DEPARTMENT OF ECONOMICS

UNIVERSITY OF MILAN - BICOCCA

WORKING PAPER SERIES

Boundaries and governance of Italian state-owned enterprise: a quantitative approach

Pier Angelo Toninelli, Michelangelo Vasta

No. 182 – March 2010

Dipartimento di Economia Politica
Università degli Studi di Milano - Bicocca
http://dipeco.economia.unimib.it

Boundaries and governance of Italian state-owned enterprise: a quantitative approach

Pier Angelo Toninelli
(Dipartimento di Economia Politica, Università di Milano-Bicocca)
pierangelo.toninelli@unimib.it

Michelangelo Vasta
(Dipartimento di Economia Politica, Università di Siena)
vasta@unisi.it

Abstract. For the most part of the last century the role of State owned enterprises was probably more pronounced, continuous and prolonged in Italy than elsewhere in the West. This was the response to the fact that Italian economic growth had long been penalized by structural frailties such as a narrow internal market, a shortage of capital, financial weakness and a decline of entrepreneurial initiative. Yet, the complexity of forms and organizations assumed by the State direct intervention in the economy (just to limit our analysis to the central level) reached heights of imagination and ingenuity in Italy that were probably unknown abroad: State companies, State monopolies, shareholding companies, State concerns and so on co-existed throughout the twentieth century. This helps to explaining why we do not yet have a precise and thorough measure of the weight of public enterprise on the entire economy, not to say of more specific data concerning their sectorial and/or regional distribution. Thus it has not been so far possible to identify precisely - at a micro level - the real dimension of Italian public enterprise, and hence assess a phenomenon whose actual magnitude remains unknown to us. The aim of our paper is to fill this gap by showing the basic features of the dimension, boundaries, structure, governance and location of Italian SOEs.

Keywords: Italy, State owned enterprise, size and structure, governance, economic history

JEL classification: N44, L32, G34

1. Introduction

Direct State intervention in the Italian economy goes back to the unification of the Kingdom in 1861 to compensate for the country's structural frailties: a narrow internal market, a shortage of capital, financial weakness and a decline of entrepreneurial initiative. On the whole, these elements have contributed to the emergence of a large state owned enterprise (henceforth SOE). Finance represented a sector in dire need of special attention from the government as Italy was suffering both from chronic instability and from a shortage of intermediaries. If the founding of a few German-type universal banks in the 1890s had provided a partial remedy for the latter, it conversely increased the potential instability of the system, which came close to the breaking point in the early 1930s.

The original envisaged solution was the creation of a special body – *Istituto per la Ricostruzione Industriale* (IRI)[1]. It was a state owned company which took over all the banks' industrial securities, while the banks themselves came under its control. In the period following the Second World War, the Italian government, unlike the governments of other defeated powers, not only resisted pressure to divest public properties progressively and to encourage a free market ideology, but also gradually enlarged its control over the economy – particularly over finance and banking, industrial production and transport - through what was to become in short an organised shareholding system. IRI stood out as the main character in the story as well as the pillar of the system.

The second pillar was *Ente Nazionale Idrocarburi* (ENI),[2] the state energy super-holding, created in 1953 on the model of IRI. Later (1962), these two were joined by the *Ente Autonomo di Gestione per il Finanziamento dell'Industria Meccanica* (EFIM),[3] into which the heavy machinery companies controlled by the state were merged. In between these two dates (1956), a superior institution to oversee most of Italian SOEs was created: the *Ministero delle Partecipazioni Statali*[4] (for an overview, see Barca-Trento 1997, Amatori 2000, Toninelli 2004). Over the years IRI, ENI and EFIM came to control larger and larger sectors of the economy to the extent that in Italy public enterprise had almost become a synonym of them.

Historians largely agree that the second half of the 1950s and the 1960s represented the heyday of state intervention in Italy (Posner-Woolf 1967, Cavazza-Graubard 1972; Sapelli *et al*. 1993, Osti 1993, Balconi *et al*. 1995, Barca-Trento 1997, Amatori-Colli 1999, Amatori

[1] IRI was created in 1933. It was conceived as a temporary institution, with the aim of restoring and re-organizing the suffering companies before restoring them to the market. Later (1937), the absence of private buyers as well as changes in the international climate (autarky, re-armament) resulted in its transformation into a permanent institution. In the post Second World War period, IRI expanded its activity remarkably and played an important role in the industrialization of the South of the country. In the 1970s, the IRI group was hit strongly by the economic crisis: in the early 1980s, a large re-organization process was started, in 1992, the super-holding was transformed into a joint-stock company which, finally, in June 2000, was definitively wound up.

[2] State activity on the energy sector began in 1926 with the establishment of AGIP, which aimed to secure the oil supply to the country. AGIP was the original core of ENI, the super-holding envisaged by Enrico Mattei in order to rationalize and control the Italian energy market. Together with IRI, it became one of the main agents of Italy's economic policy and growth, as both the state-holdings statutes had social, as well as economic, goals. Later, it entered into other manufacturing (chemical - especially fertilizers – and even textile) and service (finance and wholesale) sectors. In 1992, it was transformed into a joint-stock company, which was to be privatized in a few years.

[3] EFIM was created to operate in the mechanical industry. Following its creation, it was forced to diversify into other manufacturing sectors because of rescue operations of private activities. It went into liquidation in 1993.

[4] The Ministry of State Shareholdings primarily had a political function, which was to re-organize, and take control of, all state holdings (enti di gestione) - IRI, ENI, and later EGAM (Mining) and EFIM - as well as other minor state activities. Thus, it represented the main channel through which politics entered into the management of these economic agents.

2000, de Cecco 2000, Petri 2002, Toninelli 2004). This was a period when, both at national and at international level, public enterprise could enjoy a favourable cultural, political and social climate, in which state intervention in its different forms – planning, anti-cyclical policies, and support to private enterprises – played an essential role to secure a Gerschenkron-type of convergence of the latecomer countries towards the first-comers (Gerschenkron, 1962; van der Wee 1989, Stiglitz 1989; Toninelli 2000a, 2000b). According to some 1970s estimates pertaining to more than seventy countries (not including the US), SOEs (excluding city-owned ones) produced on average about 10% of the national wealth and contributed approximately 16.5% to the formation of gross capital (Short 1984: 115).

The 1970s were an important turning point in the history of public enterprise. In the two decades that followed, the poor performance of the mixed economies, followed by the collapse of the collectivist regimes, overwhelmed the faith in the thaumaturgic capacities of the *public hand*. Scepticism and disappointment gradually replaced the initial hopes, giving way to intense political re-shaping of the role of the state, both through the initiative of de-regulation and through ample policies of de-nationalisation (Feigenbaum *et al*. 1998; Toninelli 2000a; Clifton *et al*. 2003; Chick-Lanthier 2004). This wave of de-regulation also reached Italy: in the early 1990s, the process of privatisation began putting an end to the long parabola of public enterprise in the country (Zanetti-Alzona 1998; Affinito-de Cecco-Dringoli 2000; Barucci-Pierobon 2007).

An overall appraisal of the whole experience should not be influenced by today's almost generalised distrust in state action (Stiglitz 1989). However, it cannot be ignored that state enterprise is nowadays perceived by the public opinion, both in Italy and abroad, as a lethargic, monolithic organism: an organism which has been increasingly exercising collusive practises, both at an inner level – between the management and the workforce – to defend their own privileges, and at an exterior level – with regard to political power – in order to be protected from market competition. As a consequence, at the end of the last century, an almost unanimous consensus emerged towards the privatisation policies, based upon the assumption that the main cause of inefficiency was to be explained primarily by the form of ownership and not by the form of governance or by the management behaviour of the firm, and/or by the market structure and regulation (World Bank 1995; Shleifer 1998; Megginson-Netter 2001). The process of privatisation is still on-going and certainly has not settled: while the technical analysis tends to classify it as a success, especially in the transitional economies and in the less developed countries, for other aspects, it seems to have not fully satisfied the initial expectations, particularly with regard to the transparency of governance and the quality of services (Stiglitz 2002; Birdsall-Nellis 2003; Rodrick 2004; Clifton-Comin-Diaz Fuentes 2004).

Finally, the appraisal of the SOEs performance depends either on the valuation criteria linked to proxies of static efficiency that estimate accountable profits and losses, or proxies of dynamic efficiency that consider the externalities which they generate in terms of the diffusion of innovative capacity or of the accumulation of skills, and thus on overall productivity (Aharoni 2000; Amsden 2001; Millward 2005). In the Italian case, for example, the contribution made by the state holdings to the creation of modern management, to the formation of human capital, and to the rationalisation of industrial relations after the Second World War, should not be undervalued. It is sufficient to mention here the diffusion of American managerial and organisational techniques introduced by IRI, as well as the activities of the controlled *Istituto Formazione Addestramento Professionale* (IFAP) in the opening and management of training centres and in the creation of specialised workers, technicians or management, or, even further, the precocious job evaluation systems pioneered by *Finsider* (Bertini 1997; Saletnich 1999; Ricciardi 2003) as well as the contributions of technical innovations and spill-over given by the R&D divisions of Italian SOEs (Giannetti-Pastorelli 2007).

Despite the importance of the phenomenon of Italian SOEs, and of the rich historical debate it generated, only a limited amount of empirical studies is so far available (Rapporto Saraceno 1956; Sartori 1957; Posner-Woolf 1967; Arrighetti-Stansfield-Virno1982; Rapporto Marsan c. 1992; Bognetti-Spagnolo 1992). Thus, it is quite difficult to identify precisely - at a micro level - the real dimension of Italian public enterprise, and hence assess a phenomenon whose actual magnitude remains unknown to us.

The aim of this work is to fill this gap by showing the basic features of Italian SOEs. For this reason, we have reconstructed the boundaries of the three main state holdings that have characterised the system of Italian public enterprise over a long period: IRI, ENI and EFIM. The outcome is therefore only a rounding down of the SOE's real size. The originality of our approach is essentially due to three elements: *i*) the time-span, which covers about half a century: five benchmark years are likely to give quite a satisfactory picture of the entire period; *ii*) the use of a dataset, the Imita.db, which allows us to compare the actual weight of the public enterprise *versus* the overall Italian enterprise system; *iii*) the attempt to reconstruct, through the identification of the structure of shareholding, the models of governance adopted.

The work is organised in the following way: after this Introduction, in Section 2 we describe the sources and methods utilised. In Section 3 we illustrate the intra group structure of the three state holdings analysed as they emerge from the dataset of the Italian joint stock companies, then we reconstruct the extension of the Italian public enterprise (section 4), also taking into account the different forms of control used (Section 5); in section 6 some discussion will be devoted to geographical distribution that is, by regions) of Italian SOES. In Section 7 some final conclusive considerations will be suggested.

2. Sources and Methods

In order to provide a quantitative mapping of Italian public enterprise we used a representative sample of Italian firms, the Imita.db dataset (Vasta 2006; http://imitadb.unisi.it)[5]. In the recorded firms we singled out the state-owned or state-controlled enterprises.[6] The information related to SOEs was gathered directly from the IRI and ENI archives: it is made of documents used to produce consolidated balance sheets, of the various yearbooks published by the two state holdings and of other sources of various kinds such as balance sheet accounts, board of directors reports, etc. Other classic records of Italian firms were also consulted, such as the *Taccuino dell'azionista*, the *Annuario delle aziende di credito e finanziarie*, the *Calepino dell'azionista* and the *Annuario R&S*.

The analysis focuses on 5 benchmark years (1936, 1952, 1960, 1972, 1983) of the Imita.db[7]. It

[5] For a thorough description of this data-set, see Vasta (2006). This source has already been extensively used for examining the general characteristics of Italian industry in the 20th century (Giannetti-Vasta 2003, 2005, 2006).
[6] A first quantitative analysis that uses Imita.db by comparing the dynamics of SOE to private firms in service sectors can be found in Toninelli-Vasta (2007).
[7] It was not always possible to employ data concerning the same year. Data from the Imita.db and those regarding IRI refer to 1952, while for ENI, whose first balance sheet was presented on 30 April 1954, we used the 1952 data for controlled firms as well as the 1954 ones for shareholdings, adding the ENI holding data both to the universe and to the firms of the group. Regarding the last two benchmark years, our data refer to two biennials (1971-2 and 1982-3): data on share capital refer to the years 1972 and 1983, while those on assets refer to 1971 and 1982.

identifies the shareholders of each individual firm in those years, reconstructing, in particular, those relating to state holdings (in other words, the three groups: IRI, ENI and EFIM), those held by the (sub-)holdings of each group (financial and/or operating),[8] and those of all the other firms of the group.[9] A list of the holdings is offered in Appendix 1.

Figure 1 shows an example, without any reference to time, of the general structure of the IRI group's shareholding. This model is also valid for the two other state holdings, even though they, especially EFIM, had a much simpler group structure. As we have stated, IRI directly entered in a few holding companies (financial or not) with a variable holding share, which was always above 50%; moreover, IRI held shares directly in other firms (X2, Y2). In addition, the holding companies held shares in many firms (X1, X2, X3, X4) with variable percentage: these (X1, X2, X4), in turn, could hold shares (Y1, Y2, Y3) in a chain structure which scaled down to a lower level (Z1, Z2, Z3). In some firms, the direct share of IRI was to be added to that of the holding company (X2), while, in some cases, the share structure was more complex and could involve up to 10 other subjects.

<Figure1>

The sources analyzed have enabled us to reconstruct most of the shares of the three state holdings, of their sub-holdings (financial or not), as well as of the most important firms at the lower levels (X1, X2, X3, X4). Even though the mapping takes a good part of our sample into account, it was not possible to reconstruct further levels of the control chain (Z1, Z2, Z3). Thus, the resulting map under-estimates the boundaries of Italian SOEs. The analysis was developed following the recent literature on corporate finance and corporate ownership (La Porta-Lopez-de-Silanes-Shleifer-Vishny 1999; for a survey, see Morck-Wolfenzon-Yeung 2005). It makes it possible to assess the different estimates of the degree and the size of control of the various groups according to two measurements: share capital and assets. In particular, it was decided to adopt four different criteria; *i*) *accounting*; *ii*) *effective control*; *iii*) *majority control*; *iv*) *pyramidal control*. We will now go into more detail, and describe the logic which inspired these criteria.

The *accounting* criterion attributes to the groups the size of control that emerges from an algebraic calculation of the capital shares. For example, in Figure 5.1, the group is granted control of 100% of X4 share capital, while, for the X2 firm, we have summed the percentage controlled directly by IRI (40%) to IRI's control share of the financial company (50.1%) times the financial holding company's controlling share (60%) of the X2 firm. The percentage of control attributed to the group reaches therefore a total of 70.06% (40% + 60% * 50.1%).

[8] In order to identify the shareholding structure of the various groups we have defined holding companies in a more rigorous way than that adopted in the three state holdings documents, as these reflect their internal routines. In particular, a holding company has been identified as a firm i) in which one of the three state holdings has a shareholding that is higher than 50%, and ii) which controls at least one other company by a percentage greater than 50%. The sector of activity of a firm allows us, moreover, to follow the terminology adopted, for example, at the IRI Archive and to distinguish between financial holding companies - which own and manage (or administer) other companies - and operating holding companies (not financial). The first ones pertain to Section J of the 2001 Ateco-Istat classification (now corresponding to section K of the Eurostat NACE classification of economic activities,), that is Financial and insurance activities. Such a definition, which may appear quite restrictive, guarantees that the firms that are to be referred to as holding companies are only those firms where state holdings were able to maintain the control of forward firms without direct shareholding.

[9] Therefore we consider group firms not only those companies that are defined as such in various state holdings' documents, but all those firms with stakes controlled by the state holding, by a holding company (financial or not), by another firm of the group or by any combination of them..

This is the main criterion employed in this first section and represents the benchmark to which the other estimates will be compared. Such a criterion offers a quantitative reconstruction of the share of each holder, which is the level of ownership of the diverse public groups, although it does not guarantee a realistic analysis of the level of state control of the Italian enterprise system. For this reason, we have searched for other criteria, diverging from a strictly accountable evaluation and thus broadening the quantitative approach.

The second criterion deals with the *effective* (actual) control: it attributes to the group the entire capital of a firm that is controlled at a level above 20%, while the capital of a firm that is controlled by a percentage of less than 20% is not considered. In other words, as recently suggested in the literature, one assumes that the control by the group of a percentage equal to 20% or more corresponds to the full control of the relative firm (La Porta-Lopez-de-Silanes-Shleifer-Vishny 1999; Bertrand-Mullainathan 2003).[10]

In order to offer a more realistic, and, at the same time, more prudent assessment of state control, we have experimented with two other criteria. The third criterion, *majority* control, attributes to the control of the group the total capital of a firm that is controlled by a percentage of more than 50%,[11] while it excludes the capital of a firm that is controlled with a percentage of equal or less than 50%. The logic of this criterion is similar to the previous one, but it avoids potential over-estimation. Moreover, it is appropriate to the particular features of the Italian ownership system.

Finally, the fourth criterion is aimed to ascertain how relevant to the public sector is a very widespread model of governance of Italian private groups: the *pyramidal* control. In order to obtain this, each group was attributed the capital of the firms controlled through a chain of shareholdings that was greater than 50%. It is appropriate to recall that this case differs from the previous ones because it does not proceed with a simple algebraic calculation, as it looks upon situations of repeated control. The logic behind the *pyramidal* control enables us to evaluate the weight of the public groups on all Italian firms with regard to the widespread practice of creating chains of firms able to guarantee the total control of the underlying firms, thus limiting the capital directly invested by the parent company. Figure 2 should clarify the logic behind the *pyramidal* control: it shows how one unit, in this case IRI, with just one stake (in the holding company) can act as the ultimate owner of all the firms in the chain, including those in which it has not invested directly.[12]

<Figure 2>

The methodology described above is applied to the firms which belong to the three state holdings registered in the Imita.db archive. However, beyond these firms, our sources enabled

---

[10] In a context in which ownership is widely dispersed (for example, public companies), the control of 20% of the capital of a firm would guarantee that the appointment of a number of directors would be sufficient to secure the actual control of an entire firm. However, it is well-known that ownership in Italy is far from being dispersed. Rinaldi-Vasta (2005) and Bargigli-Vasta (2006).

[11] This kind of control has already been described in the Berle and Means' (1932) pioneering work and is today often used in studies on corporate ownership.

[12] In other terms, Figure 5.2 shows how IRI, through a limited investment, can control the activities of the group through the majority of share capital and of voting rights of all the firms in the chain. For example, if the Z1 firm had a share capital equal to 100, in the case of a pyramidal structure (like that presented in Figure 3.2), financial commitment of IRI to control Z1 would be equal to 6.8%. In fact, IRI's direct commitment is limited to 51% of the capital of the sub-holding which back to back scales down to 26% of X1 (51% * 51%), to 13.3% of Y1 (51% * 26%); and, finally, to 6.8% of Z1 (51% * 13.3%). In the absence of a pyramidal structure, in order to gain control of Z1, IRI would have had to take a shareholding equal to 51% of Z1 share capital, maintaining therefore a financial outlay equal to 51 (51% of 100, share capital of Z1), much greater than the amount maintained under the hypothesis of pyramidal control (6.8).

us also to identify the firms belonging to the three groups, but which are not included in the Imita.db. This data set in fact includes the joint stock companies with a share capital greater than a specified threshold (which could change from year to year)[13]: Table 1 offers some details on the number of Italian SOEs included in the data-base.

<Table 1>

On the whole, over 2,500 firms have been identified, even if those used in the following analysis are about 1,200, which are the ones contained in the Imita.db. In the first four benchmark years, as shown in Table 1, the percentages of the total number of recorded firms accounted for by Imita.db are remarkable for IRI, ENI, and, in 1971, also for EFIM. The representativeness decreases in 1983, when only half of the detected firms are registered by the Imita.db. This could be the consequence either of the changes in the capital threshold criteria employed to include firms in the database, as it went from 100 million lire in 1973 to 1 billion in 1984, or of the increase in the number of controlled firms with other legal forms, or both.

3. The structure of IRI, ENI and EFIM groups

Figures 3a-c show the disaggregation, using the *accounting* criterion, by macro sector in terms of the number of firms, share capital and assets, at the same time illustrating how the structure of the three state holdings evolves as time goes by. Apart from the number of controlled firms and the percentage of controlled share capital, the analysis uses another proxy (assets) which is generally reputed as one of the most reliable for measuring the dimension of the firm (White 2002): in other terms, it is hypothesised that the control of the firm share corresponds to a similar control of its assets. In order to have a more uniform picture, which is less vulnerable to the occasional economic turmoil of a single benchmark year, our data provide the triennial averages for the following five periods: 1935-37, 1951-53, 1959-61, 1970-72, 1981-83.[14]

With regard to the IRI group, in the first place, the substantial stability of the weight of the sectors emerges, albeit with a tendency to polarisation through time. In the first year, the structure appears quite diversified, with the presence of some agricultural firms, mining firms, and a steady weight of utilities. After the 1962 nationalisation of electricity, the IRI structure becomes less diversified. The number of manufacturing firms fluctuates around 40% of the total, the service firms around 25%, while financial firms increase their weight reaching as much as about a third of the total in 1981-1983. Clearly, either in terms of share capital or in terms of assets, the weight of financial firms is much higher touching almost 75% of the total. In contrast, in the post-war era, the manufacturing firms holds about 20% of share capital and 15% of the assets of all the firms within the group.

<Figure 3a-c>

[13] Small joint stock companies and other firms with different company structures are therefore not included. Moreover, Italian firms with their headquarters abroad are also excluded. For further information, see Vasta (2006).

[14] We have considered those years which are adjacent to the benchmark ones, with the exception of 1972 and 1983, where we had to resort to the two previous years. Imita,db contains a complete time series of the balance sheets until 1971, and then for the period 1980-1982. With regard to ENI, we take into consideration the biennial 1954-55, the first one after the creation of the state holding.

The structure of the ENI group is less polarised and shows less stability at sector level.[15] Mining encompasses a limited number of firms but always scores the highest result with regard to capital, even though, in terms of assets, its weight is less significant. Manufacturing covers a considerable share (about 40% of the group): moreover, when the other two proxies (share capital and assets) are considered, the manufacturing character of ENI emerges, and is even greater than that of IRI. This was the consequence not only of the development of the industrial activities connected to the core business – oil production and refining, as well as chemical activities – but also of the diversification both into correlated activities, such as pipelines (*Saipem*), or pumps (*Nuovo Pignone*), and into un-correlated ones, such as textiles (*Lanerossi*).

The structure of the EFIM was strongly biased towards manufacturing, which accounted for more than two-thirds of the firms in the group. Such a group also includes quite a number of financial firms, but, once the share capital is considered, the situation is overturned: financial firms represented more than 80% of the total, while, if we consider assets, a substantial balance between manufacturing and financial firms emerges.

Furthermore the different holding share typologies described above (cf. § 2) have been analysed: the various combinations of control can be determined for each benchmark year, differentiating among manufacturing firms and firms in other sectors. These data provide, at a first approximation, interesting information concerning the governance adopted by the three public groups.

With regard to IRI, Table 2 shows the form of control changes remarkably over time.

<Table 2>

The growth of the group reflected mainly the development of the holding companies (financial or not). In 1936 the main link was direct IRI participation in 137 firms (50 manufacturing firms and 87 firms in other sectors), which were subsequently to be ascribed to the group. In 1952, the situation was already more fluent even though direct holding share was still the most common link (44 cases). Shareholding through financial companies was also widespread (19) as well as the joint shareholding by IRI and the financial holding companies (34). In the following years, the shareholding scheme becomes more complex: on the one hand, the number of firms in which IRI directly held shares decreased while the number of those whose share capital was controlled through financial holding-companies and other firms of the group increased; on the other hand, the multifaceted shareholding – direct, through financial holding companies and through firms at the second level – became quite frequent. In the period considered the group structure seemed to move towards a pyramidal system. In particular, from a holding with direct control over the manufacturing activities, IRI was transformed into an owner of the last resort controlling the financial holdings: these, in turn, guaranteed the control over the forward firms, both through indirect share-holding - with a chain that allowed the control of a firm with small investment - and through cross share-holding.

In the case of ENI, the forms of control are quite different, but here, too, as in IRI, they become more and more articulated over time. ENI's direct presence remains scarce as firms are mainly controlled by the holding companies and/or by the other firms of the group. From

[15] This latter aspect is, however, partially determined by the changing sectorial classification of some firms of the group, like, for example, AGIP. Imita.db, like other main datasets on firms, attributes the sectorial classification of a firm according to its prevailing activity. For many diversified firms, their prevailing activity could change over time; in this way significant percentages of share capital are moved from one sector to another.

its foundation in 1953, ENI sectors of activity were clearly separated into productive and commercial divisions, and each one was controlled at the top by a holding company. For instance, for most of the 1950s and 1960s, there were four divisions: upstream activities headed by *Agip Mineraria*, downstream by *Agip*, natural gas by *Snam*, chemicals by *Anic*. Then, the first two were merged into *Agip* but, in a short time, the number of holding companies began to increase (Sapelli et al. 1993). Furthermore, after 1983, the number of companies which held shares within the group as well as cross shares between the holding company and the other firms grew.

In contrast, EFIM's structure of control was much simpler: the state holding controlled mainly financial firms which, in turn, directly controlled other (mainly) manufacturing firms. EFIM kept direct control of almost all the financial firms and of the shares of the capital of the service firms; in 1982, the control of the capital of the manufacturing firms was almost entirely in the hands of the financial firms of the group.

4. The Boundaries

It is well-known that the size of the Italian SOEs was by no means insignificant, however its internal structure was too complex to allow, in the past, a systematic quantitative estimation of its dimensions. Some studies (Mortara 1976; Arrighetti-Stansfield-Virno 1982; Bognetti-Spagnolo 1992) have attempted to produce a mapping of SOEs, but only for short periods,[16] while studies on the long-term nature of governance fail to provide a systematic analysis of Italian SOEs (Aganin-Volpin 2005). Furthermore, the lack of quantitative information on the constellation of the Italian firms has precluded any estimate of the real weight of the SOEs in the economic activities of the country. The results presented here provide a first step in the direction of both the study of the evolution of Italian capitalism, and, in a broader perspective, of the comprehension of the nature of the governance of the Italian firms. This, in turn, would allow the relationship between governance and performance, the evolution of the financial structure and the economic growth in general to be brought to light.

Table 3 shows the number of companies whose shares were partly or totally controlled by the three groups and their weight *vis-à-vis* the total of Italian firms included in the Assonime directory. The percentage of the total of the share capital and assets controlled by the three groups, using the *accounting* criterion, is presented in Table 4, while in table 5 the same values will be calculated for the different segments of the manufacturing sector.

<Tables 3-4-5>

With regard to IRI, the overall percentages become even more significant as early as1936. Three years after its foundation, when IRI was still a temporary agency, its weight on the total capital of the Italian joint stock companies was 12.5% (Table 4)[17].

In the first two post war benchmark years (1952 and 1960) – in other words, during the *golden age* – the weight of IRI rose considerably, reaching values higher than 15%. In the period that followed, the percentage grew further: 21.2% in 1972 and 29.9% in 1983. The weight of ENI also tended to increase: it was about 3% of the total in the two benchmark years after its foundation, but it approached values of around 8% in the last two years. The

[16] Mortara (1976) refers to the period 1970-74, Arrighetti-Stanfield-Virno (1982) refer to 1976-78, while Bognetti-Spagnolo (1992) analyse the 1983-88 period.

[17] For a detailed disaggregation of the share capital of the manufacturing sector controlled by IRI, ENI and EFIM see Toninelli-Vasta (2010, table 3.5)

weight of EFIM, albeit lower, was not negligible, amounting to about 2.5% of the overall share capital of Italian firms. Actually since the 1960s these trends were affected by the State's additions to their endowment funds, the mechanism envisaged by the government to offset the "improper financial burdens" in their balance sheet (Rapporto Saraceno 1975), which however increasingly exposed SOEs to political pressures.

Therefore, when adding up the percentages of control of the three main state holdings in accordance with the structure indicated above (Figure 4), we can observe that the values continue to grow considerably during the period analyzed. Their value during the *golden age* amounts to about 20% of the share capital of Italian firms. In the early 1970s, this percentage rose to almost a third (32.1%), despite the *caveat* mentioned above, and reached 40% in the early 1980s.[18]

<Figure 4>

The disaggregated analysis at sector level shows that control by IRI is remarkable in the banking and financial sector, with percentages that oscillate from 22.5% in 1936 to about 50% of the total capital in the period following the Second World War. It is worthy of note that the transport sector also grew in size such that in 1983 IRI's weight exceeds 60% of the total capital of the firms (Toninelli-Vasta 2007). ENI controls a very high percentage of mining: in 1983 it accounted for almost the entire share capital of the sector. With regard to the utilities sector, the values are somehow misleading: in fact, the 1972 peak (49.6% for ENI: see table 5.4) was caused by the effects of the 1962 nationalization of electricity. A great part of the electrical activities was given to a new public body, *Ente Nazionale per l'Energia Elettrica* (ENEL) which was included in the Imita.db sample in 1972. However, in that year, ENEL had not yet been endowed with proper funds by the government. As a consequence, the overall capital values of the electrical companies was strongly undervalued.[19]

The wide impact of SOEs on the economy emerges from the aggregated data of the three groups: in a considerable number of sectors of primary importance - mining, financial, transport, utilities - the weight of SOEs is clear and their presence broadly diffused, and is, no matter how it is viewed, significantly bigger than indicated by the fragmentary estimates previously available.

Focus will now be directed to the manufacturing sector, in order to analyze, with the help of Table 5, the weight of the three public groups. All three groups show a strong and growing specialization in manufacturing. Their total weight grew from 7.9% in 1936, to 12.3% in 1972. Clearly, in 1936, this weight depended entirely on IRI, which was joined in the 1950s by ENI, and then, in the last two benchmark years, also by EFIM. Here, too, the year 1983 registers a notable expansion: the combined weight of the three groups rises above a quarter of the total. The data disaggregated by sector highlight how the control of the three groups over the whole period was concentrated in the *heavy* sectors, albeit with an alternate trend.

[18] It must be underlined, as already anticipated in footnote 4, that the representativeness of the Imita.db in the universe of Italian joint stock companies declines in the final benchmark year, 1983. The weight of the three public groups on the Imita.db and on the Italian joint stock companies almost coincides with the first four benchmark years, when the Imita.db represented always more than 90% of the total. Compared to the values presented in Table 4, in fact, the weight of the three public groups in the Italian joint stock companies is 11.5% in 1936, 22.1% in 1952-54, 17.9% in 1960 and 29.7% in 1972. In 1983, instead, there is a large gap: the weight of all three groups on the Imita.db climbs up to 40.2%, while the weight on the joint stock company universe is equal to 33.5%.

[19] In our analysis the endowment funds given by governments are considered equivalent to the share capital.

IRI is strong in the steel industry and in the transport equipment sector. In steel, in the first three benchmark years, the IRI share oscillates around 25%, reaching 55.8% in 1983; in transport equipment, the share increases from 12.2% in 1936 to 37.4% in 1972, attaining 28.3% in 1983. A significant presence can also be found in the machinery and equipment industry, especially in the first years, and also in the electrical equipment industry.

ENI is concentrated in the energy sector, with a significant weight in the oil sector and, especially in 1972 and 1983, in chemicals. In the last two years analyzed, ENI underwent a process of unexpected diversification, as can be seen by looking at the not unsubstantial percentage in the textile industry, where ENI accounted for 8.8% of the total of capital of Italian firms in 1983.

The smallest of the three state holdings, EFIM, was less specialized. Its presence, in general rather low, was, however, well distributed over almost all the *heavy* sectors and especially in the machinery equipment and transport equipment..

Following the hypothesis, advanced earlier, that the control of the capital share of the firm corresponds precisely to the control share of the assets,[20] a further analysis of the weight of the three state holdings within the Italian system of firms can be provided precisely by using assets. Their estimates are shown in Tables 6 and 7 which respectively concern the assets that were both directly and indirectly controlled by IRI, ENI and EFIM of all sectors as well as the manufacturing sector alone.

<Tables 6-7>

The weight of the three public groups in the overall economic activities (Table 6) is quite stable, even in comparison to what was observed above with regard to the share of capital (Figure 4). In the first four benchmark years, the overall weight oscillated around 20%, with a peak in 1981 of 26%. The weight of IRI remains stable, while ENI presents steadily growing values. A more precise analysis of the data is beyond the aim of this study: however, it is suffice to notice that, generally speaking, our results are quite different to those observed using share capital. For instance, the difference between the two proxies in 1972 can, at least partly, be explained by the above-mentioned anomalous trend of the capital share in the electrical sector. Nevertheless, a few interesting aspects already emerge, such as the major stability of the weight of assets compared to what was observed for share capital. Moreover, even some sectorial differences due to specific features of SOEs can be identified. In the financial sector, for example, with the exception of the year 1936, when IRI was controlling numerous banks, the financial firms prevailed, serving as sub-holdings for the three state holdings. Compared to banks and insurance firms, these companies had smaller assets, and thus their values under state control result as smaller in terms of assets compared to those seen for share capital. Other sectors, such as transport or even mining show a post World War II similar trend between the two proxies. The same can also be observed in the manufacturing sector as well as in the most of the sub-sectors of which it was composed.

5. Forms of control and boundaries

In order to assess the “real” weight of public enterprise, in Table 8 we present the three different models of the groups previously discussed, that is effective control, *majority* control and *pyramidal* control.

[20] The Imita.db archive does not include yet the balance statements of the real estate firms nor, as a consequence, their assets values.

As for IRI, the *majority* control is prevalent for all the benchmark years. Moreover, it shows fairly clearly that manifold minority shareholdings are quite numerous, especially in 1936. In the following years, shareholdings constituting *effective* control (between 20 and 50%) became more numerous, except for the last benchmark year. The ENI group presents a limited number of small shareholdings throughout the period, but it has a considerable number of shareholdings that allow *effective* control, especially in 1952 and 1972; this, as in the case of IRI, was considerably reduced in the last benchmark year. The same trend is recorded for EFIM, which, in 1972, owned many shareholdings (48.4% of the total) which allowed *effective* control. As in the other state holdings, such a percentage diminished considerably in 1983, thus favoring majority shareholdings. Therefore, in the central phase of the period (corresponding to the benchmark years – 1952/4, 1960 and 1972), the three state holdings took charge of a significant percentage of the shareholdings that allowed them to control the firms without owning the majority of their share capital. The 1983 data show that, in the early 1980s, this phenomenon was clearly reduced.

<Table 8>

We proceeded then to calculate their control capacity according to the previously identified criteria: this provides an estimate of the real weight of the public groups on the Italian joint stock companies. In the light of this, by adopting the *accounting* criterion, these estimates were referred to the control of share capital. We have assumed that, for all the firms with *effective* control, the whole capital could, in fact, be entirely attributed to state control. In Figure 5, the percentages have been calculated considering 20% to be the inferior threshold for *effective* control: this considerably broadens the *boundaries* of Italian SOEs in a way that extensively widens their dimensions. With regard to IRI, for example, it becomes evident how the *boundaries* of the IRI group appear significantly wider than previously imagined. In particular, for the period between 1952 and 1972, the *boundaries* reconstructed on the basis of *effective* control are much larger in comparison to the estimates made upon the basis of the *accounting* criterion. In the central years, at the very least, the relative weight of the share capital controlled by a value of between 20 and 50% might be large enough to compensate for the value of the share capital of the minority shareholdings that were not considered by using the *effective* control criterion. In contrast, in the case of the other two groups (ENI and EFIM), the increase of the *effective* control compared to the *accounting* control is minor, although, in terms of proportions, it, nevertheless, remains significant, as seen in Figure 5.

In addition, we have also calculated the degree of control following the *majority* criterion, obtaining only marginal differences in comparison to the *accounting* values.

Finally, the growth of the weight of the three groups when a *pyramidal* control criterion is adopted, if compared to the weight calculated following the *accounting* criterion, is presented in Figure 6. On this basis, we proceeded to sum up the entire capital of the firms controlled through a chain of shareholdings above 50%. This means that, in situations of repeated control, both direct or indirect, we did not consider the *accounting* capital value but the entire capital of that firm. The increase of the control of the firm, in this case, highlights different trends for the three groups. With regard to the IRI group, its *boundaries* again emerge significantly wider than those defined by the *accounting* criterion, although they are inferior to those obtained using the *effective* criterion. For the other two groups, the *pyramidal* criterion shows the opposite trend: we can notice narrower boundaries than those resulting from the *accounting* criterion for the whole period, with the exception of ENI in the year 1960. These results highlight the different strategies adopted by the three state holdings. On the one hand, IRI is characterized by a strongly pyramidal structure, with permanent indirect and cross shareholdings (cf. Table 2), which allowed it to control a vast number of firms. On the other, the other two state holdings show a weaker structure and a more limited (ENI), or even almost completely absent (EFIM), chain of control.

<Figures 5-6>

6. The regional distribution

6.1. Number and size distribution. A further step towards the comprehension of Italian SOEs dynamics and contribution to the country's economy has been done by breaking down the national series into disaggregate categories, representing four regional macro-areas (North-West, North-East, Central, South and Islands). Each of them has been in turn further subdivided according to the country's administrative regional structure (that is 19 regions). Such analysis has been performed with regard, first, to number of firms and assets and, second, to their respective shares as compared to the IMITA universe. For this exercise we have preferred the data reconstructed through the *effective control* criteria, which is likely to give a better idea of the real dimension of the phenomenon.

Before getting more deeply into the analysis a caveat has to be introduced. SOEs regional distribution data often involve some unavoidable bias, that is an abnormal concentration in the Latium region, where the capital is located: in fact in Rome not only IRI's, ENI's and EFIM's headquarters were located, but also a fair number of holding and operating companies. Such disproportion does not concern so much the absolute numbers as the size of assets. In fact with respect to the first only in the 1952-54 benchmark, Latium shows an abnormal value: 35.3% of the country's total. In the other four benchmark years (1936, 1960, 1972, 1983) the results (with values between 21.8% and 27%) are not much different from Lombardy's (20.0% to 25.8%. see table 9), But if we turn to the assets data, the share of the Rome region jumps to much higher values, with a peak in 1972 (45.1% of the total assets of Italian SOEs) towering over a set of values around 40%. Such region alone attracted Central Italy's almost entire investment in public firms. Lombardy was still the second more concentrated region, even though at much lower level (between 22.8% and 27.3% of total assets).

< Table 9 >

In contrast to Latium, Lombardy's position in the ranking is to be explained by the area's high level of industrialization. Such a position in the public sector quite contradicts the conventional wisdom tending to contrast Milan, the "moral capital" and the core of the private capitalism, with very few public undertakings, with the political capital Rome, the core of state capitalism in Italy.

Disaggregating SOEs series for macro-areas yields quite clear results. The North-West turns out as the region with the largest share with regard both to number and assets. Here is where the so called "industrial triangle" (Piedmont, Liguria and Lombardy) is located and where a good part of the heavy industry was rescued by the State during the Depression years. Emblematic is the case of Liguria which ranks third among the regions most affected by State intervention (with a 23% share in 1936) and where the shipbuilding industry was deeply involved in the crisis of the sector which persisted throughout the war and its aftermath: not by accident within the North-East area, where all in all state intervention was quite feeble, only Friuli- Venezia Giulia stands out with a 4.5% share of public assets in 1952-4.

Looking then at the internal dynamics of the numbers, we can note that three of the four macro-areas do not show a clear trend: as for number, North-West is characterized by a stationary tendency until the 1960s, followed by a decline which in reality seems to mask a capitalization of assets, as portrayed by its U-shape behavior; the North-East shows very irregular trends both in number and assets; the same can be said of Central Italy, even though with a more fluctuating behavior as far as numbers are concerned. Only the South shows a neat tendency to grow both in number and assets: here between 1936 and 1972 the number of public undertakings increases from 9 to 72, followed by a small decline in the next decade: this corresponds to an increase of 12 percentage points (from 10,1 to 23,1). As for assets this meant a growth from an almost non-existent 0,9% in 1936 to 5,0% in 1981, thus marking quite clearly the change of economic policy towards the South since the post-war period. ENI and IRI were among the main instruments through which the government tried to pursue the convergence of the southern regions, especially Campania and Sicily (which received the greatest help), towards the North.

6.2 Public and private firms. The trend just illustrated is reinforced by the examination of table 10, which measure the weight of public firms over the IMITA universe in each region. As a matter of fact these two tables show very clearly that both number and assets of SOEs not only kept growing in the South, but also grew at a faster rate than private undertakings.

<Table 10>

The share of public firms in the total number of firms registered by IMITA in the South increased significantly over the entire period, raising from 3.5% in 1936 to 12.2% in 1983, while the relative assets share grew even more (from 2.3% to 18.4%).

Here too the two above mentioned regions (Campania and Sicily) most benefited from State intervention: up to 1960 they were in practice the only southern regions characterized by some presence of SOEs (although with values not comparable to the North-East and Latium); then in the following two benchmark years public undertakings gained an important role also in the other regions. For instance in 1971 the six SOEs registered in Basilicata represented almost one third of the number of the companies recorded in IMITA and to 9.1 % of the region total assets: in the same year SOEs' assets reached in Apulia 16.1% of the total and in Abruzzo-Molise 29.3%.

However something else comes out strongly from these two tables: it is the overwhelming direct presence of the State in the economic activities of Liguria and Friuli-Venezia Giulia, which confirms what was already suggested about the increasing weight of SOEs in heavy industry, particularly in shipbuilding, which is a capital intensive sector *par excellence*. In Liguria the share of SOEs assets fluctuated between 43.2% and 51% up to the Seventies, to break then the 70% level in 1981; in Friuli it peaked at 51.5 in 1952, to decrease slowly thereafter.

In the end a further confirmation concerns Lombardy: in three of the five benchmark years the share of public assets was more than one fifth of total assets, with a peak of 27% in 1981. This value, which was likely to be more the result of private disinvestment than of real expansion of the public sector, concurred with the Liguria abnormal value to push in 1981 the North-West percentage up to one third of the total.

7. *Conclusion*s

The initial hypotheses of our research was that state ownership has been characterised over time by an accentuated variability, which was determined by a continuous stream of acquisitions, mergers and dismissals. Such variability, together with the scarce availability of quantitative information on the structure of the systems of Italian firms, prevented us form identifying the boundaries of Italian SOE.

The results presented in this study can be summarised as follows:

- The weight of the three public groups, measured by two standard proxies, such as share capital and assets of all the Italian corporates, is very significant and shows growth, which, for some sectors (mining, transport, finance and utilities) reached quite remarkable percentages of the total: this is particularly true with regard to the weight that the three state holdings had on the manufacturing sector and especially on the *heavy* sectors (such as the steel industry, transport equipment and the oil industry).
- The group structure of the three state holdings is quite complex, both with regard to the large number of firms distributed all over the sectors of the economy and because of the high level of complexity of the forms of control. This complexity increased over time, together with the enlargement of the *boundaries* of public enterprise.
- The three groups show a growing tendency to polarise their activities, even though IRI tends to maintain a robust multi-sectorial structure. Moreover, quite a clear manufacturing specialisation emerged in the three groups over time.
- The estimates presented – namely, the outcome of the different forms of control of the subordinate firms which have been hypothesised - have highlighted how public control can, at times, expand considerably (getting as high as 60%), when criteria different from the *accounting* one are employed.
- With regard to the forms of control of the groups, some significant differences have emerged. For example, IRI managed an increasing number of shareholdings through financial holding companies, while ENI almost always operated through non-financial holding companies. Furthermore, IRI directly handled a considerable amount of shareholdings: in the case of ENI, this was quite unusual.
- As for the regional distribution two conclusions deserve special attention here, as they only partly confirm the traditional picture offered by historiography. They confirm the growing weight of the state in the South, which seems to compensate for the insufficient investment of private groups and thereby balance, at least partially, the original concentration of the state's efforts in the northern and central regions. On the other hand, the research shows more innovative results with regard to the enduring presence of the state in the Northern areas, particularly in Lombardy, where the bulk of private initiatives was concentrated.

This paper represents, therefore, a basic step towards the construction of a quantitative picture of Italian public enterprise. Although it is only an initial analysis, this study has already produced quite important results for the economic history of Italy, as shown, for instance, by Figure 4. The level of the direct state intervention in the economy reconstructed here has not even been approximated by previous studies: thus, this new evidence on the subject can be employed as a useful basis for further analyses

References

Affinito, M., de Cecco, M., Dringoli A.
2000 *Le privatizzazioni nell'industria manifatturiera italiana,* Roma, Donzelli editore.

Aganin, A., Volpin, P.
2005 *The History of Corporate Ownership in Italy,* in R. Morck (ed.), *A History of Corporate Governance around the World***,** Chicago, UCP, pp. 325-361.

Aharoni, Y.
2000 *The Performance of State-Owned Enterprises*, in P.A. Toninelli (ed.), *The Rise and the Fall of State-Owned in the Western World*, Cambridge, Cambridge University Press, pp. 49-72.

Amatori, F. 2000, "Beyond state and market: Italy's futile search for a third way" in Toninelli 2000

Amatori, F., Colli, A.
1999 *Impresa e industria in Italia dall'Unità ad oggi*, Venice, Marsilio.

Amsden, A.
2001 *The Rise of the Rest: challenges to the West from late-industrializing economies*, Oxford, Oxford University Press.

Arrighetti, A., Stansfield, G., Virno, C.
1982 *Le partecipazioni azionarie pubbliche. Un'analisi strutturale*, Milan, Franco Angeli-Ciriec.

Balconi, M., Orsenigo, L., Toninelli, P.A.
1995 *Tra gerarchie politiche e mercato. Il caso delle imprese pubbliche in Italia (acciaio e petrolio),* in M. Magatti (ed.), *Potere, gerarchie, mercati. Storici, economisti e sociologi a confronto*, Bologna, Il Mulino, pp. 299-338.

Barca, F., Trento, S.
1997 *La parabola delle partecipazioni statali: una missione tradita*, in F. Barca (ed.), *Storia del capitalismo italiano dal dopoguerra ad oggi,* Rome, Donzelli, pp. 186-236.

Bargigli, L., Vasta, M.
2006 *Ownership and control in Italian capitalism (1911-1972)*, in R. Giannetti, M. Vasta (eds), *Evolution of Italian Enterprises in the 20th Century,* Heidelberg-New York, Physica-Verlag, pp. 111-152.

Barucci, E., Pierobon F.
2007 *Le privatizzazioni in Italia,* Rome, Carocci.

Berle, A.A., Means, G.C.
1932 *The Modern Corporation and Private Property*, New York, Macmillan.

Bertrand, M., Mullainathan, S.
2003 *Pyramids*, «Journal of the European Economic Association», 1 (2-3), pp.478-483.

Bertini G.
1997 *L'Ifap. Ape operaia o fuoco della formazione manageriale degli ani Sessanta?* in G.Gemelli (ed.), *Scuole di management. Origini e primi sviluppi delle business schools in Italia,* Bologna, Il Mulino.

Birdsall, N. Nellis, J.
2003 *Winners and Losers: Assessing the distributional impact of privatisation*, «World Development» 31 (10), pp. 1617-1633.

Bognetti, G., Spagnolo, C.
1992 *Le riforme mancate. L'intervento pubblico tra vincoli ed efficienza (1983-1988)*, Milan, Franco Angeli-Ciriec.

Cavazza, F., Graubard, S.
1972 (eds) *Il caso italiano*, Milan, Garzanti.

Chick, M., Lanthier, P.
2004 *Editorial. The international experience of nationalization and denationalization,* «Entreprises et Histoire», 37, December, pp. 6-8.

Clifton, J., Comin, F., Díaz Fuentes, D.
2003 *Privatization in the European Union : Public Enterprise and Integration,* Dordrecht, Kluwer.
2004 *Nationalisation, denationalisation and European integration: changing contexts, unfinished debates,* «Entreprises et Histoire», 37, pp. 24-52.

de Cecco, M.
2000 *L'economia di Lucignolo: opportunità e vincoli dello sviluppo italiano,* Rome, Donzelli.

Feigenbaum, H., Henig, J., Hamnett, C.
1998 *Shrinking the state. The political underpinnings of privatization*, Cambridge-New York, Cambridge University Press, 1988.

Gerschenkron, A.
1962 *Economic Backwardness in Historical Perspective,* Cambridge (Mass.), Harvard University Press.

Giannetti, R., Pastorelli, S.
2007 *Il sistema nazionale di innovazione negli anni Cinquanta e Sessanta*, in C. Antonelli, F. Barbiellini Amidei, R. Giannetti, M. Gomellini, S. Pastorelli and M. Pianta, *Innovazione tecnologica e sviluppo industriale nel secondo dopoguerra*, Rome and Bari: Laterza: 595-811.

Giannetti, R., Vasta, M.
2003 (eds) *L'impresa industriale nel Novecento*, Bologna, Il Mulino.
2005 *Storia dell'impresa industriale italiana*, Bologna, Il Mulino.
2006 (eds) *Evolution of Italian Enterprises in the 20th century*, Heidelberg-New York, Physica-Verlag.

La Porta, R., Lopez De Silanes, F. Shleifer, A.
1999 *Corporate Ownership around The World*, «The Journal of Finance», 54 (2), pp. 471-517.

Megginson W., Netter, J.
2001 *From State to Market: A Survey of Empirical Studies On Privatization,* «Journal of Economic Literature» 39 (2), pp. 321-389

Millward, R.
2005 *Private and Public Enterprises in Europe: Energy, Telecommunications and Transport*, 1830-1990, New York, CUP.

Morck R., Wolfenzon D., Yeung B.

2005 *Corporate Governance, Economic Entrenchment, and Growth*, «Journal of Economic Literature», vol. 43 (3), pp, 655-720.

Mortara, A.
1976 (ed.), *Il settore pubblico dell'economia. Dati e notizie 1970-1974*, Milan, Franco Angeli-Ciriec.
Osti, G.L.
1993 *L'industria di stato dall'ascesa al degrado: trent'anni nel gruppo Finsider. Conversazioni con Ruggero Ranieri*, Bologna, Il Mulino.

Petri, R.
2002 *Storia economica d'Italia. Dalla Grande guerra al miracolo economico (1918-1963)*, Bologna, Il Mulino.

Posner, M., Woolf, S.
1967 *Italian Public Enterprise*, Cambridge (Mass.), Cambridge University Press.

Rapporto Marsan
c.1992 *L'Istituto per la Ricostruzione Industriale - I.R.I. -. Elementi per la sua storia dalle origini al 1982*, Rome, *mimeo.*

Rapporto Saraceno (Ministero dell'Industria e del Commercio),
1956 *L'Istituto per la Ricostruzione Industriale - IRI, origini, ordinamenti e attività svolta*, Turin, UTET.

Ricciardi, F.
2003 *Lezioni dall'America. L'IRI, il piano Marshall e lo "scambio" di esperti con gli Stati Uniti durante gli anni Cinquanta*, in "Imprese e Storia", 27, pp. 33-66.

Rinaldi, A., Vasta, M.
2005 *The structure of Italian capitalism, 1952-1972: new evidence using the interlocking directorates technique*, «Financial History Review», 12 (2), pp. 173-198.

Rodrick, D.
2004 *Rethinking Growth Policies in the Developing World*, The Luca d'Agliano Lecture for 2004, October 2004 at http://ksghome.harvard.edu/~drodrik/Luca_d_agliano_lecture_oct_2004.pdf

Saletnich E.
1999 *Le politiche e gli indirizzi formativi dell'IRI negli anni del suo consolidamento,* «Le carte e la storia» 5 (1), pp. 160-89.

Sapelli, G., Orsenigo, L., Toninelli, P.A., Corduas, C.
1993 *Nascita e trasformazione d'impresa. Storia dell'Agip Petroli*,Bologna, Il Mulino.

Sartori, R.
1957 *Le partecipazioni economiche dello Stato*, Rome, Studium.

Shleifer, A.
1998 *State versus Private Ownership*, «The Journal of Economic Perspectives», 12 (4), pp. 133-150.

Short, R.P.
1984 *The role of public enterprises: an International statistical comparison* , in R.H. Floyd, C.S. Gray, R.P. Short (eds), *Public enterprises in mixed economies: some macroeconomic aspects*, Washington D.C., IMF, pp. 110-181.

Stiglitz, J.
1989 *The economic role of the state,* Oxford, Basil Blackwell.
2002 *La globalizzazione e suoi oppositori,*Turin, Einaudi.
2006 *Economia e informazione,* Rome, Datanews.

Toninelli, P.A.
2000a (ed.) *The Rise and the Fall of State-Owned Enterprise in the Western World*, Cambridge, Cambridge University Press.
2000b *The rise and fall of public enterprise: the framework,* in Toninelli , P.A. (ed.) *The Rise and the Fall of State-Owned Enterprise in the Western World,* Cambridge, Cambridge University Press, pp. 3-24.
2004 *Between State and market. The parabola of Italian public enterprise in the 20th century,* in "Entreprise et histoire", n. 37, déc. 2004, pp. 53-74 (ma 2005)

Toninelli, P.A., Vasta, M.,
2007 *Public enterprise and the rise of services: networks and performance of Italian big business,* in J. Clifton, F. Comín, D. Díaz Fuentes (eds), *Transforming Public Enterprise in Europe and North America. Networks, Integration and Transnationalisation,* Houndmills, Palgrave MacMillan, pp. 44-61.
2010 *"State owned enterprises (1936-1983)"* in A Colli e M. Vasta, eds. *Forms of Italian enterprises,* London, Elgar

Van der Wee, H.
1989 *L'economia mondiale tra crisi e benessere,* Milan, Hoepli.

Vasta, M.
2006c *Appendix: the source and the Imita.db dataset,* in R. Giannetti, M. Vasta (eds), *Evolution of Italian Enterprises in the 20th Century,* Heidelberg-New York, Physica-Verlag, pp. 269-273.

White, L.J.
2002 *Trends in Aggregate Concentration in the United States,* in «Journal of Economic Perspectives», vol. 16, n. 4, pp. 137-160.

World Bank
1995 *Bureaucrats in business: the economics and politics of government ownership.* A World Bank Policy Research Report, New York-Oxford, OUP.

Zanetti, G. Alzona, G.,
1998 *Capire le privatizzazioni,* Bologna, Il Mulino.

Figure 1. Example of the structure of the IRI group

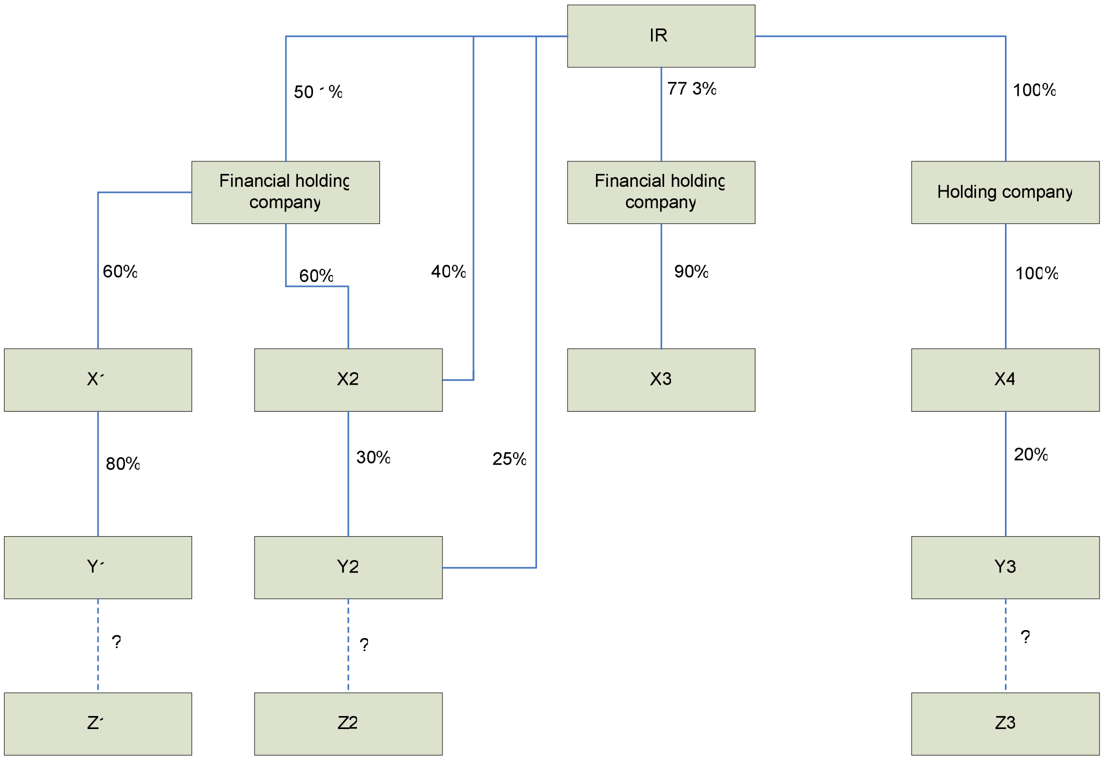

Figure 2. Example of pyramidal control within the IRI group

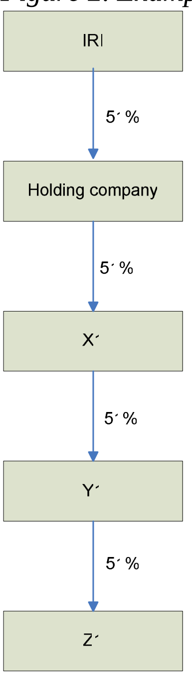

Figure 3.a Disaggregation of IRI by macro-sector – number, share capital and assets (%)

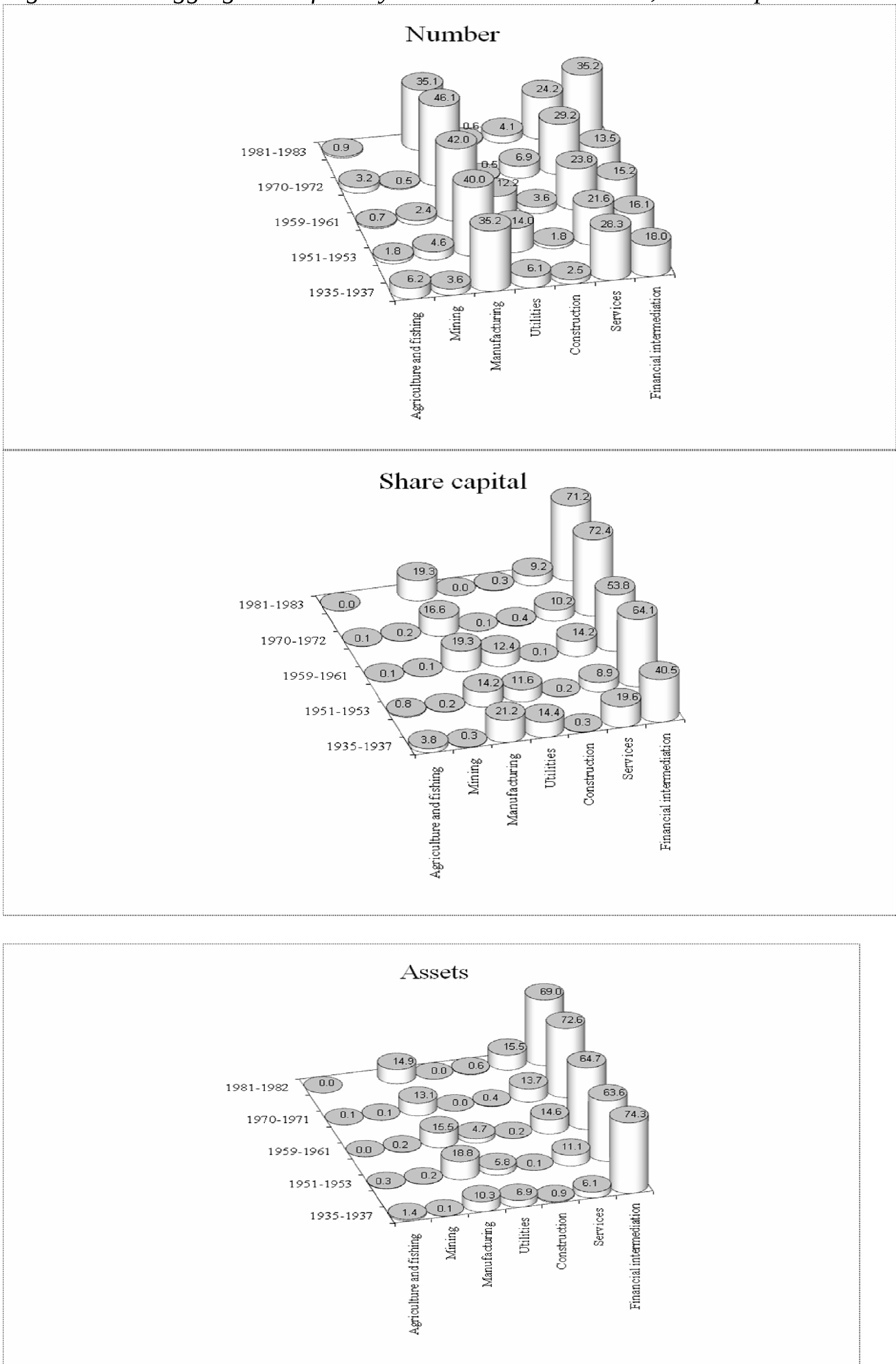

Figure 3.b Disaggregation of ENI by macro-sector – number, share capital and assets (%)

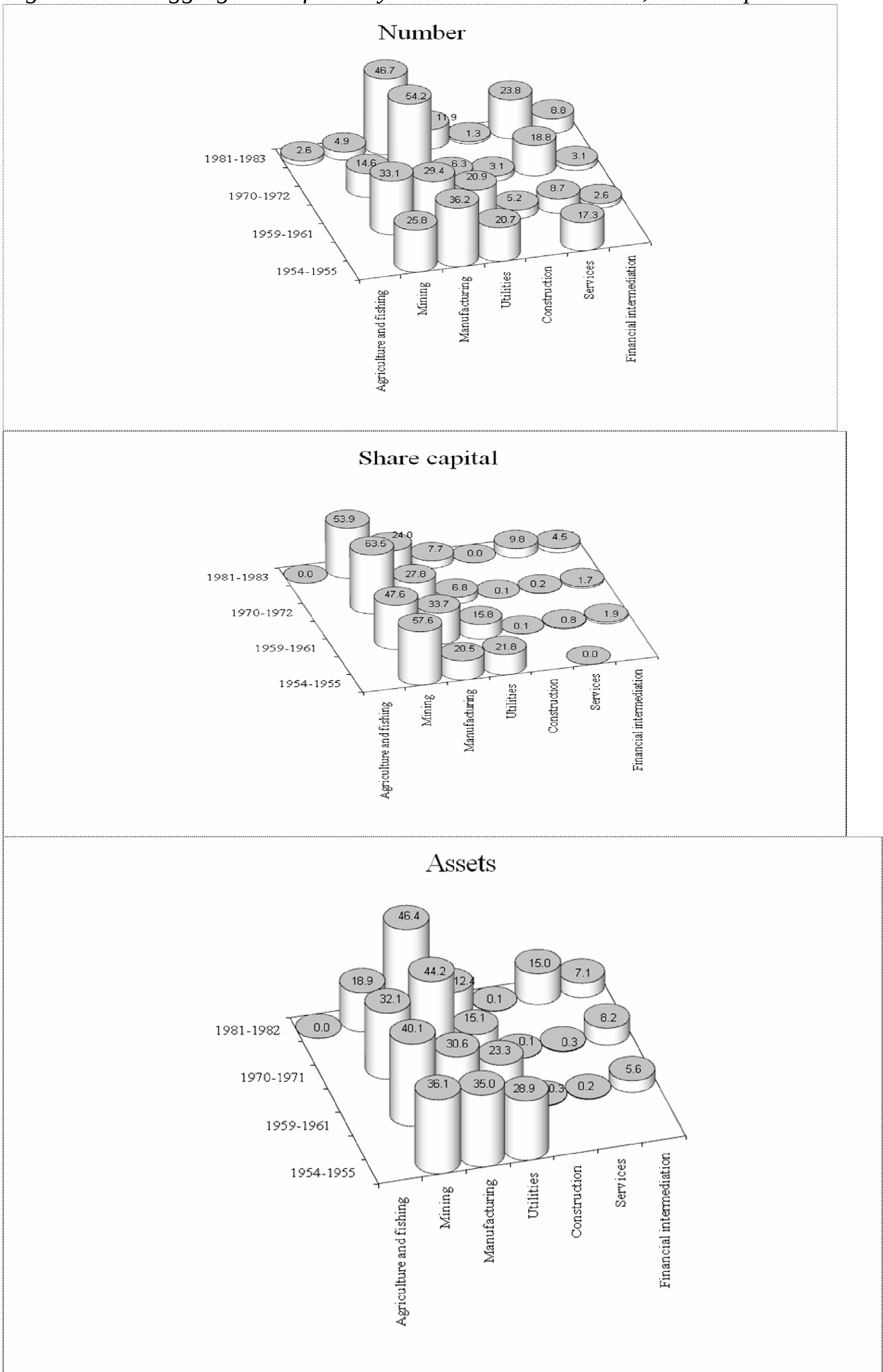

Figure 3.c Disaggregation of EFIM by macro-sector – number, share capital and assets (%)

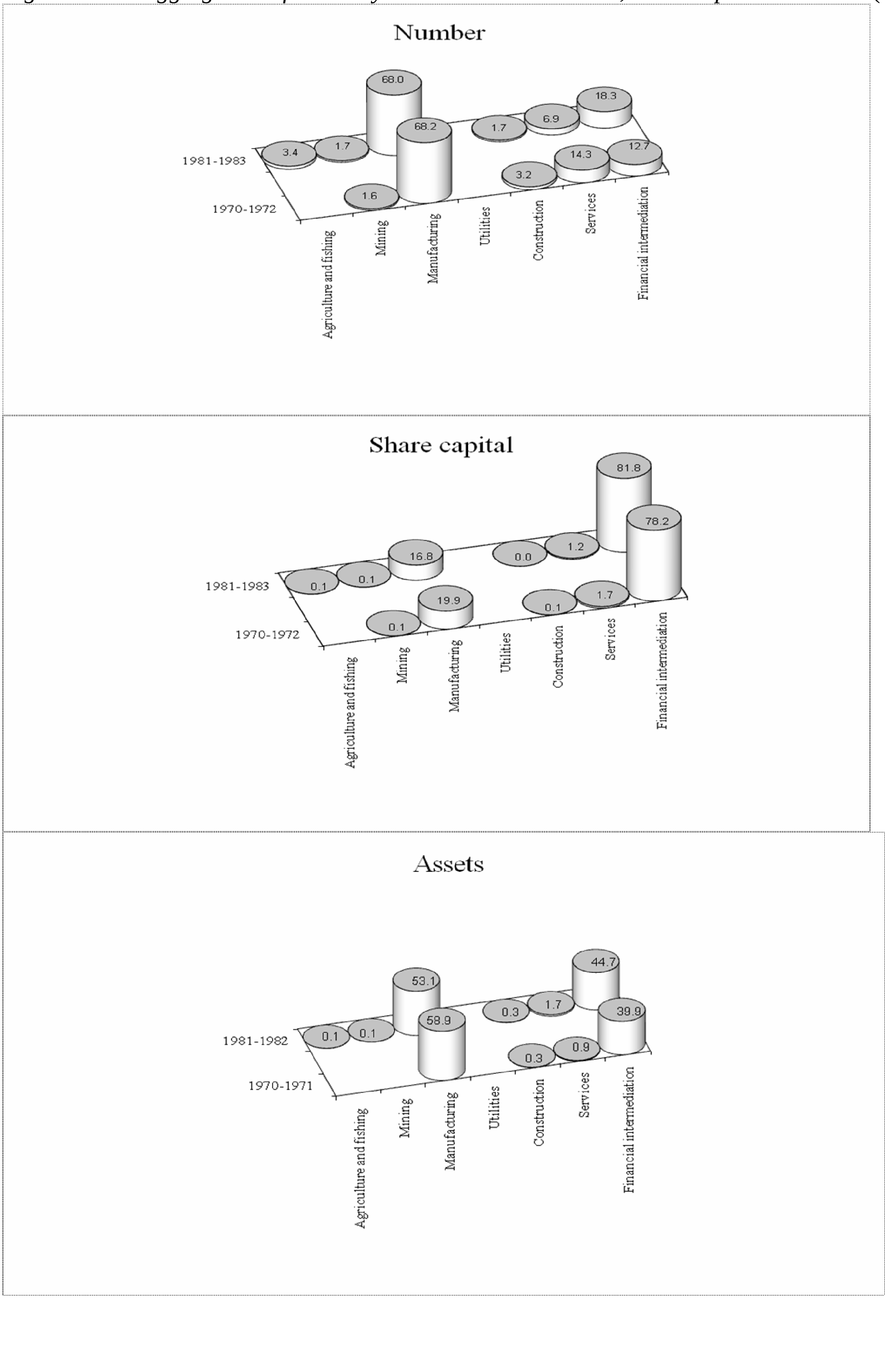

Figure 4. Weight of share capital and assets of firms held by IRI, ENI and EFIM on Imita.db and on Italian joint stock company

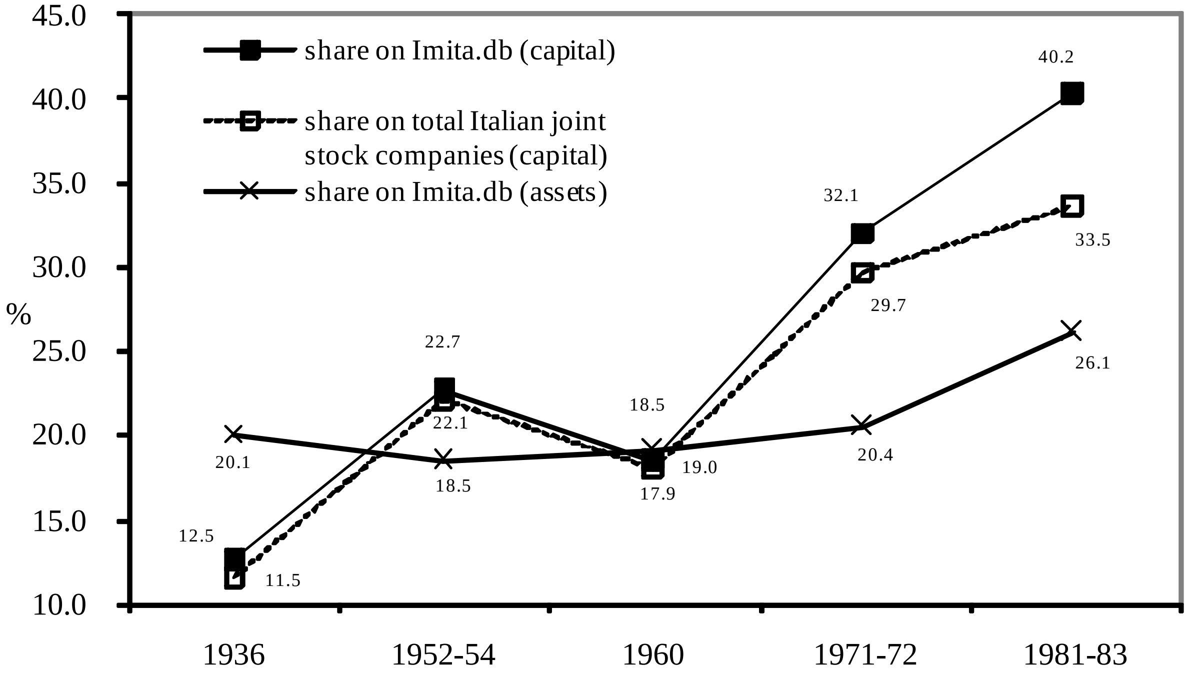

Figure 5. Control under the effective criterion in comparison to the accounting one

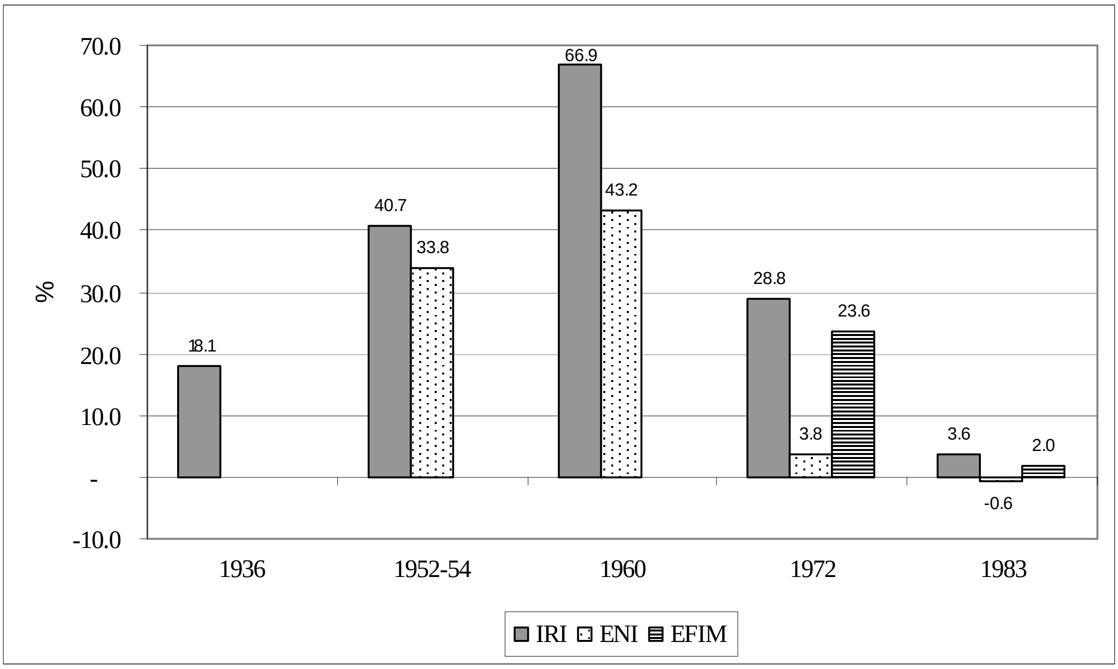

Figure. 6. Control under the pyramidal criterion in comparison to the accounting one

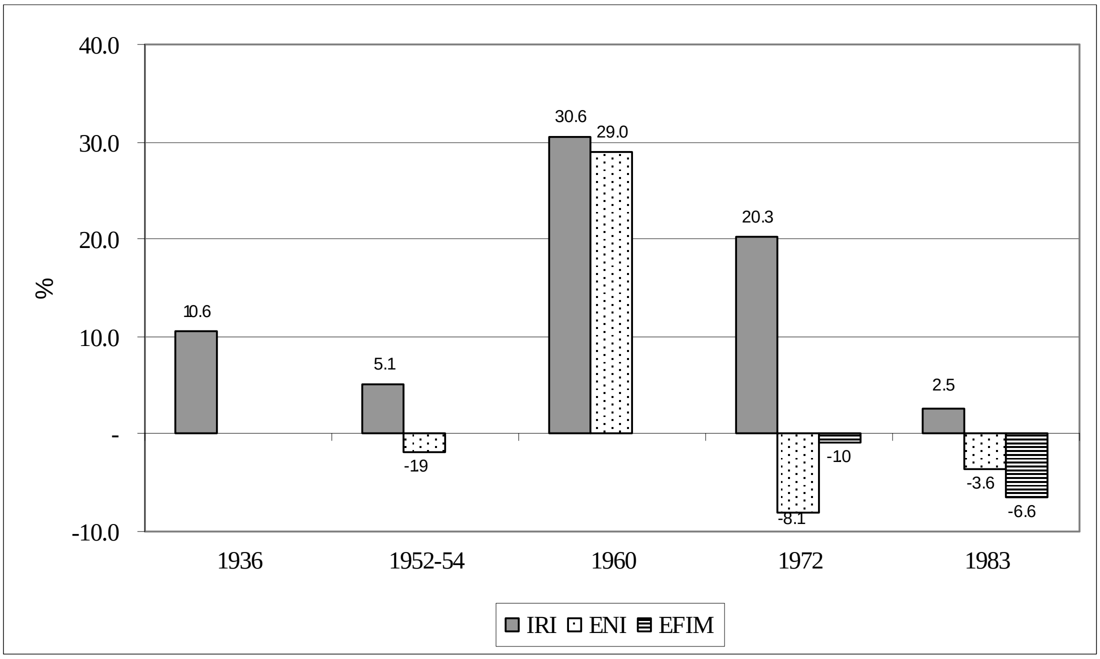

Table 1. *Number of firms included in the census for the three state-owned groups and Imita.db*

Years	Italian firms corresponding with Imita.db (a)	Italian firms not corresponding with Imita.db (b)	Total firms (d)	Italian firms corresponding with Imita.db on total Italian firms (a)/(a+b)
IRI				
1936	148	32	180	82.2
1952	120	35	155	77.4
1960	147	54	201	73.1
1972	201	53	254	79.1
1983	230	362	592	38.9
Total	846	536	1,382	61.2
ENI				
1936				
1954	28	7	35	80.0
1960	40	11	51	78.4
1972	63	32	95	66.3
1983	78	95	173	45.1
Total	209	145	354	59.0
EFIM				
1936				
1952				
1960				
1972	62	21	83	74.7
1983	59	47	106	55.7
Total	121	68	189	64.0
IRI+ENI+EFIM				
1936	148	32	180	82.2
1952-54	148	42	190	77.9
1960	187	65	252	74.2
1972	326	106	432	75.5
1983	367	504	871	42.1
Total	1,176	749	1925	61.1

Table 2. *IRI, ENI and EFIM by typologies of shareholder(number of firms*)

IRI group*	1936	1952	1960	1972	1983
IRI direct (1)	137	44	28	16	16
Holding companies (2)			1	4	4
Financial holding companies (3)	6	19	42	80	94
Other group firms (4)		18	32	64	61
(1) + (3)	4	34	26	12	12
(3) + (4)			10	11	27
Other		4	7	13	15
Total	147	119	146	200	229
ENI group**					
ENI direct (1)		2	3	3	4
Holding companies (2)		12	22	32	12
Financial holding companies (3)					2
Other group firms (4)		9	6	16	19
(2) + (3)					12
(2) + (4)		1	7	8	7
Other		3	1	3	21
Total		27	39	62	77
EFIM group***					
EFIM direct (1)				6	8
Financial holding companies (2)				33	50
Other group firms (3)				22	
Total				61	58

*excluded state holding IRI; ** excluded state holding ENI; *** excluded state holding EFIM.

Table 3. *The IRI, ENI and EFIM firms and their weight in Imita.db (number of firms and %)*

Macro-sector	IMITA					IRI group + ENI group + EFIM group									
	1936	1952	1960	1972	1983	1936	%	1952-54	%	1960	%	1972	%	1983	%
Agriculture and fishing	188	241	158	256	166	10	5.3	2	0.8	1	0.6	7	2.7	6	3.6
Mining	93	127	144	161	34	6	6.5	13	10.1	16	11.1	10	6.2	4	11.8
Manufacturing	1,764	3,017	3,163	6,140	2,911	51	2.9	58	1.9	74	2.3	168	2.7	157	5.4
Utilities	224	169	167	77	26	9	4.0	22	13.0	27	16.2	5	6.5	11	42.3
Construction	139	196	181	427	244	4	2.9	2	1.0	8	4.4	18	4.2	11	4.5
Services	1,553	2,009	2,066	3,947	1,105	42	2.7	32	1.6	39	1.9	81	2.1	78	7.1
Financial intermediation	285	422	492	795	1,100	26	9.1	19	4.5	22	4.5	37	4.7	100	9.1
Total	4,246	6,181	6,371	11,803	5,586	148	3.5	148	2.4	187	2.9	326	2.8	367	6.6

Table 4. *Weight of share capital of firms held by IRI, ENI and EFIM (% of Imita.db, total*)

Macro-sector	IRI group					ENI group					EFIM group					total				
	1936	1952	1960	1972	1983	1936	1954	1960	1972	1983	1936	1952	1960	1972	1983	1936	1952-54	1960	1972	1983
Agriculture and fishing	27.3	16.9	0.6	4.0	0.4		-	-	-	0.4				-	0.3	27.3	16.9	0.6	4.0	1.2
Mining	2.7	5.0	0.8	0.5	-		65.4	42.1	86.7	94.8				0.0	0.0	2.7	70.3	43.0	87.3	94.9
Manufacturing	7.9	7.4	8.5	7.1	18.9		1.6	2.6	4.4	6.8				0.8	1.3	7.9	9.0	11.1	12.3	27.1
Utilities	6.7	8.6	7.5	1.0	0.0		2.9	1.3	49.6	2.9				-	-	6.7	11.6	8.8	50.5	2.9
Construction	5.8	5.5	1.7	5.0	7.3		-	0.8	0.5	0.4				0.1	0.0	5.8	5.5	2.5	5.7	7.7
Services	19.9	17.9	18.2	13.6	29.6		0.0	0.7	0.1	7.9				0.2	0.2	19.9	17.9	19.0	13.9	37.8
of which transport	40.9	30.5	33.3	27.4	61.4		-	1.4	0.1	0.4				-	0.4	40.9	30.5	34.7	27.5	62.2
Financial intermediation	22.5	56.0	44.3	50.5	55.2		-	0.3	0.4	0.7				6.2	5.6	22.5	56.0	44.6	57.1	61.5
Total	12.5	19.4	16.0	21.2	29.9		3.3	2.5	8.6	7.7				2.3	2.6	12.5	22.7	18.5	32.1	40.2

Table 5.*Weight of share capital of firms held by IRI, ENI and EFIM in manufacturing (% of Imita.db, manufacturing*)

Sector	IRI group					ENI group					EFIM group					total				
	1936	1952	1960	1972	1983	1936	1954	1960	1972	1983	1936	1952	1960	1972	1983	1936	1952-54	1960	1972	1983
Food products and tobacco	0.2	0.1	0.0	1.2	8.2		-	-	-	-				1.0	1.4	0.2	0.1	0.0	2.2	9.7
Textiles and textile products	3.9	-	3.2	-	-		-	-	4.2	8.8				0.1	-	3.9	-	3.2	4.2	8.8
Leather and leather products	-	-	-	-	-		-	-	-	-				-	-	-	-	-	-	-
Wood and wood products	-	-	-	-	-		-	-	-	-				-	-	-	-	-	-	-
Paper products, publishing and printing	0.9	3.8	3.7	1.7	9.5		-	0.2	0.2	-				0.2	-	0.9	3.8	3.9	2.0	9.5
Coke and petroleum products	0.4	0.1	0.1	-	-		13.6	10.5	16.6	44.9				-	-	0.4	13.8	10.6	16.6	44.9
Chemicals and chemical products	6.6	3.6	2.0	1.1	0.0		0.4	6.5	10.0	23.5				0.3	0.1	6.6	4.0	8.5	11.4	23.6
Rubber and plastic products	-	-	-	-	-		-	-	0.0	-				1.3	0.7	-	-	-	1.4	0.7
Other non-metallic products	2.0	2.4	2.5	1.7	2.4		-	-	2.7	0.2				0.5	1.7	2.0	2.4	2.5	5.0	4.3
Basic metals and metal products	26.8	25.9	26.2	18.0	55.8		-	-	-	0.4				1.4	1.0	26.8	25.9	26.2	19.4	57.2
Machinery and equipment	38.1	20.3	5.5	4.5	6.4		-	3.5	1.7	4.4				1.2	2.1	38.1	20.3	9.0	7.4	12.9
Electrical and optical equipment	1.7	11.3	9.9	9.4	13.6		-	-	-	0.3				0.9	0.8	1.7	11.3	9.9	10.3	14.7
Transport equipment	12.2	13.0	17.9	37.4	28.3		-	-	-	-				2.6	4.9	12.2	13.0	17.9	40.0	33.3
Manufacturing n.e.c.	0.0	-	-	-	-		-	-	-	-				-	-	0.0	-	-	-	-
Total manufacturing	7.9	7.4	8.5	7.1	18.9		1.6	2.6	4.4	6.8				0.8	1.3	7.9	9.0	11.1	12.3	27.1

Table 6. *Weight of assets of firms held by IRI, ENI and EFIM on Imita.db (all sectors*)

Macro-sector	IRI group					ENI group					EFIM group					total				
	1936	1952	1960	1971	1981	1936	1954	1960	1971	1981	1936	1952	1960	1971	1981	1936	1952-54	1960	1971	1981
Agriculture and fishing	33.0	16.2	3.3	6.9	0.8		-	-	-	0.3				-	0.3	33.0	16.2	3.3	6.9	1.5
Mining	5.1	4.4	1.6	0.9	-		31.7	57.5	76.5	92.7				-	0.1	5.1	36.1	59.1	77.5	92.8
Manufacturing	9.3	11.5	9.0	8.4	15.5		1.4	1.9	5.3	10.2				0.7	2.1	9.3	12.9	10.9	14.4	27.7
Utilities	9.4	8.8	6.9	0.1	0.1		3.1	4.6	8.3	15.7				-	-	9.4	11.9	11.5	8.4	15.8
Construction	26.0	4.3	5.7	8.9	10.9		-	2.2	0.4	0.6				0.1	0.2	26.0	4.3	7.9	9.4	11.6
Services	8.6	29.9	30.5	29.3	39.8		-	0.1	0.1	8.1				0.0	0.2	8.6	29.9	30.5	29.4	48.1
of which transport	17.5	39.8	40.8	39.1	63.2		-	0.0	0.1	0.1				-	0.2	17.5	39.8	40.9	39.2	63.6
Financial intermediation	29.5	21.3	22.3	21.2	21.9		-	0.2	0.6	0.4				0.3	0.6	29.5	21.3	22.5	22.0	22.9
Total	20.1	17.2	17.0	16.9	20.9		1.2	2.1	3.2	4.4				0.4	0.8	20.1	18.5	19.0	20.4	26.1

Table 7. *Weight of assets of firms held by IRI, ENI and EFIM on Imita.db (manufacturing*)

Sector	IRI group					ENI group					EFIM group					total				
	1936	1952	1960	1971	1981	1936	1954	1960	1971	1981	1936	1952	1960	1971	1981	1936	1952-54	1960	1971	1981
Food products and tobacco	0.4	0.0	0.0	1.5	6.2		-	-	-	-				0.3	2.2	0.4	0.0	0.0	1.8	8.4
Textiles and textile products	4.0	-	3.2	-	-		-	-	5.1	8.4				0.0	-	4.0	-	3.2	5.2	8.4
Leather and leather products	-	-	-	-	-		-	-	-	-				-	-	-	-	-	-	-
Wood and wood products	-	-	-	-	-		-	-	-	-				-	-	-	-	-	-	-
Paper products, publishing and printing	0.7	3.8	2.9	1.8	4.2		-	0.1	0.1	-				1.5	0.2	0.7	3.8	3.1	3.4	4.4
Coke and petroleum products	0.2	-	0.2	-	-		15.2	14.2	25.1	54.0				-	-	0.2	15.2	14.4	25.1	54.0
Chemicals and chemical products	6.3	3.1	2.2	1.5	0.0		0.6	3.1	10.2	12.7				0.3	0.1	6.3	3.7	5.4	12.0	12.9
Rubber and plastic products	-	-	-	-	-		-	-	0.2	0.5				1.1	0.4	-	-	-	1.3	0.9
Other non-metallic products	1.6	2.4	2.0	2.9	3.7		-	-	1.1	0.4				1.4	2.1	1.6	2.4	2.0	5.4	6.1
Basic metals and metal products	26.4	32.9	28.0	24.6	50.0		-	-	-	0.1				1.1	2.1	26.4	32.9	28.0	25.7	52.2
Machinery and equipment	44.9	20.3	7.0	6.5	8.3		-	3.5	4.0	10.5				0.8	5.4	44.9	20.3	10.5	11.3	24.3
Electrical and optical equipment	1.5	10.2	7.4	7.3	20.8		-	-	0.6	0.2				0.7	0.2	1.5	10.2	7.4	8.7	21.2
Transport equipment	13.9	23.0	18.2	23.3	29.2		-	-	-	-				1.6	6.9	13.9	23.0	18.2	24.8	36.1
Manufacturing n.e.c.	0.0	-	-	-	-		-	-	-	-				-	-	0.0	-	-	-	-
Total manufacturing	9.3	11.5	9.0	8.4	15.5		1.4	1.9	5.3	10.2				0.7	2.1	9.3	12.9	10.9	14.4	27.7

Table 8 Kind of shareholding of IRI, ENI and EFIM (% number)

State holding	1936			1952-54			1960			1972			1983		
	<20	20≤p≤50	>50	<20	20≤p≤50	>50	<20	20≤p≤50	>50	<20	20≤p≤50	>50	<20	20≤p≤50	>50
IRI	39.9	9.5	50.7	11.7	30.0	58.3	12.9	29.9	57.1	12.9	29.9	57.2	20.4	12.2	67.4
ENI				3.6	46.4	50.0	7.5	22.5	70.0	12.7	36.5	50.8	6.4	9.0	84.6
EFIM										4.8	48.4	46.8	5.1	27.1	67.8
IRI+ENI+EFIM	39.9	9.5	50.7	10.1	33.1	56.8	11.8	28.3	59.9	11.3	34.7	54.0	15.0	13.9	71.1

Table 9: Regional distribution of SOEs (number, number % and assets %)

Regions	*NUMBER*					*NUMBER %*					*ASSETS %*				
	1936	1952-54	1960	1972	1983	1936	1952-54	1960	1972	1983	1936	1952-4	1960	1971	1981
Aosta Valley				1	1	-	-	-	0,3	0,3	-	-	-	0,0	0,0
Piedmont	7	8	10	12	19	7,9	6,0	6,1	4,1	6,1	5,8	5,6	5,0	3,9	7,7
Liguria	8	14	21	29	23	9,0	10,5	12,7	10,0	7,4	23,0	20,0	18,0	17,9	20,9
Lombardy	23	34	39	58	70	25,8	25,6	23,6	20,0	22,4	27,3	22,8	25,6	25,3	24,7
North-West	38	56	70	100	113	42,7	42,1	42,4	34,5	36,2	56,1	48,4	48,6	47,2	53,2
Trentino Alto Adige				1	1	-	-	-	0,3	0,3	-	-	-	-	0,0
Veneto	5	2	4	8	14	5,6	1,5	2,4	2,8	4,5	0,5	1,3	1,5	0,3	0,7
Friuli Venezia Giulia	7	5	5	10	11	7,9	3,8	3,0	3,4	3,5	0,1	4,5	2,6	1,6	1,3
Emilia Romagna	4	1	4	3	8	4,5	0,8	2,4	1,0	2,6	0,6	0,6	0,8	0,0	0,2
North-East	16	8	13	22	34	18,0	6,0	7,9	7,6	10,9	1,2	6,4	4,8	2,0	2,2
Marche				2	2	-	-	-	0,7	0,6	-	-	-	0,0	0,0
Tuscany	2	3	6	9	18	2,2	2,3	3,6	3,1	5,8	0,2	0,2	1,8	0,7	1,7
Umbria				2	5	-	-	-	0,7	1,6	-	-	-	0,1	0,1
Latium	24	47	42	78	68	27,0	35,3	25,5	26,9	21,8	41,6	41,0	40,5	45,1	37,8
Central	26	50	48	91	93	29,2	37,6	29,1	31,4	29,8	41,8	41,2	42,2	45,9	39,6
Campania	7	13	25	34	33	7,9	9,8	15,2	11,7	10,6	0,7	3,9	4,2	2,2	3,1
Abruzzo-Molise				1	3	-	-	-	0,3	1,0	-	-	-	0,1	0,1
Apulia				16	10	-	-	-	5,5	3,2	-	-	-	0,3	0,2
Basilicata				6	3	-	-	-	2,1	1,0	-	-	-	0,0	0,0
Calabria				3	2	-	-	-	1,0	0,6	-	-	-	0,0	0,0
Sardinia		1	1	7	8	-	0,8	0,6	2,4	2,6	-	0,0	0,0	0,3	0,3
Sicily	2	5	8	10	13	2,2	3,8	4,8	3,4	4,2	0,2	0,0	0,1	1,9	1,3
South	9	19	34	77	72	10,1	14,3	20,6	26,6	23,1	0,9	4,0	4,3	4,9	5,0
Total	89	133	165	290	312	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Table 10: Regional distribution: Public firms as % of IMITA.db (number and assets)

	SOEs as % of IMITA. (*number*)					SOEs as % of IMITA (*assets*)				
	1936	1952-54	1960	1972	1983	1936	1952-54	1960	1971	1981
Aosta Valley	-	-	-	3,0	5,0	-	-	-	10,0	11,5
Piedmont	1,5	1,2	1,5	1,0	3,1	12,1	10,8	9,0	8,8	18,1
Liguria	2,2	3,4	5,8	6,4	14,3	45,2	43,5	43,2	51,0	73,1
Lombardy	1,2	1,2	1,4	1,3	3,6	20,7	15,1	15,8	20,3	27,0
North-West	1,4	1,4	1,8	1,6	4,1	24,3	19,6	18,8	23,0	32,7
Trentino Alto Adige	-	-	-	0,4	1,0	-	-	-	-	0,9
Veneto	2,5	0,7	1,4	1,1	2,8	3,0	8,0	9,5	4,2	7,9
Friuli Venezia Giulia	6,8	3,5	3,5	3,1	7,3	0,8	51,5	42,5	28,8	32,0
Emilia Romagna	2,8	0,5	1,6	0,4	1,4	8,5	8,4	10,1	0,4	2,1
North-East	3,4	1,1	1,7	1,1	2,6	2,9	19,1	15,6	8,2	8,8
Marche	-	-	-	2,7	3,4	-	-	-	2,9	1,3
Tuscany	1,1	1,0	2,7	2,2	6,6	0,8	1,1	10,7	5,9	11,8
Umbria	-	-	-	4,8	6,2	-	-	-	22,8	10,9
Latium	4,0	5,9	5,5	6,4	13,1	23,9	20,0	22,7	21,0	22,7
Central	3,3	4,5	4,7	5,2	10,0	21,3	18,5	21,6	20,2	21,7
Campania	4,9	7,5	11,1	8,2	19,0	2,9	13,7	17,2	14,4	23,2
Abruzzo-Molise	-	-	-	1,4	5,9	-	-	-	29,3	10,7
Apulia	-	-	-	10,1	14,9	-	-	-	16,1	13,5
Basilicata	-	-	-	30,0	17,6	-	-	-	9,1	9,1
Calabria	-	-	-	5,7	10,0	-	-	-	4,5	3,7
Sardinia	3,7	2,7	2,2	1,6	7,3	1,3	0,2	0,5	11,1	14,0
Sicily		3,6	1,7	1,9	11,8	-	1,5	2,0	7,1	18,2
South	3,5	4,0	4,6	4,5	12,2	2,3	8,5	9,2	12,2	18,4
Total	2,1	2,2	2,6	2,5	5,6	19,7	18,2	18,8	20,1	25,2

Appendix 1. Holding companies and financial holding companies of the three groups

IRI

1935-1937
STET Società torinese esercizi telefonici
FINMARE Società finanziaria marittima (only for 1936 and 1937)
FINSIDER Società finanziaria siderurgica (only for 1937)

1951-1953
STET Società torinese esercizi telefonici
FINMARE Società finanziaria marittima
FINSIDER Società finanziaria siderurgica
FINMECCANICA Società finanziaria meccanica
FINELETTRICA Finanziaria elettrica nazionale (only for 1952 and 1953)

1959-1961
STET Società torinese esercizi telefonici
FINMARE Società finanziaria marittima
FINSIDER Società finanziaria siderurgica
FINMECCANICA Società finanziaria meccanica
FINELETTRICA Finanziaria elettrica nazionale
FINCANTIERI Finanziaria cantieri navali (only for 1960 and 1961)
AUTOSTRADE Concessioni e Costruzioni Autostrade (only for 1960 and 1961)

1970-1972
STET Società finanziaria telefonica
FINMARE Società finanziaria marittima
FINSIDER Società finanziaria siderurgica
FINMECCANICA Società finanziaria meccanica
FINCANTIERI Finanziaria cantieri navali
ITALSTAT Società italiana per le infrastrutture e l'assetto del territorio
SPA Società finanziaria di partecipazioni azionarie
Società finanziaria per il traforo del Monte Bianco (only for 1970)
RAI Radiotelevisione italiana
ALITALIA Linee aeree italiane
AUTOSTRADE Concessioni e Costruzioni Autostrade (only for 1972)

1981-1983
STET Società finanziaria telefonica
FINMARE Società finanziaria marittima
FINSIDER Società finanziaria siderurgica
FINMECCANICA Società finanziaria meccanica
FINCANTIERI Finanziaria cantieri navali
ITALSTAT Società italiana per le infrastrutture e l'assetto del territorio
SOFIN Società finanziaria di partecipazioni azionarie (già SPA Società finanziaria di partecipazioni azionarie)
CREDITO ITALIANO
BANCO DI ROMA
BANCA COMMERCIALE ITALIANA
BANCO DI SANTO SPIRITO
SME Società meridionale finanziaria
FINSIEL Finanziaria per i sistemi informativi elettronici
ALITALIA Linee aeree italiane

SISMA Società industrie siderurgiche meccaniche e affini (only for 1981)
SIFA Società immobiliare e finanziaria per azioni (only for 1983)

<u>ENI</u>

1954-1955
AGIP Azienda generale italiana petroli
ANIC Azienda nazionale idrogenazione combustibili
SNAM Società nazionale metanodotti
AGIP MINERARIA
ROMSA Raffineria di oli minerali

1959-1961
AGIP Azienda generale italiana petroli
ANIC Azienda nazionale idrogenazione combustibili
SNAM Società nazionale metanodotti
AGIP MINERARIA

1970-1972
AGIP Azienda generale italiana petroli
ANIC Azienda nazionale idrogenazione combustibili
SNAM Società nazionale metanodotti
AGIP NUCLEARE (only for 1972)

1981-1983
AGIP Azienda generale italiana petroli
ANIC Azienda nazionale idrogenazione combustibili (only for 1981 and 1982)
SNAM Società nazionale metanodotti
AGIP CARBONE (only for 1981 and 1982)
SNAM PROGETTI
LANEROSSI
NUOVO PIGNONE Industrie meccaniche e fonderia
OFFICINE SAVIO
SAIPEM
INDENI Società per la promozione di nuove iniziative industriali
SOFID Società finanziamenti idrocarburi
HYDROCARBONS INTERNATIONAL HOLDING S.A.
AGIP NUCLEARE (only for 1982)
ENICHIMICA (only for 1982 and 1983)
SAMIM Azionaria minero-metallurgica (only for 1982 and 1983)

<u>EFIM</u>

1970-1971
FINANZIARIA ERNESTO BREDA
BREDA FERROVIARIA Partecipazioni e finanziamento costruzioni ferroviarie
MCS
INSUD

1981-1982
FINANZIARIA ERNESTO BREDA
AVIOFER BREDA
MCS
SOPAL Società partecipazioni alimentari