in 1992.
Zhu Dezhen	Non-executive Director	57	Ms. Zhu has served as a non-executive director since 2011. She currently also serves as a director of Heren Charitable Foundation, president of Shanghai Guohe Modern Service Industry Equity Investment and Management Co., Ltd., and a consultant of the Consulting Committee of Securities Association of China. She has served as an INED of Bright Dairy & Food Co., Ltd. and China Yongda Automobiles Service Holdings Limited. Ms. Zhu served as the chief investment officer and president of the private banking department of China Minsheng Banking Corp. from 2008 to 2010 and president of Fortune CLSA Securities from 2003 to 2008.

Source: Company data

Table 12: Fuyao Glass Financials Summary

Income statement					Cash flow				
Rmb m	2015	2016E	2017E	2018E	Rmb m	2015	2016E	2017E	2018E
Revenue	13,573	15,483	17,623	20,253	Profit before tax	3,042	3,470	3,671	4,076
COGS	-7,939	-8,816	-10,077	-11,720	D&A	1,021	1,247	1,446	1,622
Gross profit	5,635	6,667	7,545	8,533	Change in working cap.	-412	-483	-525	-641
Operating expenses	-2,308	-2,633	-2,997	-3,445	Other	-651	-496	-551	-611
Operating profit	3,327	4,034	4,548	5,089	CF from operations	3,000	3,738	4,040	4,446
Other gains - net	-100	-359	-652	-767	Capex	-3,343	-3,000	-3,000	-2,000
Share of results of assoc. & JCE's	6	6	6	6	Acquisitions and others	341	0	0	0
Finance costs	-191	-211	-231	-251	CF from investing	-3,001	-3,000	-3,000	-2,000
Pre-tax profit	3,042	3,470	3,671	4,076	Equity raised/ (repaid)	6,524	0	0	0
Tax	-435	-496	-551	-611	Debt raised/ (repaid)	171	500	500	500
Profit	2,607	2,973	3,120	3,465	Dividends, interest and others	-1,587	-1,884	-2,082	-2,185
Minority interest	-2	-2	-3	-3	CF from financing	5,108	-1,384	-1,582	-1,685
Net profit	2,605	2,971	3,118	3,462	Net cash flow	5,107	-646	-542	761
Basic EPS (Rmb)	1.10	1.18	1.24	1.38	Exchange gain	300	0	0	0
					Cash at end of year	5,905	5,259	4,717	5,478
Balance sheet					Ratio & financial metrics analysis				
Rmb m	2015	2016E	2017E	2018E		2015	2016E	2017E	2018E
Cash	5,905	5,259	4,717	5,478	Revenue Growth	5.0%	14.1%	13.8%	14.9%
Inventories	2,495	2,771	3,167	3,683	EBIT Growth	-0.7%	21.3%	12.7%	11.9%
Receivables	3,784	4,316	4,912	5,646	EPS Growth	-1.1%	8.1%	4.9%	11.1%
Other current assets	14	14	14	14	EBIT Margin	24.5%	26.1%	25.8%	25.1%
Fix assets	10,807	12,600	14,193	14,609	Net Profit Margin	19.2%	19.2%	17.7%	17.1%
Others assets	1,838	1,797	1,758	1,720	Payout Ratio	72.2%	70.0%	70.0%	70.0%
Total assets	24,842	26,756	28,761	31,150	Valuation metrics				
ST debt	3,871	3,871	3,871	3,871	PER (x)	16.4	15.2	14.5	13.1
Other current liabilities	3,222	3,547	4,015	4,623	EV/EBITDA (x)	9.6	8.1	7.3	6.5
LT debt	848	1,348	1,848	2,348	Price to Book (x)	2.6	2.6	2.4	2.3
Other LT liabilities	471	471	471	471	Balance Sheet Ratios				
Total liabilities	8,412	9,237	10,204	11,313	ROE	15.9%	17.0%	16.8%	17.5%
Shareholder's equity	16,423	17,515	18,556	19,838	ROCE	17.1%	17.0%	15.9%	16.8%
Minority interests	6	4	1	-1	Net debt to Equity	-7.2%	-0.2%	5.4%	3.7%
Total liability & equity	24,842	26,756	28,761	31,150	Interest coverage (x)	22.8	25.1	26.0	26.7
					Book value per share	6.9	7.0	7.4	7.9

Source: Company data, Jefferies estimates

Appendix 1: Chemistry of Glass Making

The main component of glass is SiO₂ or Silica Sand. Silica Sand has a high melting point of ~1,700 degrees Celsius. Sodium carbonate (also known as soda ash), a water-soluble sodium salt of carbonic acid, acts as a important ingredients for Silica Sand, lowering its melting point to ~1,500 degree Celsius.

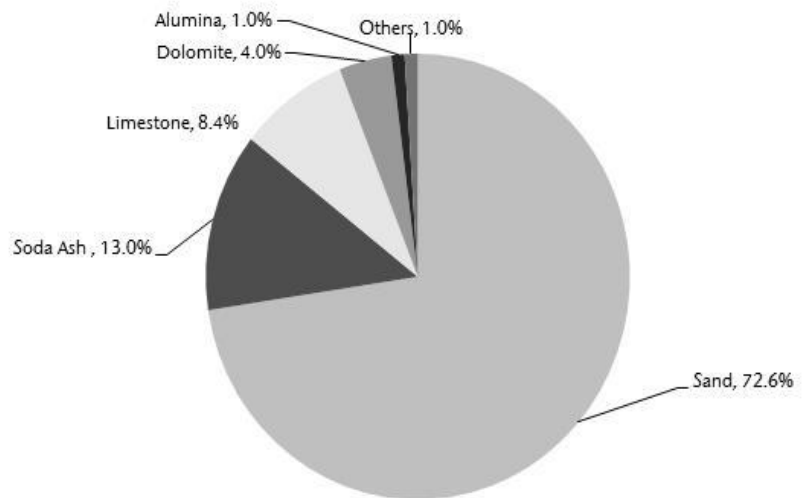
In the process of glass making, first off, sand, soda ash and lime store are heated in a furnace to create molten glasses, follow with the float process (most commonly used process), where molten glass, at >1,000 degrees Celsius, is poured from a furnace into a bath of molten tin. The molten glass mixture floats on the tin, spreads out and forms a layer of glass. The thickness is controlled by the speed at which the solidifying glass is drawn off from the tin bath. After cooling off and further polishing, float glass is created.

Table 13: Composition of float glass

Material	Glass Composition	Reason for adding
Sand	72.6%	Main ingredient
Soda Ash	13.0%	Easier melting
Limestone	8.4%	Durability
Dolomite	4.0%	Working & weathering properties
Alumina	1.0%	Enhance strength
Others	1.0%	-

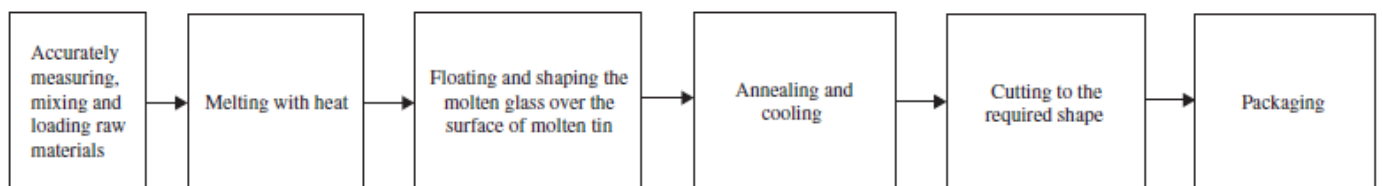
Source: NSG Group, Jefferies

Chart 80: Composition of float glass



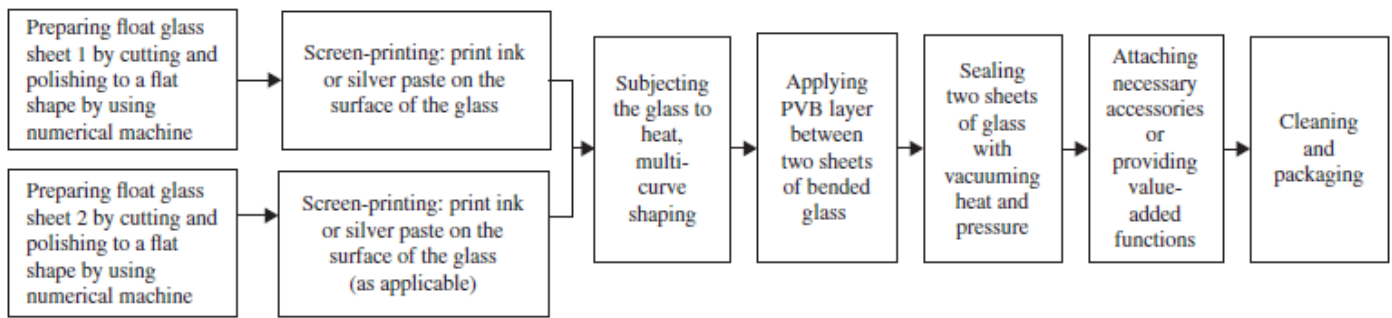
Source: NSG Group, Jefferies

Table 14: Float glass production process



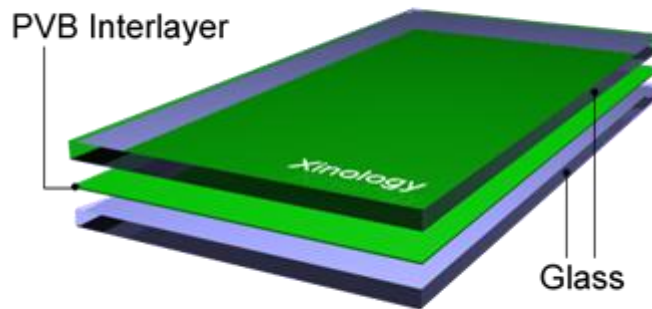
Source: Company data, Jefferies

Table 15: Laminated automotive glass production process



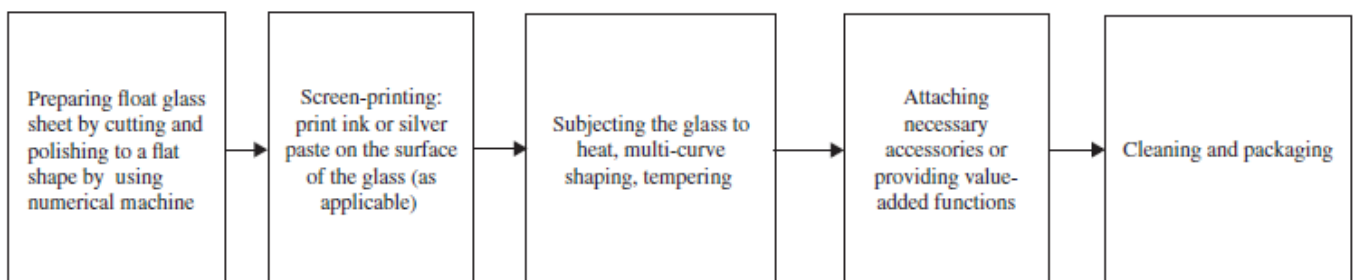
Source: Company data, Jefferies

Chart 81: Laminated Glass with Polyvinyl Butyral (PVB) layers; the bonding process takes place under heat and pressure, the PVB interlayer becomes optically clear when heated.



Source: Company data, Jefferies

Table 16: Tempered automotive glass production process



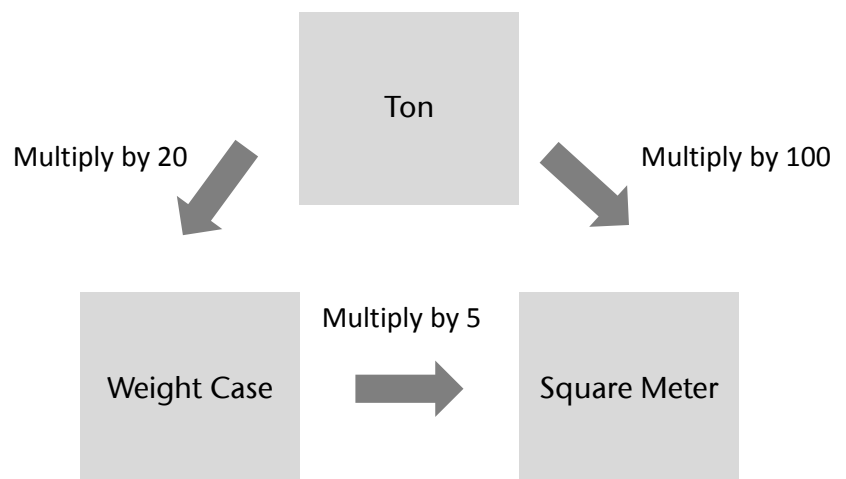
Source: Company data, Jefferies

Appendix 2: Definition of Weight Case

Weight case is a unit used to measure glass manufacturing. By definition, **one weight case is 10 m² of 2mm thick of glass**. Volume of a weight case is therefore **0.02 m³** (that is 0.002m x 10m²). Given the density of glass is roughly **2,500 kg/m³**, one weight case of glass weigh about **50kg** (that is 2,500 kg/m³ x 0.02 m³). Basically, one ton of glass is equivalent to 20 weight case of glass and 100 square metre of glass (2mm thick).

For easier understanding, units of standardized glasses can be converted based on the following chart.

Chart 82: Units conversion of standardized glass (2mm thick)



Source: Jefferies

Scenarios

Target Investment Thesis

- Float glass capacity to reach 4.9mt by YE2016
- Float glass ASP to increase by 9% and 2% in 2016E and 2017E, respectively
- Gross margin to expand to ~35% for FY16E
- PT HK\$8.6 based on SOTP valuation methodology, valuing its glass business at 11x 2017 PE and Xinyi Solar stake at the current market price

Upside Scenario

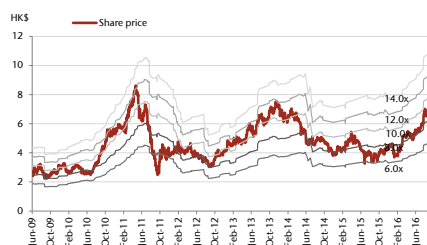
- Float glass capacity to ramp up faster than expected
- Float glass ASP to increase by 10% and 4% in 2016E and 2017E, respectively
- Gross margin to expand to >35% for FY16E
- PT HK\$10.0 based on SOTP valuation methodology, valuing its glass business at 13x 2017 PE and Xinyi Solar stake at current market price

Downside Scenario

- Float glass capacity to ramp up slower than expected
- Float glass ASP to increase by 3% and flat in 2016E and 2017E, respectively
- Gross margin to expand to <35% for FY16E
- PT HK\$7.2 based on SOTP valuation methodology, valuing its glass business at 9x 2017 PE and Xinyi Solar stake at the current market price

Long Term Analysis

1 Year Forward PE



Source: Bloomberg, Jefferies estimates

Financial Model Drivers

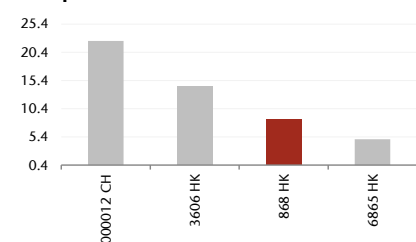
Earnings (FY15-18E) CAGR	22%
Revenue CAGR (FY15-18E)	8%
EBIT CAGR (FY15-18E)	26%

Other Considerations

- Policy to lower natural gas cost
- Property curbing measures that could negatively impact demand

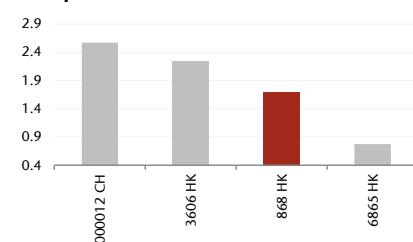
Peer Group

Group 2017 P/E



Source: Bloomberg, Jefferies estimates

Group 2017 P/B



Source: Bloomberg, Jefferies estimates

Ratings / Price Target

Ticker	Rec.	PT
868 HK	Buy	HK\$8.60
3606 HK	Buy	HK\$24.0
6865 HK	NC	NC
000012 CH	NC	NC

Catalysts

- Capacity closure and restriction to build new capacity
- Lower natural gas price
- Float glass price continue to rise during 4Q peak season

Company Description

Xinyi Glass is engaged in the production and sales of a wide range of glass products, including automobile glass, energy saving construction glass, high quality float glass and other glass products. Its customers include companies in the business of automobile glass manufacturing, wholesale and distribution, curtain wall engineering and installing, construction and furniture glass manufacturing, and float glass wholesale and distribution. As of YE15, the company's float glass capacity was ~5mt.

Scenarios

Target Investment Thesis

- Auto glass capacity to reach 136m sqm by YE2016
- Auto glass ASP to increase by 4% and 2% in 2016 and 2017, respectively
- Gross margin to expand to ~43% for FY16E
- PT HK\$24.0 based on DCF with 8.9% WACC

Upside Scenario

- Capacity ramps up faster than expected
- Auto glass ASP to increase by 6% and 3% in 2016 and 2017, respectively
- Gross margin to expand to ~45% for FY16E
- PT HK\$29.0 based on DCF with 8.0% WACC

Downside Scenario

- Capacity ramps up slower than expected
- Auto glass ASP to increase by only 2% in 2016 and remain flat in 2017
- Gross margin to expand to ~41% for FY16E
- PT HK\$19.0 based on DCF with 9.5% WACC

Long Term Analysis

1 Year Forward PE



Source: Bloomberg, Jefferies estimates

Financial Model Drivers

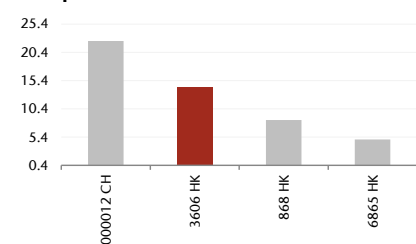
Earnings (FY15-18E) CAGR	10%
Revenue CAGR (FY15-18E)	14%
EBIT CAGR (FY15-18E)	15%

Other Considerations

- Auto sales growth remains at double digit growth
- Policy to lower natural gas cost

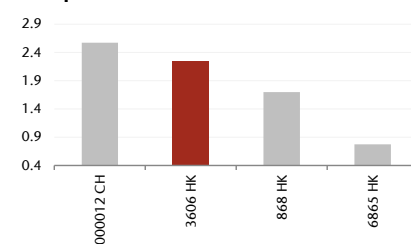
Peer Group

Group 2017 P/E



Source: Bloomberg, Jefferies estimates

Group 2017 P/B



Source: Bloomberg, Jefferies estimates

Ratings / Price Target

Ticker	Rec.	PT
3606 HK	Buy	HK\$24.0
868 HK	Buy	HK\$8.60
6865 HK	NC	NC
000012 CH	NC	NC

Catalysts

- Capacity closure and restriction to build new capacity
- Lower natural gas price
- Strong auto sales growth numbers

Company Description

Fuyao Glass is engaged in design, manufacture, and sales of automotive grade float glass and auto glass. The company provides globalized research and development, distribution and after-sales service. The company has manufacturing capacity in China, USA and Russia.

Company Description

Xinyi Glass is engaged in the production and sales of a wide range of glass products, including automobile glass, energy saving construction glass, high quality float glass and other glass products. Its customers include companies in the business of automobile glass manufacturing, wholesale and distribution, curtain wall engineering and installing, construction and furniture glass manufacturing, and float glass wholesale and distribution. As of YE15, the company has ~5mt of float glass capacity.

Fuyao Glass engaged in design, manufacture, and sales of automotive grade float glass and auto glass. The Company provides globalized research and development, distribution and after-sales service. The company has manufacturing capacity in China, USA and Russia.

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Investment Recommendation Record

(Article 3(1)e and Article 7 of MAR)

Recommendation Published , 06:17 ET. September 21, 2016

Recommendation Distributed , 06:20 ET. September 21, 2016

Johnson Leung owns a long position of Dongfeng Motor Group Co Ltd. common stock.

Company Specific Disclosures

For Important Disclosure information on companies recommended in this report, please visit our website at [https://javatar.bluematrix.com/sellside/ Disclosures.action](https://javatar.bluematrix.com/sellside/Disclosures.action) or call 212.284.2300.

Explanation of Jefferies Ratings

Buy - Describes securities that we expect to provide a total return (price appreciation plus yield) of 15% or more within a 12-month period.

Hold - Describes securities that we expect to provide a total return (price appreciation plus yield) of plus 15% or minus 10% within a 12-month period.

Underperform - Describes securities that we expect to provide a total return (price appreciation plus yield) of minus 10% or less within a 12-month period.

The expected total return (price appreciation plus yield) for Buy rated securities with an average security price consistently below \$10 is 20% or more within a 12-month period as these companies are typically more volatile than the overall stock market. For Hold rated securities with an average security price consistently below \$10, the expected total return (price appreciation plus yield) is plus or minus 20% within a 12-month period. For Underperform rated securities with an average security price consistently below \$10, the expected total return (price appreciation plus yield) is minus 20% or less within a 12-month period.

NR - The investment rating and price target have been temporarily suspended. Such suspensions are in compliance with applicable regulations and/or Jefferies policies.

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P/FCF, premium (discount)/average group EV/EBITDA, premium (discount)/average group P/E, sum of the parts, net asset value, dividend returns, and return on equity (ROE) over the next 12 months.

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Other Companies Mentioned in This Report

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- Brilliance China Automotive Holdings Ltd (1114 HK: HK\$8.81, HOLD)
- Chongqing Changan Automobile Company (000625 CH: CNY15.45, BUY)
- Chongqing Changan Automobile Company (200625 CH: HK\$13.16, BUY)
- Dongfeng Motor Group Co Ltd (489 HK: HK\$7.90, BUY)
- Fuyao Glass Industry Group Co., Ltd. (3606 HK: HK\$20.95, BUY)
- Geely Automobile Holdings Ltd (175 HK: HK\$7.13, HOLD)
- Great Wall Motor Co Ltd (2333 HK: HK\$7.75, BUY)
- Guangzhou Automobile (2238 HK: HK\$10.74, HOLD)
- SAIC Motor Corporation - A (600104 CH: CNY21.33, BUY)
- Saint-Gobain (SGO FP: €38.07, BUY)
- Sinotruk (3808 HK: HK\$4.13, UNDERPERFORM)
- Toyota Motor (7203 JP: ¥6,144, HOLD)
- Weichai Power - H (2338 HK: HK\$10.68, UNDERPERFORM)
- Xinyi Glass Holdings Limited (868 HK: HK\$7.48, BUY)

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			Count	Percent
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