Offshoring to China and India: Case Studies of Italian Small-Medium-sized Firms

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Offshoring to China and India: Case Studies of Italian Small-Medium-sized Firms[1]

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Abstract
This article discusses the prospects and problems facing Italian small and medium sized enterprises that have recently engaged in direct investment through the establishment of production facilities in China and India. Using data gathered from 15 interviews conducted in those countries in 2009, firms are grouped for analytical purposes into clusters within a commodity chain framework. Highlighted are important influences (such as key decisions, costs and constraints) that should be considered when analyzing supply chain organisation in a context of delocalisation. Motivations behind Italian parent companies' decisions to create subsidiaries in China or India; relations between newly established production facilities and their local suppliers and markets; and the difficulties the new enterprises have encountered, and any subsequent organizational adaptations, are all taken into account. In the conclusions, the benefits to the participants in the delocalisation process are detailed, and possible future scenarios and prospects for Italian firms are analysed in the light of ongoing developments in Italy's economy.

JEL: F23, F14, L25

Key words: Global value chain, Management of multinational firms, Firm organization

1. Introduction

Italian firms first initiated significant internationalization strategies in the mid-nineties and today the off-shoring of a part of production is an important feature of that country's manufacturing system, in particular in the North Eastern regions of Italy (Schiattarella, 2001). Until the late eighties Italian firms operating in the international market were mainly concerned with expanding their exports, and increasing their share of markets in the richest countries, selling abroad products manufactured at home, in Italy. Since the mid-nineties, however, they began transferring production processes (or parts of them) to low wage countries.

The purpose of this article is to explain the prospects and problems faced by Italian firms that recently established production facilities in China and India through direct investment. Foreign direct investment means the acquisition of control through vertical integration of activities carried out abroad, which would otherwise be carried out through market transactions, and inefficiently so due to market imperfections

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(Buckley and Casson, 1976). Over 4 months, in spring 2009, I visited several factories in China and India controlled by Italian parent companies, and discussed with their general managers the reasons underlying the decision to produce abroad, and the character of the governance of new networks that were created in relation to the parent companies, to foreign suppliers, and to the consumer market.

It became profitable to develop outside Italy a part of production with the onset of circumstances that reduced transaction costs involved in operating abroad. The establishment of a fixed exchange rate in the late nineties, and the subsequent appreciation of the Euro, induced Italian export firms to abandon a strategy of making their products more competitive through currency devaluation. Currency devaluation was a strategy that Italian firms practised after the defeat, in the early seventies, of the Bretton-Woods regime of fixed exchange rates, which then supported their exports, with alternating movements, for 25 years. In the nineties, with the defeat of the Soviet empire, new territories in Central and Eastern Europe, close to two of the most important countries of industrial Europe, Germany and Italy, opened up to foreign investment. Countries with stable social and political structures, educated populations, low labour costs, and fiscal regimes very favourable to foreign investments encouraged Italian firms to establish plants there.

Until the mid-1990s, for Italian firms the role of developing Asian economies as places for investment was negligible. As emerging countries, particularly in Asia, removed restrictions, and implemented policies to attract foreign direct investment inflows, new considerations of appropriate business strategies occurred. China and India offer low costs of production and favourable prospects for selling. The cost of labour in China and India is a fraction of that in Italy, and is definitively lower than in Central and Eastern European (CEE) countries; energy and components purchased on the local markets in Asia are definitively cheaper than those purchased in Italy; while firms operating in Asian markets can benefit from a growing consumer demand due to the rapid growth of incomes and populations (Agarwal, 1980; Kaplinsky and Farooki, 2010)

Nonetheless, few Italian firms have established production activities in these countries. Indeed, many are reluctant to launch new businesses so far away, and in fact many firms that did so have gone bankrupt[2]. It seems advantages are balanced by costs that relate to the considerable time lag implicit in producing in far away territories and in the complexity of transactions. Relations with suppliers prove to be difficult, especially when small firms have been involved. In particular, the 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 the benefits of a growing demand are constrained by the fact that selling in the final market requires the setting up of specific retail structures adapted to the local country. Moreover, 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).

This article begins with an outline of the research methodology used in this study, in section 2. The following section 3 discusses the internationalization by Italian firms in East Asia compared with their internationalization in Central and Eastern European

[2] According to anecdotal evidence provided to us by the director of the Italian Foreign trade institute, and by the secretary of the Italian Chamber of Commerce in Beijing, the story of Italian foreign investments in China is not encouraging.

countries. 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 or India, and the relations that the parent company establishes with local suppliers and markets; each cluster is discussed in a specific sub-section (4.1, 4.2, 4.3). Section 5 focuses on the governance of the value chain across space in territories with very different levels of development, and different industrial structures and competences, and then concludes.

2. Interviewed firms

To investigate Italian firms investment abroad this study uses a multiple case study approach. Qualitative research permits us to arrive at a comprehensive understanding of the event under study but at the same allows to provide a rich context for processes that would otherwise be undetected. Comparative case studies have been chosen as a research method in order to focus on the details of the operation of small and medium Italian firms in Asia in comparison with actions by large firms.

Cases span in a large number of sectors and involve firms with variable dimensions that were driven to Asia in recent years and had different purposes. The large majority of firms, small firms as well, had an international expertise and followed a strategy of continuous geographic expansion and provided useful lenses under with several problems faced by a foreign firm in China can be investigated. All firms were challenged by the entrance in a market with an entirely new setting.

Differences in size, in the position in the value chain (some firms are final, some intermediate producers) determine differences as regards international market orientation. Interviewed firms were evolving along different trajectories and these differences resulted in diverging international experiences that are subsequently analised.

A "case" was defined as a single, in-depth interview with a firm administrator. Interviews were transcript, and sequentially analysed. The use of open interviews allowed a respondent driven agenda to emerge and our open categorisation of operations helped the Italian managers to focus on important aspects of their Chinese operations, without research induced biases.

One of the most powerful tools that the writer of a case study report can use is the evidence of the participants' own words to "tell the story." We have followed this method to bring the reader into the participants' world and provide a rich context for understanding the phenomena under study (Van Maanen, J. (1988). Tales from the field: On writing ethnography. Chicago: University of Chicago Press.

We have interviewed 15 firms in China and India, all of which have Italian parent companies in part or in whole. In fact, 12 of them are 100% controlled by a parent company in Italy; the remaining 3 have participation by Chinese firms. 12 of the Italian parent companies have additional subsidiary plants in other countries, and 13 of them have their main headquarters in Veneto, a region in the North East of Italy. It was to the Asian subsidiaries of these firms that our interviews were initially directed. Interviews with the subsidiaries of 2 more Italian parent firms were added during the process. All the interviewed firms in Asia are of small or medium size. 9 of them belong to medium-sized groups with well-known brands. 6 belong to large groups: 4 belong to the Carraro Group, 1 to Filmanmade Group Technical Textiles (FMMG), and 1 to Tessitura Monti. The Carraro Group has worldwide more than 4.000 employees, Filmanmade and Monti around 1000.

Semi structured interviews were conducted both in Italy and in Asia in two waves between October 2008 and June 2009. All interview persons held a leading top management position. The number of interviews totalled 19. Each interview lasted at least two hours, in many cases half a day, and in all cases implied a visit to the factory, both in Italy and in Asia. All interviews were cinducted in Italian but 2 that was conducted in English. The interview focused on company background and marketing policy, motivations for the entry into the Asian market, the position of the firm in the value chain (the relation with the main customer) or the Chinese consumers and brand policy, the policy towards local suppliers.
Information was complemented by interviews to two professional offices sustaining Italian firms in Asia and by follow-up contacts, review of press releases and company material.
The majority of the interviewed firms, 10 out of 15, belong to the mechanical engineering sector. Carraro Group is a leading firm in the production of axles, transmissions, and final and slew drives for agricultural and construction equipment; the group is the parent company of 4 interviewed firms. The directors of the two Carraro factories, in China (Quingdao) and in India (Pune) have been interviewed during a visit to the plants; I 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 mechanical sector we have interviewed the directors of Maschio, General Fittings, Irsap Jintaige Radiator, Hydroeast, Changsu Ritmo Welding Technology (RitmoAsia) and Zamperla. Maschio manufactures under its own brand agricultural machinery, Hydroeast and RitmoAsia produce mechanical products, Zamperla manufactures amusement rides and designs park layouts.

5 of the interviewed firms that are reported in table 1 belong to the "traditional manufacturing" sector of textiles and furniture. I have interviewed the managers of Tessitura Monti India, a subsidiary of Gruppo Monti, that weaves cotton of the highest quality; FMMG, a producer of high performance yarns; Colombini; Beijing Great Faram Wall Decoration; and Dalian Mato, which make furniture & its components. For Carraro, Maschio, FMMG and Monti I have supplemented the interviews at the foreign plants with interviews in their parent firms in Italy. Table 1 summarizes the main features of the interviewed firms.

Table 1. Interviewed firms

Name of the firm	Interviwed subsidiary firm			Parent company in Italy			Markets where the offshored subsidiary operates
	Year of establishment	Employees at the time of the visit	Turnover millions € in 2008	Name, location and date of the interview	Legal ownership/ Initial investment in €	Significance in relation to the parent company turnover	
Tessitura Monti India	2001	450	17	Treviso, 2008	100% control Tessitura monti 50 millions	> 70%	50% in Europe 50% in Asia (40% to Aquarelle)
Carraro India				Padova, 2008	100% control Carraro Group 15 millions	<10%	sales in India and Europe (50%)
Turbo Gears, India			13	Padova, 2008	100% control GearWorld 20 millions	<10%	Sales to Carraro India and to Indian firms
Beijing Great Faram Wall Decoration China	2002-03	142	7,5		50% controlled by Faram and 50% by Beijing Municipality/ 2 millions	<10%	International furniture market (70%) and China (30%)
Dalian Mato	2005-	320	7,5		100% control	<20%	Ikea USA (30%),

Furn&Compt China,	2006				Mobildan 10 millions		Auri's Kitchen UK, and France
FMMG China	2006	93 (7)	5	Treviso, 2010	100% control FilMar MadeGroup/ 20 millions	<10%	Glen Raven (60%) and Italy
Colombini, China	2005		2,6		80% control by Colombina 2 millions	<10%	China, its own retail network
Irsap Jintaige Radiators, China	2005	150	1,9		100% control by Irsap Group 5 millions	<10%	China
Carraro, China	2006	138	11	Padova, 2008	100% control by Carraro Group 18 millions	<10%	Cina, Usa, Europe
MiniGears, China		268	14	Padova, 2008	100% control by GearWorld 11 million	<10%	China, Usa
Maschio China			4,4	Padova, 2008	100% control by Maschio&Gaspardo 3 millions	<5%	Usa, Italy
Changsu Ritmo Welding Technology	2005	22	0,7		100% control by Ritmo 0,2 millions	<5%	Asia (80%), Italy
Hydroeast	2004	11	0,3		100% Idrobase 0,1 millions	<5%	Europe (95%), Russia
Zamperla	2006	64	5,0		100% Zamperla 1,3 millions	<10%	China and Asia
General Fittings	2005	99	2,1		100% Gambari Group 3 millions	<10%	China (25-50%) and Europe

All firms employ modern technology for their sector, and use, whenever necessary, European components in order to preserve product quality. However, sometimes the use of low cost of labour is reflected by low levels of automation. For example, activities such as stock control, warehouse usage, and quality control are often manually executed; in contrast, the corresponding operations in Italy would have been organized with a higher level of automation. 2 firms (General Fittings and Irsap Jintaige Radiators), made extensive use of machinery transferred to China from Italian parent companies, which then updated it with more automated technology.

3. Off-shoring and production internationalization

All the parent firms but 3 have other factories abroad and for them the move to Asia can be considered a step in a process of incremental acquisition of knowledge of foreign markets (Johanson and Vahle, 1977). The majority have plants in Central and Eastern Europe: in Poland, in Russia and in Slovenia, but especially in Romania, where numerous firms from Italy moved their production at the end of the nineties, particularly from the Veneto region. Today, in the most developed area of Romania there are difficulties in labour recruitment because of the massive emigration of Romanians abroad. Due to a reduction in transport costs, and to the constant appreciation of the Euro in relation to the Dollar, the cost of labour in Eastern and Central Europe has risen considerably and we now see a transfer of production from Europe to North Africa and to Asia. In the most recent years, China, and to a lesser degree, India, have offered 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 Italy to CEE countries (+16% between 2002 and 2008 measured by the number of employees), while direct investments redirected towards Asia have rapidly increased (+35%).

Internationalization takes multiple forms, including commodity flows, subcontracting, direct investments, commercial and technological agreements, licences and other arrangements formal and informal. Data is currently available in a systematic way for trade flows and direct investments.
Italy's imports from some CEE countries are mainly concerned with clothing and footwear subcontracting. This is particularly the case for Romania, from where 61% of imported goods to Italy in 2008 were connected to the sub-contracting trade. For Romania, imports from that country into Italy are an end stage of a process which firstly saw the export of semi-manufactured goods and raw materials from Italian based firms to firms in Romania, owned either by local or Italian entrepreneurs; then the Romanian firms used the imported materials to manufacture and subsequently re-export to Italy finished products or advanced level parts, which are then distributed (Crestanello and Tattara, 2010).

Levels of imports to Italy of textiles, clothing and footwear from Romania were close to imports from China in value until 2006. Subsequently, China took the lead, but products imported from China have been mainly produced utilizing a model of full package outsourcing by Italian brands. Under this model, articles are manufactured by large local firms capable of processing high volumes at low prices; and raw materials and accessories are acquired directly in the Asian market, where it is possible to find quality and variety. There is not an equal flow of exports from Italy to China for these commodities. In contrast, Romanian imports and exports with Italy are of similar values because Italian exports to that country provide the basic materials for producing future imports.

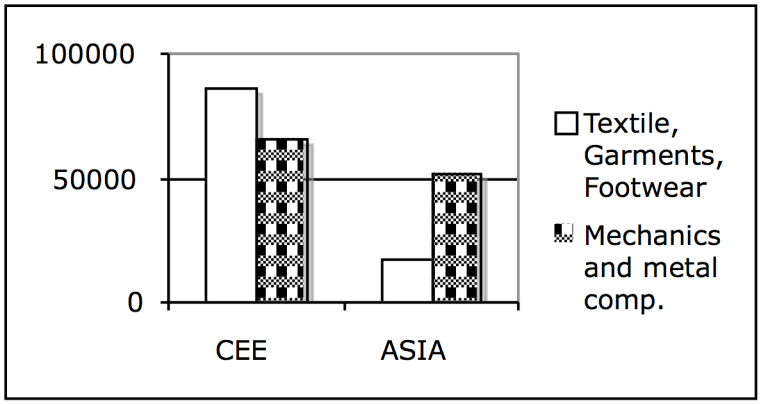
In clothing and footwear, internationalization is accomplished by large flows of commodities across a country's borders, i.e. by market transactions. Due to the importance of subcontracting, Italian commodity flows are basically reciprocal with Central and Eastern European (CEE) countries (Tattara, 2005).

In the mechanical industry a different situation exists. In this industry, proprietary knowledge of key aspects of the industrial technology is important. Usually, when a firm from one country establishes a new factory or centre in another, transactions that are established in the new country of settlement are not simple arm-length relations (market transactions), but require strict interaction among actors in the value chain and thus stronger forms of governance[3].

Italian foreign direct investments are overall bigger in Central and Eastern European countries than in Asia, but for CEE countries investments are mainly in "traditional sectors" while in Asia the mechanical industry is important (figure 1) and has been gaining ground rapidly in recent years. The rate of increase in the number of Italian foreign direct investments in CEE countries from 2002 to 2008 is nil in traditional sectors and positive in mechanical industries (+5%), while both sectors have grown at significant rates in Asia (respectively 18% and 54%). Foreign direct investment plays a relatively more important role in Asia than in CEE countries, in mechanical industries more than in clothing-footwear, because of distance and transaction complexity.

[3] For this classification Gereffi, Humphrey and Sturgeon (2005, 85 ff.)

Figure 1. Italian Foreign Direct Investments in 2008



4. Case studies: medium size firms as 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 activities 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 that explains how global value chain are governed in relation to the transactions with members of the chain and to the capabilities of the supply-base (Gereffi, Humphrey and Sturgeon, 2005, 78)

In this section I analyse the structure of commodity chains in the mechanical, furniture and textiles industries by presenting case studies of firms which are located in China and India and controlled by Veneto firms. The case studies have been summarized 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 aims, size, control of the market and relations with its suppliers. The variety of situations has been grouped in three clusters that range from a low level of interdependence and a high power asymmetry where the foreign plant is set up to reduce costs of production and to supply back to the parent company 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 as well, selling in the foreign market with their own brand a product engineered in Italy and adapted accordingly to local market needs.

The first cluster groups firms whose initial purpose is to manufacture a simple product for the parent company in a hierarchical form of governance. This strategy was initially pursued by General Fittings, RitmoAsia, Maschio, and Hydroeast, but which has to varying degrees evolved. General Fittings and RitmoAsia, once they had settled in Asia, searched for their own production and sale niches 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 under subcontracting agreement and also sell directly on the components market complex products: Carraro, TurboGeras, MiniGears, FMMG and Dalian Mato. The main

customers of Carraro sell machinery directly in Asia, and have pressed the Italian parent company to open production units in Asia to shorten the time to market of the product and to maintain 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 service (the supply of spare parts). The localization of activities within the Chinese and Indian markets is explained by several factors, which include the management of a complex product, not easily codifiable, and which requires attentive transactions with local suppliers, and the respect of strict consignement terms.

The third cluster groups Monti, Faram, Colombini, Irsap, and Zamperla, a set of firms that sell on the final market with their own brand. These firms were established in Asia in the search for both lower costs of production and access to a large market; direct sales from Italy to China, or to the broader international market, were inhibited by the high cost of the Italian product and by the distance. These firms are fairly independent from their parent companies, and market directly their own production under the company brand name.

4.1. From contract manufacturing to the Chinese market. This cluster groups small sized Italian firms that have opened factories in China in order to produce lower cost components for their parent companies (Li et al., 2008)[4].

General Fitting, 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, and Romania and in 2005 it opened a plant in China (Nancjing) in order to reduce production costs. At the beginning of 2007, production for the Italian parent company started. The production manager tells us:

" *It was contract manufacturing for the most simple fittings, that are no longer produced in Italy. However, high quality forged brass rods made to standard CW617 – 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 then sent to China, and then manufactured die cast, and the fittings were then sent back to the Italian company that distributed them. On the whole, the process provided only a marginal contribution to the Group turnover, and production was not very profitable both because in China the cost of labour is relatively high in respect to other South Asian countries and also the brass rods sent from Italy were made more expensive by the time and cost of transport"*

In die cast manufacturing, the cost of labour in the Chinese plant is 30% of the manufacturing cost; the remaining part is accounted for by plant amortization and depreciation, metal losses, and energy (which in Nancjing costs 50% less than in Italy). The Chinese plant is less automated than the Italian plant, especially in respect of the movement of components, and taking everything into account the

[4] Maschio's factory in China, at Quingdao, 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 the total cost and 70% are components, mainly outsourced; in Italy the cost of labour is 35% of the total for the same gearbox. 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 the China produced gearbox to Italy is less than 1€ each all included (freight, duties etc). 60% of production is sent to Italy, and 40% to Maschio representatives in the United States.

overall cost reduction is limited to 25% of the cost of same product manufactured in Italy, and so not worth the initial investment that was substantial (table1).

At the end of 2007 a new management decided that the Chinese plant needed to change its function, and to move from contract manufacturing for its parent company to producing brass components for the Chinese market. At the time of the interview 25% of total production was sold in China. It was a complex move because the Chinese market does not demand sanitary metal fittings for private houses where fittings are mainly low quality plastic ones, and the new manager has been gearing production towards the automotive and shipbuilding industries. Today, General Fittings China supplies a wide range of standard products as well as articles tailor-made to specific customer demands. This change in functionality 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.

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 Group has production plants in Italy and Bulgaria and the production made by the plant in China is marginal to the Group turnover. Ritmo entered China because 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 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 its clients[5].

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 market) and at the beginning the imported components made 70% of the final value. The turnover for the first couple of years was very small, a few hundred thousand Euros. In 2008 the strategy of Ritmo changed. A new manager created a new brand, RitmoAsia, and launched a line tailored to the East Asian market (including China and Indonesia). The aim was to manufacture locally almost the entire product, whilst maintaining good quality and reducing drastically imports from Italy which by the time of the interview were reduced almost to nothing; an hydraulic cylinder was still imported because it was not available to the same quality or, at least, it was available but not by firms that supply the short buckles required by RitmoAsia.

At the time of the interview, savings on Chinese components varied between 30% and 50%, but, against this, at the beginning returned items had peaks as high as 80%; for example nickel and zinc Chinese plating firms very seldom produced to Western standards, and some metal components roughly finished were not acceptable to RitmoAsia. At the time of the interview a strict monitoring process was introduced and the percentage of returned items was lowered to less than 30%, but this was still too much.

[5] Ritmo remains undisputed leader for electronic machines, where price is less important.

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 either sent back to Italy to be assembled, or are sent as spare parts to the various markets where Idrobase sells its products (including USA, Europe and Russia). The Chinese market for high-pressure washers is still in its infancy and the volume of production sold in China is modest. At the time of the interview the percentage of components Hydroeast was returning to Chinese suppliers was less than 2%. The manager of the Group tells us:

"We have in China about a hundred suppliers, of which 30 are stable suppliers and each of which I know in person. 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 receiving the order to the consignment takes one month because our suppliers are small local mechanical firms and communication is difficult. The production manager of our subsidiary is in daily contact with our suppliers. If they use reliable machines we test a 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 relations of trust that we had, and still have, in Veneto with our suppliers"

4.2. Following the main customer. FMMG, DalianMato, Carraro India (Pune) and Carraro China (Quingdao), and MiniGeras are 5 firms producing components for large international brands. These factories have been established abroad in response to the demands of their main customers, and leaders of the value chain, which subsequent to deciding to move to Asia have encouraged their suppliers to follow suit and off-shore their production. 4 of these firms made a big initial investment, around 10-20 millions €. The fifth, MiniGears has a comparably lean structure as it occupies rented premises.

FMMG produces high-range quality yarns using the most advanced cotton spinning technologies available on the market. The yarns are used for the production of special fabrics for clothing, furnishings, and sophisticated industrial applications such as filtration and protective wear. The Group is the leader in Europe in this field.

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 be able to continue to supply it from Europe with our yarns, because the cost would be too high. We signed a three-year manufacturing agreement with it that covered the start-up of our new plant, and we chose a new location in China together with our customer, next to his plant"

FMMG's costs are electric energy (which in Italy is twice than in China), depreciation and amortization of machines, and, least significantly, the cost of labour. Production is highly automated so that per capita productivity is the same in Italy and China[6]. At the time of the interview the parent company was seeking to utilize the full capacity of its Chinese subsidiary by outsourcing orders from Italy.

Carraro, an important mechanical industry firm serving the automotive sector, has also internationalized its production by following its main customer. Carraro produces axles, and drive-lines for construction machines. The Group also manufactures steel gears through 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 maintain proximity to its main customers, while work force issues and components availability are less important. In fact, Carraro's main customers base their reputation on an efficient repair capability, and so require Carraro to supply components as quickly as possible.

For all firms of this group the main customers provide guarantees to purchase a substantial part (but not all) of total production, about 30-50% of the capacity. Then, the supplier needs to develop its own marketing activity to sell the remaining product. For example Glen Raven guaranteed for three years to purchase 3 tons a day of yarn from FMMG, which amounted to 40% of the plant's production, but only 13% of the estimated optimal capacity. To successfully place the remaining part on the Chinese market is a difficult task. The manager explains the problem:

"We had two customers in Europe, buying yarns for their industrial filters, one German and one Scottish, both of which off-shored to China and once we also moved there we felt sure we would be able to continue to sell to them. It has not been so. Both have left us and have chosen new Chinese producers that sell to them at a price that is 1/3 of our price. Filters sold in China are of very low quality and our price is not competitive but they are preferred because of the absence of strict regulatory standards in the domestic market.

Not so for our yarns sold in Turkey where the quality of our yarn is appreciated and we are able to sell to Turkish firms even though our product is more expensive than competitors' prices. The reason is that Turkish firms sell mainly to European countries where the observation of regulatory standards is compulsory"

Among the main customers of Carraro India and China are producers of tractors and construction machines. In India, the factory opened in 1999, under pressure from Case New Holland; it produces for Case, Caterpillar, John Deere and others and axles for lorries too; a limited quota, 5-10% of production, is supplied to the Indian firms Larsen&Toubro and Mahindra (for its tractors). India is the largest world market for tractors, but only recently have producers started producing 4 wheel drive vehicles, whose axles are a speciality of Carraro. In this sector, interest in the Asian market has grown in recent years. For example, Caterpillar has moved a significant part of its business to Asia, and in 2008 this market was responsible for 20% of its turnover (compared with 12% in 2006). To reinforce its presence on the

[6] In fact, during the world crisis employment in the Chinese plant declined by 1/3 and then at the first sign of recovery, in the early 2010, the management increased staff working hours (12 hours a day instead of the previous 8 hours, for 6 days) leaving unaffected the number of employees, and so the per capita production is now much higher in China than in Italy.

Asian market it has recently purchased the Korean firm Jinsung, which produces undercarriage components. The establishment of the two Carraro factories is a part of the trend to follow major customers to Asia, although the managers of the two plants keep a fairly diversified customer portfolio; as well as producing for similar customers to its sister Indian factory, the Quingdao plant also makes steel gears for Kone, the Finnish multinational that produces lifts, escalators, and loading bays, and which in 2005 purchased significant enterprises in Asia (Giant Elevators in China and Fuji Lift&Escalator in Malaysia).

To sell on the Asian market is difficult and a significant part of the Indian production, and a small part of the Chinese production, are sent back to Europe. For example, both in India and China, Carraro factories build drivers for eolic turbines required by the Carraro German subsidiary O&K. The global recession of the last two years has drastically reduced orders from international corporations and Carraro managers are now targeting 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 and prospects are favorable.

One characteristic that distinguishes the 2 Carraro factories, in India and China, is that the second is able to find on the domestic market high-level subcontractors supplying gears of high quality that in India are not easy to find. Consequently, the factories in India and China have different structures; in India the factory is vertically integrated with the nearby plant Turbo Gear that belongs to the same Group and, has its own steel hardening process, and sells 50% of its steel gear production to Carraro India. In the case of the Chinese Carraro factory, in contrast, steel gears are purchased from third parties, the customer taking advantage of the opportunity to source from large firms that work for the army; only a few special parts, such as gaskets, are imported from Italy.

The subsidiary MiniGear in Souzhou was established to supply small metal sinterized gears to international producers of electric and gardening tools who have moved to China a part of their production (such as Bosh, Black&Decker, and Sthil); 57% of Minigear's production is sold to international firms operating in China, 27% to firms operating in North America and the remaining part to companies in Europe. The decision to off-shore MiniGears was completely independent from the decision to off-shore Carraro in Quingdao.

The industrial cost in China of the main Carraro product, axles, was at the time of my interview, 30% less than for similar products manufactured in Europe, and 15% higher than for those made in India.

DalianMato Furniture and components started 2 years ago. The factory is located in the export industrial zone of Dalian, to the north East of Beijing, and produces solid wood kitchen doors. Raw material include imported water varnish (Ica), dried wood imported from the United States (oak), Russia and Estonia (ash and birch), and wood panels bought directly in China[7]. DalianMato exports doors to large kitchen producers, including British and American manufacturers, among these the Ikea group. For this producer also off-shoring has been in response to pressure from its main customers which required door panel production at a price the parent company was not able to produce in Italy.

[7] China is a wood resource poor country with a very low forest per capita density.

Purchasing agreements are arranged by the Italian headquarters and DalianMato acts in fact as an off-shored plant of Mobilclan. The lower unit cost of production in the Chinese plant 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 account for 70% and varnishes for 15%. The remaining 10% or so is down to general expenditures. Local suppliers provide all the packaging material. At the time of the visit the main customer was Ikea USA. It would not have purchased the more expensive kitchen doors produced by Mobilclan in Italy and 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 significant part of production costs. For all except DalianMato, it amounts to less than 5% of total costs. For DalianMato, the firm that in relation to its turnover employs the most workers, the percentage is a little more.

4.3. Market size while keeping firm specific advantages. Faram and Zamperla produce in China and Tessitura Monti in India. All three have brand names, patents, technology, and organisational know-how, which help to explain their choices 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 the costs of production and also to develop a strategic location.

Faram Group is a world leader in the design and manufacture of office furniture and partitions, and is characterised by its use of leading edge technology, and its products by 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 in 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 and world leader of rides for the amusement industry and in the designing of the layout of amusement parks. In China, Zamperla realizes a quarter of the group total turnover. Zamperla has other production plants in Russia, Slovakia, and the Philippines. With the appreciation of the Euro the increase in production costs made it difficult for Zamperla to continue to sell from Europe to China and the parent company decided to offshore production to reduce costs. Initially, a plant was set up in the Philippines because it was seen as offering a "Western" milieu and an avoidance of linguistic problems, but it did not prove the right choice for selling to China where Philippino 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 rides, or produced in very short series (7-8 rides). They are reworks of designs produced in Italy and are assembled using parts and components made by Chinese subcontractors.

A quite different story is that of Tessitura Monti. This is an important firm producing high quality cotton textile fabrics, mainly for shirt making. Monti has suffered from an adverse market for classic garments, and by competition from low cost producers, and has chosen to transfer almost the whole of its production to its new plant in India, and to two plants it owns in the Czech Republic, which were previously producing for it as subcontractors. Only design, the manufacture of

textile samples and a very limited segment of the production process has been retained in Italy. At the end of the nineties, the Italian plant had almost 1000 employees and produced 20 millions metres of textiles. Today, production is split between the Indian plant that at the time of the interview produced 7-8 million metres, but had a capacity double that, and the two Czech Republic plants (1-2 millions metres), and the Italian plant (250 thousand metres) (Campagnol and Tattara, 2008).

All three enterprises, Faram, Zamperla and Monti, initially sought out low labour cost. Faram and Zamperla also took into account the availability in China of components of good quality at reduced cost, while Monti was attracted by the good quality cotton yarn available in India. All three have emphasized the fiscal advantages connected to the locations they chose (at least for the first years of activity). The cost of labour in India is half of the cost in China: 100€ a month per Indian blue collar for Monti and 180-200€ for Zamperla and Faram. The difference is bigger for skilled workers who in China earn more than twice the wage paid in India.

All three factories have autonomous design capacities, with skilled technicians who are able to adapt designs produced 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 was sold. Great Faram Wall has autonomy from the management of Faram in respect of market research and a tacit understanding that Great Faram Wall takes responsibility for developing its activities in Asia and in the Middle East, markets out of reach of the Italian parent company. In respect of raw materials, Great Faram Wall is supplied for 75-90% of its needs by the local Chinese market and for 25-10% by the Italian market. From Italy come some of its veneers, locks, metal accessories, and varnishes[8]. From China come all other supplies: aluminium, steel, hinges (German brands but made in China), glass, chipboard composite and some veneers. Among the Chinese suppliers, two are considered strategic: one in South China supplies aluminium table legs; 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 leases premises, which means it had a lower initial investment. 95% of parts and components are purchased in China; the remaining 5% comes from the Philippines or from the parent company in Italy (some electronic parts). A lean production structure is reflected in a reduced number of employees, who are mainly skilled. Out of 64 employees, 11 are engineers and 7 are skilled technicians who engage in 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 leading producer of amusement parks, in Indonesia and in the United States. Chinese safety standards are similar to those demanded in Western countries.

Tessitura Monti has an entirely different structure as it is vertically integrated, including the manufacture of raw yarns and cotton fabrics. From the parent company in Italy come design and dies; although dies are sometimes also

[8] Sometimes varnishes and sand paper are also bought in China where they are produced under European licence.

purchased in India where they are manufactured under European licence. Machines used in manufacture are almost all Italian or German, most of them brought from the parent Italian plant or from the company's Czech Republic plants, and have been imported duty exempted under special provision. From 35% to 40% of the Indian production is sold to Aquarelle (a firm 50% controlled by Monti) which has a plant in Bangalore with 500 employees where shirts are made under subcontracting arrangements for well-known brands (including Zara and other European firms), and which also sells directly on the East Asian markets. Other customers of Monti are European shirt manufacturing brands to which Monti distributes products 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; this is a significant difference, although the price is not the crucial competitive element in the market for high level furniture. Off-shoring reduces the labour cost to 1/5 of the cost in Italy, and the cost of parts and components of local origin is reduced by 1/3[9]. Some competitors exist in the Chinese market; the biggest one is Boloni, a medium size group, which is active in furniture and which in recent years has looked to progress into design.

Zamperla has a similar 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 cost of labour is the same as for Great Faram Wall, with a larger savings in components purchases that represent 50% of costs, as Zamperla is basically an assembly plant. The total saving on a comparable ride produced in Italy is around 40%.

The extent of cost reduction of Tessitura Monti in relation to equivalent Italian production is bigger than for Great Faram Wall and Zamperla. The following table sets out the costs for the Indian plant for 1 metre of cotton fabric "I dogi". The cost of cotton fabric produced in Italy is 6-7€ per metre and at this cost the firm is no longer competitive in the international market. As Mr. Monti tells us:

"It is no longer possible to meet international competition with cotton textiles produced in Italy. All factories are closing down. The high cost of labour, the high cost of energy and the appreciation of the Euro have put us out of the market.

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

The cost structure for producing 1 metre of cotton fabric in the India plant is detailed in table 3. This fabric is sent to Italy to be sanforized and distributed from the Italian headquarters.

Tabella 3. Industrial cost for 1 metre cotton fabric in India, €

raw cotton yarn	44,77
dying	10,36
energy	18,08
labour	3,86

[9] 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%).

maintenance	5,18
depreciation	12,32
others	5,43
	100,00
total cost per metre	1,91€
sanforization (Italy)	0,47€
Total	2,38€

The unit cost of production in India is around 2,38 € per metre, 1/3 of the cost in Italy, and consequently after 2005 Monti began again to make profits, although the capacity of the Indian plant is still underutilized.

5. Governance of the value chains, geography and competences

My sample of Italian direct investments in China and India have been clustered in three typologies according to the motive that brought the firms to Asia and to the roles the firms played in the value chain. These are: "manufacturing directly low cost components for sending back to the parent firm"; "following important customers that were seeking quality and delivery in rapid time"; and "looking for substantial cost reductions while keeping firm specific advantages (such as brands, patents, and capabilities)". Some firms share characteristics common to 2 or all of the 3 typologies and cross the imaginary borders that make our classification a useful but a provisional solution.

Some firms moved to Asia in pursuit of an initial project that soon proved faulty. 2 of them intentionally rectified the initial choice, adapting the factory to a more profitable strategy. I 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 sought clients in a new sector. In order to increase revenue and profits they used machines they already had in their factories, and production techniques they already used, but for a new functionality, that is to make automobile components, which they didn't make before. The manager of RitmoAsia sought local subcontractors for almost all components that were previously imported from Italy, delivering a considerable cost reduction; only a few strategic components were still imported. This move implied a process of selection of suppliers, a standardization of production, the ensuring of quality control, and the development of relations of trust. This was a difficult process for a small firm like RitmoAsia, as the market for components both in China and India is not well developed and reliable components are often produced by companies supplying big orders for large international firms, but not the limited amounts demanded by small sized customers (Lemoine, Ünal-Kesenci, 2002; Kaplinsky, 2008). The local supply market for components and parts that can be sourced by a small firm like RitmoAsia is composed of backward local firms who lack testing equipment and whose product quality is often inconsistent (Humphrey, 2008; Kaplinsky, 2010). They are not capable of implementing 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 engage in a process similar to that which lead to the formation of Italian industrial districts. Many difficulties would prove more tractable if large Italian firms were present in Asia, as this size of firm can help to create a network of local reliable producers.

This is what happened in Italian districts in the sixties when large firms outsourced a part of their production and created a market for parts and components that was at the origin of production fragmentation, capability building, and specialization that are the cornerstones of the industrial districts[10]. Hydroeast, mindful of the way its network of suppliers has been formed in Italy, has built in China a network of trusted suppliers. This process 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, especially in the neighbourhood of its main plant near Padova, and encouraged some of its employees to set up their own plants, leasing them some of its own machines. Now the Italian plant assembles components that are produced in the district. In its Chinese plant all the manufacturing process takes place inside the firm but some manufacturing processes, such as hardening, are carried out externally. Every order is split into three main suppliers and three second tier suppliers, allowing the company to gradually select the best suppliers. In China it has a sophisticated department to test incoming components, a function that in Italy does not exist as components are certified by the suppliers themselves. For its India plant, there is a lack of adequate suppliers 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 in search of a direct cut in production costs, while retaining their brand names and maintaining strict control over suppliers. Savings on costs included labour, but also energy, raw materials (cotton yarns for Tessitura Monti), and plastic, mechanical and metal components for Great Faram Wall, Zamperla and others. All managers pointed out that since the appreciation of the Euro, producing in Asia provided a profitable solution for selling in the American and international markets. The largest firms 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 comparatively more dynamic Asian market, in order to fill idle capacity. Producing local and selling local proves to be 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 started as joint partnerships with Chinese firms, although at the time of the interview Colombini was intending to purchase the share of its Chinese partner. The first, Colombini, is a furniture producer that in China produces only children's furniture in melamine (MDF) and sells 80% of the product of the Chinese plant on the local market. The panels and various accessories are bought in China, the design is made by a Colombini design team in Italy, and special accessories are bought in Italy (e.g. Ferrari[11] metal drawer guides). Colombini in China has a unit cost, for the same product, 30% less than the cost of its Italian parent company. The lower cost is due both to savings on labour and on

[10] As Langlois (2003) puts it Williamson's famous heuristic dictum…"In the beginning there were markets" is simply not true. For the role of large firms in Italian districts see Tattara (2001). For a recent assessment of the Italian districts see Becattini et al. 2009.

[11] 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".*

components, particularly metal and glass parts. The sale price is higher that that of competitive products by 7-8%, but the difference reflects a recognised quality premium.

The entrance into the Chinese market has not been easy and has required a huge investment and also management dedication. Colombini, at present, has in China 50 retail stores selling under its own brand, each with the same design, colour and atmosphere. These stores are located inside "furniture cities" that are run in franchising[12] at a cost that is clearly lower than the cost in Europe. A second selling route is that of sales to purchasing groups. These are common in China when lessees or new owners purchase, and then need to furnish, flats that are part of a new block, a frequent occurrence due to the fast growth of the Chinese cities. These groups operate on the internet and Colombini has a strong presence in this market.

The second example is the company Irsap which has purchased Golden Tiger Radiators in Beijing, a firm producing radiators. Following the purchase, IRSAP brought to China its own machines, made to its design (mainly tubular radiators). All production is for the high end of the market and has been developed for China and Russia. For the market in China the firm has built on the experience of Golden Tiger Radiators and its personnel. IRSAP maintains direct sales links to building firms, in addition to selling through retailers. 80% of sales are in the town of Beijing, where the climate is harsher and the population richer than in other towns.

Retail distribution on the Chinese market is difficult as the product first requires to be reworked to make it suitable for Chinese tastes and habits. For example, Colombini reports considerable waste adapting Italian designs to the size of wood panels sold in China that are of different size to those sold in Europe. Children's rooms in China often require a grandmother's bed, a different layout of the project and the retail network is organised very differently than in Italy.

An element that prevents Italian firms from selling components to China is a lack of regulatory standards in this market. Typical is FMMG that sells regularly in North America, but is not able to sell on the domestic market because a lack of adequate regulatory standards makes its products for exports too expensive for the domestic market. This is a situation shared by General Fittings which die casts two kind of brass bars, with different specifications and prices for the two markets[13].

China and India differ from Europe in authority, culture, legal traditions, business systems, and political risk (Prevezer, 2008; Estrin, Prevezer, 2010). Only 2 Italian managers out of the 15 we 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, and more. The system is for the most part considered adequate and attentive to the needs of foreign firms, particularly outside of the main cities, in the periphery, where foreign investments are most in demand, are a sign of distinction for the political leaders in their effort to alleviate unemployment, and negotiations are much easier. No one entrepreneur referred to the system as corrupt, but all agreed that interacting with Chinese institutions takes a lot of

12 Colombini enters into a continuing contractual relationship with local distributors that operate under the franchisor's trade name, with the franchisor's guidance, in exchange for a fee.

13 Standards are likely to be of reduced significance for China according to Kaplinski et al. 2010b; Kaplinski et al. 2010a; Humphrey, 2008.

learning through trial and error. In India, transparency is much more valued but political uncertainty is much higher and this negatively affects foreign entrepreneurs.

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 its 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 of high level engineers is greater in India than in Italy.

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