Offshoring to China and India. Some case studies of Italian medium size firms

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1. Introduction

Italian firms started significant internationalization strategies in the mid nineties and off-shoring of part of production is to day a relevant feature of the Italian manufacturing system, in particular of the industrial development of the North East regions of Italy. Till the late eighties Italian firms operating in the international market were mainly directed at expanding their exports and increasing their quota in the markets of the most rich countries, selling abroad productions realized in the domestic economy. Since the mid nineties they began displacing productive processes (or part of them) towards low wages countries. This paper is the result of a series of interviews aiming at understanding the reorganization of the manufacturing activity that followed the recent opening of one or more plants in China and India by industrial small and medium size firms. During 4 months, in spring 2009, we have visited several factories in China and India controlled by an Italian parent company, discussed with the general managers the reasons underlying the choice to produce abroad, the governance of new network that has been created in relation both to the parent company, the foreign suppliers and the consumer market.

The purpose of this article is to explain the prospects and problems faced by Italian firms that recently moved to China and India through direct investment. Foreign direct investment means the acquisition of control through vertical integration over activities that are operated abroad and that would be carried out inefficiently through market transactions, due to market imperfections (Buckley and Casson, 1976). The profitability to develop abroad part of the production through direct investment began with a set of circumstances that reduced transaction costs operating abroad. The fixed exchange rate and the subsequent appreciation of the Euro has pushed Italian export firms to the abandonment of the strategy of currency devaluation in order to make competitive their products, a track that Italian firms had often practiced in the recent past, after the defeat of the Bretton Woods regime of fixed exchange rates, in the early seventies, and that has supported their exports, with alternate movements, for 25 years. In the nineties, with the defeat of the Soviet empire, new territories in Central and East Europe, close to two of the most important countries of industrial Europe, Germany and Italy, have opened up: countries with a stable social and political structure, an educated population, low cost of labour, fiscal regimes very favourable to foreign investments. Drive towards China and India is further explained by low cost of production and by favourable sale prospects. Cost of labour in China and India is a fraction of the cost in Italy, energy and components purchased on the local market are definitively cheaper than those purchased in Italy, while firms operating in Asian markets face a growing demand due to the rapid growth of income and population (Agarwal, 1980; Kaplinsky and Farooki, 2010).

Nonetheless Italian firms moving to these countries are very few, many are reluctant to launch a new business so far away, and many firms that did it went bankrupt. Advantages are balanced by costs that relate to the considerable time lag implicit in producing in far away territories and in the complexity of involved transactions as the majority of interviewed firms are small-medium firms that produce mechanical products. Relations with suppliers prove difficult, especially when small firms are involved: capabilities of local suppliers are difficult to ascertain, codification is often absent and the standards are not those familiar in Western markets. The prospects of reaping a growing demand are refrained as sales in the final market require setting up a specific retail structure adapted to the local uses. Relations in ‘psychically distant’ markets, different in culture, language, levels of education and economic development develop only gradually because of the high risk involved (Johansson and Vahlne, 1977).

1 The story of Italian foreign investments in China is not rosy. Anecdotal evidence was provided to us by the director of Italian Foreign trade institute and by the secretary of the Beijing Chamber of Commerce.
The article begins with an outline of the research methodology used in this study, in section 2. The following section provides a discussion of the internationalization by Veneto firms in East Asia in respect to internationalization in Centre East European countries (CEE). Section 4 discusses the structure of the commodity value chain and presents firm level case studies; firms are grouped into 3 clusters according to the motive that induced the Italian parent company to create a subsidiary in China and India, the relations with the parent company local suppliers and markets (sections 4.1, 4.2, 4.3). Section 5 focuses on the governance of the value chains across space in territories with very different level of development, different industrial structures and competences and concludes.

2. Interviewed firms

15 firms in China and India have been interviewed in spring 2009 in their plant abroad. 12 firms are 100% controlled by a parent company in Italy, the remaining 3 have minority participation by Chinese firms, 12 parent companies have subsidiary plants in other countries as well. The parent company of 13 firms have the main headquarter in Veneto, a region in the North East of Italy, and to the subsidiaries of these firms in Asia our interviews were initially directed; 2 firms added up along the process. All the interviewed firms are of small-medium size. 9 are part of a group of medium size with a well-known brand. 6 factories are part of a large group: 4 factories belong to the Carraro Group, 1 to Filmanmade Group Technical Textiles (FMMG), 1 to Tessitura Monti. The Carraro Group has more than 4.000 employees, Filmanmade and Monti around 1000. The majority of the interviewed firms, 9 out of 15, are mechanical firms. Carraro is a leading firm in production of axles, transmissions, final and slew drives for lawn agricultural and construction equipments; the directors of the two Carraro factories, in China (Quingdao) and in India (Pune) have been interviewed during a visit to the plants. We have interviewed also the directors of the 2 plants of the GearWorld division of the Carraro Group, TurboGears in India (Pune) and MiniGears in China (Suhzou). In the same sector we have interviewed the directors of Maschio, General Fittings, Irsap Jintaige Radiator, Idroeast, Changsu Ritmo Welding Technology (RitmoAsia) and Zamperla. 5 of the interviewed firms that are reported in table 1 belong to the “traditional manufacturing” sector, textile, furniture. Maschio manufactures with its own brand agricultural machineries, Idroeast and RitmoAsia produce mechanical products, Zamperla manufactures amusement venues and design parks layouts.

We have interviewed the managers of Tessitura Monti India, a subsidiary of Gruppo Monti, that weaves cotton of the highest quality, FMMG that produces high performance yarns, Colombini, Beijing Great Faram Wall Decoration, Dalian Mato Furniture & Components (DalianMato), that work for the furniture sector. For Carraro, Maschio, FMMG and Monti we have supplemented the interview at the foreign plant with an interview at the parent firm in Italy. Table 1 summarizes the main features of the interviewed firms.

<table>
<thead>
<tr>
<th>Name of the firm</th>
<th>Interviewed subsidiary firm</th>
<th>Parent firm in Italy</th>
<th>Markets where the offshored subsidiary operates</th>
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<tr>
<td>Tessitura Monti India</td>
<td>2001</td>
<td>450</td>
<td>Treviso, 2008</td>
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<tr>
<td></td>
<td></td>
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<td>100% control Tessitura monti</td>
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<td>50% in Europe</td>
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<td>50% in Asia (40% to Aquarelle)</td>
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<tr>
<td>Carraro India</td>
<td>Padova, 2008</td>
<td>100% control</td>
<td>Sales in India and Europe (50%)</td>
</tr>
<tr>
<td>Turbo Gears, India</td>
<td>Padova, 2008</td>
<td>Carraro Group</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>Beijing Great Faram Wall Decoration China</td>
<td>2002-03</td>
<td>142</td>
<td>100% control GearWorld</td>
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<td></td>
<td></td>
<td></td>
<td>&lt;10%</td>
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<td>Dalian Mato Furn&amp;Compt China</td>
<td>2005-2006</td>
<td>320</td>
<td>Sales to Carraro India and to Indian firms</td>
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<td></td>
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<td>7,5</td>
<td>50% controlled by Faram and 50% by Beijing Municipality/2 millions</td>
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<td>Ikea USA (30%), Auri’s Kitchen UK, and France</td>
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</table>
All firms have a modern technology in their sector, use, whenever necessary, European components in order to preserve product quality; sometime the low cost of labour reflects on low automation at the plant level, mainly in stocking, warehouse, quality control, that are often manually executed, while the corresponding operations in Italy would have been organized with a higher level of automation. Only 2 firms (General Fittings and Irsap Jintaige Radiator), use massively machineries that were dismissed by the Italian plant, where they were substituted by more automatic lines, and sent to China.

### 3. Off-shoring and production internationalization

All these firms but 3 have other factories abroad and the move to Asia can be considered a step based on a process of gradual and incremental acquisition of knowledge of foreign markets (Johanson and Vahlne, 1977). The majority have plants in Central and East Europe: in Poland, in Russia and in Slovenia, but specially in Romania, where numerous firms have moved their production at the end of the nineties, particularly from the Veneto region. To day in the most developed area of Romania labour recruiting faces difficulties because to the massive emigration that have brought 2 millions of Romanians to move abroad. Due to the transport cost reduction and to the constant appreciation of the Euro in relation to the Dollar, the cost of labour in East and Central Europe has risen considerably and we now assist to a transfer of production from Europe to North Africa and to Asia. In most recent years, China, and at a lesser degree, India represent for the European investors not only a reservoir of cheap labour but also enormous and profitable consumer markets. Available data on direct investments confirm a relative stagnation of flows moving from the Italy to CEE countries (+16% between 2002 and 2008 measured on the number of employees), while direct investments redirect towards Asia (+35%).

The move to a different continent entails differences in the structuring of the relative value chains. Internationalization takes multiple forms, from commodity flows to subcontracting to direct investments, commercial and technological agreements, licences and other arrangements formal and informal. Data are currently available in a systematic way for trade flows and direct investments.

Italy’s imports from some CEE countries, in particular from Romania, are mainly concerned with clothing and footwear subcontracting (61% of the imported total from Romania in 2008) and imports are the result of a previous flow of exports of semi-manufactured goods and raw materials that have been sent to the firms in this country, both locally owned or controlled by Italian units, to be manufactured and subsequently re-exported in Italy as finished product or parts at an advanced level of manufacturing from where they are distributed (Crestanello and Tattara, 2010).

Imports of textile-clothing-footwear from Romania were close to imports from China in value till 2006, subsequently China took the lead, but imports from China are mainly concerned with finished products –full package outsourcing by Italian brands-, that are manufactured by large
local firms capable of processing high volumes at low prices; raw materials and accessories are acquired directly in the Asian market, where it is possible to find quality and variety. There is no comparable flow of Chinese imports from Veneto for these commodities while Romania imports and exports are of similar values because Italian exports provide the basic materials for producing future imports. In clothing and footwear internationalization is accomplished by large flows of commodities across the country's borders, i.e. by market transactions.

In mechanics the problem is completely different. Proprietary knowledge of key aspects of industrial technology is important. Usually a firm from one country establishes a new factory or centre in another country directly controlled, and transactions that are established in the new country of settlement are not simple arm-length relations, but require strict interaction among actors in the value chain and thus stronger forms of governance.

Italian foreign direct investments are overall bigger with CEE than with Asia, but with CEE investments concern mainly “traditional sectors” while with Asia mechanics is important (figure 1) and is gaining ground rapidly in the last years. The rate of increase in the number of foreign direct investments in CEE from 2002 to 2008 is null in traditional sectors and positive in mechanics (+5%) while both sectors are significant in Asia (18% and 54%). Foreign direct investment plays a relatively more important role in Asia than in CEE countries, in mechanics, because of distance and transaction complexity.

Figure 1. Italian Foreign Direct Investments with CEE and Asia

4. Case studies: medium size firms part of global value chains

Global commodity chain analysis has three main dimensions. First, an input-output structure which links various nodes of production, consumption and distribution into a chain of economic activity in which value added is produced. Second, a territoriality in the sense that the various activities in the chain are geographically situated (Smith et al. 2002). Third a governance structure.

In this section we analyse the structure of commodity chains in mechanics, furniture and textile industries by presenting several case studies of firms located in China and in India controlled by Veneto firms. Case studies have been shortly presented in par. 2- table 1.

Firms moved to China and India from different perspectives and each firm gave rise to different forms of governance according to the firm’s aim, size, control of the market and relations with its suppliers. The variety of situations has been grouped in three clusters that range from low level of explicit coordination and high power asymmetry where the foreign plant is set up to reduce cost of production and supply back the parent company with a cheap product under direct supervision, to situations where the factory abroad takes over several functions because of the complexity of the product, to firms producing and taking over some distribution functions, selling in the foreign market with their own brand a product engineered in Italy and variously adapted to the local market. The first cluster groups firms whose initial purpose is to manufacture a simple product for the parent company in a hierarchical form of governance; a strategy initially pursued by General Fittings, RitmoAsia, Maschio, Idroeast and that has variously evolved. The choice, directed to lower industrial cost, has been reviewed by General Fittings and RitmoAsia and the firm, once settled down in Asia, has searched for their own production and sale niche on that market, engendering a change in the governance relation that was not planned in advance, but was necessary to their survival.
The second cluster groups medium size firms that produce for third parties and sell on the component market complex products: Carraro, TurboGeras, MiniGears, Mobilclan and Filmanmade. The main customers of Carraro have pressed the Italian parent company to open productive units in Asia to shorten the time to market of the product and keep up quality: Carraro produces complex components not likely to be found in the local market and whose immediate availability is crucial for the buyer whose reputation is based on an efficient post sale services (the supply of spare parts). The internalization of the Chinese and Indian markets is explained by several factors; timing, the management of a complex product, not easily codifiable, that requires attentive transactions with local suppliers. FMMG and DalianMato share some characters of this group.

The third cluster groups Faram, Colombini, Irsap, Zamperla, a set of firms that sell on the final market with their own brand. Firms moved to Asia searching for a large market and an inferior cost of production, as sales in China or on the international market directly from Italy were prevented by the high cost of the Italian product and by the distance. These firms are rather independent from the parent company, and market directly their own production with the company brand name. Some characters of this group are shared by Tessitura Monti.

4.1. From contract manufacturing to the Chinese market. This cluster groups small size Italian firms that have opened a factory in China looking for lower costs components for the parent company (Li et al., 2008). General Fitting is a firm located in Brescia (Italy), is part of the Gambari Group, and is leader in the fittings sector for plumbing and heating. It has plants in Italy, Mexico, Romania and in 2005 it opened a plant in China (Nancjing) in order to reduce production costs. At the beginning of 2007 the production for the Italian parent company has started. The production manager tells us

"It was a contract manufacturing for the most simple fittings, that are no more produced in Italy. In China nonetheless high quality forged brass rods (standard CW617) that is the standard required by the American and the European market for fittings are not locally available. So brass rods were purchased in Italy by the parent company Gambari, were sent to China, manufactured die cast and the fittings were sent back to the Italian company that distributed them. On the whole a marginal contribution to the Group turnover with a production that was not very profitable either because in China the cost of labour is relatively high in respect to other South Asian countries and the brass rods sent from Italy were more expensive than in Italy because of the time and cost required by transport"

In die cast manufacturing the cost of labour is 30% of the manufacturing cost, the remaining part is made by plant amortization and depreciation, metal losses, energy (whose cost is 50% of the cost in Italy). The plant is less automatic in respect to the Italian plant especially for the motion of components and at the end the cost reduction is limited to 25% in respect of the cost of same product manufactured in Italy, not worth the initial investment that was substantial (table1).

By the end of 2007 a new management decided that the Chinese plant had to shift its function, and to move from contract manufacturing for the parent company to produce brass components for the Chinese market. At the time of the interview 25% of the total production was sold in China. It was a complex move because the Chinese marked does not demand sanitary fittings for private houses where fittings are mainly low quality plastic ones and the new director has addressed production towards the automotive and the shipbuilding industry. To day General Fittings China supply a wide range of standard products as well as tailor made articles based on customer's demand for these sectors. This change in perspective has reduced brass imports because in China Western accreditations are not required; General Fittings uses brass that is purchased in the local market and competes successfully with local producers.

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Footnote:

Maschio is part of this group. It is a small factory located in rented premises, and produces small agricultural machines (rotary tillers) and a basic gear box for the parent company. The cost of labour in the factory is 4% of total cost and 70% are components, mainly outsourced; in Italy the cost of labour is 35% of the total. Maschio faces no quality problem as these machines are unsophisticated and the components required have large tolerances. Profitability of producing in China is explained in the following terms: cost of production for the gear box is 90€ in China and 130€ in Italy. The cost of sending back the gearbox is less than 1€ all included (freight, duties etc). 60% of the product is sent back to Italy, 40% to Maschio representatives in the States.
RitmoAsia shares part of this story of learning and adapting. Ritmo Group produces welding machines for any size of plastic pipes and has entered China to reduce manufacturing costs. The building is rented and the initial investment has been kept to minimum. The Chinese plant has been built in 2005 and belongs 100% to the Group. The Group has productive plants in Italy and Bulgaria and the production made by the plant in China is marginal to the Group turnover. Ritmo entered China because of two important customers required a lower price and the initial purpose of the investment was to assemble in Asia machines that were produced in Italy and sell them there. But to assemble in China parts and components manufactured in Italy and Bulgaria did not provide a great advantage and the selling price was still three times that of similar machines sold by competitors on the Chinese market, at least for the most simple manual machines; and Ritmo lost his clients.

To off-shore the assembly line was not the correct strategy; the import of components was burdened by duties that varied between 5 and 15% of the imported value (no drawback was allowed because the machines were sold in the local or foreign markets) and at the beginning the imported components made 70% of the final value. The turnover for the first couple of years has been very small, few hundred thousand Euros.

In 2008 the strategy of Ritmo has changed. A new manager has created a new brand, RitmoAsia, and launched a line tailored on the East Asian market (China, Indonesia as well). The aim is to manufacture locally almost the entire product, keeping faith to good quality and reducing drastically imports from Italy that at the time of the interview were reduced almost to nothing; an hydraulic cylinder was still imported, because the component was not available of the same quality or, better, it was available but not by firms that supply short buckles as those required by RitmoAsia.

At the time of the interview, savings on Chinese components varied between 30-50%, but returned items had peaks as high as 80%; for example nickel and zinc Chinese plating firms very seldom accomplish with the western standards, several metal components were roughly finished and were not acceptable by RitmoAsia. At the time of the interview a strict monitoring process was introduced and returned items were less than 30%, still too much.

The problem of the quality of Chinese components has been tackled and solved successfully by Hydroeast, a subsidiary company of the Italian parent company Idrobase that produces high-pressure washers. Hydroeast assembles in China simple parts for washers and makes several components that are sent back to Italy to be assembled or reach, as spare parts, the various markets where Idrobase sells its products (Usa, Europe and Russia). The Chinese market for high-pressure washers is still at its infancy and production sold in China is modest. At the time of the interview returned items were less than 2%. The manager of the Group tells us: “we have in China about hundred suppliers, among these 30 stable suppliers and I know in person each of them. To these I grant constant orders, so that they can organize their warehouse and respond to our orders just in time.

Every new component needs a long preparation; on average from the order to the consignment it takes one month because our suppliers are small local mechanical firms and communication is difficult. We test 50% of the components that are supplied in China. We know all our suppliers; the production manager of our subsidiary is in daily contact with them. If they use reliable machines we test few components, randomly, but if the suppliers use machines that we don’t consider reliable we test every single component. Any new order is split into two suppliers that compete one with another and enter a selection process.

We have chosen small size suppliers because we purchase small bucks and for this reason we have localized our plant in a district of small firms [Ningbo south of Shanghai]. At the end of the year our suppliers are evaluated and the best suppliers (quality, time delivery) are awarded the Hydroeast certified supplier status; we organise an award ceremony at which all our suppliers are invited and they take enthusiastic part with all their families. We have created in China the fidelization relation that we had and still have in Veneto with our suppliers”

Only two firms among the 15 firms interviewed have pursued from the very beginning the strategy to sell directly on the Chinese market. Both are partners with a Chinese firm and both have their own retail network. The first, Colombini, is a furniture producer that in China produces only children furniture in melamine (MDF) and sells 80% of the product of the Chinese plant in the local market. The panels and various accessories are bought in China, the design is

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1 Ritmo remains indiscussed leader for electronic machines, where price is less important.
made by Colombini designer team in Italy and special accessories are bought in Italy (Ferrari\textsuperscript{4} metal drawer guides), 15\% of production is outsourced to small size local suppliers. Colombini in China has a unit cost, for the same product, 30\% less than the cost of the Italian parent company. The minor cost is due both to labour and to components, particularly metal and glass parts. The sale price is higher that that of competitive products by 7-8\% but the difference represents a recognised quality premium.

The entrance into the Chinese market has not been easy and has been the result of a huge investment and management dedication. Colombini, at present, has in China 50 retail stores with its own brand, with the same design, colour and atmosphere, located inside furniture cities that are run in simil-franchising with a cost that is definitively lower than the cost in Europe. A second sale track is due to sales through purchasing groups that are common in China when lessee or new owners purchase a flat that is part of a new block, that is a frequent occurrence due to the impetuous growth of the Chinese cities, and need to furnish it. These groups operate through the web and Colombini has a strong presence in this market. The second example is Irsap that has purchased Golden Tiger Radiators in Beijing that produces radiators and has brought to China its own machines and its design (mainly tubular radiators). All production is for the high end of the market and is developed for the Chinese and the Russian market. For the sales in China the firms has built on the experience of Golden Tiger Radiators and its personnel. The firm keeps direct link with the building firms, while the remaining part is left to retail. 80\% of sales are in the town of Beijing, where climate is more rigid and population richer than in other towns.

4.2. Following the main customer. FMMG, Mobilclan, Carraro India (Pune) and Carraro China (Quingdao), MiniGeras are 5 firms producing components for large international brands; these factories have been created abroad as the main customer, the lead of the value chain, has pushed his suppliers towards off-shoring their production following his decision to move to Asia. 4 of these firms made a big initial investment, around 10-20 millions €; MiniGears has a comparably lean structure as it occupies a rented premise. FMMG produces high-range quality yarns using the most advanced cotton-type spinning technologies available on the market; yarns are used for the production of special fabrics for clothing, furnishings, and most sophisticated industrial applications such as filtration and protective apparels. The Group is leader in Europe in this filed. The managing director of the Group tells us: "when our main customer, Glen Raven, decided to offshore one of its textile units to China we understood that we would not been able to continue to supply them from Europe with our yarns, because cost was too high. We have signed a three-year manufacturing agreement with them that covers the start up of our new plant and we have chosen a new location in China together with our customer, next to his plant”

FMMG costs are electric energy that in Italy is twice than in China, depreciation and amortization of machines and last the cost of labour. Production is highly automated so that per capita productivity is the same in Italy and China\textsuperscript{5}. At the time of the interview the parent company outsourced to the Chinese plant some orders from Italy so to fulfil the capacity of the plant. Following the main customer or together with him, Carraro, an important mechanical industry connected to the automotive sector, has internationalized its production. Carraro produces axels, drive-lines for construction machines; the Group also manufactures steel gears with its division Gear World. We interviewed the manager of TurboGear, in India and MiniGear in China, both controlled by Gear World. For Carraro the drive towards off-shoring is due to the necessity to keep proximity with its main customers while work force and components availability are less important. In fact the Carraro main customers base their reputation on an efficient network of repairing, and require Carraro to supply components as quickly as possible. More attention to the cost of labour has the producers of door panels for kitchen furniture Dalian Mato, controlled by Mobilclan; the factory is located in Dalian, imports in China the raw materials (wood) and re-export the components to large kitchen producers, English and

\textsuperscript{4} As the manager tells us: “I could buy them here, but the brand Ferrari deeply impresses the Chinese customers, although it is just an homonym of the famous racing car maker”.

\textsuperscript{5} If we consider that during the world crisis employment in China has declined by 1/3 and that at the first sign of recovery, in the early 2010, the management has increased the working hours (now 12 hours a day for 6 days) leaving unaffected the number of employees the per capita production is now much higher in China than in Italy.
American, among these the Ikea group. Also this producer has off-shored under pressure by its main customers that required door panel production at a price that the parent company was not able to afford in Italy.

Another explanation common to all the 4 interviewed firms is the attempt to produce in a country whose currency has not appreciated as did the Euro since 2001; an appreciation of 30-40% in few years has rendered production previously manufactured in Italy non competitive for non European customers, particularly North American or Asian, i.e. customers located in countries whose currency has substantially depreciated in relation to the Euro.

For all firms of this group the main customer assures the purchase of a substantial but limited part of total production, about 30-50% of the capacity, and the firm needs to develop its own marketing activity to sell the remaining product. For example Glen Raven has granted for three years the purchase of 3 tons a day of yarn from FMM; 40% of production of the actual plant, but only 13% of the estimated optimal capacity that is much bigger than actual capacity. To place the remaining part on the Chinese market is a difficult task. The manager explains the problem: "we had two customers in Europe, that to day buy our yarns for their industrial filters, one German and one Scottish; both have off-shored to China and so once we moved there we were sure to continue sell to them. It has not been so; both have left us and have chosen new Chinese producers that sell at a price that is 1/3 of our price, yarns of very low quality. But filters sold in China are of very low quality and our price is not competitive. Not so for our yarns sold in Turkey where the quality of our yarn is appreciated and we sell to Turkish firms although our product is more expensive than the competitor prices. The reason is that Turkish firms sell mainly to European countries where the observation of the standards is compulsory".

Among the main customers of Carraro India and China are producers of tractors and construction machines. In India the factory has opened in 1999, under pressure by Case New Holland; it produces for Case, Caterpillar, John Deere and others and axels for lorries too; a limited quota, 5-10% of production, is supplied to the Indian Larsen &Toubro and to Mahindra for its tractors. India is the largest world market for tractors, but only recently producers have started producing 4 wheel drive tractors, whose axels are a speciality of Carraro. The interest for the Asian market has grown in recent years in this sector. For example Caterpillar has moved a relevant part of its business to Asia where in 2008 it realized 20% of its turnover (it was 12% in 2006). To reinforce its presence on the Asian market it has recently purchased the Korean Jinsung, that produces undercarriage components. The two Carraro factories follow this trend although they keep a rather diversified customers portfolio; the Quingdao plant makes steel gears for Kone as well, the Finnish multinatinal that produces lift, escalators loading bays, and that in 2005 purchased significant controls in Asia (Giant Elevators in China and Fuji Lift&Escalator in Malaysia) and at present Kone is one of the main customers of it.

Carraro initially off-shored to China and India to sell to international brands, but the global recession of the last two years has drastically reduced orders from international corporations and Carraro managers aim at the more flourishing Chinese and Indian markets; the attempt to sell domestically has been delegated, by the manager of the China plant, to a Chinese dealer Guangzhou Match. To sell on the Asian market is anyway difficult and a significant part of the Indian production and a small part of the Chinese production are now sent back to Europe. For example both in India and China, Carraro factories build drivers for the eolic turbines under project by the Carraro German subsidiary O&K.

One character that distinguishes the 2 Carraro factories, India and China, is that the second finds on the domestic market high-level subcontracting supply of high quality that in India is not easy to find. This means that the factories have in India and China a different structure; in India the plant is more vertical as it has internalized the steel gear manufacturing and enduring of the nearby plant Turbo Gear whose production is 50% bought by Carraro India. Steel gears are instead purchased from third parties in China, taking advantage of large firms that work for the army and only few special parts, gaskets etc. are imported from Italy. The subsidiary MiniGear in Souzhou was born to supply small metal sinterized gears to the international producers of electric and gardening tools that have moved to China part of their production (Bosh, Black&Decker, Stihl etc.); 57% of production is sold to international firms operating in China, 27% to firms operating in North America and the remaining part to Europe.
The decision to off-shore MiniGears was completely independent from the off-shoring of Carraro in Qingdao.

The industrial cost in China of the typical Carraro production, axeles, at the time of our interview, was 30% less the cost of analogous productions manufactured in Europe and it was 15% higher than the cost in India.

DalianMato Furniture and components started 2 years ago, the factory is localized in the export industrial zone of Dalian, at north East of Beijing, and produces solid wood kitchen doors. Raw material is dried wood that is imported from the States (oak) and from Russia and Estonia (ash and birch) and wood panel that are bought directly in China. Imported water varnish (Ica) is used. The purchase agreements are arranged by the Italian headquarter and DalianMato acts in fact as an off-shored plant of Mobilclan. The inferior unit cost of production of the Chinese unit is the result of the low cost of labour. In China the cost of labour is around 5% of the total cost of production. Raw materials weight 70% and varnishes 15%, the remaining part are general expenditures. Local suppliers provide all the packaging material. At the time of the visit the main customer was Ikea USA, that would not have purchased the more expensive kitchen doors produced by Mobilclan in Italy and has demanded a product at a lower price, a demand that the Italian plant was not able to meet.

In all these firms the cost of labour is not a relevant part of production costs. It stays lower than 5%, a percentage that is approached by DalianMato, the firm that in relation to its turnover, employees more workers.

4.3. Market size while keeping firm’s specific advantages. Faram and Zamperla produce in China and Tessitura Monti in India. All three have a brand name, patents, technology, organisational know-how that explain the choice in favour of direct investment; at the same time they are faced by increased competition on the international market and have off-shored their production to reduce cost of production and create a strategic location.

Faram Group is a world leader in the design and manufacture of office furniture and partitions. The company is headquartered in Italy. Its customer base is highly diversified and includes banks, insurance companies and advisory firms worldwide. Faram’s range of office furniture is characterised by its use of leading edge technology, functionality, ergonomics, durability and environmental friendliness. Faram has four production plants in Italy and one in China. The typical customer is a architecture studio and Faram takes part to different competitions at the international level. The subsidiary Great Faram Wall Decoration was created following the visit to Italy of a delegation of Beijing municipality looking for foreign investments. Faram Great Wall is majority controlled by Faram, through the subsidiary Faram Hong Kong while the Beijing Building Materials Group, a holding of the municipality, has minority control.

Zamperla is a big producer of riders for the amusement industry and layout of amusement parks, world leader in this field. In China Zamperla realizes a quarter of the group total turnover. Zamperla has other productive plants in Russia, Slovachia, the Philippines and China. Since the Euro appreciation the increase in cost of production made difficult for Zamperla to continue selling in China and the parent company decided to offshore production to reduce costs; initially a plant was set up in the Philippines seeking for a “western” milieau and avoiding linguistic problems, but it did not prove the right choice for selling to China where Philippines exports were subject to duties. Zamperla then moved directly to China where it opened a factory in Suzhou, close to Shanghai. The products are often single riders, any case very short series (7-8 riders); they are the result of a reworking of the design produced in Italy and are produced assembling parts and components that are produced by Chinese subcontractors.

Quite different is Tessitura Monti. This is an important firm producing cotton high quality textiles, mainly for shirt making. Monti has suffered for the adverse market of classic garments and by competition of low cost producers and has chosen to transfer almost the whole production to the new plant built in India and to Cekia, where it controls two plants that were already producing for him as subcontractors; only design, textile samples and a very limited segment of the production process is held in Italy. By the end of the nineties, the Italian plant had almost 1000 employees and produced 20 millions meters textile. To day production is split between the Indian plant that at the time of the interview produced 7-8 million meters, but had a capacity double than that, and two Cekia plants (1-2 millions meters) and the Italian plant

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4 China is a wood resource poor country with a very low forest per capita density.
(250 mila meters) (Campagnol and Tattara, 2008).

All three enterprises, Faram, Zamperla and Monti initially sought at the low cost of labour. Faram and Zamperla considered the availability in China of components of good quality at reduced cost, Monti aimed at a good quality cotton yarn available in India. All three underline the fiscal advantages connected to the localization (at least for the first years of activity). The cost of labour in India is 50% of the cost in China: 100€ a month per blue collar by Monti and 180-200€ by Zamperla and by Faram. The difference is bigger for skilled workers that in China earn more than double the wage paid in India.

All three factories have autonomous design capacity, with skilled technicians, to adapt the design that is generated in Italy. Tessitura Monti has a complex administrative department that takes charge of the large initial investment and that markets the product in India where, at the time of the interview, almost half of the production of the Indian plant is sold. Great Faram Wall is autonomous from the management of Faram as far as customers’ research but with a tacit agreement that Great Faram Wall develops its activities in Asia and in the Middle East, markets out of reach of the Italian parent company. For raw materials Great Faram Wall is supplied for 75-90% on the local Chinese market and for 25-10% on the Italian market. From Italy are some veneers, locks, some metal accessories, varnishes. The bigger constraint to the supply from Italy is the time necessary for transport, as Great Faram Wall produces for firms that operate with strict and definite times and accessories and veneers are often sent by air. From China are all other supplies: aluminium, steel, hinges (German brands but made in China), glass, chipboard composite and some veneer. Among suppliers two are considered strategic: one produces table legs that are in aluminium on steel moulds and are supplied by a firm in South China, the second produces aluminium bars that are used in partitions; bars are subsequently shaped in outsourcing in Beijing by a firm that manufactures them in a space inside the Great Faram Wall premises, closely supervised by Faram. Zamperla in Shanghai occupies a premise on lessee, with a reduced initial investment; its main activity is design, engineering and assembling riders and components for amusement parks. 95% of parts and components are purchased in China, the remaining 5% comes from the Philippines (export components) and from the parent company in Italy (electronics). This lean production structure is reflected on the number of employees, that are mainly skilled; out of 64 employees, 11 are engineers and 7 are skilled technicians that perform design and quality control of parts and components and certification procedures for the final product. 60% of the Chinese production is sold in China, where Zamperla is the first producer of amusement parks, in Indonesia and in the United States: Chinese safety standard are analogous to those that are requested in Western countries.

Tessitura Monti has an entirely different structure as it is vertically integrated, from energy direct production through a proper generator and raw yarns to cotton tissue. From the parent company in Italy are design and dies; these are sometime purchased in India where are manufactured under European license. Machines are almost all Italians or Germans, most of them brought from Italy or from the Cekia plants and have been imported duty exemption under special provision (the firm is not classified an export firm). From 35 to 40% of the Indian production is sold to Aquarelle, that is a firm 50% controlled by Monti and has a plant in Bangalore with 500 employees where shirts are made in subcontracting for well-known brands (Zara and other European firms) and that sells directly on the East Asian markets. Other customers of Monti are European brands in shirt making and Monti distributes to them through the parent company in Italy.

The Faram plant in China has a unit cost that is half of that of the Italian plant for a comparable item; a relevant difference, although the price is not the crucial competitive element for the market of high level furniture. Off-shoring reduces the labour cost to 1/5 of the cost in Italy, the cost of part and components of local origin is reduced by 1/3. Some competitors exist in the Chinese market; the bigger one is Boloni, a medium size group, that is active in furniture and that in recent years has looked with new initiatives, of international character, to progress into design.

Zamperla has an analogous structure, with a reduced incidence of the cost of labour, as the plant assembles components that are produced by third parties. The cost reduction due to the

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1 Sometimes varnishes and sand paper are bought in China where they are produced under European license.

2 For a unit value of a comparable product the cost structure in China (Italy) is the following: parts and components 47% (38%), labour 15% (39%), depreciation and general expenses 38% (23%).
The cost of labour is the same than Great Faram Wall, with a larger savings in components purchases that represent 50% of the cost, as Zamperla is basically an assembly plant. The total saving for a comparable rider produced in Italy is around 40%.

The cost reduction of Tessitura Monti in respect to the Italian production is bigger than the difference we have pointed out with Great Faram Wall and with Zamperla. The following schedule points to the costs for the Indian plant, referred to 1 meter cotton tissue “I dogi”. The cost of cotton produced in Italy is 6-7 € per meter and at this cost the firm is no more competitive in the international market. As Mr. Monti tells us:

“it is no more possible to face international competition in cotton textile producing in Italy. All factories are closing down. The high cost of labour, the high cost of energy and the Euro appreciation have put us out of the market.

Our main competitor produces in Cekia and in 2009 has set up a new plant in Egypt. Now the cost of labour in Cekia has rapidly increased and the country has lost its attractiveness”

The cost structure for the India plant is detailed in the following table 1. This tissue was sent to Italy to be sanforized and was distributed from the Italian headquarter.

Tabella 3. Industrial cost for 1 meter cotton textile in €

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>raw cotton yarn</td>
<td>44,77</td>
</tr>
<tr>
<td>dying</td>
<td>10,36</td>
</tr>
<tr>
<td>energy</td>
<td>18,08</td>
</tr>
<tr>
<td>labour</td>
<td>3,86</td>
</tr>
<tr>
<td>maintenance</td>
<td>5,18</td>
</tr>
<tr>
<td>depreciation</td>
<td>12,32</td>
</tr>
<tr>
<td>others</td>
<td>5,43</td>
</tr>
<tr>
<td></td>
<td>100,00</td>
</tr>
<tr>
<td>total cost per meter</td>
<td>1,91€</td>
</tr>
<tr>
<td>sanforization (Italy)</td>
<td>0,47€</td>
</tr>
<tr>
<td>total</td>
<td>2,38€</td>
</tr>
</tbody>
</table>

The unit cost of production in India is around 2,38 € per meter, 1/3 of the cost in Italy, and Monti restarted to make positive profits, since 2005, although the capacity of the Indian plant is still underutilized.

5. Governance of the value chains, geography and competences

Italian direct investments in China and India of a sample of interviewed firms have been clustered in three typologies according to the motive that brought the firms to Asia and to the role the firms played in the value chain. To manufacture directly cheap components sent back to the parent firm, to follow the pressure by important customers seeking quality and quick time delivery, to look for a substantial cost reduction keeping firm specific advantages (brand, patents, capabilities). Some firms share characters common to 2 or all the 3 typologies and trespass the imaginary borders that make our classification a useful but a provisional solution.

Some firms moved to Asia with an initial project that has soon proved fault. 2 of them have intentionally rectified the initial choice, adapting the factory to a more profitable setting. We should refer to this choice as exaptation, a term imported from biology as the change has implied a new functionality in the product or in the management of the value chain (Villani et al. 2007; Lane et al., 2009). The management of General Fittings seeks clients in a new sector, because they want to increase revenue and profits so they use existing structure, that is machines they already have in their factories, and production techniques they already use, for a new functionality, that is to make automobile components, which they didn’t do before. The manager of RitmoAsia seeks local subcontractors for almost all components that were previously imported from Italy, with a considerable cost reduction; only few strategic components are still imported. This move implies a process of selection of suppliers, production standardization, quality control and fidelization. A difficult process for a small firm as RitmoAsia, as the market for components both in China and India is not well developed and reliable components are often produced by joint ventures with American, Japanese and European companies that do supply
large international firms, but not the limited bulks demanded by small size customers (Lemoine, Ünal-Kesenci, 2002; Kaplinsky, 2008). The local market for components and parts that can be approached by a small firm like RitmoAsia is made by backward local firms who lack testing equipment and whose product quality is often inconsistent (Humphrey, 2008; Kaplinsky, 2010); they are not capable to implement the correct procedures, do not know the proper vocabulary and technology is seldom trustworthy.

Small foreign firms that want to buy components locally need to go through the process that has lead to the formation of Italian industrial districts. Many difficulties would prove more tractable if Italian firms were present in Asia with large investments, as Germany and France firms are, as large firms help in deploying a network of local reliable producers, as it happened in Italian districts in the sixties when large firms started to outsource part of production and created a market for parts and components that was at the origin of production fragmentation, capability building, specialization that are the cornerstones of the industrial districts. Idroeast, remembering the formation of the network of suppliers it has in Italy, has built in China a network of fidelized suppliers; a process that RitmoAsia is going through, although at the time of our visit the number of rejects was still much too high.

Let us consider Carraro. In the past this firm outsourced in Italy, specially in the neighbour of the main plant near Padova, and has pushed some of its employees to set up their own plant, leasing them some of its own machines; in fact the Italian plant assembles components that are produced in the district. In China all the manufacturing process in inside the firm but some manufactures, as the enduring, are made externally. Every order is split into three main suppliers and three second tier suppliers, so to gradually select the best suppliers and has a sophisticated department to test the component entrance, a function that in Italy doesn’t exist as components are certified by the suppliers themselves. In India adequate suppliers are lacking and the factory is much more vertically integrated than the factory in China and many more operations are performed inside the plant. Value chain structure evolves in a path dependent country specific way.

Other Italian firms selling on the international market went to Asia seeking for a direct cut of production cost while keeping brand name and strict control over suppliers. Labour cost but also the cost of energy, the cost of raw materials (cotton yarns for Tessitura Monti) and of plastic, mechanical and metal components for Great Faram Wall, Zamperla and others. All managers have pointed out that since the appreciation of the Euro, producing in Asia provides a profitable solution for selling in the international and in the American market. The largest firms have carefully planned the cheaper cost solution, some smaller ventures have moved to Asia without a clear industrial plan and have subsequently adapted.

Firms induced to move to Asia by their main customers are firms producing intermediate goods that have moved with their customers. During the recent global crisis international demand drastically declined, particularly from the US, and these firms have tried to address directly the Asian market that was comparatively more dynamic, in order to fill idle capacity. Producing local and selling local is difficult. Carraro appointed a Chinese company to help with domestic sales, among final firms, only two firms have developed a direct retail business in China, Colombini and Irsap. Both firms have started as joint partnerships with a Chinese firm, although at the time of the interview Colombini was going to purchase the quota of the Chinese partner. The retail network on the Chinese market is always difficult as the product at first requires to be reworked to make it suitable to Chinese tastes and habits, for example Colombini reports considerable wastes adapting the Italian design with the size of the wood panels sold in China that are of different size in respect to those sold in Europe. The child rooms often require grandmamma bed, and a different layout of the project and the retail network is organised very differently than in Italy.

An element that prevents Italian firms to sell components in China is the lack of standard of this market. Typical is FMMG that sells regularly in North America, but is not able to sell on the domestic market because the lack of adequate standards makes its products too expensive. A situation shared by General Fittings that employs two kind of brass bars, with different specification and prices for the two markets.

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*As Langlois (2003) puts it Williamson’s famous heuristic dictum...“in the beginning there were markets” is simply not true. For a recent assessment of the Italian districts see Becattini et al. 2009.

10 Standards are likely to be of reduced significance for China according to Kaplinski, Tehreggen, Tijaja, 2010; Kaplinski, Farooki, 2010; Humphrey, 2008.
China and India differ from Europe in authority, culture, legal traditions, business systems, political risk (Prevezer, 2008; Estrin, Prevezer, 2010). Only 2 Italian managers out of the 15 we have interviewed write Chinese so every relation, from relations with workers to relations with the political authority, has to be intermediated. The Chinese system is described by Italian managers as a flexible system where all is negotiable, from the basic rules that govern labour to taxes, export permission etc. The system is from the most part considered adequate and attentive to foreign firms, particularly out of the main cities, in the periphery, where foreign investments are most in demand, are a sign of distinction for the political leaders and negotiations are much easier. No one entrepreneur referred to the system as corrupt, but all agreed that it takes a lot of learning and trial and errors. In India transparency is much more valued but incertitude is much higher. Is it possible to envisage a favourable scenario where Italian firms keep in Italy higher value added production? This is not likely as Asian countries do not lack skilled technicians; Carraro China has signed an agreement with a polytechnic that supplies good engineers. Tessitura Monti has trained his workers through an international training institute with satisfactory results, in India Carraro has invested in design and has created a design office with a staff of 45 engineers, directed by an Indian manager, that works in symbiosis with the design department of Carraro Padova (specifically AgriCarraro, to design the small tractors that big brand subcontract to it) and the number of its employees is to increase in the near future. The cost is half of the cost of a newly employed engineer in Italy, so the difference is not as big as the difference in blue collar wages, but flexibility and versatility for high level engineers are bigger in India than in Italy.

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