Entrepreneurship in state-owned enterprises. An international comparative analysis of IRI, Temasek and ÖIAG.

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In the last two decades, the global economy has witnessed the success of Chinese state-owned enterprises and a resurgence of SOEs as integral parts of national industrial strategies. However, mainstream theory often fails to grasp the array of different SOE typologies and the essence of state entrepreneurship. The purpose of this work is to identify a spectrum of SOEs and entrepreneurial ways of running SOEs through an international comparative analysis. An evaluating framework based on the capacity of SOEs to be visionary, to return rewards to the state, to achieve social goals, and to be independent is used to evaluate the performance of three SOEs: IRI, Temasek and ÖIAG. All three companies are State Holding Companies since this type of SOE provides the flexibility necessary to follow an entrepreneurial management style. This international comparative analysis highlights that, in order for SOEs to be entrepreneurial, they must go beyond fixing market failures and that social goals are not necessarily in opposition to rewards, and to profitability in particular. The state should not just fix market failures, it must create new markets and new paths of development for national economies. SHCs can be effective tools in achieving these results.

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JEL classification: G34; H13; L26; L32; L33

1. INTRODUCTION

Over the last two decades, a new political consensus on helping industries and technologies of the future has emerged. Guidelines based on privatisation and minimising state interference have ceded pace to a new wave of government intervention through State-owned Enterprises (SOEs). SOEs, seen by mainstream theory as inefficient and excessively bureaucratic, confined to limited cases of market failure, are now at the centre of governments' industrial strategies. This trend is reflected in the astonishing growth of Chinese state-owned giants, with the explicit endorsement of the Chinese government, and in the rise of SOEs in international rankings: in 2005 there were no SOEs among the top 10 of The Fortune Global 500 and eleven in the top 100, in 2019 there were four in the top 10 and 26 in the top 100. The purpose of this paper is to identify ways in which SOEs can be entrepreneurial and efficient, and to provide examples of such dynamism through an international comparative analysis of three major SOEs: IRI, Temasek and ÖIAG.

A framework for evaluating the performance and entrepreneurship of SOEs is first introduced along with a brief review of relevant literature. The scheme is based on three criteria (vision, rewards, and social goals) and one tool (independence).

Subsequently, a spectrum of SOEs based on the level of political control is outlined and three categories are identified - sovereign-wealth funds (SWFs), state holding companies (SHCs) and SOEs under ministerial control (SOEMC). Each typology is then placed them on the spectrum and analysed through the evaluating framework. The focus will be on SHCs.

The three cases are later presented with individual descriptions and evaluations. A particular focus is placed on the experience of IRI, for such case an historical approach is

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followed. The international comparative analysis, using the criteria of the aforementioned framework, will evaluate the performance of the three cases with the goal of highlighting entrepreneurial practices and avoidable pitfalls.

In the conclusions, the paper outlines a summary and some policy recommendations based on the application of the performance evaluation framework to the SOE spectrum, the single cases, and the international comparative analysis.

2. CHARACTERISTICS OF AN ENTREPRENEURIAL SOE

The purpose of this first section is to identify and define criteria and tools that will be useful in the following parts of the paper in order to judge the performance of SOEs. Although a complete theoretical analysis of the case for and against SOEs is outside the scope of this work (an overview: Chang, 2007), the chosen criteria will inevitably make reference to the reasons why SOEs are established in the first place and thus to the theoretical case for SOEs.

Mainstream theories on state ownership are mostly focused on the inefficiencies of SOEs (Musacchio and Lazzarini in Liebman and Milhaupt (eds.), 2015) and on the idea of a *liability of stateness* (Musacchio *et al.*, 2015) that inevitably causes SOEs to perform worse than private companies. SOEs are affected by multiple governance problems caused by principle-agent and principal-principal conflicts (Musacchio and Lazzarini, 2018) which are unlikely to be mitigated and the main solution is privatisation (La Porta *et al.*, 1999). Critical analyses of the *liability of stateness* argument have unveiled how such conflicts are not unique to SOEs (Chang, 1992), the many issues with privatisation (Chang, 1992), and the numerous institutional reforms that can mitigate and even eliminate governance problems (Wallsten, 2001; Musacchio and Lazzarini, 2018; Liebman and Milhaupt, 2015). A new model of SOE has arisen from the realisation of the variety of configurations of ownership and control (such as minority, majority and other hybrid forms; Musacchio and Lazzarini, 2014). Reasons in support or against the institution of SOEs will also emerge during the comparative exercise.

A starting point is the paper by Chang and Rowthorn (1995) about state entrepreneurship - that is, its capacity to create a 'vision' and to mobilise resources to implement it. These two terms, entrepreneurship and vision, are rarely associated with the state, however, Mazzucato (2013) regains this language and approach in *The Entrepreneurial State*. Although she doesn't specifically analyse SOEs, we can identify some of the characteristics that will permeate the criteria described in this section.

The first perspective from which SOEs can be looked at is whether they hold a forward-looking vision, whether the mindset inside the SOEs is a transformative, bold one. Being able to come up with new paradigms is a necessary requirement for innovation, the creation of new markets and the provision of a direction for the national economy.

The paths that SOEs must create and follow are the ones that would not be present otherwise; they have to do what would not have happened without their intervention or as Keynes (1926, p. 46) states:

> "*The important thing for the Government is not to do things which individuals are doing already, and do them a little better or a little worse; but to do those things which at present are not done at all*".

This courageous way of thinking is the essential element of state entrepreneurship. This necessarily means that SOEs must go beyond fixing market failures (Chang and Rowthorn, 1995, pp. 2-5), for example managing natural monopolies. SOEs should be tools for a state that is an investor of first resort, and that creates (besides fixing) markets. SOEs can become new players in international competition[1] and create new sectors in the national economy.

Moving from the macro to the micro level, a macro-vision can be implemented through micro-missions. If the state must have a clear vision of the direction of the SOE then managers who work for the company must be equally focused and mission-driven. Showing determination and leadership is one of the ingredients for an entrepreneurial mindset, and the way it can be done at the micro-level is by being mission-oriented (Mazzucato, 2013, pp. 4 *et passim*). Therefore, a successful SOE should be able to reach its macro-objectives while solving challenges in a mission-oriented approach.

Having a vision or a mission implies the chance of choosing the wrong one, of misjudgements and setbacks. This is not a problem in itself and it's not unique to SOEs. It is a natural part of entrepreneurship, and even state companies must be able to fail sometimes. Although experimentation and exploration could reduce negative results, mistakes must be accepted as part of the process and a "trial and error" approach is the best way to cope with failures.

Since having a transformative vision, following courageous missions, and investing in innovation are high-risk activities, the state should be able to claim high rewards. Rewards are the second criterion chosen for examining SOEs. This term is intended in a broad sense since a reward for a Government is different from the one of a private company.

Profits and, if distributed, dividends are a way for the state to gain rewards from a SOE similarly to shareholders in a private company, however, it's not the only way and it's not the only criterion for judging SOEs. In order to create a new market, long periods of research, investment, protection, and experimentation might be necessary[2] and this support could entail losses for a considerable period of time. Profitability is not irrelevant but it should be judged in the long term and can't be the main and immediate way of judging success in SOEs since the state is not a profit-maximising agent and has different purposes compared to private agents. An indicator is whether even mature businesses run by SOEs are profitable or not and if losses are widespread or limited in time and sector.

Another type of reward is gained by expanding the national economy and creating new markets as this has a positive effect on the tax base and it increases revenues. We can deduce that economic and productivity growth are part of the rewards from a SOE, as are direct tax contributions by SOEs.

Related to the area of rewards is the kind of relationship that the SOE holds with the private sector. As stated above, it can take years (sometimes decades) to create a viable industry. State investments create spillovers to the rest of the economy by introducing new technologies and allowing the development of industries with demand complementarities. The partnerships with the private sector must be mutualistic (Mazzucato, 2013, pp. 195-206) and not parasitic: companies must be able to learn from each other (Rodrik, 2004, p. 3) but the state must be able to reap some of the rewards in order to continue its development effort. A typical case of parasitic relationship is the one where the SOE saves failed, or failing, private companies (to protect employment or because of political or economic lobbying) without a viable plan forward; this reduces productivity growth, makes the SOE unprofitable and forces the state to pay for private mismanagement. The state becomes the target of criticism because of its lack of efficiency and, paradoxically, bolsters calls for privatisation. Examples include former

[1] Like the Korean steel company POSCO, or the Italian petroleum company ENI.

[2] Mazzucato (2013) makes the example of the creation of the Internet and IT market and research, funded by the US government for decades at a loss. A similar pattern was followed in the nanotech sector.

inefficient private companies which were nationalised in Greece and so-called *sick enterprises* in India (Chang, 2007, pp. 15-16).

Sometimes put outside the range of analysis, SOEs can have another legitimate set of purposes because of their public nature: social goals. Objectives like social cohesion, social justice, reducing territorial disparities and inequality are just, sensible aims for a state, and SOEs can be tools in reaching these goals. The state is an agent that, because of its position (Chang and Rowthorn, 1995, p. 7), can represent the interests of society as a whole and it is up to the state to pursue public interests and societal welfare.

While social goals are fully legitimate, it's important that these are clearly set and taken into consideration in advance so that the SOE can then, after having considered these interests, follow an efficient management style (Chang, 2007, pp. 22-27).

Other important factors in judging SOEs are tools which have a beneficial influence on the previous three criteria. Among the examples of said tools we can find commercial orientation and legal traditions, but the most relevant for our analysis is independence. This factor influences all the other criteria and it positively influences SOEs' legitimacy[3]. Independence is intended as a way of ensuring autonomy from private and electorally-motivated lobbying. These types of influences can cause the SOE to derail from its objectives (both economic and social) in order to satisfy the particular interests of powerful politicians or interest groups.

A way of judging independence is by looking at whether management is independent or if it is politically appointed. In general, independent managers will be able to better resist outside pressures, especially electorally-motivated ones. This doesn't mean that politically appointing part of the management can't have positive effects, mainly in the area of democratic accountability, in particular, since SOEs may use taxpayers' money. It, also, doesn't mean that a politically appointed CEO can't be transformative and highly effective[4]. Therefore, observations have to be based on the type of appointment while recognising its limitations and other factors (such as internal forms of organisation and types of links to ministries) that affect the overall independence of SOEs.

While independence cannot be considered a goal in itself, because of its relevance, it will be the subject of evaluation in the comparative analysis.

These four areas (vision, rewards, social goals and independence) will be used to evaluate different practices, results and institutional arrangements concerning SOEs, having multiple lenses at disposal for examining the various types of SOEs (in the following section) and the comparative analysis (in section four). The purpose is to highlight successful entrepreneurial practices of organising and managing SOEs.

3. TYPES OF SOES: SWFS, STATE HOLDING COMPANIES AND SOES UNDER MINISTERIAL CONTROL

In this section, categories of SOEs will be identified, described and evaluated. The objective is to look for features that are useful to achieve entrepreneurship both in each type's individual description and in the spectrum of political control.

[3] Professionalism and accountability, in addition to independence, lead to legitimacy (Bolton *et al*, 2012, pp. 94-105).

[4] Enrico Mattei saved failing oil company AGIP and created today's successful energy company ENI, and first chairman of POSCO Tae-Joon Park made its company a "world-class firm" (Chang, 2007, p. 11).

In order to cover most of the existing SOEs, a spectrum based on the level of political control, from Asset Management Model (AMM) to Ministerial Control Model (MCM), is identified.

On one end of the spectrum, we find the AMM where the SOE is disengaged from the active running of subsidiaries through a strong separation between ownership and management; its ownership is diluted and the final objective is the maximisation of returns on investment. SOEs of the AMM type have a high degree of independence and are incorporated as separate entities.

On the other end, we can identify the MCM, where SOEs are not separate entities or have a special public legal status, have low independence and are, usually, part of an administrative branch of one or more ministries. Managers are often politicians or civil servants.

This spectrum of control is adapted from Kumar's analysis (1993). Since it is a spectrum, each specific SOE can find itself closer to one of the two poles while remaining inside its category. Although the visualisation of control is on a continuum, it is important to identify different types of SOE since this gives us a better depiction of reality, since there are defining features in each type and, moreover, because in developing countries, most of the time, the choice is between direct management by the government or a SHC (Kumar, 1993, p. 13). After a synthetic description, each type of SOE is positioned on the spectrum.

3.1 *Sovereign Wealth Funds*

In 2018, SWFs managed up to 8.1 trillion USD (SWFI), a sign of their growing importance on international financial markets. SWFs have various origins and attributes, and their definition is still a matter of academic debate.

Most definitions of SWF are general and open such as "special-purpose investment funds" (Das, 2009, p. 86). What distinguishes them from other SOEs is the presence of domestic surplus wealth that has to be managed. This wealth can have different origins (persistent fiscal surpluses, foreign reserves, natural resources, high domestic savings) and from those we can identify different types of SWFs. The management style is mainly focused on reserve accumulation and in investment abroad; in addition, they usually hold small shares in each company they invest in and have a less active role in managing companies in which they are shareholders.

From a development perspective (Griffith-Jones *et al.* in Bolton *et al.* (eds), 2012, pp. 62-63), we can distinguish three types of SWFs based on the origin of the managed wealth and on their purpose.

The first type of SWF is defined by the "wealth substitution motive" (*Ibid*, 62) because it is established to substitute the wealth created through current account surpluses from non-renewable illiquid domestic resources (such as oil) into an inter-generational tool for more liquid, mostly foreign, assets. It has a long-term perspective and the most prominent example is the Government Pension Fund of Norway. It is the largest SWF in the world with more than one trillion USD in assets. The purpose of the Norwegian SWF is to use current oil wealth to fund today's and future pensions and to promote the prosperity of the Norwegian people.

The second type of SWF can be defined as the "resilient surplus model" (*Ibid,* p. 63) and it is based on persistent current account and fiscal surpluses coming from non-natural resources. It is typically found in East Asian countries with a competitive export sector and high domestic savings such as Singapore. In Singapore, the GIC Private Limited (Government of Singapore Investment Corporation) manages the country's foreign reserves and makes investments mostly abroad.

The third type of SWF is defined by the "countercyclical motive" (*Ibid*, p. 63) since its objective is to off-set cyclical shocks in volumes and/or prices of commodities. Its investments follow the commodity's cycle and Chile's "Fondo de Estabilización de los Ingresos del Cobre" (now "Fondo de Estabilización Económica y Social") is an example.

All three types of SWF share the same long-term vision and do what markets wouldn't do otherwise: ensure stability and wealth transfers for future generations' prosperity. These characteristics are part of having a vision and meet the first criterion. Some SWFs, such as the Norwegian one, combine the vision of a future sustainable development with solving the domestic mission of providing pensions for future generations. Nevertheless, SWFs are not the most appropriate tool for creating new markets and industries, since their position lies closer to the AMM. Profit maximisation and a passive role in management (rather than an active entrepreneurial role) is the approach to investment followed by SWFs. Their goals are of a technical nature (such as overcoming the commodity's cycle or the decline in oil production) rather than of a visionary one.

Rewards can be identified both in the area of general economic well-being and in profitability. SWFs dampen the consequences of boom-and-bust economic cycles by helping to stabilise the economy, transferring wealth to future generations, and providing resources for government spending[5]. When it comes to profitability, firms in which SWFs are shareholders not only have better results compared to other types of SOEs, they also fare better than private firms (Liu, 2016, pp. 95-104).

Social goals such as intergenerational justice, sustainable development and ethical responsibility can also be goals of SWFs (Griffith-Jones *et al.* in Bolton *et al.*, 2012, pp. 106-110). For example, the Norwegian SWF applies ethical and environmental standards to its investments. Nonetheless, social goals pertaining to employment, inequality and regional development are not usually part of the perspectives adopted by SWFs.

Finally, SWFs enjoy a high level of independence. Political pressures are lower compared to other kinds of SOE because of the technical nature of their activity (such as overcoming a cycle in commodity prices). They usually have few objectives which guarantees better accountability and are not actively involved in running companies in which they are shareholders. All these aspects bring SWFs closer to the AMM.

3.2 *State Holding Companies*

The literature regarding SHCs is usually focused on case studies and definitions can vary widely. I will base my work on Kumar's definitions and approach (Kumar, 1993) and, in particular, on his description of SHCs as those entities that give the state indirect ownership of enterprises by holding shares. The holding company has some degree of autonomy both in the decision-making functions and in the amount of shareholding in regard to subsidiaries, which are separate legal entities.

SHCs have more autonomy from ministries compared to the MCM because there is some separation between ownership and management, and they play a greater managerial and supervisory role in the subsidiaries because the ministry which holds the shares of the SHC is not involved in the day-to-day running of subsidiaries.

SHCs are neither on the AMM side. Their investments are usually domestic-oriented and there is active involvement in industrial and business planning; mergers and sectoral synergies between SOEs are not rare when they are largely owned by SHCs. Furthermore, the percentage of shareholding in individual subsidiaries is higher compared to those of SWFs and it is usually higher in comparison to the other private shareholders of the same company.

[5] The Norwegian SWF has a fiscal rule whereby 3% of the fund's value can be withdrawn by the government.

Based on their origin, there are three main types of SHCs. Knowing the original objectives of the holding, even if they evolved with time, is important in evaluating its performance in light of what it was meant to achieve. The first reason to set up a holding corporation is to rescue failing (sometimes strategic) private sector enterprises from bankruptcy or from foreign acquisitions; the industrial attitude of this type of SHC empowers the state to use it for the promotion of industrial and regional development. The second one is to facilitate the management and control of public assets (such as state monopolies or a sprawling SOE sector). The last one is to increase decentralisation (from ministerial control) or to engage in a more gradual privatisation process by selling incremental parts of the shares to the private sector.

In order to judge a SHC, it is necessary to analyse it inside the framework in which it is placed (Kumar, 1993, p. 230). The regulatory and legal status can have a decisive effect on financial indicators, and the macroeconomic and policy environment[6] of the company can drastically change its course. In addition, SHCs present a higher level of variance, compared to SWFs, in relation to the perspectives listed in section two and they are usually entrusted with multiple mandates.

SHCs are an effective tool to promote economies of scale and vertical and horizontal integration among SOEs. Even though there is the risk of cross-subsidisation between profitable and unprofitable subsidiaries, the combination of autonomy and directionality gives the holding structure the instruments to deliver active industrial policies and to promote synergies among subsidiaries; this allows the state to delve into new directions of investments[7]. Creating a holding company that encompasses most of the SOEs in a country also grants the public sector the chance to develop a professional class of state entrepreneurs through investment in training, instead of relying on bureaucrats, civil servants or ministers. Holding companies have been used in many countries to create new national industries, to open new markets, and to promote a specific vision of national development.

In terms of rewards, economic spillovers from new industries and markets should be highlighted, as should the support in building mutualist public-private partnerships through cooperation inside the holding structure (as a result of the mixed ownership[8]) and between private and public companies. Furthermore, holdings reduce transaction costs among SOEs and, because of risk-pooling, they offer cheaper access to credit for their subsidiaries (Kumar, 1993, p. 13). Profitability cannot be the only criterion in judging a SHC's performance for a range of reasons. First of all, being profitable is not what most SHCs where created for and this factor is reflected in their legal statuses and objectives. Secondly, comparing profits of SHCs has little value because macro-variables and cross-country policy differences result in significant variations, and because quantifying the profitability of a SHC with its changing structure is difficult on a statistical ground (Kumar, 1993, p. 18). Finally, subsidies and guarantees add to the uncertainty of the financial status of SHCs.

In the area of social goals, SHCs are usually assigned multiple goals that span from maintaining employment and social cohesion, to reducing regional disparities. While holding corporations can be effective tools in advancing social goals, assigning too many objectives can cause financial distress and uneven results.

[6] Policies such as price controls, trade and foreign exchange regimes, subsidies and labor market regulations have a significant influence on the direction and financial results of SHCs.

[7] For example, in Italy (Kumar, 1993, p. 230).

[8] Mixed ownership could be a source of short-termism if private actors are focused on immediate returns instead of long-term growth. Private actors present a broad spectrum of behaviour as SOEs do.

The sphere where there is the highest level of variance among SHCs is independence[9]. Holding companies vary considerably not only in terms of their relationship with political offices and ministries but also in terms of who is appointed to the holding's board. As an ideal standard for SHCs' independence, professional boards with independent managers appointed by the relevant ministry but from outside the civil service, without links to political parties, with some experience and with a term long enough to complete their objectives are the preferable benchmark (OECD, 2013; OECD, 2015a; Kumar, 1993, p. 24). Independent external audits and enhanced minority-shareholding rights can increase the level of independence, whereas extremely frequent reports and required approvals from the ministry can decrease it.

3.3 *SOEs under direct ministerial control*

The last category analysed in this work is the closest one to the MCM, nevertheless, empirical cases can diverge from the ideal model of ministerial control. In this case, ownership and management don't have a relevant distinction, as SOEs are fully owned by ministries and subsidiaries may not be separate legal entities. The law gives SOEs public status or an *ad hoc* governmental form. These kinds of SOEs are usually part of a ministry (or more) as one of the administrative branches and answer directly to the relevant ministry (or ministries).

In terms of entrepreneurship and vision, this form of SOE may lack in strategic thinking because of direct ministerial appointments that hamper autonomy and performance (OECD, 2013, p. 13). Multiple ministries' influences and periodical changes in government cause structural short-termism and ambiguity in direction. Political influence is strong and managers are usually bureaucrats and civil servants who are concerned with personal political goals (and that could be detrimental to the running of the company)[10]. In conclusion, a long-term vision for development is unlikely (yet not impossible) to affirm itself in this environment.

SOEs closer to the MCM have higher *soft budget* constraints and this is reflected in their propensity to run out of cash (Shirley, 1983, pp. 10-17; Vernon, 1984, p. 48). Furthermore, SOEMC make high demands on ministries in terms of financial and human resources, while at the same time they are usually exempt from paying taxes; these aspects dramatically reduce rewards for the state.

Social goals like maintaining employment and providing social services are some of the core reasons for adhering to the MCM. Because of their relative indifference to profitability constraints, SOEMC focus on those objectives that increase social well-being with a high emphasis on the ones that maximise political returns (such as providing employment and social services to voters).

Finally, SOEMC have limited independence. Independent external audit is usually absent and ministerial interventions in the day-to-day running of the company occur and tend to generate negative financial results.

Based on the descriptions presented in this section, we can position the three types of SOEs on the spectrum of control with SWFs towards the AMM, SHC in the middle, and SOEMC closer to the MCM.

While SWFs certainly have the highest degree of independence and bring important rewards to the state, they lack the capacity to implement social goals and their vision is more

[9] Independence could entail more short-term private gains instead of equally short-term political goals from public actors. A case study evaluation needs to take into account the fact that behaviour patterns of both types of agents vary widely.

[10] For example, in France, Pierre Dreyfus, CEO of Renault, had his own political and electoral base and in the sixties five managers of SOEs imposed the dismissal of a French Minister of Industry (Vernon, 1984, p. 44).

technical and rigid than entrepreneurial. SOEMC, in turn, are defective both in their capacity to implement a long-term vision and in their ability to secure rewards for the state. Furthermore, they enjoy limited independence, resulting in short-term political objectives taking over long-term industrial planning.

In conclusion, SWFs have an important role to play in today's global financial markets, however, since the purpose of this work is to identify entrepreneurial practices of running SOEs, it is better to focus the attention on SHCs.

4. AN INTERNATIONAL COMPARATIVE ANALYSIS: IRI, Temasek and ÖIAG

Three cases of SHC - Italian holding company IRI, the Singaporean SHC Temasek, and Austria's ÖIAG – are first introduced and, then, an international comparative analysis of the three is presented.

4.1 *Istituto per la Ricostruzione Industriale*

IRI is an Italian SHC that played a crucial role in the development of the Italian economy, in particular, during the Italian "economic miracle". Because of its singular governance practices, its history and its economic magnitude, it represents a peculiar and interesting case among SHCs, and thus it deserves special attention.

This subsection is divided into two parts. IRI is first described through an historical approach and, secondly, it is evaluated in terms of the criteria set in section two.

The crisis of 1929 had brought the three largest banks of the country to bankruptcy: *Banca Commerciale Italiana*, *Banco di Roma* and *Credito Italiano*. The failure of these three large privately-owned universal banks would have meant a knock-on effect and subsequent systemic crisis of the national banking system.

IRI was founded in 1933 to save such banks through the government purchase of the majority of their shares. From this point onward, IRI banks were run as independent commercial banks, with no preferential treatment for any industry (IRI or not) and the IRI banking sector was overall profitable (Amatori, 2013).

With the acquisition of the three banks, IRI became the owner of significant parts of the Italian industrial sector as the latter was strictly connected to banking groups (Cianci, 2009). The total value of IRI's assets was equivalent to over 14% of GDP (Franzinelli and Magnani, 2009, pp. 229-230). Beneduce, IRI's president of the 1930s, overviewed a restructuring and privatisation program that aimed at restructuring and selling all industries that the private sector could absorb while turning to profit the remaining SOEs.

IRI was set up as SHC for saving failing private companies. The initial goal of IRI was not to replace the private sector, but it had to step in because of the failure of private bankers and entrepreneurs to develop and efficiently manage companies in capital-intensive sectors (Ciocca, 2015, p. 77).

During WWII, the fascist regime adopted an autarchic economic system; IRI had been part of autarchic plans since 1937 and this damaged its growth prospects. The war brought about an excess capacity problem (especially in the arms industry) that harmed the profits of the company in the years right after the end of the war.

After the end of the war, the future of the Institute was at stake but, in the end, the allied forces recognised it as an indispensable part of the Italian economy that could not be replaced, with Kamarck, an economist of the allied forces who had been in contact with the director general of IRI (Menichella, 1997), stating (Ciocca, 2015, p. 108): "*It's not true that every nation has a sufficient supply of entrepreneurs* […] *It's not true that there are always investors with available funds*".

There was a widespread acceptance at the time of the possibility to run a SOE efficiently[11], and the technical secretary of the Institute expressed a governance based on "a SOE at the service of clearly set industrial policy directives decided by the Government and Parliament, avoiding special interests, operating in conditions of market efficiency while respecting private initiative" (Ciocca, 2015, p. 111). At the political level, a similar mixed economy vision of IRI's governance was supported, it was formed by an equilibrium between industrial policy objectives and a criterion of cost-effectiveness towards overall profits[12].

The resulting organisation have been defined as the *IRI formula* (Holland, 1972). The IRI formula consists of a balance of private and public, of short-term financial stability and long-term vision, of public interest and competition with the private sector. It was reflected in the legal status of IRI's corporate structure, in IRI's sources of financing, and in the ownership of subsidiaries. IRI had a three-level corporate structure based on the holding company IRI at the top that enjoyed a public legal status, sectoral sub-holdings, called *Finanziaria IRI (Fin-),* that were joint-stock companies wholly owned by IRI, and subsidiaries that were largely private companies whose shares were owned both by private businesses and either by a *Finanziaria* or by IRI directly. IRI's subsidiaries operated with the corporate governance, tools and legal status of private companies. The same private-public split is found in the sources of investment financing: internal (thus public sector) sources represented on average 30% of the funding, whereas 55% came from bonds and loans from the private sector (Ciocca, 2015, pp. 143-150).

The Italian economic miracle was a period in Italy's history that started in 1950 and ended in 1973 during which GDP growth averaged at 6% a year (*Ibid*, p. 130). During this period, the country's per capita income tripled and the South grew faster than the rest of the country, thus reducing territorial imbalances. This period was characterised by fiscal balance, and monetary and financial stabilities. The industrial sector experienced an unprecedented expansion (extended to the South), so that in 1970 industry accounted for 40% of GDP, making Italy one of the most industrialised countries in the world (*Ibid*, p. 132).

The cause of the boom was productivity growth, especially thanks to capital accumulation and technological advancement. The growth in value added was due to increased efficiency and technological innovation (60%), capital accumulation (33%) and employment growth (7%) (*Ibid*, p. 133). The factors that allowed this extraordinary expansion to happen were linked to the provision of basic products and services. Steel, infrastructure and energy production were essential for the expansion of manufacturing, construction, and for the industrial expansion of the South.

IRI had a central role in terms of the sectors and conditions that enabled the economic miracle. IRI guaranteed, through its banks, a reliable banking system that provided Italy with financial stability and a steady flow of credit. IRI was also at the core of another enabler of economic activity: infrastructure. IRI not only built the physical infrastructure that connects the country today but it also provided services such as passenger and freight transports. IRI built ports and airports, it run services through its highway company *Autostrade*, its airline *Alitalia* and its maritime transport sub-holding *Finmare*. IRI connected the country by producing and laying telephone cables, through its company *Italcable*, and provided telecommunication services through its company SIP. This national strategy allowed the South to participate in the economic transformation and increased the national economic output. The sub-holding *Finsider* provided steel to the economy and in particular to the manufacturing and construction industry. Finally, the energy industry was guided by IRI's *Finelettrica* and by

[11] Guido Carli, later head of the Italian central bank, stated in 1945 that nothing prevents a SOE to be run efficiently (Ciocca, 2015, p. 112).

[12] This clause allowed for losses (especially in the short-term and in specific promising sectors) while securing the overall financial stability of the Institute and the viability of projects.

ENI, with Enrico Mattei as its president; the two SOEs were run efficiently and with an entrepreneurial attitude, thus producing profits for the state (Ciocca, 2015, pp. 137-143).

IRI, during the economic miracle, increased its investments from 1% of GDP to 1.6% and grew the number of its employees[13] from 220 thousand to 357 thousand. We can conclude that not only IRI provided those supply-side conditions necessary for the take-off but also had a substantive effect on aggregate demand growth.

IRI was at the centre of the most advanced and promising sectors that enjoyed high growth rates during the economic miracle. Manufacturing represented the area of the economy with the highest productivity and IRI had a crucial role in the growth of an industry that is still at the core of the Italian economy[14]. IRI also owned 80% of the shipbuilding industry through its sub-holding *Fincantieri*[15] and 45% of the mechanical engineering industry, two crucial sectors in Italian industrial development.

IRI invested heavily in R&D: in 1971, it represented 10% of national R&D spending with only 1.8% of total employment (Ciocca, 2015, pp. 150-156). It promoted productivity growth through various spill-over effects of its R&D projects.

Overall, IRI had a positive impact on private businesses; it jointly managed subsidiaries through mixed ownership, it provided private companies with highly trained workers, it imported and produced innovative technologies that spread through the economy and it enhanced efficiency by fostering competition with private businesses.

To sum up, IRI, through its long-term vision for the development of its business and the country, made an irreplaceable contribution in terms of providing the enabling conditions for the Italian economic miracle. It did so by following an entrepreneurial strategy based on its innovative governance *Formula* and by creating the foundations for those sectors that would later become the central elements of the Italian economy. IRI also took part first-hand in the entrepreneurial opportunities that opened up thanks to its intervention.

The SHC experienced profits every year from 1950 to 1969. However, from 1973 onward, IRI's financial situation worsened dramatically, with increasing losses and rising inefficiencies. The reason for this worsening condition has been identified in so-called "improper burdens" (Bianchi, 1987, p. 271). Improper burdens were those diseconomies that either were wrongly assigned to IRI or were not properly compensated. These diseconomies originated from the political will to shift the burden of social goals toward the SHC. IRI's social goals became numerous and continuously growing and changing, damaging its profitability.

First of all, in 1962 the electricity system was nationalised and managed by ENEL (a non-IRI SOE), therefore, IRI lost a source of profits, and a sector in which it had invested in, without an adequate compensation. Secondly, IRI was increasingly relied on for saving failing private businesses with high costs, for which it was not compensated. Thirdly, IRI couldn't close plants because of its employment, and thus political, implications. Similarly, it was used to absorb excess labour supply. Furthermore, IRI was used for counter-cyclical policy objectives after the slowing national economic growth of 1964-65 and, even more, after the 1973 oil crisis (Ciocca, 2015, pp. 158-159). Finally, the biggest improper burden on IRI was solving the North-South economic disparity without proper compensation. IRI was forced to have at least 40% of total plants and 60% of new plants in the South in addition to loss-making investments. A historic problem could not be solved by IRI in a relatively short period of time.

13 IRI's employees, on average, received higher salaries with higher growth rates than the rest of the economy.

14 Italy has the second largest manufacturing sector in Europe by number of employees (Eurostat, 2015)

15 Today, *Fincantieri* is the largest ship building company in Europe and one of the largest in the world.

These improper burdens could be imposed because IRI's growing financial problems made the company more dependent on the state and, therefore, on politics. This created a vicious cycle of losses, state-aid, political influence, growing diseconomies and more losses.

Due to successive and increasing losses (Ciocca, 2015, pp. 158-159), the system of SHCs became the target of criticism. Its legitimacy declined due to the alleged inefficiency at the root of the losses and to the rising wave of ideological opposition to state intervention of the 1980s.

After a relative improvement in financial performance during the 1980s, privatisation, which was initially confined to specific SOEs (Bianchi *et al.*, 1988, p. 87), increased dramatically. In the 1990s, privatisation saw the involvement of entire sub-holdings and eventually led to the definitive closure of IRI in 2002.

In the last part of this subsection, IRI is evaluated on the basis of the four criteria explained in the second section: vision, rewards, social goals and independence.

IRI had a clear vision for itself and the country, and it played an essential part in the creation of the miracle economy. During that period, it was generally run efficiently by competent management and it promoted competition with the private sector; for example, it offered customers appealing and leading-edge products in the car market through Alfa Romeo, in competition with private enterprises. Furthermore, IRI created new products and sectors, such as advanced telecommunications and manufacturing, precisely those that who would later be at the centre of the economic boom.

IRI had a vision for national economy in which infrastructure, heavy industries, energy, services and consumer goods where connected and vertically integrated to promote new markets and to achieve both the national and IRI's own ambitions. IRI was a provider of entrepreneurship in a country where private entrepreneurship was lacking or had failed (Ciocca, 2015, p. 164). IRI's biggest strength was the approach where its missions (such as providing Italians with transports or a telephone) were achieved not by a single product or an isolated intervention but instead by linking and exploring those missions inside a global vision; thereby not only producing Alfa Romeo cars but also providing road infrastructure for the car to drive on, not just providing the SIP telephone service but investing in telecommunications R&D and building the *Italcable* telephone cables infrastructure that allow it to work.

In terms of rewards, we need to differentiate the period before and after 1973. Before 1973, IRI was a profitable company that contributed to the expansion of the national economy and, therefore, of the tax base. IRI participated in mutually beneficial private-public partnerships through its mixed ownership *Formula,* it benefitted from market dynamism while encouraging technical training and keeping a long-term view. While IRI had a good track-record in this period in terms of rewards, it was involved in saving failing private companies for which it was not always adequately compensated. After 1973, IRI started to accumulate losses because of the role it was forced to play in countercyclical macroeconomic policy, in bridging the territorial divide and in other social goals. Because of its increasing reliance on government help and, therefore, decreasing autonomy, parasitic private-public partnerships prevailed and IRI was pressured to save many failed industries thereby paying a high price for private (de)faults. Therefore, IRI's track-record on rewards is mixed: moderately high rewards prevailed until 1973, then results saw an overall deterioration.

IRI achieved incredible results in terms of social goals. It was deeply committed to increasing equality and social cohesion, and it made a crucial contribution to the historic reduction in the economic gap between northern and southern Italy building the north-south A1 highway and providing maritime, air and telephone connections. After 1973, IRI was chosen as the provider of an ever-increasing ever-changing range of social goals. This strategy proved to be damaging to social goals themselves and incompatible with financial stability. Social goals were mixed with short-term electoral objectives and these "improper burdens" eventually provided legitimacy to calls for privatisation.

With regard to independence, the evaluation has to be chronologically differentiated. Before 1973, most of IRI's executives proved themselves to be autonomous brave public entrepreneurs. An adequate balance between public interests and company results was maintained, and IRI enjoyed a relatively high level of independence. After the 1973 crisis, IRI started to run at a loss and thus became more dependent on political favours and government funds, damaging its autonomy.

4.2 *Temasek*

Temasek is a Singaporean SHC established in 1974 by the Singaporean government and it is wholly owned by the Ministry of Finance. It was created to manage enterprises which were previously part of government agencies, ministries or boards (OECD, 2015b, p. 50).

Temasek has a portfolio value of 308 billion S$ and it operates through concentrated equity investment (Liu, 2017), often holding a controlling stake in subsidiaries. It operates in industries such as telecommunications, electricity, oil and gas, semi-conductors, shipping, ports, engineering, media, rail, bus, taxi, shipbuilding and banking (Chang, 2007, p. 9; Liu, 2017).

Part of the literature argues that Temasek is a SWF (Adeakin, 2018, p. 309; Liu, 2016, pp. 95-106; Bolton *et al.*, 2012, p. 98), however, in this paper Temasek is categorised as a SHC because it presents a series of characteristics that are more aligned with the SHC category. It usually owns fully or a large part of its subsidiaries, through what are known as "block investments" (Liu, 2017), and it is defined as a SHC by the OECD (2015b, p. 50). The management style is active (Chen, 2016) and not mainly passive (as it is in SWFs).

While a relative majority (and at its conception a large majority) of Temasek's business is domestic, the SHC has increased its international portfolio during the last two decades. In 2013, Temasek disclosed its largest investments with two foreign companies out of the top three, namely China Construction Bank Corporation and Standard Chartered PLC. Furthermore, some of its domestic companies, such as SingTel, may also operate abroad. Therefore, Temasek has built a relatively stronger internationalisation strategy compared to most SHCs.

Temasek represents the production part of the Singaporean state development vision. Since independence, the Singaporean government managed to create a network of SOEs, boards and agencies that interact with each other with the goal of promoting the island's development. An example is how building permits and industrial policy are interconnected through the Housing & Development Board (HDB). In 2004 the state reached 90% in land ownership (OECD, 2015b, p. 46), and, with land being a key constraint on Singapore's development, the government, by owning the land, can prioritise certain investments and enforces its industrial policy strategy both indirectly (through the HDB) and directly (through Temasek). Temasek also completes the government investment strategy by being the predominantly internal branch[16] of its wealth-management scheme whereas GIC[17] is the external one. Furthermore, Temasek presents the characteristics of a visionary SOE thanks to its long-term focus (Liu, 2017, p. 203) and efficiency in running subsidiaries.

In terms of rewards, Temasek has been a profitable company with a portfolio value that has almost tripled since 2009 (from 103 to 308 billion S$). Temasek subsidiaries have a higher valuation and better governance than private companies, even when strong controls for other

[16] Even accounting for its increasing internationalisation, most of the firm's returns still derive from its local investments (Ng, 2010)

[17] Government of Singapore Investment Corporation, a 390 billion US$ SWF owned by the Singaporean government that manages its foreign reserves.

variables are made (Ang and Ding, 2006). The Singaporean SHC plays a crucial role in advancing the development of the financial industry on the island as it accounts for up to 30% of market capitalisation on the Singaporean Exchange (Liu, 2017), thus benefitting Singapore's economy and strengthening its role as a financial hub. Furthermore, Temasek pays taxes as every private company does, contributes to employment, and its companies represent 20% of the Singaporean GDP (OECD, 2015b, p. 51).

Temasek has a relatively limited role in achieving social goals. Its role in this area has been gradually curtailed (Liu, 2017). A notable exception is the philanthropic activity of its foundation, Temasek Trust. For example, the Trust's Emergency Preparedness Fund has been activated in the context of the COVID-19 pandemic. Most of the government social goals remain addressed by specific policies or bodies outside of Temasek.

Temasek possesses a high level of independence. Its board is largely composed of independent professional members. The SHC has a private company legal status, pays taxes and receives no special treatment in terms of fiscal and budgetary regulation. A level of managerial autonomy is preserved even at the subsidiary level and its subsidiaries enjoy sounder corporate governance practices than non-Temasek firms (Chen, 2016). In addition to that, Temasek boasts an AAA credit rating (Liu, 2017) and high transparency scores (OECD, 2015b, p. 51).

In conclusion, Temasek is a commercially-oriented SHC through which the Singaporean state receives significant rewards. These results are achieved thanks to an entrepreneurial active investment strategy made possible by sound corporate practices which guarantee an adequate level of independence.

4.3 *Österreichische Industrieholding AG*

ÖIAG was an Austrian SHC established in 1967. The Austrian government founded ÖIAG to create a common holding for various heavy industry and banking SOEs (OECD, 2005, p. 61). ÖIAG was a highly diversified group with activities in metal production and steel processing, plastic production, agriculture (fertilizers), the pharmaceutical sector, oil and gas, defense, mechanical and electrical engineering, and even mining (Hinterhuber *et al.*, 1988).

In the 1970s and the 1980s the company was under heavy political pressure to act as a counter-cyclical tool and it started to report increasing losses (OECD, 2005, p. 61). This continuous state of financial distress was a legitimising tool for the privatisation process that started in 1987. The company was slowly deprived of its most valuable assets through privatisation in sectors such as steel (Voestalpine and Böhler-Uddeholm), airlines (Austrian Airlines), aluminium (Austria Metall AG), manufacturing (Siemens AG Österreich) and airports (Vienna International Airport). Since 2000 the OECD confirmed its evolution trend by defining it as a privatisation agency (OECD, 2005, p. 61) and in 2015 it stopped its activity as ÖIAG group[18] (OIAG Annual Report 2014).

ÖIAG presented a lack of vision and entrepreneurial spirit since its conception. This lack of enterprise is reflected in the limited internationalisation of its subsidiaries compared to companies of similar sectors and size. In 1987, 6% of ÖIAG employees were employed abroad while for comparable companies this value was often above 35% (Hinterhuber *et al.*, 1988, p. 488). A general lack of efficiency was caused by an ineffective institutional setting (Bartel and Schneider, 1991, pp. 17-40) and a long-term approach was not achieved. As a proof of that attitude, ÖIAG's investment rate was lower than private companies (Bartel and Schneider, 1991, p. 38) and ÖIAG had low investment rates in R&D causing a lack of competitive advantage in the most important products and technologies (Hinterhuber *et al.*, 1988). ÖIAG's

[18] The new smaller holding is called ÖBIB.

activity was not dominated by a forward-thinking industrial vision for national development, and it did not produce any revolutionary innovation projects. ÖIAG's inner workings were, instead, dominated by political clientelism and short-sightedness. Politicians chose "from company president to cleaning woman" (The Economist 11th of June 1988) based on their political affiliations.

In the area of rewards, the evaluation is more nuanced compared to the first criterion but still negative. On the one hand, ÖIAG often operated at a loss and political appointments lowered profitability (Bartel and Schneider, 1991, p. 18). On the other hand, it increased aggregate demand through its large employment figures and had some mutualistic public-private partnerships, in particular in the area of education and training. Overall, the judgement is negative, especially because ÖIAG benefitted from a non-transparent almost-automatic deficit financing framework that concealed a subtraction of resources from the federal budget (Bartel and Schneider, 1991, pp. 18-37).

ÖIAG was focused on multiple social goals that often served electoral objectives. Employment protection and an expansionary output and wage policy were intrinsically linked with maintaining electoral support. This was particularly evident in ÖIAG's role in employment following the two oil crises (Hanish, 1990). The final result, in terms of social goals, is globally mixed.

The category where ÖIAG presented the lowest level of satisfaction is independence. The SHC suffered from several institutional weaknesses. There were defective auditing practices inside the company and no thorough external auditing (Bartel and Schneider, 1991, pp. 19-22). At least until 1986, a system of proportional party representation was used for the appointment of the supervisory board (Hinterhuber *et al.*, 1988) which was one of the reasons behind ÖIAG's poorly coordinate diversification strategy (Hanish, 1990). Furthermore, politicians exercised a heavy influence in the day-to-day running of the company advancing electoral goals over company interests. A legal tool in this regard was Section 7 of the Nationalisation Act which gave ministries authority to directly intervene in company actions even these occurred under private company law (Hanish, 1990). The appointment of top managers was a matter of "party racket" (Bartel and Schneider, 1991, pp. 22-23) and the recruitment for apprenticeships programs was based on ministerial directives to the executive board with pressures from unions (Hinterhuber *et al.*, 1988). ÖIAG failed in establishing an institutional setting which could guarantee a degree of independence sufficient for the development of an entrepreneurial behaviour on the part of its managers and owner (Hanish, 1990).

ÖIAG did not display a strong entrepreneurial spirit. The business initiatives of its subsidiaries were subject to the consent of ÖIAG's management board which, in turn, was bound by the approval of a supervisory board composed by political parties through proportional representation (Hanish, 1990). This outdated corporate structure with cumbersome decision-making processes (Hinterhuber *et al.*, 1988, p. 491) combined with an inadequate institutional framework made ÖIAG vulnerable to unwarranted political pressures which caused financial distress that, consequently, provided legitimacy to calls for privatisation.

4.4 *Comparative Analysis*

IRI, Temasek and ÖIAG were selected as they each provide a different and representative example of levels of success in State Holding Companies. While part of a common SOE category, they display contrasting results in terms of entrepreneurship[19]. Following Yin's (2009) methodological reasoning, the paper has chosen a multiple case studies approach to identify

[19] Dion (2003, pp. 96-99) on the methodological rationale behind selecting a small number of cases based on a dependent variable, in this case entrepreneurship.

the factors that allow for successful outcomes in one case but not in another. These SHCs present historical, institutional and financial differences, that said, similarities can be identified and policy recommendations based on these common problems emerge from the analysis.

A clear role for SOEs, that emerges from the analysis, is providing entrepreneurship and long-term vision to national economies. Both IRI and Temasek served their respective countries by supplying entrepreneurship since private entrepreneurship was lacking in that aspect. IRI devised its own vision, based on sectoral interlinks, high-value productions and innovative products. Its executives were mainly people of industry with high competences which was crucial in enhancing entrepreneurship. Temasek forms a crucial part of the national government vision and is an example of efficiency and long-term thinking, it is pursuing a business strategy which is increasingly based on active investment and internationalisation. In contrast, ÖIAG points to the danger of unfiltered electorally-motivated intervention for the efficiency and provision of entrepreneurial spirit by SOEs. SOEs can be efficient, innovative and entrepreneurial but the institutional framework and the quality of leadership (Hanish, 1990) are crucial in achieving this goal.

Since state entrepreneurship (especially in ground-breaking innovative sectors) involves a degree of risk, the ability to gain rewards is essential and can be a compelling factor that increases the legitimacy of SOEs. Temasek represents a model in terms of profitability and contribution to economic growth. During its first 35 years, IRI proved that rewards such as profitability, an increase in aggregate demand and the promotion of national development can be achieved without sacrificing social goals. Au contraire, inadequate outcomes can arise if lack of transparency, electoral interests and excessive continuously changing social goals are applied to SOEs as was the case for ÖIAG and IRI after 1973.

SHCs analysed in this work prove that there is no direct trade-off between economic rewards and social goals. In the case of ÖIAG, only mediocre results in both categories were accomplished. IRI's history shows how, before 1973, a high level of rewards and similarly excellent outcomes in terms of social goals (such as territorial and social cohesion, nearly full employment and positive externalities in training and innovation) were concurrently achieved[20]. In contrast, an ever-changing and growing set of social goals caused the negative results that prevailed after 1973. The Singaporean government followed an alternative path by externalising social goals to other agencies and state boards. Therefore, Temasek has a relatively limited role in achieving social goals. Setting fixed, well-defined social goals or assigning them to non-profit public agencies is the most effective instrument in order to ensure that those goals are actually reached (Chang and Rowthorn, 1995).

Independence represents a tool in order to allow SOEs to follow a long-term visionary approach and to resist unwarranted political influences that threaten financial viability. While Temasek strongly relies on formal institutions to ensure its independence, IRI's independence was also guaranteed by a high level of competence and legitimacy of its management which staved off unwarranted political pressures, at least until 1973. ÖIAG's institutional framework proved to be ineffective in shielding the company from being used as a tool for electoral purposes. Both IRI and ÖIAG demonstrate how "improper" (Bianchi, 1987, p. 271; Hanish, 1990) burdens can be detrimental to economic efficiency and, ultimately, to social goals. In conclusion, when it comes to independence, Temasek represents a model to be followed, whereas IRI's legacy is mixed and ÖIAG's institutional framework being defective.

Based on the evaluating framework set out in section two, Temasek, IRI and ÖIAG represent different levels of outcome: high, mixed and low, respectively. While ÖIAG and Temasek show relatively consistent outcomes across their history (generally negative for

[20] Hanish (1990) cites IRI's telecommunication company STET as an example of how business efficiency and national development objectives can be concurrently achieved.

ÖIAG, positive for Temasek), IRI has displayed inconsistent results and a greater complexity in its seventy-year record. This factor, in addition to its economic magnitude, explains the different length of analysis between the three SHCs. IRI's achievements exhibit a contrasting trend which is characterised by the year 1973 as a crucial turning point. Such course entails a double nature of the outcomes of the company which is reflected in the comparative analysis.

In their paper called "ÖIAG and IRI - two companies on the way to a new identity" Hinterhuber *et al.* (1988) highlight how entrepreneurial culture is crucial to success and how the two companies could turn their decline around. However, what happened to ÖIAG and IRI in the two decades after their work demonstrates that political capture and institutional defectiveness can irreparably damage legitimacy, and this can put an SOE on a path towards privatisation and dissolution. By contrast, Temasek shows that it is possible to build a stable governance framework in which SOEs are given clear public purposes but that leaves their implementation to the company, allowing it to follow an entrepreneurial management style.

5. SUMMARY AND CONCLUSIONS

Although entrepreneurship and vision are two terms which are rarely associated with the state, state-owned enterprises represent a viable way to encourage growth and to do it with an entrepreneurial and visionary approach.

The paper presents a framework that is suited to evaluate SOEs and their performance, and that takes into account their public nature. Social goals represent legitimate goals for a state company and profitability is only one of several rewards that can be gained from SOEs and, if taken alone, is inadequate in judging performance.

The focus is on SHCs because they provide the flexibility and production-focus, which SWFs lack, that is essential in entrepreneurship. Furthermore, SHCs avoid the financial instability caused by the heavy political control that characterises SOEMC.

In presenting the history of IRI, its contribution to the Italian economy of today and to the economic miracle of the 1950s and 1960s is highlighted. Before 1973, IRI was characterised by sound financial management, entrepreneurial thinking and innovative products. Its financial, and thus managerial, autonomy was then damaged by the losses caused by the 1973 oil crisis. A vicious cycle of losses, loss of independence, political demands and more losses followed and gave legitimacy to calls for privatisation. Privatisation brought the company to its closure in 2002.

The experiences of ÖIAG and Temasek provide us with the necessary comparative benchmarks. The international comparison of the three companies highlighted the importance of independence in achieving entrepreneurship and high rewards. In the analysis of the three SHCs social goals are in close association with satisfactory economic rewards and not in contradiction with them. That said, the IRI experience after 1973 shows how an excessively large and continuously changing set of social goals can affect financial stability and therefore independence, finally damaging the very same social goals.

The state can be visionary and SOEs can be entrepreneurial and efficient. The state must follow the goal of creating new markets and new paths of development for national economies, not just fixing market failures. In this prospect, SHCs can be an effective tool in achieving those results.

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