

**The London School of Economics and  
Political Science**

**Bridging the Divide:  
Firms and Institutional Variety in Italy**

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degree of Doctor of Philosophy, London, May 2011

## **Declaration**

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## **Abstract**

The underperformance of Italy's macroeconomy is common knowledge, yet empirical evidence has shown that a high quality segment of Italian export oriented firms has outperformed international competitors although the country lacks practically all attributes of a coordinated market economy. This thesis shows that the ability of firms to produce high quality goods in Italy is linked to the practice of "capital skill asset pooling" within a novel model of production organisation, "disintegrated hierarchy". "Capital-skill asset pooling" follows from the vertical disintegration of production functions across firms and entails the sharing of production assets between firms governed by heterogeneous institutional frameworks. Through the comparisons of firm-level case studies across three industries, the thesis shows that two *simultaneous* conditions are necessary for "capital-skill asset pooling" to develop: 1) the presence of lead firms endowed with patient capital, and 2) the presence small suppliers endowed with firm-, industry- and product-specific skills. This finding complements the Varieties of Capitalism literature by showing that firms can produce high or diversified quality goods in the absence of the necessary institutional preconditions by developing functional substitutes to coordinated market economy assets through "capital-skill asset pooling".

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## **I. ITALIAN AGGREGATE DECLINE AND MICRO SUCCESS: AN EXPLANATION OF THE MECHANISMS OF ITS COMPARATIVE ADVANTAGE**

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The question of how firms organise production processes is of relevance to comparative political economists who study the nature and structure of models of capitalism. To this date, the main conclusion of this literature has been that firms' product market strategies are determined by specific institutional preconditions, although such preconditions do not exist everywhere, suggesting that product market strategies differ in line with institutional structures. In contrast, this thesis argues that firms find different solutions to the same production problems by using institutions strategically.

On the one hand, the literature on models of capitalism, driven by notions of institutional homogeneity and coherence, central institutional tendency and dominant behavioural logics (Fligstein 1990; Crouch and Streeck 1997; Hollingsworth and Boyer 1997; Hicks and Kenworthy 1998; Soskice 1999; Whitley 1999; Hall and Soskice 2001), contends that firms' behaviour is determined and influenced by institutional frameworks. Institutional complementarities determine the win set of possibilities that firms can pursue (Goyer and Hancké 2005; Hancké, Rhodes et al. 2007). Product market strategies become the outcome of interactions between firms, workers and, to a limited extent, the state (Streeck 1991a; Streeck 1991b; Hall and Soskice 2001 : 5, 28-32).

On the other, this literature has treated hybrid cases as residual and unstable (Crouch, Streeck et al. 2005 : 365), although heterogeneity endows economic agents with the capacity to manoeuvre across multiple regulatory arrangements (Stark 1996 : 995) and to

avoid heavily reinforced characteristics (Crouch, Streeck et al. 2005 : 365)<sup>1</sup>. Yet, less homogeneous and incoherent institutional frameworks have been criticised for their inability to deliver positive economic performances (though exceptions exist, such as: Hancké 2002; Campbell and Pedersen 2007). This thesis therefore endeavours in the study of a hybrid case, Italy - historically characterised by the incoherence, inconsistency and polarisation of its institutional system (De Cecco 2007; Molina and Rhodes 2007; Hall and Gingerich 2009). By so doing, it takes up the challenge of exploring the unapparent advantages of institutional heterogeneity.

This thesis builds on the institutional distance between a pure coordinated market economy and Italy to show that Italian firms can pursue high or diversified quality product market strategies (as classified by: Streeck 1991b; Herrmann 2008a) in the absence of necessary institutional preconditions. Typologies are in fact important as they represent stable points of departure without which deviant institutional conformations cannot be investigated (Emigh 1996). Beyond the specific issue addressed, this thesis is a valuable theoretical and empirical endeavour for three reasons. Firstly, it is theoretically and empirically relevant to investigate how high or diversified quality production develops within heterogeneous institutional settings<sup>2</sup>. As already mentioned, a great part of the literature on models of capitalism has been concerned with defining typological cases which underpin given institutional equilibria (Aoki 2001; Hall and Soskice 2001; Amable 2003; Boyer 2005; Hancké, Rhodes et al. 2007). Since the study of political economies that fail to fit these categories has been neglected, this literature is incapable to account for deviant cases and outliers. Deviant case analysis instead allows producing a more complete mapping of the spectrum of capitalist economies.

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<sup>1</sup> "Mongrel" animals – or models of capitalism – are expected to prove stronger and more resilient against shocks.

<sup>2</sup> The thesis' definition of success will be discussed in following sections

Secondly, the models of capitalism literature failed in its initial objective of maintaining a firm-centred perspective (Hall and Soskice 2001 : 5). Despite Varieties of Capitalism's main claim was to investigate models of capitalism from the perspective of the firm, the research that this approach inspired has been more and more concerned with institutions, and institutional complementarities (Rueda and Pontusson 2000; Estevez-Abe, Iversen et al. 2001; Franzese 2001; Streeck and Thelen 2005). Studying firms directly (Crouch 2001) may therefore allow features of their behaviour, which had been overlooked, to resurface. Such had been the approach of the literature on social systems of production which led to the identification of industrial districts (Piore and Sabel 1984; Hollingsworth 1994; Herrigel 1996). By studying firms directly, the current literature on models of production may be better placed to depart from existing understandings and identify functional substitutes to established mechanisms of production. Thirdly, investigating how firms export large amounts of quality goods, within a country characterised by prolonged aggregate decline is crucial to develop a contextualised understanding of what enables good economic performance. This understanding can be used to inform the formulation of policy recommendations.

#### *A preview of the argument*

In Italy firms lack the preconditions to produce high or diversified quality goods, namely industry specific skills and patient capital; yet high<sup>3</sup> quality goods are exported and produced. The empirical evidence collected from primary and secondary sources shows that Italian firms are capable of overcoming the constraints that originate from the detrimental institutions they are confronted with. Key to the puzzle investigated by this thesis is the introduction of capital-skill asset pooling between firms.

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<sup>3</sup> In what follows, the terms "high" and "diversified quality" goods are used interchangeably.

In general, the segmentation and modularisation of production, characterising contemporary production processes, has facilitated a shift from vertically integrated to vertically disintegrated systems of production. Consequently, manufacturing firms have come to allocate the production of a good across multiple firms under the assumption that external sub-contractors perform specific activities more efficiently (Kogut 1989; Gereffi and Korzeniewicz 1994; Sturgeon 2002). In the Italian case, the rationale for production segmentation is slightly more sophisticated<sup>4</sup>. Italian firms access the production inputs they lack for the production of high quality goods through inter-firm networks which proceed from segmented production systems. By pooling the assets of production individually held, firms solve the institutional problems encountered in the process of production.

As will be discussed in detail in Chapter 2, a clear cleavage exists in Italy between the assets which differently sized firms are institutionally endowed with. Since an effective vocational training system does not exist, firms cannot access a pool of skilled workers. Since financial and corporate governance systems are skewed towards larger firms, small firms cannot access *patient*-capital. Therefore, since small firm workers acquire technical capabilities by *learning by doing* and larger firms have access to patient sources of funding, heterogeneously sized firms coalesce in the manufacturing process via capital-skill asset pooling. By so doing they bridge the institutional divide which separates small from medium-to-large firms.

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<sup>4</sup> It is worth recalling that production disintegration in Italy was first triggered during the labour uproar of the late sixties, long before than the disintegration of production that followed the developments in the semiconductor and computer industry [Sturgeon, T. and J.-R. Lee (2001). *Industry Co-Evolution and the Rise of a Shared Supply-Base for Electronics Manufacturing*. *Nelson and Winter Conference*. Aalborg, Sturgeon, T. (2003). "What Really Goes on in Silicon Valley? Spatial Clustering and Dispersal in Production Networks." *Journal of Economic Geography*(3): 199-225.].

Therefore, in order to produce high or diversified quality goods Italian firms obtain the missing institutional assets from other firms catered by different institutional conformations. A large firm (i.e. >50 employees: large by Italian standards) pools its own capital with the skill assets sourced from suppliers. Albeit it does not actively re-organise suppliers or surrounding institutions (as was instead the case for the French industrial restructuring reported by Hancké 2002); it becomes the leader of a hierarchical chain of production. As a result, inter-firm networks become the locus and the introduction of capital-skill asset pooling, the medium through which functional substitutes to a classical coordinated market economy framework develop.

The case studies presented by this thesis show that two conditions must hold for high quality production to develop in Italy: the presence of a network of suppliers with *industry, firm* and *product*-specific skills and of a lead firm with access to *patient*-capital. The first two case studies on the leather goods and footwear, and yacht industry show that the combination of the two allows firms, through capital-skill asset pooling, to pursue a high quality product market strategy. The presence of these conditions allows a comparative advantage to develop or be preserved in these industries. The third case study on the Italian computer industry shows that, as a consequence of technological innovation, a mismatch emerges in Italy between the skills held by suppliers and the capital held by large firms. Whereas capital-skill asset pooling allows firms in the leather goods and footwear and yacht industry to maintain and develop a comparative advantage, capital-skill asset mismatch leads to the decline of Italy's computer industry in the nineties.

The argument set forward by this thesis is supported by primary and secondary empirical material collected over a period of 3 years. Semi-structured interviews, publicly available

statistics and industry-specific reports are triangularised in order to strengthen the individual validity of each. Data on comparative advantage and unit values is used to select the case studies and corroborate the argument. Whilst the research strategy is discussed in depth in Section 1.3, the next section presents the empirical puzzle addressed by the thesis by comparing and contrasting Italy's aggregate and disaggregate performance over time. Section 1.2 reviews the explanations set forward to explain the different macro-micro performance. Lastly Section 1.3 summarizes the research methodology and plan of the thesis.

### **1.1 The international standing of Italian firms**

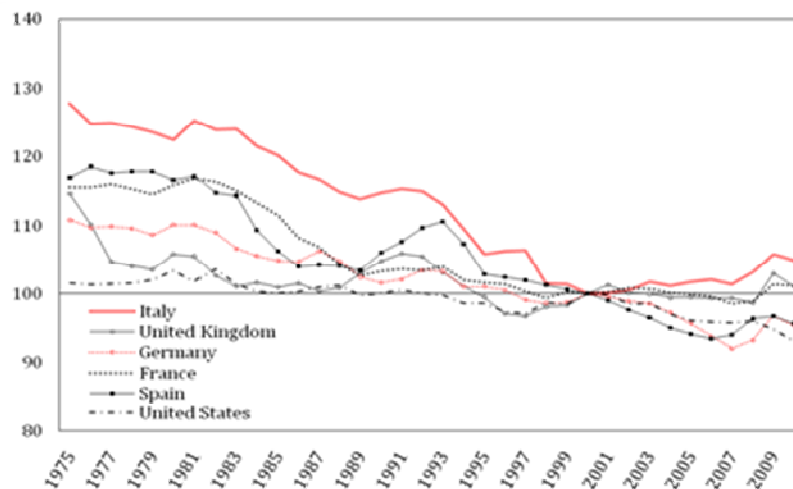
Studies on the prolonged decline of the Italian model of capitalism are aplenty. They attribute Italy's decline to the absence of productivity growth and innovation intrinsic in the product specialisation model in place and the size of Italian firms (Bugamelli 2001; Ciocca 2003; Faini 2004; Nardozi 2004; Pagano and Schivardi 2004; Toniolo, Visco et al. 2004; De Benedictis 2005; Faini and Gagliarducci 2005; Faini and Sapir 2005). Nonetheless, the decline of an economy, as heterogeneous and fragmented as Italy's, should not be deduced from aggregate variables alone. It therefore becomes increasingly important to build such claims on the basis of systematic disaggregated data and analysis. The following sections, juxtapose Italy's macroeconomic and microeconomic performances.



### 1.1.1 Prolonged aggregate decline

Over the last fifteen years Italy's GDP growth rate has been lower than that of other major European economies and the US (OECDa 2010); as has been the growth rate of GDP per capita. Its labour productivity has fallen, whilst the level of GDP per hour worked in manufacturing has steadily increased in France, Germany, the US and the UK, this has not been the case for either Italy or Spain (OECDb 2010). Instead, since the mid-nineties labour productivity in Italy has reached a plateau and growth rates have approached zero. Statistics on the real unit labour cost reinforce the aggregate decline thesis. Again when compared to the major European economies and the US, Italy's real unit labour costs has steadily increased, up until 2006 (Figure I.1).

Figure I.1 Real Unit Labour Costs, Selected Countries



Source: Real unit labour costs: total economy (Ratio of compensation per employee to nominal GDP per person employed - QLCD) (AMECOa 2010)

Furthermore this numerical fall in productivity is traced back to softer indicators of a country's technological and innovative capacity. The number of Italian patents certified by the European Patent Office over the 1994-2005 period is significantly lower than the

European average (PATSTAT EPO Worldwide Statistical Database). Moreover, whereas in Italy only 74 patents are submitted to the EPO per million of inhabitants, 158 patents are submitted across Europe on average (Scellato 2006, based on 2002 statistics). Not surprisingly then, Italy only ranks twenty-sixth in the Global Creativity Index developed by Richard Florida and Irene Tinagli; an index which combines a number of measures which reinforce the innovative capacity of an economy (Florida 2005). Unfortunately Italy fares poorly with respect to many of these factors and one in particular: education.

The OECD PISA 2006 report indicates that the quality of primary education in Italy is below average and has worsened since the beginning of the survey in 2000. With respect to tertiary education, Italian universities have limited international prestige; Italian university students tend to abandon their studies prior completion in much higher numbers than in any other OECD country (OECD Education at a Glance, 2009). Italy also suffers from a significant brain drain of talents, due to the large outflow of highly skilled migrants, thus suggesting that the probability of future innovation is limited (Docquier and Marfouk ongoing).

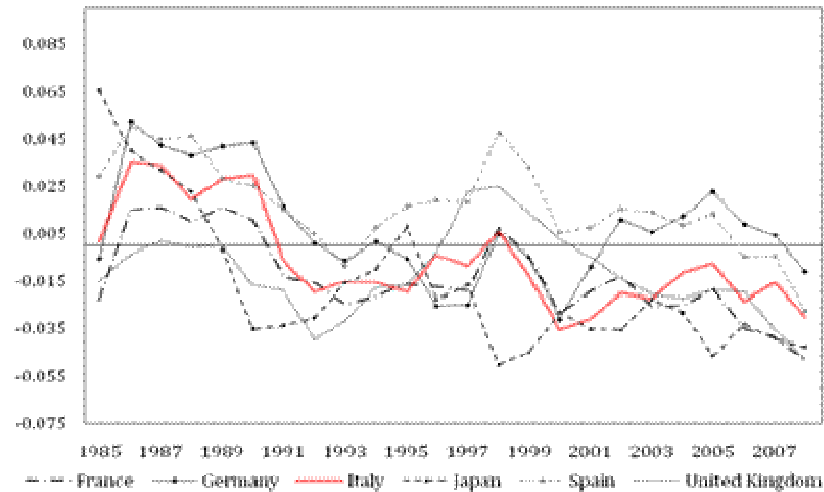
This loss in aggregate and technological competitiveness is mirrored by the steady decline in Italy's export market share<sup>5</sup> (Figure I.2), an indicator which "measures the degree of importance of a country within the total exports of the region/world" (OECD). The rise of manufacturing powerhouses in East Asia and India, has subjected all European exporting economies to increased competitive pressures. Consequently, Italy's export market share

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5 "The export market share is calculated by dividing the exports of the country by the total exports of the region/world (expressed as percentage in the database). The indicator measures the degree of importance of a country within the total exports of the region/world. For the calculation at current prices, the market share refers to the world trade (world export market share), while it refers to the OECD total for the calculation at constant prices (OECD export market share)" (<http://stats.oecd.org/Index.aspx?DataSetCode=TRADEINDMACRO>). Therefore, current prices were used to try and factor into the data the Chindia effect.

has exhibited consistent negative growth rates since 1997; whereas this has not been the case for Spain and Germany (although both countries show a recent contraction).

Figure I.2 Export Market Share Growth Rates (5 year moving average)



*Source: OECD Macro Trade Indicators, Market share (goods and services). Current prices, current exchange rates*

Especially when compared to Spain and Germany's performance (Table I.1 shows absolute values in 1980 and 2008), Italy's decreased share is of particular concern given the large weight of the manufacturing sector on GDP and the contribution of manufacturing exports to GDP growth (AMECO(b) 20101). Moreover, although France has fared worse than Italy, in absolute terms its market share is still larger than Italy's (3.8% and 3.3% respectively in 2008, from 6.4% and 4.2% in 1980).

Many authors have emphasised that Italy's lost competitiveness and aggregate decline is grounded in the sectoral specialisation of Italian firms (Bugamelli 2001; Faini and Gagliarducci 2005; Faini and Sapir 2005). Whereas other major European economies have shifted their product specialisation to technologically competitive industries, Italy has

preserved its industrial specialisation in traditional sectors (Bugamelli 2001, where the empirical evidence concerns the 1988-1997 period; De Benedictis 2005, for the period 1970-1998). By so doing, its comparative advantage is being eroded as emerging economies' export shares in world trade increase faster in low rather than high technology sectors. In addition, Italy's trade specialisation is argued to be correlated with the size composition of Italian firms.

Table I.2 shows that when broken down by sector, only a small percentage of firms are as large as the EU15 average (for each given sector). The smaller size is argued to limit the ability of firms to invest in research and development, their capacity to move into high-technology industries, and thus Italy's ability to shield itself from the competitive pressures of low cost producers (Pagano and Schivardi 2004; Faini and Sapir 2005).

Table I.1 Export Market Share and Growth Rates (5 year moving average)

	1980	2008
France	6.43	3.81
Germany	8.23	8.72
<b>Italy</b>	<b>4.28</b>	<b>3.35</b>
Japan	6.40	4.32
Spain	1.46	2.14
United Kingdom	6.51	3.92
United States	12.41	9.23

*Source: OECD Macro Trade Indicators, Market share (goods and services). Current prices, current exchange rates*

Trade specialisation and the size composition of firms are identified as the main contributors to Italy's macroeconomic decline. In order to establish whether this explanation is accurate, this thesis performs a disaggregated analysis of Italy's trade performance over time to assess whether the international competitive advantage of Italian firms has been eroded as well. The notions of across-product and within-product

specialisation<sup>6</sup> are used to establish whether Italy's productive structure is as susceptible to the competitive pressures of low-cost manufacturers as suggested.

Table I.2 Firm size as a percentage of the average EU-15 firm size per sector<sup>7</sup>

	EU15	Germany	Spain	France	Italy	UK
Real estate	81.66	0.76	0.37	0.91		
Wood	103.96	1.90	0.34	0.68	0.21	0.93
Leather/Footwear	105.10	0.48		2.05	0.51	2.21
Construction	106.72	1.23	1.06	1.32	0.38	0.86
Textile	175.35	1.86	0.65	0.95	0.48	1.96
Hotel/Restaurants	182.68	0.83	0.33	0.84	0.43	3.56
Other services	204.85	1.40	1.22	0.72	0.68	1.38
Private services	254.28	1.14	0.63	1.40	0.30	1.23
Paper	300.65	1.57	0.51	0.72	0.60	0.97
Metal products	305.03	1.55	0.59	1.05	0.48	0.90
Non-metal goods	319.66	1.84	0.50	1.35	0.44	1.38
Food man.	338.66	0.91	0.58	0.84	0.75	2.46
Retail	343.04	1.35	0.44	0.76	0.16	2.91
Transport	347.03	1.57	0.60	1.32	0.70	1.35
Plastics	394.55	1.65	0.77	1.29	0.44	0.72
Mechanical goods	406.08	1.33	0.56	1.44	0.94	0.92
Other man.	532.43	2.00	0.11	0.31	0.09	0.30
Chemicals	728.99	1.72	0.43	0.87	0.70	1.07
Electrical goods	780.51	1.49	0.46	0.79	0.52	0.62
Financial activities	1163.84	0.94	1.15	1.03		1.55
Petrol	1196.54	1.40		1.15	0.87	
Transport equip.t	1742.63	1.93	0.67	1.14	0.88	0.72
Total	336.33	1.58	0.58	0.98	0.42	1.58

Source: (Pagano and Schivardi 2004)

The following section thus explains the empirics which ground the theoretical puzzle. It shows that statements of a prolonged deterioration in Italy's international trade position

<sup>6</sup> The notion of across-product specialisation captures the extent to which a country is specialised in the production of, for example, apparel versus machinery; the notion of within-product specialisation instead captures the extent to which countries are specialised in the production of more or less technologically advanced varieties of a good - analog versus high-definition television, for example (Schott 2004 : 649). In essence, within-product specialisation suggests that whereas Italy and China may produce goods pertaining to the same product category, the quality of such goods may be significantly varied, thus creating different demand and commanding different prices. Italian firms may indeed be competing in the same industry as low cost manufacturers, yet the different product quality of the goods produced enables Italian firms to assert and hold a comparative trade advantage for that good.

<sup>7</sup> The table is constructed in such a way that a value equal to one implies that the average of employees per industry is the same as the EU15 average, a value below one implies that the country average is 0.x times smaller than the EU15 average.

are inaccurate. Though some product categories have lost a comparative advantage, others have preserved or developed one anew.

### *1.1.2 Measuring success*

#### *Indicators of comparative advantage and quality production*

This thesis performs a closer investigation of trade flows in order to better understand the details of Italy's performance. This is done through a study of product trade flows of those countries<sup>8</sup> for which the OECD's ITCS (International Trade and Commodity Statistics) database reports data. The results of this exercise reveal that examples of successful export performance exist in Italy, where success is determined by the value of the revealed symmetric comparative advantage (RSCA) indicator.

The trade data used is derived from the OECD International Trade and Commodity Statistics (Revision 2 and 3) dataset which includes trade (value and volume) data for all manufactured goods. The data is disaggregated at the three- and four-digit level of the SITC international product classification system. Though these are not the finest levels of disaggregation possible, they have been chosen as the five-digit level of disaggregation does not allow a matching between product category, actual firm and industry. On the basis of this data each good's revealed comparative advantage<sup>9</sup> is computed, and reduced to its symmetric form (RCA and RSCA respectively). Since the RCA ranges between  $0 : \infty$ , it is difficult to interpret. In order to overcome this problem, the indicator is forced to range

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<sup>8</sup> See Appendix 1 for details on country selection criteria and data availability.

<sup>9</sup> See Appendix 2 for details on how the Revealed Comparative Advantage is calculated.

between -1 : 1, thus allowing for a common benchmark to be drawn across all product categories analysed<sup>10</sup> (Laursen 1998 : 1).

The RSCA (and RCA) indicator contains a comparison between national export structures with those of the selected basket of countries against which we evaluate a specific country's performance and it represents a measure of international specialisation. The indicator is constructed by weighting each country's sectoral market share by the inverse of the weight of each country in foreign trade. By construction, the RCA (RSCA) indicator and the sectoral market share of each country are positively correlated. The indicator has been constructed with export data only whereas other versions of the indicator use the absolute sum of exports and imports. This is based on the idea that when comparing two (or more) countries' international competitiveness, the thesis wants to establish how many goods Italian firms sell abroad, independently of domestic consumption (Balassa 1965).

As mentioned, the RSCA indicator ranges between -1 : 1. The closer the indicator is to one the greater the advantage for a given good. Although, a RSCA value greater than zero shows that a country has a comparative advantage, the literature which has employed this indicator to identify successful export categories has converged to using 0.5 as a benchmark for export success (Allen 2005; Amador, Cabral et al. 2007). Resort to this indicator for investigations on the (un-)competitive position of a country is common because of the statistical wealth of data on traded goods, its fine disaggregation, and international comparability (de Nardis and Trau` 1999). Manufacturing data on

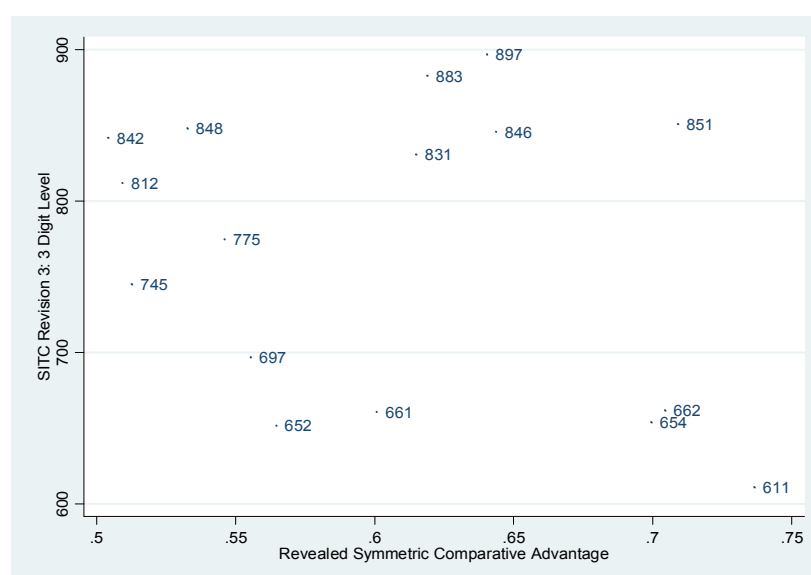
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<sup>10</sup> In the literature there is some disagreement to which extent the RCA/RSCA can be used for cross-country comparison [De Benedictis, L. and M. Tamberi (2004). "Overall Specialization Empirics: Techniques and Applications." *Open Economies Review* **15**: 323-346. Hoen, A. R. and J. Oosterhaven (2006). "On the measurement of comparative advantage." *Annals of Regional Science* **40**: 677-691.].

domestically traded goods is unfortunately less developed, less disintegrated and less accurate.

The indicator therefore allows the identification of product classes in which Italian firms (or any of the twenty nine countries analysed) hold a comparative advantage and is computed for all available data observations (1988-2008). In what follows the analysis of the indicator for the year 2003 is presented, as this represents the latest data point where complete trade statistics, expressed in value and quantity measures, are available<sup>11</sup>.

Figure I.3 Product categories where the RSCA is greater than 0.5 (2003)



Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

Figure I.3 outlines which product categories have been successful: namely, the product categories for which the RSCA indicator held values greater than 0.5 in 2003 (for Italy these were 16 out of 170 categories, i.e. 9 per cent of total export categories and accounted for 19.7 per cent of total Italian exports - measured in value terms). Although the RSCA provides a clear picture of which industries exhibit a revealed comparative advantage,

<sup>11</sup> Subsequent to 2003, volume data observations are incomplete.



based on this indicator it is impossible to infer how this successful performance has been achieved: whether via a low cost or high quality product market strategy. Hence, to understand and evaluate the product market strategy that characterise these goods, an analysis of relative unit values is performed.

The relative unit value is a price-based indicator which under given conditions can act as a raw proxy for quality (Aiginger 1997; de Nardis and Trau` 1999; Aiginger 2000; de Nardis and Pensa 2004; Herrmann 2005; Hancké and Herrmann 2007; Hallack and Schott 2008). An analysis of unit values is just one of the available methodologies used to assess the validity of the quality ladder hypothesis (Grossman and Helpman 1991). This concept, which has been further clarified by the notions of across-industry and within-industry product differentiation, suggests that production not only differs in terms of the range of goods manufactured but also in terms of the quality and technological distance between goods of the same family class (Hallack and Schott 2008). Countries not only specialise across products but also within product classes (Schott 2004 : 2); thus, the same good can be classified as high vs. low quality according to what position it occupies in the vertical quality ladder.

Unit values (UV) can be used to distinguish a market where price competition is more important than non-price competition as they measure how much output results from one input factor. The unit value (UV) of an exported commodity is the quotient of its value divided into a quantity measure - e.g. kilograms (Aiginger 1997: 571). If the value added of the final good is low, and the output unit (final good) closely resembles the input unit (intermediate good or material factor of production), then the UV is a close proxy of the good's cost of production. If instead the dimensions and features of the input and the

output vary substantially, the UV is not a good proxy for its cost, rather of the added value which fed into such good's production process (the "quality" component).

Determining, beyond the single case, when a UV can be used to discriminate a quality-competitive from a price-competitive market is a matter of debate, and a number of solutions have been suggested (Aiginger 1997; de Nardis and Trau` 1999; Aiginger 2000; de Nardis and Pensa 2004; Herrmann 2005; Hancké and Herrmann 2007; Hallack and Schott 2008). Aiginger (1997) first selects the product categories with a positive difference between exports and imports both in terms of quantity and value measures: therefore establishing in which industries a country exhibits a comparative advantage. Then, going backwards, he questions whether this advantage results from positive or negative unit values.

The underlying assumption is that if an economy sells its products at higher unit values and, nevertheless, enjoys an export surplus, such good is quality elastic; alternatively, the product is price elastic. If country "i" is a net exporter in quantity despite the higher unit value of its exported good, it can be argued that the higher  $UV_i$  is commanded by a higher quality. This idea is captured by the following relationships observed between unit values and trade quantities, where 'exp' stands for exports, 'imp' for imports and 'Q' for quantities.

$$[UV_{exp} > UV_{imp} ; Q_{exp} > Q_{imp}] \quad (1)$$

$$[UV_{exp} < UV_{imp} ; Q_{exp} > Q_{imp}] \quad (2)$$

When equation (1) holds then the products which exhibit such relation belong to quality-dominated markets; if instead equation (2) holds, they belong to price-elastic markets (Aiginger 1997: 576). Comparing the UV of a product category across the countries of reference allows us to establish in which countries the quality of such good commands a

higher price<sup>12</sup>. Consequently, this thesis uses a variant of Aiginger's (1997) suggested methodology. In order to gauge the difference between country "i"'s unit value of good "j" from the world's, each goods' relative unit value is calculated<sup>13</sup>. Applying Aiginger's rationale, each good's revealed symmetric comparative advantage, which captures whether a good benefits from a trade advantage or not, is mapped with the respective relative unit value, for the most recent data point, 2003. It should be noted that the RUV indicator has been made symmetric as well for reasons of comparability and ranges between -1 and 1: thus RSUV. This mapping results in a two-by-two matrix which discloses four states of the world. These states pin-point the four possible case scenarios resulting from the successful or unsuccessful pursuit of a quality or price competitive product market strategy. Scenarios one and three capture unsuccessful firms; scenarios 2 and 4 capture successful firms (Table I.3).

Table I.3 Firm performance defined by product market strategy

	Negative RSCA	Positive RSCA
Positive RSUV	1. Structural problem product	2. Successful quality competition product
Negative RSUV	3. Deficit in price competition product	4. Successful price competition product

Source: Own classification based on (Aiginger 1997 : 571-592)

<sup>12</sup> Many have implicitly assumed that unit values are a reliable signal and indicator of endowment-driven vertical-differentiation [Schott, P. (2005). "The Relative Sophistication of Chinese Exports." *Working Paper Yale School of Management and NBER*. This indicator has been used in analogous forms and combinations by the literature de Nardis, S. and F. Trau` (1999). "Specializzazione settoriale e qualità dei prodotti: misure della pressione competitiva dell'industria italiana." *Rivista italiana degli economisti* 2(Agosto): 177-212 ]. It has also been criticised on grounds of inaccuracy and spuriousness [Schott, P. (2005). "The Relative Sophistication of Chinese Exports." *Working Paper Yale School of Management and NBER*, Silver, M. (2007). *Do unit value export, import and terms of trade indices represent or misrepresent price indices?* *IMF Working Paper WP/07/121*, IMF, Hallack, J. C. and P. Schott (2008). "Estimating cross-country differences in product quality." *NBER Working Paper Series Working Paper 13807*.] Despite the ongoing debate, it has been demonstrated that "within-product variation in export unit value is positively associated with exporter skill and capital abundance" [Schott, P. (2005). "The Relative Sophistication of Chinese Exports." *Working Paper Yale School of Management and NBER*.] – and thus that this exercise is a valid one. Issues of inaccuracy and spuriousness are therefore disregarded.

<sup>13</sup> Relative unit values (RUV) have been computed by means of value and volume data [Herrmann, A. (2005). "Converging Divergence: How Competitive Advantages Condition Institutional Change under EMU." *Journal of Common Market Studies* 43(2): 287-310]. Since weighting the RUV amplifies the indicator, RUV have not been weighted but only rendered symmetrical in order to ensure the comparability with the RSCA indicator - this has been done by standardising the RUV as follows:  $RUV - 1 / RUV + 1$ .

For Italy, the product categories in which firms are successful exporters of quality competitive goods are identified through appropriate benchmarks: (i) an RSCA indicator greater than 0.5 is used to identify a good with an export advantage; (ii) a positive RSUV suggests that the unit value of country “i” is higher than the unit value of the world. Subsequently, a good’s product market strategy is identified by comparing the value of the relative symmetric unit value and that of the revealed symmetric comparative advantage indicator. This exercise enables a clear identification of which product categories hold a revealed comparative advantage vis-à-vis other OECD countries. In itself, this suggests that arguments predicting the absolute decline of the Italian economy may be unfounded.

Figure I.4 Tway scatter: RSCA and RSUV (2003)



Source: Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

Moreover, when mapped against a proxy for quality (Figure I.4), the combination of these indicators (RSCA and RSUV) suggests that the majority of industries which have maintained or developed a comparative advantage have done so by producing goods characterised by a higher quality (as also suggested by Herrmann 2008a; Herrmann 2008b). These are the goods located in the north-western quadrant of the Figure I.4. The question addressed by this thesis attempts to understand where these firms have found

the resources (strategic, financial and institutional) to succeed in such markets. Before doing so, the next section discusses the theoretical context the question touches upon, and the predictions that have been put forward by the literature regarding the link between firms, product market strategies, and institutions.

## **1.2 Explaining firm-level performance through the institutional lens**

'Old' and 'new' trade theory argue that the variation in export trends of a good is functional to producer's endowments; a country's (in our case a firm's) ability to export increased volumes of a good is linked to its capacity to do so at prices lower than those set by its market competitors (Schott 2003: 2-9). Accordingly, Carlin et al. suggest that the trend towards globalisation and the associate increase in international competition suggest a heightened sensitivity of exports to costs (Carlin, Glyn et al. 2001)<sup>14</sup>.

Moreover, cost-based theories of international competitiveness argue that the competitiveness of a particular market segment depends on the exporting country's (i) technology, (ii) wage and (iii) bilateral trade costs (Baldwin and Harrigan 2007: 3). Whereas the introduction of the European Single Market and the gradual removal of barriers to trade implied that bilateral trade costs impacted European firms homogenously; relative unit labour costs in Italy are high in international comparison (Graph 1.2). This suggests that the ability of Italian firms to hold a comparative trade advantage for certain goods is not grounded on price competitiveness – at least not at an aggregate level. On the other hand, institutional analysis offers plausible explanatory avenues for the competitiveness of Italian firms. In this section, such analyses are

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<sup>14</sup> The authors perform an empirical analysis of whether costs or technology better account for a country's changes in market shares in an industry; thus finding evidence for the importance of costs as well as of product specialisation.

reviewed and arranged in three different families according to the geographical focus of analysis: local, national or international.

### *1.2.1 Flexible specialisation in the industrial district literature: the local perspective*

The concept of industrial districts was first developed as an interpretative tool to explain the relationship between firms and institutions in the central and north-eastern areas of Italy (Piore and Sabel 1984; Becattini 1987). Spatially concentrated small firms attracted the attention of researchers because of the high values of exports displayed relative to the rest of the country<sup>15</sup> (Bagnasco 1977; Bagnasco, Messori et al. 1978; Trigilia 1997; Whitford 2001). Furthermore, the mode of production observed stood at the opposite end of mass production. Flexible specialisation is defined as:

“a strategy of permanent innovation [...] based on flexible – multi-use – equipment; skilled workers; and the creation – through politics – of an industrial community [...]” (Piore and Sabel 1984 : 17).

Industrial districts are the locus where flexible specialisation takes place. They are defined as “socio-territorial entit[ies] characterised by the active presence of both a community of people and a population of firms in one naturally and historically bounded area” (Becattini 1990 : 39). Terms such as clusters or networks thus fail to capture the sociological interaction and relational density of districts, which are instead a particular category of clusters or networks where relations of trust and informal institutions govern interactions between small firms (Porter and Ketels 2009).

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<sup>15</sup> The model of industrial development typical of Italy’s north-western areas in the seventies closely resembled a Fordist, mass productive system; yet the economic performance of these industrial areas worsened since the heated workers’ contestations of the late sixties.

Districts endow firms with the strategic capabilities to produce, high quality, light manufacturing goods directed at national and international markets (Sabel and Zeitlin 1985). The institutional underpinnings which ground districts include: employers, artisan and workers associations, local technical schools, credit cooperatives, networks of local banks, and development agencies (Whitford 2001). Local vocational training schools and research centres contribute to the creation of a pool of skilled workers (Leonardi, Nanetti et al. 1991; Dei Ottati 1994). Cooperatives and local banks, and the figure of the *impannatore*<sup>16</sup>, are crucial in overcoming information asymmetries between small firms and lending institutions (Dei Ottati 1994). Strong trade associations are crucial to developing the necessary resources to compete in international markets. The local state brokers compromises between the players of the local economy (Trigilia 1986; Trigilia 1990; Whitford 2001). Precondition to the development of these institutions are thickly tied communities of people and firms (Becattini 1990 : 39).

Yet, the industrial district concept is no longer as useful to explain the performance of Italian firms today. In fact the dimensional structure of firms in industrial districts has changed and become more heterogeneous (Rinaldi 2002): numerous studies have shown that firms in better performing districts have grown in size (Foresti and Trenti 2007; Guelpa and Micelli 2007). Specific studies on Emilia Romagna show that small firms diminished in numbers, take-overs and mergers increased throughout the nineties and the role of large, networked-firms, increased (Farrell and Holten 2001; Rinaldi 2002). Moreover, Brusco's interpretation of Emilia Romagna's success, for example, relies heavily on the role played by the Communist party (PCI) as a public mediator and formulator of industrial policy; yet this changed substantially in the nineties as the PCI was first replaced

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<sup>16</sup> Various interpretations are associated to the term *impannatore*. They have been referred to as middlemen, as subcontracting coordinators, and as entrepreneurs [Lazzeretti, L., L. De Propris, et al. (2004). "Impannatori and business angels: two models of informal capital provision." *International Journal of Urban and Regional Research* **28**: 839-854.].

by the PDS and then the DS (the Democrats of the Left), which allocated the responsibility over industrial policy to business associations. Therefore the role of public actors changed even in those territories which were representative of prototypical industrial districts. Finally, the territorial and cultural boundaries, which sustain the social homogeneity of industrial district systems, are less defined (for example see Dei Ottati 2009 on recent developments in Prato). What has recently emerged is an altogether different organisation of production than that outlined by a purist reading of the industrial district literature. Such literature is thus less well placed to explain how some Italian firms are successfully competing in international markets today.

#### *German social systems of production*

Akin to the industrial district literature are the studies of Streeck and Herrigel on the competitive advantage of firms located in Baden Württemberg. For Streeck, the production of a high quality machine tool is best described by the notion of diversified quality production (DQP): “Customised and diversified high quality products which respond to non-mass markets in which competition is not only over the price of basically homogenous goods but over product quality and the degree to which products meet the special needs of individual customers” (Sorge and Streeck 1988 : 29). DQP relies on a number of institutional preconditions: (i) a congenial organisational ecology, (ii) the presence of redundant capacities, and (iii) the rich supply of collective productive inputs. Moreover these conditions develop only when an economic system “is at the same time a society” (Streeck 1991 : 24). A congenial organisational ecology exists when producers prosper in the presence of other, equally competent producers of the same kind, with whom symmetrical (non-hierarchical), trust-based alliances are struck (Streeck 1991 : 34; Herrigel 1993 : 20). This ecology must be rich with redundant capacities and governed in



such a way to allow for the supply of collective productive inputs. Markets and hierarchies are not equipped to solve the collective action problems: therefore stable institutional constraints are set up in order to govern such establishment.

Herrigel adds one further condition to the above: the practice of socialising risk across public and private organisations (Herrigel 1993, 17). In Baden Württemberg, small and specialised firms do not tolerate “the entire burden of developing new technologies, finding new markets, training skilled engineers and workers, raising capital [...] many of the costs of specialisation are shared by or embedded in a deep network of organisations in the political economy” (Herrigel 1993 : 17). The institutions which Herrigel identifies as conducive to this are: (i) educational institutions, universities, Fachhochschule, and Berufsschule; (ii) trade associations and chambers of commerce (VDMA and ZVEI); (iii) regional banks which facilitated the flow of credit to local firms; and (iv) regional governments.

Yet whilst Italy is indeed an institutionally rich society, it is far from the Weberian pure type which Streeck identified in West Germany; institutions appear to misfit each other and institutional variety is apparent at all institutional levels (Molina and Rhodes 2007). In Italy congenial ecologies do exist, yet even within classical local production systems (Prato, Biella, Bologna, Vicenza) relationships across firms are no longer symmetrical and non-hierarchical. The institutional obligations set up for the production and reproduction of redundant capabilities are not present at a national nor a sub-national level: there is no obligation to train workers, to join an employer organisation, to abide by common product standards, to share technology and know-how; nor institutional mechanisms which promote social peace and trust inside the firm - as the practice of German co-determination would instead. The governance mechanisms of the system differ as well and

are far less formalised and stable (Chapter 6). The practice of risk socialisation which Herrigel identified in the Baden Wurttemberg region is limitedly reproduced in Italy within firms which employ more than 15 employees (Chapter 2). It therefore appears that the local institutional preconditions which allow firms to compete in export markets or to produce diversified quality products, as identified by the industrial district literature and Streeck et al., do not exist in Italy today.

### *1.2.2 Product market strategies in Varieties of Capitalism: the national perspective*

Building on the findings of the literature on production regimes, industrial orders and innovation systems (Sorge and Streeck 1988; Streeck 1991; Streeck 1992; Herrigel 1996; Hollingsworth and Boyer 1997; Aoki 2001), Varieties of Capitalism has clarified the necessary national level institutional preconditions underlying the production of diversified quality competitive goods (Hall and Soskice 2001).

Three input factors are deemed necessary for firms to produce quality competitive goods (Herrmann 2008a): a workforce endowed with (firm-specific and) industry-transferable skills, long-term patient capital, and coordinated institutions for standard setting. These factors are conditional on the existence of an institutional framework which allows firms to overcome the collective action problems involved in generating such input factors. Within this framework, institutions interact in order to create the stable conditions for firms' production to take place. When positive synergies derive from this interaction of institutions, then institutions are described as complementary (Hall and Soskice 2001). Institutional frameworks offer firms both incentives and constraints (Soskice 1999). Social policy regimes and industrial relations institutions in synergy support the

production of specific skills (Hall and Soskice 2001). Corporate governance regimes and financial systems interact in order to create the appropriate incentives to invest in long term relations aimed at the development of incrementally innovative products (Vitols 2001). Inter-firm relations and corporate law systems interact in order to ensure the necessary compliance to standards of production (Casper 2001 : 404-407; Hall and Soskice 2001; Tate 2001; Teubner 2001 : 403).

Further details on the characteristics of a Varieties of Capitalism institutional framework which allows the production of high quality goods will be discussed in Chapter 2. Here it is sufficient to say that all firms in Italy do not have access to the input factors deemed necessary. Actually access to these factors varies with the size of firms. For this reason, the Varieties of Capitalism literature understands Italy as a deviant case, incapable of producing high/diversified quality goods. This theoretical structure is therefore not capable of explaining the success of some Italian export oriented firms.

### *1.2.3 Offsetting detrimental institutional settings: the international perspective*

Aside from those few pure national systems identified by the Varieties of Capitalism literature, firms are very often confronted with institutional settings which are detrimental to the productive strategy pursued. On a case by case approach, a new research stream is developing on the solutions developed by firms to pursue a specific product market strategy when faced with non-supporting institutional settings.

Most of this literature is born out of the attempts of biotech firms to establish themselves in Germany (Lerner and Gompers 2001; Herrmann 2005; Herrmann 2008b; Lange 2009).

This research claims that detrimental institutional settings can be offset by companies who tap into foreign business systems (Lange 2009 : 189). Empirical evidence of this hypothesis is found in the development of an international market for venture capital to attract investors willing to fund radical innovation in Germany (Lerner and Gompers 2001). Tapping into foreign business systems also takes the form of Italian and German pharmaceutical firms employing international workers because of their different skill set and employment flexibility (Herrmann 2008a). Although this literature is concerned with one specific industry characterised by radical innovation, its intuitions may be stretched and re-employed elsewhere. Yet, an international market for venture capital has not developed in Italy (AIFI Italian Private Equity and Venture Capital Association, 2007). Additionally, importation (Herrmann 2008b) of senior managers within Italian companies has not taken place, neither within SMEs nor in companies employing more than fifty employees. Recent research has shown that non-national managers in a sample of Italian firms are less than 2 per cent, only 4 per cent in Italian multinational companies; moreover hiring takes place through non-market relational channels (Bandiera, Guiso et al. 2008).

In addition, if Italian firms were pursuing the liberal market path more decisively more cases of production off-shoring should be observed. A move towards delocalisation was acknowledged in the early nineties (Camuffo, Gerli et al. 2004; Coro`, Tattara et al. 2006), driven by the search for cheaper labour inputs. This move had three unexpected consequences. In certain cases the relocation was reversed because of the unexpected control and monitoring costs involved: notable is Diesel's – a denim-wear producer – declaration of returning all production to Italy in 2005 and transferring a large part of the

previously internationalised manufactures to the south of the country<sup>17</sup> (Unknown 2005). In some cases, firms realised that outsourcing increased the risk of nurturing future competitors (Alberti 2006 : 492). Lastly, in some cases, whilst internationalising and moving to Eastern Europe, Italian companies reproduced the domestic set of institutions they had left behind (Camuffo, Gerli et al. 2004), as had been the case in Timisoara, Romania. This suggests that there was something worth preserving about these prima facie detrimental institutions. It therefore appears that although Italian firms are set in a dysfunctional institutional setting, they have not escaped it systematically through an international route.

#### *1.2.4 The research question*

These three perspectives cannot explain in what way Italian firms produce high quality goods and, by so doing, preserve or develop revealed comparative advantages in given industries. The local perspective is no longer up to date because the boundaries and features of industrial districts and local economies have been transformed. The national perspective does not capture Italy's institutional heterogeneity: since this perspective accounts for the behaviour of firms located in pure ideal types, and everything else is not observed. The prediction of this literature is: "if not our way, then no way", therefore leaving much else unexplained. Lastly, although the international perspective is promising, it has yet to engage explicitly with other industries beside pharmaceuticals and biotech. In this sense, it still has not addressed the question of how firms can engage in any product

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<sup>17</sup> Currently in 2010, this production has once more returned to Bassano: Diesel's main production site and headquarter location. This move is justified on the need to cut production, given the demand slow-down of the past years; yet, the implied skill level of Sicilian suppliers may allow the hypothesis that capital-skill asset mismatch has grounded such a move (see Ch.2 for a definition of capital skill asset mismatch).

market strategy other than one characterised by radical innovation (with the possible exception of Herrmann 2008a).

Nonetheless, the evidence presented in the above sections (1.1) must be explained. Some firms have exported sufficiently high value and volume of goods such that Italian industry has maintained a revealed comparative advantage in some product categories. In addition, this trade performance appears to be associated with the production of high quality goods. Whereas the use of unit values can be criticised on some ground, the fact that all studies employing such statistics contend that Italian goods are quality superior to those produced by competitors, implies that the method is robust. The question is therefore set: how can Italian firms produce high quality goods in the absence of the necessary institutional framework to do so? How can small firms access the necessary patient capital which allows for incremental innovation? And where do larger firms find a pool of workers endowed with industry specific skills required for the production of high quality goods?

A myriad of Italian firms have developed the necessary mechanisms to overcome such constraints, yet the literature's explanations are not persuasive. This thesis therefore investigates this question as its object of analysis. It wants to identify which mechanisms have allowed Italian firms to overcome the institutional constraints which they are faced with. In the next section, the methodological approach employed to investigate such mechanisms is discussed. Whilst the case studies have been identified via quantitative analysis, qualitative analysis has been used in order to establish how firm behaviour has developed in light of the institutional constraints faced.

## **1.3 Methodology**

### *1.3.1 Case selection on the dependant variable: successful and unsuccessful industries*

The objective of the thesis is to explain how an Italian firm is capable of exporting high quality goods without the necessary institutional support to do so. The case studies investigated are derived from the mapping of high trade and quality performance values per each product class. Whilst this mapping is impossible at a firm level, it is possible instead at the industry level, where an industry is defined by the product manufactured in it. The cases selected call for an explanation in the face of a non-exhaustive literature. These are industries where Italian firms export proportionately more goods than their competitors in terms of the RSCA indicator and sectoral market share. These industries represent the dependant variable which is explained by this thesis.

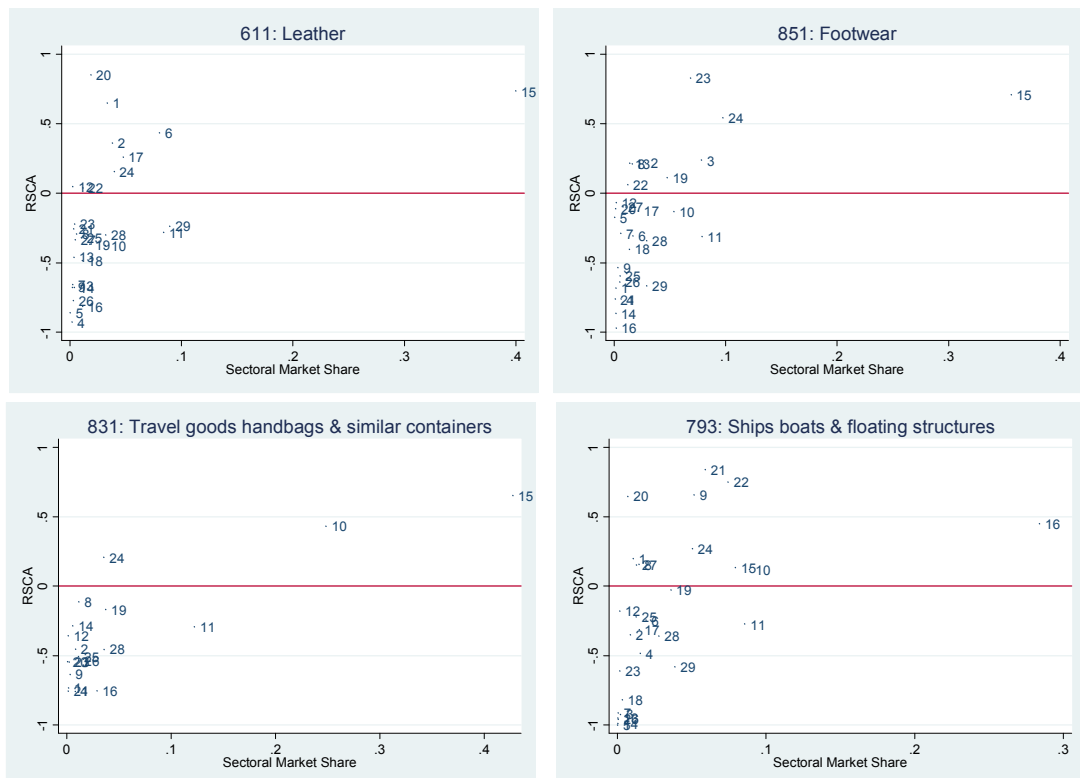
In order to understand which mechanisms have been developed by Italian firms to overcome the institutional constraints encountered three case studies have been selected on the dependant variable. One industry has been selected because the values of the trade and quality indicators have systematically been high throughout the industry's development; one where higher export and quality values have only recently emerged; and one industry, the counterfactual, where a past successful trade performance has been foregone. The three case studies allow extrapolating the conditions necessary for firms to solve the institutional problems encountered when producing high quality goods. The analysis of increasingly disaggregated data (see Appendix 3 for details) confirms that industry segments exist in Italy where a revealed comparative trade advantage derives from the pursuit of a high quality product market strategy. Moreover, three industries are identified showing a stationary, an improving and a deteriorating trend (Table I.4).

Table I.4 Industry selection based on RSCA and RSUV performance

	Yesterday	Today
Textile, Footwear and Leather	+	+
Yacht-building	-	+
Office equipment /Computer	+	-

The first case study selected thus concerns subcategories of the textile, leather good (handbag), footwear and apparel industry. Although the textile industry as a whole has worsened its performance over the last decade, some segments of the industry have instead shown stationarity or improvements in the RSCA indicator. These subsections are listed in Appendix 3 and today make up for 93 per cent of total clothing accessories, 67 per cent of total hand bags, 20 per cent of total footwear and of total leather exported from Italy (OECD ITCS 2010).

Figure I.5 Twoway scatter: RSCA and Sectoral Market Share (2003), various industries



Source: OECD International Trade and Commodity Statistics 2010, Own Calculations



The second case study selected is a subsegment of the “Ships, boats and floating structures” industry, the yacht building industry, which makes up for 52 per cent of total Italian trade in ships (OECD ITCS 2010). This industry is a subsection of the shipbuilding industry; it covers firms producing vessels for pleasure and sport, specifically luxury yachts. The successful trade performance of these industries is further shown in Figure I.5, where the RSCA and sectoral market share for individual product categories are mapped by country (Italy = 15, Germany = 11, France = 10). The third case study is the counterfactual: the industry selected is the computer industry, in its current and early stages captured by the product category “office equipment machines”. “751 Office machines” captures an industry which exported high quality goods in the past but that failed to perform as successfully in recent years.

### *1.3.2 Interview methodology*

Having selected three industries, the most successful firms in each industry are identified via a two-step strategy. Firstly, the names of all firms, per industry, are extrapolated from the ORBIS database<sup>18</sup>. ORBIS offers detailed company level information including financials and activity specialisation on worldwide public and private companies. The latest accessible version of the database, October 2009, contains detailed current and partial historical information on over 40 million companies worldwide. In order to compare the international standing of Italian firms vis-à-vis global competitors, financials on all reported firms for Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom,

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<sup>18</sup> It would have been best to confront this list with the Unioncamere’s Movimprese database, which is a yearly revised database of firm birth and mortality produced by Italy’s central Chamber of Commerce, Unioncamere. Unfortunately this database is not free of charge. Firms registered with the Chamber can access information on other firms at a price. For non members a much higher price is charged per each firm selected, therefore not allowing statistical analysis on this database to be performed.

the United States, Japan, China and Korea were extrapolated from the database. This data was then classified according to NACE's (Rev.2, three digit level) economic activity classification system; ninety-one manufacturing activities were selected, and 3,145,327 firms considered in total, 5% of which are Italian owned (167,315). Amongst this list, the names of Italian firms which ranked in the upper quintile were extrapolated. This list was presented to industry experts who both identified a number of inaccuracies with the database and, more importantly, pointed out which firms had in their opinion been key players in the industry's restructuring. The industry experts who have provided this information were both regional and local trade union representatives (mostly from the CGIL), members of local employer associations, and local academic experts, who in Italy often mediate between firms and policymakers.

Personal semi-structured interviews were used to extrapolate information on how to approach firms and who best to contact within them. Not only, these expert interviews also informed a clear idea of what industry-level developments had taken place and the shape of the resulting productive system. Thirty-eight such interviews were conducted between January 2008 and April 2010. Officials from Monte dei Paschi di Siena, CariFirenze and Intesa San Paolo, three of Italy's most important monetary and financial institutions, were also interviewed (four in total) between January 2009 and February 2011. In addition, firm-level interviews were conducted whenever availability was offered by the interviewed firm. Eleven such interviews were conducted between January 2008 and April 2010. Lastly, original interview excerpts from a research project conducted by the Regione Piemonte were viewed, which included three industry-level and three firm-level interviews (Ferraresi and Michelsons 2007).

Firstly, interviewees were questioned on the organisational structure of production in place at the industry and firm-specific level. They were asked to describe whether the organisational structure in place was vertically integrated or disintegrated and whether this had changed over time. In the event that the structure was recognised as vertically disintegrated, questions were asked on how production functions were allocated within this disintegrated structure and to whom. Both industry level experts and firms were asked to comment on the role played by individual firms within this disintegrated structure, in particular with reference to the relationships between firms of similar and of different sizes. Secondly, industry level experts and firms were asked to explain the process of skill acquisition of the typical young worker entering the labour market. Industry level experts, firms and banks were questioned on the large/small firm-bank relationship, and on how this changed over time given the reform of Italy's financial sector. Finally, firm level, semi-structured, interviews were coupled with other methods of information gathering. Industry or topic specific publications by regional governments, employer associations and trade unions were consulted to confirm and deepen the insights suggested by interviewees. Consequently, whenever possible, reference to published documents and not to single interviewees has been made to duly substantiate the thesis' claims; where this was not possible, individual interviewees are cited. The research design has therefore relied on the triangulation of data collected from different sources: (1) firm-level semi-structured interviews; (2) publicly available statistics; (3) information on company websites; (4) industry experts such as trade unions, employer associations; (5) academic experts; (6) published industry or topic specific documents and reports.

#### **1.4 Plan of the thesis**

The thesis is organised in seven chapters: two introductory, three case studies, one theoretical and one concluding chapter. Whilst this introductory chapter has touched upon concepts such as institutional heterogeneity and dis-functionality, they still need to be operationalised and empirically accounted for. Therefore, Chapter 2 is spent explaining the empirical distance between a pure coordinated market economy and Italy. In this sense, it substantiates how different the institutional support which Italian export firms receive is from that received by German firms. Germany is used as the empirical benchmark of a typical coordinated market economy because it is still considered such, at least within the boundaries of its export oriented manufacturing sector (Eichhorst in Crouch, Streeck et al. 2005 : 566). Therefore Chapter 2 outlines how different Italy's institutional system is with specific reference to the vocational training and education system, the finance and corporate governance system, industrial relations and collective bargaining systems. Crucially, Chapter 2 also outlines the thesis' hypothesis contending that capital-skill asset pooling bridges differently institutionally endowed firms

Chapter 3 is the first of three empirical chapters. It discusses the industrial restructuring which has characterised Italy's footwear and leather good (handbag) industry. This industry has historically been identified as one of the pillars of the Italian economy. Despite the increased competition faced by poor and labour intensive countries, many firms have countered this competitive shock by investing in a strategy characterised by high quality production. This strategy has come about through the transformation of previous forms of industrial organisation into vertically disintegrated networks of production. This chapter explains, through three firm-level case studies, how leading firms within the industry have reorganised their productive processes. It then observes what

role lead and small firms play within this new disintegrated productive structure, and how interactions between small and large firms have changed over time.

Chapter 4 explains how the luxury yacht industry in Italy has become a global player. Over the past twenty years it has exhibited a trend at odds with the rest of the Italian industry, only comparable to one identified in the machine tool industry. The yacht industry has in fact grown in size, revenues and exports. In the seventies and early eighties the international trade performance displayed by yacht building firms was very poor. Yet today the RSCA indicator for the industry is positive ( $>0.55$ ). By studying three lead firms directly, the chapter investigates how the organisation of production has changed. By comparing these three successful firms to unsuccessful ones, it shows that capital-skill asset pooling between firms is crucial for this success.

Chapter 5 explains how and why Italy's performance in the computer industry deteriorated over time. Crucially, firms in this industry lost the comparative advantage accumulated in previous years. The chapter investigates the way in which the industry changed since its early years when office equipment manufacturers were producing electronic calculators, mainframes and minicomputers. The case study first explains that the mode of innovation and production in the industry is radically transformed by the introduction of micro-processor technology. Secondly it shows that the decline of the industry as a whole in Italy is linked to capital-skill asset mismatch, whereby the skills sought by lead firms are not provided by suppliers.

Having presented the empirical findings, Chapter 6 systematises the evidence by introducing the concept of disintegrated hierarchy. Disintegrated hierarchy best captures the organisation of production which has developed amongst Italy's export oriented firms;

it suggests that relations between firms are no longer symmetrical or horizontal, but are indeed verticalised and hierarchical. Disintegrated hierarchy allows for capital-skill asset pooling to develop in the absence of clear governance mechanisms.

Chapter 7 concludes the thesis by explaining in what way disintegrated hierarchy sets Italy apart from other Western European industrialised countries. It then presents extensions to the argument and lists the future research avenues that follow from this study. The chapter concludes that the correlation between institutional coherence and complementarity should be revisited in light of the empirical evidence offered by the study of Italian firms. It suggests that firm size is not irrelevant and that firm homogeneity has been wrongly assumed.

## II. ON DETRIMENTAL INSTITUTIONAL SETTINGS AND INTER-FIRM NETWORKS IN ITALY

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The Varieties of Capitalism literature claims that national institutional frameworks endow firms with a competitive and strategic advantage which leads to the development of national comparative advantages. This occurs when a country's institutional mix is coherent; where coherence is defined by the vicinity of institutions to one or the other mode of coordination (liberal or strategic), and the consistency of institutions across spheres (Kenworthy 2006 : 72). This implies that when institutions are governed by one mode of coordination, they are endowed with the capacity to deliver to firms, through complementarities, valuable institutional assets. Consequently, when institutions are coherently organised, they are conducive to successful economic outcomes (Hall and Soskice 2001; Hall and Gingerich 2009).

As has been shown in Section 1.1.1, Italy's economic performance over the last fifteen years has been far from successful. Growth and productivity rates have fallen. According to the above logic, the poor macroeconomic outcome logically implies that Italy's institutional framework is incoherent: composed of institutions which near neither mode of coordination, or both. Yet the earlier empirical discussion on Italian firms' export and product market performance suggests that this may not necessarily be the case. How can a product market strategy characterised by high or diversified quality production, commensurate with a coordinated market economy institutional structure, be possible if institutions are incoherent and simultaneously governed by market and strategic logics of coordination? The answer ought to be that Italy's institutional mix is not as incoherent and

instead produces some institutional complementarities which “exist where very different ‘logics’ operate in different institutional areas” (Amable in Crouch 2005 : 372).

This chapter has two objectives: first it clarifies to what extent Italy’s institutional framework departs from a typical coordinated market economy. Instead of classifying market economies based on the mode of coordination governing actors’ interactions, this chapter resorts to establishing whether Italy’s institutional mix is capable of generating the institutional preconditions conducive to high or diversified quality production, as outlined by the Hall and Soskice approach. In order to do so, statistics on the vocational and training, wage bargaining, social protection and industrial relations, finance and corporate governance system are presented. The empirical analysis concludes that not all Italian firms access the necessary input factors for high quality production: patient capital and industry-specific skills. Rather, access is a function of the size of the firm which results in a clear institutional cleavage between small and large firms.

Second, having established the existence of a large-small firm divide, the chapter addresses the question of how firms bypass the detrimental institutional settings they are confronted with. The thesis’ hypothesis contends that since Italy’s institutions produce the necessary input factors for high quality production but allocate them to firms by discriminating according to size, firms are expected to overcome this institutional constraint via the introduction of capital-skill asset pooling. By building formal and informal, strategic and market driven alliances with other firms, firms endowed with either of the two input factors (skills or capital) cooperate in the process of producing high-quality goods. By so doing, firms bridge the institutional divide which separates small from large firms. The hypothesis therefore contends that in order to produce high or diversified quality goods, Italian firms source the missing institutional factors from firms



serviced by other institutional conformations. Therefore, functional substitutes to a classical coordinated market economy framework develop within inter-firm networks, through the practice of capital-skill asset pooling.

The chapter proceeds as follows: section 2.1 briefly sets the stage for the analysis by presenting some descriptive statistics on the size composition and distribution of Italy's manufacturing sector. Section 2.2 proceeds with the empirical comparison between Italy and a coordinated market economy's institutional mix. For completeness' sake, descriptive statistics are also presented on a typical liberal market economy. This strengthens the reader's recognition that Italy is indeed neither a liberal nor a coordinated market economy. Section 2.3 presents the thesis' hypothesis; because it is grounded in the literature on industrial organisations, this literature is briefly recalled. Then, the chapter discusses in what ways this hypothesis departs from the Varieties of Capitalism literature specifically and the Models of Capitalism literature in general. The last section concludes and introduces the first empirical case study.

## **2.1 Size composition of the manufacturing sector in Italy**

The deindustrialisation thesis contends that advanced economies gradually progress from an industrial to a post-industrial state (Kaldor 1968). This thesis partially accounts for the reduced role of industry and manufacturing in explaining the growth paths of developed economies. Indeed the share of gross output produced by manufacturing and public services has changed: the former decreased whereas the latter increased. Yet this process has played out differently in each economy as this reduction has been less pronounced in Continental European economies: particularly Germany and Italy (Table II.1). In Germany

and Italy, total manufacturing has contributed to 35 and 32 per cent of total gross output respectively over the last decade.

Table II.1 Share of Gross Output by Industrial Sector, selected countries (percentages)

		1970-79	1980-89	1990-99	2000-07
Germany	Manufacturing	43	40	34	35
	Public Services	14	16	16	16
Italy	Manufacturing	41	39	34	32
	Public Services	12	13	14	14
France	Manufacturing	36	33	29	27
	Public Services	13	16	17	17
United States	Manufacturing		31	27	22
	Public Services		19	21	22
United Kingdom	Manufacturing	44	34	28	20
	Public Services	16	17	18	20

*Source: EU KLEMS 2009, Gross output at current basic prices (in millions of Euros)*

Manufacturing therefore appears to contribute differently to countries' economic development. In addition, descriptive statistics on the size break-up of manufacturing firms in each country show that productive structures differ as well. Descriptive data on the size break-up of four statistics (number of enterprises, number of employees, turnover and production) shows that the balance between large and small firms in Italy differs substantially from other countries. Firms are aggregated into two groups defined by the sum of the OECD's national size classes one, two and three on the one hand; four and five on the other. By so doing, statistics are presented separately for firms which employ between 1-49 and more than fifty employees (Table II.2). All values are calculated as a proportion of total manufacturing enterprises, manufacturing employees, manufacturing production and manufacturing turnover.

In terms of the number of enterprises, all countries except Germany, present a very similar picture where roughly more than 90 per cent of enterprises employ less than fifty employees. As the number of workers actually employed in these firms is investigated, the picture changes slightly. In Italy, 49 per cent of total employees in manufacturing work within firms which employ less than fifty employees; an average of 26 per cent do so in the other economies. This mismatch is evident also in terms of the proportion of total manufacturing production and turnover produced in firms employing less than fifty workers. In Italy 36 per cent of total production and turnover occurs in small firms; 18 per cent in France, 16 per cent in the US, 13 per cent in the UK and only 10 per cent in Germany.

Table II.2 Industrial structure in manufacturing, by size (percentages)

ENTR: Number of enterprises			EMPE: Number of employees		
	(1-49)	(50+)		(1-49)	(50+)
France	96	4	France	30	70
Germany	89	11	Germany	20	80
UK	94	6	UK	28	72
US	93	7	US	25	75
<i>Average</i>	<i>93</i>	<i>7</i>	<i>Average</i>	<i>26</i>	<i>74</i>
Italy	98	2	Italy	49	51

TUTT: Turnover			PROD: Production		
	(1-49)	(50+)		(1-49)	(50+)
France	18	82	France	18	82
Germany	10	90	Germany	10	90
UK	16	84	UK	16	84
US	13	87	US		
<i>Average</i>	<i>14</i>	<i>86</i>	<i>Average</i>	<i>15</i>	<i>85</i>
Italy	36	64	Italy	36	64

Source: OECD, *Structural and Demographics Business Statistics, 2010*

These numbers show that the Italian manufacturing industry presents a different compositional structure vis-à-vis its major western counterparts in terms of the contribution of small firms to total employment, production and turnover. The question

that this data suggests is whether the institutional framework surrounding firms in Italy is also characterised by size based segmentation.

## **2.2 Institutional mismatch in Italy's production system**

This section investigates in detail how industry specific skills and patient capital are produced in general and in Italy specifically. As discussed in Section 1.2, these two institutional assets are deemed necessary for the production of high quality goods (Streeck 1991a; Streeck 1991b; Hall and Soskice 2001 : 5, 28-32; Herrmann 2008a). Little empirical support exists for the hypothesis that coordinated standards and civil code-based anti-trust legislation are necessary for high quality production (Herrmann 2009 : 83-102). Moreover, in Italy, both small and large firms are equally confronted with the Italian state's weak enforcement of anti-trust legislation (Casper 2001 : 404-407; Hall and Soskice 2001; Tate 2001; Teubner 2001 : 403). Therefore, given the limited evidence on the role of anti-trust legislation and standard setting in shaping firms' product market strategies, this section merely focuses on the capacity of Italian institutions to provide firms with industry specific skills and patient capital.

### *2.2.1 Skill provision systems in comparative perspective*

Crucial for the production of high quality goods is the ability of firms to recruit workers with industry-specific skills: i.e. those skills which are useful to all firms of the same industry (Becker 1993). Whereas a system for the provision and certification of vocational training is important for the actual education of workers, necessary incentives must be in place for both employers and employees to invest in such training. Industrial

relations and social protection systems intervene and interact in order to limit the risks faced by both parties when investing in industry specific, non-transferable, skills.

A general overview suggests that the proportion of young persons enrolled in upper secondary programmes by programme orientation differs across countries (Table II.3). The US only engages in general types of education, in accordance to the Varieties of Capitalism framework. German youths are mostly vocationally trained, also in accordance with such framework. Interestingly, the UK uncomfortably fits the framework's predictions, given the high proportion of workers in vocational training (41.4%). In Italy 26.5 per cent of the upper secondary sector engages in vocational education; 33.2 per cent instead participate in pre-vocational programmes, where *"pre-vocational programmes [...] prepare students for further vocational education and do not lead to vocational or technical qualifications relevant to the labour market and at least 25% of programme content is vocational or technical"* (OECD 2008 : 324).

The effectiveness of a vocational training system is hard to pin down through such numbers. More useful instead are statistics on the expectations of young workers to find high-skilled blue-collar jobs, once a training programme is completed. Given the educational opportunities available, 30 per cent of 15-year-olds expect to have a high-skilled blue-collar job in Germany; approximately 20 per cent in France; approximately 10 in Italy and less than 10 per cent in the US. Surprisingly approximately 15 per cent of young persons expect such a job in the United Kingdom (OECD 2004). Despite the British controversy, Germany and the US perfectly fit the predictions of the Varieties of Capitalism approach.

Table II.3 Vocational education as a share of the upper secondary sector education

	Vocational	Pre-vocational	General
Germany	57.4		42.6
France	43.8		56.2
Italy	26.5	33.2	40.2
United States	0		100
United Kingdom	41.4		58.6

Source: OECD at a Glance, 2009 (data refers to 2003), Table C1.1.

In Germany, still a typical coordinated market economy within the boundaries of its export oriented manufacturing sector (Eichhorst in Crouch, Streeck et al. 2005 : 566), initial and continuous vocational training is organised by the regional state, unions and employers jointly. Education programmes are developed by local governments, but must be approved by social partners. This set up was confirmed by the 2005 Vocational Training Act. Moreover the cost of its financing is shared between employers and employees (Estevez-Abe, Iversen et al. 2001). The German system is a “dual system” as it combines part-time vocational schooling with apprenticeships in private or state owned enterprises (Pollmann-Schult and Mayer 2004). This system appears to secure employment for its participants as the unemployment rate of training graduates from 1998 was 12 per cent in 1998 and fell to 4 per cent by 2001 (German Federal Ministry of Education and Research, Dual training at a glance). In Italy pre-vocational training is provided by the state. Throughout many reforms, the latest in 2009, the organisation of *istituti tecnici* and *industriali* has been streamlined and simplified. The opinion shared by the majority of interviewees and training experts is that these *istituti* fail to form students appropriately because of the distance between firms’ needs and the training offered.

On the other hand, continuous vocational training is administered by social partners. Framework Law 845/78 gave social partners a major role in the vocational training system since training plans drawn up by the regional authorities became subject to the agreement of social partners. With respect to continuous training, a fraction of lifelong

education and training for the acquisition of initial, general and pre-occupational skills is also provided by the Permanent Regional Centres for Adult Education (Centri territoriali permanenti per l'educazione degli adulti, CTPs), run by the Ministry of Education, Universities and Research alone (Ministerial Order 455/97) (ISFOL 2003 : 25). Law 236/93 promoted continuous training by funding measures for the introduction of in-company training by enterprises, training for trainers, systems actions, testing of company, sectoral and regional training plans promoted by the social partners and testing of tailor-made training for individuals (ISFOL 2003 : 25). Laws 196/97 and 388/00 (amended by Law 289/02) introduced another fund, financed by employers and managed by social partners, geared towards supplementing the work of regional state-provided forms of training with enterprise based and specific training (ISFOL 2003 : 25), the so called *fondi interprofessionali*.

Table II.4 Firms which provide continuous vocational training 2005, percentages

Textile, ATECO 17-19	13.2
Machine tools, ATECO 29	36.8
Transport equipment, ATECO 34-35	38.7
10-19 employees	25.6
20-49 employees	36.2
50-249 employees	58.1
250-499 employees	82.1
500-999 employees	86.5
1000 employees and beyond	96.7
TOTAL	32.2

*Source: ISTAT, La Formazione del Personale nelle Imprese Italiane, (2008)*

Yet, despite these administrative and financial incentives, few Italian enterprises provide workers with continuous vocational training. Statistics suggest that the majority of training is provided by firms employing more than 250 employees; furthermore there are also significant differences across the amount of continuous training provided across sectors (Table II.4). Moreover, in Italy at least 70 per cent of young workers entering the

labour market are not endowed with a vocational training certificate, but instead have attended a general or pre-vocational education programme (CEDEFOP 2003; MIUR 2007). Additionally, these statistics suggest that once workers are employed, very few opportunities for continuous vocational training are offered by employers. This is in contrast to both a German and US skill formation landscape. In the first case training is organised around the needs of firms; in the second there simply is none.

On the other hand, Varieties of Capitalism shows that, besides the actual system for skill provision, necessary institutional complementarities must be in place for young workers to pursue a vocational training programme. Such supporting institutions are necessary to ensure that the financial investment in training is not lost on the part of workers and employers. For workers to reap the benefits of such investment over time, labour market regulation must contrast employers' ability to hire and fire workers easily; this is achieved through the contribution of stringent employment protection legislation (Rueda and Pontusson 2000; Estevez-Abe, Iversen et al. 2001; Franzese 2001; Mares 2003; Streeck and Thelen 2005). Moreover, coordinated wage bargaining systems stop employers from poaching other firms' workers by offering higher wages and salaries, thus enabling employers not to lose the returns on the skill investment made.

#### *Labour market regulations and social policy*

Data on the strictness of Italy and Germany's employment protection legislation (EPL) compared, shows that, with respect to collective dismissal Italy's EPL is more stringent on employers; yet with respect to individual dismissal Italian workers are less protected (Table II.5). With regards to temporary employment, increased policy laxity results from the labour market reforms which have been introduced in Italy since the early 2000s



(Treu and Biaggi reforms). The traditional strictness of employment and long tenure rates of Italy's labour market has in fact gradually been eroded. The 1997 Treu reform increased the number and available forms of fixed term contracts; the 2001 Biagi reform allowed their unrestricted use and abolished their maximum accumulated duration period. Moreover, *Eurispes* (2006) drew attention to the heightened problem of rising precarious employment – affecting 57% of young people between 18-25, and 67.8% between 33-39 years of age (Ricceri 2006 : 4). Altogether, these reform have concurred to a widespread sense of social and job instability (Ricceri 2006 : 5).

Gross earnings replacement ratio of unemployment benefits in Italy rose from 19 per cent in 1996 to 34 per cent in 2003; in Germany it measured roughly 60 per cent in 2002 (Biewen and Wilke 2005) – significantly higher than in Italy. This implies that once unemployed, workers are pushed to take up any available form of occupation in order to replace the missing income. Over time, this jeopardises the preservation of the acquired skills (Pissarides 1992; Ljungqvist and Sargent 1998). Moreover, these statistics are also reflected in the different tenure rates across European labour markets. Italy ranks amongst the highest OECD countries for average job tenure in years (12.1 vs. a 10.8 average in 2002). Yet data on employment distribution by class tenure suggests that over the 1992-2002 period there has been a significant increase in the share of workers employed in short term forms employment, i.e. less than a year: from 7 per cent in 1992, to 10.8 in 2002. Therefore a 3.8 per cent increase, compared to an OECD-wide 0.5 per cent increase on average (Auer, Berg et al. 2005).

It thus appears that the necessary social policy measures required to incentivise workers' investment in vocational training are absent in Italy. Turning to employers' incentives: coordinated wage bargaining systems ensure that employers cannot poach workers from

other firms by offering wage increases; and give employers the incentive to invest in the training of workers. Yet, whilst coordination does indeed govern the mechanisms for wage increases in Germany, in Italy this is not entirely the case.

Table II.5 Strictness of Employment Protection Legislation

Series	Germany			Italy		
	1990	1998	2003	1990	1998	2003
Overall EPL	3.16	2.46	2.21	3.57	2.69	1.94
Collective dismissals	..	3.5	3.75	..	4.87	4.87
Notice and severance pay for no-fault individual dismissals	1	1.28	1.28	0.57	0.57	0.57
Overall strictness of protection against individual dismissals	2.58	2.67	2.67	1.77	1.77	1.77
Regular procedural inconveniences	3.5	3.5	3.5	1.5	1.5	1.5

Source: OECD Social and Welfare Statistics, Social Protection (2008)

#### *Collective bargaining and poaching*

The German system of collective bargaining is based on the collective bargaining law (Tarifvertragsgesetz) passed in 1949, which established that only employers' organisations and trade unions have the right to conclude collective agreements (Tarifverträge). *Tarifautonomie* holds that neither the state nor regional governments can intervene in such negotiations. German collective bargaining negotiations take place at the sectoral level and wage increases are coordinated throughout the economy. This coordination rests on the pattern-setting role played by the metalworking industry (EIRO 1999). Thus IG Metall sets wage increases based on overall labour productivity growth and inflation; the remaining sectors of the economy follow these wage-developments which de facto establish an upper limit to pay increases (Traxler, Brandl et al. 2008). This cross-sectoral coordination has ensured high levels of wage moderation over the past decades.

In Italy, the development model underpinning the growth of the 1950s and 1960s was structured around an export oriented system supported by low wages and intensified work: the structure of collective bargaining featured managerial unilateralism and wage bargaining decentralisation at the industry level. The Hot Autumn strikes destabilised this structure, led to a surge in unit labour costs and a fall in competitiveness (Flanagan, Soskice et al. 1983). In 1975, the trade union front and Confindustria negotiated a diluted incomes policy which provided for an automatic wage setting mechanism - the *punto unico di contingenza* of the *scala mobile* (Rogari 2000). Collective bargaining was thus centralised. Yet, the creation of the European Monetary System (1979), of the Single European Market (1986) and the Lira's entering of the Exchange Rate Mechanism set the background for mounting internal divisions between union and employer confederations over the *scala mobile*. As a consequence, peak level bargaining lost its central role and bargaining decentralisation became again widespread (Regalia and Regini 2004). After the Lira's exit from the ERM, concerted negotiations re-emerged and resulted in a period of corporatist industrial relations. During the run-up to EMU, further internal trade union governance reforms took place, aimed at increasing unions' internal coherence and democracy (Baccaro, Carrieri et al. 2003). Most importantly a new structure for collective wage bargaining was institutionalised in 1993 which created a two-level bargaining structure: the national and the company or territorial level.

Thus, contrary to Germany's coordinated wage bargaining system, Italy's instead has been characterised by a historical tension between bargaining centralisation and decentralisation. The structure introduced in 1993 embedded this tension in a wage system that allows for both centralised and decentralised bargaining to take place and institutionalises numerous opt out clauses. Though opt-out clauses are slowly becoming common amongst Germany's *Mittelstand* as well as a means to defect the system (Ochel

2003 : 8), in Italy opt-out clauses are part of the system itself (see, Johnston, Kornelakis et al. forthcoming). Although the coordinated bargaining structure is established at the industry level, within each industry there are numerous possibilities for firms to negotiate individualised contracts with workers. Firstly, the system sets the minimum industry-wide wage increase; then each firm is free to top that increase upwards. Secondly, not all firms abide to the same sector level contract. Size discriminations apply as there are indeed two or more separate contracts per industry: one which applies to firms with more than 15 employees, one to artisan firms, and one to local territories where small firms cluster. Moreover, only industry level contracts appear to be renegotiated regularly, whilst the latter remain linked to past inflation rates and are less capable of binding forthcoming wage developments.

Although assessing empirically whether poaching takes place is not possible, the widespread opinion of interviewees is that in Italy it is indeed a widespread practice. The ability of firms to escape binding wage agreements implies that individualised wage bargaining is a common tool employed to attract workers from other firms: a growing practice in Italy's textile industry, where a specific name has been given to the phenomenon. *Cannibalismo imprenditoriale* captures the tendency of large firms to poach employees from smaller firms by means of better salaries and increasingly secure forms of employment. The Varieties of Capitalism literature instead contends that this should not be the case in coordinated market economies, as is in fact not the case Germany. Despite the national and regional pre-vocational and vocational training systems are not effective, industry-specific skilled workers can still be found in Italy. Mechanisms for the production and flow of tacit, non-codified, industry-specific skills are identified within systems of spatially concentrated and sectorally specialised firms.

*“Learning by doing” in small firms*

As already contended by Piore and Sabel “craft workers are bred, not born [...]” (Piore and Sabel 1984 :274). Young locals who grow within areas where the level of industry concentration is high acquire industry-specific skills unconsciously. These young workers benefit from formal and informal processes of skill acquisition. The formal at school, whilst attending general or pre-vocational compulsory education programmes. The informal at home, whilst taking on minor and varying roles within family firms. For these workers, “becoming skilled is part of a larger process of taking on a certain identity” (Piore and Sabel 1984 : 274). These coarse skills are then further polished once the young person starts to work.

In Italy, small firms do not abide to any employment protection legislation and therefore can hire and fire employees at will. The *Articolo 18* does not apply to small firms (with less than fifteen employees), where small firm legislation is variably applied to firms employing between 15 and 20 employees according to their legal status. The ease with which firms manage their workforce is the other side of the coin of flexible specialisation: volumes of production are flexibly adjusted as firms can easily employ and deploy new workers. Yet the local concentration of firms in the same industry specialisation implies that although employment in one firm is terminated, the industry-specific skill acquisition process is not. A laid-off worker will most certainly be employed in another firm specialised in the same industry. Skill acquisition thus develops through a process of *learning by doing, using, interacting and specialising*. Whereas mobility could act as a double edged sword as workers migrate to other firms, a firm who is unwilling to let a worker off can provide him/her with strong incentives not to do so: individualised pay agreements are very common mechanisms through which employees are retained.

In sum, it appears that whilst Italy's institutional mix does not incentivise the investment in industry specific skills, a pool of industry-specific skilled workers does still develop. Workers employed in small firms situated within local industry concentrations develop such skills through a process of informal *learning by doing, using, interacting and specialising*. Skill availability varies with the size of firms, thus creating a cleavage between the institutional assets available to large and small firms. How have medium-to-large firms then been able to find the skilled workers necessary to compete in the production of high quality goods? Before answering this question, the following section turns instead to the issue of raising patient capital.

### *2.2.2 Capital acquisition in comparative perspective*

Patient capital grounds incremental innovation because of the willingness of capital providers to finance projects which do not deliver quick returns. It is these projects that generate the incremental innovation which grounds the production of high or diversified quality goods. Additionally, firms competing in international consumer goods markets must also face a noticeable investment in retail and distribution which cannot be recovered in the very short term (Lazerson and Lorenzoni 1999 : 371-372). This reaps slow returns against large sunk costs, yet is a prerequisite for export success.

In order to accept investments over a longer time horizon, capital providers require an understanding of the product, the market and the firm which is not easily read off company quarterly reports and profit statements. A relationship banking system helps capital providers acquire such information by becoming active members in the strategic

government of firms (La Porta, Lopez-De-Silanes et al. 1997). Ownership concentration and stability are necessary conditions for patient capital because they provide a barrier to hostile take-overs and “give block-holders large incentives to develop capacities to monitor companies, such that the share price is not the principal source of information about company prospects” (Culpepper 2005 : 185). By so doing, concentrated ownership sets the necessary conditions for “large companies [to] provide each other with patient capital” (Culpepper 2005 : 178). Hence, block-holders, be they financial or non-financial actors, are the major providers of patient capital. The table below presents a brief cross-country overview of the ownership types present in a sample of the 1000 best performing, listed and private, firms in Germany, France, the United Kingdom and Italy (Franks, Mayer et al. 2009 : 33). These numbers are presented in percentages by the original authors (Table II.6). They suggest that in France, Germany and Italy family ownership is the most common ownership type. They also show that widely held ownership types (domestic or foreign) are very common in the UK, less so in Germany and France, very uncommon in Italy.

Table II.6 The landscape of ownership of largest 1000 firms, 1996, selected countries

	Germany	France	UK	Italy
Multiple blocks	4.4	2	0.3	2
Family	35.9	38.4	10.9	47.9
Foreign	18.4	20.6	33.9	27.6
Other	2.1	3.2	2.8	2.2
State	12.1	8.8	1	12.5
Widely held	9.9	8.9	27.4	5.6
Widely held parent	17.2	18.2	23.7	2.3
Total number of firms	923	970	980	954

*Source: (Franks, Mayer et al. 2009 : 33)*

An investigation into the concentration of ownership shares for Italy and Germany allows a further observation. Italian firms’ ownership appears to be just as, if not more, concentrated than Germany’s where 86.7 per cent of total firms in one sample (sub-table B which includes large and small firms) are controlled by single shareholders holding more

than 75 per cent of shares (Table II.7)<sup>19</sup>. Thus it is clear that in Italy the ownership of both large and small firms is concentrated, as much if not more than it is in Germany.

Table II.7 Ownership shares in Germany and Italy

A	Germany	B	Italy	C	Italy
>25	85.4	0-50	0	0-50	39
>50	57.3	>50-75	13.3	>50-100	61
>75	22.2	>75-100	86.7		

Source: (Franks and Mayer 2001, table A; Bianchi, Bianco et al. 2005 : 86-88, tables B and C)

Moreover the Italian corporate governance system<sup>20</sup> is characterised by the widespread use of pyramidal ownership structures where a limited capital investment is sufficient to ensure control over a large number of companies (Bianco and Casavola 1999; Barca and Becht 2002; Bianchi, Bianco et al. 2005; Culpepper 2005; Deeg 2005). This mechanism “can allow current holders of capital to effectively *control* companies, in practice disenfranchising minority shareholders and allowing management to pursue its strategy without respect to quarterly results” (Culpepper 2005 : 188). Yet, whilst this is an accurate account of a firms’ ability to raise patient capital for medium, large and listed firms

<sup>19</sup> For the sake of clarity, the data in Table 2.7 derives from separate authors: whilst the Italian data can be added vertically as the ownership classes are bounded, this is not possible for the German case. One further caveat, whilst the German data only apply to corporations, the first sample of Italian firms also includes small firms (<50 employees), the latter only firms employing more than fifty employees. The data for table B is derived from Bankitalia’s *Invind* database; data for table C from Bankitalia’s *Esetra* database. The median size of firms in the former database is 432; in the latter the median size amounts to 162 employees. The data in table B collects information on the ownership distribution of the three largest shareholders; table C of the first largest shareholder only. Lastly German data is for quoted firms, the Italian is not.

<sup>20</sup> Notice that in June 2003, the traditional system of corporate governance, the *sistema dualistico orizzontale* [Fiori, G., R. Tiscini, et al. (2004). *Corporate governance, evoluzione normativa ed informazione esterna d'impresa. Corporate governance e sistemi di controllo della gestione aziendale*. D. M. Salvioni. Milano, FrancoAngeli.], was reformed. This system included a board of directors (*consiglio di amministrazione*) and a board of auditors (*collegio sindacale*) elected by shareholders - board of directors are usually composed of block shareholders. Legislative decree 6/2003 introduced the *sistema dualistico verticale* (in line with the German system ) and the *sistema monistico* (with the Anglo-Saxon one) on top of the traditional system [Herrmann, A. (2009). *One Political Economy. One Competitive Strategy? Comparing Pharmaceutical Firms in Germany, Italy, and the UK* Oxford, OUP.]. Patterns of corporate ownership do not seem to have been much affected by these reforms [Deeg, R. (2005). "Remaking Italian Capitalism? The Politics of Corporate Governance Reform " *West European Politics* 28(3): 521-548, Herrmann, A. (2009). *One Political Economy. One Competitive Strategy? Comparing Pharmaceutical Firms in Germany, Italy, and the UK* Oxford, OUP.].



(Bianco and Casavola 1999), it is instead a distorted image of the financing capacity of small firms.

### *The small-firm and bank relationship*

Despite the stable ownership structures, small enterprises are incapable of constructing strategic relationships with lenders. Effectively, Italian small firms resort to short term bank lending for a third of their total financing (European Commission 2005), and do so in order to smooth the actual running of business and not to fund long term growth and investment (Salza 2004). In addition, lending is not obtained from a single bank since small firms are accustomed to the practice of multiple bank sourcing: *multiaffidamento bancario* (Giacomelli and Trento 2005; Vulpes 2005); a practice supported by banks because it limits individual risk; pursued by firms to promote competition between banks.

Although the literature suggests that cooperative banks facilitate small firms' access to finance, the cost of borrowing from non-cooperative banks has been shown to increase over time (Angelini, DiSalvo et al. 1998). The absence of proper accounting rules abided by small firms implies that the information asymmetry between banks and firms is large; therefore banks must rely on cash flows (*andamentale*) when estimating a firm's default risk and the price of loans. Consequently, small firms avoid banks and finance themselves through the reinvestment of cash flows; implying that the relationship between investments and cash flows is pro-cyclical. This tendency to rely on cash-flow financing is reinforced by small firms' owners reluctance to raise finance via private capital issuance (Salza 2004; European Commission 2005) which affects their ability to issue short term credit on behalf of the firm. Its cost is a function of a firm's implied default risk and of owners' credit performance; therefore, although the better credit profile of owners allows

firms to obtain lower rates, owners have little incentive to take on loans as this affects their future lending costs. This combination of negative incentives results in a vicious complementarity whereby small firms avoid raising capital altogether and rely on cash flows as the main means of financing. The last factor affecting small firms' inability to access patient capital is related to the forties' banking crisis, when all commercial, cooperative and universal banks were legally forbidden from holding a stake in non-financial firms – the only exception being Mediobanca (Piluso 2005).

Small firms' difficulty to access credit is confirmed in the data. The growth rate of loans to firms which employ more than twenty employees is five times greater than that for firms employing less than five workers (Table II.8). In 2008 the increase in bank loans to firms employing more than twenty employees of an amount greater than 1 million euro<sup>21</sup> was 8.3 per cent; 2.5 per cent to firms employing less than twenty employees, and 1.6 per cent to firms employing less than five employees (Banca d'Italia 2010 : 208). Thus lending falls proportionally to size.

Table II.8 Twelve month increase in bank loans by area and economic activity (2008)

Public admin.	Firms				Consumers	NGOs	Total
	Total	Medium-to-large (>20)	Small (<20)				
				Producing families (<5)			
6.1	7.3	8.3	2.5	1.6	5.1	5.4	5.7

Source: (Banca d'Italia 2010 : 208)

Therefore whilst large (and medium-large: >100 employees) firms are catered by a coordinated financial system, small firms are not. Large firms are capable of raising patient capital through internal capital markets, of varying form, small firms are not. They are instead subject to the short term fluctuations of cash flows and multi-bank financing.

<sup>21</sup> Based on: Monetary and Financial Institutions Interest Rate Statistics, European Central Bank.

How do small firms then overcome the problems accruing from inadequate financing in order to produce high quality goods? The answer to this question builds on the institution of inter-firm networks.

### **2.3 The hypothesis**

Organisational, industrial, historical and evolutionary economics predict that networks of firms will be formed as a consequence of market or bureaucratic failures (Grandori and Soda 1995); this thesis argues that institutional failure too may drive firms to organise economic activity around inter-firm networks, albeit differently than what the Varieties of capitalism literature would predict. Inter-firm networks become the locus where firms are endowed with the missing institutional assets. They represent an organisational arrangement which differs both from the market and hierarchy (Johanisson 1987; Powell 1990). For industrial economics, networks are understood to be beneficial because of their ability to create economies of scale, scope, specialisation and experience. Historical and evolutionary economics instead view networks as instruments to reduce costs and learning problems, thus facilitating technological developments. Organisational economics understands networks as mechanisms which enable the reduction of governance costs (Grandori and Soda 1995 : 186).

For the Varieties of Capitalism literature, inter-firm relations (in networks) “cover the relationships a company forms with other enterprises, [...] suppliers or clients, with a view to securing [...] appropriate supplies of inputs, and access to technology” (Hall and Soskice 2001 : 7). In coordinated market economies, these networks are crucial to the diffusion of technology because long term contracts preclude the movement of engineers and

technical personnel across firms (Hall and Soskice 2001 : 26). Standards<sup>22</sup> agreed within industry level frameworks ground the ability of firms to interact as compliance is required when semi-finished goods supplied by one firm have to abide by the standards of another (Herrmann 2009 : 84); standards ground the ability of firms to pursue a product market strategy (Casper 2001 : 393). In Italy, the skewed availability of assets of production which derives from the heterogeneous size of firms implies that inter-firm networks take on a new function and form. This thesis suggests that through networks firms source the input factors they lack by allocating production functions to firms governed by alternative institutional configurations. Capital-skill asset pooling captures this phenomenon and provides a predictive tool to understand how and why networks of firms should develop in Italy.

### *2.3.1 Capital-skill asset pooling: bridging institutional frameworks*

The hypothesis presented builds on the assumption that firms act strategically within the institutional frameworks they are placed in by being active institutional users and not passive institutional takers. It contends that when confronted with incoherent institutions, firms develop the willingness and capacity to source the necessary input factors somewhere else. In line with the internationalisation hypothesis, but logically extending it to the Italian case, this thesis expects firms to source missing input factors from other institutional frameworks located within national, mostly local, borders.

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<sup>22</sup> Standards allow firms to “reduce internal and external transaction costs; to drive down prices from suppliers; to block or circumvent competitors; to lock in quasi-monopoly profits through control of a proprietary standard (...); and to set baselines for subsequent rounds of innovation [Tate, J. I. e. O., Oxford University Press. (2001). *National varieties of standardization. Varieties of capitalism. The institutional foundations of comparative advantage.*, P. A. Hall and D. Soskice. Oxford, Oxford University Press. Herrmann, A. (2009). *One Political Economy, One Competitive Strategy? Comparing Pharmaceutical Firms in Germany, Italy, and the UK* Oxford, OUP.]

Not all firms can access patient capital in Italy, nor can all firms access a pool of skilled workers, yet as a whole both input assets are available to firms in Italy. In order to understand how Italian firms produce high quality goods it is therefore necessary to extend the boundaries of the firm as a producing entity. Modularised production and value chains are useful tools to conceptualise such extension (Kogut 1985; Sturgeon 1997; Sturgeon 2002). If Italian firms take advantage of such developments and allocate research, production and distribution functions to different firms, then they too can compete in the production of high quality goods. In practice, since large firms lack the ability to access skilled workers, they are expected to (indirectly) employ the workers of small firms, which are specifically skilled, by downloading all production functions to them. Since small firms lack the patient capital necessary to pursue an incrementally innovative and internationally oriented distribution strategy, they are expected to renounce autonomy over such functions and (indirectly) become the skilled workforce asset of the large firm. By pooling the input factors which each firm's sub-national institutional framework generates, the large and the small firm successfully compete in the production of quality-competitive goods.

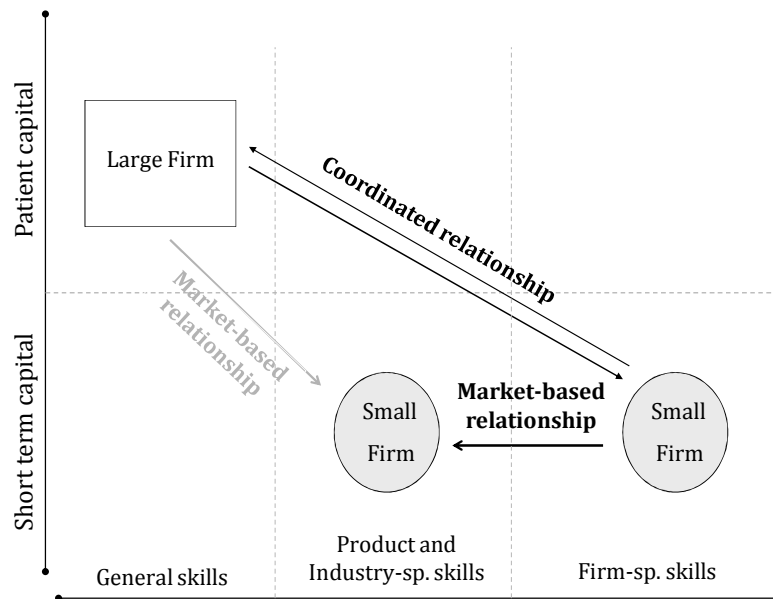
The thesis' hypothesis thus suggests that when two firms (large and small) behave accordingly, they are said to be engaging in capital-skill asset pooling. Thus, despite being placed in an incoherent institutional framework, a large and a small firm in Italy can pursue a high quality product market strategy by sourcing from each other (and pooling) the relevant missing input factor which is not generated by the respective institutional mix. Therefore a large firm is expected to access, through the small firm, an industry specific workforce. A small firm is expected to acquire, through the large firm, patient capital. In the event that capital-skill asset pooling develops, the small firm becomes the supplier of a large firm which takes the name of lead firm.

Extending this hypothesis to the complex processes involved in the production of high volumes of quality goods, it implies that a lead firm will employ more than one small firm as supplier. Moreover relationships are expected to differ as the skill endowments of small firms vary with their degree of specialisation. Although all suppliers are endowed with industry specific skills, some have developed further product or process specialisations; this implies that the knowledge held presents different degrees of tacitness or codification. Process specialists are expected to be recognised by the lead firm as valuable because of their ability to convert tacit knowledge into firm specific skills. In order to control and nurture such skills, lead firms qualify the pooling of assets by entertaining coordinated relationships with such firms. Coordination between large and such small firms entails know-how exchange and financial support, although it does not necessarily involve the ownership of the small firm by the large. On the other hand, product specialists price their codified skills accurately on a market which extends the local boundaries of production; thus the interaction between lead firms and product specialists is expected to be market based rather than coordinated. Remaining suppliers, endowed with industry but neither firm nor product-specific skills, are expected to produce simple components and compete against each other on prices. Relationships between these suppliers and lead firms or other (trusted) suppliers are expected to be market-based.

Figure II.1 graphically reproduces the hypothesis by classifying firms according to the differential assets held; the arrows capture the mode of interaction which follows. A large (lead) firm, endowed with patient capital and general skills pools its assets with a small firm, endowed with firm-specific skills and short term capital: moreover this interaction is expected to be coordinated and continuous because of the nature of the skill held by the small firm (captured by the bidirectional, double arrows). Both construct market based

relationships with other small firms<sup>23</sup> which possess product and industry specific skills (captured by the single, unidirectional arrow). Both coordination and competition are expected to coexist within this structure.

Figure II.1 Graphical representation of the hypothesis: a lead firm and its suppliers



Source: Own representation

### 2.3.2 Falsifying the hypothesis

Hypothesis falsification is crucial to the strength of an argument since a “theory which is not refutable by any conceivable event is non-scientific. Irrefutability is not a virtue of a theory (as people often think) but a vice” (Popper,1965, p. 36). Moreover, falsifiability must be a guiding principle for qualitative research (King, Keohane et al. 1996 : 100). The thesis’ hypothesis contends that firms set in an incoherent institutional system can compete in high or diversified quality product market strategies if they engage in capital-

<sup>23</sup> In terms of definitions, this thesis will refer to the former type of suppliers as first tier suppliers, to the latter type as second tier suppliers; large firms will be referred to as lead firms.

skill asset pooling by building inter-firm networks composed of lead firms and skilled suppliers. Two conditions for success are therefore logically outlined: the presence of large firms and that of capable suppliers.

Firstly, in the absence of capable suppliers lead firms could not outsource the manufacturing of parts in return for final goods which are quality compatible to the market strategy pursued. Alternatively, they would be confronted with the necessity to invest in skilled workers directly or fail to pursue such a competitive strategy. Secondly, the absence of large firms endowed with patient capital allows small firms to revert to a craft production strategy based on the production of low volumes of customised quality competitive goods (Willman 1986). Small firms do not lack the skills to pursue a high quality product market strategy but the necessary capital to increase the amounts of volume produced, to invest in technological innovation and to expand the reach of their distribution network.

Logically extending the case selection criteria, the hypothesis is falsified by identifying an industry where the value of the revealed symmetric comparative advantage is greater than the success benchmark established and where the coefficient of the relative (symmetrical) unit value is positive in the absence of either of the two conditions. Identifying a success case, such as the textile or yacht building industries, where neither skilled suppliers nor lead firm exists would lead to the falsifiability of the thesis' hypothesis. Additionally, the identification of such a case would imply that either the hypothesis has limited scope of application<sup>24</sup> or that it is incomplete and missing a further qualifying condition.

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<sup>24</sup> The scope of application of the thesis' hypothesis could be possibly defined by the industrial specialisation investigated (heavy vs. light industry for example).



## 2.4 Conclusion

The systematic comparison of the institutions characterising coordinated, liberal and Italy's market economy highlight their differences. Such a comparison, structured around the theme of explaining how patient capital and industry-specific skills are generated by institutional frameworks, shows how striking is the inability of each Italian firm to compete on par with typical coordinated market economy manufacturers. This comparison therefore strengthens the appropriateness of the question asked by this research project. Given the incoherent institutions faced, how can Italian firms compete in markets dominated by the production of high volumes of high or diversified quality goods?

The answer proposed by this thesis builds on the hypothesis that inter-firm networks provide firms with the mechanism to source the missing institutional assets from each other. Capital-skill asset pooling nullifies the divide between small and large firms which has been identified as a crucial feature of Italy's post-industrial atmosphere (Piore and Sabel 1984). While the market failures that networks solve derive from the presence of asset specificities, context uncertainties, difficulties in monitoring performance, and risk aversion (Grandori and Soda 1995), the sharing of proprietary information and the risk of exploitation in joint ventures (Hall and Soskice 2001 : 7); in Italy networks solve the institutional failures solved derive from the heterogeneity of institutional rules which apply to differently sized firms - with respect to the accessibility of patient finance on the one hand and industry-specific skills on the other. Capital-skill asset pooling across networks of firms is expected to act as a bridge between institutional frameworks, endowing firms with the missing institutional capabilities. Through it, large and small firms are capable of pooling patient capital and skills.

The next three chapters are empirical. The case studies presented allow for “variation on the dependant variable” (Munck 1998 : 31) as they represent two cases of Italian industry success and one of failure. Chapter 3 analyses the evolution of the footwear, handbag and leather goods industries over time; Chapter 4 the yacht building industry. Based on these two chapters it is clear that lead firms and skilled suppliers interact in order to produce high volumes of high quality goods. On the other hand, Chapter 5 investigates the evolution of the Italian computer industry. Its demise confirms the hypothesis that capital-skill asset pooling is necessary for firms to remain competitive in international markets when faced with detrimental institutional settings.

### III. CASE MADRI AND GLOBAL LEADERS: CAPITAL-SKILL ASSET POOLING IN THE LEATHER GOODS AND FOOTWEAR INDUSTRY IN ITALY

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Historically, the apparel, leather and footwear<sup>25</sup> industries have been among the biggest exporters in the Italian economy. In the eighties and early nineties, flexible specialisation characterised the system through which production and inter-firm interaction was organised (Brusco 1982; Piore and Sabel 1984; Becattini 1987; Becattini 1990; Bellandi and Russo 1994). Firms competing in these industries gained global market shares by benefiting from competitiveness enhancing (nominal) exchange rate devaluations (Colli 2002; Dunford 2006 : 44). The business strategy adopted by Italian textile producers thus centred on the advantages deriving from currency manipulations which reduced the real cost of exported goods abroad. This consequently promoted an “effortless” export growth, which was not sustained by increasingly competitive or innovative products, but by “cheapened” and low cost goods<sup>26</sup> (Dunford 2006 : 28). The combination of these elements meant that production costs were kept at bay. The competition model adopted was based on a low cost, low price, market strategy (classification based on Herrmann 2008a) and quality production was residualised (there is disagreement with Locke 1995 here: though Biella may have been the exception, most industrial districts in the eighties heavily relied on price rather than quality competitiveness; Onida 2004; Bianchi in Bianchi, Brancati et al. 2007).

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<sup>25</sup> Whilst these goods fall within the textile industry at large, Appendix 3 showed that not all segments of the textile sector exhibit today either a high revealed (symmetric) comparative advantage or a positive relative (symmetric) unit value. The textile sector has not shown a continuous success over time, as defined by the thesis’ criteria; yet, for simplicity and brevity, the chapter at times refers to the textile industry in general, but the specific reference is not to the whole industry but to those sub segments listed in Chapter 1, Section 1.3.1.

<sup>26</sup> Due to Italy’s institutional divide, this model of production was dove-tailed by industrial legislation which benefited small firms over larger ones: artisan flexibility implied that the initial sunk costs of setting up a firm was small, Article 18 of the Labour Statute implied that employment costs were lower the smaller the firm, the absence of collective bargaining coverage over small artisan firms implied that wage settlements were individually bargained.

Yet, during the nineties and early 2000s, three systemic shocks implied that these factors would no longer be a recipe for success: the introduction of the common European currency and EMU, the removal of trade barriers, and the rise of low cost competitors in China and the East. First, in 1998 European currencies were irrevocably fixed and conflated to the common European currency, the Euro. Secondly, the Multifibre Agreement - which allowed bilateral quota-setting - was removed in 1994 (Comino 2007). Additionally, between 1995 and 2005, textile and clothing sectors became subject to the rules of the General Agreement on Tariffs and Trade (GATT) which removed all remaining tariffs and barriers<sup>27</sup>. Consequently, all European “sheltered” textile and clothing firms began to face a strong competitive challenge from low cost competitors, especially Asian. Between 1990-1998 Indian exports of textiles to the world increased by 140.6 per cent, and exports of clothing by 71 per cent (Dunford 2004 : 299 on OETH 2000 data). China instead produced approximately 24 per cent of total global exports, during the same time period. These three exogenous developments in monetary and global trade policy altered the market within which Italian, and European firms competed. European textile and clothing firms have since experienced a dramatic change in the structure and geography of production (Dunford 2004 : 295). Yet, Italy’s performance in these industries worsened far less than in its European counterparts, and still preserved a revealed comparative (trade) advantage in a number of sub-segments; therefore it is important to ask in what way Italian firms responded to these external changes. How were Italian firms capable of maintaining a strong revealed comparative advantage whereas German and French firms, for example, failed to limit the effects of the changes occurring to global trade patterns?

This chapter will show that the model of production adopted by Italy’s textile firms has changed over time. Initially part of prototypical industrial districts, some firms have

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<sup>27</sup> For further details on the Agreement on Textiles and Clothing (ATC) and the GATT see: [www.jurisint.org/pub/06/en](http://www.jurisint.org/pub/06/en).

changed the way in which they interact with other district firms by hierarchicalising inter-firm organisational structures. By so doing, these firms have become lead firms (*case madri*, as known in the specific textile context) set at the helm of a vertically disintegrated structure of production. As hypothesised in chapter two, this structure of production is borne out of the need to pool together differently institutionally endowed actors: lead firms, first and lower tier suppliers. Through this structure, *case madri* have engaged in capital-skill asset pooling with first tier suppliers, and constructed privileged relationships with them. They have engaged in capital-skill asset pooling with lower tiered suppliers and product specialists although have entertained arm's length, though not completely spot market, relations with them.

This chapter explores these developments in detail. First, it takes a bird's eye view of the industry as a whole and its evolution both from a domestic and a comparative perspective. Thus the first section illustrates indicators capturing the industry's performance over time, with particular reference to the successful sub-categories identified in Chapter 1. It also presents a brief discussion on the average firm and the institutional framework it is catered by. Secondly, the chapter traces back how the organisational productive structure of Italy's successful firms has changed, with an eye on the different mechanisms which characterised the relationship between *case madri* and their suppliers over time. Thirdly the chapter compares the organisational structure adopted by internationally successful and unsuccessful firms. The section also discusses how the consortium model of financing and production has failed to adjust to the exogenous shocks discussed. The discussion is informed by evidence collected via primary and secondary sources<sup>28</sup>. This presentation on

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28 As in previous studies, secondary data was obtained from published material using a range of sources: academic and trade journals, magazines and newspapers, industry and government reports. Primary data was gathered from personal semi-structured interviews with managers of shipyards and suppliers ('firm level interviews' – currently 4); trade unions, industrial associations, ('institutional interviews' – currently 12); and academic experts ('expert interviews' – currently 2) (following similar set-ups as [Eich-Born, M. and R. Hassink (2005). "On the battle between shipbuilding regions in Germany and South Korea." *Environment and Planning* 37:

multiple firm strategies draws the reader's attention to the different organisational structures which are still in place in Italy today; this may suggest that Italian firms are still navigating through a process of institutional transition. Nonetheless, the evidence presented throughout the chapter reinforces the claim that in order to compete internationally in a market for high quality and incrementally innovative goods - in the absence of the appropriate institutional setting (Hall and Soskice 2001) - Italian firms have resorted to capital-skill asset pooling. This allows them to source the necessary production inputs factors from firms set in different institutional frameworks, endowed with different institutional assets. The chapter then concludes by introducing the following case study.

### **3.1 The Italian apparel, leather goods and footwear industry over time**

The Italian apparel, leather, leather goods and footwear segments of the textile industry<sup>29</sup> have over the past decade limited the negative trade effects of the competitive pressures of low cost firms based in East Asia. This cannot be said as easily for the industry as a whole: producers of actual textiles of silks, cottons and wools for example have suffered from a preference shift of buyers towards East Asian producers. Nonetheless, a finite number of firms have developed new product market strategies which have ensured the preservation of a competitive advantage. This has ultimately implied that Italy has

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635-656, Lindsay, V. (2005). "The Development of International Industry Clusters: A Complexity Theory Approach." *Journal of International Entrepreneurship* 3: 71-97, Lange, K. (2009). "Institutional embeddedness and the strategic leeway of actors: the case of the German therapeutical biotech industry." *Socio-Economic Review* 7: 181-207.].

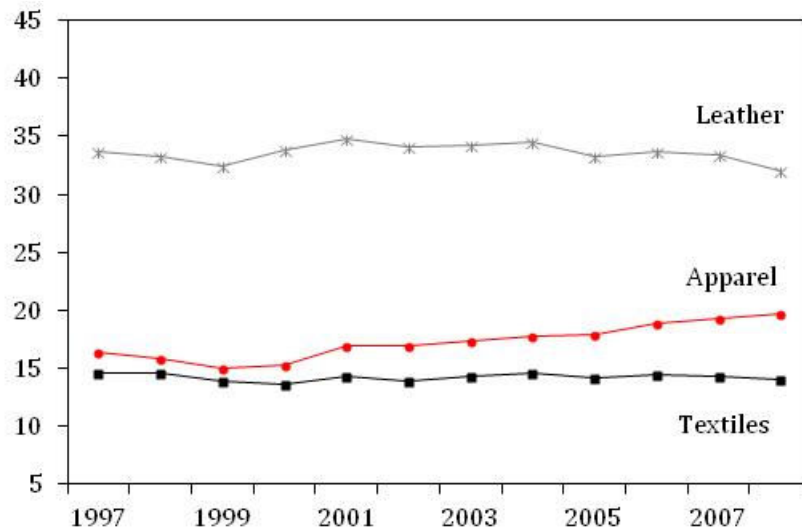
29 The data used for the empirical analysis of trade flows covers the 1988-2003 period. The current credit crisis, 2008 and beyond is not included in this research. Its repercussions on the real economy are affecting the textile sector. The direct impacts are twofold and act on the very small, 2nd/3rd tiers of suppliers, as well as on the very large leader firms. The former bear the consequences of reduced consumer demand, and the subsequent decline in production commissioned by customers. The latter risk defaulting on debts, previously granted and undertaken on the basis of more buoyant times - the recent bankruptcy of Itierre in January 2009 (head of a large pyramidal structure which controlled both lead firms and first tier suppliers) speaks to this problem. Tsunamis, in fact, bring away with them both good and bad swimmers.

maintained a positive revealed comparative advantage for these goods (see RSCA indicator). Empirical studies have indeed shown that for textile and apparel firms, as well as for firms set in industrial districts at large (regardless of the industry specialisation), a clear dualism has emerged in terms of firms' performance: while some firms have responded to external pressures by increasing their level of productivity and innovation, others have not (Camuffo, Pozzana et al. 2008; Guelpa and Micelli 2008). In section 3.2 a model is introduced which accounts for both trends. This section instead provides a statistical overview of the industry's international performance.

### *3.1.1 Statistical overview of the industries*

The following graphs trace the performance of Italy's export markets share vis-à-vis the OECD countries and the world economy as a whole. This indicator, produced by the OECD STAN database, shows the exports for a given industry for a given country (or country group) as a percentage of the exports for this industry for the OECD or the world economy respectively. With respect to the OECD group of countries (Figure III.1), Italy exhibits a very strong performance in the "leather, leather products and footwear" category producing an average of 35 per cent of total OECD exports between 1997 and 2008 (unfortunately STAN does not produce any earlier data at this level of dis-aggregation). The production of "wearing apparel, dressing and dyeing of fur" has acquired over the past ten years an increasing share of the OECD's exports for these goods, rising to roughly 20 per cent of the total. The share of Italian "textiles" has remained roughly constant.

Figure III.1 Export market share relative to OECD



Source: OECD STAN Indicators ed. 2009

With respect to the world economy, which also includes all available data for China and India, the situation is slightly worse (Figure III.2). Italy's export market share relative to the world for "textiles" has been falling further to a meagre 7 per cent roughly. Despite the share of Italian "wearing apparel, dressing and dyeing of fur" relative to the world is lower than that relative to OECD countries only, it has been on a rising trend. Interestingly, this has been the case also after the end of Multifibre and the application of GATT. The market share of "leather, leather products and footwear" has also exhibited somewhat of a structural readjustment to these changes in trade policy, nonetheless resting nicely at roughly 16 per cent of world trade. Moreover, for each industry segment, Italy holds the largest market share relative to any individual country.

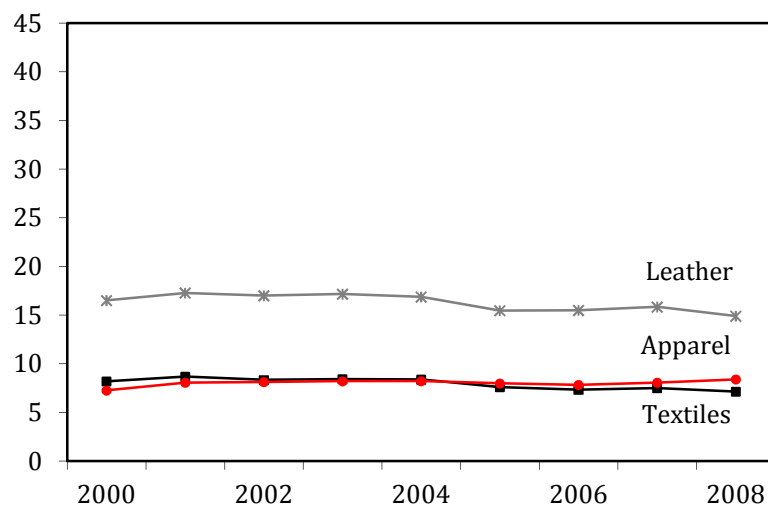
Since this indicator<sup>30</sup> is based on an ISIC Rev.3 classification which covers all activities at a two digit level disaggregation, it therefore provides a less detailed level of investigation

30 "The export market share relative to the OECD shows the exports of a certain industry for a given country (or country group) as a percentage of the exports of this industry for the OECD zone. The OECD here includes all OECD countries but Luxembourg (for which series are only available from 1999). This



than otherwise used throughout this thesis. Individual commodities' trade performance at lower levels of disaggregation via the OECD International Trade and Commodities Statistics database is therefore used to construct the revealed symmetric comparative advantage indicator. As discussed in Chapter 1, this indicator not only captures the percentage of a certain industry's trade for a specific country over that of a larger basket of countries, but also weighs this percentage with respect to a specific country's total trade.

Figure III.2 Export market share relative to the world



Source: OECD STAN Indicators ed. 2009

The tracking of this indicator for the 1988-2003 period for all textile sub-segments reveals a much greater variety in performance than the graphs presented earlier. Indeed a number of product categories have performed poorly, whilst a number of categories have

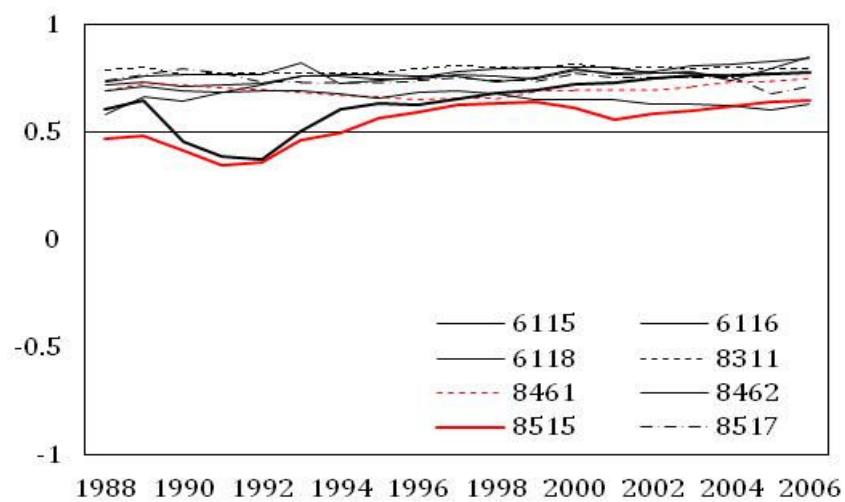
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indicator is calculated as follows:  $100 * (\text{expo } c, i / \text{expo OECD}, i) \dots$  where OECD aggregate covers all OECD countries but Luxembourg. The export market shares relative to the WORLD shows the exports of a certain industry for a given country (or country group) as a percentage of the exports of this industry for the Total World. Here, Total World exports have been estimated by adding up all OECD and major non-member economies' exports from STAN Bilateral Trade Database (BTD). The aggregate Total World gathers 47 countries, i.e. OECD countries and the following non-member economies: Argentina, Brazil, Chile, China, Estonia, Hong Kong, Indonesia, India, Israel, Malaysia, Philippines, Russia, Singapore, Slovenia, Thailand, Chinese Taipei, South Africa. This indicator is calculated as follows:  $100 * (\text{expo } c, i / \text{expo WORLD}, i)$ . Note: Total World includes exports from Chinese Taipei up to 2006 (inclusive). From 2007 onwards, Total World excludes exports from Chinese Taipei" (OECD STAN definitions). For further explanations on the methodology, see: "Statistical Databases: OECD Structural Analysis Statistics Online Database":

[http://www.oecd.org/document/6/0,3343,en\\_21571361\\_33915056\\_39146886\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/6/0,3343,en_21571361_33915056_39146886_1_1_1_1,00.html)

instead performed no worse, if not better, than in the past. Figure III.3 presents the trend dynamics for the revealed symmetric comparative advantage for nine product categories defined at the four digit level of the SITC Rev.3 international classification system which hold both a positive RSCA (greater than 0.5) and a positive RSUV in 2003 (based on the identification process described in Chapter 1, Section 1.3.1).

Figure III.3 RSCA for nine successful textile industry sub-segments



Source: OECD International Trade and Commodity Statistics 2010, Rev. 3, 29 countries, Own

Calculations

All these sub-segments have a value for the RSCA which ranges between 0.4 and 0.85 over the 1988-2006 period. The graph shows how exports of handbags, specific segments of wearing apparel, and footwear have maintained a steady and positive value. This is particularly interesting given the declining textile performance observed previously (Figure III.2 in particular) and the widespread discussions on the Italian textile industry's decline (Amighini and Chiarlone 2004). Disaggregated statistical analysis instead suggests that certain segments of the textiles industry have continued to hold a revealed comparative advantage in international export markets. It therefore emerges that Italian

firms have not been completely outdone by the increased competitive pressures, aggravated by reformed exchange rate and trade policies. Quite the contrary, Italian firms still appear to rank amongst the top ten European clothing companies and Italian leather goods' exports show values of the RSCA significantly greater than 0.5 for a substantial amount of years (be it in the form of handbags, simple leather, or footwear).

Table III.1 Legend of textile industry sub-segments tracked in Figure III.3

6115: Sheep or lamb skin leather, without wool (excl. 6118)
6116: Goat or kid skin leather, without hair (excl. 6118)
6118: Leather, specially dressed or finished, n.e.s.
8311: Handbag, whether or not with shoulder strap
8461: Clothing accessories, not for babies, not knitted
8462: Panty hose, socks & other hosiery, knitted or crocheted
8515: Other footwear, with uppers of textile materials
8517: Footwear, n.e.s.
8519: Parts of footwear, in-soles, heel-cushions & similar

*Source: OECD International Trade and Commodity Statistics 2010*

How is this development accounted for? Why have Italy's most similar trading counterparts (Germany and France) lost so much in terms of export market shares, employment and output whilst Italian companies have not (Dunford 2004; Lane and Probert 2009)? A shift into higher quality production (captured by the RSUV indicator) seems to explain how Italian companies have shielded themselves from the competitive pressures experienced (de Nardis and Pensa 2004; Camuffo, Pozzana et al. 2008; Guelpa and Micelli 2008). Yet, it is important to understand what mechanisms have allowed Italian firms to succeed in upgrading their products. Before doing so, the average firm is introduced as well as the relationships it nurtures with unions, employer associations, skill and financial provision systems. How this performance has come about is thus explored in more detail in what follows, in particular with respect to how lead firms have initiated a restructuring in the organisational structure of production over time.

Beforehand, it is useful to present some details on the compositional and territorial structure of the Italian textile industry at large.

### *3.1.2 Compositional and institutional structure*

Instances of textile production are largely distributed across the whole of Italy, although some regional concentrations offset others in terms of magnitude (see Table 3.1 ISTAT 2001). Close to 30 per cent of the total number of firms and 18 per cent of total employees of the textile sub-segment are located in Tuscany; as well as roughly 10 per cent of total wearing apparel firms and employees; and close to 30 and 25 per cent of the total number of firms and employees in the leather, leather goods and footwear sub-segments respectively (

Table III.2). Lombardy as well collects a large proportion of total textile producers and firms, hosting close to 20 per cent of total wearing apparel companies and employees. Thus, although significant numbers of firms and employees are located in Puglia and Campania as well, the lion share of the distribution appears to be located between Lombardy and Tuscany.

If compared to the total of Italy's manufacturing sector, it emerges that there are on average more small firms, and that they are more profitable. Statistically, 47 per cent of total textile and apparel workers are employed in small firms which count less than 19 employees; 33 per cent of the industry's total revenues are also produced by small firms; 55 per cent of total leather goods and footwear workers are employed in small firms; so are 29.9 per cent of the industry's of the industry's total revenues (Table III.3).

Table III.2 Territorial distribution of firms and employees

Textiles		Wearing apparel		Leather, leather goods and footwear	
<i>No. of firms</i>					
Tuscany	26.90%	Lombardy	18.40%	Tuscany	29.30%
Lombardy	24.40%	Veneto	13.80%	Marches	20.30%
Emilia-Romagna	9.50%	Tuscany	11.90%	Veneto	13.40%
Veneto	7.90%	Emilia-Romagna	11.20%	Lombardy	10.20%
Piedmont	7.90%	Apulia	9.10%	Campania	9.40%
<i>Employees</i>					
Lombardy	36.90%	Veneto	22.30%	Tuscany	24.90%
Tuscany	17.10%	Lombardy	19.50%	Marches	21.00%
Piedmont	13.30%	Puglia	10.90%	Veneto	18.90%
Veneto	11.60%	Tuscany	10.30%	Campania	8.70%
Emilia-Romagna	6.50%	Emilia-Romagna	10.30%	Lombardy	8.40%

Source: ISTAT Censimento Industria e Servizi 2001

This phenomenon is extremely typical of Tuscany, explaining why there are proportionately less employees than in Lombardy, despite the greater number of firms. As a matter of fact, the size of firms is on average smaller in Tuscany than it is in Lombardy (ISTAT 2001). In terms of performance, Unioncamere's (Italy's national Chamber of Commerce institute) report on the state of subcontracting firms in Italy highlights that small firms (15 employees) lag behind their larger counterparts in terms of: profits, labour productivity, export- over total revenue, and the ratio of investment per person employed. Interestingly, though still lagging behind, textile firms perform slightly better than the manufacturing average (rows 4-7 in Table III.3). The fact that these firms do not comply with the Worker's Statute and centralised collective wage and normative bargaining, as well as escaping the tax system, implies that employment costs are smaller. As a matter of fact, the same report suggests that unit labour costs in small firms are 32.7 points lower than the industry average in textile and apparel firms; 33.9 points in firms producing leather goods and footwear. Similar differences emerge also in terms of the average individual wages paid to employees in the industry.

With respect to wage bargaining, nationally agreed contracts exist which regulate salary and working conditions for the industry. Yet, not only does a size differentiation in terms of compliance to the industry or artisanal contract exist, but also territorial differentiations. This implies that industry specific normative regulation vary substantially across firms which may compete in the same niche but employ varying numbers of employees. Employee skill formation occurs on the job, despite a number of technical schools exists locally. In 2005, only 4.7 per cent of total workers were involved in some form of formal training (16 per cent in total manufacturing). Moreover, as expected, there is a huge cleavage between proportion of employees trained: 2 per cent in small firms, 12 per cent in medium-large enterprises (Tartaglione 2007 : 26). As a consequence, firm struggle in finding workers meeting the necessary skill profile criteria (Tartaglione 2007 : 20, based on Unioncamere: Subcontracting Observatory). There appear to be significant matching difficulties given that the average period required to find the necessary workers is 6.5 months (1 month longer than for the average industry).

Table III.3 Comparison of industry average and small firm performance

		Textile and apparel	Leather goods and footwear	Manufacturing
Proportion of firms (%)	Employment	47	55	40.8
	Revenue	33	29.9	21.8
Performance results, industry average = 100	Profits	86.6	93.4	76.5
	Labour productivity	74.2	74.6	65.2
	Export revenue/Total revenue	65.4	57.1	40.7
	Investment/Employee	71.1	85.5	62.7
Unit labour cost, industry average = 100	Unit labour cost	77.3	76.1	71
	Wage	79.5	77.8	73.1

Source: (Tartaglione 2007 : 20, based on Unioncamere: Subcontracting Observatory)

Unions, in tandem with local authorities and employers, are therefore trying to set up forms of explicit (initial and continuous) vocational training. One such initiative is operationalised by the establishment of the a formal training school specialised in leather close to Florence (*Alta Scuola di Pelletteria Italiana – Castello dell’Acciaolo*). This project has benefited from the interaction of lead firms (Gucci and Prada) as well as employer associations (CNA, and Confartigianato) and local authorities (Comunes of Scandicci and Pontassieve). A similar example is found in Biella, yet these are still residual and rare initiatives often financed by state or EU funds and are therefore subject to financing fluctuations. Therefore, given the lack of such formal structures, employees acquire skills on the job, through a process of learning by doing and continuous skill acquisition.

In terms of financing, similar country-wide patterns are reproduced at the sectoral level. Small enterprises fund themselves through short term bank lending and the reinvestment of cash flows, where available. Since regulation implies that small firms cannot obtain loans from a single bank but through multiple bank sourcing, accessing finance for small firms is a highly problematic affair. Moreover, large firms are capable of raising patient capital through internal capital markets, close relationships with international investors (see the links of Gucci with French luxury investment funds LVMH and PPR), small firms are not. Interestingly, empirical analysis has revealed that the cost of borrowing for firms also varies across regions, and is most expensive in Tuscany (Pozzoli and Radicchi 2003). Coupled with the notion that borrowing for small firms is more expensive than for larger firm, this implies that small Tuscan firms face the highest cost of borrowing capital. It therefore appears that collective bargaining, skill formation and financing systems appear to be problematically structured, providing fragmented assets across the differently sized firms of the industry.

### *Textile production in comparative perspective*

Lastly, a brief international comparison is useful to highlight the differences between Italy's textile industry at large and that of Germany, the United States and the United Kingdom. A first clear difference emerges when comparing the average size of firms: in the US firms employ on average close to 250 employees, thus are generally large (Table III.4). In the UK and Germany the average firm employs +40 employees. Although this number conceals the intense polarisation between British large and small firms, it confirms the important role of the German medium sized firm (*Mittelstand*) in textiles and clothing production which accounts for 60 per cent of employees and 63 per cent of total turnover in the industry (Lane and Probert 2009).

The institutions which cater the industry differ across these countries and vis-à-vis Italy: the German vocational training system is better structured and effective, whereas no such system is in place in either of the two Anglo-Saxon countries. German firms are mostly family owned, British are privately owned but controlled through diffused ownership structures, and American companies are instead mostly listed. In tandem with corporate and labour market legislation, institutional frameworks have direct implications on the ability of firms to compete in high or low end markets. For example, until 2004, German firms could not be set up without the presence of a master craftsman (*Meister*) registered on the artisan roll (*Handwerksrolle*) (Rath 2002 : 16-17): this implied that on average German products would fall in the medium-to-high quality end of the market (Lane and Probert 2009 : 49, 55). On the other hand, US and UK textiles firms produce low-quality and medium-to-low quality goods, respectively (Lane and Probert 2009 : 54). A handful of



high quality British producers do exist, but quite often the actual production of these goods' products doesn't actually take place in Britain (see for example the production of *Vivienne Westwood's Red Label* in Italy).

Table III.4 The Clothing Industry in the USA, UK and Germany (2005)

	Firms	Employees (000s)	Turnover (million)
United States	10889	243	\$ 16549
United Kingdom	3335	40	£ 4389
Germany	408	45	€ 9134

Source: Lane and Probert 2009 : 45 (German data is for 2004)

Regardless of the institutional and product market differences, the textiles and clothing industries have witnessed an important decline in terms of output, turnover and total employees employed in all three countries. The reasons for this decline are aplenty although the heightened competition from East Asia appears to be common to all cases. Thus, given that the external pressures faced are equivalent to those faced by Italian firms, it is important to understand what mechanisms Italian firms have developed to counter them.

### 3.2 Changes in the organisational set-up of the industry

Today the most internationally successful firms in the apparel, footwear and leather segments of the textile industry appear to have become lead firms<sup>31</sup>, set at the helm of a hierarchically disintegrated production structure. They have specialised in the design,

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<sup>31</sup> I will use this term interchangeably with *casa madre*. The term most commonly used in the literature to capture the firm which is placed at the head of a supply chain original equipment manufacturer (OEM) [Herrigel, G. and V. Wittke (2005). *Varieties of Vertical Disintegration: The Global Trend Towards Heterogeneous Supply Relations and the Reproduction of Difference in US and German Manufacturing*. *Changing Capitalisms*. G. Morgan, R. Whitley and E. Moen, Oxford University Press.]. Although the position held in the value change is similar, lead firm/*casa madre* are distinctly different because they engage in capital skill asset pooling with their suppliers.

development, distribution and marketing phases of a good whilst its actual production is instead delegated to a chain of suppliers. Yet suppliers should not be grouped under a single heading as they differ in terms of the skill specificity possessed: industry-, firm-, or product-level. Accordingly they are classified as first and second tier suppliers, process or product specialists respectively. Moreover, process specialists are always located in the nearby vicinities; product specialists and hierarchical sub-contractors may not be. The introduction of capital-skill asset pooling between firms holding the *patient* capital and firms holding the specific skills has prompted the adoption of this organisational structure.

Yet this set-up only emerged recently replacing symmetrically organised inter-firm networks of production in the eighties, typical of classical industrial district, and the hierarchically integrated structure of production in the sixties. As a matter of fact, the industry faced two critical junctures during which previously established organisational structures were called into question: (1) in the seventies rising labour costs implied that the traditional economic model based on low wages and low skills was no longer viable; (2) in the late nineties growing competitive pressures from emerging economies and the removal of the exchange rate competitiveness enhancing mechanism implied that the traditional district model, characterised by horizontally symmetrical relations across firms, was also no longer successful. As a consequence, the organisational structures in place were restructured. This section is spent tracing these developments.

### *3.2.1 From vertical integration to a horizontally symmetric system*

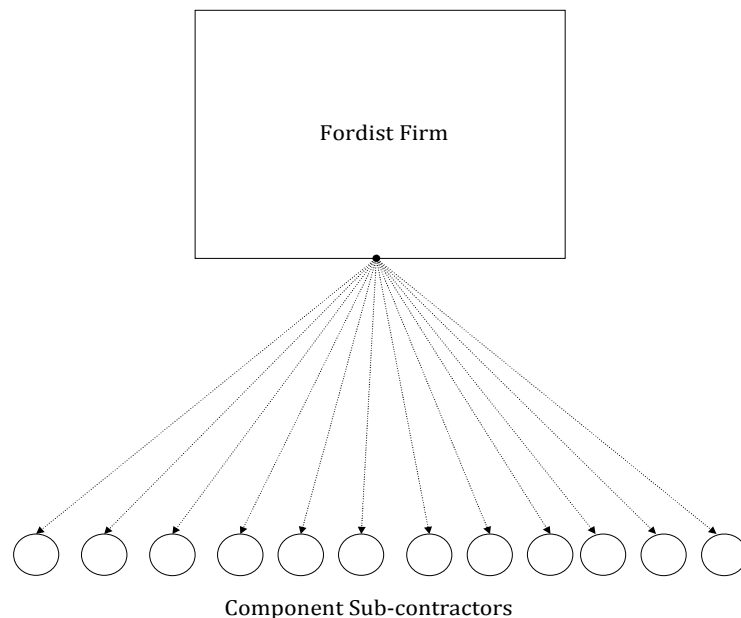
As contended by Chandler, the vertical integration of production phases and processes is the most efficient structure. It minimises the problems of hold-up and control which

derive from the dependence on external firms (Chandler 1977). This production structure was widespread in the fifties and sixties across the Italian textile industry at large. As a matter of fact, the European market of the sixties was dominated by large, vertically integrated, Fordist Italian firms of the likes of: *Lanificio Rossi*, *Lanificio Rivetti*, *Marzotto*, *Lebole*, *Cantoni*, *Bassetti*, etc. (Locke 1995; Locke 1996). Moreover, this organisational structure was found in most of the firms which later “fed” (Lazerson and Lorenzoni 1999) and gave birth to the Italian industrial districts (Piore and Sabel 1984; Becattini 1987; Becattini 1990).

During the seventies the industry was hit by a widespread crisis fuelled by altered patterns in competition and consumer demand, increased energy costs, and the introduction of government health and safety regulations which increased production costs. Additionally, unit labour costs surged as a consequence of the institutional innovations which followed the 1968-1969 years of worker unrest: specifically, the introduction of an instrument for wage indexation, the *scala mobile*, and the 1970 *Statute of Workers* (Rogari 2000). As a consequence, a vast number of Italian textile firms entered a phase characterised by organisational disintegration and restructuring (Locke 1995). Large firms were broken up and workers fired; these opened up work-shops and small firms, having taken away with them their own portable firm-specific skills (Becattini, Bellandi et al. 2009; Guenzi 2009). Subsequently these workers specialised in the labour intensive skill carried away when leaving the integrated structure they were previously part of. The interaction between what remained of these large integrated organisations, *casa madre*, and the small artisanal firms became characterised by arm’s length and spot market relations. The *casa madre* would decompose the production of a final good into separate and independent parts which would be externally outsourced. These separate

components would then make their way back to the OEMs and were recomposed into a final item, through a process which added value to each individual part.

Figure III.4 Post-Fordist Sub-contracting Model



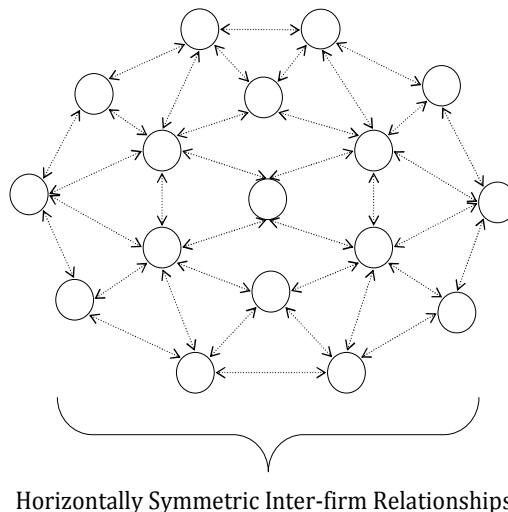
*Source: Own representation*

So was the case in the leather goods industry for example. In the pursuit of producing a leather-based shoe or handbag, hierarchical lead firms provided suppliers with pre-cut pieces of leather and paid for the sewing and stitching, labour-intensive, phase of production. Semi-final goods would then make their way back to the *casa madre* where finishing touches were applied to the goods. Within this process, the ownership of the raw material employed remained with the lead firm: small suppliers thus only offered manual labour at a price. Maintaining an external network of suppliers significantly reduced lead firms' labour costs, which had inflated after the social unrest of the late sixties.

Similarly, in the apparel industry, lead firms would outsource to – mostly female – external labour the stitching and sewing of parts which would *a priori* be developed and *a*

*posteriori* overlooked and refined in house. The lead firms of the seventies would thus retain under their direct, internal, control the most value added phases of production: such as the modelling, cutting of leather, product development (i.e. the creation of new collections), and the finishing - *finissaggio* - of the product. The remaining, labour intensive and low value added phases would instead be outsourced to a chain of suppliers, who *de facto* had once been part of its own workforce. The interaction between what remained of these vertically integrated large companies and laid off workers is captured by the Figure III.4.

Figure III.5 Traditional industrial district model



Source: Own representation

Yet by the late eighties the interactions between small firms evolved into an independent model of production, detached from the large firm. Whilst the demise of large firms was central to the formation of (some) industrial districts<sup>32</sup>, during the late eighties and

<sup>32</sup> Whilst some scholars attribute the origin of district to the disintegration of large firms [Belussi, F. (1989). *Benetton Italy: Beyond Fordism and Flexible Specialisation to the Evolution of the Network Firm Model. Information Technology and Women Employment: The Case of the European Clothing Industry*. S. Mitter. Berlin, Springer Verlag, Trigilia, C. (1989). *Il distretto industriale di Prato. Strategie di riaggiustamento industriale*. M. Regini and C. R. Sabel. Bologna, Il Mulino, Lazerson, M. and G. Lorenzoni (1999). "The firms that feed industrial districts: A return to the Italian source " *Industrial and Corporate Change* 8(2): 235-266.]. Others maintain that the creative pressures developed from sharecropping and cottage industry experiences which at times also

nineties districts more accurately conformed to the following definition: they had become “socio-territorial entit[ies] characterised by the active presence of both a community of people and a population of firms in one naturally and historically bounded area” (Becattini 1990 : 39). Sociological interaction and relational density, coupled with the presence of employers, artisan and workers associations, local technical schools, credit cooperatives, networks of local banks, and development agencies served as the district’s underpinning (Whitford 2001). Within these districts, individually owned and independent enterprises distributed production amongst one another, shared information and – through the rotation of apprentices and craftsmen - skilled labour (Harrison 1994 : 81). Most importantly, districts were characterised by the co-location of horizontally organised small firms, engaged in symmetrical relations. Flexible specialisation had become the economic model informing the distribution of production processes between firms (Piore and Sabel 1984), as captured by Figure III.5.

The extensively researched districts of Carpi, Santa Croce sull’Arno, Prato, Schio, Fermo and Biella featured these characteristics - though with some minor differences (Locke 1995; Bigarelli 2003; Trigilia, Dei Ottati et al. 2008; Dei Ottati 2009; Maitte 2009). Specifically, Schio and Biella have always been exclusive textile producing districts, Carpi and Prato combined both the production of textiles and that of clothing, Fermo specialised in the production of leather and footwear and Santa Croce sull’Arno in that of leather and leather goods. These districts share similar origins: during the eighties, the large mills of Biella had outsourced most of their labour intensive production to subcontractors, thus initiating the establishment of an horizontal production system (Battagion and Corrocher

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anticipated the first wave of mass industrialisation [Belfanti, C. M. (2009). *The genesis of a hybrid. A Handbook of Industrial Districts*. G. Becattini, M. Bellandi and L. De Propris. Cheltenham, Edward Elgar Publishing, Colli, A. (2009). *Industrial districts and large firms: the stubborn persistence of a 'weak' productive model. A Handbook of Industrial Districts*. G. Becattini, M. Bellandi and L. De Propris. Cheltenham, Edward Elgar Publishing.]. The jury is still out as to which hypothesis carries more weight, though the empirical evidence available suggests that both hold some clout.

2003). In Prato, these dynamics took place earlier (mid-fifties) but along similar lines: large mills laid workers off and provided incentives to ex-employees to set up their own workshops (Dei Ottati 2000; Dei Ottati 2009). These districts all experienced a period of very successful export and economic growth in the early nineties (Federazione.dei.Distretti.Italiani. consulted throughout 2009-2010). Yet, the same development model which had made them so successful in the past, appeared to have lost steam during the early years of the new millennium (Whitford 2001; Varaldo 2005). In Prato for example, the number of textile establishments fell by more than 30 per cent over the 1991-2001 decade (Dei Ottati 2009 : 1822 on ISTAT Censimento Industria e Servizi 1991-2001 statistics).

Despite the model's reduced growth potential, which became increasingly apparent over the last decade, a radical reform of manufacturing processes in the textile industry has not occurred. Quite the contrary, neither the reintegration of production phases within one independent unit has not been observed, nor the complete outsourcing and off-shoring of textile production to low cost countries. On the contrary, within some districts, there is evidence of a movement towards hierarchically governed, yet disintegrated, production structures. Rather than being established anew, this new model of production organisation appears to build on a pre-existing industrial and institutional *sub-stratum*.

### *3.2.2 Hierarchical production chains and capital-skill asset pooling*

The industrial district model of production of textiles, leather, apparel and footwear products came under pressure because of the creation of a European Economic and Monetary Union, the liberalisation of international trade policy and the emergence of a

competing clothing model of consumption – *ready-to-wear fashion* (Lane and Probert 2004; Lane and Probert 2009). As a consequence, the supply mechanisms of apparel, leather goods and footwear products were reformed so as to produce greater volumes of quality competitive goods. In order to do so, individual firms required two assets of production: *patient* capital and specific skills (Streeck 1991a; Herrmann 2008a). As some firms have grown in size they have been able to access forms of *patient* capital financing; they have not however been capable of accessing a pool of redundant capacities. Therefore such firms (lead firms) have come to stand at the helm of a multi-level hierarchical structure of production within which they engage in capital-skill asset pooling with suppliers. Suppliers have become hierarchically differentiated since first and second tier suppliers differ in terms of the respective capabilities possessed and the governance mechanisms which regulate their interaction with lead firms.

Within this, lead firms: (a) draw up an initial product design and collection, based on their prediction of the behaviour of consumer markets; (b) they download this design to specialist technicians and external artisans who translate the initial designer project into a standardisable item, composed of multiple parts, each characterised by varying quality intensity; (c) they subsequently organise and manage multi-level supply chains by distributing production phases to sub-contractors; (d) they perform the important function of overlooking and certifying that supplier behaviour and products conform to both formal and informal criteria of quality; (e) they set up and manage the marketing, retail, branding, customer service which feed into the success of a final good. Proceeding downwards, lead firms have agreed to share the proceedings of the above endeavours with suppliers in exchange for their skills. Therefore first tier suppliers pool their skills by cooperating in the technical design and development of specific component parts for which specific skills are required. In practice, they offer their skills by completing the



following activities: the actual incision of leather in the leather (handbag or travel bag - producing) industry; the process through which uppers of shoes are attached to their soles in the footwear industry; and the cutting of cloth and allocation of input items in the apparel industry. Lead firms also exchange their capital with product specialists who produce heels and soles which require substantial sunk cost investment in terms of machinery and plants; metal accessories which complement a leather (handbag or travel bag) product; and other component items which are produced according to semi-customised and modularised arrangements – such as buttons, laces, or zippers for example.

Ultimately, lead firms engage indirectly in capital-skill asset pooling with *industry*-skilled suppliers. *De facto* first tier suppliers download to them the actual production of finite parts and components, and of codified production processes. Given the large availability of such suppliers, they are important as they enable quantitative fluctuations in demand to be smoothed out. In the second place, this availability allows production costs to be kept at bay, as in the absence of clear product or process specialisation; competition amongst these firms is price-based.

Currently, a process of institutionalisation –*fidealizzazione*– of first tier of suppliers has been observed whereby lead firms have ensured that their most important suppliers would receive additional financial support during the recent crisis (additional *patient*-capital was transferred to preserve their skills). Moreover, this process of institutionalisation of first tier suppliers is reinforced by the recurrent practice of know-how exchange via the mobility of expert personnel across them. Nonetheless, lead firms continue to monitor suppliers through so-called *ispettori* – *de facto* process overseers. Yet, whereby first tier suppliers benefit from the close ties webbed with one lead firm, they

often pool their skills with other lead firms, attracted by the reputational benefits of working with one lead firm already. This cross-fertilisation becomes possible since the practice of exclusive customer-supplier relations is not widespread.

On the other hand, this process of upward institutionalisation is dovetailed by the drastic intensification of spot market and hierarchically informed relations between first and subsequent tiers of suppliers. Work is outsourced to sub-suppliers according to two criteria: who bids the lowest price and who produces the same quality product in the shortest time. Thus competition among sub-supplier firms is fierce; not only in terms of buyers but also in terms of competition for the skilled workers which are trained in-house. As a matter of fact, all small firms compete against lead firms who, from time to time, poach their most specialised employee to enrich their own product development department (for example), and thus compromise the survival of the sub-supplier itself. Besides the few instances of poaching, in general lead firms obtain a skilled labour force by outsourcing the actual manufacturing phases of production to suppliers which are selected on the basis of their skills: industry-, firm- or product- specific. In exchange for the possibility to access an international distribution chain, first tier suppliers cooperate with lead firms in the incremental innovation of products via continuous interaction and the exchange of tacit skills. In sum, the pooling of capital and skills between lead and first tier suppliers, between first and subsequent tiers of suppliers, coupled with horizontally competitive forces at every level, has emerged as a new model of production organisation in the textile industry.

### 3.3 Internationally competitive firms and consortia

Because the number of firms captured by the product categories listed in Figure III.3 is considerable, I have limited my firm level analysis only to the leather goods family as a whole, thus including footwear and handbag producers and excluding apparel and clothing firms. This choice is also justified by the large export market share obtained for this industry by Italy, both with respect to the OECD and the World – thus once developing and low cost economies are included as well. This section therefore presents firm-level evidence collected on a handful of highly internationally competitive Italian leather goods, handbags and footwear producing companies. These firms are deemed successful in terms of their export and financial performance captured by analysing the ORBIS database for this given (NACE) product category. When compared to their international counterparts, taking into account the specific industrial specialisation and the size of the firms, these companies rank very high. Moreover, it is the widespread opinion of industry experts that these are indeed amongst the most successful internationally renowned companies for this industry. These firms are cases of successful quality competitive manufacturers, who have not only invested significantly in the branding and marketing of their products, but also in the quality of the goods actually produced.

In what follows, the section shows how the international competitiveness of Ferragamo, Gucci and Tod's is based on the quality enhancing capacity of the supply chain constructed. Second, through the use of negative performance case I further establish that conditional to this success is the interaction between lead firms and skilled suppliers. Skilled suppliers alone lack the *patient*-capital required to invest in technological innovation and in extending distribution channels so as to remain successful in internationally competitive markets.

### 3.3.1 Brand and value-chain leaders: Gucci, Ferragamo and Tod's

#### *Gucci and the Gucci Group*

Gucci is a historical brand in the production of leather goods and footwear products. Originally founded in the early 1920s, it is today one of Italy's largest company within such industry. Gucci was born as a small niche brand which significantly increased its size and reach through changes to its corporate ownership structure. It first became part of the Anglo Arab investment fund, Investcorp, then of the French LVMH luxury holding group, and lastly of the French Pinault-Printemps-Redoute, PPR. The injections of liquidity and the easier access to funds which these acquisitions brought about resulted in a process of internal, as well as external, expansion through the increase in personnel and the purchase of a multitude of smaller luxury brands incorporated into the Gucci Group. Moreover, this transition in ownership structures, and financial means, was paralleled by a process of restructuring and reorganisation of Gucci's productive set-up.

Gucci and the Gucci Group (a by-product of Gucci's external expansion strategy) therefore represent a case of a small district firm which has grown into an important international player. Though admittedly Gucci is a very old company, the transition only began during the early nineties when Investcorp first purchased 50% of the company's shares (1989), and developed exponentially with the final acquisition by the PPR group. This development is in line with the thesis' argument that once a firm can access *patient*-capital it can engage in capital-skill asset pooling with suppliers. In this section the organisational changes which followed the first and subsequent injections of external capital are described, with particular reference to Gucci's footwear and leather goods' (i.e. handbags) production.

Gucci's revenue stream is mostly of foreign origin: 42 per cent of its profits are collected across Europe, 21 per cent in the US, 20 per cent in Japan, and 12 per cent in Asia (company data for 2003). It has also established a global sales network, with more than 163 directly controlled shops scattered around Europe, America and Asia. Despite the extensive internationalisation of its retail activities, most – if not all – of its productive activities are instead concentrated in Italy, particularly around Tuscany (Florence and Scandicci). In terms of personnel, whilst 67 per cent of its personnel are employed in white collar functions (12 per cent in research, development and design), only 31 per cent of its employees are involved in manufacturing. Moreover 9 per cent of the latter are only involved in the management and organisational planning of production (Bacci and Bianchi 2004 : 159, based on company data for 2002). Who then manufactures Gucci's products and according to what organisational logic?

Until the company's strategic turnaround, which followed the ownership changes mentioned earlier and which was initiated by Domenico de Sole and Tom Ford, most of Gucci's production was internal: only the assembly phase of production was outsourced to external suppliers. Today we observe a very different picture. The design and development of each individual product are completely internalised; the production of prototypes takes place both within Gucci and within trusted suppliers addressed by Gucci as partners, (aka. process specialists). The cutting of leather and raw inputs is mostly externalised to first tier suppliers, except where raw materials are extremely precious. Finally, the actual production of a handbag is completely outsourced to a hierarchically organised network of suppliers. In what follows the organisation of the subcontracting network employed for the production of leather goods and footwear is discussed. The latter appears to be more articulated because of the larger capital investment required for the production of footwear.

Gucci internally designs its leather goods' products. The design stage is then followed by the development of prototypes. This process is distributed across Gucci and partner firms; approximately 20 per cent of the process takes place within Gucci, the remaining 80 per cent takes place within five exclusive partner firms (first tier suppliers) who use the same IT and machine systems as Gucci and maintain open channels of interaction with Gucci in developing these prototypes. These machines and IT infrastructure represent part of the *patient-capital* exchange that Gucci has offered to these firms in exchange for their skill assets. These relationships are long established and continuously nurtured via skill and *patient-capital* exchange which occurs when Gucci employees directly spend a proportion of their working time within the premises of partner firms, or when Gucci purchases machinery directly for its suppliers.

The act of translating a design into a prototype is highly artisanal and skill intensive. Each of the partner firms employs between 30 and 60 employees, and are therefore not micro-firms in terms of size, yet are mostly non-unionised. Once prototypes are completed, they are sent to suppliers accompanied by clear guidelines and the necessary raw materials for production, which is supplied by Gucci directly. There are at least 60 such suppliers which receive direct guidelines from Gucci, based on the prototype developed in partnership with trusted suppliers. Agreements with these suppliers are often sanctioned via detailed contracts, and prices are established *ex ante* based on the knowledge that Gucci has acquired during the prototyping stage.

Subsequently, these firms further subcontract self-contained production phases to 10-15 second tier suppliers; each will subsequently download the production of finite components to 6-20 third tier suppliers (Bacci and Bianchi 2004 : 165). The relationships amongst these lower tiered suppliers vary: we observe both long term relations as well as

market-based fluctuation-absorbing interactions. Though Gucci only selects first tier suppliers directly, it will give recommendations to the latter on their respective suppliers and, if necessary, Gucci will advise against some in order to preserve quality standards. In total there are at least 650 firms producing Gucci leather-ware, employing a total of 4000-4500 workers, on top of the 4000 directly employed by Gucci itself (Bacci and Bianchi 2004 : 165).

The production of footwear is structured according to similar guiding principles, although it is less disarticulated because of the higher capital investment required to assemble a shoe. Prototypes of shoes are developed internally through the interaction of design and development divisions; once a prototype is agreed upon, a limited (12) number of shoes per model are produced by trusted suppliers in order to establish the feasibility of its manufacturing. These limited items are then presented to the market. Once the market perceptions for each model are tested within show-rooms, mostly located in Milan, the successful shoe models are produced in large scale. Gucci purchases from product specialists items such as soles, heels and other accessories. Four first tier suppliers (exclusive Gucci partners) and their suppliers are in charge of the actual manufacturing of footwear, along the lines of what takes place in the leather good industry. Finally, since a number of shoe-accessories may often be non-standardisable, they are sourced from highly specialised laboratories, often artisanal in nature. Gucci and these firms establish clearly defined contractual agreements, and these firms most likely produce shoe-accessories for multiple brands at the same time.

In this example, the capital exchange between lead firms and first tier suppliers takes the form of Gucci paying for expensive fashion designers to come up with a new design. That between lead firms and second tier suppliers takes the form of Gucci providing suppliers

with the necessary leather and material to produce the footwear item. For both the skill exchange takes the form of translating a prototype into a retail-able product. The oversight of this articulated production structure is performed by process overseers – *ispettori* – who overlook actual production at initial as well as final phases, along similar lines of what happens in Ferragamo (forthcoming firm-level study).

*Salvatore Ferragamo Italia S.p.A.*

Salvatore Ferragamo S.p.A. (Ferragamo in what follows) is a family owned enterprise based in Florence. It was set up by Neapolitan born Salvatore Ferragamo in the late thirties - after a brief stint spent in the US, manufacturing shoes for Hollywood movie actors. Ferragamo's main products today are footwear and leather (hand) bags. Footwear products take up 38 per cent of its total sales; leather (hand)bags and minor leather accessories take up 28 per cent; clothing 16 per cent; and apparel accessories and perfumes the remainder (calculations based on company data for 2004). In what follows, Ferragamo's production and development activities are analysed: specifically, for footwear and leather (hand) bags.

Ferragamo is an export oriented manufacturer; 92 per cent of its total revenues were of foreign origin in 2006: 30 per cent of which was produced in America, 23 per cent in Japan, 23 per cent in East Asia, 21 per cent in Europe, and 3 per cent in South America (De Michele, Foresti et al. 2008 : 41-42). These results are the by-product of an extensive international chain of, directly controlled, shops (450 in 2006, located in more than 50 countries). Despite the extensive coverage of its retail activities, Ferragamo is a family owned company and currently employs no more than two thousand employees (Bertolini, Molteni et al. 2006 : 113). Moreover, despite the trans-nationality of its revenue stream,



Ferragamo manufactures all of its products in Italy. Ferragamo does not produce its goods directly; rather it subcontracts the manufacturing of its goods to a chain of suppliers.

The production of leather goods appears to be highly fragmented as Ferragamo claims to make use of roughly fifty to sixty first tier suppliers. Respectively, each of these is known to download its production load to at least six to ten sub-contractors (interview number 30, Ciucchi). In light of the extensive number of suppliers and sub-suppliers, Ferragamo recently – in the early 2000s - performed a rationalisation of its leather goods supply chain. It performed a census of its suppliers (*Censimento dei Subappaltatori*) in order to protect its brand by improving its ability to control and oversee the outcomes of production, and to ensure compliance to its ethical Code of Conduct. At the time, a high proportion of third level subcontractors were small Chinese sweatshops, which failed to comply to health and safety, employment protection legislations; consequently, Ferragamo initiated a census in order to sever such ties. Following this census, and consequent to the termination of numerous supplier relations, Ferragamo's supply chain was streamlined.

Over time the suppliers used by Ferragamo have fine-tuned their own specialisation in order to best meet the skill needs of the *casa madre*. Ferragamo and these firms have interacted in a knowledge-transfer process which has trained the latter to manufacture Ferragamo-specific components or process raw material according to tacit Ferragamo guidelines. Amongst these first tier firms, firms with *firm-specific* and *product-specific* skills exist. The former are used to manage highly sophisticated machines and/or costly raw materials. Quite crucially, they appear to be in charge of the cutting of leather which is then passed onto other firms, assemblers and finishers – i.e. they are called *fustellifici*. The latter are firms selected because of a capacity to produce customised items in large scale, thus an ability to produce so called 'entry-price' products which are proportionately

more textile- rather than leather-based. Another product specialist is Dmc (di Renzone 2007 : 48 - 52): a medium small (28 employees), family owned company, set at the helm of a network of firms which produces metal accessories to be assembled into leather good. Whilst these firms have indeed a clear product specialisation independent of Ferragamo, some have engaged in instances of capital-skill asset pooling whereby Ferragamo has financed the development of specific metal products. Dmc has specialised in the production of such (desired) metal accessories although it does not only supply Ferragamo but also other brands of the likes of Gucci, Bulgari, Lanvin, J-P Gaultier, Pucci. Lastly, each of these first tier suppliers has constructed its own chain of subcontractors to whom the production of parts or their assembly is downloaded. Whilst first tier suppliers are selected by Ferragamo on the basis of their *firm*-specific or product specialisation, sub-suppliers are selected by suppliers on the basis of the price and timing terms offered, assuming they hold *industry*-specific skills. Nonetheless, these firms are still expected to comply with the above mentioned Code of Conduct.

The manufacturing phases which lead to the completion of a leather product are structurally flexible, and are not always performed within industrial premises. In comparison footwear production is dependent on a higher rate of physical capital investment. Footwear has remained one of the very few light manufacturing products whose final assembly takes place along an assembly line - called *manovia*. In this case, Ferragamo's footwear is produced by quasi-exclusive first tier suppliers with which it has established long term relationships, at time spanning for more than fifteen years. These suppliers in particular specialise in assembly, rather than component production, as assembly is for Ferragamo footwear a high value added production stage. For example, the process of attaching an upper of a shoe to its sole is highly tacit and variable: within this stage, trusted suppliers and Ferragamo have developed co-specific knowledge and skills.

The same holds for the actual production of a shoe's upper – the so called *tomaia*. In this case, the pooling of capital-skill has occurred over time as Ferragamo financially supported the necessary physical capital investment and suppliers have committed to specialising in those footwear segments pursued by Ferragamo.

First tier suppliers source the components assembled from other suppliers, which at the same time interact with their own subcontractors. This is true for example for those firms which produce heels and soles of shoes which are highly labour intensive products. Ultimately, these first tier suppliers resort to price-competitive suppliers which produce the cloth bags which contain finished shoes – though this may appear a negligible component, it too is part of the footwear production chain.

Co-development between Ferragamo and its first tier suppliers takes place within a highly informal environment. Ferragamo rarely participates directly in the ownership structures of firms, yet it ensures those first tier suppliers are equipped with the necessary physical capital investment and demand flow to remain active. In times of crisis Ferragamo has stocked up its inventories and increased its own demand in order to compensate for possible decreases in demand on behalf of other buyers. Ultimately, Ferragamo oversees this highly disintegrated production chain by using process overseers and inspectors – *ispettori*. These travel across suppliers, both first and second tier, in order to oversee that all production is up to standards in terms of process as well as end product. Where these inspectors may find below par conditions, these suppliers will be fined and possibly their contract may be terminated.

### *Tod's Group and Bottega Veneta*

Tod's Group is a footwear and leather goods manufacturer based in the Marche region. It was set up in the early 1920s and is today a highly successful, export oriented manufacturer. In 2005 51.7% of its revenue stream was of foreign origin; 46% in 2010 (from 2005 and 2010 company accounts). Roughly 70% of total production is in footwear, 15% in leather goods and 12% in apparel goods. Its ownership is firmly held in the hands of the Della Valle family; although a proportion of the company's shares have been listed on the Milan stock exchange in 2000 (67.8% of shares are held by the Della Valle family, the rest by various international investors). A combination of (little) primary and secondary evidence enables a reconstruction of the productive structure in place at Tod's today.

Tod's Group employs more than 2500 employees (2009), 68% of which were white collar workers, 32% blue collar. Its footwear production takes place in six Tod's factories located in the Marche region. Yet the role of external suppliers is also relevant. Tod's engages in long term relationships with trusted (first tier) suppliers, firms which employ between 15-20 employees (Tunisini 2003). Whereas Tod's oversees production, orders standard components in bulk from product specialists, and focuses on order management and distribution, first tier suppliers cut the main constituent parts of a shoe (or bag) and assemble all component parts together in a final product. Lower tier suppliers are employed by first tier suppliers to contribute to the sowing and assembly of parts. Tod's nurtures its relationship with first tier suppliers by offering business and IT advise, as well as by purchasing machinery on behalf of the latter, if necessary. In exchange, first tier suppliers offer their specific skills and workforce. In addition to Tod's, other successful Italian firms have adopted a hierarchically structured system of production as well. They

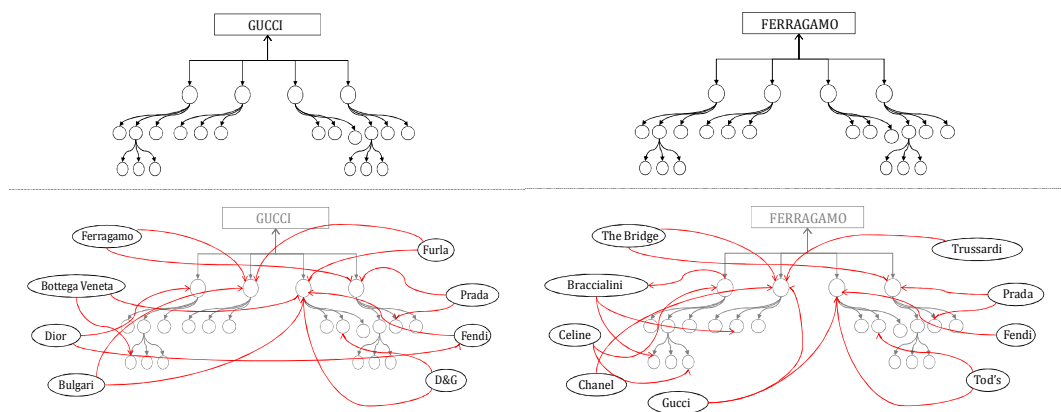
have engaged in capital-skill asset pooling in order to be able to produce large quantities of quality competitive goods. Moreover, as captured by the picture below (Fig. III.6), some of these firms share their supply chain with the other two cases investigated in detail.

Bottega Veneta is a luxury manufacturer of luggage, handbags, founded in 1966 as a family business in Vicenza. Since its birth, Bottega Veneta was always associated with notions of quality, high fashion and value. All its products are hand-crafted in Italy, by artisans and highly skilled workers within the Venetian territory. Bottega Veneta was only a locally renowned atelier in the eighties; moreover in the nineties its value declined significantly. As a measure of its international exposure, by the mid-nineties it only had twenty one international shops and employed only 118 employees. In 2001, Bottega Veneta was incorporated into the Gucci Group (which includes Gucci as well as other labels). The acquisition and the recapitalisation which followed, worth \$96.2 million, implied that Bottega Veneta was now capable to access significant amounts of *patient-capital*. Consequently Bottega Veneta aggressively pursued an internationalisation strategy by opening 110 international outlets (2007) and by doubling its white-collar employee size. As a result, Bottega Veneta is twice as productive (in terms of value added per employee) than the industry average (based on AMADEUS calculations on 2007 financial data), and fifty per cent more productive than it was in the early nineties. Nonetheless, production and manufacturing is still entirely performed in Italy, by the same skilled workers and suppliers as in the past, albeit the structure of production has become increasingly verticalised. The injection of capital also allowed Bottega Veneta to nurture its own suppliers. It appears that Bottega Veneta's international success results from the capital-skill asset pooling which occurred once it was acquired by the Gucci Group. Bottega Veneta lacked the *patient-capital* required to set up an international distribution network;

the acquisition offered an opportunity to restructure its model of production in line with what occurred at Ferragamo and Gucci.

Interestingly, a study of the leather and footwear industry in Tuscany, has shown that Gucci and Ferragamo suppliers have often catered to the needs of other lead firms as well. Suppliers perform subcontracting functions for other firms such as Tod's and Bottega Veneta (Fig.III.6), proportional to the demand and capacity it holds (Bacci and Bianchi 2004). This study also identified non native lead firms employing suppliers from these localised productive systems (Dior for example is French). The figures represent the production organisation adopted by Gucci and Ferragamo and the extent to which their suppliers are employed by a wide range of other firms as well. The bottom part of the figures offers highlight the linkages with other lead firms that have been empirically identified (Bacci and Bianchi 2004 : 117, author's reproduction).

Figure III.6 Gucci and Ferragamo: relationship with own suppliers and interaction with other lead firms in the leather goods and footwear industry



Source: (Bacci and Bianchi 2004 : 117, author's reproduction)

These firm level case studies contribute to the operationalisation of the model presented in section 3.2. Lead firms (Gucci, Ferragamo, Tod's and Bottega Veneta) appear to have set

up a highly fragmented production structure, over which they maintain a high degree of control. They have done so in order to overcome the dual problem of financing research, development, retail and branding costs as well as training and personnel costs: costs which arise because of the heterogeneous distribution of the *patient*-capital and specific skill assets. Capital-skill asset pooling has allowed large firms to pool the capital asset with the skill asset of suppliers and thus to develop international distribution chains and continue to feed on the ability of small firms to train workers. The following section presents evidence on firms who, despite the territorial overlap, have adopted a different organisational structure and have not engaged in capital skill asset pooling. Because of this, their international performance deemed to be less successful.

### *3.3.2 Consortia and hierarchical supply chains*

Consortia<sup>33</sup> have been traditionally widespread in Italy's building, textile, agricultural and food processing sectors. They consist of a multitude of small and micro entrepreneurs who come together under a joint banner and have access to pooled resources. Consortia can develop for the purpose of (1) limiting competition between firms, (2) coordinating the fulfilment of a project (as is often the case in the building industry), or (3) facilitating the distribution of services and information. Crucially consortia do not entail any form of joint ownership between firms and do not represent a single legal entity, as would be the case with cooperatives instead. Participating in a consortia grants reputational gains to each member firm. Firstly, participation may be associated with a title or label or brand, linked to a joint marketing program. Secondly, consortia will sometimes contribute to the set up

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<sup>33</sup> The broader literature refers to the act of small firms coming together within a single umbrella entity in order to share the cost of specific production phases as "cooperative"; note this does not include the management of individual firms, nor the common distribution of profits. The Italian administrative code instead uses the term "consortium" to capture the legal entity accounted for by the term "cooperative" in the Anglo-Saxon literature. A "cooperative" in Italy is instead a company formed by a minimum of three firms which share the cost and profits of production.

of “Confidi”, a jointly-funded, para-public, institution whose main function is to act as an intermediary between banks and SMEs, so as to limit the information asymmetry between the two. This implies that credit becomes more accessible because of the reputational spill-over (Angelini, Di Salvo et al. 1998). In sum, consortia represent amalgams of horizontally symmetric firms which come together and establish clear parameters for cooperation in service or financial provision.

Yet, this section shows that the recently created Consortio 100% is not in itself a successful entrepreneurial project. It shows that it is highly reliant on the interaction with local Tuscan lead firms, such as Gucci and Ferragamo for example. The section argues that capital-skill asset pooling between the firms of the consortium is missing as no firm has access to *patient*-capital whereas all firms are endowed with *industry*-specific skills. The empirical evidence shows that the firms which make up this consortia are eventually drawn to become part of the supply chains set-up by lead firms in order to access sources of *patient*-capital.

The Consorzio 100% was born in the vicinities of Florence in 1997 as a response to the financial and structural difficulties faced by a number of small local enterprises. Following the application of the Multifibre Agreement an initial trend among local firms entailed outsourcing production to developing countries with low labour costs. The roughly seventy firms that founded the Consorzio 100% opted against this low cost strategy, and chose to invest in the Made in Italy label for the production of leather goods (mostly handbags).

This investment was followed by the consortium’s SA8000 certification. It attests the Italian location of origin of the goods and confirms that their production has taken place



under the abundance of a number of ethical criteria. The consortium's driving objectives were to pool resources to invest in technological and process innovation, in the costly process of certification and patenting, in training, and in strategic marketing and access to finance.

A number of measures and joint actions thus followed: the kick start of a campaign for better training which led to the establishment of the *Alta Scuola di Formazione per la Pelletteria Italiana* – a vocational training school specialised in the manufacture and processing of leather. The Consorzio 100% is not the sole actor behind the schools establishment, rather external actors participated as well: two *case madri* (Gucci and Prada), the employer association for small-and-micro sized firms (CNA and Confartigianato), and local administrations. With respect to the objective of improving the quality of the strategic marketing received, the consortium pooled resources in order to provide its members with project managers and marketing experts which were *ex ante* largely missing. Finally, with respect to the issue of financing, the consortium negotiated with the Tuscan Region and the artisans' employer organisation a number of guarantees to banks. These guarantees reduced the banks' inability to assess the collateral of small and micro enterprises when discussing the possibility of loans.

Some of the firms which make up the Consorzio 100% have since 1997 proven to be internationally active in export markets, have produced items characterised by very high quality, and some are quite successful in terms of their own individual financial performance (Sapaf and Braccialini<sup>34</sup> for example). Sapaf has been one of the main drivers behind the establishment of the Consorzio 100%, and is currently one of the largest firms

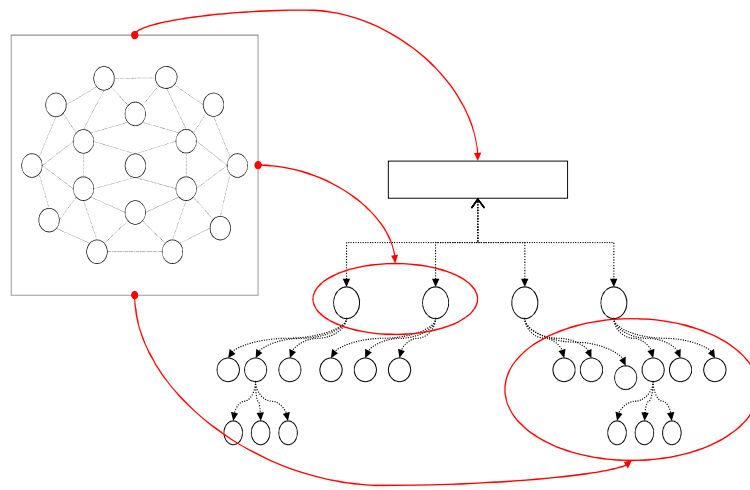
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<sup>34</sup> Braccialini's success was identified by MBFG (Mariella Burani Fashion Group). This was (as it went bankrupt during the recent crisis) a holding company of small-but very successful mid range companies. In identifying Braccialini's potential, the group took ownership of the brand.

of the consortium. It is a family owned company which employs less than thirty employees and which produces varying ranges of handbag products, which are sold both under its own label as well under that of other firms. Yet, although comparing Sapaf and Gucci correlates nicely to comparing apples and oranges, it is important to highlight that the export to total production ratio, of the two firms differs substantially, despite the same industry specialisation. Close to 95% of Gucci's profits are of foreign origin (company data for 2003); instead close to 90 per cent of Sapaf's profits are of domestic origin (primary data obtained from Sapaf's owner, 2009).

Moreover, although the establishment of the Consorzio 100% may suggest that alternative organisational set-ups are viable within the same territorial space and industrial segment, a deeper investigation of the activities of the firms that make up the consortium shows that this is actually not the case. Figure III.7 presents a stylistic representation of the consortium and its interactions with the hierarchical inter-firm network established by local lead firms. It suggests that firms within the consortium interact with all actors of the model, both with the lead firm, first and subsequent tier suppliers. In reality, though the Consorzio 100% represents the joint effort of firms to achieve predefined objectives, it is still made up of multiple, independent, firms which retain their individuality and maintain a cooperative yet competitive relational-behaviour with each other. *Sapaf* too competes with its consortium partners, except on the issues discussed above where it instead cooperates.

Figure III.7 The interaction of Consorzio 100% and neighbouring firms



*Source: Own representation based on interviews conducted with the firm and suppliers, and evidence collected from firm-level publications and industry reports*

Moreover, individually each firm is drawn towards local lead firms. In order to become part of their supply network, the Consorzio 100% firms offer *firm-* or *industry-*specific skills. It therefore appears that although the consortium was expected to behave as a self-contained industrial player, its activities are instead intertwined with that of the hierarchical structure set up by local lead firms (specifically Gucci and Ferragamo). The reason for this is that the financial resources pooled together as a consortium are insufficient to pursue an international distribution strategy. As a matter of fact, the only retail avenue of the Consorzio 100% is a business-to-business fair, hosted in Scandicci, where buyers (not customers) come to view and purchase the Consorzio's products. Consequently, the firms of the Consorzio 100% are drawn towards lead firms with greater sources of *patient-capital* financing. Moreover, the widespread opinion of the local trade unions and employer organisations consulted has been that the firms which make up Consorzio 100% earn the biggest share of profits by acting as sub-suppliers or suppliers

within the inter-firm networks established by *case madri*. Only a residual part of profits results from the sales of goods sold under private labels.

In sum, the main activities observed within the firms which make up the consortium are three: first there are firms which act as second tier suppliers by producing specific components, secondly there are firms which act as first tier suppliers by hierarchically downloading functions to second tier suppliers, thirdly there are firms which diversify in the production and development of goods retailed under their own label. The evidence collected thus suggests that although the symmetrical and horizontal features of consortia seem to differ from the hierarchical inter-firm networks built by Gucci, Ferragamo, Tod's and Bottega Veneta; the individual behaviour of member firms actually overlaps with the dynamics observed within those hierarchically organised chains of production where capital-skill asset pooling is the driving rational for inter-firm exchange (as captured by Fig. III.6). This is quite a disappointing result given that the driving objective of the consortium itself was to enable member firms to effectively curtail the spread of such disintegrated and imbalanced production structure.

### **3.4 Conclusion**

The leather good and footwear industry in Italy has exhibited continuous vigour and economic growth by retaining close to 35% of the OECD's export market share. Related to its export performance, the revealed symmetric comparative advantage (RSCA) for the goods which make up the industry has stood at values continuously greater than 0.5: above 0.8 for handbag goods, above 0.6 for footwear. This industry clearly represents a success case by international standards. This chapter has explained this industry's export

performance through the detailed analysis of four firm-level success cases, and one failed case: Gucci, Ferragamo, Tod's and Bottega Veneta on the one hand, the Consorzio 100% on the other. These firm-level case studies show that the production of high quality goods in these industries depends on the establishment of hierarchically disintegrated production structures within which capital-skill asset pooling takes place. By studying the mechanisms through which successful firms have reorganised their manufacturing process, this chapter has showed that the interaction with suppliers has gained prominence by allowing lead firms to pool the specific skills required to manufacture high quality goods with small firms. Consequently, lead firms have been able to pursue joint innovation and to source specific skills, too costly to develop internally, from the outside. On the other hand, small firms have bypassed the problem of accessing *patient*-capital necessary for the design of new products and their international distribution. This case study has therefore shown that lead firms have set up a model of production which hinges on the introduction of capital-skill asset pooling and is conducive to expansion and growth in international markets. Moreover this structure builds on a fragmented and hierarchical supply chain populated by suppliers endowed with *firm*-, *industry*- and *product*-specific skills.

In order to support this argument, the first section of the chapter provided a chronological bird's eye view of the industry. It presented empirical details on the characteristics of the average firm, in Italy and abroad. The second section discussed stylised representations of the model of production applied by firms throughout the decades, ranging from the Fordist to the industrial district type. Furthermore it developed a stylised model which accounts for the industry's performance today in light of the shocks which transformed the industry's market structure in the nineties. The third section discussed the empirical evidence in support of the argument. The following chapter examines whether comparable

dynamics have characterised the development of Italy's yacht building industry, an industry which only recently has been characterised by high levels of export growth. Although, the ship producing industry is compartmentalised into two segments, one producing "*yachts and vessels for pleasure or sport*" and the other producing "*commercial*", as well as "*military*" vessels; the next chapter only investigates the export performance of the former over the past fifteen years. Moreover, the chapter will show that the sub-segment of luxury and mega yachts has driven this success.

#### IV. CLUSTERS OF EXCELLENCE: CAPITAL-SKILL ASSET POOLING IN THE ITALIAN YACHT BUILDING INDUSTRY

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Common knowledge associates the production of ships and vessels with large, oft state subsidised, vertically integrated ship yards; yet this is not completely accurate. Whilst this description fits producers of large “*commercial* and *military*” vessels - such as Fincantieri in Italy, and Daewoo Shipping in Korea (Shin and Ciccantel 2009), producers of “yachts and vessels for *pleasure or sport*” are often smaller. Moreover they tend to agglomerate in spatially concentrated production clusters characterised by the proximity to the sea and customer outlets, such as maritime resorts (Chetty 2004; Blundel and Thatcher 2005; Chetty and Agndal 2007; Tracogna 2007; Bacci 2009; Bruni and Carcano 2009; Tracogna 2010). However, whilst this organisational model is widely recognised, a number of exceptions exist. Blundel and Thatcher (2005), for example, provide evidence on a yacht manufacturer not located in the proximity of a maritime resort (the German company Bavaria). Moreover, although the literature does not delve into this particular aspect at length, production clusters differ with respect to the following dimensions: the structure of inter-firm relations, the exchange of production assets which takes place within these networks and the governance mechanism which regulates them.

For example, American firms located in the cluster of Southern Florida resent inter-firm relations which are not characterised by arm’s length spot market governance mechanisms (Blundel and Thatcher 2005); moreover, within these networks firms exchange finished products, characterised by codified technology. This appears to also be the case for British firms located in the Solent cluster (Blundel and Thatcher 2005). On the other hand, New Zealand firms located in the Auckland maritime district have established

forms of cooperation and institutional coordination typical of industrial districts (Piore and Sabel 1984; Becattini 1990): within such production cluster firms exchange both skills and capital simultaneously, appear to be of similar size and endowed with homogeneous assets (Chetty 2004; Chetty and Agndal 2007). German yacht-building firms instead are on average larger in size and fulfil all manufacturing stages within vertically integrated structures of production; in addition, they tend to be largely disconnected from other firms (Blundel and Thatcher 2005 : 412-414). Also, Italian firms follow a different organisational structure from any of those briefly touched upon in the above.

The multiplicity of production structures found in practice suggests that although producers of “*yachts and vessels for pleasure or sport*” (henceforward: yachts) are generally identified with small and medium sized firms located in spatially agglomerated clusters, quite significant variations from this standard account exist. Especially variations in terms of the median size of firms, the inter-firm relationships entertained, and of the governance mechanisms which regulate these interactions.

Building on the understanding that varieties of production structures exist in the yacht industry, this chapter proceeds to examining what mechanisms have allowed a sub-segment of the Italian yacht industry to gain international prominence over the last decade. As the literature introduced above suggests, clusters are a useful interpretative tool to analyse the economic development of the luxury and mega yacht segment in Italy. In fact, the most successful Italian luxury and mega yachts manufacturers are located within industrial aggregations characterised by the homogenous specialisation of firms (i.e. clusters in Porter and Ketels 2009). Yet these clusters have evolved over time. In the sixties, flexible specialisation was the model of production employed. In line with what occurred in prototypical industrial districts, inter-firm relations were characterised by the



overlapping of cooperation and competition between firms. Yet, today both the model of production employed and inter-firm relations have changed. Capital-skill asset pooling has become the mechanism informing these inter-firm relations.

This chapter shows that capital-skill asset pooling has enabled luxury yacht producers to reform their production organisation so as to successfully compete in international markets. The introduction of product modularisation transformed the model of production in place by rendering flexible specialisation increasingly hierarchical and regulated. Within this system, small and large firms (suppliers and lead firms) pool the assets of production respectively obtained from Italy's institutional framework: the specific skill and patient capital asset of production. The chapter shows that capital-skill asset pooling has taken on different features in accordance with the specific skills suppliers are endowed with: be they firm, industry or product specific. Yet, the introduction of capital-skill asset pooling, and the hierarchically disintegrated structure of production which derives from it, is not historically inherited. Rather it is a by-product of the skewed-ness of Italy's institutions towards differently sized firms. In Italy, once various yacht building (small) firms grew in size, they gained access to the patient capital asset required to enter international markets. Consequently they initiated a process of organisational readjustment which aimed at using the specific skill asset possessed by small firms, necessary to shift from craft to diversified quality production (Streeck 1991: 31).

This chapter explores these developments in detail. Firstly, it takes a bird's eye view of the industry as a whole and its evolution both from a domestic and a comparative point of view. The first section thus presents indicators capturing the industry's performance over time, with particular reference to the mega-yacht segment. Secondly, the chapter

investigates the transformations in the organisational structure of production of Italy's most successful firms, tracing back the different types of relationships in place between firms and suppliers up to the inception of capital-skill asset pooling. Thirdly the chapter compares two types of producers: internationally and domestically oriented firms – proxying for cases of unsuccessful firms. Moreover, this comparison offers support the thesis' hypothesis: in order to produce high quality goods, Italian large and small firms must resort to capital-skill asset pooling so as to each obtain the missing institutional input factors<sup>35</sup>. Lastly, the chapter concludes by summarising the evidence presented and introducing the third case study.

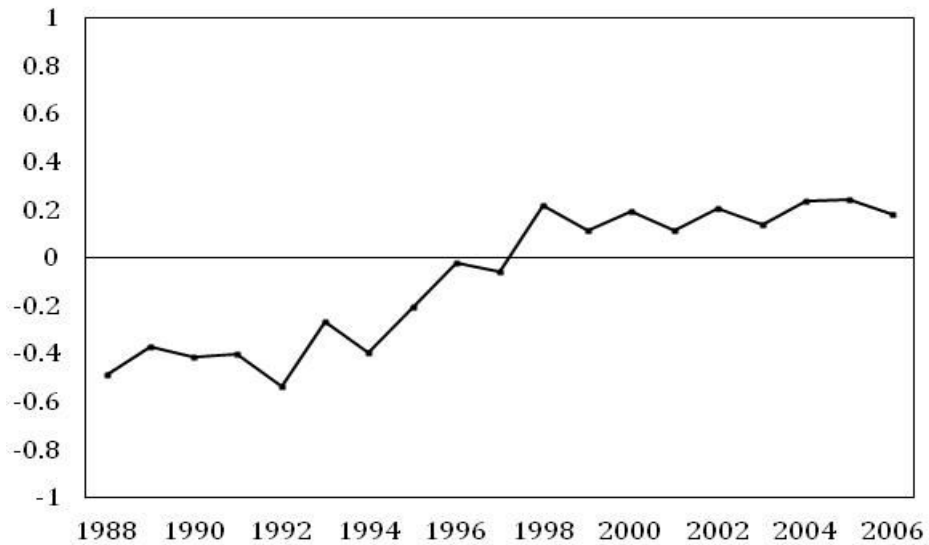
#### **4.1 The Italian yacht and vessel building industry over time**

As already mentioned, over the past twenty years the Italian shipbuilding industry as a whole has exhibited a trend at odds with the rest of the macro-economy. The yacht and vessel building industry has in fact increased in size and revenues, continuously growing since the early nineties both internationally as well as domestically (UCINA, *La Nautica in cifre*, Editions from 2004 to 2009). Yet, if one were to analyse this industry in the seventies or early eighties one would be set back by the poor international trade performance displayed (Figure IV.1). The revealed symmetric comparative advantage for the ship building industry as a whole was constantly negative in the sixties, seventies and eighties, reaching troughs of -0.8 in the mid-seventies.

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<sup>35</sup> As with the study on the textile industry, this chapter systematises the mechanisms which account for the performance of successful firms through a combination of primary and secondary sources (see footnote #8).

Figure IV.1 793: Ships, boats and floating structures



Source: OECD International Trade and Commodity Statistics 2010, Rev. 2, 22 countries, Own

Calculations

Yet, since the late nineties the industry exhibits a very different outlook. Not only domestically (see OECD STAN 2009), the industry's u-turn is particularly striking with respect to the industry's international position (Figure IV.1, where the graph uses a basket of comparison of 22 countries to construct the RSCA indicator that starts in 1961). Over the past twenty years, the RSCA indicator improved by roughly thirty per cent. Despite this increase, the product category "793: Ships, boats and floating structures" fails today to breach the 0.5 benchmark set as capturing those sectors qualified by a revealed symmetric comparative advantage (see Ch.1 pp. 10) by only reaching a value of 0.2. Nonetheless, this product category can be further decomposed into six subcategories, disaggregated at the fourth digit level of the SITC (Revision 3) classification (see Table IV.1 for details). This breakdown is justified as such categories capture heterogeneous industries, characterised by different consumer markets.

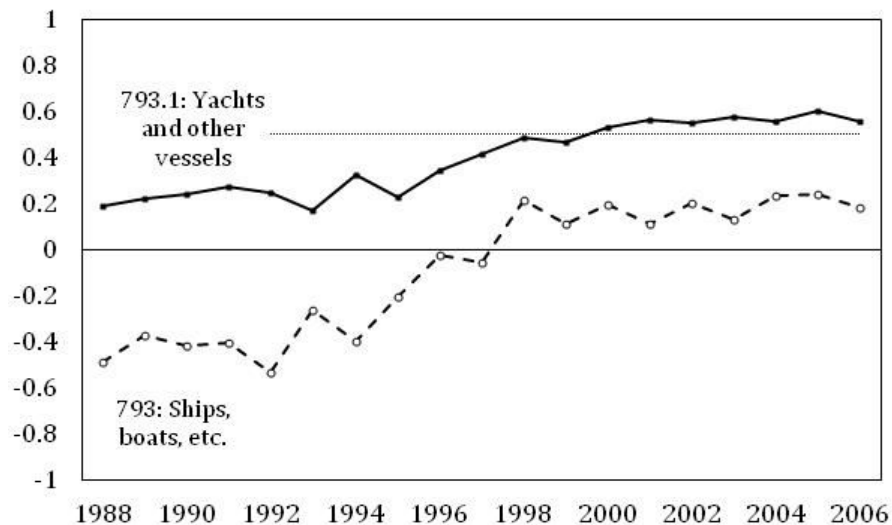
Table IV.1 SITC Rev.3 Product Classification, relevant breakdown

793.1 - Yachts and other vessels for pleasure or sports; rowing-boats and canoes
793.2 - Ships, boats and other vessels (other than pleasure craft, tugs, pusher craft, special-purpose vessels)
793.3 - Vessels and other floating structures for breaking up
793.5 - Light vessels, fire-floats, dredgers, floating cranes, and other vessels the navigability of which is subsidiary to their main function; floating docks; floating or submersible drilling or production platforms
793.7 - Tugs and pusher craft
793.9 - Other floating structures (e.g., rafts, tanks, coffer-dams, landing-stages, buoys and beacons)

Source: (UN Statistics Division, 2009)

Of these subcategories, one stands out for its development over time. As opposed to all other product subcategories, the production of “793.1 - Yachts and other vessels for pleasure or sports; rowing-boats and canoes” (henceforward: yachts) has exhibited an exceptional trend, increasing by close to 200 per cent (Figure IV.2). The other subcategories instead still hold negative revealed symmetric comparative advantage values, though decreasingly so if compared to 1988. This further supports the claim that this sub-segment’s trade performance has not been within the norm.

Figure IV.2 793.1: Yachts, other vessels for pleasure or for sports; canoes



Source: OECD International Trade and Commodity Statistics 2010, Rev. 3, 29 countries, Own

Calculations

UCIMA, the main employer association for the industry compiles statistics on the proportion of total global volumes of *yachts and vessels for pleasure and sports* produced by each country (Table IV.2). Although the proportion of total volumes produced by the

United States is striking, most vessels are domestically traded (Blundel and Thatcher 2005). France, Italy and Germany appear to be the largest producers in Europe. Noticeably, Italy produces a larger proportion of global production than Germany, albeit less than France.

Table IV.2 Global Production of Yachts as a proportion of total volumes

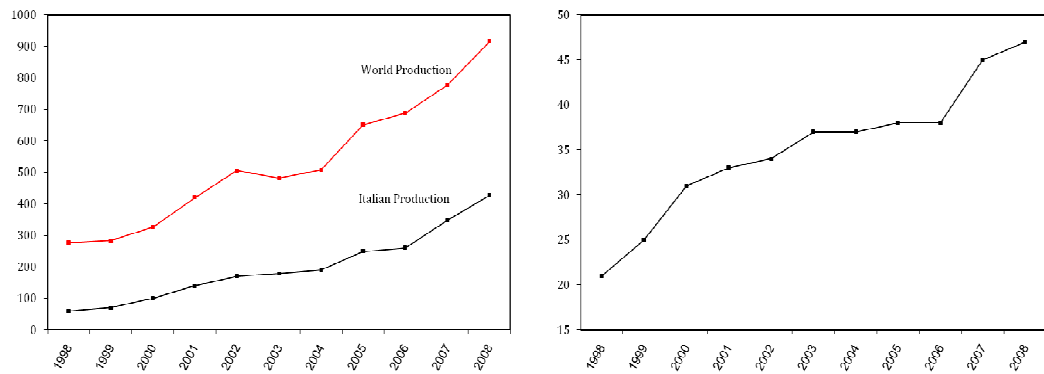
	2003	2004	2006		2003	2004	2006
USA	74.5%	78.1%	78.1%	Norway	0.8%	0.8%	0.6%
France	3.7%	5.3%	5.7%	UK	1.3%	1.3%	0.5%
Australia	3.8%	3.9%	3.8%	Portugal	0.0%	0.0%	0.4%
<b>Italy</b>	<b>2.0%</b>	<b>1.3%</b>	<b>2.5%</b>	Netherlands	0.0%	0.0%	0.2%
Germany	0.5%	2.3%	2.3%	South Africa	0.2%	0.2%	0.2%
Finland	2.3%	1.9%	1.9%	Turkey	0.0%	0.0%	0.2%
Japan	1.8%	2.0%	1.3%	Denmark	0.0%	0.1%	0.1%
Greece	0.0%	0.0%	0.9%	Ireland	0.0%	0.1%	0.1%
New Zealand	1.1%	1.0%	0.9%	Switzerland	0.0%	0.0%	0.0%

Source: UCIMA 2004, 2006, 2009, based on ICOMIA 2003, 2004, 2006

#### 4.1.1 The mega yacht industry

*Show Boats International*, North America's premier luxury yacht publication and a point of reference for statistics' collection for the industry, keeps track of the number of mega-yachts produced yearly and by which country through its Super Yacht Order Book registrar. Yearly data starting in 1998 shows not only how the global supply of these products has significantly increased over the past ten years, but also that Italian production has followed this trend (Table IV.3 left). Furthermore, the ratio of Italian to globally produced luxury yacht vessels suggests that today more than forty-five per cent of total vessels is produced in Italy, whilst only twenty per cent was Italian-produced in the late nineties (Table IV.3 right).

Table IV.3 World and Italian production of mega yachts (left); ratio of the two (right)



Source: (UCINA 2004, based on Show Boats International 2009 statistics)

The same industry publication contributes to the compilation of the ranking of mega yacht producing countries based on the number of realised vessels (Table IV.4). Both in 2007 and 2008 Italy has ranked first in this classification. The same publication reveals data on the average length of vessels produced by country. This data shows that Italian produced mega yacht vessels are on average smaller than German ones, but that Italian firms produce fourteen times more mega-yacht vessels than firms in Germany. Given that this sub-segment of the industry is characterised by significantly greater unit values per unit produced, it appears that, by specialising in this industry niche, Italian firms have focused on the higher quality intensive segment.

How the above performance has been achieved will be investigated in depth in the remaining parts of the chapter, particularly with respect to how the organisational structure of production has changed over time. For now, the following section briefly presents details on the compositional and institutional structure of the Italian and foreign yacht building industry. By so doing the differences with other competitor countries becomes apparent.

Table IV.4 Mega Yacht Producing Countries: Ranking 2008

		No. of projects	Average length 2008	Average length 2007	2007 Ranking
1	Italy	427	116	113	1
2	USA	104	129	127	2
3	Netherlands	65	161	166	3
4	Germany	31	294	254	5
5	Taiwan	71	95	97	6
6	UK	57	101	94	4
7	Turkey	38	137	144	9
8	Australia	21	127		8
9	China	23	96	110	10
10	New Zealand	13	133	137	7

Source: UCIMA 2009, Show Boats International 2009

#### 4.1.2 Compositional and institutional structure

In Italy, the greatest concentration of vessel manufacturers is located in Lombardy, where there are 23.5 per cent of total firms and 19.1 per cent of total employees. Noteworthy are also the concentration of employees in Tuscany (12.3 per cent), Emilia Romagna (19.2 per cent) and Piedmont (11.5 per cent). Respectively there are in Tuscany 10 per cent of firms, 8 per cent in Emilia and only 3.5 per cent in Piedmont, suggesting that the average firm size is greater in Piedmont than in Tuscany or Emilia Romagna. The spatial location of component manufacturers follows similar trends: 32.1 per cent of total employees and 29.3 per cent of total firms are in Lombardy. Liguria, Tuscany, Emilia Romagna and Piedmont follow in this order with respect to both the number of employees and of firms (data for 2008, obtained from UCINA 2004 : 102-103). The production of mega-yachts though is concentrated in Tuscany and Liguria (Bruni and Carcano 2009 : 19). In terms of firm size, less than 4.2 per cent of total firms employ more than 100 employees, and only 6.1 per cent employ between 51 and 100 employees. The majority of firms are therefore very small as more than sixty percent of firms employ between 1 and 15 workers (33.9

employ 1-5 employees, 36.3 employ 6-15). The remaining firms (19.3 per cent) fall in to the 15-50 employee category (data for 2008, obtained from UCINA 2004 : 104).

Size analysis therefore suggests that the majority of firms in Italy are small, and that a very small proportion of them employ more than 100 employees (less than 4.2 per cent). Moreover, they are mostly family owned artisanal or micro-firms where the internal presence of unions is limited. With respect to wage bargaining, no nationally agreed contract for the sector exists as this industry has yet to be legally recognised as a sector. Pay rates for workers in firms which employ more than fifteen workers are assigned following a variety of other industry contracts, spanning from the metalworking, to the chemistry, the wood and the textile contracts (CNA-Liguria 2002). This also implies that no industry specific normative regulation exists despite the industry's specific working conditions. In light of the varieties of Capitalism literature, this finding is puzzling as wage coordination is crucial to curtail the ability of firms to poach workers and to provide workers incentives to acquire industry specific skills (Estevez-Abe, Iversen et al. 2001; Mares 2003). It further suggests that the preconditions for high quality production are missing *a priori*.

In addition, employee skill formation occurs on the job. Only a few technical schools exist, and are located in those areas where ship-building was historically rooted. Therefore employers and trade unions have voiced the need for better initial and (some) continuous training system to be set in place (Casini-Benvenuti 2002 : 26; CNA-Liguria 2002; ISMERI-EUROPA 2006 : 23-31). Unions, in tandem with local authorities and employers, are initiating coordinated attempts to institutionalise forms of explicit vocational training. An initiative jointly supported by employers, unions and the regional state in Livorno is currently attempting to set up a vocational training school (*Accademia dei Mestieri*) for the



provision of vessel-building formalised training; another one has been set up in the province of Forli by a handful of employer and union associations (CNN, Confartigianato, Ecipar and Formart) promoting forms of continuous upgrading in CAM/CAD technology for sail producers and designers (ISMERI-EUROPA 2006 : 27). Given the lack of formal vocational training structures, employees can only acquire skills through a process of learning by doing and on the job training in small firms. Large firms thus use the workers employed by small to satisfy their need for workers endowed with specific skills. In terms of accessing forms of patient capital financing, large firms located in Tuscany have established privileged relationships with banks, in particular with the *Monte dei Paschi di Siena* which caters to most of the largest yacht building firms. Not only, some have also listed themselves on capital markets in order to access greater volumes of capital.

Table IV.5 Global Leaders: Sales and Employee Size Comparison

	Country	Sales (€ mill.)	Employees	Value added per employee
Brunswick Group	USA	1866 (2007)	12650 (2007)	0.148
Azimut Benetti Group	Italy	960 (2007-8)	2300 (2007-8)	0.417
Ferretti Group	Italy	933 (2006-7)	>3000 (2009)	0.311
Beneteau/Jeanneau Group	France	799 (2006-7)	6000 (2008)	0.133
Sunseeker International Ltd.	UK	350 (2007-8)	2350 (2008)	0.149

Source: (Tracogna 2010 : 45, based on KPMG LLP and company financial statements )

Internationally, a comparison of size and production of global lead firms suggests that Italian lead firms are on average much smaller than international counterparts (Table IV.5). A comparison of global lead firms' sales value (in million of euro) and of employees suggests that Italian firms are indeed smaller than the rest. American and French firms are the largest in terms of employee size, yet this difference does not translate into proportionally greater sales. Actually, Italian firms are producing comparable numbers of

sales, when measured in € millions, despite the smaller firm size. Also, the sales to employee ratio<sup>36</sup> may suggest either of two hypotheses: (1) that Italian yacht yards are significantly more productive than their international counterparts, or (2) that the number of employees fails to capture a more extensive web of inter-firm relations conducive to the production of these goods. Field level evidence cannot reject the former hypothesis given the country specific nature of the interviews, although cross country macro-productivity trends may suggest otherwise. The evidence collected has nonetheless substantiated the second hypothesis. The construction of inter-firm networks and the strategic distribution of production across sub-contractors have allowed Italian lead firms to translate an apparent structural size weakness into an asset.

On the other hand, the organisation of production adopted in international shipyards diverges significantly from that by Italian firms. For example Taiwanese mega yacht producers, Horizon Yacht Company and Jade Yacht Company, are organised around highly vertically integrated structures of production (Yan 2008 : 477 and 480). This is similar to the organisational set-up of Bavaria Yachtbau, which is aligned to that of a typical German machine tool company. Whilst important structural components are sourced from outside firms (notably the hull, produced by a Slovenian company, J&J Design), the production of remaining parts and their assembly are internal. Crucial to the Bavaria's performance is its workforce, which does not appear to possess any traditional craftsmanship in boat building but only engineering skills, abundant in the region (Blundel and Thatcher 2005). Similar to the above is the production structure of Dutch yacht builder, Royal Huisman, which has also evolved over time into a vertically integrated structure (Bacci 2009 : 36). All production phases, spanning from the production of hulls to that of furniture is internalised (see also Section 4.3.1 in the Perini Navi subsection). Given the variety of

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<sup>36</sup> A very rough proxy for value added per employee given the mismatch in the data's timing – i.e. firm level productivity.

organisational models identified, it is important to accurately identify the mechanisms which have led to the reorganisation of production structures amongst internationally competitive Italian ship yards.

#### **4.2 Changes in the organisational set-up of the industry**

The production of a mega yacht is a very complex process of multi-product and multi-specialisation assembly (Delbridge and Edwards 2008 : 307-309). Yet, this does not imply that horizontal disintegration is a necessary condition for production as examples of fully vertically integrated ship-yards show (see evidence on Taiwanese yacht producers' vertically integrated structures in Yan 2008; as well as the Dutch examples of Heesen Yachts and Royal Huisman, or the German Luerssen in Bruni and Carcano 2009 : 33-36).

Nonetheless, Italian mega yacht manufacturers, directly produce a very small proportion of a vessel; most parts are outsourced to subcontractors (Tosi 2004; Castelli 2008). For example, a mega yacht manufacturer does not invest in the skills to produce an engine, rather this will be purchased from specialised manufacturers instead (product specialists such as Volvo Penta, MTU – Motoren und Turbinen Union, and Caterpillar); it would not produce the internal furniture of a yacht, but subcontract this to carpenters and furniture manufacturers (as the close interaction between Tuscan naval suppliers and carpenters/wood manufacturers suggests, Bacci, Casini-Benvenuti et al. 2006); neither would it design helixes or propellers, rather resort to specialist technicians and consultants. Essentially, Italian yacht manufacturers have fully endorsed the practice of capital-skill asset pooling whereby lead firms provide capital (directly or indirectly) to small firms, in exchange for their skills – which they indirectly employ by outsourcing

production phases. Specifically, Table IV.6 shows how extensively fragmented this industry is in Italy today. At least sixteen separate specialisations exist which contribute to the production of a yacht ranging from the production of accessories to structural components, engines, and internal decor. External design specialists too vary extensively, ranging from naval architects who design the hull and outside structure of a vessel, to sound and vibration engineers who explore the implications of that structure on the vessel's resistance and sound proof-ness. Nonetheless, this fragmented production chain has exhibited significant structural changes over time, developing from a casual to a more structured and increasingly hierarchical organised production system.

Table IV.6 Yacht Industry Sub-contractors in Italy of:

<i>Accessories</i>	<i>Structural Components</i>	<i>Engines</i>	<i>Internal Decor</i>
Anchors; Cables and ropes; Safety devices; Windscreens and dashboards;	Masts and sails; Windows, portholes and hatches; Engine rooms; Bodies, hulls and upper structures; Navigating devices; Electronic devices;	Motors; Power generator;	Furniture; Electronics; Lighting; Textiles;

*Source: (Bruni and Carcano 2009 : 96)*

In the sixties Italian ship yards were accustomed to purchase American fibreglass yachts and manufacture boats based on their in-house adaptation. In this way, they would gain knowledge of US technology in constructing vessels' hulls and bodies – in particular with respect to the introduction of fibreglass which replaced wood as the main raw input (Bruni and Carcano 2009 : 17). By the seventies, Italian firms became stylistically emancipated from American firms and produced vessels aligned to European consumer preferences. For example: narrower as opposed to wider hulls were preferred by European buyers, whilst the opposite was true for US buyers. Consequently, European

producers would transform US-built vessels to satisfy the preferences of domestic European markets.

Yet, shipyards were still very small in size. They engaged in craft production and were artisanal both from a productive and a managerial point of view. Flexible specialisation informed the allocation of production functions among firms (suppliers), and relationships with other firms were *ad hoc*, unstructured and motivated by demand fluctuations (refer to Castelli 2008 for anecdotal evidence on impromptu buyer-supplier relationships set up in order to complete orders). By the late nineties instead we observe a very different model of production organisation. Within it lead firms stand at the helm of a highly structured chain of subcontractors with which they engage in capital-skill asset pooling. In what follows, this section stylistically elaborates on the two structures of production.

#### *4.2.1 Impromptu production and the failures of the eighties*

Lead ship-yards (original brand manufacturers) in the seventies and eighties were on average smaller in size (Castelli 2008) and engaged in the craft production of yachts. The wave of mergers and acquisitions which resulted in the creation of larger enterprises and groups only began in the late eighties when Azimut Benetti, Perini Navi and Ferretti Group started incorporating smaller ship yards and specialised suppliers. Prior to this date, yacht producers were not specialised in a specific vessel segment but produced both smaller and larger, sail and motor-boats, pleasure, military and commercial vessels (see Baglietto testimony in Bruni and Carcano 2009 : 11).

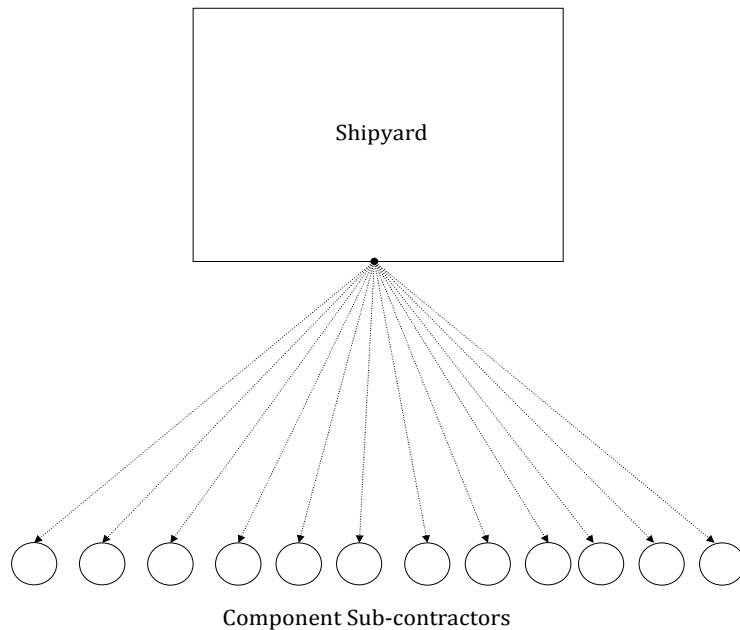
In the seventies and eighties exchanges between firms were *ad hoc* and not strategically defined. In terms of the input factors required for high quality (craft) production, all firms individually provided for its own capital and skills. The patient capital was obtained through the re-investment of retained earnings: this implied that the successful delivery of a vessel, i.e. the source of earnings, was causally linked to the presence or absence of retained earnings. Often, the failure to manufacture a vessel below the selling price - thus not allowing retained earnings to accumulate - would result in the financial bankruptcy of the firm. This could occur in the event of production accidents or the miscalculation of initial costs.

In terms of the various phases of production: the production of structural components, such as bodies (see Table 4.5), hulls and upper structures was internalised. This was also the case for processes such as the plastering and painting of hulls which were (are) both capital and skill intensive. Only the production of engines, accessories, and internal décor was outsourced to suppliers whose main market was not the yacht producing industry. For example, historical transcripts show that the conceptualisation and architectural project of a vessel would take place from scratch at each new commission, often with no actual planning or official project management (Castelli 2008). Moreover, this design would vary greatly according to the preferences of the future owners. Consequently, the skill needs of a lead firm were not explicit *a priori* to the actual commission. This implied that very few parts of the production process would thus be standardised, despite fibreglass technology had actually enabled firms to do so for the first time<sup>37</sup>. Production processes and supplier interactions were therefore still *ad hoc* and varied according to the crafting of a vessel.

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<sup>37</sup> The production of wooden based vessels, which preceded fibre-glass lacks the necessary characteristics for industrialisation because of the artisanal nature of the craftsmanship required.

Figure IV.3 Traditional Sub-contracting Model



*Source: Own representation*

Figure IV.3 captures the flow of these *impromptu* buyer-supplier relations. They appear to be vertically arranged, with lead firms choosing suppliers based on demand fluctuations and time-contingent needs. Very often suppliers did not only cater a naval market, but resorted to ship-yard work only to increase profits. These suppliers were therefore not specialised in the production of yacht components, and possessed neither *firm* nor *industry* specific skills. This reinforced the likelihood of miscalculating cost estimates, delivering low quality goods, and increasing the probability of expensive time delays. Moreover, having to bare the full costs of providing patient capital and of training workers (own and of supplier firms), firms were prone to manufacturing errors and financial miscalculations. The thesis thus contends that this system proved to be less conducive to the export of vessels which competed both on timing and quality. Since firms could not access a specifically skilled workforce directly, nor *via* a network of suppliers through

which workers would be trained, the cost of producing high quality yachts was uncompetitive.

The insolvency of Cantieri Benetti, a historical Tuscan yard, is in line with this argument and reinforces this interpretation. At the time of the bankruptcy, Cantieri Benetti had significantly undervalued the costs of constructing *Nabila*, a 86 metres long mega-yacht. It failed to factor in the penalties imposed as a consequence of its late delivery. This was caused by Cantieri Benetti's inability to approach the suppliers with necessary skills on time (Munsey and Pezzini 1992). The combination of these events led to Cantieri Benetti's bankruptcy and its takeover by Azimut in 1985. The merged company took the name of Azimut Benetti: currently one of Italy's most important yacht producers (ICOMIA and *Show Boats International* 2009). A similar explanation accounts for the failure of another historical yard, Cantieri Picchiotti, which between 1989-1990 was purchased by Perini Navi. Following these important failures and the subsequent take-overs, the nature and structure of sub-contracting relations started to change: consequently the industry's production strategy moved from craft to diversified quality production.

#### *4.2.2 Hierarchical production chains and capital-skill asset pooling*

A wave of greater standardisation in processes, products and components followed these failures. This implied that, parallel to the growing demand for yachts, a number of suppliers who previously had engaged in *ad hoc* subcontracting practices now instead decided to specialise in servicing a yacht market explicitly. For example, TECNAV, a sound and vibration consultant firm, a process specialist, is founded in the late eighties. Besenzoni, which had first opened in the late sixties as a relatively unspecialised supplier,



commenced the production of its own range of gangways and cranes for yachts in the mid-eighties. Boero, initially a constructions paint producer, began manufacturing specific nautical paints, as well as developing and producing the necessary machinery to spray a vessel's hull.

This increased specialisation of firms allowed a process of industrial restructuring to take place. Not only that, the increased specialisation of suppliers is followed by a parallel specialisation of lead firms away from the actual production of a vessel and towards the development and sales' distribution which are associated with it. This specialisation was enabled by the inception of the practice of capital-skill asset pooling. Faced with the impossibility of accessing a pool of redundant skills, lead firms exploited the skills owned by suppliers directly. On the other hand, small firms realised that the closest substitute for accessing *patient* capital directly from banks was via lead firms, either directly or indirectly. By so doing, they tied themselves to firms capable of funding the production of high volumes of vessels and of distributing them internationally: thus they could emancipate themselves from a craft production.

The practice of capital-skill asset pooling has given rise to a new system of production. Within this system, lead firms stand at the helm of a multi-level hierarchical structure where first and second tier suppliers differ in terms of their skill capabilities. Hence relationships between all actors are governed via heterogeneous governance mechanisms. Today lead firms perform the following functions: (a) they draw up an initial project design, independent of the preferences of buyers, which allows for the partial standardisation of structural parts (hull, body and upper structures); (b) they subsequently rally up specialist technicians and engineers whom they rely on for the development of technically innovative solutions to the initial project; (c) they organise the

highly complicated logistic phase which brings together component parts produced in different locations (essentially components produced by product specialists which can be located elsewhere); and finally, (d) they set up marketing, retail and customer service systems which are directly managed. These activities are capital intensive and are expected to incrementally further the technological frontier of each product. Small firms alone have traditionally been capital underfunded and hence could not engage in such activities alone. Instead they take on the role of producing the goods developed by lead firm; although in line with the specific skill possessed, suppliers occupy different positions within this structure.

Lead firms subcontract to those suppliers possessing *firm-specific* skills – i.e. first tier suppliers: (1) the technical design and development of specific component parts for which highly specific skills are required (these firms are usually made up by mechanical, naval and acoustic engineers); (2) the actual production of vessel bodies, hulls and upper structures; (3) their plastering and painting; (4) the electrical cabling and installation of electronic, ventilation and lighting systems; and (5) the production of vessel specific furniture, designed at the discretion of future buyers. These suppliers have developed both product specific and process specific skills. Moreover, lead firms interact repetitively with them so as to nurture and hone their *firm-specific* skills, sometimes also by funding joint research partnerships with them.

Lead firms subcontract to other suppliers possessing *product-specific* skills: (6) the production of motors and power generators; (7) and the production of standardised ship-ware (such as ropes, buoys and fenders for example). These suppliers possess product specific skills only and lead firms engage in market based relations with them. Finally, first-tier suppliers rely on the productive skills of less specialised suppliers which hold

*industry*-specific skills (second and third tier subcontractors) in order to smooth quantitative fluctuations in demand. The fact that competition amongst these latter firms is price-based, because of a lack of clear product or process specialisation, allows first-tier suppliers to force down production costs.

Technological innovation is to a large extent confined to the locus of the lead firm and the interaction between lead firms and first tier suppliers. Whilst first tier suppliers pursue new forms of technological innovation which are incremental and often process based; innovation in lower tiered suppliers only arises with the purchase of new machinery. Second tier suppliers which hold *industry*-specific skills are therefore passive innovators (CNA-Liguria 2002 : 65; Fravega and Bonatti 2006 : 52). Empirical observation suggests that any interaction between second tier suppliers and lead firms is rarely geared towards developing new innovative solutions to a problem or concept but towards smoothing demand fluctuations and cutting production costs (CNA-Liguria 2002 : 66; Fravega and Bonatti 2006 : 55).

Despite the legal separation between lead firms and suppliers, lead firms have maintained control and oversight over suppliers through three mechanisms: firstly, outsourced specialist technicians report back to a lead firm's research and project department. These are populated by technicians with *firm*-specific skills, capable of exchanging know-how with suppliers. Secondly, as in the textile industry, lead firms employ inspectors – *ispettori*; they are technical experts who travel across supplier firms and control the ability of suppliers to meet the quality standards set. Thirdly, the outsourced manufactured functions are partially produced and assembled within the lead firm's premises, thus facilitating the oversight of inspectors. Furthermore, being in charge of the logistical

phases involved in assembly and delivery attributes lead firms more extensive control over the timing and quality of the products sub-contracted.

The application of capital-skill asset pooling delivers clear advantages to lead firms. Firstly it allows them greater organisational and numerical flexibility than a vertically integrated structure would. Secondly, by reducing the total burden of overhead costs, lead firms can employ the *patient* capital for research and innovation, marketing and distribution. Thirdly, this structure also allows lead firms to limit demands for firm level wage premia by firm level trade unions – which become mandatory once the number of workers employed meets the certain threshold of 15 employees (*RSU, Rappresentanze Sindacali Unitarie*, were institutionalised by the 1993 July wage bargaining agreement). Fourthly, since small suppliers produce for multiple firms (Casini-Benvenuti 2002), lead firms are levied of the social corporate responsibility to ensure employment levels throughout the local area even when negative demand cycle make way. On the other hand, capital-skill asset pooling delivers advantages to small firms as well. Firstly, small firms are allowed to access wider, international customer markets despite the smaller size. Secondly, the negative implications of not being able to access *patient* capital are curtailed as lead firms may directly fund small firms' technological upgrading directly (by purchasing machinery). In addition the use of inspectors facilitates both quality control as well as technology transfer from the large to the small firm. In addition, the smaller the size of the firms, the likelier the probability that second tier suppliers respond to fluctuations in demand through fluctuations in employment because of their ability to hire and fire employees with greater ease. This therefore suggests that the marginal profitability of small entrepreneurs remains constant.

In sum, the introduction of capital-skill asset pooling has led to the inception of a hierarchically disintegrated model of production. This structure of production allows lead firms to benefit from the variety of skills held by its suppliers. On the other hand it enables small firms to access patient capital and thus meet the two preconditions for high quality production. In the following section firm-level evidence which add details to these dynamics is presented. The firms selected are cases of internationally competitive and uncompetitive lead firms which have engaged in capital-skill asset pooling and thus constructed hierarchically organised systems of production.

#### **4.3 Internationally competitive and domestically oriented firms**

This section shows how the international competitiveness of lead firms of the likes of Azimut Benetti, Pershing Yachts and Perini Navi is related to the practice of capital-skill asset pooling and the consequent structure of production adopted. Secondly, the section also presents contrasting evidence drawn from case studies on domestically oriented firms, which have proven unable to access internationally competitive markets. This negative case study shows that the absence of capital-skill asset pooling forces firms to pursue a high quality market strategy individually. Given that the institutional framework does not endow all firms with *patient* capital and specific skills, such an endeavour will fail. In the case discussed, firms are identified as possessing the required skills but not the necessary capital to enter a international retail and customer market.

### 4.3.1 Mega yacht production in Italy

#### *Azimut Benetti*

Azimut Benetti (henceforth A|B) is born out of the acquisition of the bankrupt yacht builder, Benetti, by Azmut in 1985 (see section 4.2.1) and is today a family owned enterprise. As a consequence of the merger, Azimut increased its workforce from twenty to 150 employees; thus developing from being a small producer into a much larger company. Initially Azimut struggled to adjust to the managerial and employment obligations which derive from the larger size (Tosi 2004; Bruni and Carcano 2009 : 281). Firm-level unions were in fact novel to Azimut's management. As a consequence, A|B reorganised its internal organisational structure. More importantly, it increased the weight of suppliers in the production process and it modified the way in which it related to them. In accordance with the model of production presented in Section 4.2, A|B moved from a traditional subcontracting model to a hierarchically structured, multi-level model of production. It engaged in capital-skill asset pooling with its suppliers, providing them with direct and indirect forms of *patient* capital in exchange for their skills.

Today A|B employs approximately 2500 employees and specialises in the production of yachts of varying size. A|B is internationally identified as one of the leading luxury yacht producers (see Table IV.2): *Show Boat International* 2009 has ranked A|B as the first global leader in terms of sales revenue<sup>38</sup>. Yet, despite the notable sales and financial performance, A|B employs a smaller number of employees relative to its competitors. In comparative terms it is therefore a small firm which produces high volumes of vessels through a disintegrated system of development and production.

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<sup>38</sup> See: [http://www.azimutbenetti.it/home.html#/it-group/group\\_base/](http://www.azimutbenetti.it/home.html#/it-group/group_base/)

A|B is an industrial group composed of three manufacturing units and one unit dedicated to customer service: the former three units, of relevance to the thesis, are: Azimut Yachts which produces semi-custom mega yachts in fibreglass, Benetti S.p.A. which produces semi-custom mega yachts in iron/aluminium and fibreglass, and Atlantis which produces the smallest and most standardised vessels in the group's product range (Bruni and Carcano 2009 : 264-265).

The organisation of production in these three divisions differ: whilst Atlantis is located in Piedmont, nearby Turin, and produces standardised vessels through a vertically integrated production process, the other two units are sparsely located throughout the north-western coasts of Italy, from Tuscany to Liguria. The latter two units produce goods which fall in the luxury mega yacht, high quality, segment; whilst Atlantis goods pertain to a lower added value segment<sup>39</sup>. In this case study the focus is to explain the organisational arrangements which are conducive to the production of high quality goods, and the way in which A|B has organised its relationships with suppliers in order to produce Azimut and Benetti vessels.

As mentioned previously, the life-cycle of a vessel is segmented in three phases: (1) project design; (2) manufacturing; and assembly; (3) client relationships and after-sale services. During the first phase, A|B design offices interact with external specialists who contribute to the engineering phase of an architectural design. These external firms possess a highly specific expertise (such as TECNAV, Natucci, Zuretti, etc.). During the second phase all component parts of a vessel are produced and assembled: this is a highly complex phase from an organisational point of view as it is characterised by the most extensive outsourcing and collaboration between suppliers and lead firms. The cost

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<sup>39</sup> Over the last year, as a consequence of a global contraction in demand, only the Atlantis unit of the group has suffered the most from competitive pressures of Asian produced vessels (Interview number 34, Carcano).

partition of these separate phases is described below (Table IV.7): the table shows that the most expensive phase is the manufacturing and assembly one, accounting for 67 per cent of total costs (Rigolini 2007).

Table IV.7 Cost partition of production phases for Benetti S.p.A.

Project Development	Construction of body, hull and upper structure	Painting, internal décor, cabling	Client relationships	After-sale services
13%	10%	57%	10%	6%

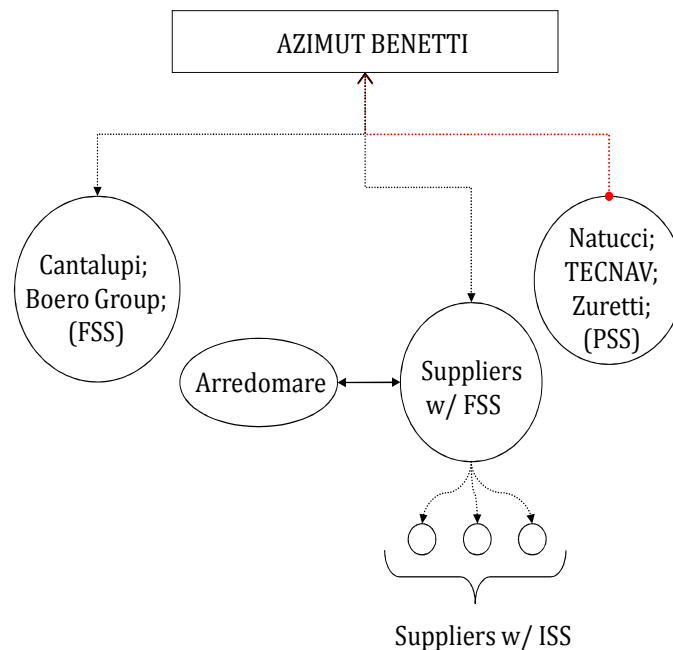
*Source: (Rigolini 2007 : 26, calculations based on company data)*

As a consequence of the employee costs associated with such a labour intensive phase, A|B has resorted to an interesting organisational set-up. These phases are therefore outsourced to small firms who operate within A|B premises; because of the proximity, these small firms interact with A|B employees and project managers. This set-up ensures continuous oversight as well as significant cost containments. Accordingly, at any point in time the Livorno site of A|B contains up to 1000 workers, only 200 of which are A|B employees. Whilst the production of the building structures of a vessel are becoming increasingly standardised, this is not true for the cabling and painting phases. In order to cable a vessel, a variety of specialists are pooled together. For example, Foruno, Tecnel and Raymar provide lead firms, such as A|B, with navigational support software programmes which can be relatively standardised. Yet the cabling and installation of such systems on each vessel is a customised process, based on tacit knowledge which develops over time in line with the needs A|B and the capabilities of its suppliers. A|B outsources this phase, time after time, to Cantalupi: a local process supplier with considerable expertise in marine electric systems. Ten A|B vessels were cabled by Cantalupi in 2007, for example.



This cabling phase is followed by the painting of a vessel. This is a crucial and costly phase for which *firm-specific* expertise is required. A|B resorts to two sub-contractors: Storm and Yachting Protection of the Boero Group. As with the cabling example, these sub-contractors are process specialists which bring their own *firm-specific* expertise and know-how to the manufacturing phase, thus allowing A|B to improve its own product. Within its own R&D department, A|B invests in the development of new architectural solutions as well as in developing new material and paints. This latter research has at times crossed Boero Group's own research as a 2006 joint research project on the decay of maritime hulls between the two suggests. Some other firms and university bodies participated in this research project which was to some extent financially incentivised by the state (MIUR 2007).

Figure IV.4 Development and manufacturing of an Azimut Benetti vessel



Source: Own representation based on interviews conducted with the firm and suppliers, and evidence collected from firm-level publications and industry reports (FSS/ISS/PSS=firm/industry/product specific skills)

Finally, the skills necessary for the production of the furniture components of a vessel are also sourced from the outside. In this case, A|B calls on furniture subcontractors to pool their *product*-specific skills in exchange for the opportunity to enlarge their customer base and market outlets. One furniture subcontractor, Arredomare is a family firm which originally produced furniture for private houses. In the nineties, the firm chose to specialise in the production of ship-building furniture in light of the growing demand for such goods. Today, the firm furnishes six yachts a year, four of which are A|B vessels. This suggests that the relationship between the two has become routinised. Yet, not all furniture is produced directly by Arredomare. Arredomare itself outsources parts of its workload to local artisans for the finishing and assembly of pre-cut parts. This process is price driven as the outsourcing is performed in an effort to limit production costs. A|B also resorts to firms with *product*-specific skills for the acquisition of engines and power generators. Volvo Penta, Caterpillar and MTU are the most frequent suppliers of such goods. A|B is therefore a frequent customer of these firms and with them enacts a clear exchange by using their skills and offering them a means to enlarge their customer markets.

Therefore it appears that A|B distributes the various functions of the production of a mega yacht to firms with *firm*-specific skills for various reasons. Firstly, it does so in order to tap into their skills which are too costly to develop internally. Secondly, to develop new innovative solutions through a continuous interaction with these firms that have the specific know-how and A|B which has the capital to invest. This allows A|B to maintain and further the high quality of its products (captured by the double arrow in the figure above). Further these firms subsequently source part of their production to other suppliers, which hold *industry*-specific skills, in order to smooth production flows and

reduce costs. The above figure summarises this discussion (Figure IV.4). Firms which hold *product*-specific skills come into play when skills are causally linked to one specific product or process: in this case the exchange is mono-directional whereby A|B sources the given product directly from such firm (see the red dotted line).

### *Pershing Yachts*

Whilst Azimut Benetti is a case of a lead firm who grew internationally by offering *patient* capital and an international outlet to its suppliers in exchange for their skills, Pershing Yachts instead represents a case of a smaller enterprise which grows internationally once it pools its own skills with the *patient*-capital of a larger firm – Ferretti Group. However, Pershing Yachts too produces incrementally innovative vessels by relying on pooling of its own *firm*-specific skills with *product*- and *industry*-specific skills of other, small, firms. It is located in the Marche region of Italy, between Fano and Senigallia. Therefore this case study shows that the introduction of capital-skill asset pooling into the supply chain, identified previously, is not Tuscan-specific, but occurs in other parts of Italy as well.

Pershing Yachts was first founded in 1981, and is historically younger than A|B. The first time Pershing Yachts vessels came into the international spotlight in 1984, with the development of the “Pershing 45”. This was an innovative vessel which combined very high speed with greater comfort than its competitors (Ferrero and Fraternali 2007 : 114; Ferrero, Arteconi et al. 2009). Yet, although Pershing Yachts was exporting roughly 70 per cent of its total output at the time, the firm was still small in terms of size and revenues. In 1996, Pershing employed less than fifty employees. The organisation of production was essentially artisanal, building on the close links between *Pershing* and local artisans and

small firms; yet only a handful of vessels were produced and sold per year (less than twenty according to: Ferrero and Fraternali 2007).

In 1998 Pershing was acquired by the Ferretti Group. This merger allowed Pershing to pool its skill assets with Ferretti Group's capital: in practice it enabled Pershing to tap into the administrative, financial, productive and marketing resources of a larger group. Ferretti Group consists of a holding structure for eight yacht building companies<sup>40</sup>, located both in Italy and abroad, and is owned by Norberto Ferretti. Following the merger, Pershing's production, revenues and employees increased. The number of vessels produced prior to the merger was 19; subsequently, 69. Revenues increased ten-fold and the number of employees increased five-fold (Figure IV.8). Pershing's annex into the Ferretti Group implied that it could benefit from the group's global distribution network (Zeppi 2007 : 17). This implied that Pershing could avoid the investment cost required to set up such a network from scratch for which large amounts of *patient-capital* are required.

Table IV.8 Improved performance indicators for Pershing Yachts

	1998 Pre merger	2005 Post merger
Vessels produced	19	69
Revenues	€11 mill. ca.	€106 mill. ca.
Employees	44	240

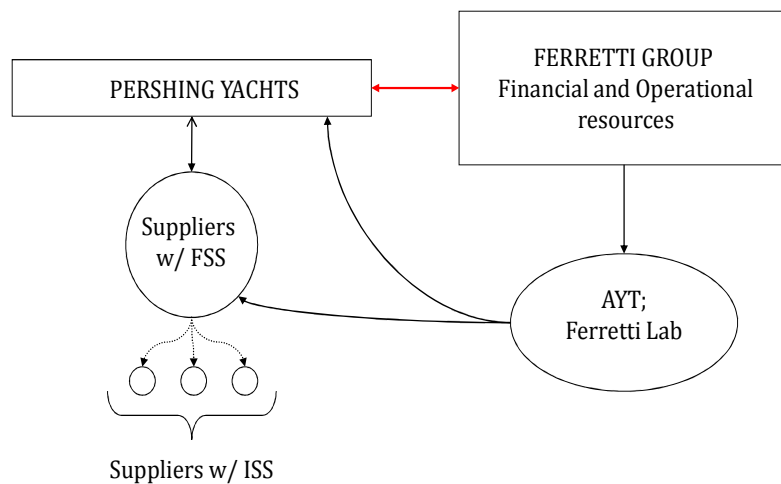
Source:(Ferrero and Fraternali 2007 : 114)

The annex also implied that Pershing Yachts could benefit from the technological innovations of Ferretti's research centre (AYT – Advanced Yacht Technology, and Ferretti Lab) which specialises in the development of basic vessel building materials, such as

<sup>40</sup> Ferretti Yachts, Pershing Yachts, Itama, Bertram Yachts, Riva S.p.A., Mochi Craft, CRN S.p.A., Custom Line

fibreglass and plastics. It also implied that Pershing Yachts would minimise marketing costs by sharing them with Ferretti (Ferrero and Fraternali 2007 : 120); and finally it did not imply that Pershing Yachts ended all relations with its own sub-contractors, with whom it had built interactive relationships over time (Ferrero and Fraternali 2007 : 125). The figure below stylistically shows the way in which Pershing Yachts and the Ferretti Group interacted (Figure IV.5).

Figure IV.5 Development and manufacturing of a Pershing Yacht vessel



*Source: Own representation based on interviews conducted with the firm and suppliers, and evidence collected from firm-level publications and industry reports (FSS/ISS/PSS=firm/industry/product specific skills)*

*De facto* this merger allowed a relatively small and niche firm to access the financial and organisational resources of a larger company: it built on the pooling of Pershing and its suppliers' skills and Ferretti's patient capital. This enabled Pershing Yachts to transform its high quality goods from artisanal products to diversified quality products. It also implied that its international reach expanded without suffering losses in terms of its

organisational autonomy and its ability to preserve the supply-chain relations it had constructed over time.

### *Perini Navi*

Perini Navi was founded in 1983 and specialises in the manufacturing of sailing mega yachts. By 2002, its global market share in the production of sail powered vessels greater than 150 feet reached 63% (Mediobanca 2003 : 81). Perini Navi's technological advantage lies in the ability to produce very long vessels, powered by extensive surfaces of sails which can be - at will - entirely managed by a single individual. This ability derives from the sophisticated technology governing the folding and movement of sails inherited from the know-how developed by the founder's previous experience in the production of paper and paper-folding machines<sup>41</sup>. Its main competitors are Wally Yachts (legally a French company which manufactures its vessels in Italy), Royal Huisman and Vitters Shipyards (from the Netherlands), Alloy Yachts and Fitzroy Yachts (from New Zealand).

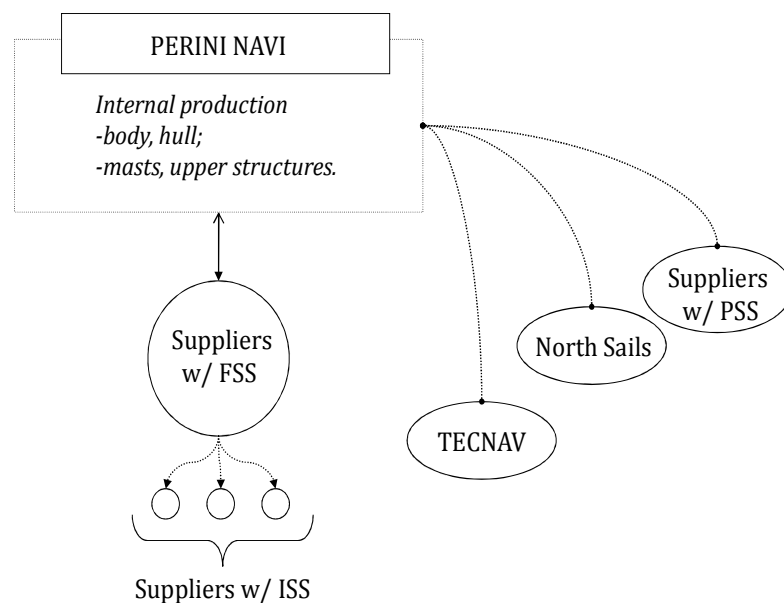
Perini Navi is a case of a young firm which has reached international heights by producing high quality and innovation intensive sailing yachts. This section follows its development and shows that this result has been achieved by applying capital-skill asset pooling to its structure of production. This is also done by comparing Perini Navi with one of its foreign competitors in order to highlight the different productive structures adopted. Having entered a very small and slow growing niche, Perini Navi employed some time to ascertain its leadership in a market populated by historically established competitors (mentioned above). However, by 2002 it satisfied 63% of market demand for this niche and ranked

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<sup>41</sup> Fabio Perini used to produce tissue converting machines. As he developed an interest in the production of sailing mega yachts, he sold his primary business, the Fabio Perini S.p.A. to the German group Krober in 1983. The technological knowledge which derived from tissue converting was inherited by Perini Navi.

second in terms of the length of the vessels produced (Show Boats International 2002 in Mediobanca 2003 : 78). It is therefore a case of a lead Italian firm in an industry characterised by very recent and sudden growth. The balance between internally and externally produced components, and the dynamic of capital-skill asset pooling varies slightly when compared to the cases presented above. Perini Navi has not outsourced the production of the body/hull of a vessel, despite the labour intensive characteristics of this production phase. The company has instead chosen to maintain this phase within its direct control by investing and nurturing this *firm-specific* skill directly. It has done so by purchasing a shipyard in the Turkish industrial district of Tuzla in 1987-88. By so doing Perini has maintained oversight over such an important production phase and has taken advantage of the lower production costs available abroad.

Figure IV.6 Development and manufacturing of a Perini Navi vessel



Source: Own representation based on interviews conducted with the firm and suppliers, and evidence collected from firm-level publications and industry reports (FSS/ISS/PSS=firm/industry/product specific skills)

This off-shoring step was guided by a two-fold necessity: first, to find manufacturing sites which allowed the build of such long bodies and hulls as the space availability in Tuscany was limited. Second, having chosen to invest in developing and nurturing this *firm-specific* skill directly, it selected a location where containing the costs of this labour intensive phase was possible. The same argument applies to the production of masts, also manufactured in the Tuzla site –the Yildiz yard<sup>42</sup>.

Yet, as our previous case studies, Perini Navi does not fail to pool its *patient-capital* with other firms holding *firm-, industry-, and product-specific* skills. To do so, it continued to adopt a vertically disintegrated structure of production by organising a supply chain composed by small firms engaged in the remaining productive phases. For example, Perini sources its sails directly from a firm which has *product-specific* skills, North Sails, with whom it has constructed research partnerships geared towards the development of sophisticated sails materials (Bacci 2009 : 32). It resorts to specialist technicians who aid Perini in the process of development and design of a vessel (see the collaborations with TECNAV with respect to the sound proofing of the vessel's living spaces, already mentioned in the A|B case). Moreover it resorts to firms holding *firm-specific* skills with respect to the cabling, lightning and furniture production/assembly of a vessel, just as was discussed for A|B. Estimates suggest that in 2001 Perini Navi resorted to a total of two hundred heterogeneously specialised sub-contractors (Bacci 2009 : 32) and that it has at times contributed financially to the purchase of machinery for some of its suppliers (Mediobanca 2003). These subcontractors resort to second and third tier suppliers with *industry-specific* skills in order to respond to demand fluctuations and to reduce their production costs. Figure IV.6 summarises this discussion.

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<sup>42</sup> Note that the Turkish district of Tuzla has a long tradition in ship-building, though not necessarily specialised in yachts. Therefore, Perini Navi opted for such location given the availability of coastline space and a skilled workforce.



In terms of cross-country comparison, Perini's organisational structure is contrasted to that of Royal Huisman, a Dutch manufacturer. Though the Netherlands is not the closest empirical match to an ideal type coordinated market economy, it has nonetheless been placed at the strategic end of the coordination spectrum (Hall and Soskice 2001; Touwen 2008). Therefore a comparison between a Dutch firm and Perini, which are direct competitors, shows how similar outputs are achieved through the application of capital-skill asset pooling, despite the different institutional starting points.

Royal Huisman is a historical Dutch shipyard founded in 1884. Of specific reference to the thesis' argument, the manufacturing of a Royal Huisman vessel is entirely integrated, contrary to a Perini vessel instead. This means that it employs a greater amount of workers directly and that the production/assembly of a vessel takes place within the company's legal and physical domains: there is no inter-firm interaction with respect to production and assembly, and no asset pooling as all assets are expected to be held internally. In sum, this section has presented firm level evidence collected through a variety of methods which have substantiated the claim that Italian mega yacht building firms have gained international prominence by engaging in capital-skill asset pooling with their suppliers. To do so they have set up a hierarchically disintegrated model of production. The fact that successful lead firms interviewed are located sparsely across the country suggests that the industrial restructuring described is not a local phenomenon, but it extends to areas of Italy where capable suppliers and lead firms are located. The Rodriguez Group is an example of a lead firm based in Sicily which is internationally successful; an explicit study of the case was not performed as the firm produces carrier vessels and hydrofoils. Yet, the opinion of the experts consulted is that it employs a similar production model to the one discussed above, it is therefore possible that it too engages in capital-skill asset pooling with its suppliers. Having described in detail how these three

firms have re-organised the manufacturing process which lead to the development of internationally competitive products, we now turn our attention to a case of an internationally non-competitive set of firms.

#### *4.3.2 Servicing domestic markets in Friuli Venezia Giulia*

Given the difficulties of identifying an individual firm who performs negatively in international markets, this chapter instead refers to a well known study performed by the Friuli Venezia Giulia (FVG) region reporting on the performance of local firms producing yachts (Tracogna 2007; Tracogna 2010). North of Venice, close to the eastern borders, in Friuli Venezia Giulia, there are at least four hundred artisanal firms, employing 4.5 employees each, for a total of 1800 workers in the area, producing an average revenue stream per firm of ninety thousand euro (DITENAVE(1) 2010). Yet, on the whole, these firms only export less than sixteen per cent of total production (Tracogna 2010 : 164), substantially below the country average for the industry which is close to sixty (58.93) per cent of total production (Bacci 2009 : 23 based on UCINA statistics). Despite the high degree of customisation of production and the high skills of the artisanal workforce employed<sup>43</sup>, these goods fail to reach international customers and have remained tied to a local market.

The literature suggests that three factors can explain this phenomenon: (1) the absence of lead firms; (2) the failure of firms to invest in formal marketing strategies and related to that the absence of product specific distribution chains; and (3) a limited investment in research and innovation (DITENAVE(2) 2010 : on the underlying rationale for the creation

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<sup>43</sup> Each new worker performs apprentice duties of on the job training for a long period before being employed as a regular worker.

of an institutional mechanism to promote innovation, research and training; Tracogna 2010 : 168-170). These factors have been identified through a survey based research strategy geared towards identifying the needs of local firms. Crucially, these factors relate closely to the argument of the thesis. The thesis' argument identifies the practice of capital-skill asset pooling as a mechanism through which firms endowed with different assets can come together in order to pursue a high quality product market strategy although the institutional preconditions to do so are not in place. Specifically, large and small pools together the *patient* capital and specific skills, necessary for such a strategy. Through the *patient* capital large firms detain the ability to frontload the necessary financial resources to set up a product distribution network and appropriate marketing strategies. In the Pershing Yachts' case for example this occurred once the company was annexed to the Ferretti Group. The absence of larger firms, capable of accessing such sources of financing, translates into the lack of such distribution and marketing networks, necessary means to reach non-local customers.

Moreover the studies performed by DITENAVE acknowledge that innovation occurs infrequently because of one structural feature of the organisation of production processes: artisanal firms from the Friuli Venezia Giulia area appear to be vertically integrated (Tracogna 2010 : 167). Consequently, all innovation develops internally, increasing the risks associated with it and decreasing its likeliness. Rather than simply promoting the development of inter-firm networks, capital-skill asset pooling would indirectly enable such risks to be pooled between small and large firms. The failure of FVG local firms to articulate capital-skill asset pooling within a network of firms has resulted in the production of artisanal goods which target a domestic market and fail to reach international consumers. Moreover, as neighbouring firms in the nearby Balkans area are

growing, the FVG firms are increasingly suffering the competition from comparable and less expensive vessels.

#### **4.4 Conclusion**

This chapter has shown that the introduction of capital-skill asset pooling as the mechanism driving interactions across firm networks has allowed the (luxury and mega) yacht segment of the Italian ship-building industry to become internationally successful. Capital-skill asset pooling has allowed firms faced with production problems, arising from the absence of the necessary input factors, to offer the available assets in exchange for the missing one. Specifically, this chapter shows that three internationally successful companies (Azimut Benetti, Pershing Yachts and Perini Navi) have altered their mode of production organisation to embrace a vertically disintegrated structure of production. This is contrary to previous practise as throughout the sixties, seventies and eighties, yacht manufacturing firms were much smaller in size and horizontally disintegrated. Components were outsourced to external suppliers for production but were internally reassembled. Production assets were not pooled but purchased in a way which gave way to a wave of industrial failures in the eighties.

As a consequence of these failures, small fragmented firms were rearranged to form a verticalised chain of suppliers by lead firms. This structure was pursued so as to allow the latter (lead firms) to exchange the *patient* capital asset with the (*firm, industry, product*)-specific skill asset held by smaller firms. By so doing, these firms devised an alternative industrial structure which enabled this exchange and facilitated the pursuit of a high or diversified quality product market strategy. Crucially lead firms have come to rely on

pooling the skills of suppliers to such an extent that we witness the beginning of a process of formal institutionalisation of the first tier of this supply chain. At least for one empirical case, Azimut Benetti, there is evidence of an A|B-led initiative to sign five-year contracts with its most important suppliers in order to guarantee a continuous flow of commissions during the recent downturn and to ensure that crucial skills do not disappear (Benetti 2008). Yet, whilst in Italy approximately seventy per cent of total production is exported, some firms have retained a domestic outlook only (UCINA 2004 : 13). These firms, as the ones in the Friuli Venezia Giulia district, differ from internationally competitive producers in two important respects: firstly, the average size of domestically oriented firms is smaller suggesting the production assets attained through Italy's institutional system are homogeneous. Secondly the model of production organisation adopted differs: the firms of the Friuli Venezia Giulia district are vertically integrated and rarely resort to other firms. Internationally oriented firms instead have structured their system of inter-firm relations in such a way that final goods result from the combination of externally produced as well as internally developed components.

This argument has been articulated in the chapter as follows: the first section provided a chronological bird's eye view of the industry and empirical detail on the characteristics of the average firm both in Italy and abroad. The second section instead developed a stylised model accounting for its changed performance; translating the thesis' argument into an industry specific one. The third and last section presented the empirical evidence in support of the argument. This case study has therefore shown that lead firms have set up a productive environment conducive to success in international markets. They have done so by orchestrating a transformation of the chain of suppliers and sub-contractors employed, and promoting the technological development of some – at times even financially – so as to construct innovative partnerships with them.

The next chapter presents evidence of an industry which has instead worsened its performance over time. In Italy, the nascent computer industry failed to retain a competitive international position in the mid-seventies, as had been the case in the mid-sixties. Although attempts had been made by Olivetti management to pool its capital with skilled suppliers, a mismatch of skills crippled the project from the start. The computer industry represents a case of a well performing industry which lost international momentum once capital-skill asset pooling failed to be implemented.

## V. THE FALL OF AN ITALIAN GOLIATH: FAILED CAPITAL-SKILL ASSET POOLING IN THE ITALIAN COMPUTER INDUSTRY

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Little computer production or development takes place in Italy today<sup>44</sup>. Yet, in the 1960s, few imagined this to be the case. In its earliest days, computer technology developed within large, vertically centralised, conglomerates which produced typewriters (in the sixties), then mainframes and minicomputers (in the seventies). Italy hosted one of the most important producers of such goods, Olivetti. Italy's international performance, measured in terms of the RSCA, was positive up until the early seventies; the unit value of its electro mechanic calculators was 7.5<sup>45</sup> (Gallino 1960; Gallino 2001 : 90) and Olivetti ranked as high up as US giants such as IBM and Apple in terms of sales and exports; it employed over 60000 workers at home and abroad. Regrettably, today the outlook for the computer industry in Italy is completely different. The RSCA indicator has turned negative and Olivetti itself no longer exists as a computer manufacturer (although this chapter shows that there is a lag between the worsened international performance of the Italian computer industry abroad and Olivetti's demise).

The literature offers numerous explanations of why Olivetti failed: financial indebtedness (Bricco 2007; Bricco 2009), the absence of a national industrial policy (Gallino (a) 2003; Gallino (b) 2003), and the lack of financial support from Italy's banks (Piluso 2005) have been recurrently identified as the main causes of its demise. Yet, this literature invariably links the demise of Olivetti with that of the computer industry in Italy as a whole. This

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<sup>44</sup>Let aside few software firms which spin off the Sant'Anna University of Pisa [Biagiotti, A. and L. Burrioni (2001). *Between Cities and Districts: Local Software Systems in Italy* *Changing Governance of Local Economies Responses of European Local Production Systems*. C. Crouch, P. Le Galès, C. Trigilia and H. Voelzkow, Oxford University Press.]

<sup>45</sup> Meaning that the price of a calculator amounted to the cost of production times a factor of 7.5.

chapter suggests that the two are not as tightly correlated as the literature contends: as a matter of fact the link between the two broke down in the late seventies when Olivetti pursued a foreign development strategy. Instead this chapter suggests that, to correctly place the Olivetti experience in the context of the Italian computer industry, these accounts should be integrated with one focusing on the actual processes of production and development, and their interaction with a country's institutional framework.

This chapter argues that the concept of capital-skill asset pooling is useful to understand the transition of this industry from success to failure. By tracing the experience of Olivetti over the years, the chapter shows that the industry's deteriorated performance in Italy is ultimately sanctioned by the emergence of a capital skill asset mismatch between the skills sought by Olivetti and those provided by its suppliers. As a matter of fact, in Italy the combination between the necessary capital and skills needed to participate in the process of radical innovation, which characterised the computer industry in the eighties, fails to be appropriate. This is not true abroad (particularly in the US and to some extent in the UK), hence explaining why Olivetti's demise is posterior to that of the Italian computer industry as a whole. In order to fully appreciate this argument though, it is crucial to understand the developments and transformations which took place in the computer industry throughout the 1960~1990s period.

Whereas the models of capitalism literature associates the development of modern computer technology (ICT) with liberal market economies (Lundvall 1992; Casper 2001; Estevez-Abe, Iversen et al. 2001; Hall and Soskice 2001) this was not necessarily the case in the industry's early years. Initially, computer technology had a mechanical and electro-mechanical flavour calling for a set of skills that Italy's computer manufacturers had mastered. Italian typewriters, mainframes and mini-computers were of very high quality



(according to the empirical methodology outlined in Ch.1). Yet, the invention of the first personal computer (1975) produced a shock wave throughout the industry, leading to the transformation of its underlying technological and organisational set-up (Langlois 1990; Grove 1997; Bresnahan and Greenstein 1999; Bresnahan and Malerba 1999; Malerba, Nelson et al. 1999).

Until the eighties, all office equipment machines, including the first machines with digital technology, were produced within vertically integrated companies, yet the advent of microprocessor and of PC technology forced a decentralised structure to take root. This occurred because software and hardware technology were de-bundled (Clodt, Hagedoorn et al. 2006; Clodt, Hagedoorn et al. 2010); and modularisation and specialisation drove the allocation of production processes throughout the industry (Langlois 1990; Grove 1997; Bresnahan and Greenstein 1999; Bresnahan and Malerba 1999; Malerba, Nelson et al. 1999)<sup>46</sup>. Moreover, the technological innovation brought about by the microprocessor also implied that the industry's approach to innovation shifted from incremental to radical - thus requiring a very different set of assets of production. Although the models of capitalism literature is under-theorised with respect to the preconditions for radical innovation, the available literature suggests that *impatient* (outsider share) capital is deemed necessary (Herrmann 2009 : 60 and 105) and (high and) *general* skills sufficient for it to take place (Hall and Soskice 2001).

As discussed in depth in Chapter 2, Italy's institutional framework is neither akin to one found in liberal or coordinated market economies. Simply, it endows differently sized firms with heterogeneous assets, the sum of which is shown to enable the production of high quality goods and incremental innovation (Ch. 3 and 4). Yet, in the eighties, the

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<sup>46</sup> Also confirmed by primary source: interview with R.Maglione.

invention of the micro-processor gave way to a process of radical innovation which required different assets of production: namely, (high and) *general* skills and (outsider share) *impatient* capital. Regrettably, computer manufacturers in Italy were not able to match these transformations as the skills offered by workers were *industry specific*. Capital-skill asset mismatch followed because although a company with *impatient* capital existed, firms with the set of skills required to perpetrate radical innovation did not.

The chapter proceeds as follow: first a micro-sectoral analysis of the Italian computer industry over time is provided. Then, Olivetti and the standard explanations of its decline are briefly introduced. Section two applies the thesis' argument to Italy's computer industry and acknowledges the industry's transformation which followed the introduction of personal computer technology. Section three shows how Olivetti reacted to such transformations and thus provides evidence for the capital-skill asset mismatch that arose in Italy and not abroad. The chapter concludes by arguing that the failure of the "new course" strategy sanctioned the end of the computer industry in Italy; managerial decisions to move into telecommunications account for Olivetti's downfall as a computer manufacturer.

### **5.1 A bird's eye view of the computer industry**

The ICT/computer industry proceeds from the technological developments of the typewriting, calculating and office-equipment industry. This section looks at the industry's growth trajectory over time and the role played by Italy in it. It then provides a brief historical account of one the industry's major players, Olivetti.

### 5.1.1 Italy's computer industry over time

The first indicator used to describe Italy's international performance in the computer industry is the revealed symmetric comparative advantage, employed by this research as a proxy for international competitiveness. The two product categories analysed by this chapter are summarised in the following table (Table V.1, items in bold).

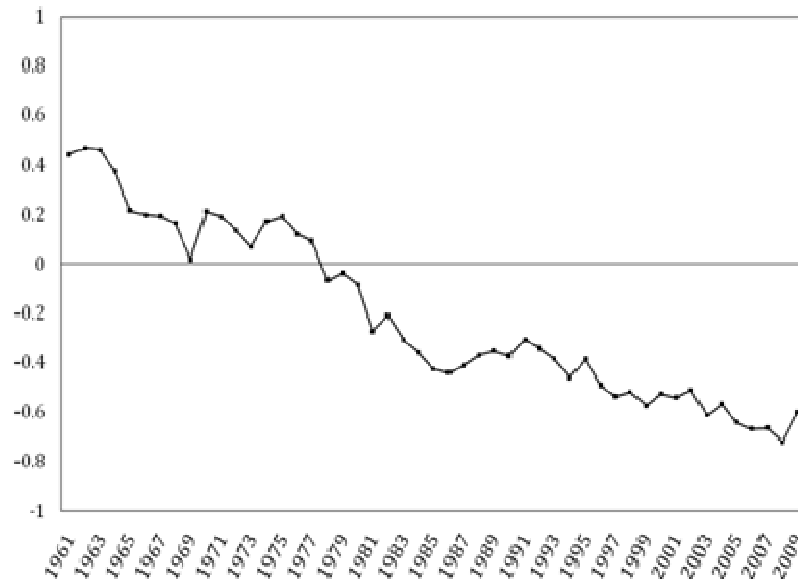
Table V.1 SITC Rev.3 Product Classification, relevant breakdown

<b>751 - Office machines</b>
751.1 - Typewriters and word-processing machines
751.2 - Calculating machines; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers
751.3 - Photocopying apparatus incorporating an optical system or of the contact type, and thermo-copying apparatus
751.9 - Other office machines (e.g., hectograph or stencil-duplicating machines, addressing machines, automatic banknote dispensers, coin-sorting machines, coin-counting or wrapping machines, pencil-sharpening machines, perforating or stapling machines)
<b>752 - Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.</b>
752.1 - Analogue or hybrid (analogue-digital) data-processing machines
752.2 - Digital automatic data-processing machines, containing in the same housing at least a central processing unit and an input and output unit, whether or not combined
752.3 - Digital processing units, whether or not presented with the rest of a system, which may contain in the same housing one or two of the following types of unit: storage units, input units, output units
752.6 - Input or output units for automatic data-processing machines, whether or not presented with the rest of a system and whether or not containing storage units in the same housing
752.7 - Storage units, whether or not presented with the rest of a system
752.9 - Data-processing equipment, n.e.s.

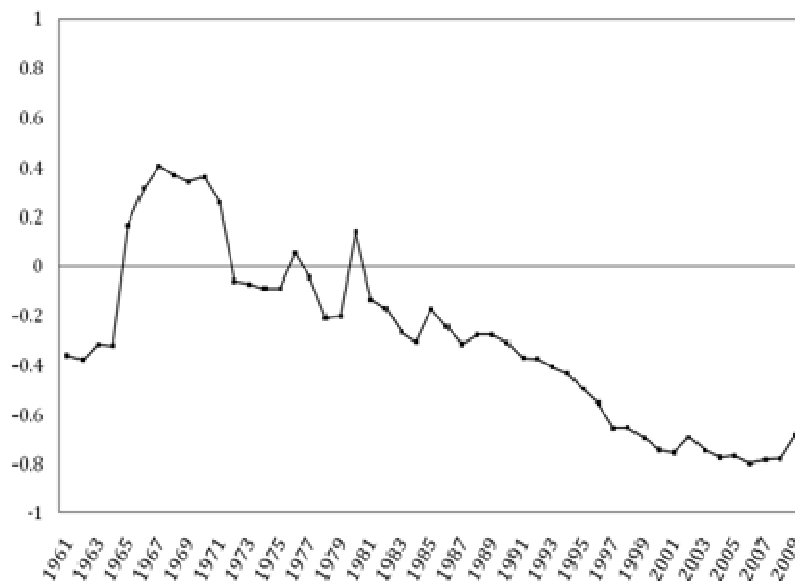
*Source: (UN Statistics Division, 2009)*

The product category “751 Office Machines” is shown in Appendix 3 (p.253) to hold a highly positive RSCA and RSUV in the early sixties<sup>47</sup>. As the industry evolves from mechanical machines to analogue data processing machines, the product category “752 Automatic data-processing machines, and units thereof” is analysed as well. The two graphs below describe the development over time of the revealed symmetric comparative advantage indicator. They suggest that Italy’s international performance with respect to the production and export of “office and automatic data processing machines” severely deteriorated over time, despite a peak in the early sixties and seventies. The RSCA indicator for office machines exhibits a downward trend (Figure V.1). The high values of the early sixties capture the period when Italian typewriting machines were produced and sold through most of Western Europe, north and South America.

Figure V.1 Office machines (top); Automatic data processing machines (bottom)



<sup>47</sup> As a clarification, it is worth noting that “digital automatic data processing machines” are better understood as modern day computers. “Analog automatic data processing machines” were instead their fore-runners and the by-products of mechanical and electro-mechanical technology.



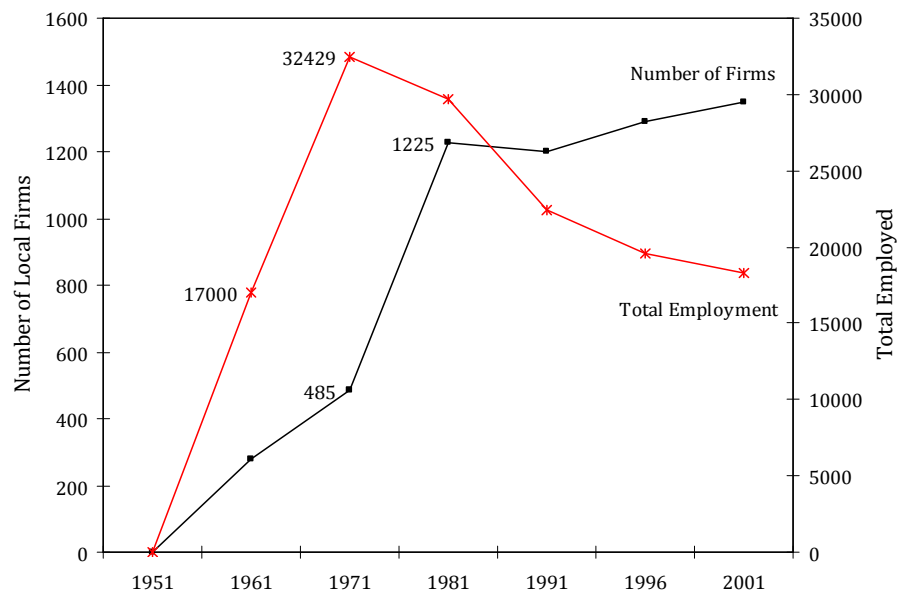
Source: OECD International Trade and Commodity Statistics 2009, Own Calculations

Year-to-year data suggests that the RSCA indicators for “751” and “752” swung from highly positive to highly negative (note that 0.5 is recognised as the benchmark for trade success) (Figure V.1). Moreover, though other product categories have - at various points in time - held larger RSCA values, what is most peculiar to this industry is its dramatic turnaround: from the sixties and seventies’ success to the failure of the following decades<sup>48</sup>. The second set of indicators employed to assess the performance of the computer industry in Italy look at numbers of firms and employees for the industry. Unfortunately, statistical data which is disaggregated to such an extent which is warranted by this thesis is not always available and in particular when concerning macro-economic variables such as employment, unemployment, and production. The Italian national statistical office (ISTAT) has been collecting data on firms for the national census on industry and services since 1951. This data collection process has been repeated every ten years and is available up to 2001; additionally there is an extra data point for 1996. The level of disaggregation though is not satisfying as it is not comparable to the statistical

<sup>48</sup> As discussed in chapter 1, failure is captured by the negative value of the RSCA indicator and of the RSUV indicator.

classification methods applied by the OECD when collecting trade data, nor is correspondence between the two classification methods possible as ISTAT only converted to a NACE-based classification system in 1991 (ATECO-91). The category “3112 Electric and Telecommunication Machines” captures a greater scope of activities than those strictly correlated to the production of office machines and computers. Yet the ISTAT census is the only one to report data so back in time, at such a disaggregated level.

Figure V.2 3112 Electric and Telecommunication Machines (Italy)



Source: ISTAT, *Censimento Industria e Servizi 1951~2001*, Turin province

To render these statistics meaningful, only data for electric and telecommunication firms and workers in the province of Turin has been collected (Figure V.2). The reason for this is linked to the geographic location of Olivetti and its domestic suppliers in the sixties. Moreover this approach is justified by the fact that this industry can be quite confidently identified with Olivetti until the mid eighties. Nonetheless, the purpose of these statistics is to show the size of the increment in total employment which was registered by the 1961 and 1971 census, roughly a 90 per cent increase. Already by the 1981 census these

numbers had started declining; between the 1981 and up to the 2001 census the data exhibits a 40 per cent collapse in total employment. With respect to the data on the number of local firms active in the area in this industry we observe a dramatic increase between the 1971 and 1981 data points of close to 150 per cent, whereas the eighties decade witnesses a decrease (Table V.2).

Table V.2 Growth rate of number of firms in the Turin province

1971-1981	1981-1991	1981-2001
153%	-2%	10%

*Source: ISTAT, Censimento Industria e Servizi 1951~2001, Turin province, Own Calculations*

Therefore, also from a macroeconomic point of view – keeping in mind the limits of the statistics employed – it appears that in the early seventies the level of total employment in this industry reached heights no longer replicated in the following years. It also appears that the number of computer firms increased substantially during the 1971-1981 period, to then stabilise at the level reached in the early eighties. These statistics suggest that new firms had become smaller and smaller in size in light of the reduction in total employment. Moreover, the latter statistics also reinforce the claim that this industry performance pattern moved from highly positive to highly negative

### *5.1.2 Olivetti: the Goliath of the Italian computer industry*

Olivetti was a family-owned company, located in Ivrea inspired by Taylorist production principles. It not only provided employment to the local population but also set up local welfare provision and educational systems. From 1946 to 1959, Olivetti was subjected to a number of radical industrial transformations. These changes were empirically accounted

for by Luciano Gallino (Gallino 1960) – see Table V.3 below. His studies treat 1946 as the base year and reveal that by 1959 there had been a substantial investment in physical capital, which lead to increased production, productivity and employment. Additionally, by 1959 Olivetti owned nineteen global subsidiaries (Bricco 2009 : 8) and had founded production plants in Spain, Scotland, Argentina, Brazil and South Africa (Barbiellini Amedei, Goldstein et al. 2009)

Table V.3 Olivetti firm level performance, 1946-1959

	1946	1959
Physical capital	100	1050
Production (total)	100	988
Production (per unit of lab. Per hour)	100	479
Employees (Italy)	100	265
Employees (globally)	100	1276

*Source: Gallino 1960*

In the early sixties, Olivetti was the first office equipment manufacturer to employ sophisticated mechanics. This allowed it to move away from the production of typing machines and to become a global producer of calculating machines (if we take 1949 as the base year and give it a value of 100, Olivetti was producing 639 typing machines and 6652 calculating machines in 1959) - laying the foundations for analogue and electronics technology to develop. Consequently, Olivetti developed the Elea 9003, a digital electronic mainframe, used to process business data<sup>49</sup> (Torrise 1998 : 77) which was extraordinarily successful both in Italy and abroad (Bricco 2009 : 22).

Yet the costs associated with the technological investment and with the foreign takeover of the US-based corporation, Underwood (Learned, Christensen et al. 1965), were high.

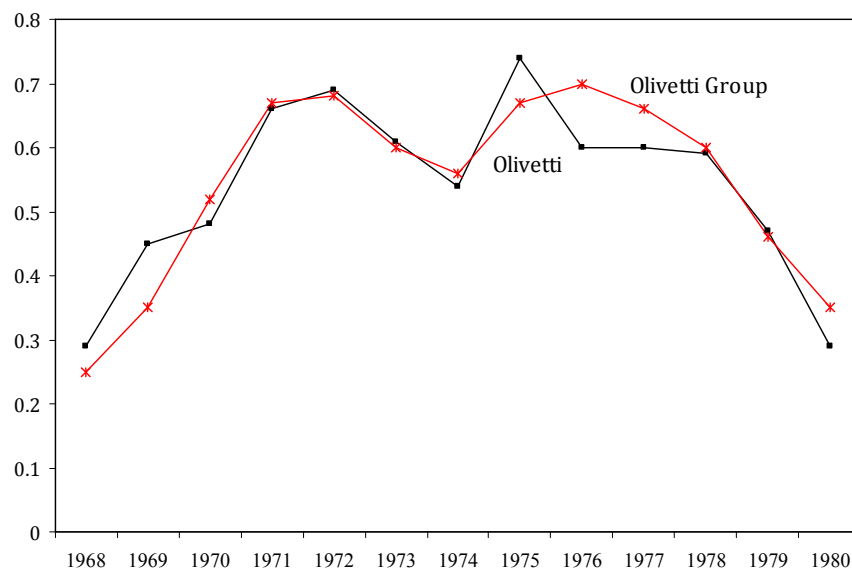
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<sup>49</sup> This machine was designed by Ettore Sottsass and was considered to be such a technological and design frontrunner that it was put on show at the MoMA, New York City. Rumour has it that *IBM* was working on a similar product and had indeed put one on sale, yet it was found to be faulty (interview *Matteo Olivetti*).



Consequently Olivetti was recapitalised by IRI<sup>50</sup>, Mediobanca and a consortium of investors (Piluso 2005 : 110-112). Following, new electro-mechanic (*Elea 6001, Lettera 32*) and electronic products (*Olivetti Programma 101*) were developed. Yet financial concerns re-emerged as demand slowed down in the late sixties. Olivetti's debt rose to 159.2 billion lira and that of the Olivetti Group to 334.6 billion lira (Bricco 2009 : 114). Total debt to revenue ratio increased to approximately 70 per cent (Figure V.3).

Figure V.3 Total debt to revenue ratio



Source: (Bricco 2009 : 180)

The company experienced a second financial turmoil, worse than the previous one. It faced growing pressures both from the outside, in the form of the growing cost of servicing its debt, as well as from the inside, in the form of a growing wage bill. The solution sought involved a syndicate of banks and industry (Mediobanca, Pirelli, Banca Centrale Italiana) driven by Carlo De Benedetti, which took over from the Olivetti family in 1978. Once settled, De Benedetti was confronted with the need to address the company's technological backwardness. As a matter of fact, in light of the technological upheaval

<sup>50</sup> Italy's public institute for industrial reconstruction.

brought about by PC technology, Olivetti technology and products had become outdated by the late seventies. De Benedetti attempted to restore the company's past competitiveness by implementing a new productive strategy. It focused on building R&D partnerships and restructuring the model of production organisation, in line with transformations which were taking place in the US as well. Yet the strategy did not bare the desired fruits. Although Olivetti had become the third producer of PCs globally (by virtue of the international partnership constructed), it was lagging far behind IBM and Apple (Datamation, 15 June 1986 in Colapinto 2006).

### *5.1.3. Standard explanations of Olivetti and the Italian computer industry's decline*

The question of what lies behind the fall of Olivetti and the demise of Italy's computer industry has been previously addressed by the Italian literature. Financial indebtedness (Bricco 2007; Bricco 2009) and the lack of financial support from Italy's banks (Piluso 2005), or the absence of a national industrial policy able to support Italy's strategic industrial sectors (Gallino (b) 2003; Gallino(a) 2003) have been offered as explanations. Although, these factors were indeed at play, this thesis suggests that they only magnified the organisational problem faced by Olivetti. Moreover, this chapter shows that these accounts fallaciously link the demise of Olivetti with that of the Italian computer industry as a whole, whereby Olivetti had instead regained a competitive advantage in the early nineties through a strategy of international partnering and acquisitions. In what follows, this section briefly explores and counters these standards explanations.

*Financial indebtedness and the opposition of the “salotto buono”*

Between the mid-sixties and early-nineties Olivetti was subject to three financial crisis as it struggled to repay the accumulated debt; Bricco (2007, 2009) and Piluso (2005) argue that the way in which these crisis were addressed laid the foundations for the company's demise in later years. In 1963, Olivetti owed foreign and domestic banks 118.5 billion lira (Bricco 2009 : 36). In order to relieve the financial constraints that these debts involved, Visentini (IRI) and Cuccia (Mediobanca), in conjunction with Italy's industrial establishment<sup>51</sup> (Agnelli, Pirelli), set up a consortium of investors willing to recapitalise the company (Piluso 2005 : 110-112; Bricco 2009). The condition set for this joint rescue involved the reduction of R&D investment in the nascent electronics industry: Mediobanca and FIAT's management (Valletta) believed electronics was a weed which required removal (Bricco 2009; Gallino(a) 2003; Piluso 2005).

Despite Olivetti's first financial crisis had been resolved, in the early seventies the company was once more confronted with a period of financial turmoil. As demand for Olivetti products had waned, Olivetti's management urged IRI to increase its share of capital in Olivetti so as to finance the technological renovation of its product base. IRI's refusal<sup>52</sup> forced Olivetti to once more indebt itself significantly leading to a second financial crisis resolved by the arrival of a new investor, De Benedetti. In conjunction with Italy's industrial establishment (Mediobanca, Pirelli, Banca Centrale Italiana), an ailing Olivetti was once more recapitalised (Bricco 2009 : 163).

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<sup>51</sup> Also called by the Italian press and literature “*salotto buono milanese*”.

<sup>52</sup> This refusal was justified in part by Italy's 1936 Banking Law (Royal decree of March 12 1936; n.375) which forbade banks' ownership of industrial enterprises; in 1949 the CICR further stipulated that whereby a bank participated to a consortium of investors, total share ownership could not be greater than 50% of the company's capital (which would have been the case for Olivetti); in part by IRI's (with the approval of Mediobanca and FIAT) strategic investment in the chemical industry instead.

Despite the organisational restructuring which the new management pushed through and the international partnerships it constructed (Bricco 2007 : 328; following section for further details), in the late eighties Olivetti was once more confronted with the problem of repaying its debts (equal to 8872 billion lira in 1989). The total debt-to-revenue ratio had once more approached the high levels observed in the mid-seventies (Graph V.3). In the face of cyclical and continuous liquidity shortages, Bricco argues that Olivetti's management (embodied by R. Colaninno) eventually chose to exit the computer industry in the mid-nineties and move into the recently privatised Italian telecommunications industry as the investment required to reshape Olivetti was thought to be too large (Bricco 2007 : 329).

#### *Absent national industrial policy*

On the other hand, Gallino repeatedly asserts that the decline of Italy's computer industry is not only linked to the company's financial weakness, but (and more importantly) in the absence of an appropriate, national level, industrial policy capable of supporting strategic industrial sectors (Gallino(a) 2003). Contrary to other European countries, Italy lacked (and continues to lack) a specialised ministry for industrial policy as the Ministry of Finance, of Education and of productive Activities are all responsible for industrial policy. This combination of overlapping responsibilities resulted in a vague and ineffective policy (p. 97 and 100-101). Specifically, Gallino contends that Olivetti's decline can be traced back to the dismissal of its electronics division in 1963. In his analysis, the decision of Mediobanca and Fiat to sell this division to General Electrics should have been countered by an industrial policy geared towards the protection of strategic industries. In line with other authors, Gallino argues that this move set the seed for Olivetti's competitive deterioration and its subsequent decline (Soria 1979; Gallino(a) 2003).

### *Rejecting standard accounts*

In sum the “financial indebtedness thesis” identifies Olivetti’s recurrent financial problems, and the strategic choices which the subsequent financial solutions entailed, as the main causes of Olivetti and Italy’s computer industry’s decline. The “absent industrial policy thesis” contends that Olivetti’s demise results from a strategic error on behalf of Italy’s policy makers who failed to appreciate the potential benefits which could be accrued in the electronics industry. Yet both theses fail to appreciate that foregoing a direct investment in electronics technology did not hinder a bottom-up technological upgrading which culminated in the invention of the *Programma 101*. This was conceived, in a typical Italian fashion, by a small group of engineers and technicians based in a rundown garage. In addition, despite Mediobanca and IRI’s instructions, Roberto Olivetti (son of Adriano) injected fresh funding into rebuilding this asset. Consequently, by 1973, 43 per cent of Olivetti’s earnings originated from electronic goods. Therefore, albeit with some delay, Olivetti too found its place in the electronics and nascent computer industry.

Secondly, the “financial indebtedness thesis” fails to acknowledge that although indebtedness was a defining feature of Olivetti’s history, it did not sanction the company’s decline. This account fails to concede that Olivetti was again in the early nineties a successful international player (see Section 5.3.1). Although this was not the case for the Italian computer industry as a whole since Olivetti’s newfound success resulted from an aggressive technological upgrading strategy, pursued by means of foreign venture capital investments (Colapinto 2006). This suggests that moving into the telecommunications industry was not a forced but a conscious choice of Olivetti’s management’s will (see Section 5.3.1).

In sum, both theses do indeed highlight an important structural (financial) weakness of Olivetti and do draw attention to the limited governmental support it received (especially when compared to other industrial sectors, such as the automobile and chemical industries). Yet, neither constructs an argument capable of explaining the company's irregular and fluctuating performance over time. Moreover, neither thesis is capable of explaining why the performance of the computer industry in Italy deteriorated earlier than Olivetti's. These accounts do not explain why as of the early eighties the centre of gravity of Olivetti's research and production activities was no longer based in Italy. Section 5.1.1 suggests that from a macro-economic and trade perspective, Italy's performance in the computer industry had already worsened in the early seventies. Olivetti instead continued to be an important international actor up until the early nineties. The explanation of this paradox lies in the recognition that Olivetti's performance became decoupled from that of the Italian computer industry in the late eighties and early nineties.

The standard explanations presented above consistently link the performance of Olivetti to that of the Italian computer industry as a whole, yet the next section will prove this to have been an erroneous approach. It will show that the technological innovations taking place in the computer industry at a global level required a transformation of the model of production in place. The argument presented employs the concept of capital-skill asset pooling to explain the implications of these transformations on Olivetti's strategy and on the performance decoupling which followed.

## 5.2 Using capital-skill asset pooling to understand the industry's demise

This section shows that the standard explanations of Olivetti and the computer industry's decline in Italy fail to take into account (1) the developments and innovative transformations that took place in the industry globally, and (2) the mismatch between the new production organisation model that these transformations called for and the model compatible with Italy's industrial institutions and landscape.

### *5.2.1 Technological innovation and industrial transformation*

In the fifties and early sixties, the main products manufactured by the computer industry were (i) mainframes (powerful computer systems used for large departmental or company-wide data collection and processing applications); (ii) mini-computers and (iii) integrated circuits. Firms were vertically integrated (Cloodt, Hagedoorn et al. 2006) because this structure allowed for the development of dynamic capabilities and technologies and because of the high sunk costs involved in the production of mainframes (Iansiti and Clark 1994). The major players of the industry were American: IBM, Burrows, Univac Rand, NCR, Control Data, Honeywell, GE, RCA (Malerba, Nelson et al. 1999). The only European exception was Olivetti (Bresnahan and Malerba 1999).

These firms were all Fordist in structure, large in size, and comprehensive in terms of the social services provided (Gallino 1960; Maglione, Michelsons et al. 1989; Bresnahan and Malerba 1999). Each firm independently engaged in a variety of activities, ranging from: sales and distribution, the development of application software and operating systems, the production of hardware, components and chips (Grove 1997). Most of the necessary

components were produced internally. Not only, the software which governed such machines was proprietary, implying that an IBM machine was incompatible with a Honeywell application (Malerba, Nelson et al. 1999 : 9). There was therefore limited scope for inter-firm synergies (Bresnahan and Greenstein 1999) and the high degree of internal integration was mirrored by the low degree of R&D cooperation (Cloudt, Hagedoorn et al. 2006).

In 1975, the way in which computers were developed was dramatically transformed when the MITS/Altair microcomputer was first produced, in New Mexico (Langlois 1990). The MITS/Altair<sup>53</sup> was the first fully capable personal computer and its introduction set off a process of radical innovation and production development. Whereas mainframe and minicomputer manufacturers had previously been highly integrated, the most important microcomputer manufacturers became smaller in size and narrowly specialised. These firms outsourced production and development to external suppliers and became simple product re-assemblers. Moreover, the mode of innovation within the industry shifted from incremental to radical: new technology displaced previous technology instead of improving it (Bresnahan and Greenstein 1999). The MITS/Altair gave birth to a wide-ranging and dispersed network of computer amateurs, 'hobbyists', which set-up start-up companies and conflated in networks of small firms which reinforced the wave of radical innovation throughout the industry<sup>54</sup> (Saxenian 1985; Sturgeon 2003). Consequently, the vertically integrated structure which had characterised the initial years of the computer industry was deemed to be no longer useful as it slowed down the speed of adjustment to the new technology.

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<sup>53</sup> It was a box endowed with very simple capabilities which contained a microprocessor and "slots" for additional memory and devices.

<sup>54</sup> Apple II was the childbirth of this new form of networked production and innovation. Apple's founders had recognised at a very early stage that they should be more involved in "designing, educating and marketing [...] (and) do the least amount of work that it could and that it should let [...] the subcontractors have the problems" [Moritz, M. (1984). *The Little Kingdom: The Private Story of Apple Computer*. New York, William Morrow..]



Amongst the incumbents, IBM was the first to recognise the necessity of altering its system of production and innovation. IBM's management therefore embarked in a strategy whereby all software and hardware components were "put up for competitive bidding from outside suppliers" (Langlois 1990 : 98). IBM at times acted as a distant buyer, at times as a venture capitalist, offering suppliers funding and guidance (IBM PC Project Director, P.D. Estridge in: Business-Week 1983). IBM invested heavily in building R&D partnerships with other US firms to develop new hardware and software technology (Cloudt, Hagedoorn et al. 2006). The pressure to channel financial resources into R&D required a strong effort to cut production costs. IBM thus outsourced the production of mature hardware components to Asian-Pacific countries through a process of sub-contracting which contributed to the emergence of global commodity chains (Appelbaum and Gereffi 1994; Gereffi 1994; Gereffi and Korzeniewicz 1994; Gereffi 1995).

### *5.2.2 Institutional foundations of capital-skill asset pooling in the computer industry*

As technological change dramatically altered the computer industry, international computer companies (such as IBM) devised strategies to remain competitive. The technological transformation implied that the mode of innovation shifted from incremental to radical (Lundvall 1992; Casper 2001 : 398; Estevez-Abe, Iversen et al. 2001; Hall and Soskice 2001). Also, that the mode of production shifted from high to low cost, as production processes *per se* no longer allocated added value to a good, whereas research and development did. Radical product innovation became thus associated with low cost production (Michelsons 1989 : 433; Hobday 1995; Hobday 2001).

From an institutional perspective, the study of the preconditions for radical innovation in the computer industry is of recent derivation, especially if compared to the study of the preconditions for high quality production. They have been investigated by Herrmann (2005) who argues that specific types of skill and capital favour the development of radical innovation. Outside share capital is deemed necessary as a clear preference for high-risk, high-return strategies must underpin firms' ownership structure. Shareholder capital complies with this need as personal risks are minimised since 'the costs of bankruptcy in case of total failure of high-risk strategies are divided between shareholders and creditors' (Gelauff 1997: 346). Moreover, it also allows managers autonomy in their investment decisions leading to the rapid reallocation of resources (Herrmann 2005 : 60). Secondly, employees with 'general' (Estevez-Abe et al. 2001: 148) or 'multi-tasking' skills (Lindbeck and Snower 2001a: 1872-3) are deemed to be important preconditions as well.

Additionally, once the mode of innovation in the computer industry was transformed by the advent of PC-technology, the mode of production was altered as well. In the computer industry, research and product development constitute the costliest segments of a computer's production chain; production costs instead have consequently been minimised. The production of electronic components has been standardised, modularised and outsourced to low cost economies where low wages and *low skill* (and low wage) levels predominate (Redding 1996; Saxenian 2002; Vind 2008). To some extent, innovation and production in the computer industry became separated – both conceptually and logistically.

After 1975, *impatient* (outside share) capital, (high) and *general* skills became necessary to develop new computer technology; low cost suppliers became necessary to produce new computers. The production of a computer thus required (i) the *impatient* capital to

finance risky experiments, (ii) *high* and *general* skills to come up with new radically innovative technology, (iii) suppliers with *low skill* levels capable to produce components at a low cost. Facing the need to respond to these changes, computer firms extensively resorted to constructing R&D partnerships, via merger and acquisition or venture capital financing (Cloudt, Hagedoorn et al. 2006; Colapinto 2006). At the same time they contributed to the (direct or indirect) creation of a low cost Asian-Pacific hub of component manufacturers (Michelsons 1989 : 433). For example, on the one hand IBM invested heavily in increasing internal research and in building R&D partnerships with other firms, mostly US-based (Cloudt, et al. 2007). On the other, it heavily outsourced the actual production of components to emerging Asian-Pacific countries – where production costs were still low. By relying on the input factors possessed by a domestic and an international external network, IBM, as well as Apple and Compaq, were capable to continue competing in the computer industry.

This thesis contends that Olivetti too pursued such a strategy. In line with other computer manufactures, Olivetti was burdened by a vertically integrated structure of production. Moreover, its workforce was mostly endowed with specific skills closely linked to electro-mechanical goods and technology; its workers had been trained within Olivetti-provided vocational training facilities and lacked a general training background. In the 1980s, tertiary education in the Ivrea and Piedmont areas lay at extremely low levels: by the late eighties 80% of the population of Turin's province worked in industry and less than 20% of these had achieved upper secondary or tertiary degrees (Stanchi 2001). Olivetti thus lacked access to a workforce endowed with (high and) general skills capable of breaking pre-established and pre-arranged work routines and fuel the radical innovation that the transformed computer industry required. On the other hand, Olivetti did have access to *impatient* capital. Its past financial experience (see Section 5.2.X) suggests that Olivetti's

capital financing was subject to short-term constraints (hence explaining the repeated financial crisis).

In line with the lead firms presented in Chapters 3 and 4, Olivetti pursued a strategy of capital-skill asset pooling in order to overcome the production constraints faced. It searched for the missing asset of production outside the set of institutions which traditionally governed its relationships with other economic actors, both at home and abroad. On the one hand it invested heavily in its local supply chain through what was known as the “new course” strategy (Maglione, Michelsons et al. 1989 : 82-83); on the other, it actively sought to buy or partner with (mostly) US-based start-ups and firms (Cloudt, Hagedoorn et al. 2006; Colapinto 2006).

The outcomes of this two-sided strategy diverged: whereby abroad Olivetti was able to purchase the general skills needed through an active foreign acquisition strategy, it was not able to do so at home. It had actively pursued a strategy (the “new course” strategy, see below) which was aimed at nurturing a local, technologically competitive, network of small firms. Yet, these firms proved incapable of supplying Olivetti with radically innovative solutions to its problems and instead turned to supplying Fiat Auto’s component manufacturer which employed electromechanically skilled workers. Although Olivetti was capable to pursue a capital-skill asset pooling strategy abroad, capital-skill asset mismatch emerged at home as the skills held by local suppliers mismatched those required by Olivetti. The thesis contends that Olivetti regained its lost competitiveness by investing in the development of new software technology and innovation through the establishment of numerous R&D partnerships and the acquisition of international software companies.

Yet the attempt to restructure Olivetti's local supply base led to a capital-skill asset mismatch which ultimately sanctioned a withdrawal of Olivetti from all computer activities based in Italy. This failure determined the demise of computer manufacturing in Italy. The internationalisation strategy instead allowed Olivetti to decouple itself from the institutional impediment associated with radical product innovation in Italy and to remain an important player in the international computer industry spectrum for some time. The following section provides evidence for this argument which not only links the development of Olivetti to that of the transformations which took place in the computer industry globally, but also (contrary to standard explanations) explains why Olivetti and the Italian computer industry's performances differed over time.

### **5.3 Supporting evidence**

#### *5.3.1 Capital-skill asset mismatch despite the "new course"*

In the late seventies Olivetti not only faced the problem of growing technological backwardness, but also of shedding a bloated workforce associated with its vertically integrated structure. In light of (i) the need to find either workers with (high and) *general* or *low* skills, (ii) the public concern associated with the dismissal of thousands of workers, Olivetti sought to hone the capabilities of laid off workers into a local network of suppliers. The ultimate objective was to move away from a vertically integrated production structure and engage in capital-skill asset pooling with these firms. Consequently, as mechanical and electro-mechanical capabilities were expelled from the firm to contain internal costs, Olivetti management entertained subcontracting relationships with these workers. The

“new course” project attempted to organise these employees into small supplier firms with which a radical innovation or low cost production strategy could be engaged.

*Mismatch in Italy: entering Fiat Auto’s supply chain*

The “new course” took off in the early eighties and was in essence a manifold strategy geared towards upgrading know-how and promoting flexibility amongst suppliers. This was supposed to be achieved through a number of instruments carefully implemented throughout Olivetti’s component acquisition strategy. They involved: (1) establishing quality controls; (2) enabling direct technology exchange via the loaning of recent and technologically advanced machinery; (3) facilitating access channels to financial support; (4) limiting the number of purchases from each supplier in order to stimulate flexibility and inventiveness; (5) establishing cooperative innovation-enhancing partnerships with hardware and software producers; (6) limiting suppliers’ profit margins through competitive delivery time and price policies; and (7) establishing a permanent observatory to monitor subcontractors and subcontracting behaviour (Maglione, Michelsons et al. 1989 : 82-83). Yet the policy instruments introduced by the “new course” strategy failed to deliver the desired objectives. On the hardware side, the observatory on suppliers reported that in 1985 Olivetti had distributed the production of hardware goods to 563 subcontractors, of which only 114 were based in the local vicinities (province of Ivrea and the Canavese area) (Maglione, Michelsons et al. 1989 : 80). Moreover, of these only 27 per cent produced technologically sophisticated electronic goods whilst 73 per cent produced mechanical and electro-mechanical goods. All firms remained small in size - employing less than sixteen employees - and were highly dependent on Olivetti as their only buyer. More importantly, the majority of local firms which sprung-out of Olivetti became part of Fiat-Auto’s supply chain.

Table V.4 Local Firms' Specialisation

		1991	1996	2001	Change 91-01
Mechanical	No. of Firms	139	179	186	+34%
	Employees	1499	1833	2691	+80%
Metalworking	No. of Firms	425	381	425	0
	Employees	3409	3935	4041	+19%
<i>Total</i>	<i>No. of Firms</i>	<i>564</i>	<i>560</i>	<i>611</i>	<i>+8%</i>
	<i>Employees</i>	<i>4908</i>	<i>5768</i>	<i>6732</i>	<i>+37%</i>

Source: ISTAT *Censimento Industria e Servizi 1991~2001*, (Bricco 2009 : 369-371)

Olivetti's desire to establish a network of capable suppliers did indeed result in the creation of a disintegrated value chain. As a matter of fact, a large number of firms reverted to a more mechanical and metalworking specialisation tradition. Historically, Olivetti's traditional and most successful products were typewriters, calculators and data processing machines. The skill-set involved in the production of these goods comprised metalworking, mechanical and electro-mechanical capabilities, which had become deeply rooted in the area. Once the "new course" restructuring process begun and workers were laid off, many set up small firms specialised in mechanical or electro-mechanical production. Data on the productive specialisation of local firms in the province of Ivrea deriving from ISTAT's ten-yearly census on industry and services shows that a mechanical renaissance did indeed take place (Table V.4). The data suggests that between 1991 and 2001, the number of workers employed in firms producing mechanical goods increased by a staggering 80 per cent: the actual number of firms increased by 34 per cent. This discrepancy therefore suggests that increases in the average size of firms must have been observed. The workforce employed in metalworking firms instead increased by a smaller, yet still positive, amount: 19 per cent.

These firms therefore identified a novel market outlet in the automobile supply chain which spun off Fiat Auto's production restructuring efforts of the late seventies (Enrietti

and Lanzetti 2002). These efforts led to the establishment of Fiat’s hierarchically structured supply chain as it had as well embarked on its own strategic “new course” (Michelsons 1989). The underlying motivation for this strategic shift shared common features with Olivetti: (1) a need to increase productivity; (2) reduce production costs; in order to (3) finance research, (4) physical capital renewal, and (5) model transformation. However, at the time “Fiat had strong internal competencies in mechanical industries, but was necessarily dependant on outside firms for electro-mechanics, plastic and rubber parts, and numerous services” (Volpato 1982; Whitford and Enrietti 2005 : 780). Coincidentally, these needs were met by the flocks of outgoing Olivetti employees who were competent in such technologies.

Table V.5 Local Firms-Olivetti Relationship

Regular Supplier	22.7%
Occasional Supplier	14.4%
Not a Supplier	62.9%
Total	100%

*Source: Censis report 1992, (Bricco 2009 : 343)*

Interview based evidence shows how both the employees which had exited Olivetti in the late sixties and in the late seventies became part of Fiat Auto’s supply chain. Subsequently, they became part of a more internationalised automobile supply chain, as Fiat Auto suppliers (Enrietti and Lanzetti 2002). Yet, in both events, these firms always remained at the sideline of such subcontracting structures; becoming second-, if not even third-, tier suppliers. Often, interviewed entrepreneurs would not even be capable of pointing out explicitly which level of this supply chain they belonged to. Moreover, their business model consisted in the refinement, moulding and pressing of parts which higher tiered subcontractors would supply to them and then return to assembly firms (interview numbers 55-56, Rossi and Masciaga.).



Given these developments, it is therefore not surprising that of the surviving small firms located in the province of Ivrea and the Canavese in the nineties, only a small fraction declared to have been Olivetti suppliers in the past (Table V.5). Given the specialisation return of suppliers to a more mechanical tradition, these firms lacked the *general* skills sought out by Olivetti. Hence, there was no asset of production left to be pooled as local Italian firms had no potential to develop radical innovation. The reinforcement of a *specific* skill tradition, fostered through the participation in Fiat Auto's supply chain from, implied that the skill asset sought by a firm seeking to pursue a radical innovation product market strategy.

In addition, Italian suppliers did not even possess the *low* skill asset required for the manufacturing of standardised components which complement a computer good. Italian wage levels were (are) higher than wages in developing countries; consequently the average production cost of a PC in Italy had become uncompetitive (Michelsons 1989 : 433). Thus, by the late seventies all hardware production had moved to East Asia, determining a strong rationalisation of Olivetti activities in Italy (interview number 46, Maglione). By the late eighties, only administrative and retailing functions activities were still located in Italy. Olivetti had actively sought the *general* and *low* skills to develop radical innovation and produce computers abroad. Therefore, the capital-skill asset mismatch which emerged acted as a trigger for the end of computer development and manufacturing by Olivetti in Italy. As a consequence, Italy's relative competitive position in this industry, which had substantially deteriorated in the seventies, no longer recovered.

### *5.3.2 Capital-skill asset pooling via international partnerships*

In parallel to the “new course”, Olivetti embarked in a succession of international partnerships: in 1980 came its first international R&D alliance with two American companies: Lucky-G and Geda. Thereafter, Olivetti pursued this route to technological catch-up quite intensely and earned a place in the list of firms with most global R&D partnerships: one in 1975-79, six in 1980-84 (when IBM had seven), seven in 1985-89 (when Apple Computer had five), and none thereafter (Clodt, Hagedoorn et al. 2006).

The partnership with the American telecommunications giant AT&T, in 1983, was the most successful, albeit short-lived. This partnership was dovetailed by AT&T’s purchase of 22% of Olivetti shares, which culminated in the development of the Olivetti M-24, the only successful personal computer produced by Olivetti. By the late eighties the network of international R&D alliances had grown bigger as Olivetti established research partnerships with Phillips and IBM; partnerships with Bull, Kodak and Samsung had also been set up, although these concerned printing and photocopying technology. In addition, this alliance-building strategy was complemented by a research-oriented acquisition strategy: Olivetti purchased in 1981 the Swiss software company Hermes Precisa, the French company Logobax in the same year, Acorn (British, 1985), Triumph-Adler (German, 1986), the Bunker Ramo (US, 1986) and Scanvest Ring (Scandinavian, 1988) (Colapinto 2006).

Besides Olivetti’s partnering and acquisition activity with established international computer producers, a part of Olivetti’s research acquisition strategy was driven by venture capital operations. As a matter of fact, in order to foster research and development, Olivetti officially inaugurated a corporate venture program in 1980

(Colapinto 2006). Table V.6 suggests that Olivetti's extensively resorted to this instrument in 1981-1982; similar acquisition dynamism characterised the years that followed. Most venture capital activities took place in the US and consisted of share acquisitions of small start-up companies – although a few venture capital experiences took place elsewhere as well: in the UK, Japan, and in Italy (although only one such instance is reported). Moreover, the share-acquisitions listed pertain to varying segments of the computer industry, allowing Olivetti to strive for technological innovation throughout the entirety of its diversified product portfolio.

Table V.6 Olivetti venture capital acquisitions in the US (1981)

<b>Industry segment</b>	<b>Company</b>	<b>Shares (% of total)</b>
<i>Office automation</i>	Compuscan	18.7
	Syntrex Inc.	23.2
	FileNet Corp.*	16.9
	Micro Office System Tech. Inc.*	21.9
<i>Hardware</i>	Applied Micro Circuit Corp.	4.2
	IPL System Inc.	23.8
	Ithaca Intersystems Inc.	33.5
	Stratus Computers Inc.	9.1
<i>Magnetic memory disks</i>	Irwing Magnetic Systems	6.3
	Lanx Corp.	8.8
<i>Software</i>	Service Systems Technology*	49
	Shared Financial Systems*	20.6
	Editrice Italiana Software (IT)*	20
	Sphinx Ltd. (GB) *	25
<i>Data management terminals</i>	Data Terminal Systems Inc.	12.2
	Docutel Corporation	20.2
	Transaction Management Inc.	16.5
	Telxon Corp.	3.3
	Data terminal System	12.2
<i>Integrated circuits</i>	Dixy Corp. (Japan)*	20
<i>Intranet technology</i>	Prolink*	11.5
	David Systems*	24
	Intecom*	6.5
<i>Telecommunications</i>	Intecom Inc.	7.5

Source: (Colapinto 2006, : estimations on Olivetti's 1981 consolidated balance sheet; \* 1982 data )

*Asset pooling and the decoupling of Italy and Olivetti's performance*

By exchanging *impatient* capital for the necessary *general* skills to generate the software technology required, Olivetti remained internationally competitive. The foreign venture capital activity enabled it to become the third company worldwide by revenue in 1985, trailing behind IBM and Apple (Table V.7). Yet, the gap was large and despite the sizeable R&D investment efforts in absolute terms, Olivetti's relative research investment was too small. As a result its software technology still lagged severely behind its competitors (Gallino 2003). In 1986 for example, Compaq introduced a new microprocessor which anticipated Olivetti technology by at least a year.

Table V.7 Top ten ranking of global computer firms by revenues (1985)

Ranking	Company	Country	Revenue			
			1982	1983	1984	1985
1	IBM	US	500	2600	5500	5500
2	Apple	US	664	1085	1747	1603
<b>3</b>	<b>Olivetti</b>	<b>IT</b>	<b>--</b>	<b>252</b>	<b>497</b>	<b>885</b>
4	Tandy	US	466	598	574	797
5	Sperry Rand	US	--	386	503	743
6	Commodore	US	368	927	1000	600
7	Compaq	US	--	111	329	504
8	Hewlett-Packard	US	258	399	500	400
9	Convergent	US	--	163	362	395
10	Zenith	US	--	--	249	352

*Source:(Colapinto 2006 : on DATAMATION)*

In the following years, the Olivetti experience was characterised by growing financial constraints related to the cost of funding foreign research and innovation and of employing a workforce of close to 60000 (Bricco 2007 : 324). Faced with growing costs and negative profits in 1990, and a new management, Olivetti exited the computer industry and moved into the telecoms industry instead. The year 1991 thus sanctions the end of Olivetti's experience in the computer industry. This delay, compared to Italy's

earlier deteriorated performance is explained in light of Olivetti's practice of pooling the necessary skill assets of production abroad. The failure of the "new course" cannot therefore be held entirely responsible for Olivetti's shift into the telecommunications sector, but is instead an integrating factor explaining why Italy lost its past comparative advantage in producing computers.

#### **5.4 Conclusion**

This chapter has accounted for the developments of the computer industry in Italy over time. By tracking the indicator of revealed comparative advantage from the sixties onwards, it has clearly shown that Italy held a strong advantage in the manufacturing of those products which anticipated the computer industry as we know it today. Olivetti was in the sixties one of the biggest international players in the typewriter and mainframe industry. Yet just like IBM, and other major players, it struggled to keep pace with the industrial transformations brought about by microprocessor technology. The production and development of typewriters, mainframes and minicomputers took place within vertically integrated large companies; that of microcomputers relied instead on a vertically disintegrated structure. In sum, the invention of the MITS/Altair computer implied that larger manufacturers abandoned a vertically integrated structure for a disintegrated one. Within it, and through open-source platforms, inter-firm collaboration became the most common mode of interaction in the computer industry (Clodt, Hagedoorn et al. 2006).

This chapter has put forward an argument which places Olivetti's demise in the context of the transformations which took place in the computer industry. Moreover, and contrary to

the other standard accounts (the “financial indebtedness” and the “absent industrial policy” theses), it shows that Olivetti and Italy’s demise are not as tightly linked as elsewhere contended. The chapter has argued Olivetti responded to the computer industry’s transformations by pursuing international partnerships and creating a local network of capable suppliers through the “new course” strategy. Yet the latter strategy was unsuccessful as the majority of firms which spun out of Olivetti were specialised in mechanical and metalworking activities. The implication was that capital-skill asset mismatch resulted instead, whereby capital-skill asset pooling was only achieved via international partnership and venture capital investment. The positive returns of these activities reinforced Olivetti’s role as an important player in the computer industry throughout the early nineties; on the other hand, capital-skill asset mismatch at home perpetrated the deterioration of Italy’s international performance in the computer industry.

This case study has therefore substantiated the validity of the thesis’ argument. Since capital-skill asset pooling is identified as necessary for an Italian firm willing to remain internationally competitive (see Ch.2, section 2.3.1), its absence is expected to lead to deteriorated international performances. Since, Italy’s dysfunctional institutions have been identified as favourable to *patient capital-specific* skill asset pooling; the production of high quantities of high quality goods was possible (as suggested by the entering of ex-Olivetti suppliers into Fiat Auto’s asset pool). Yet, the technological innovation brought about by microcomputers implied that the underlying assets of production changed and that a mismatch occurred between the capital offered and the skills sought. Capital-skill asset pooling of the kind identified in the leather goods, footwear and yacht-building industries was not feasible as the desired “pool of assets to share” was redefined by changes to the underlying technology of production. In the following chapter, the thesis

attempts to systematise the empirical evidence discussed in Chapters 3, 4 and 5. It introduces the concept of “disintegrated hierarchy” which best captures the mode of production which has emerged amongst Italy’s most competitive firms.

## **VI. THE ITALIAN MODEL OF PRODUCTION: CAPITAL-SKILL ASSET POOLING AND DISINTEGRATED HIERARCHY**

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The study of national capitalist economies has been driven by the objective to develop an explanation for the persistent difference and continuous divergence of models of capitalism from one single best practice (Fligstein 1990; Hollingsworth and Boyer 1997; Hicks and Kenworthy 1998; Soskice 1999; Whitley 1999; Hall and Soskice 2001). Since its inception, this field of study has endowed comparative scholars with the analytical leverage to explain variation across different capitalist formations (Schneiberg 2007 : 72) and, over time, it has developed a system of tools capable of accounting for the foundations of a country's comparative institutional advantage (Hall and Soskice 2001). Scholars have classified the organisational structure of firms into typological groups: coordinated, liberal, network-oriented and statist categories are used to account for the economic model which characterises German, Anglo-Saxon and French firms (Hancké and Soskice 1996; Lazonick and O'Sullivan 1997; Hall and Soskice 2001; Hancké 2002; Schmidt 2003).

Given that these studies have been driven by notions of institutional homogeneity, complementarity, and coherence, the study of cases where national institutions are heterogeneous has been unpopular. Moreover less homogeneous and coherent institutional frameworks are thought of as incapable of delivering positive economic performances (though exceptions exist, such as Hancké 2002 on France; Campbell and Pedersen 2007). Liberal and coordinated market economies represent pure, coherent, types and as such represent the only organisational structures capable of delivering good macroeconomic performance (Hall and Gingerich 2009). To investigate whether this



proposition holds true across other models of capitalism, this research has endeavoured in the study of an incoherent and hybrid case, Italy. This exercise responds to calls for analyses of “mongrel” models of capitalism (Crouch 2005) and of deviant cases (Emigh 1997). This thesis has investigated whether, and in what way, did institutional heterogeneity enable Italian firms to compete internationally.

By investigating individual cases of export success, this research project has shown that successful Italian exporters produce high quality goods although their underlying model of production organisation departs significantly from the German, French or Anglo-Saxon models. A new model of production has thus been identified, named disintegrated hierarchy. Within this model, by engaging in capital-skill asset pooling, firms solve the production problem associated with producing high quality goods in Italy; namely that of having simultaneous access to specific skills and patient capital. Whereas the German, Anglo-Saxon and French models of production are populated by firms which source homogeneous production assets from each institutional framework, disintegrated hierarchy is instead populated by firms which only source one factor of production each. Consequently, the structure of production which has emerged derives from the dynamic pooling by heterogeneous firms of those factors necessary for the production of high quality goods. Disintegrated hierarchy builds on the interaction and interdependence of firms endowed with different factors of production.

Chapter 6 thus brings together the empirical evidence collected and discussed in chapters 3, 4 and 5. The hypothesis, initially set out in chapter 2, is hereby expanded into a complete theoretical framework which outlines the implications of institutional heterogeneity for firms. After restating the puzzle offered by Italian firms and the research question in section 6.1, the chapter examines the circumstances under which firms in Italy

fail or succeed in producing high quality goods - section 6.2. The underlying question faced is what happens once the distinct input assets possessed are shared or not: not doing so leads to an inability to produce high quality goods; doing so enables high quality production and leads to the formation of a disintegrated and hierarchic production structure. In support of the model, section 6.3 provides evidence derived from the cross-case analysis of the leather, yacht and computer industries (Chapters 3 to 5). The section systematically presents the solutions adopted by firms in each industry to solve the problems associated with producing high quality goods. Disintegrated hierarchy is thus shown to account for the unexplained performance of Italy's export oriented manufacturing sector. The last section concludes and introduces Chapter 7.

### **6.1 Recalling the Italian puzzle: macroeconomic decline and microeconomic success**

As already discussed in Chapter 1, the decline of the Italian model of capitalism has been investigated by a vast literature. Some authors point to the absence of productivity growth and innovation which is linked to the product specialisation model and size of Italian firms (Ciocca 2003; Faini 2004; Nardozi 2004; Toniolo, Visco et al. 2004). Others, to the lost competitiveness of large Italian enterprises (Becattini and Coltorti 2004; Becattini and Dei Ottati 2006; Colli 2009). Yet, clusters of small and medium sized firms, i.e. industrial districts, have flourished by specialising in so-called "Made in Italy" light manufacturing industries.

In light of the inability of classic economic theory to explain the success of districts, the literature identified "informal" institutional features which enabled their success by giving rise to flexible specialisation (Brusco 1982; Piore and Sabel 1984; Becattini 1990;

Becattini, Bellandi et al. 2009; Piore 2009)<sup>55</sup>. Over the nineties, the literature which continued investigating this success segmented into two major approaches: on the one hand *distrettisti* scholars started looking at economic developments through the eyes of the district system as a whole; *aziendalisti* through the eyes of the individual firm only (Whitford 2001). Yet, both approaches failed to appreciate the interaction between the two and failed to produce a set of interpretative tools capable of explaining successes which develop inside or outside district boundaries or which are generated by more than one firm. Recent research has in fact revealed that successful firms lie both inside as well as outside the boundaries of districts, and that not all district firms perform equally well (Guelpa e Micelli 2006). In this sense a pure district or a pure firm-centred perspective obviates a full understanding of productive dynamics. In order to go beyond this divide, this study has returned to the industry as its object of analysis – although the firm remains its unit of observation. Successful industries have been identified through a two-tiered identification strategy so as to expand the interpretative boundaries set by a district or single firm perspective.

Table VI.1 High Quality Export Industries in Italy (reference year 2003)

<i>831: Travel goods, handbags &amp; similar containers</i>	8311: Handbag, whether or not with shoulder strap
<i>846: Clothing accessories, of textile fabrics</i>	8461: Clothing accessories, not for babies, not knitted
	8462: Panty hose, socks & other hosiery, knitted or croch.
<i>611: Leather</i>	6115: Sheep or lamb skin leather, without wool (excluding 6118)
	6116: Goat or kid skin leather, without hair (excluding 6118)
	6118: Leather, specially dressed or finished, n.e.s.
<i>851: Footwear</i>	8515: Other footwear, with uppers of textile materials
	8517: Footwear, n.e.s.
	8519: Parts of footwear, in-soles, heel-cushions & similar
<i>793: Ships, boats and floating structures</i>	7931: Yachts and other vessels for pleasure or sports; rowing-boats and canoes

Source: Source: OECD International Trade and Commodity Statistics 2009, Own Calculations

<sup>55</sup> See also section 1.2.1.

In the first place, the revealed comparative advantage indicator (Balassa 1965) is used to identify which industries are characterised by a relative specialisation advantage (where the RSCA is greater than 0.5). In a second stage, this indicator is mapped against a proxy for quality: the relative unit value which is a measure of the vertical – and not horizontal - differentiation between goods (refer to Ch.1, Section 1.1. for further methodological detail). It compares how products of the same class vary in terms of their ability to command a higher price, induced by consumers' perception of the good's higher quality. The combination of positive RSCA ( $>0.5$ ) and a positive RSUV has enabled the identification of industries where high quality goods are produced and consequently drive exports (Table VI.1: the column on the right shows the four-digit level breakdown of the relevant SITC product categories – left column - where such conditions hold, as in Ch.1p.25).

#### *6.1.1 Standard explanations of the empirical evidence*

The finding that the firms producing goods listed in table 6.1 are pursuing a high quality product market strategy should be theoretically qualified and contextualised. By so doing, it clearly emerges that not only the industrial district and flexible specialisation literature, but also the varieties of capitalism one cannot really explain how doing so has been possible.

The literature on the production of high or diversified quality goods is concerned with determining the conditions *sine qua* the manufacturing of such goods is *non* possible (Sorge and Streeck 1988; Streeck 1991a; Streeck 1991b; Soskice 1999). This literature identifies necessary institutional conditions which ground the ability of firms to pursue a

high or diversified quality product market strategy, as opposed to a low cost one. Two input factors are deemed necessary: a workforce endowed with industry-specific skills and long-term patient capital (Hall and Soskice 2001; Herrmann 2008). The production of high volumes of these goods is conditional on the existence of an industrial order, social structure or institutional framework (Sabel, Herrigel et al. 1987; Sabel, Herrigel et al. 1987b; Hall and Soskice 2001) where a complex mix of competition and cooperation regulates relations between firms (Streeck 1991a; Streeck 1991b : 34).

The empirical analysis presented in Chapter 2 demonstrates how at odds the Italian case is with the prescriptions of the literature<sup>56</sup>. It also suggests that a clear cleavage exists between the institutional assets which differently sized firms are endowed with. Whereas large firms have access to patient capital, they lack access to a skilled workforce. Whereas small firms can access the latter, they cannot access the former. Although, the finding of institutional heterogeneity is not novel in itself<sup>57</sup>, what is puzzling is the fact that Italian firms compete internationally in the production of quality competitive goods in spite of the institutional failures they are confronted with. Thus, this research questions how high or diversified quality production is possible in the absence of the necessary institutional framework to support it.

A budding research strand has claimed that detrimental institutional settings, such as Italy's, could be offset by companies by tapping into foreign business systems (Lange 2009

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<sup>56</sup> Moreover, Varieties of Capitalism in particular had only paid little attention to this deviant case, only recently classifying it as a mixed market economy where the state compensates for the absence of mechanisms to promote strategic or market coordination [Molina, O. and M. Rhodes (2007). *The Political Economy of Adjustment in Mixed Market Economies: A Study of Spain and Italy*. . *Beyond Varieties of Capitalism - Conflict, Contradiction and Complementarities in the European Economy*. B. Hancké, M. Rhodes and M. Thatcher.].

<sup>57</sup> Similar statements have been recently made concerning some sectors of production in the United States and the German *Mittlestand* [Schneiberg, M. (2007). "What's on the path? Path dependence, organisational diversity and the problem of institutional change in the US economy, 1900-1950." *Socio-Economic Review* 5: 47-80, Bluhm, K. and B. Martens (2009). "Recomposed institutions: smaller firms strategies, shareholder-value orientation and bank relationships in Germany." *Socio-Economic Review* 7: 585-604, Lange, K. (2009). "Institutional embeddedness and the strategic leeway of actors: the case of the German therapeutical biotech industry." *Socio-Economic Review* 7: 181-207.].

: 189). Empirical evidence of this hypothesis is found in the development of an international market for venture capital to attract foreign capital (Lerner and Gompers 2001); or in the documented habit of Italian and German pharmaceutical firms of employing international workers (Herrmann 2008a) (Herrmann 2008b). Yet, neither of the two expectations appears to hold true in Italy as the proportion of venture capital financing Italian (export oriented manufacturing) companies is still small and senior managers within Italian companies are rarely of foreign origin (see Ch.1, Section 1.2.3).

Thus the literature on flexible specialisation (local), national and international production regimes does not explain in what ways Italian firms have overcome the problems arising from the disadvantageous institutions they are faced with. This thesis has proposed an alternative theoretical model capable of doing so which builds on the practice of capital-skill asset pooling by firms which has led to the emergence of a novel model of production termed disintegrated hierarchy.

## **6.2 Towards a theoretical understanding of the export performance of Italian firms**

When an institutional framework is incoherent and holds a size-discriminating bias with respect to the way in which firms are governed, differently sized firms are endowed with different assets of production. Yet, if the sum of an economy's institutions does produce the assets required for high quality production, then the firms located in such economy can produce high quality goods when capital-skill asset pooling takes place. Capital-skill asset pooling results from firms' sharing of the input factors possessed; when this occurs, the preconditions for high quality production are met. This consequently implies that production is structured in such a way to respond to the need of bringing together firms

endowed with different assets and of governing the inter-firm interdependences that stem from this.

### *6.2.1 Capital-skill asset pooling and disintegrated hierarchy*

Consider a simplified model of the (Italian) economy with two firms which differ with respect to the number of workers employed: the large firm (LF) and the small firm (SF), where the LF is subject to different labour market and corporate governance rules than the SF. These rules imply that the LF cannot hire and fire workers at will because of the stringency of the employment protection legislation it is subjected to. They also imply that the LF has access to patient forms of capital financing because of banks' ability to appropriately price the liability which stems from lending to large firms<sup>58</sup>.

On the other hand, the SF does not pay a costly employer's contribution bill as its workers are to a large extent unofficially registered or young; in addition it is not subject to stringent employment protection legislation (as the Art.18 of the Worker's Statute does not apply) and can employ and lay off workers in line with demand fluctuations. Moreover, flexible workers travel across small firms of the same (local) industry in line with demand patterns and acquire industry specific skills. Yet, the SF does not have access to patient capital because of the dominant practice of resorting to multiple banks (*multiaffidamento bancario*) linked to (i) the SF's objective to drive down the cost of individual loans by promoting bank competition and (ii) the unwillingness of individual banks to invest heavily in the SF in light of the higher uncertainty linked to doing so. In

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<sup>58</sup> On the one hand, larger firms must abide by accounting and transparency standards which enable banks to assess and price the risks involved in lending to firms better. On the other, the relationship between large firms and banks in Italy has historically been closer in light of occupational and growth concerns which have enthused the behaviour of public (first) and private (later) banks, at a local as well as a national level.

sum, the LF holds the patient capital asset: LF(PC); the SF the skilled workforce asset: SF(SS).

Imagine an international trade shock, i.e. the emergence of low cost competitors, or another exogenous factor which alters the terms of trade of Italian firms, i.e. the removal of the GATT agreement, which induce the small and the large firm to pursue a high quality product market strategy. The LF(PC) and SF(SS) are confronted with two outcomes given that the union of patient capital and specific skills are necessary conditions to manufacture high or diversified quality products (DQP), sold in international markets. On the one hand, if they remain separate, they are unable to pursue such an objective. This implies that the LF(PC) employs an unskilled worker and trains it at a cost which is equal to a fraction of the patient capital initially obtained to develop the DQP and distribute it internationally. If the LF is willing to invest in the training of workers, it must also accept the financial liability that as demand fluctuates or as required skill profiles change with technology, it cannot lay off workers cheaply. The SF(SS) instead produces goods for export, albeit in smaller quantities. In addition, such a product will be artisanal in nature and will gradually be displaced by technologically advanced substitutes because of the SF(SS)'s limited financial capacity to invest in product development. Moreover, the international reach of its distribution channels will be limited and its ability to retail its products impaired.

On the other hand, by interacting, the LF(PC) and the SF(SS) are able to pursue a high quality product market strategy. This implies that the LF(PC) and the SF(SS) focus on specific activities of the production chain which delivers DQP together, thus pooling the



production assets individually held<sup>59</sup>. The LF(PC) relinquishes most manufacturing functions, except those concerning product research and development, to the SF(SS) which acts as supplier. As the LF(PC) concentrates on the product development and distribution phases of a good's value chain and the SF(SS) on the actual manufacturing of such a good, capital-skill asset pooling occurs. The large and the small firm come together to produce HQ goods because each lacks the input factors to do so separately. Specifically the large firm obtains the skilled workforce needed to produce DQP goods; the small firm the patient capital needed to develop DQP goods and to distribute them internationally.

A further specification is added to this stylised model by allowing the small firm to be further divided into three groups determined by the specific skill profile held. The small firm holds either firm specific, industry specific or component specific skills: SF(FSS), SF(ISS) and SF(CSS). Whereas workers with a firm (process) specific skill grasp all production mechanisms which contribute to the final product of a specific LF(PC); workers with a product specific skill profile are able to produce single intermediate components, independent of the final good manufactured. Workers with an industry specific profile are not specialised in either of the two profiles, and are thus flexibly abused by all other firms to enable adjustments to demand fluctuations.

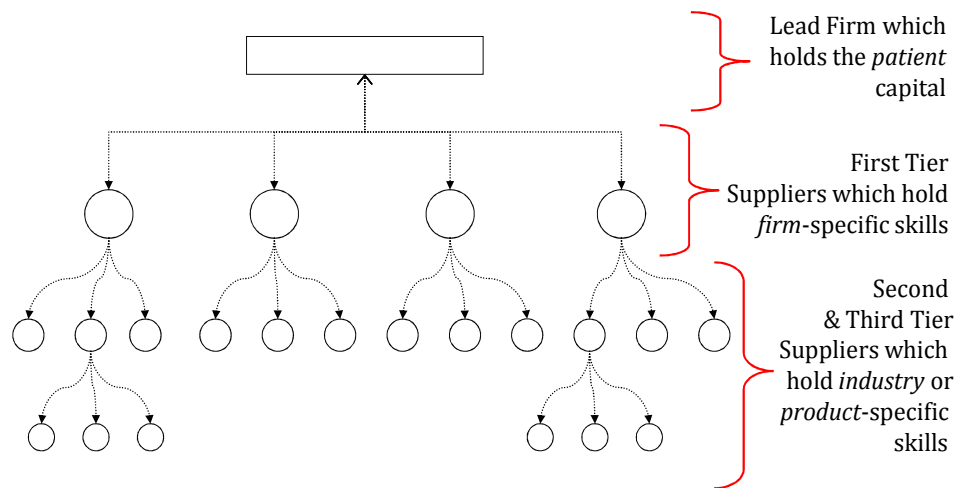
When the large and the small firms interact, we observe the emergence of disintegrated hierarchy. This structure of production entails the coalescing of heterogeneous firms into a multi-level chain of production. At the helm of this structure lies a lead firm: a large firm which holds the patient capital asset - LF(PC) - and, through it, exercises a leadership function over the whole structure. Holding patient capital warrants the large firm the

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<sup>59</sup> This is in line with the literature on global commodity chains, global production networks and global value chains.

power to make decisions over the (i) pursuit of a given product strategy and the (ii) set up of distribution channels and networks.

Figure VI.1 Disintegrated hierarchy



Source: Own representation

Lead firms relate directly to first-tier suppliers which are small firms with firm-specific skills in demand from lead firms – SF(FSS). First-tier and lead firms develop close collaborative exchanges conducive to the achievement of joint-product innovation and high quality production. As incremental innovation is linked to a product itself as well as the process of production; once lead firms relinquish production functions, process innovation is likely to develop within supplier firms. First-tier suppliers thus become partners to the innovation strategy of the lead firm as incremental (process) innovation proceeds from spontaneous instances of *developing by doing*. Additionally, because most of the knowledge that travels between the players is tacit and non-codified: local proximity is a crucial element in allowing this transfer. In addition, because of the skill profile held which enables an overview of production processes, first-tier suppliers coordinate a supply chain which *de facto* produces the goods developed and sold by lead firms.

First-tier suppliers are followed by second<sup>60</sup>-tier suppliers: SF(CSS) and SF(ISS). Small firms, with a component specific profile, SF(CSS), are product specialists which maintain a monopolistic power over a given technology. Consequently lead firms or first tier suppliers purchase a given component from them, engaging in a purely market based and contractual relationship. Small firms with an industry specific profile instead, SF(ISS), represent the lead firm's flexible workforce.

Disintegrated hierarchy can be formally be described by:  $\Sigma[\text{LF}(\text{PC}), \text{SF}(\text{SS})]$ , where  $\Sigma[\text{LF}(\text{PC}), \text{SF}(\text{FSS})]$  leads to process upgrading and incremental innovation, and  $\Sigma[\text{SF}(\text{FSS}), \text{SF}(\text{CSS}), \text{SF}(\text{ISS})]$  leads to the actual manufacturing of the product designs developed. Picture 6.1 captures this interaction: in particular it conveys the message that different firms occupy different levels of the production chain. On the one hand, lead firms divert resources away from production to product development and distribution functions. Then, by building collaborative relations with first-tier suppliers, they pursue a strategy of incremental innovation which is grounded on product and process upgrading. On the other, first-tier and second-tier suppliers gain access to international distribution chains which are not accessible independently of lead firms. Thus, disintegrated hierarchy is a model of production organisation which enables heterogeneous firms to enact the capital-skill asset pooling required to produce DQP goods in Italy. Yet, by resorting to inter-firm networks within which capital-skill asset pooling takes place, the regulation of relational risks becomes a priority as complete control over production is no longer possible (Williamson 1975). To limit the problem, lead firms, as well as first- and second-tier suppliers, are expected to develop new and unconventional governance solutions.

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<sup>60</sup> This supply chain may extend for multiple layers. For simplicity I only distinguish between a first and a second tier. Yet within this second-tier group I include the subcontracting that takes place between second and third tier suppliers, between third and fourth tier suppliers, and so forth. The relationship between lead firms and first-tier suppliers is governed by non-market strategic mechanisms. That between first and second-tier suppliers by price based mechanisms, to a large extent. With this caveat in mind, I group both non-specialised suppliers and component specialists in the second-tier supplier group because in both cases the price mechanism is governing the exchange with lead firms.

### 6.2.2 Inter-firm governance within disintegrated hierarchy

The term inter-firm governance refers to the formal and informal rules of behaviour which govern the interdependent relationships between firms which make up disintegrated hierarchy's multi-level production structure. In the literature on global commodity chains, global value chains, global production networks and varieties of vertical disintegration the term has been applied to the respond to the absence of complete contracting in light of the heightened fragmentation of production<sup>61</sup> (Kogut 1985; Gereffi and Korzeniewicz 1994; Arndt and Kierzkowski 2001 : 1-6; Sturgeon 2002; Dicken 2003; Herrigel and Wittke 2005). As uncertainty and relational risks have come to dominate the exchange which takes place between firms (Noteboom 2004), especially when producing final goods composed of varying value-intensive components (Herrigel and Wittke 2005 : 320) and when product architectures are neither purely integral nor purely modular (Ulrich 1995), the interaction between producing units becomes increasingly complex and heterogeneous<sup>62</sup>. To deal with these developments, inter-firm relationships are governed by a multitude of governance mechanisms. Gereffi, Humphreys et al. (2005) have identified five governance mechanisms which govern the different varieties of vertical disintegration which can emerge (see Table VI.2): market, modular, network, captive and hierarchic governance.

In the case of disintegrated hierarchy, lead firms which interact with first-tier suppliers and first-tier suppliers which interact with second-tier suppliers are confronted with a

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<sup>61</sup> Fragmentation of production is defined as the physical separation of different stages of a production process and their allocation along a value chain.

<sup>62</sup> Moreover a multiplicity of factors which range from the complexity of information exchanged, to the nature and degree of interdependence between firms, the structure of interests [Grandori, A. (1997). "An Organizational Assessment of Inter-firm Coordination Modes." *Organization Studies* **18**(6): 897-925.], the ability to codify transactions, and the capabilities of the supply base [Gereffi, G. A., J. Humphrey, et al. (2005). "The governance of global value chains." *Review of International Political Economy* **12**(1): 78-104.] have exacerbated this variation.

number of risks: the risk of (i) financial and (ii) technological default on an agreement, and the risk of (iii) unwarranted technological transfer.

Table VI.2 The Governance of Global Value Chains

<i>Market Governance</i>	<i>Modular Governance</i>	<i>Network Governance</i>	<i>Captive Governance</i>	<i>Hierarchic Governance</i>
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Source: (Gereffi, Humphrey et al. 2005)

Lead firms govern the relational risks involved with first-tier suppliers in the following ways. The risks of opportunism and financial default are managed by resorting to the group or holding corporate governance structure, (formal) hierarchical governance. Yet this is not the only solution, as first-tier suppliers can remain legally independent from a lead firm. Under such circumstances the lead firm solves the possibility of opportunistic behaviour by means of reputational considerations, (informal) network governance. This informal method to rein in opportunistic behaviour is paired with very clear contractual obligations regarding the unwarranted sale of new designs or projects: (formal) market governance.

The risk of technological default instead is diminished by a number of governance solutions that span from the cooperative to the hierarchical: often technological innovation is a joint-pursuit, where co-specific development becomes self-reinforcing, (informal) network governance in the form of sustained contingent collaborations (Herrigel and Wittke 2005). Alternatively lead firms ensure suppliers are on technological-par by purchasing on their behalf the appropriate machinery and attributing it to them via a *comodato d'uso*. Furthermore lead firms employ *ispettori*, technical experts who travel across supplier firms and check their capacity to produce goods according to quality

standards: (formal) hierarchical governance. Lastly, lead firms fine suppliers whenever a specified proportion of their work is found to be faulty, (formal) market governance.

Both lead and first tier suppliers rely on second tier suppliers – SF(ISS) to manufacture parts of final products. These relationships are governed by price-based mechanisms which are not of a pure spot market type; rather are closer to the definition of (formal) modular governance, where know-how is extensively, though never completely, codified. The parties to this exchange face different relational risks: first-tier suppliers need to ensure that commissioned parts are delivered on time and satisfy quality requirements; suppliers need to hedge themselves from the possibility of an abrupt termination of the mandate. The price mechanism alone does not ensure that either of the two risks are regulated, both market and non-market coordination mechanisms are therefore employed to prop up the agreement.

First-tier suppliers apply to second-tier suppliers the same financial penalties on produced goods as previously discussed, (formal) market governance. On the other, they rely on the reputational effect deriving from being located within a spatially closed network ensuring that suppliers perform well to avoid negative repercussions on other business relationships, (informal) network governance. This informal mechanism is supported by formal rules of conduct which lead firms impose on first tier suppliers which curtail price dumping on second tier suppliers and allow lead firms to control the quality and location of intermediate components. Finally, the relationship between lead firms and product specialists – SF(CSS) – is clearly codified and contractual, and therefore governed by market mechanisms alone.

Table VI.3 Governance mechanisms within disintegrated hierarchy

<b>Governance Mechanism / Relational Risk</b>	<i>Hierarchy</i>	<i>Network</i>	<i>Market</i>
<b>Lead - First tier suppliers interaction</b>			
<i>Opportunism</i>	Holding Structure	Reputation	Complete Contracts re. Exclusivity Rights
<i>Technological Failure</i>	Direct Oversight	Joint Innovation	Financial Penalties
<i>Poaching</i>	Holding Structure	Reputation	Individualised Wage Bargaining
<b>Interaction with 2nd tier suppliers</b>			
<i>Technological Failure</i>	Codes of Conduct	Reputation	Financial Penalties

Therefore, whereas Gereffi et al. (2005) suggested that any one firm can set up a value chain governed by different coordinating mechanisms at separate production nodes (315), lead firms resort to multiple governance solutions at each production node. This confirms their intuition that different coordinating modes do indeed govern separate yet interrelated production nodes of a value chain (section 6.2), but adds onto that the notion that each node can be governed by a simultaneous combination of governance mechanisms.

### 6.3 Evidence

To support the claim that detrimental institutional frameworks can be overcome by means of capital-skill asset pooling between firms, this research has pursued an in depth qualitative analysis of three industries. Quantitative analysis was deemed impossible as satisfactory datasets which compile information on the interaction between firms, specifying the size of firms and the nature of the interdependency do not yet exist. The case selection was driven by the objective to infer from these cases which causes lead to the successful export performance (today) of given Italian industries. Therefore, three industries have been identified by comparing their trade performance today and over

time: one where the revealed comparative (symmetric) advantage indicator holds a value greater than 0.5, one where the RSCA value increased to >0.5 and one where it decreased to <0.5 (i.e. the counterfactual). The case selection allows extrapolating what factor contributed to an industry's continued success, incipient success, or failed success in its absence. It shows that the introduction of capital-skill asset pooling was crucial for solving the problem of skill provision faced by large firms – LF(PC) – and that of capital acquisition faced by small firms – SF(SS).

### *6.3.1 Case selection*

The leather goods and footwear industry has resiliently proven to represent one of Italy's export champion (see Ch.3 for details). Although the trade performance of the textile industry as a whole has deteriorated, the two subsections investigated have exhibited constant or improving values of the RSCA indicator. These subsections make up for 67 per cent of total hand bags, 20 per cent of total footwear and of total leather exported from Italy (OECD ITCS 2010). The leather goods and footwear industry has over time undergone a constant structural evolution: moving from its early vertically integrated, to district-network, and to a hierarchically disintegrated form. A similar change in the organisational paradigm of production appears to have taken place in the yacht-building industry which makes up for 52 per cent of total Italian trade in ships (OECD ITCS 2010). Although this was not the case fifteen years ago, today the yacht building industry exhibits an outstanding export performance (see Ch.4 for details). The shift from a network production model to disintegrated hierarchy has been identified as enabling yacht-producers to achieve such performance. The computer (office-equipment) industry is the counterfactual. In the past this industry had come to represent one of Italy's export



champions but has since the late eighties failed to replicate its earlier performance. The evidence shows that the inability to execute capital-skill asset pooling because of a mismatch in the skills required caused the industry's downfall. In addition, the evidence collected through this case study also shows that capital-skill asset pooling fails to reap results when capital and skills are not aligned with respect to the product market strategy pursued.<sup>63</sup>

### *6.3.2 Solutions to the problem of skill provision*

For all industries, small firms detain an advantage in responding to the problem of skill acquisition. Small artisanal firms employ young workers which receive lower salaries in exchange for continuous on-the-job training. Only after years of practice they are recognised, in terms of the salary paid, as detaining industry-specific skills: training qualifications are thus a function of tenure. Since a full time worker earns on average 26,000 euro as opposed to the 11,000 euro of a young or fixed term worker (ISTAT 2006), since social security contributions for small firms are lower than those for large firms, the labour cost bill of a small firm is significantly reduced. Although large firms also have the option of employing unskilled apprentices, the legal difficulty encountered in firing workers in the event of a future demand downturn prevents them from doing so. Stringent employment protection legislation and expensive social security contributions (which apply to large and not to small firms) act as disincentives for large firms to take on and train unskilled workers.

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<sup>63</sup> Evidence collected in the machine tool and packaging industry is used to reinforce the claims made. Although an individual chapter on this industry has not been presented, the industry was subject to in depth study throughout the period of investigation.

Italy's institutional mix *per se* does not generate a pool of workers endowed with industry specific skills. Yet, although small and large firms in Italy suffer from the absence of a functioning vocational training system<sup>64</sup>, small firms have been able to bypass the problem. Since this is not the case for large firms, how have they been able to address this problem: how have large Italian firms been able to find skilled workers for the production of high quality goods?

The model presented here suggests that large firms download to small firms most production functions. By so doing, they sidestep the problem of forming a skilled workforce by using the skills of workers employed in smaller firms directly. The evidence collected suggests that, as expected, in the leather goods and footwear industry, skill acquisition in small artisanal firms occurs indeed via learning-by-doing. Young workers are taken in and assigned to more expert workers and trained; this is particular true for leather-cutting and footwear shaping activities. Numbers on this phenomenon are hard to retrieve, but the widespread opinion of experts suggests that this is the case in the majority of small firms.

Consequently, large firms in the leather goods and footwear industry have reduced at a minimum the proportion of manufacturing performed and the number of blue collar workers employed. The remaining craft-workers are highly skilled and employed in style labs or research departments. Importantly, these have not been trained internally but poached from small firms. This is a common practice as large firms refrain from employing unskilled workers to train but rely on poaching from small firms as a mechanism to satisfy their own skill needs to such an extent that this practice has been termed by experts *cannibalismo imprenditoriale*.

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<sup>64</sup> In the opinion of experts initial vocational training system is ineffective; continuous vocational training is instead available to workers with significant variation across industrial sectors (see Ch.2, Table II.4).

Large firms in the leather goods and footwear industry *de facto* have persuasive instruments to attract workers from smaller firms: in the first place large firm workers are subject to the national industrial wage agreement which is renegotiated regularly whilst small firm workers are subject to the artisanal wage agreement which instead is renegotiated with substantial delays (CNEL consulted 05/2010). Moreover, large firm workers may obtain productivity wage increases where previously established profit objectives are met by the firm (*premio di maggioranza*). In the second place, the non-wage benefits deriving from large firm employment are preferable in terms of unemployment security and employment protection legislation.

Nonetheless, small firms retain instruments to refrain skilled workers from leaving. Individualised bargaining is very common for highly skilled workers, although the actual numbers of the size of additional wage prizes is unknown. Moreover, although possible, poaching is not as common as expected as large firms refrain from most production in this industry and rely on quasi-complete subcontracting instead. By so doing, large firms bypass the problem deriving from not being able to recruit employees who are endowed with industry-specific skills. Therefore, large firms require the pooling of the skills held by small firms to produce high quality goods.

In the machine tool industry the situation faced by large firms is similar. Some *istituti tecnici*, for initial vocational training, of recognised value do exist, especially in Emilia Romagna – where a large proportion of machine tool exports are produced. Yet, the *Aldini Valeriani* school (Bologna) is more of an exception than the rule. Firms employing new workers still face the issue of forming new recruits. Again, the most common (initial and continuous) training mechanism is through learning by doing, both in large and smaller firms. Compared to the textile and leather industry, proportionately more manufacturing

is performed within large firms. Yet the overall disaggregation still holds, workers are trained in small artisanal firms and subsequently employed in larger firms at better salary and non-salary conditions. Large firms rely on the ability of small firms to train unskilled workers, and thus also benefit from the pooling of the skill asset in order to produce high quality goods.

Drawing a comprehensive picture for the yacht-building industry though is less advisable because of the nature of the industry. Yacht-building is a by-product of a variety of specialisations and therefore of a variety of systems of skill production. Experts claim that the national characteristics of the vocational training system hold within each sub-industrial activity (Casini-Benvenuti 2002 : 26; CNA-Liguria 2002; ISMERI-EUROPA 2006 : 23-31), consequently small firms resort to training workers on the job. In the ship-building environment, this is the case for furniture producers as well as for hull, engine and cable manufacturers. The large firm is, particularly in this industry, simply an assembly overseer. Very little manufacturing is performed by it. In this sense it obviates the issue arising from the inability of obtaining a trained workforce directly by subcontracting production to smaller firms which continuously train their workers on the job – it thus requires the pooling of skills in order to produce its desired outputs.

In the office-equipment (computer) industry, the largest firm, Olivetti, attempted to train workers employed in small local firms in order to access the skills necessary for the pursuit of radical innovation or of low cost production. Its strategy involved mechanisms which enabled direct technology exchanges and established innovation-enhancing partnerships (see Section 5.3.1 for details). Essentially, and differently from the other industries discussed, this large firm chose to invest in the training of workers beyond its legal boundaries. Yet the local training effort proved to be costly and ineffective. Small

firms did not deliver the desired skill-set required by the technological changes which were taking place in the computer industry. Therefore, the large firm, Olivetti, could only find a functional substitute to the lacking national system of skill provision by resorting to international R&D partnerships and venture capital investment.

### *6.3.3 Solutions to the problem of capital acquisition*

In relation to the problem of capital acquisition, Italy's institutional mix does not provide access to patient capital to all firms. On the one hand the ownership of both large and small firms is concentrated (Bianchi, Bianco et al. 2005) and the system is characterised by the widespread use of pyramidal ownership structures (Bianco and Casavola 1999; Bianchi, Bianco et al. 2005; Culpepper 2005; Deeg 2005).

These mechanisms allow firms to access large sources of patient capital (Culpepper 2005). Yet, whilst this is true for medium, large and listed firms, it is instead a distorted image of the financing capacity of small firms. Thus, on the other hand, small enterprises can only finance themselves through short term bank lending and the reinvestment of cash flows (discussed in Ch.2, Section 2.2.2). Italy's banking regulation, set up after the financial crisis of the late twenties, implied that banks could not hold ownership shares in firms. Consequently, banks could not develop a knowledge and understanding of firms' manufacturing strategies: this problem was particularly acute the smaller the firm. Despite the fact that Italy's banking regulation was reformed in the nineties, in particular restrictions on the ownership of shares by banks, the attitude of banks towards lending to small firms was not affected. Moreover, the introduction of new international banking standards (Basel I, II and recently III) has made banks more averse to lending to small

firms because it is difficult to accurately price and value the risk which derives from this lending. In order to meet their capital needs small firms would in the past resort to the sourcing of short term loans from multiple banks.

Therefore, whilst large firms are capable of raising patient capital through internal capital markets, small firms are not. How do they then overcome the problems accruing from inadequate financing? The evidence on how medium to large firms have acquired patient capital in the industries analysed is organised around large and small firms. First the evidence shows that large firms rely on internal sources of funding or closer relations with banks/investors in order to satisfy their funding requirements. Small firms instead rely on large firms who directly or indirectly provide capital: in order to overcome the problem of financing, small firms resort to capital asset pooling with large firms.

In the leather goods and footwear industry two financing scenarios have emerged: some established brands have over the last ten years been purchased by international luxury holding companies such as Pinault-Printemps-Redoute or Louis Vuitton Moet Hennessy. The former for example owns important large historical Italian firms such as Gucci, Sergio Rossi, Bottega Veneta etc. The latter owns firms of the likes of Fendi and Berluti. This scenario is confronted by one where historical Italian firms have instead constructed groups of national and non-national companies: exemplary cases are Ferragamo, Tod's, Prada and Diesel. Both scenarios have delivered to the parent as well as the controlled firm relatively unlimited sources of internal financing at beneficial terms, therefore limiting the need to access external sources of finance. Large firms in the machine tool industry too have over time performed acquisitions of suppliers or competitors such that today the group holding form is most common (although Tod's has recently become a listed company in 2000, control is securely held within the founding family).

In the packaging industry located in Bologna, this is clearly the case where the most important manufacturers stand at the helm of groups of four to two-digit numbers of firms. The packaging leader GD over time set up a group of complementary companies called COESA which today includes ACMA, CIMA, GD, GDM, HAPA, LAETUS, SIRIUS MACHINERY (which includes NORDEN, KALIX, ADMV, SACMO, CITUS) and VOLPAK. Lastly, this appears to be the case also in the yacht-building industry where both Benetti and Ferretti have set up group structures which include a minimum of four other companies. In the computer industry, Olivetti instead relied on external sources of funding. Throughout its existence, Swiss banks, Mediobanca and other Italian banks provided the company with liquidity. Although a fraction of its shares were held by family members and employees, this block-holding group was too small to overcome the influence exerted by short-term credit providers.

On the other, small firms cannot recur to such possibilities<sup>65</sup>. The ownership structure of small firms is concentrated, but small firms are not arranged in groups or holding structures. Thus, beyond the financing-by-cash-flow and *multiaffidamento* mechanisms discussed they do not have access to other internal means of financing. In order to overcome this problem small firms rely on indirect forms of securing stable cash flows. Throughout the industries, small firms negotiate better credit conditions from banks because of the reputational benefits they accrue from supplying established larger firms. In this light, CariFirenze<sup>66</sup> recently officially launched a new loan instrument (*contratto di rete*) for small firms which are known to supply larger firms. The large firm thus provides the bank with enough reputational assurance that the small firm will comply with its repayment obligations. Alternatively large and small firms agree (formally or informally)

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<sup>65</sup> Since small firms in each industry are characterised by similar features, they are treated jointly.

<sup>66</sup> CariFirenze is one of the largest Tuscan banks (the other being Monte dei Paschi di Siena), and has recently been acquired by Intesa San Paolo as part of the wave of mergers and acquisitions which has characterised Italy's banks.

on long term supplying agreements which ensure cash-flows for the period agreed. Yet, these agreements – especially where informally negotiated – are always open to the possibility of waiver on behalf of large firms. The last capital pooling mechanism does not carry this risk. Large firms can purchase directly the new equipment or machinery needed by small firms and grant small firms the machines' right of use (this legal formula is termed *comodato d'uso*). Capital asset pooling therefore emerges as the solution through which small firms find patient capital to finance themselves.

In the office-equipment (computer) industry instead, part of the “new course” strategy involved setting predefined limits to the number of purchases from each supplier. Whilst this policy was conceived to increase small firms' flexibility and inventiveness, it actually crippled their ability to raise the necessary large sums of impatient capital necessary for the pursuit of radical innovation. In the Italian office equipment industry, small firms did not find a large firm willing to pool the capital asset with them in order to bypass Italy's banking institutions and its under-developed market for venture capital.

#### **6.4 Conclusion**

Building on the empirical question offered by the performance of Italy's export oriented manufacturing firms, the first part of this chapter has introduced a model of production which explains how firms set in a dysfunctional institutional system, which endows them with different production assets, produce high or diversified quality goods. The model, in its simplest version, is made of two firms: a large firm endowed with the patient capital asset and a small firm endowed with the specific skill: LF(PC) and SF(SS). Once the population of small firms is accepted to be less cohesive than initially assumed, small firms



are found to differ in line with the different skill profiles held: SF(FSS), SF(ISS), SF(CSS). Given that firms differ in line with the asset possessed, the model suggests that the interaction of the large and small firms ensures that the necessary preconditions for the production of high quality goods are met by all firms. Capital-skill asset pooling allows firms to obtain the necessary assets of production even when they are not owned by all firms at the same time.

This chapter has shown that as a consequence of capital-skill asset pooling, a hybrid system of production emerges which incorporates both features of hierarchic and of disintegrated production. This system is neither completely hierarchical nor horizontal as vertical integration does not take place and as relationships between firms are not symmetric. Disintegrated hierarchy is instead a form of production organisation distinct from the simple triad of hierarchy, network and markets. Crucial to disintegrated hierarchy is the notion that firms become interdependent because of a need to use each other's production assets. Hence, as firms no longer maintain full control over production, innovation and financing processes via complete contracts, relational risks arise which must be addressed. Since disintegrated hierarchy's organisational form results from the combination of elements of hierarchy, networks and markets, firms use both formal and informal mechanisms to govern this interdependency. Yet, neither governance mechanism alone is binding or capable of assuring the minimisation of opportunism, technological failure and poaching risks; rather the combination of the three ensures that they are minimised. Consequently, as relational risks are tackled, disintegrated hierarchy operates as an extended production chain which is populated by heterogeneously endowed firms.

In the second part, this chapter has presented evidence showing that this production model is capable of accounting for the performance of Italy's strong export industries.

Capital-skill asset pooling appears to have provided an answer to the problem of skill provision faced by large firms. Since large firms are confronted with an inefficient vocational training system, they fail to resort to a pool of skilled workers easily. By downloading most production phases to small firms, the large firm has obviated its skill problem. Moreover, since small firms face a difficulty in accessing the patient capital to innovate and to set up extensive distribution networks, they rely instead on the mediating role of large firms. Large firms, either directly (*comodato d'uso*) or indirectly (*reputational guarantees*), have supported small firms in meeting their financing requirements. In sum, the evidence has shown that large and small firms in Italy have set up an organisational structure which generates functional substitutes to a classic coordinated market economy system.

The identification of disintegrated hierarchy as a yet another model of production organisation calls for an interpretation of firm behaviour which differs from that put forward by Hall and Soskice. In disintegrated hierarchy, firms are not only institutional takers, rather they are strategic actors capable of overcoming structural and institutional constraints. Within disintegrated hierarchy, firms overcome institutionally derived constraints (i.e. the problem of skewed skill provision and capital acquisition system) via inter-firm networks, strategically set up so as to bring together firms with different production assets. Thus firms are recognised as being first empowered by the institutional set-up that nurtures them and, where necessary, as being capable of identifying solutions to the problems caused by the very institutions that had first empowered them. To further tease out these differences, the first part of the following chapter juxtaposes disintegrated hierarchy to the German, French and Anglo-Saxon models of capitalism. Specifically, each model of production organisation is investigated in terms of its ability to provide skills and

capital to firms, and in terms of the large-small firm nexus. In a second part, the chapter also discusses the limitations and extensions of disintegrated hierarchy.

## VII. COMPARATIVE MODELS OF PRODUCTION: CONTEXTUALISING DISINTEGRATED HIERARCHY

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The main finding of this thesis contends that internationally competitive Italian firms have come to organise their production structure in such a way which takes advantage of the dysfunctionalities of Italy's institutional framework. Italian firms have in fact developed substitutive mechanisms for the production of high quality goods which avert the prescriptions of the literature. This thesis has shown that although Italy's institutional framework does not endow firms with patient capital and industry specific skills, Italian firms have been able to produce and export high quality goods by developing functional substitutes to access the necessary input factors. By supporting inter-firm networks which bring together differently endowed firms, disintegrated hierarchy has allowed firms to pool the factor endowments required to produce high quality goods and to bridge the institutional divide which characterises small and large firms.

Italy's institutional framework has been identified as carrying a size discriminating bias which affects the institutional assets accessed by differently sized firms. Whereas large firms are capable of funding themselves by means of patient capital, small firms can only resort to personal financing or short-term bank lending. Whereas large firms fail to have access to a pool of redundant capacities, small firms form their workers by means of on the job training. Yet, by resorting to capital-skill asset pooling, large and small firms have been able to pool together the factor endowments required to produce high quality goods (Streeck 1991b; Herrigel 1996; Soskice 1999; Hall and Soskice 2001; Herrmann 2008a).

In order to move beyond the single case study, this conclusion contextualises the thesis' finding. First, it shows why disintegrated hierarchy departs from other models of production organisation. Crucially, it shows that capital-skill asset pooling does not inform the relationship between large and small firms in other economies. Secondly, the chapter highlights why the thesis' approach differs from the relevant literature and investigates the implications of disintegrated hierarchy on the study of institutions and models of capitalism. Lastly, the conclusion discusses the main limitations of the argument and the avenues of future research which depart from it. Since disintegrated hierarchy is defined in a static perspective, questions of dynamics and change remain unanswered.

### **7.1 Disintegrated hierarchy in comparative perspective**

The main finding of this thesis is that high quality production can take place even when the pre-conditions for its successful implementation do not exist. In practice, lead firms have employed the patient capital asset to invest in product development and distribution and have then downloaded the production of goods to small firms; therefore treating small firm employees as a pool of redundant capacities. The model of production which results includes defining characteristics of both vertically disintegrated and hierarchical production and is called disintegrated hierarchy.

On the other hand, the dominant categories used to classify advanced industrial economies in the literature have been liberal, coordinated and statist. These typologies, enthused by Anglo-Saxon German and French examples, depart from disintegrated hierarchy in a variety of ways which are summarised in the following section.

### 7.1.1 Liberal capitalism in Anglo-Saxon economies

The United Kingdom and the United States are prime examples of liberal market economies as they share an important characteristic: namely the dominant use of market mechanisms for the governance and control of labour, financial, product and inter-firm markets<sup>67</sup>.

Anglo-Saxon corporate governance markets lean heavily in favour of management's unilateral control of the firm, where employees and their representatives have a very limited ability to influence strategy and employment-related decision-making. Except few industrial areas, where firm-level unionism is still strongly rooted (aerospace for example), the representation of workers' rights or the collective negotiation of wages are not functions taken up by trade unions. Management is therefore endowed with unilateral power inside as well as outside the firm. The Anglo-Saxon market for corporate control encourages firms to treat current earnings and share prices as informative of a company's strength (Lazonick and O'Sullivan 1997; Hall and Soskice 2001 : 28-29).

Within this system, firms can neither access patient capital nor a workforce endowed with industry-specific skills. This ultimately implies that the product market strategy pursued by firms lies at the opposite spectrum of high quality production and is not characterised by incremental innovation. In detail: financing is market-based and a concentrated financial sector avoids close interaction with firms (Lazonick and O'Sullivan 1997). Therefore whilst larger firms search financing through stock markets and venture capital,

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<sup>67</sup> Of the two economies, only the latter has kept a significant manufacturing sector. Though mostly directed to a domestic market, the US exhibits a comparative advantage in high technology industries; producing military equipment, electronic goods, and pharmaceuticals [Dore, R. P., W. Lazonick, et al. (1999). "Varieties of Capitalism in the Twentieth Century." *Oxford Review of Economic Policy* 15(4): 102-120, Allen, M., L. Funk, et al. (2006). "Can Variation in Public Policies Account for Differences in Comparative Advantage?" *Journal of Public Policy* 26: 1-9.].

smaller firms encounter difficulties in financing themselves in equity and stock markets and rely on short-term bank financing (Bluhm and Martens 2009). Moreover, a market-based financial sector crucially shies away from building strategic and continuous interactions with firms, thus limiting the industry's role in mediating and disseminating information across firms: this implies that patient capital is not accessible to firms (though this is not necessarily the most relevant implication, see Hall and Soskice 2001 : 29, footnote 26). The structure of Anglo-Saxon labour markets facilitate employer's use of numerical flexibility: employees are thus easily hired and fired, and fail to develop specific skills (Dore, Lazonick et al. 1999; Howell 2005). Additionally, a system for vocational training is not at all in place in the US (OECD 2004; OECD 2008). One was instead set up in the UK in the early sixties, though never delivering on its objectives<sup>68</sup>. Given these preconditions, British and US workers are endowed with general skills, easily transferable across companies and industries. Because the system is prone towards the provision non-specific skills, some firms have resorted to providing in-house training to their workers. Yet, even in such cases, emphasis is placed on the ability to transfer the internally acquired skills elsewhere.

The model of capitalism in place in the UK and the US is therefore termed liberal since individuals and firms address the relational problems involved in the delivery of productive input factors via price-based, free market, interaction (Hall and Soskice 2001 : 27). Institutions are homogeneous to the extent that firms of different sizes are equally subject to the same constraints and endowed with the same assets. Contrarily to the Italian case, market based interaction permeates exchanges across all actors. Consequently, inter-firm interaction is characterised by the possibility of hostile take-over,

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<sup>68</sup> Many explanations have been set forth to explain the failure of the British vocational training system: (1) responsibility for training was laid on the individual and not on the system of firms as a whole, (2) training was only offered part-time, (3) and only to youths [ Layard, R., K. Mayhew, et al. (1993). "The Training Reform Act of 1994." *International Journal of Manpower* 14(5): 5-16, Stevens, M. (1999). "Human capital theory and UK vocational training policy " *Oxford Review of Economic Policy* 15: 16-32.].

mergers and acquisition, legitimated by a market-oriented regulatory system. Aggressive inter-firm relations limit the possibility of collaborative and strategic relations to develop. Technology does not travel easily across firms, but through specialist workers who migrate across them. This is facilitated by Anglo-Saxon labour market legislation which facilitates numerical flexibility by limiting employment protection legislation and by allowing individualised wage bargaining to become widespread (Wood 2001; Driffill 2006). In addition, firms do not set collective standards, but allow the market to competitively select the standards worth licensing (Hall and Soskice 2001 : 31).

The large-small firm nexus is also infused by this market logic and has not been altered by the inception of turn-key modular productive systems in the US (Sturgeon 1997; Sturgeon 2002). The likelihood of dependency between two firms is limited because the exchange between a buyer and a turn-key supplier does not exceed 20 per cent of the latter's total production. In addition, the degree of interdependence between firms is low (medium to low) as knowledge is codified and easily accessible to potential entrants. Lastly, the dominant mode of exchange is price-based (Sturgeon 1997 : 39-41). Indeed, a few instances of collaborative relationships have been identified in the US, yet they appear to be experimental and piecemeal (Herrigel and Wittke 2005 : 345).

### *7.1.2 Coordinated capitalism and decentralised production in Germany*

The German productive landscape today follows from the evolution of the decentralised industrial order. Whereas autarkic and decentralised industrial orders had co-existed until the late seventies, the autarkic-mass production system reached its final stages once product markets became increasingly volatile in the late seventies. Consequently, as the



influence of the autarkic system declined, the institutional equilibrium that had characterised the production structure of Germany's small and medium enterprises came to dominate the country's entire system of industrial production (Herrigel 1996 : 238). Subcontracting amongst small firms dominated manufacturing extensively as firms would only customise products sourced from the outside: production itself was viewed expediently (Herrigel 1996 : 183).

During the late seventies, the decentralised industrial order was transformed by surrounding market pressures. In the eighties, production processes were reorganised and subcontracting became characterised by intensive and collaborative exchanges - not just a simple buy-sell relationship (Streeck 1992; Soskice 1994; Soskice 1999). As a result, the costs of innovation were shifted away from individual producers and onto the collectivity of regional producers and institutions (Streeck 1991a; Herrigel 1996 : 184; Soskice 1999). This shift was enabled by the mediating presence of an exoskeleton of support which socialised the cost of adjustment. The institutions which composed such exoskeleton were the: (i) educational institutions, universities, Fachhochschule, and Berufsschule; (ii) trade associations and chambers of commerce (VDMA Verein Deutscher Maschinen und Anlagenbau, ZVEI Zentral Verband Deutscher Elektro-Industrie) which provided small firms with market information, information on technology development programs, and coordinated relations among firms in the important activity of standard setting; (iii) Volksbanken, regional banks, which facilitated the flow of credit to local firms and took on a care-taking and mediating role between firms; and (iv) the regional government which pursued aggressive technology policies (Streeck 1991a; Herrigel 1996 : 186-188; Soskice 1999). Small firms therefore endorsed practices of collaborative sub-contracting, and relations of a hierarchical nature remained absent. Big firms partook of this industrial readjustment by building relationships of collaborative sub-contracting

with external specialists. By encouraging long term relations with subcontractors, large firms built an external portfolio of technological possibilities for themselves (Herrigel 1996 : 190).

Through this system, firms addressed the problems of raising patient capital and accessing a pool of industry skilled workers (Hall and Soskice 2001). The financial and corporate ownership system partook to these changes by becoming actively involved in clients' businesses (Hall and Soskice 2001). This involvement allowed banks the necessary internal knowledge to borrow long term, patient, capital; to act as brokers between firms; and to participate directly in firms by buying up equity through the institution of capital participation corporations (KBGs) (Herrigel 1996 : 186; Hall and Soskice 2001 : 23). Patience in borrowing was also reinforced by the practice of socialised decision-making within the firm (Spiro 1954; Jackson 2005).

With reference to skills, a skilled workforce was the outcome of the interaction of an industrial relations and a social protection system biased towards employment protection and worker participation within the firm (Estevez-Abe, Iversen et al. 2001). Today, initial and continuous vocational training is co-managed by employer associations, trade unions and regional governments (Streeck, Hilbert et al. 1987; Hall and Soskice 2001 : 24-25; Thelen 2004): training is organised by unions and employers, and the cost of in-firm training is borne by employers (Estevez-Abe, Iversen et al. 2001). Moreover unions and employer associations pressure firms into taking on apprentices and participating to such training schemes (Culpepper 2001). The regional state provides the infrastructural facility for the general training to take place. By so doing free-riding on the training investment of others is limited and an external pool of workers endowed with industry specific skills is created (Hall and Soskice 2001 : 25).

The model of capitalism in place in Germany is therefore termed coordinated since individuals and firms solve the relational problems involved in the delivery of these input factors via strategic, and coordinated, interaction (Hall and Soskice 2001 : 22). The institutions which operate in such a framework are homogeneous as they are governed by the same coordination mechanism and endow firms with equal assets of production. Consequently, the relation between large and small firms is mostly cooperative and non-hierarchical (Herrigel and Wittke 2005). Some variation exists as is captured, for example, by the different relations entertained between Audi and BMW and their respective suppliers (Casper 1995). Nonetheless, the dominant trend is for large and small firms to engage in sustained collaborative relations, with a particular attention towards maintaining independence status on both sides. Exclusive subcontracting relations are confined to at most 10-30 per cent of a company's output (Herrigel 1996 : 185). This landscape is, largely, still reproduced despite the increasing cost pressures that large firms impose on suppliers (Herrigel and Wittke 2005 : 328).

This is at odds with disintegrated hierarchy whereby large and small firms are endowed with heterogeneous assets of production and where large and small firms' relationships are informed by the need to engage in capital-skill asset pooling. Although the German model is subject to pressures to reform (Palier and Thelen 2010; Hassel 2011), the difference between the two is continuously reproduced. For example, German firms have constructed comparable subcontracting partnerships abroad: *'even within [...] a highly globalised industry [...] the configuration of the (German) value chain is still influenced by the social institutional context of [...] firms' home country'* (Lane and Probert 2009 : 18-19).

German subcontracting relationships between large and small firms are thus characterised by sustained collaborative exchanges. These are neither hierarchical nor

monopolistic and depart from the Italian model of capitalism whereby both coordination and markets mechanisms inform the relationship between large and small firms.

### *7.1.3 From etatist to large-firm capitalism in France*

In France, the state was the dominant coordinating actor; hence the *etatist* typology (Schmidt 2003). Over the last decade or so, the statist mode of coordination has been eroded by a combination of market and firm-driven pressures (Goyer 2006; Hall, Palier et al. 2006). Although large firms have gained extensive control and redefined institutions to their use (Hancké 2002), they did not develop the “*capacity to convert their individual positions of power into a consistent means of control over the economy*” (Culpepper 2006). Indeed decentralised private action has curtailed the ability of the French state to affect the direction of change and adjustment of the economy, without replacing it entirely.

Whilst in the *trente glorieuses* the state exercised substantial control in the area of corporate governance and finance, this is no longer the case today. Previously, by holding large ownership stakes in the economy, through industrial planning and direct credit allocation, the state exercised control over the economy (Hall 1986). Since the privatisations of Chirac’s rightist government, the stake of the state in the economy has shrunk; employment in the public sector has fallen (Schmidt 2002); and foreign institutional investors have replaced the French *noyaux durs*<sup>69</sup> thus crippling the level of mutual cross-shareholding (Culpepper 2006; Goyer 2006).

Whilst the French state was the stronger of the three industrial relations players - by virtue of its being a significant employer and its capacity to influence wage levels - this

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<sup>69</sup> Hard core owners.

status altered in the nineties. Firm-level wage flexibility became ever more widespread as employers increasingly resorted to firm-level exemptions from state imposed salary and normative agreements. Yet the vacuum left by the state as a coordinating agent in the industrial relations system was not filled neither by unions nor employer association. The (already limited) ability of unions to influence firm level negotiations was further curtailed by the introduction of working-time reforms (the Robien Law and the two Aubry Laws) - which by-passed the position of unions as negotiators (Culpepper 2006). Employers too were extremely fragmented and incapable of allowing information to flow to and from each other.

In terms of skill profiles, the training system of Fordist-France aimed at producing a meritocratically selected elite and relegated less worthy students to a, largely ineffective, vocational training track. The skill weakness of workers was balanced by the formation of a highly selected, interconnected and state-controlled elite (Culpepper 2006). Yet, in order to respond to the increased need of a skilled workforce in post-Fordist industry, the state downloaded responsibility for organising vocational training to the regional level through the Five Year Law of 1993. Whilst the region was even less capable than the state in facilitating information flows across firms and workers, this policy shift enabled – in some regions – large firms to take over the planning and coordinating role which had once been the remit of the state (Hancké 2002). The power of these large firms overshadowed the limited collective capacities of employer associations, thus enabling regional training policies to meet their skill needs. Large firms thus capably replaced the state's coordinating role within specific areas by deploying pre-existing policies in such a way that met their own demands (Hancké 2001 : 326).

Within this system, how did firms solve the relational problems involved in accessing patient capital and an industry-skilled workforce? Firstly a necessary caveat must be made: French production is based on rapid model cycles, where OEMs invest in fast product development, machinery and market (Hancké 2001 : 330). Moreover, the innovation strategy of French firms is closer to an Anglo-Saxon radical innovation strategy rather than a German incremental one (Goyer 2001). In this sense, large French firms require less patient capital, but more capital in absolute terms. Today firms increasingly access these resources through capital markets and partially through the reinvestment of retained earnings. The ability to finance themselves through such mechanisms is a direct implication of the reduced influence of the state and the *noyaux durs* on controlling the capital structure of firms (Hancké 2001 : 331). In this sense, the changes which took place in the French corporate governance system over the last 10-15 years, have dove-tailed the shift from a Fordist to radically innovative and niche product market strategy.

The pursuit of a radically innovative manufacturing strategy relies on the ability of firms to access skilled workers. Within the large firm regional productive networks, large firms have indeed developed a system to bend the dysfunctions of the general education system. Large firms have thus used regional industrial and training policies to redefine the skill profiles of local workers, consequently upgrading their productive capacity as well as that of the local suppliers they would resort to (Hancké 2001 : 327). The changes to the structure of production in France, which have sanctioned the importance of large firms, are dovetailed by the type of relationship which characterises the large-small firm nexus. In France, large firms have indeed invested in suppliers in order to coordinate their technological upgrading. Nonetheless, there is no close involvement between the two in product development, design and innovation. These functions remain strongly

circumscribed to the large firm, which subsequently subcontracts the production of standardised and modularised components to capable suppliers (Hancké 2001: 327).

In sum this discussion has shown that disintegrated hierarchy is at odds with previously acknowledged models of production. Specifically, when compared to liberal and coordinated models, disintegrated hierarchy lacks their institutional coherence. When compared to a French large-firm dominated model, disintegrated hierarchy is fuzzier as the dividing line between large and small firms is less clear. This discussion therefore suggests that disintegrated hierarchy emerges as a stand-alone production model which builds on the recognition that institutions cater firms heterogeneously and segmentally.

## **7.2 Limitations of disintegrated hierarchy**

Disintegrated hierarchy facilitates a better understanding of how some Italian firms have been capable of competing in international markets despite dysfunctional institutions whereas both liberal and coordinated models had been unable to do so. *Contra* to such models, this research has shown that capital-skill asset pooling within disintegrated hierarchy solves the production problems faced by Italian firms. Moreover, the thesis has shown that both capital-skill asset pooling and disintegrated hierarchy hinge on the co-presence of capable suppliers and lead firms. Yet, the preconditions for each to emerge are not defined. Additionally, on the basis of the research performed, a systematically tested account of these preconditions is not possible. Yet an informed attempt to identify them can be made instead, which is vital for any possible policy conclusions to be drawn.

### 7.2.1 On the political determinants of lead firm emergence

Lead firms have been defined as large mass producers or medium sized companies, “benefiting from access to long term capital<sup>70</sup>” (Bianco and Casavola 1999; Barca and Becht 2002; Bianchi, Bianco et al. 2005; Culpepper 2005; Deeg 2005). Moreover, it is clear why a large firm may decide to become a lead firm: “the (medium-to-) large firm wants to pursue a product market strategy which delivers high or diversified quality goods in order to survive in increasingly price-competitive markets. To do so it plans to upgrade the quality of the goods sold” (page 17, Ch.2). Yet although the incentives for a large firm to become a lead firm are clear, the thesis has only provided structural descriptive characteristics without explaining what causal mechanisms transform a large firm into a lead firm. This is a clear limitation of the research strategy pursued which classifies successful firms as lead firms based on the position occupied in the productive *filière*, without investigating the process which brought them there.

A historical analysis of the lead firms studied in this research may enable a clarification of which critical junctures or preconditions allowed their establishment. A superficial investigation suggests that managerial capacity as well as time contingent events interacted in transforming simple firms into leaders of a disintegrated, yet hierarchical, supply chain. Such time contingent events (also called “enabling conditions” by Strang and Sine 2001) for example comprise the combination of a public auction for the failed *Cantieri Benetti* and Azimut’s capacity to make a successful offer in 1985; or Norberto Ferretti’s ability to take up the opportunity to move from the automotive retailing to the yacht producing industry in 1971. Yet, time contingent events together with managerial capacity may have been necessary but not sufficient conditions for such a transformation.

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<sup>70</sup> Whilst large firms develop privileged relationships with financial intermediaries, medium sized companies can often be part of larger holding structures, and have access to internal capital markets.



One common thread that appears to run through all these firms is their ability to set up extensive retail networks conducive to international saleability and thus success. Furthermore, lead firms possess the necessary know-how and informal linkages which enable the identification of capable suppliers, and more importantly of first tier suppliers. In this sense, lead firms must either establish an information clearing mechanism or build close relationships with whomever takes on this role (be it the local state, the local trade union or employer association).

Table VII.1 Comparison of lead firm features

	Leather goods and footwear	Machine tool and packaging	Yacht building	Office-equipment / computer
Distribution network	Yes	Yes	Yes	Yes (though had shrunk in the 90s)
Connection to information clearing actor	Yes	Yes	Yes	No
<i>Political connection</i>	<i>Yes</i>	<i>Yes</i>	<i>Partial</i>	<i>No</i>
<i>Trade union connection</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
<i>Employer ass. connection</i>	<i>Partial</i>	<i>No</i>	<i>Yes</i>	<i>No</i>

Thus, one could suggest that necessary preconditions entail the ability of firms to establish international distribution networks; possess a portfolio of tacit knowledge on the capacities and possibilities of suppliers; or access a preferential information channel to the information clearing agent in place (the relevant political authority, trade union or employer association). Based on this discussion, Table VII.1 lists the presence and absence of certain conditions by industry: it summarises these combinations and suggests that the empirical material accumulated so far is not yet conclusive. It nonetheless provides an insightful starting point upon which a forthcoming research strategy can be built geared towards identifying which preconditions are necessary and sufficient for lead firms to develop.

### 7.2.2 On the political determinants of capable supplier emergence

Parallel to this is the question of establishing what preconditions lead to the emergence of a capable supply base. Although the small firm training mechanism allows for the reproduction of pre-existing skills, the thesis has not developed an argument as to how such skills emerged in the first place. The majority of scholars<sup>71</sup> on Italian local development refer to the notion of diffuse knowledge and external economies of scale arising from industrial concentration and local proximity to explain why such capabilities exist. Yet it is hard to translate such statements into testable hypotheses. There is thus a need to identify what conditions and mechanisms allow for the development of a capable supply base. This need is reinforced by the objective to articulate effective policy prescriptions which may enable disintegrated hierarchy to root itself in other Italian industries or other countries. Also in this case, the field research has provided additional insights to develop tentative hypotheses as to what conditions lead to the formation of diffuse knowledge (Table VII.2).

Firstly, there is evidence of pre-dating forms of industrial concentration across all local areas where successful industries emerged. Azimut-Benetti for example is located in the proximity of the Fratelli Orlando shipyard, a very important ship-building company in the early 1900. Similarly, war-related machine industries were spread across Emilia Romagna in the forties and fifties. In this sense, the successful firms studied are located in areas where a primary industrial system had lost ground and a secondary system replaced it by specialising in adjunct industrial activities (Bellandi 2001). Secondly, it appears that in the vicinities of the successful firms studied, industry-specific vocational training *high-schools* had been in place and continue to exist today. Based on the widespread opinion of

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<sup>71</sup> As well as all the interviewees contacted.

experts, one can plausibly assume that the training received was not technically advanced, but that such environment allowed for relationships of trust and reciprocal awareness to develop (Farrell and Holten 2001). Thirdly, local authorities appear to have performed important regulatory functions in all industries except the office-equipment one. When Olivetti introduced its “new course” strategy, no local authority endorsed it<sup>72</sup>. No local, or national, authority intervened to facilitate the industry’s transition from a vertically integrated to a disintegrated structure. The first public intervention dates back to the early nineties with a territorial pact signed by local administrations to address the employment crisis which followed Olivetti’s switch into the telecoms sector (Michelsons 1997; Schmidt, Hoss et al. 2002, with reference to the interviews conducted by A.Michelsons). Yet, this is a very controversial terrain as the effect of local institutions on local development is unclear: whereas there is plenty of evidence in support of a positive effect (Leonardi, Putnam et al. 1987; Leonardi, Nanetti et al. 1991; Bellandi and Russo 1994; Burroni 2001; Crouch 2001; Rodríguez-Pose and Refolo 2003); there is also plenty that is not (Marelli 1997; Rinaldi 2002; Guelpa and Micelli 2007; Milio 2007 on the heterogeneous effect of local institutions).

Table VII.2 Comparison of local markets and institutional backgrounds

	Leather goods and footwear	Machine tool and packaging	Yacht-building	Office-equipment / computer
Pre-dating industries	Yes	Yes	Yes	No
Local training school	Yes	Yes	Yes	No
Active local authorities	Yes	Yes	Later	No

<sup>72</sup> Public authorities did play a role in bailing out Olivetti in the sixties first and in the mid seventies through IRI, the government’s industrial policy arm. Yet this aid purely consisted in reallocating Olivetti’s ownership shares from the founding family to Italy’s banking and industrial families (the so-called Milanese *salotti buoni*) [Bricco, P. (2009). *Olivetti, prima e dopo Adriano. Industria cultura estetica. Bracigliano (Sa), L’Ancora del Mediterraneo.*].

Based on this discussion, Table VII.2 suggests that the three factors appear to play a role in supporting the development of a capable supply-base, yet the research strategy adopted cannot establish necessity or sufficiency. Another, future, research avenue is outlined by comparing local production systems with and without capable suppliers. Such a comparison could also explain why disintegrated hierarchy has not, for example, developed in Spain where the structural composition of the size of firms in the economy, as well as the institutionally-informed size-discrimination, is very similar to Italy's.

### **7.3 Departures and extensions**

Although a clear assessment of the preconditions which led to the emergence of disintegrated hierarchy is not yet possible, its inception nonetheless welcomes a reassessment of the importance of firm size in structuring models of production. Additionally its inception calls for a reinterpretation of the dichotomous relation between coherence and complementarity as disintegrated hierarchy allows incoherent institutions to become complementary, although complementarity was assumed to be grounded on principles of coherence and homogeneity (Hall and Soskice 2001; Boyer 2005; Crouch 2005; Crouch, Streeck et al. 2005). These extensions to the thesis' argument speak to the Varieties of Capitalism literature to the extent that its main premises had consisted of an understanding of firms as homogeneous and of similarity as a proxy for complementarity – in what follows, this section expands on these themes.

### 7.3.1 Departing from the varieties of Capitalism literature and its offspring

Contrary to the Varieties of Capitalism literature, which refers to national institutions as determinants of a firm's competitive advantage (Hall and Soskice 2001), this thesis has contended that the Italian economy is too institutionally heterogeneous and fragmented to be analysed with only national institutions in mind. A classical varieties of Capitalism approach is concerned with national level institutions: *"our premiss is that many of the most important institutional structures – notably systems of labour market regulation, of education and training, and of corporate governance – depend on the presence of regulatory regimes that are the preserve of the nation-state"* (Hall and Soskice 2001 : 4). Yet this fails to hold in Italy where for example training and education is to a large extent the remit of regional authorities and social partners; and where labour market regulations can be amended through sectoral level agreements (see, Johnston, Kornelakis et al. forthcoming).

At the same time, contrary to more recent theories which foresee models of trans-national capitalism developing (Lane 2001; Lane and Probert 2009), the argument presented in this thesis suggests that there are important arguments in favour of maintaining manufacturing within national, and even local, borders. A trans-national approach contends that national level institutions can be reproduced abroad, thus suggesting that national institutional frameworks simply gain more and more extensive coverage as manufacturing moves from west to east. This allows firms to access the same institutional assets elsewhere as price and cost balances vary across countries. The thesis' hypothesis instead suggests that there are important reasons to keep production at home. Local vicinity enables firms to develop strategic relationships which build on the continuous exchange of tacit information on products and processes, and not on the ownership structures of firms or the setting of common standards (Hall and Soskice 2001 : 23-25).

More importantly, the theory of capital-skill asset pooling is amongst few in political economy to stress that differently – institutionally – endowed firms can overcome institutional problems by bridging such divide through inter-firm networks. Whereas the industrial district literature did indeed highlight the importance of networks, these were formed by homogeneous and symmetrical firms (Piore and Sabel 1984). In Italy, the firms which participate in high quality-conducive inter-firm network are different in terms of size, institutional endowments and scope.

Nonetheless, inter-firm networks are not a novel concept per se. They are a complementary institutional node in the Varieties of Capitalism literature as well and they are pivotal to the literature on global commodity and value chains (Sturgeon 2002; Gereffi, Humphrey et al. 2005). Yet, whilst the Varieties of Capitalism literature understands network-firms to be equivalently endowed by institutions, Italian network-firms are not and resort to the network because of the institutions they are confronted with. Moreover, whereas the global commodity (and value) chain literature understands firms as building inter-firm relationships to take advantage of different assets (Gereffi, Humphrey et al. 2005), it does not develop instruments capable of predicting why two firms would coalesce besides purely contextual needs. On the other hand, capital-skill asset pooling allows us to predict, given the institutional endowments of a firm, with whom and in what role a firm is expected to develop a productive network.

### *7.3.2 Size matters!*

Crucially, capital-skill asset pooling hinges on heterogeneous firm endowments which proceed from the size-discrimination of Italy's institutions. Whether varying firm size is an

advantage or disadvantage has been a debated issue in the industrial economics, industrial organisation and development literature: notions of internal economies of scale have often been contrasted to notions of external and local economies of scale (Marshall 1890; Krugman 1980; Porter 2000). Yet firms have been treated by the Hall and Soskice approach as being homogeneous (Boyer 2005), despite this assumption appears to be often contradicted by the evidence. Different countries have offered examples of how the varying outcome in terms of the balance of power between large and small firms alters or affects the shape and impact of institutions in the wage bargaining, industrial relations, and vocational training system (Herrigel 1996; Silvia 1997; Mares 2003; Thelen and Van Wijnbergen 2003; Culpepper 2007). Large and small firms are acknowledged to maintain clear and divergent preferences over any institutional arrangement. Nonetheless, the possibility that a preference struggle between firms leads to disagreement over institutional arrangements has not been considered. Yet, if the conditions for a social compromise (Amable in Crouch, Streeck et al. 2005 : 371), shared or imposed, are not met, economies could move towards dual institutional arrangements. Therefore, one would be confronted with domestic, therefore internal, varieties of capitalism.

The study of Italy's political economy is of relevance to this question: it shows that multiple institutional frameworks can coexist with each other. What emerges from the interaction between small and large firms is an institutional arrangement which spurs from the dual applicability of rules - according to firm size - in the social policy, wage bargaining, corporate governance, financing and vocational training realms (see Ch.2). In Italy the two institutional conformations which cater large and small firms are re-integrated through disintegrated hierarchy. By pooling together the variable assets, firms develop different forms of institutional complementarities which enable them to pursue a high quality product market strategy.

Italy is a case where internal heterogeneity becomes the defining element for the achievement of a coherent end-structure. Alternatively, scholars of comparative institutional advantages must consider the possibility that dual (or even plural) institutional frameworks develop in divergent, possibly conflicting, ways. The different logics which dovetail variable preferences may conflict over established arrangements. An example of such dynamic is offered by the tension which emerged between Swedish export and sheltered sector actors causing the overhaul of the EFO wage bargaining model (Lundberg 1985). In Germany, not only divergences over collectively negotiated wage agreements are increasingly developing between small and large employers (Thelen and Van Wijnbergen 2003), but also between public and private sector unions (Johnston and Rodriguez d'Acri January 2009). The effects of these conflicts on the sustainability of collective wage bargaining institutions and institutional equilibria are unclear but may lead to the development of entirely new models of capitalism (see Hassel 2011 on recent German developments). The majority of studies cited in this thesis, implicitly suggest that one particular economic interest – private or public sector worker, large or small firm, the state – prevailed in the struggle over defining a country's institutions. This thesis shows that the assumption of homogeneity between firms does not hold consistently, and that it should be first tested and only subsequently deployed in the definition of models of capitalist production.

### *7.2.3 Coherence and complementarities*

Size considerations also feed into the discussion on institutional coherence and complementarities (Crouch, Streeck et al. 2005; Kenworthy 2006), as complementarities are expected to develop when institutions govern the behaviour of firms through the same



mode of coordination, strategic or market oriented. The majority of studies on 'comparative institutional advantages' have used the term complementarity in the sense of similarity (Crouch, Streeck et al. 2005 : 360-362), where "the presence (or efficiency) of one [institution] increases the returns from (or efficiency of) the other" (Hall and Soskice 2001 : 1)<sup>73</sup>.

The inception of disintegrated hierarchy within certain Italian industries shows that institutional incoherence is instead a constitutive part of pragmatic solutions to the problem of acquiring patient capital and specific skills encountered by Italian firms. What the evidence collected by the thesis implies is that the notion of "complementarity as similarity" is not relevant as complementarities themselves do not hinge on the similarity of behavioural logics across institutions and firms<sup>74</sup>. Crucially, high or diversified quality production is grounded on the interaction of production sub-systems governed by heterogeneous logics and incentives: the large firm-first tier supplier system where relational and reputational-based behaviour prevails; the second tier supplier system where price-based interaction does instead. This suggests that within each market economy, opposite modes of coordination and interaction not only coexist but complement each other as well. In Italy, extended supply chains of production allow firms, which operate according to different rules of behaviour, to come together and form a cohesive yet disintegrate production system. For the study of institutions and models of

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<sup>73</sup> Although institutional isomorphism and homology can be limited by country-specific political and historical processes [Hall, P. A. and D. W. Soskice (2001). *Varieties of capitalism : the institutional foundations of comparative advantage*. Oxford, Oxford University Press, Crouch, C., W. Streeck, et al. (2005). "Dialogue on 'Institutional complementarity and political economy'." *Socio-Economic Review* 3: 359-382..]

<sup>74</sup> Granted that lead firms do find capable suppliers, the effect of a shift towards higher general (and social) skills, acquired through the state-funded secondary and tertiary education system, has allowed lead firms to develop more extensive retail and distribution networks and better customer care services. These skills have allowed lead firms to pursue expansionary strategies in international consumer markets and are complementary to the specific skills retrieved in external suppliers. Thus the non-regulatory regime which governs the small-firm institutional framework is complementary to an ineffective vocational training system which forces young workers into either acquiring general skills through forms of formal education or specific skills through forms of on the job training.

capitalism this implies that institutional coherence should not be assessed *ex ante* but *ex post*. As capital-skill asset pooling brings together firms with different assets, Italian institutions are remodelled in new complementary combinations. These complementarities are not functional but second-best forms of surrogate coordinated market economy-style complementarities.

### **Beyond disintegrated hierarchy**

This thesis has shown that large firms in Italy have become leaders of a process of industrial restructuring by recombining independent institutional configurations. This restructuring has allowed Italian firms to overcome the structural and institutional constraints faced when pursuing a high or diversified quality product market strategy. By resorting to the workforce formed and employed in small firms, large firms have obviated the problems and costs associated with a failed vocational training system. By relying on informal means of financing, small firms have overcome the difficulties associated with a dysfunctional and biased funding system in Italy. Although questions are still open as to the underlying conditions which lead to the establishment of lead firms or capable suppliers, theoretically the emergence of capital-skill asset pooling has confirmed that segmentation across institutional spheres can become beneficial when strategically recombined<sup>75</sup>. It shows that different rules of behaviour and modes of interaction are not mutually exclusive, but coexist and become complementary in the pursuit of product market strategies by firms set in hybrid institutional systems.

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<sup>75</sup> On a similar line of argument see also Crouch (2005).

While acknowledging the crucial importance of institutions in shaping the economic development path undertaken by countries, building on the results of this thesis, future research should accept that institutions do not always cater firms homogeneously, especially within national confines. Whereas this thesis has investigated a country case where institutional, territorial and political, fragmentation are clearly identifiable, the research agenda should be geared towards investigating whether homogeneity still characterises the effect of institutions on firms and actors elsewhere. This chapter has shown that disintegrated hierarchy is at odds with older analyses of the firm-institutional framework nexus in France, Germany, the US and the UK because of the very recognition that institutions cater Italian firms differently by discriminating in terms of firm size. Yet, very recent work has already shown that dualisation and sectoral differentiation is taking place within certain countries with respect to the beneficial effects of institutions on firms and actors (Palier and Thelen 2010; Hassel 2011; Johnston and Rodriguez d'Acri January 2009). In this sense, further firm level case studies are required to investigate to what extent this process of within-country differentiation is capable of altering those models of production organisation previously identified under the false assumption of firm and institutional homogeneity.

Berger and Piore (1980) had rightly noted that societies are divided segmentally and not continuously. They suggested that segments within societies organise around different rules, processes, and institutions which produce different systems of incentives and disincentives to which individuals respond (Piore and Berger 1980 : 2). Boyer (2005) too had argued that *"complementarities [...] also exist where different 'logics; operate in different institutional areas"* (Boyer in Crouch, Streeck et al. 2005 : 372). The Varieties of Capitalism literature instead dismissed these intuitions by building frameworks of analysis on the premiss that coherent modes of behaviour underpin complementary

institutions. *Contra* to this approach, this thesis has shown that investigating instances of institutional segmentation and divide provides us with useful insights for the analysis of (hybrid) models of capitalism in evolution.

## VIII. APPENDIX

### A.1 Country selection based on OECD ITCS data availability

Table VIII.1 Countries employed for the construction of the indicators

	Revision 3		Revision 2	
Australia	1	1988-2006	1	1963-2009
Austria	2	1988-2005	2	1961-2009
Belgium Luxembourg Union	<i>dropped</i>	<i>1988-1993</i>	3	1961-1993
Belgium	3	1993-2006	<i>dropped</i>	<i>1993-2009</i>
Canada	4	1988-2007	4	1961-2009
China	5	1994-2004	<i>n.a.</i>	<i>n.a.</i>
China Taipei	6	1990-2006	<i>dropped</i>	<i>1990-2009</i>
Czech Republic	7	1993-2006	<i>n.a.</i>	<i>n.a.</i>
Denmark	8	1988-2006	5	1961-2009
Finland	9	1988-2006	6	1964-2009
France	10	1988-2007	7	1961-2009
Germany	11	1988-2007	8	1961-2010
Greece	12	1988-2005	9	1961-2011
Hong Kong	<i>dropped</i>	<i>1994-2004</i>	<i>n.a.</i>	<i>n.a.</i>
Hungary	13	1992-2005	<i>dropped</i>	<i>1992-2009</i>
Ireland	14	1988-2006	10	1961-2009
Italy	15	1988-2006	11	1961-2009
Japan	16	1988-2007	12	1962-2009
Korea	17	1994-2006	<i>dropped</i>	<i>1994-2009</i>
Luxembourg	<i>dropped</i>	<i>1999-2006</i>	<i>dropped</i>	<i>1999-2009</i>
Mexico	18	1990-2006	<i>dropped</i>	<i>1990-2009</i>
Netherlands	19	1988-2006	13	1961-2009
New Zealand	20	1988-2006	14	1964-2009
Norway	21	1988-2006	15	1961-2009
Poland	22	1992-2006	<i>dropped</i>	<i>1992-2009</i>
Portugal	23	1988-2006	16	1961-2009
Slovak republic	<i>dropped</i>	<i>1997-2006</i>	<i>dropped</i>	<i>1997-2009</i>
Spain	24	1988-2006	17	1961-2009
Sweden	25	1988-2006	18	1961-2009
Switzerland	26	1988-2007	19	1961-2009
Turkey	27	1989-2006	20	1964-2009
UK	28	1988-2007	21	1961-2009
US	29	1989-2007	22	1961-2009

The main empirical database is constructed on OECD ITCS Revision 3 series. It includes the following 29 countries. On grounds of completeness the OECD ITCS Revision 3 is

preferred to the Revision 2 version of the dataset as 29 instead of 22 countries are available in the former dataset, crucially including China and Eastern Europe.

Yet for the study of pre-1988 trade flows, Revision 2 series were used to construct the same indicators, although the product classification break-down differs slightly. Countries were dropped from either of the two revisions on grounds of insufficient data. The year 2003 is chosen as the end year of the analysis because it is the most recent year for which complete trade data measured in value and quantity terms is available. Quantity data is required for the calculation of relative (symmetric) unit values needed for the assessment of the quality of a good.

## A.2 Revealed Comparative Advantage and Relative Unit Value

The Revealed Comparative Advantage (RCA) is obtained by comparing the relative export performance of a country to the relative export performance of a group of countries. The results will show in which sectors country “i” has a comparative advantage, as it exports comparatively more than the bundle of countries it is compared against (World, EU - see A.1 for actual basket of comparison used by this research). Export data measured in value terms is obtained from the OECD ICTS database and used for the calculations.

$$RCA = \frac{(\text{Exports of Country } i \text{ in Sector } j / \text{Total Exports of Country } i)}{(\text{World Exports in Sector } j / \text{Total World Exports})}$$

The Revealed Symmetric Comparative Advantage (RSCA) is obtained via the simple transformation of the RCA and ranges between (-1 : 1):

$$RSCA = (RCA - 1) / (RCA + 1)$$

The Relative Unit Value (RUV) instead is calculated by comparing the unit prices of a country’s sector to unit prices of the comparison basket in the same sector. Unit prices are calculated by dividing exports measured in value terms of country “i” in sector “j” over exports measured in volume terms of country “i” in sector “j”. Export data measured both in value and volume terms is also obtained from the OECD ICTS database and used for the calculations:

$$RUV = \frac{\text{Country } i[\text{Value of Exports in Sector } j / \text{Quantity of Exports in Sector } j]}{\text{World}[\text{Value of Exports in Sector } j / \text{Quantity of Exports in Sector } j]}$$

The Relative Symmetric Unit Value (RSUV) is obtained via the simple transformation of the RUV and ranges between (-1 : 1):

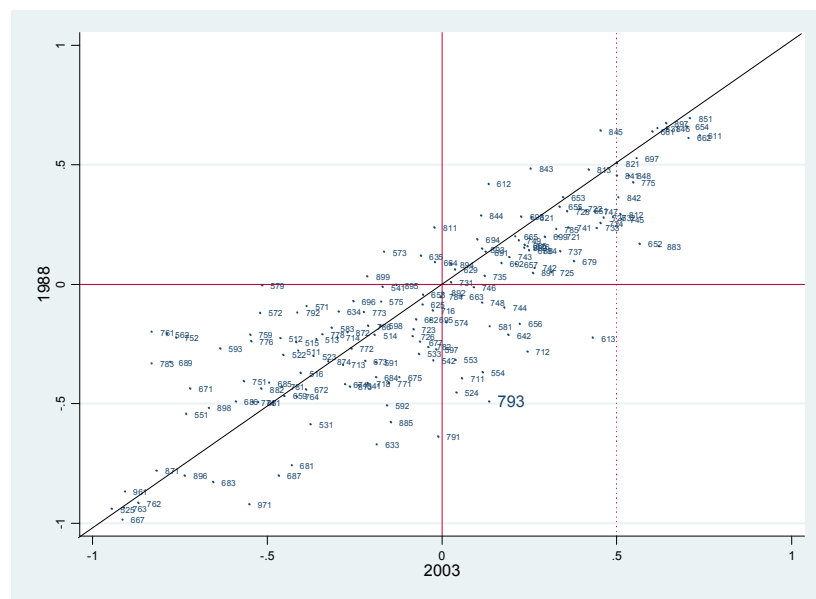
$$\text{RSUV} = (\text{RSU} - 1) / (\text{RSU} + 1)$$



### A.3 Case selection

The case selection briefly discussed in Section 1.3.1 is hereby extensively presented. The Italian product categories which are exhibiting a revealed comparative advantage vis-à-vis other OECD countries (as of 2003 data) are located in the north-western and south-western quadrants (see Figure I.4). Yet in order to evaluate which of those product categories have preserved such an advantage over an extended period of time, the goods' performance in 2003 and 1988 are compared. The starting date of the empirical investigation, has been chosen to be 1988 due data availability (see Annex 2). Mapping the RSCA indicator over the two periods, delivers the following matrix (Figure VIII.1).

Figure VIII.1 Commodity trade performance (1988 and 2003)



Source: Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

By analysing the location of each product category, two important findings emerge: first that the goods located in the upper right hand side quadrant have preserved the high RSCA value developed in earlier years (1988): second that the goods located in the bottom

right hand side quadrant have developed a comparative advantage where it was in fact not the case in the late eighties, as the RSCA value for 1988 is negative.

Specifically, this exercise reveals that good “793: Ships, boats & floating structures” improved its trade position over time, as it is the most south-eastern commodity of the lower right hand side quadrant<sup>76</sup>: capturing a shift from a highly negative to a positive value on the RSCA indicator. It also reveals that of the sixteen goods presenting a  $RSCA > 0.5$  in 2003 (Figure I.4), only five were in such a position in 1988 as well (Table 1.6). Yet, of these five, only three commodities hold a positive RSUV, and two hold a negative one - although by a very small amount (Table VIII.2). Moreover, this also suggests that Italy’s trade specialisation has not been characterised by inertia, as contended elsewhere (De Benedictis 2005).

Table VIII.2 Commodities with  $RSCA > 0.5$ , with positive and negative RSUV

<i>Positive RSUV</i>
654: Other textile fabrics, woven 831: Travel goods, handbags & similar containers 846: Clothing accessories, of textile fabrics
<i>Negative RSUV</i>
611: Leather 851: Footwear

Source: Source: OECD International Trade and Commodity Statistics 2009, Own Calculations

Yet, in order to reproduce these results at a lower level of disaggregation which would facilitate the correspondence with firms producing the identified good, the same RSCA indicators has been constructed on data broken down to the four-digit level of the SITC international good classification system. This exercise, performed for those goods which hold a positive RSUV in 2003 when disaggregated to the three-digit level, reveals that not

<sup>76</sup> The other good category which present a comparable absolute improvement is “613: Furskins, tanned or dressed, excluding those of 8483”. Because of the difficulty to link this product category with an industry, the “793: Ships, boats & floating structures” good category was chosen instead.

all product sub-categories hold a positive value on both the RSCA and RSUV indicators (Table VIII.3). Moreover, because the negative sign on both “Leather” and “Footwear” good categories is negligible and the categories of goods which preserved their comparative advantage since the rise of low cost competitor economies are few (five), the lower level of aggregation for these good categories as well. This exercise reveals that not all sub-segments of the “Leather” and “Footwear” industries hold a negative RSUV but only some, as listed in Table VIII.3.

Table VIII.3 Four-digit disaggregation of goods with positive RSCA in 1988 and 2003

	<b>Positive RSUV</b>	<b>Negative RSUV</b>
<b>831: Travel goods, handbags &amp; similar containers</b>	8311: Handbag, whether or not with shoulder strap	8312: Trunks, suit-cases, satchels & similar
		8313: Travel sets for personal toilet, sewing, shoe,
		8319: Holsters & similar cases,; container, n.e.s.
<b>846: Clothing accessories, of textile fabrics</b>	8461: Clothing accessories, not for babies, not knitted	8469: Other made-up clothing accessories; parts
	8462: Panty hose, socks & other hosiery, knitted or croch.	

	<b>Positive RSUV</b>	<b>Negative RSUV</b>
<b>611: Leather</b>	6115: Sheep or lamb skin leather, without wool (excluding 6118)	6113: Whole bovine skin leather, surface <2, 6m2, excluding 6118
	6116: Goat or kid skin leather, without hair (excluding 6118)	6114: Other bovine, equ. leathers, without hair (excluding 6118)
	6118: Leather, specially dressed or finished, n.e.s.	
	6112: Composition leather, basis of leather, slabs, sheets	
<b>851: Footwear</b>	8515: Other footwear, with uppers of textile materials	8511: Footwear with protective metal toe-cap, excluding sport
	8517: Footwear, n.e.s.	8512: Sports footwear
	8519: Parts of footwear, in-soles, heel-cushions & similar	8513: Footwear, n.e.s. outer soles & uppers of rubber.
		8514: Other footwear with uppers of leather

Source: Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

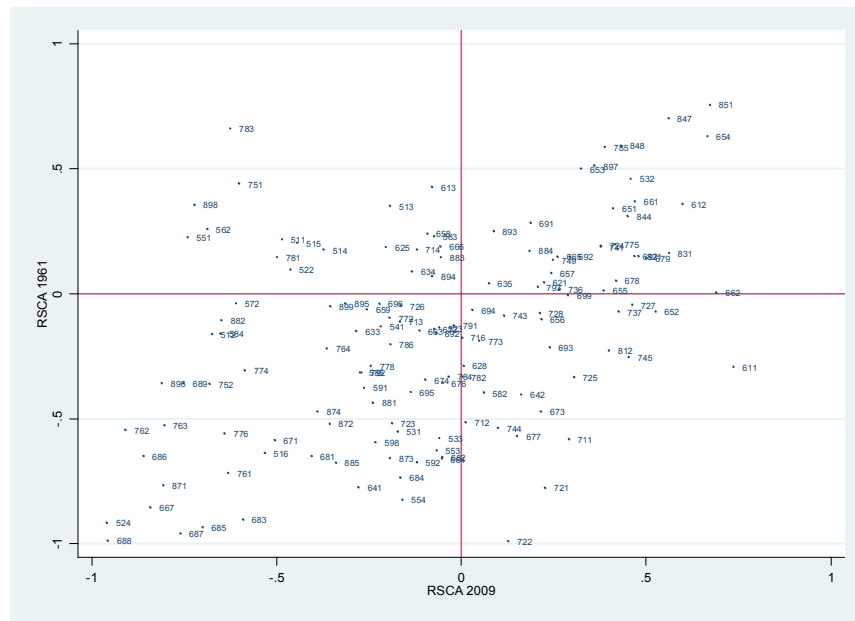
Thus the product categories, disaggregated at the four digit level of the SITC international classification system, listed in the middle column of Table VIII.4– under the title Positive RSUV, appear to capture industries where high quality goods are produced. Since this performance is consistent with that held at the beginning of the empirical investigation period (1988), these industries will represent the first case study investigated. Once a similar breakdown is performed on the product category “793: Ships, boats & floating structures”, it emerges that only one sub-segment of the industry fits the success criteria set: “7931: Yachts and other vessels for pleasure or sports; rowing-boats and canoes”. This industry is thus selected as the second case study capturing an industry which improved its performance over the last fifteen years.

Lastly, in order to identify a product category which strikingly worsened its trade performance overtime, the OECD ITCS Rev.2 database was employed (see Appendix 1 for a list of countries included in this database). No meaningful industry appeared to meet the desired criteria by using the OECD ITCS Rev.3 database as the RSUV for those goods with a low RSCA value today and a high one in the past was negative. The Revision 2 version of the database collects data from the early sixties. Mapping the trade performance of commodities in 1961 and 2003 reveals that there are indeed two good categories which significantly worsened their trade performance (Figure VIII.2). In order to select one case study, the trade performance of these two goods was compared to the corresponding value measuring quality performance. This ensured that the same approach used to identify success cases in current years is replicated in past years as well.

This last comparison revealed that although “783 Road motor vehicles, n.e.s.” exhibited a higher RSCA value in 1961, the corresponding quality indicator was low. On the other hand, the good category “751 Office machines” exhibited a value of trade only decimals

smaller than the 0.5 success benchmark but a value of quality approaching one, underlying a clear quality advantage (Table VIII.4). For this reason, “751 Office machines” was selected as the counterfactual case study – an industry which had exported high quality goods in the past but that had failed to perform as successfully in recent years.

Figure VIII.2 Commodity trade performance (1961 and 2003)



Source: Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

Table VIII.4 Industry selection based on RSCA performance

	RSCA 1961	RSCA 2003	RSUV 1961
<b>751 Office machines</b>	<b>.47842821</b>	<b>-0.56758</b>	<b>0.846218</b>
783 Road motor vehicles, n.e.s.	.68310821	-0.83254	0.229135

Source: Source: OECD International Trade and Commodity Statistics 2010, Own Calculations

## **A.4 List of interviewees arranged by chapter and topic**

### **Chapter 2**

#### *Italian Industry Composition*

1. Bugamelli, Matteo: Centro Studi BANKITALIA, 12/03/08, (phone interview).
2. D'Aloia, Giuseppe: CISS, 29/03/08 Rome.
3. Gennari, Angelo: CNEL, 01/08 Rome.
4. Regalia, Ida: Department of Political Sciences, Università degli Studi Di Milano, 01/08 Milan.

#### *Specific Skill Provision in Italy*

5. Bellandi, Marco: Department of Economics, University of Florence, 01/09/09 Florence.
6. Burrone, Luigi: Department of Political Sciences, University of Teramo, 10/07/09 Teramo.
7. Dei Ottati, Gabi: Department of Economics, University of Florence, 06/08 Florence.
8. Mati, Giampaolo: FILTEA-CGIL Formazione, 03/04/08 (phone interview).
9. Zanni, Lorenzo: Department of Economics and Business Studies, University of Siena, 31/08/09 Siena.

#### *Patient Capital Acquisition in Italy*

10. Benedetti, Aureliano: CariFirenze CEO, 06/10/2011 Firenze.
11. Berlingorio, Corsello: Corporate Bank, Monte dei Paschi di Siena, 03/09/09 Siena.
12. Nebbia, Luciano: Direttore Generale, Banca CR Firenze, 18/02/09 Florence.
13. Sera, Rolando: Ufficio Supporto Commerciale, Banca CR Firenze, 18/02/09 Florence.

### **Chapter 3 – Leather Goods and Footwear Industry**

#### *Industry Level Experts*

14. Apolito, Agostino and Angelo Arcuri: Internazionalizzazione, Confindustria Firenze, 20/02/09 Florence.
15. Augurusa, Giuseppe: Segretario Generale FILTEA-CGIL Milano, 23/02/09 Milano.
16. Bolis, Fulvio: Segretario FILCEM e FILTEA Bergamo, 06/04/09 Bergamo.
17. Cartocci, Giorgio: Segretario Camera del Lavoro di Arezzo, CGIL, 19/01/09 Arezzo.
18. Ceruti, Giorgio: Segretario Organizzativo FILTEA-CGIL Milano, 08/05/09 Milano.
19. Cesareo, Antonietta: FILTEA-CGIL, CdL Cinisello Balsamo, 02/04/09 Cinisello Balsamo.
20. Di Salvo, Francesco: Segretario FILTEA-CGIL Como, 03/04/09 Como.

21. Fedeli, Valeria: Secretary Nazionale, FILTEA-CGIL, 02/04/08 phone and 16/01/09 Rome.
22. Mati, Giampaolo: FILTEA-CGIL Formazione, 03/04/08 (phone interview).
23. Roverato, Giorgio: Department of Political Sciences and Economics, University of Padova, 05/08 (email exchange).
24. Santarelli, Giuseppe: Segretario FILCTEM Fermo, 30/11/2010 (phone interview and written exchange).
25. Sarti, Piero: FILTEA-CGIL, CdL Sesto Fiorentino, 18/02/09 Sesto Fiorentino.
26. Tartaglione, Clemente: FILTEA-CGIL Centro Studi, 16/01/09 Rome.
27. Tunisini, Annalisa: Urbino University 06/12/2010 (email exchange).

#### *Firm Level Interviews*

28. Bianchi, Davide: CEO EURLAST s.r.l, 13/01/09 (phone interview and written exchange).
29. Calistri, Andrea: Proprietario SAPAF, 18/02/09 Scandicci.
30. Ciucchi, Sofia: Assistente di Ferruccio Ferragamo, Riorganizzazione Catena Fornitori, 15/02/10, Firenze, Via Tornabuoni 2.
31. Settimelli, Cristina: Segretario Generale FILTEA-CGIL, CdL Firenze, 20/01/09 and 19/02/09 Florence (Gucci expert).

## **Chapter 4 – Yacht Industry**

#### *Industry Level Experts*

32. Bianchi, Sandro: FIOM-CGIL Nautica da Diporto, 24/04/09 (phone interview).
33. Bossi, Carlo: Segretario Regionale CGIL Lombardia, 27/04/09 (phone interview).
34. Carcano, Luana: SdA Bocconi, 27/04/2010 (phone interview).
35. Corti, Marcello: Segretario Generale FIOM-CGIL, CdL Firenze, 20/01/09 Florence.
36. Garibotto, Paolo: Segretario Fillea Genova, 12/04/10 (phone interview).
37. Mandanici, Pietro: Assessorato Cooperazione Commercio Artigianato e Pesca, Ufficio di Gabinetto, Regione Siciliana, 04/10/09 Milazzo.
38. Sgro', Enzo: Camera del Lavoro di Milazzo, 05/10/09 Milazzo.
39. Strazzullo, Maurizio: Segretario Provinciale CGIL Livorno, 24/08/09 Livorno.
40. Tracogna, Andrea: Universita` di Trieste, 07/04/2010 (phone interview).

#### *Firm Level Interviews*

41. Caslini, Isabella: Benetti Yachts, 04/09/09 Livorno.

42. Marchiori, Carlo: DMA s.p.a., 29/04/09 Rome.
43. Vergara, Roberto: TECNAV, Noise and Vibration Consultant, 25/04/2010, Roma.

## **Chapter 5 – Computer Industry**

### *Industry Level Experts*

44. Spezia, Laura: segreteria Nazionale FIOM, Informatica, Elettronica ed Informazioni, previously: Segretaria CdL di Ivrea. 11/02/10 (phone interview).
45. Michelson, Angelo, Olivetti Expert, PhD in Sociology Cambridge, 03/2010 to 09/2011 (repeated email exchanges).

### *Of which, kindly provided by Angelo Michelsons:*

46. Billia, Paolo: Associazioni Industriali Canavese, 26/02/03.
47. Gori, Franco: CNA Ivrea, 13/03/03.
48. Mauro, Loris: Director of the Distretto Tecnologico Canavese, 09/04/03

### *Firm Level Interviews*

49. Bricco, Paolo: Il Sole 24Ore, Redazione Economia e Imprese, 10/03/2010, Milano.
50. Maglione, Roberto: Head of Human Resources at Finmeccanica (and ex-Olivetti), London, 10/07/2010
51. Olivetti, Matteo: 09/03/2010, Ivrea.
52. Pacetti, Pietro: Ex Dirigente Olivetti, 03/03/2010 (phone interview).
53. Salveti, Laura: Fondazione Natale Cappellaro, 09/03/2010, Ivrea.

### *Of which, kindly provided by Angelo Michelsons:*

54. Capirone, Enrico: CEO and founder of RIBES, software company, 13/03/03.
55. Rossi, Ing.: Owner of Pegaso, electro-mechanic small firm, FIAT supplier, 10/12/02
56. Masciaga, Luigi: Owner of Sapi s.r.l., 09/04/03.

## **Chapter 6 – Machine Tool Industry**

### *Industry Level Experts*

57. Ferrante, Gianni: Ufficio Economico FIOM-CGIL, 02/04/08 and 23/04/09 Rome.
58. Mordeglia, Francesco: Centro Studi e Cultura d'Impresa, UCIMU, 07/05/09 Cinisello Balsamo.
59. Papignani, Bruno: Segretario Generale FIOM-CGIL Bologna, 06/05/09 Bologna.



60. Rinaldi, Alberto: Universita di Modena, 07/12/09 (email exchange).
61. Scaltriti, Gianni: Segretario Regionale Emilia Romagna CGIL, 29/04/09 Rome.
62. Zanni, Giampaolo: Segretario Generale FIOM-CGIL Vicenza, 07/05/09 Vicenza and 18/10/09 (phone interview).

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