

SAINT-GOBAIN: THE EXPANSION OPTIONS

Ashok Som
ESSEC Business School
PARIS, FRANCE

Abstract

Saint Gobain, a French company, is amongst the leaders in the float glass industry. The company has the strategy of steady, strong and profitable growth. Saint Gobain has been achieving this target through organic and external growth and through acquisitions. Sixty six percent of its revenues come from Europe, 27% from North America and the remaining 7% from emerging economies in Asia. The markets in Europe have reached the maturity stage and hence the company has to focus on emerging markets for future growth opportunities. To fuel this growth, the company is considering investments in two of the fastest growing economies in Asia, China and India. Not only do these countries have significant domestic demand, they also have the potential to be used as a hub for exporting to countries in South Asia and East Africa. Saint Gobain needs to analyze the investment and growth opportunities in these two countries and evaluate whether such an investment would be in line with its overall strategy. The teaching objective of the case is to understand and analyze the peculiarities of the glass industry and the position state of Saint-Gobain in the industry. The case highlights the emerging trends in this industry, the competitive landscape and Saint-Gobain's investment decision in emerging Asia. The case is targeted at MBA students studying international strategy, investment decisions in emerging markets with respect to the glass industry. A detailed Teaching Note is available from the author.

KEY WORDS: Glass industry, strategy, new-market entry, emerging market, India, China

INTRODUCTION

Jean-Louis Beffa, Chairman and CEO of Saint Gobain, was sitting in his office and thinking about the days way back in 1999, when he was conducting meetings with his team before the publication of the annual results. The Group had increased its sales from €17,821 million in 1998 to €22,952 million in 1999, a growth of 28.8%. However, if he were to exclude the contribution of Essilor and the Flat Glass processing subsidiaries, the sales had risen by only 11.5%. This was a cause of concern for him. Although the company had achieved the double-digit growth objective in 1999, as a visionary chairman, he was not satisfied. Selling prices had risen slightly, driven by the recovery of the flat glass, insulation and building materials divisions during the year. The sales volumes had expanded only modestly in comparison to 1998. In Europe, the decline in demand for Industrial Ceramics and Pipes had a negative impact on the sales in the first-half of the year. The second half of the year saw a recovery. United States operations led the Group's growth in the first half. Volumes dropped, however, at the end of the year. To Jean-Louis Beffa it seemed clear that the developed markets of the west had matured and continued phenomenal growth could no longer be expected. He checked the breakdown of sales around the globe (France 33.5%; other European countries 33.7%; North America 25.5%; and rest of the world 7.3%). He was convinced that the sales breakdown in the developed markets would remain stable. More opportunities seem to lie in emerging markets.

The 'rest of the world' sector had offered double-digit growth of 11% (€1,547 million in 1998 to €1,729 million in 1999). He was convinced that 'the rest of the world' segment could offer Saint Gobain substantial growth opportunities in the future. His thoughts returned to his recent visits to the emerging markets of Asia. He pulled out his notebook and reviewed the list of subsidiaries in Asia. To his astonishment, he realized that Saint Gobain had a few companies in Japan and only one company each in India and Korea. He thought to himself, how could Saint-Gobain not have a major presence in China and India, the most populous countries in the world with vast potential for growth?

SAINT-GOBAIN: HISTORY

Saint-Gobain was created in 1665 as part of the plan devised by Louis XIV and his Prime Minister, Jean-Baptiste Colbert, to restore the French economy. Entrusted to private entrepreneurs, the company broke the industrial tradition by organizing glass production on an industrial basis. Through the invention of glassware casting in 1688, Saint-Gobain was able to establish a near-monopoly in 17th-century Europe and ousted Venice, which was then the leader in this sector.

In the 19th century, due to high competition in the domestic market, Saint-Gobain decided to venture across French borders to tap growth opportunities in Europe. The company established units in Germany (1857), Italy (1889) and Spain (1904). These new units became the foundations for Saint-Gobain's global presence. In the first half of the 20th century, glass applications diversified into glass wool, glass fiber, and hollow glass. In 1970, Saint-Gobain merged with Pont-à-Mousson, the world leader in cast iron piping, starting a new era through the consolidation of markets. The acquisition of Poliet in 1996 completed its distribution network. The group divided itself into three Strategic Business Units:

Glass

The glass unit incorporated the group's legacy business sectors of Flat Glass, Packaging, Insulation and Reinforcement. With 46% of Global Sales, these business units were all leaders either globally or at European level. This unit serviced the markets of building and renovation, automobile, industrial and household appliances, and containers.

High Performance Materials

The unit included primarily ceramics, plastics and abrasives. The center was the global leader in abrasives, thermal and mechanical applications for Industrial Ceramics and High-Performance Plastics. These industrial facilities were evenly divided between Europe, North and South America and Asia. In 1990, the company acquired part of the Norton Group and combined it with Saint-Gobain's existing Ceramics and Refractories operations. This sector had expanded over a period of years on the strength of various acquisitions in the Plastics segment.

Housing

The housing unit combined building materials, building distribution and pipelines. The Pipelines Division was the world's leading equipment manufacturer in ductile iron pipes. The Building Materials Division shared the international leadership position in siding, facing and roofing products and was European leader in industrial mortars. The Building Distribution Division was number one in Europe in professional distribution of building materials.

THE GLASS INDUSTRY

Float Glass

Float glass was invented by Sir Alistair Pilkington in 1952. This process permits to manufacture clear, tinted and coated glass for buildings and vehicles. This invention was a major revolution in the glass manufacturing since it enabled the production of both, thinner and thicker glass. (Refer the *Exhibit 1 (a)* and *1 (b)* for glass making process).

The Glass Market

The global market for flat glass was approximately 35 million tons, which represented a value of around €14 billion. The market was growing at the rate of about 3.5% a year. Out of the 35 million tons,

22 million tons represented high quality float glass, 4 million tons represented sheet glass (manufactured in a process where molten glass is drawn out of the furnace vertically and subjected to a low quality annealing process – controlled cooling) and 2 million tons of rolled glass (manufactured in a process where molten glass is squeezed between rollers to form sheets, usually with a pattern embossed on the surface). The remaining 7 million tons was lower quality float, produced mainly in China. (Refer the *Exhibit 2* for a chart illustrating the main routes to market in the glass industry).

A proportion of the high quality float glass, and some of the rolled glass, was further processed by laminating, toughening, coating and silvering, for its use in insulating glass units or automotive glazing. The primary use of glass was in the building products industry, which comprised the largest sector. This was followed by use in the automotive industry. In volume terms, the use of glass as special products was very small. For building products, glass underwent two or more levels of processing before being installed in windows or being used as a component in furniture or white goods. (Refer to *Exhibit 3 (a)* for the breakdown by segment of the global building products flat glass market). Within the automotive sector, glass was used in original equipment for vehicle manufacturers and also in the manufacture of replacement parts for the secondary market (Refer to *Exhibit 3(b)* for the breakdown of the global automotive glass market by sector).

Major Players

The industry was relatively consolidated in the higher end of the float glass market. Four companies, Asahi (Japan), Pilkington (UK), Saint-Gobain (France) and Guardian (USA) dominated the market in primary manufacturing, producing almost 62% of total global consumption. Asahi, Pilkington, and Saint-Gobain supplied about 74% of the glass used in the automotive industry. Smaller independent players such as Interpane, Scheuten and Sangalli generally pursued downstream processing of insulating glazing units for example. Saint-Gobain, Pilkington and Asahi participated at this level in the market, but with much lower market presence than in primary manufacturing (Refer to *Exhibit 4 & 5* for the production capacities of the companies across the world. Also Refer to *Exhibit 6* for the current industry trends)

Mature Markets: Europe

The European market, with a market size of around 8 million tons, had seven main indigenous manufacturers of float glass: Saint-Gobain, Pilkington, Asahi, Guardian, Sisecam, Euroglas and together with two other processors that owned a part of the float lines - Interpane and Scheuten. The European market was the most mature glass market of the world with the highest proportion of value-added products such as coated and laminated glass. The per capita consumption was around 14 kilograms.

Other markets: Emerging countries

The glass market outside of Europe and North America was less mature, with annual per capita consumption levels averaging around 4 kilograms compared to 3.5 of China. Furthermore, the usage of sheet and lower quality float capacity was predominant. Secondary processing was negligible with the majority of glass being installed in basic, monolithic form. It was expected that as these markets would mature, the trend would shift towards high quality float glass and value-added products such as coated and laminated glass.

EXPANSION STRATEGY

In the 1990s, Saint-Gobain Group had undertaken major transformation of its operations and organizational structure. The Group's vision was to be a *"manufacturer of high-technology materials and a provider of associated services"*.

According to Jean-Louis Beffa, the strategic intent of the company was to *"produce and distribute glass materials for the future, in positions of competitive leadership, for profitable growth... Steady, Strong and Profitable growth through the policies of internal, geographical and external growth through acquisitions "*

The company's strategy was based on the following principles: (a) bringing innovative products rapidly to market by stepping up the research and development effort, by opening a large-scale research laboratory for ceramics in France (b) boosting group presence in emerging countries by prioritizing new operations in Eastern Europe and Latin America (c) systematic sales support services and an increase in

group sales from distribution (d) continued upgrading of industrial efficiency with productivity gains of 5% a year and lower purchasing costs, as well as more selective investments in capital-intensive sectors (e) expansion of employee shareholding and profit-sharing schemes.

The company had followed the strategy of steady, strong and profitable growth through internal organic growth and external growth through acquisitions. Based on its competencies and legacy in different market positions, internal growth had enabled the company to gradually reduce its dependence on mainstream products and focus on differentiating its products. This was achieved by research and innovation, knowledge about customers' needs, a fine-tuned approach to market expectations, and an intelligent use of high growth distribution channels. Geographic expansion was achieved through acquisitions, partnership agreements as expansion bridgeheads, and direct investments. Extra growth through acquisitions had helped to strengthen the company's leading position, integrate new competencies and ensure a consistent spread of business lines (Refer to *Exhibit 8* for geographical breakdown of operations).

GROWTH IN EMERGING MARKETS

China

China, the most populous country of the world, was the fastest growing country in East Asia. From the beginning of economic reforms in 1979, growth rates averaged 9%. China was one of the few socialist countries that had a successful transition from being a centrally planned to a market driven economy. China was not only considered as the world's factory, but also as the world's market.

The main reasons motivating companies to invest in China were: (a) *first mover imperative* - to be the first entrant in the one billion consumer market which promised growth at a higher rate than any developed country. For instance, China recorded one million new mobile phone subscribers every month and one fifth of the world's automobile market; (b) *economies of scale and scope* - to take advantage of the Chinese low production cost; (c) *labor market* - large and relatively cheap labor force comprising of 300 to 500 million people; (d) *technology imperative* - China had only a five to ten year technology delay with reference to the United States and produced a range of products from textiles to high-tech products like mobile phones and television; (e) *infrastructure support* - China was spending heavily on building its infrastructure. About 11% of Shanghai's GDP was spent on Public Works.

In spite of these investments, the gap between rich and poor had been widening in China. Layoffs during the last five years amounted to 25 million. The interest and exchange rates were still administered by the state and according United States financial experts, the currency was undervalued by about 20-30%. In the event of revaluation of currency the operating costs were likely to increase. The legal framework was considered to be under development and the banking system was weak. In the banking sector, almost 50% of the assets were expected to be non-performing. Business law in China was a relatively new concept and intellectual property rights were not well established and respected.

The Chinese Glass Market

In the early 1990, flat glass was a promising industry in China. The profit could be as high as 138% with the net profit to the tune of 100%. The flat glass industry in China constructed about 10 new float production lines each year from 1995 to 1997. This marked the beginning of competition. In order to survive in the market flooded with over supplies of flat glass, the producers were forced to reduce the selling prices that escalated into a price war. From 1995 to 1997, the price of flat glass fell by almost 25%. 1997 turned out to be one of the worst years for the Chinese glass industry, with many float plants being forced to shut down. In 1998, there were no constructions of new float lines. By 1999, the flat glass industry was making a turn around. By end of 1999, there was stagnation in the market with a total of 39 new or existing float lines in operation with a total production capacity up to 878,800,000 tons.

Analysts and the Chinese state departments reported that the Chinese glass market would be burdened with oversupply, price depreciation and decline in profits for the next few years. The reasons given for this condition were: (a) *fast growing production capacity* - based on the present investment and production of the glass industry, the output of plain glass would maintain an increase of more than 10% in the next two years; (b) a *gap in technology and high-grade products* existing between the majority of the domestic float glass productions lines and those of advanced countries; (c) starting from the end of 1999, supply had surpassed demand on the overseas market due to the *flagging world economy*. The increase

in market competition, except in Africa and in the Middle East, had witnessed increasing difficulties for Chinese firms in expanding exports; (d) *irrational structure of raw glass products* - according to published statistics, high-quality float glass accounted for only about 12% of the total glass output, far from the market demand for high-quality products.

India

India was the largest democratic republic with about 1 billion people, one sixth of the world's total population, but contributed (5%) one twentieth of the world's total Gross Domestic Product. The key-motivating factor for investment in India was that of investing in one of the largest economy of the world that had a middle-class consumer market in excess of 300 million people. Some of the other reasons motivating companies to invest in India were: (a) one of the largest manufacturing sectors; (b) skilled manpower and English speaking professional managers available at competitive cost; (c) well developed Research and Development and infrastructure facilities; (d) well documented government policies environment that provided freedom of entry, investment, location, choice of technology, production, import and export; (e) local currency (Rupee) was convertible on current account at market determined rate; (f) free and full repatriation of capital, technical fee, royalty and dividends; (g) foreign brand names were freely used; (h) no income tax on profits derived from export of goods; (i) custom duty exemption and ten year tax holidays for Export Oriented Units; (j) double taxation avoidance agreements.

The Indian policies were designed to attract significant foreign direct investments with automatic approval facility being granted to most sectors. India also encouraged technical collaboration between domestic and foreign firms and the Trademarks and Patents Act and the Designs Act protected the same. There was a well-developed judicial system that functioned independently of the executive system. There were well-established company laws governing the management of companies. Moreover, the business climate was positive as India offered well-balanced fiscal incentives and automatic approvals for setting up a company.

Although India had a well-established legal system, often it took years to settle disputes. India had also experienced difficulties in establishing a stable government. Although all the political parties in principle agreed on the openness towards foreign investment, their stand could vary in degree from party to party. Foreign companies investing in India had to understand the subtleties and formulate clear agreements with government agencies and Indian business partners.

The Indian Glass Market

India had been using sheet and lower quality float glass through ages. Secondary processing was negligible with the majority of glass being installed in basic, monolithic form such as casting glasses. Until 1992, only sheet glass was being manufactured in the country, with a limited quantity of float glass being imported. In 1993, the first float glass plant was set. Since then new varieties of float and sheet glass capacities have been added. Against decades of old practice of casting glass in sheets over plain surfaces, the technology of floating glass over molten tin had brought about a significant change in the production and use of glass. The switch from low quality sheet glass with limited range and thickness to the sophisticated float glass took place in just a decade. Technology had been developed for the production of insulated glass, which resulted in saving of energy for air-conditioning. The demand for float glass had grown at a modest rate of about 5% per annum from 1998 onwards. However, during the same period the installed capacity also increased substantially resulting in excess capacity in the industry. The industry had been growing at a healthy 10 to 12% per annum. All the main producers had been benefiting from this massive growth.

The Indian glass market primarily consisted of eleven units in the organized sector with an estimated production of 820,000 tons. Primary glasses were further processed into mirror, toughened glass, laminated glass, double-glazing, etched glass, glass doors, automotive glass etc. Flat and float glass found major uses in construction, architectural automotive, mirror and solar energy industries. The approximate size of the Indian market was estimated to be 515,000 tons. Clear glass accounted for nearly two thirds of this market and mirror glass for some 70,000 tons. The per capita consumption of float/sheet glass in India was 0.5 kg. This was very low in comparison to 2.5 kg in Indonesia and 3.5 kg in China.

Both sheet and float glass were exported to countries in South Asia, East Asia, and South & East Africa. Three major players dominated the float glass industry in the organized sector: (a) Gujarat Guardians, set up in 1993 as a joint venture between American Guardian Glass and the family owned group Modis, with a capacity of around 150,000 tons and an investment of around \$90 million. Modis first introduced the concept of branding glass in India, (b) Float Glass India was set up in 1995 as a joint venture between Asahi Glass of Japan and the family owned group Tatas at Taloja near Pune with an installed capacity of around 120,000 tons and an investment of about \$110 million; (c) Triveni Glass Company was set up in 1996 near Allahabad by the Indian government with a capacity of 60,000 tons and an investment of around \$30 million.

THE FINAL DECISION

Jean-Louis Beffa understood that the company needed to invest in Asia, but he was still not sure whether he should invest in India or China or both, and if he invested in both countries, in which order? As he was consulting his notes to prepare for the discussion with his board the following week, he came across a report issued by the Asian Development Bank which stated: *"The era of rapid growth through the pursuit of traditional, labor-intensive, low value-added production and exports may be over. The key to improving competitiveness in Asian developing economies lies in raising human resource capabilities"*.

EXHIBIT 1(A): GLASS MAKING PROCESS

At the heart of the world's glass industry is the float process - invented by Sir Alistair Pilkington in 1952 - which manufactures clear, tinted and coated glass for buildings and clear and tinted glass for vehicles. The process, which was originally able to make only 6mm thick glass, now makes it as thin as 0.4mm and as thick as 25mm. Molten glass, at approximately 1000°C, is poured continuously from a furnace onto a shallow bath of molten tin. It floats on the tin, spreads out and forms a level surface. Thickness is controlled by the speed at which solidifying glass ribbon is drawn from the bath. After annealing (controlled cooling), the glass emerges as a 'fire' polished product with virtually parallel surfaces.

There were around 260 float plants worldwide with a combined output of about 800,000 tons of glass a week. A float plant, which operates non-stop for between 11-15 years, makes around 6000 kilometers of glass a year, 0.4mm to 25mm thick and up to 3 meters wide.

RAW MATERIALS

High quality sand, soda ash, limestone, salt cake and dolomite are melted at white heat to a highly viscous consistency. This is the basic composition of float glass; in fact, this is the formula for many types of mass-produced glass, except that float demands highly exacting standards of quality, care and control.

EXHIBIT 1(B): GLASS MAKING: STEP BY STEP PROCESS

Material	Glass Composition	Reason for Adding
Sand	72.6%	Basic Component
Soda Ash	13%	Easier melting
Limestone	8.4%	Durability
Dolomite	4%	Working & weathering properties
Alumina	1%	-
Others	1%	-

Stage 1: Melting and refining

Fine-grained ingredients, closely controlled for quality, are mixed to make batch, which flows as a blanket onto molten glass at 1,500°C in the melter. Today, Float makes glass of near optical quality. Several processes - melting, refining, homogenizing - take place simultaneously in the 2,000 tons of molten glass in the furnace. They occur in separate zones in a complex glass flow driven by high temperatures. It adds up to a continuous melting process, lasting as long as 50 hours, that delivers glass at 1,100°C, free from inclusions and bubbles, smoothly and continuously to the float bath. The melting process is key to glass quality. Compositions can be modified to change the properties of the finished product.

Stage 2: Float bath

Glass from the melter flows gently over a refractory spout onto the mirror-like surface of molten tin, starting at 1,100°C and leaving the float bath as a solid ribbon at 600°C. The principle of float glass remains unchanged from the 1950s. The product, however, has changed dramatically: from a single equilibrium thickness of 6.8mm to a range from sub-millimeter to 25mm; from a ribbon frequently marred by inclusions, bubbles and striations to almost optical perfection. Float delivers what is known as fire finish, the luster of new chinaware.

Stage 3: Coating

Coatings that make profound changes in optical properties can be applied by advanced high temperature technology to the cooling ribbon of glass. On-line chemical vapor deposition (CVD) of coatings is the most significant advance in the float process since it was invented. CVD can be used to lay down a variety of coatings, less than a micron thick, to reflect visible and infrared wavelengths, for instance. Multiple coatings can be deposited in the few seconds as the glass ribbon flows beneath the coaters. Further development of the CVD process may well replace changes in composition as the principal way of varying the optical properties of float glass.

Stage 4: Annealing

Despite the tranquility with which float glass is formed, considerable stress develops in the ribbon as it cools. Too much stress and the cutter will break the glass. To relieve the stress, the ribbon undergoes heat-treatment in a long furnace known as a lehr. Temperatures are closely controlled, both, along and across the ribbon.

Stage 5: Inspection

The float process is renowned for making perfectly flat, flaw-free glass. To ensure the highest quality, inspection takes place at every stage. Occasionally a bubble is not removed during refining, a sand grain refuses to melt, and a tremor in the tin puts ripples into the glass ribbon. Automated on-line inspection does two things. It reveals process faults upstream that can be corrected. It enables computers downstream to steer cutters around flaws. Flaws generate waste. Customers press constantly for greater perfection. Inspection technology now allows more than 100 million measurements a second to be made across the ribbon, locating flaws the unaided eye would be unable to see. The data drives 'intelligent' cutters, further improving product quality to the customer.

Stage 6: Cutting to order

Diamond wheels trim off seldedge – stressed edges - and cut the ribbon to size according to computer-generated instructions. Float glass is sold by the square meter. Computers translate customers' requirements into patterns of cuts designed to minimize wastage.

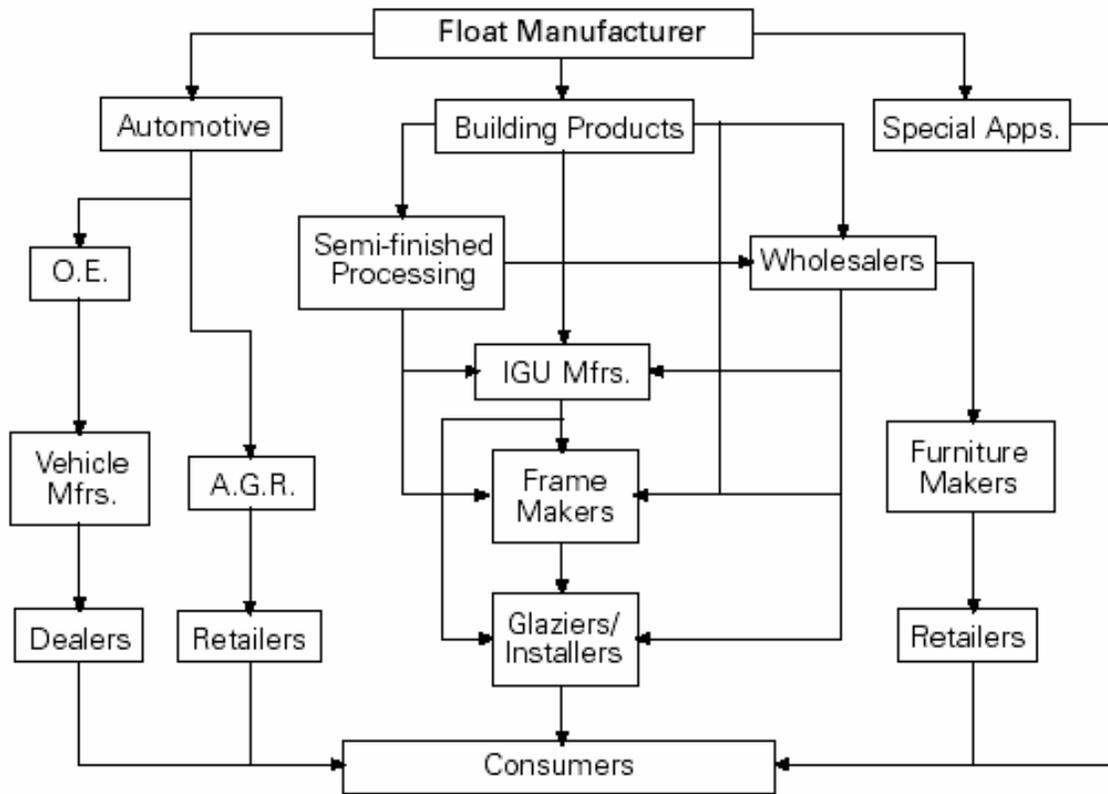
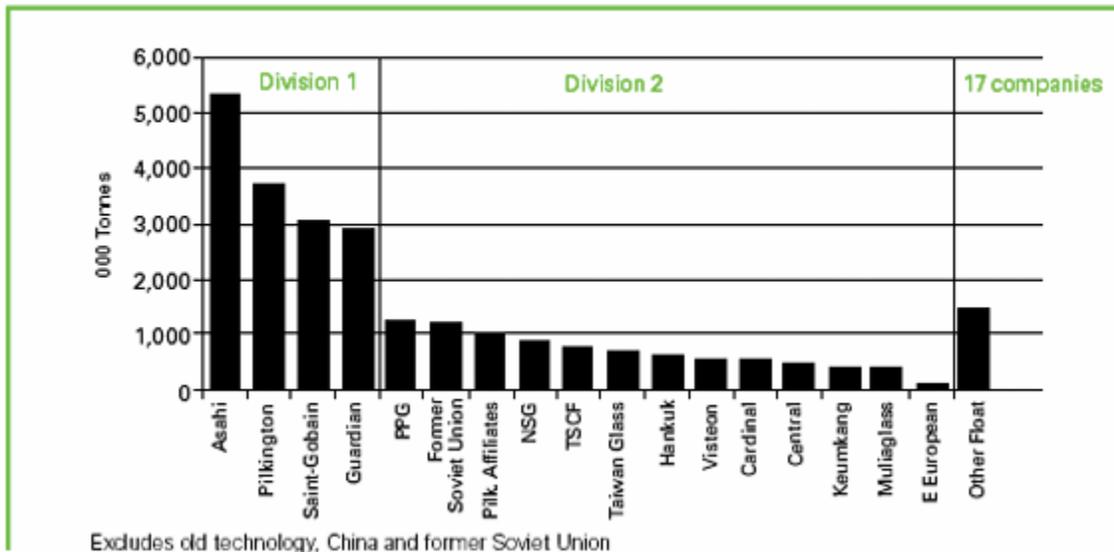
EXHIBIT 2: MAIN ROUTES TO THE GLASS MARKET

EXHIBIT 3 (A): GLOBAL BUILDING PRODUCTS FLAT GLASS MARKET BY SECTOR

Sector	Volume			Value	
New build	1,600 million m ²	40%	EUR	14,000 million	42%
Refurbishment	1,600 million m ²	40%	EUR	14,000 million	42%
Interior	800 million m ²	20%	EUR	5,300 million	16%
Fire Products	1 million m ²	<1%	EUR	275 million	<1%
Total	4,001 million m ²	100%	EUR	33,575 million	100%

EXHIBIT 3 (B): GLOBAL AUTOMOTIVE GLASS PRODUCTS MARKET BY SECTOR

Sector	Volume			Value	
Original Equipment (OE)	240 million m ²	83%	EUR	6,200 million	66%
Aftermarket (AGR)	50 million m ²	17%	EUR	3,200 million	34%
Total	290 million m ²	100%	EUR	9,400 million	100%

EXHIBIT 4: WORLD HIGH FLOAT CAPACITIES 2002*World High Quality Float Capacities 2002*

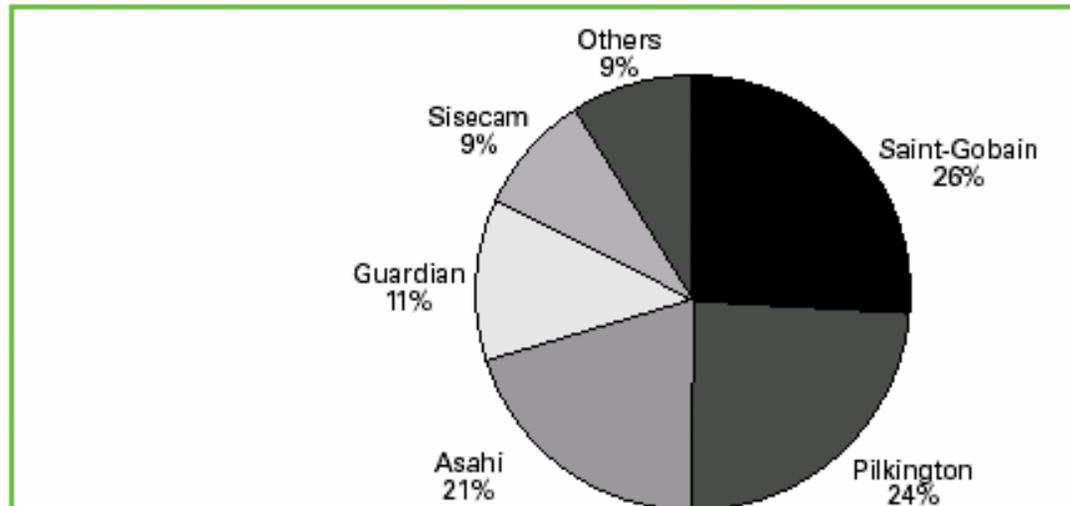
Company	Country ¹	Percentage of World Capacity
Asahi	Japan	22
Pilkington	United Kingdom	15 ²
Saint-Gobain	France	13
Guardian	United States	12
Others (32 Companies)		38

1. The country in which the parent company is domiciled.

2. Pilkington associates, including SYP and VVP make up an additional 4 per cent of world capacity, included in 'Others' above.

EXHIBIT 5: FLOAT GLASS CAPACITY: GEOGRAPHIC DISTRIBUTION

European Float/Sheet Capacity by Company



Rest of World Capacity

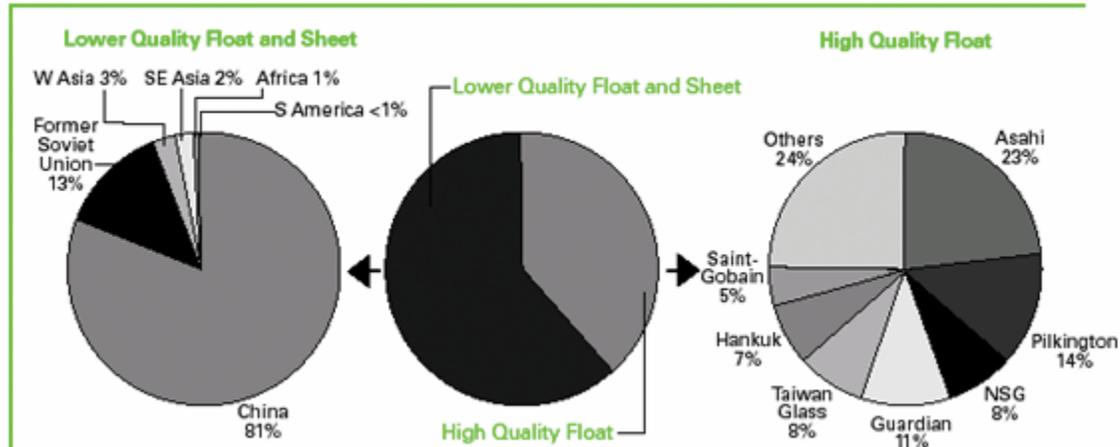


EXHIBIT 6: GLASS INDUSTRY TRENDS

There is a trend for glass manufacturers to share the risk of new float investments, either with other manufacturers, secondary processors who wish to backward integrate to secure long term float supply, or other local partners. Examples of recently commissioned and announced lines include:

Pilkington	Interpane	France	2001
Asahi	Scheuten	Belgium	2001
Asahi	Vitro	Mexico	2003
Pilkington	Saint-Gobain	Brazil	2004
Pilkington	EMP	Russia	2005

In addition to the risk-sharing JVs, several strategic alliances have been formed in the automotive glass industry. These include Pilkington and Nippon Sheet Glass (NSG) of Japan, Joint research development and engineering (RD&E) agreement for automotive products and processes, Joint marketing approach to Japanese vehicle manufacturing, Saint-Gobain and Central Glass of Japan.

EXHIBIT 7: GEOGRAPHICAL BREAKDOWN OF OPERATIONS

The Group's operations were evenly spread worldwide. France accounted for 29.6% of pro forma calculated sales (excluding Essilor accounted for by the equity method), 5% from exports of French facilities. Other European countries generated 38.8%: 14% by Germany and 10% by the United Kingdom (both countries' share having been boosted by the recent acquisitions of Raab Karcher and Meyer International), Spain, Italy, the Benelux countries and Scandinavia accounting for the remaining 15%. North America represented a substantial 24.2%, attributable to the Building Materials, Ceramics & Plastics and Containers businesses. The rest of the world (South America and Asia) was responsible for 7.4%.

	1999	1998
	(Euro Million)	(Euro Million)
Sales		
France	7,966	6,953
Other European Countries	8,021	5,494
North America	6,058	4,512
Rest of the World	1,729	1,547
Internal	-822	-685
Total	22,952	17,821
Capital Expenditure		
France	439	316
Other European Countries	667	453
North America	378	366
Rest of the World	228	153
Total	1,712	1,288