

# CORPORATE GOVERNANCE AND PERFORMANCE: EMPIRICAL EVIDENCE FROM ITALIAN AIRPORT INDUSTRY

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## Abstract

This paper empirically examines the degree of maturity of corporate governance of Italian airport companies, after about twenty years from the beginning of the reform aimed at the privatization of the industry. Two corporate governance issues are investigated: i) the development of different corporate governance models by different categories of airports; ii) the relationship between corporate governance models and the technical and financial performance of Italian airport companies. For this reason two indexes have been developed to capture two corporate governance features such as decision-making power concentration and alignment to best practices. Then the correlation of corporate governance indexes with the efficiency, measured by using data envelopment analysis (DEA) methodology, is tested on a significant sample of Italian airports.

**Keywords:** Corporate Governance, Efficiency, Italian Airport Industry, Data Envelopment Analysis

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## 1. Introduction

In the last thirty years airports have shifted from simple providers of transport facilities to complex economic activities fully exposed to competition, with a primary importance for national and local development (Fleury, 1999).

The constant evolution of airports to multi-business firms capable of attracting massive volumes of investments and stimulating a strong demand of jobs, goods and services went hand in hand with the gradual liberalization of the air transport industry. The first step to free market competition went back to the *Airline Deregulation Act (ADA)* promulgated in the United States of America in 1978, and the process continued almost ten years after in Europe with the set of laws enacted from the Council of the European Union in 1987, 1989 and 1992 (Valdani and Jarach, 1997).

Today airports, as well as other firms involved in deregulation processes, need to adopt a managerial logic and to develop the right managerial tools to cope with the challenges imposed by the global market. At the same time, in several European countries some difficulties still remain which make it hard for these multi-product firms to adopt the right business model to succeed in the market. One of these is the typical concentration of ownership which traditionally follows the deregulation processes. Another important issue is associated with the hard-to-

remove historical public presence which can affect both the governance structure and the strategic management of the companies. This fact, often indicated among the main obstacles for the recovering of efficiency of the industry, requires the implementation of actions aiming at favouring a careful and balanced relationship between public and private powers.

This paper explores the degree of maturity of the corporate governance systems reached by the Italian airports considering their delay in carrying out the reform aimed at the gradual liberalization of the industry which started in the early Nineties (Sebastiani, 2004). In Italy, the long state property in the industry makes the air transport system a privileged field of study. Notwithstanding the progressive pressures towards privatization, in fact, the State-entrepreneur in Italy seems to be firmly present in the airport industry too (Cafferata, 2010).

After about twenty years it is first useful to understand if airports belonging to different categories such as those which are part of groups, those with private majority shareholders, those which are listed on the stock exchange and also those characterized by different traffic volumes have developed different corporate governance models. Secondly the study permits us to verify the crucial relationship between corporate governance and financial and operational performance of Italian airports. In this paper two corporate governance issues are examined: i) the development of different

corporate governance models by different categories of airports; ii) the relationship between corporate governance models and the technical and financial performance of Italian airport companies.

In particular, the analysis aims to evaluate the existence and the intensity of the link between two corporate governance features, such as the decision-making power concentration and the adherence to the best practices established by codes of conduct and literature, and the level of efficiency of airports. For this purpose, two indexes considering both internal and external mechanisms on corporate governance are developed. Internal mechanisms refer to the balance among the main groups of players inside the corporation, while external ones refer to the formal legal and regulatory obligations designed to address the entry, operations and exists of the firm (Babatunde and Olaniran, 2009). This will also permit to bridge the gap between theory and practice and to evaluate the diffusion of corporate governance best practices.

The above mentioned link represents one of the most debated and vexed questions in the field of management, since theory assumes that better corporate governance models should lead to more balanced and effective decision-making processes and thus to better performance (Cadbury, 1999; Melis, 2000), but empirical proof is still weak and contradictory (Hermes, 2005; Lai and Stachezzini, 2006; Gupta, 2009). The delimitation of the research field to the Italian airport industry, if it restrains from generalizing the results, on the other hand it permits itself to overcome the one-size-fit-all approach in measuring corporate governance. This concept refers to the pretension to identify a unique framework to interpret very different contexts and strategic purposes (Arcot and Bruno, 2006).

## 2. Measuring corporate governance

In the last two decades, most academic research on corporate governance has been dominated by the agency theory approach (Ross, 1973; Fama, 1980; Dühnfort *et al.*, 2008). The necessity of balancing the power inside firms, in this view, is primarily associated with the objective of reducing the agency costs, caused by the information asymmetry and by the differing interests between a principal and the agent of the principal. The agent commits himself to supply a service for the principal in exchange of a compensation, and both players try to maximize their own utility (Macharzina, 1995). In this sense, firms, as suggested by the contractual theory, can be seen as nexus of contracts, formal and informal, through which the use of resources and determined activities are put in charge of an agent to reach the goals set by the principal (Fama and Jensen, 1993). Control mechanisms are needed to reduce the agency problems arising from the

separation between ownership (the investors) and control (the management), because managers should act in the interest of the owners (Jensen and Meckling, 1976), but in such a complex environment is not possible to reach the goal by contracts, which are incomplete (Coase, 1937; Alchian and Demsetz, 1972). The effectiveness of shareholders' control on management, in this sense, seems to be strictly related to the capability of corporate structure to streamline managerial action to ownership's objectives. This attempt is extremely expensive for both parties, so the overall goal is to minimize the agency costs, which can be summarized in monitoring costs, bonding costs and residual loss (Meinhövel, 1999).

In recent years, nevertheless, the contingency theory has strongly influenced corporate governance literature. This approach moves from the basic idea that every firm operates in a unique context, so it should develop the best corporate governance model in relation to its specific internal features and external influences (Huse, 2007; Daily *et al.*, 2003; Viganò *et al.*, 2011; Krivogorsky and Grudnitski, 2010). Also, a lot of studies showed that external factors such as geographical position, tax system, industrial development and cultural background strongly affect ownership structure and in turn firm's performance (Pedersen and Thompson, 1997).

Nonetheless, many authors have investigated the potential link between corporate governance and corporate performance (Thomsen and Pedersen 2000; Frick and Lehmann, 2004). As noticed by Babatunde and Olaniran, the measure of performance matters for analysis of corporate governance studies (Babatunde and Olaniran, 2009). A lot of studies have tried to quantify governance effectiveness using scores and seeking a correlation with firm value, profits, sales growth or capital expenditure as financial performance indicators (Bhagat and Black, 1999, 2002; Gompers *et al.*, 2003; Dulewicz and Herbert, 2003; G.M.I., 2004; Brown and Caylor, 2006). Criticisms of this approach deal with the difficulty of identifying a plurality of explanatory standards for governance, with very few of them having real significance (Sonnenfeld, 2004).

A large part of the studies investigated corporate governance effectiveness focusing on its structural features such as the ownership concentration, the board composition, the separation between the chief executive officer (CEO) and the chairman and the independence of the directors (Alonso-Bonis and de Andrés-Alonso, 2007; Zeitun, 2009). La Porta *et al.* (1999) found that ownership and control concentration in the hands of large shareholders can serve as mechanisms for resolving collective action problems among shareholders. In literature, there are diverging studies about the effects of the

relationship between ownership concentration and performance, someone including the hypothesis that ownership concentration may improve performance (Stiglitz, 1985; Jensen, 1986; Shleifer and Vishny, 1986), someone else stating that ownership concentration may be an obstacle to exploiting growth opportunities as well as discouraging innovation and management autonomy (Hill and Snell, 1988; Burkart *et al.*, 1997).

However, Krivogorsky and Grudnitski (2010), in their study carried out on eight European countries, highlighted the effect of country-specific institutional constructs on the relationship between ownership concentration and performance. In this sense the positive association between state ownership and listed firm performance in the Chinese context, shown by Le and Buck (2011), can be interpreted. Considering the field of study of the Italian airport industry, it is worth a mention the existence of many levels of ownership in a company shown by Barca and Becht in the Continental Europe. In fact, cross-ownership, rings and high level of voting concentration in the shareholdings structure make more difficult to identify controlling investors, the perimeters of companies control and the voting leverages in majority voting (Barca and Becht, 2001; Chapelle, 2005).

Di Pietra *et al.* (2008) presented evidence that corporate governance quality measured by the fraction of directors that serve on more corporate boards, named “busy” directors, positively influences the market value of Italian companies, while they did not appreciate any significant relationship between the board size and the market value. Results about this relationship, however, are contradictory. Mak and Kusandi (2004) reported a negative relationship between board size and firm valuation, in line with the results of previous studies that showed that directors in larger boards may be more reluctant to initiate changes due to expected delays and disagreements (Shaw, 1981), or that the effectiveness of larger boards’ activity may be hindered by the poor coordination (Gladstein, 1984) and the lack of motivation (Jewell and Reitz, 1981). Nevertheless, focusing on a sample of smaller firms with a history of poor operating performance, Larmou and Vafeas (2010) identified a setting in which larger board size appeared to be positively related to shareholder value. Furthermore, Davidson III and Rowe developed a theory of intertemporal endogeneity of board composition and financial performance. This means that besides exerting influence on financial performance, board composition is also impacted by board composition (Davidson III and Rowe, 2004).

Other studies, on the contrary, tried to fill the gap due to the underestimation of the working and quality standards of firms’ employees and bodies in

measuring corporate governance. Structural indicators, in fact, cannot easily explain managerial behaviour and organizational performance (Larcker *et al.*, 2004). In this sense Lorsch and MacIver (1989) found that managers’ activity, especially in decision-making, benefitted from the board’s daily operation. Everyday activity, in fact, is supposed to give more firm-specific information. In line with process-oriented research aimed at understanding the sources of “value-creating board” (Huse, 2007), Pugliese and Wenstøp (2007) showed that board working style and board quality attributes were more important sources of board effectiveness than board composition.

A lot of studies investigated the roles of the main figures of firm’s boards, and in particular the effect of the separation between the chairman and the CEO. Fama and Jensen (1983) suggest that CEO duality violates the principle of separation of decision-management and decision-control and hinders the board’s ability to perform its monitoring functions. However, also in this case results are not homogeneous. Even though Rechner and Dalton (1991) found that firms in which the two positions are separated perform better on a number of accounting measures, and Core *et al.* (1999) found that boards are less effective when the CEO is board chair and when the board is relatively big, some other research presents opposite results. Baliga *et al.* (1996), for instance, showed that there are no discernable differences in performance that can be attributed to a firm’s leadership structure, and in the same way Brickley *et al.* (1997), as well as other authors (Chen *et al.*, 2008), showed that CEO duality is not associated with inferior performance. Coles *et al.* (2001) even found that firms that do not separate the positions of CEO and chair of the board have better accounting performance.

In their study on the role of the board chair as distinct to that of the CEO, McNulty *et al.* (2011) mixed structural and working aspects. In fact, linking board composition, board process and the exercise of influence, they revealed differences amongst chairs in how they run the board and in the influence they exert on board-related tasks.

An important issue emerged in measuring corporate governance in reference to the consideration of the diversity amongst firms. The influence of the context, in fact, often makes the attempt to use the same framework following the “one-size-fits-all” approach in vain (Arcot and Bruno, 2006). For this reason Faleye (2007) argues that requiring all firms to separate CEO and chairman duties may be counterproductive because whether CEO duality benefits or hurts the firm is contingent on firm and CEO characteristics. As regards the CEO compensation, it is interesting to consider the analysis carried out by Álvarez Pérez and Neira Fontela (2005) in the Spanish firms,

about the diffusion of the stock option plans, following the approach of the theory of agency.

The uncertainty of the link between CEO and Chairman is posed again with reference to the relationship between the independence of the directors and firm performance. While Rosenstein and Wyatt (1990) found the existence of such a relationship, Bhagat and Black (2002) provided evidence suggesting that there is not a strong relationship in the long-term, and Coles et al. (2001) found that firms that select higher proportions of independent directors perform worse on markets.

In measuring corporate governance features, we also considered the study of De Jong et al. (2006), that presented evidence that general meetings often do not provide any significant influence on management, and the study of Cortesi et al. (2009), that investigated the main limits and the areas of improvement in the working of company internal control system.

However, in air transport management literature, little has been done on corporate governance, and the most studies are mainly focused on the airline industry. Kole and Lehn (1999) studied the adaptation of the governance structure to the deregulation process in U.S.A., and found a more gradual adaptation for the airlines having a more concentrated ownership structure, smaller boards and more equity-based pay. Carney and Dostaler (2006) investigated corporate governance models focusing on ownership and control relationship, and found that low-cost carriers best fit the pattern of entrepreneurial governance, characterized by a more direct control of management decisions. Alves and Barbot (2007), on the other hand, quantified governance to verify the link with airline business models. They found that low-cost carriers solve their potential agency cost problems differently from full-service carriers, as they organise their boards in order to achieve lower costs and a faster decision-making process.

Many more analyses have been carried out on the measurement of the multi-faceted airport performance (Rotondo, 2006). Humphreys and Francis (2002), first of all, made a review of the nature of the performance measurement techniques used by airports. Then a number of empirical investigations on airport financial and technical performance were carried out in the Italian context (Barros and Dieke, 2007; Curi *et al.*, 2010) or elsewhere (Barros, 2008; Oum, 2009), mainly through the use of data envelopment analysis (DEA) or variable factor productivity (VFP). Relying on a well-established methodology this paper aims at taking a step forward by shedding light on the unexplored issue of the link between corporate governance systems and airport performance.

### 3. Italian airport institutional setting

Though nearly 20 years have passed since regulation reform of the airport industry started, the Italian institutional setting can be defined as perennially “stuck in transition” from a partial management agreement between the State and the firms, characterized by public presence, to a total management agreement. So some of the gaps which motivated the change still persist, such as the lack of competitive pressure, private funds and efficiency. The slowness of the reform, in fact, has caused the stratification of a lot of heterogeneous situations with reference to both the regulation levels, that of the right of entry into the market of airport management and that of the right to use the airport facilities and to provide services.

The Law n. 537/1993 first drove towards privatization providing the formation of companies to manage airports in order to attract new funds and modernize infrastructures. The following Law n. 351/1995 made the process more gradual, repealing the obligation of public majority share in the company. Nevertheless, today the passage to total management agreement disciplined in D.M. 521/97 still has not been completed and in the industry some provisional management agreements remain. Other than the eight airports which benefited from special law before 1993, not all the airports have obtained the total management concession and then have signed the contract with the State. A lot of companies continue to manage airports in accordance with a partial management concession model, sometimes in a precarious way. The distinction between “regular” or “precarious” partial management concessions is based on the presence of an official agreement between the airport company and the State.

While total management agreement allows the company to manage the whole airport for a maximum time of 40 years thus incentivizing direct investments, in the partial management agreement, that lasts for 20 years, the State continues to manage the air-side infrastructures. In the precarious cases the State also collects the aeronautical revenues.

The confusion of the regulation about entering into the market has had a direct effect on the right to use facilities, and especially on the setting of aeronautical fares (Sebastiani, 2009). The C.I.P.E. Deliberation n. 86/2000 had introduced the “dual till” principle in setting the fares of airport services, which obliged the airports to correlate the remuneration of aviation activities to costs and left the remuneration of non-aviation ones free for the regulation period of 5 years (<sup>1</sup>). However, the following Law n. 248/2005 changed the rule in the “single till” principle, that is the duty to impute at least 50% of commercial earnings to decrease the aeronautical charges. The new principle also had a

retroactive effect. Finally, with the art. 17, comma 34-bis of the Decree 78/2009, the Italian airports with more than 10 million annual passengers have been permitted to introduce long term fare systems in line with European standards as a dispensation to the previous rule.

In the meantime the European Community Directive 2009/12/CE, from March 2011 requires the airports with more than 5 million annual passengers to set their fares by consulting users and applying to an independent authority in case of disagreement. Up until now the mentioned fare rules have been scarcely enforced and fares did not changed from 2001 to 2008, causing airport discontent for the substantially lower level of the fares compared to the European average (Assaeroporti, 2006).

The Italian airport industry, therefore, is very non-homogeneous since it is characterized by a variable configuration in management agreements and consequently in ownerships, where the presence of public administration is still strong. Furthermore, only four companies are listed on a stock exchange and five companies manage a group of airports directly or indirectly by shareholding control.

There are also remarkable differences in traffic volume, considering that in the last five years just two airports greatly exceeded the limit of 10 million annual passengers and five moved from 5 to 10 million passengers per year. Fourteen airports, instead, moved between 1 and 5 million passengers. Finally the Italian system can be defined as widespread because it has about 100 airports on the national territory with 47 and 45 of them, respectively, opened to scheduled flights and adhering to the national trade-union. It is also very concentrated, as shown by the fact that the traffic volume of the 21 airports with more than 1 million average passengers represents nearly 96% of the total from 2005 to 2009.

#### 4. Methodology

The sample consists of 20 companies managing a total of 27 Italian airports, including all the 21 airports with more than 1 million units in passengers and work-load units (WLU) in the five-year period 2005-2009, the four airports they control as a holding company and two out of the other four airports with a traffic volume comprised between 1,000,000 and 500,000 units. The sample airports, whose features are expressed in table 1, account, respectively, for 97.74% and 96.81% of the whole industry's passengers and WLU. The work-load unit, elaborated by the Transport Study Group of the Polytechnic of Central London, is a measure adopted at the international level that helps to overcome some of the limits which affect the measures of passengers and cargo. A single WLU,

in fact, expresses a passenger with baggage or, alternatively, 100-kilogram cargo, thus permitting to uniform the traffic volume of airports characterized by different aeronautical activities.

In order to capture the characteristics of corporate governance systems two indexes have been developed, the first one as a proxy for the concentration of decision-making power (DPC Index) and the second one as a proxy for the adherence to the best practices (BP Index) prescribed in international reports and codes of conduct (Cadbury Report, 1992; Principles of Corporate Governance, 1994; Greenbury Report, 1995; Hampel Report, 1998; Preda Code, 1999; Smith Guidance, 2003; Higgs Report, 2003; Combined Code, 2010). These documents, together with corporate governance literature, guided the selection of variables which compose the indexes.

Data was collected during the period from September 2010 to June 2011 by analysing institutional documents of the companies such as Statutes and Corporate governance reports taken from websites or given directly by the airports' legal, administrative and control offices. Each company's top-management was also asked to fill in a structured questionnaire in order to identify the main features of the corporate governance system.

Financial and operational performance of the sample airports, instead, was measured making use of the well established data envelopment analysis (DEA), a linear programming method based on the usual hypotheses of the neoclassical analysis of the production function, which permitted us to calculate the relative efficiency of the companies considered as a homogenous set of decision-making units (DMU). Finally we performed a simple correlation analysis between each of the corporate governance indexes and the level of efficiency of airports.

It is not the first time DEA is used, though in a different way, to verify the link between corporate governance and firm profitability (Lehmann *et al.*, 2007). In this study we chose to estimate an input-oriented DEA-CCR Index (Charnes *et al.*, 1978), which is probably the most widely used model. It assumes constant return-to-scale relationships between inputs and outputs and considers the first ones endogenous and the second ones exogenous. The companies, namely, aim to minimize the costs of their activity in order to reach the efficiency frontier, keeping output constant. Standard measure is not an a priori calculation, but it is determined automatically inside the sample, because the model selects the benchmark among the units involved. It seemed in line with our research's scope, because the same benchmark logic was used to calculate a number of provisions which constitute the two governance indexes. Other strengths of DEA are that it is a very simple and powerful managerial tool which can handle multiple inputs and outputs,

each of them with very different units. On the other side, its main limitations lie in the low ability to indicate “absolute” efficiency and in the impossibility to test hypotheses on a statistical

basis. Another well-known limit of this method is that the only chance to move away from the frontier is to be “inefficient”.

**Table 1.** Characteristics of the sample

N°	Airport company/Group	Airports	Traffic volume (millions)	Concession Agreement	Majority shareholders	Listed on Stock Exchange
1	So.Ge.A.Al.	Alghero	1<pax and WLU<5	T	Public	
2	Aeroporti di Puglia	Bari	1<pax and WLU<5	T	Public	
		Brindisi	0,5<pax and WLU<1	T		
		Foggia	pax and WLU<0,5	T		
		Taranto	pax and WLU<0,5	T		
3	S.A.C.B.O.	Bergamo	5<pax and WLU<10	T	Public	
4	S.A.B.	Bologna	1<pax and WLU<5	T	Public	
5	So.G.Aer.	Cagliari	1<pax and WLU<5	T	Public	
6	S.A.C.	Catania	5<pax and WLU<10	T	Public	
7	A.d.F.	Firenze	1<pax and WLU<5	T	Public	L
8	Aeroporto di Genova	Genova	1<pax and WLU<5	T	Public	
9	S.A.CAL.	Lamezia Terme	1<pax and WLU<5	T	Public	
10	S.E.A.	Milano Linate	5<pax and WLU<10	T	Public	L
		Milano Malpensa	pax and WLU>10	T		
11	Ge.S.A.C.	Napoli	5<pax and WLU<10	T	Private	
12	Ge.A.Sar.	Olbia	1<pax and WLU<5	T	Private	
13	Ges.A.P.	Palermo	1<pax and WLU<5	T	Public	
14	S.A.T.	Pisa	1<pax and WLU<5	T	Public	L
15	A.d.R.	Roma Ciampino	1<pax and WLU<5	T	Private	
		Roma Fiumicino	pax and WLU>10	T		
16	S.A.G.A.T.	Torino	1<pax and WLU<5	T	Public	
17	Air.Gest.	Trapani	0,5<pax and WLU<1	PP	Public	
18	S.A.Ve. Group	Venezia	5<pax and WLU<10	T	Private	L
		Treviso	1<pax and WLU<5	P		
19	Aeroporto F.V.G.	Trieste	0,5<pax and WLU<1	T	Public	
20	Aeroporti del Garda Group	Verona	1<pax and WLU<5	T	Public	
		Brescia	pax and WLU<0,5	P		

T: total concession; P: partial concession; PP: precarious partial concession; L: listed

From the temporal point of view, the analysis of airports' efficiency followed two successive steps. In the first phase, following Barros and Dieke (2007), three inputs and six outputs were selected to analyze airports' efficiency. Inputs were all financial measures like the cost of labour, the capital invested and the other operational costs. Outputs, instead, embraced both physical and

financial variables. The physical ones include the number of planes, the number of passengers and the tons of cargo moved by airports, while the financial ones include the aeronautical revenues of airports, their handling revenues and the other non-aeronautical revenues.

Because of the high number of airport companies on the efficiency frontier we chose to

deepen the analysis in a second phase where, for estimation purposes, two inputs and three outputs were extracted (Simar and Wilson, 2008; Curi *et al.*, 2010). Referring to the inputs, a theoretical approach was followed. Considering their primary importance in the industry, cost of labour and the capital invested were chosen. Referring to the outputs, on the contrary, the correlation among each pair of them was calculated in order to avoid their mutual influence on final performance.

We found that a strong correlation, showed in italics in table 2, exists between the aeronautical revenues and, respectively, the number of planes and the number of passengers. At the same time a strong correlation between the number of planes and the number of passengers emerged. This suggested to us to select the aeronautical revenues and to reject the other two outputs.

**Table 2.** Mutual linear correlation among outputs

	Number of planes	Number of passengers	Tons of cargo	Aeronautical revenues	Handling revenues	Non aeronautical revenues
Number of planes	—					
Number of passengers	<i>0,99436</i>	—				
Tons of cargo	0,85695	0,82269	—			
Aeronautical revenues	<i>0,99690</i>	<i>0,99141</i>	0,87948	—		
Handling revenues	0,74508	0,69151	<i>0,95167</i>	0,77031	—	
Non aeronautical revenues	0,88215	0,88129	0,68987	0,87958	0,54081	—

Some other devices were adopted to reinforce analysis. In order to mitigate the economic short-term effects, the average data related to the recent three-year period 2006/2008 was used. As the latest official financial data of the Italian airport industry dates back to 2006 (ENAC, 2008), when not available on company websites, data was collected from Assaeroporti's archives and Cerved databases or taken directly from airport companies.

In measuring performance with DEA, the data referred to airports belonging to groups were necessarily added. A simple concept of group was adopted, that is a whole of airports managed or controlled by the same company. Therefore each group is considered as a single decision-making unit.

The combination of indicators meets both DEA conventions that are a minimum number of observations greater than three times the number of inputs plus outputs [ $60 \geq 3(2+3)$ ] and a minimum number of units equal or larger than the product of inputs and outputs [ $20 \geq (2*3)$ ] (Raab and Lichty, 2002; Boussofiane and Dyson, 1991).

Then we found a significant correlation between handling revenues and tons of cargo. The lower correlation between the handling revenues and the aeronautical revenues compared to the correlation between the tons of cargo and the aeronautical revenues suggested us to select the handling revenues as the second output. Finally, we selected the non-aeronautical revenues which showed correlation values with the other outputs on the average.

In short the three financial measures were isolated. This seemed to be in favour of a stronger homogeneity between inputs and outputs, and to be consistent with the scope of verifying the link between financial performance and corporate governance of the airport companies.

#### **4.1. The decision-making power concentration (DPC) Index**

The DPC Index, in particular, accounts for the global concentration of decision-making power inside the company by considering structural aspects and responsibilities of the main bodies at the different levels of the organization. It is composed of 17 provisions divided into 5 areas with different percentage weight: ownership concentration, capital protection, shareholders' decision-making power, board of directors' decision-making power, company's bodies composition (see table 3 for details). In general, higher scores correspond to higher power concentration.

Area n. 1, "ownership concentration", weights for 25% on the total, and is measured by the company's capital composition. It is a 6-item scale which takes into account the majorities requested for the deliberation validity of the shareholders meetings, ordinary and extraordinary, exposed in the Italian Civil Code (Art. 2368). The highest score is related to the event that a single shareholder holds more than 66.6% of the total

shares of the company, while the lowest score is set to the companies where the first three shareholders together do not hold more than 50%.

Area n. 2, “capital protection”, weights for 25% on the total, and is measured by five provisions that, if contemplated in the company statute or in a contract between shareholders, strengthen shareholders position, and especially majority shareholders’ one. Provision n. 1 refers to the obligation to allocate a certain amount of shares to certain shareholders. Provisions n. 2, n. 3 and n. 4 concentrate on the presence in the statute of the typical protection forms represented by the option right in case of capital increase (provided by art. 2441 of the Civil Code), the pre-emption right in case of share sales, the approval clauses in case of new entries. Similarly, provision n. 5 verifies the presence of contractual agreement among shareholders about blocking share transfers.

Area n. 3, “shareholders’ decision-making power”, weights for 25% on the total, and is measured by six provisions. The first three concentrate on the shareholders decision-making function inside the meetings. Provision n. 1 analyses the power extent of the shareholders’ meeting, because the statute could entrust shareholders with tasks other than those provided by the Art. 2364 of the Civil Code. Provisions n. 2 and n. 3 focus on the request of strengthened majorities, which implicate a larger comparison

among shareholders and thus a lower power concentration.

Provisions n. 4 and n. 5 assess the shareholders’ influence on the other bodies’ composition, while provision n. 6 assesses the presence of contractual agreement about voting, which is supposed to increase power concentration.

Area n. 4, “board of directors’ decision-making power”, weights for 15% on the total, and is measured by three provisions. Provision n. 1 assumes that the lower the number of executive directors is, the higher the power concentration is. Following a comparative approach, the sample mean is chosen as a benchmark. Provision n. 2, instead, focuses on the request of strengthened majorities for the validity of the board deliberations, while provision n. 3 investigates the actual possibility for directors to delegate decisions.

Area n. 5, “company’s bodies composition”, weights for 10% on the total, and is measured by two provisions. The first one examines the number of directors while the second one the number of internal auditors. The principle here is that a number of members higher than the sample mean, assumed as a benchmark, encourages comparison and reduces power concentration inside the company.

The DPC Index, to be better compared to DEA Indexes, was normalized into a scale of values from 0 to 1.

**Table 3.** Description of variables of the Decision-making Power Concentration index (DPC Index)

N°	Areas (weight %)	N°	Provisions	Scores (Y = yes; N = no)
1	Ownership concentration (25%)	1	Company’s capital composition	If $1 > 66,6\%$ = 1 If $50\% < 1 \leq 66,6\%$ = 0.8 If $1 \leq 50\%$ and $2 > 66,6$ = 0.6 If $1 \leq 50\%$ and $50\% < 2 \leq 66,6\%$ = 0.4 If $1 \leq 50\%$ and $3 > 50\%$ = 0.2 If $3 \leq 50\%$ = 0
2	Capital protection (25%)	1	Obligation to certain shares possession by certain shareholders	Y = 1 / N = 0
		2	Option rights for certain shareholders	Y = 1 / N = 0
		3	Pre-emption rights for certain shareholders	Y = 1 / N = 0
		4	Approval clauses in case of new shareholders entry	Y = 1 / N = 0
		5	Signed shareholders’ agreement about blocking	Y = 1 / N = 0
3	Shareholders’ decision-making power (25%)	1	Other tasks assigned to shareholders’ meeting	Y = 1 / N = 0
		2	Strengthened majority in ordinary meeting	Y = 0 / N = 1
		3	Strengthened majority in extraordinary meeting	Y = 0 / N = 1
		4	Direct appointment of directors by stated shareholders	Y = 1 / N = 0
		5	Direct appointment of auditors by stated shareholders	Y = 1 / N = 0
		6	Signed shareholders’ agreement about voting	Y = 1 / N = 0
4	Board of directors’ decision-making power (15%)	1	Number of executive directors	0/1 if $> \leq$ to the mean
		2	Strengthened majority for certain deliberations	Y = 0 / N = 1
		3	Ties in conferring delegations by directors	Y = 1 / N = 0
5	Company’s bodies composition (10%)	1	Number of directors	0/1 if $> \leq$ to the mean
		2	Number of internal auditors	0/1 if $> \leq$ to the mean
TOT		17		



#### 4.2. The best practice (BP) Index

The BP Index, made up of 10 provisions, instead, measures the degree of adaptation of airport companies' governance systems to the best practices prescribed by international codes of conduct and reports (see table 4 for details). In general, higher scores correspond to better adherence to best practices.

The first provision questions if the company, whether listed or not on the stock exchange, chose to agree to codes of conduct or similar codes. Provision n. 2 evaluates the weight of non-executive directors, whose vigilance function is fundamental, especially when the interests of the executive directors diverge from the interests of shareholders (Cadbury Report, 1992; Principles of Corporate Governance, 1994; Preda Code, 1999; Higgs Report, 2003). Provision n. 3, in a similar way, measures the presence of independent directors among the non-executive directors. Independent directors neither keep economic affairs with the company nor sign shareholder agreement which can affect their independent judgement (Preda Code, 1999, art. 3, lett. a and b). In both the previous provisions the sample average is chosen as a benchmark.

Provision n. 4 verifies the separation between the role of the chairman and that of the chief executive officer, because "CEO duality" concentrates power on a single person and so it is supposed to be prejudicial to balanced decision-making (Cadbury Report, 1992; Hampel Report, 1998).

Provision n. 5 focuses on the use of the stock-option system to remunerate executive directors (Alvarez Pérez and Neira Fontela, 2005). This method is capable of orientating directors' activity because it provides incentives to firms' market value maximization. However, it should be used cautiously (Cadbury Report, 1992; Greenbury Report, 1995; Hampel Report, 1998), and for this reason the limit of 1% of the company's capital possession was fixed.

Provision n. 6 questions if the company set a limit to the number of tasks undertaken by directors, following the principle that directors should be able to dedicate sufficient time to board work. The same principle is questioned in provision n. 9 about the effectiveness of internal auditors' activity (Bianchi Martini *et al.*, 2006). Stakeholders, in fact, must rely on professionals not involved in excessive tasks in other companies (Assonime, 2010).

Provision n. 7 deals with the number of committees appointed inside the board, mainly composed of non-executive and independent directors, in order to improve board's decision-making effectiveness and to guarantee the minorities' interests (Cadbury Report, 1992; Hampel Report, 1998; Preda Code, 1999; Smith Guidance, 2005). Also in this case the sample average is chosen as a benchmark. The purpose of balancing majority and minority rights is also related to the possibility of the minority to appoint internal auditors, an issue taken into account by provision n. 8. The introduction of the Board of auditors, in fact, was seen as a way to control majority shareholders' and executives' power by shareholders not involved in decision making. The presence of internal auditors appointed by different shareholders promotes competencies integration and favours common interest (Ambrosini, 1999; Fortuna, 2001; CNDC, 2003).

Finally, provision n. 10 verifies if the external auditing body, or bodies related to its activity, has been entrusted with other tasks. Multiple tasks assigned by the same company, in fact, reflects a lower independence (CNDC, 2005; Bianchi Martini *et al.*, 2006). Industry features, nevertheless, suggest not considering the cost accounting certification provided by the Law n. 248/2005 as a separate task.

BP Index too was normalized into a scale of values from 0 to 1 to be better compared to DEA Indexes.

**Table 4.** Description of variables of the Best Practice index (BP Index)

N°	Provisions	Scores (Y = yes; N = no)
1	If listed/non-listed did it agree to codes of conduct /similar codes?	Y = 1 / N = 0
2	Number of non-executive directors on number of executive directors	0/1 if $\leq$ / $>$ to the mean
3	Number of independent directors	0/1 if $\leq$ / $>$ to the mean
4	Does it exist a separation between Chairman and Chief Executive Officer?	Y = 1 / N = 0
5	Do the executive directors have a percentage of shares within the 1% of the capital?	Y = 1 / N = 0
6	Is there a limit to the number of tasks undertaken by directors?	Y = 1 / N = 0
7	Number of committees inside the board	0/1 if $\leq$ / $>$ to the mean
8	Are there internal auditors appointed by minority?	Y = 1 / N = 0
9	Is there a limit to the number of tasks undertaken by internal auditors?	Y = 1 / N = 0
10	Have been entrusted the external auditing body (or linked bodies) with other tasks?	N* = 1 / Y = 0

\* Unless the external auditing body has been entrusted with cost accounting certification, ex Law n. 248/2005

## 5. Results and discussion

A number of points emerge from the calculation of the corporate governance indexes and then from their relationships with financial and technical performance of airport companies measured by the DEA indexes.

In reference to the first objective of the research, which was to verify the maturity degree of corporate governance models developed by different categories of airport companies, some interesting results are pointed out (see table 5). In general, the industry shows a middle level of concentration of decision-making power and a lower level of adoption of best practices. The main descriptive statistics also reveal, with reference to the DPC Index, a more homogeneous distribution of the units.

In particular, with reference to the difference in traffic volumes, expressed by the work-load units, a similar level of decision-making power concentration was found among the airport classes. On the contrary, the adoption of best practices tends to decrease from the airports which move the larger amount of WLU to those which move the smaller ones.

With reference to the second category, that of the airports being part of a group, a value of decision-making power concentration slightly higher than the average and a value of best practices adoption significantly higher than the average were found. This fact reveals that the complex management issues faced by the companies which control systems of airports resolve on one hand in the development of

corporate governance systems more adherent to the codes of conduct provisions, but on the other hand in more intense protection of majority shareholders role and privileges. The decision-making process of such airport companies, for this reason, seems to be less participated in and balanced.

The following two categories, that of the airports with private majority shareholders and that of the airports listed on a stock exchange, present similar results about corporate governance features. Both categories, in fact, show a decision-making power concentration a little lower and a best practice adoption remarkably higher than the sample average. The BP Index value for the listed companies, in particular, is the highest by far. All the companies listed on a stock exchange, interestingly, have values equal to or greater than the median. This result was expected because although the code of conduct adoption is just voluntary and not mandatory, the principles of fairness and transparency exert a stronger influence on listed companies.

Moreover, also 80% of the companies which manage groups and 75% of the companies with private majority shareholders have values equal to or greater than the median for BP Index. This fact reveals a stronger attention focused on the best practices than the rest of the companies.

Following a benchmarking approach among the different categories, airports with private majority shareholders and airports listed on a stock exchange show the higher maturity degree of corporate governance systems.

**Table 5.** Corporate governance maturity degree for different categories of airport companies

N°	Categories	DPC Index	BP Index
1	Traffic volume (millions)		
	a) $WLU > 10$	0,50833	0,40000
	b) $5 < WLU < 10$	0,41042	0,40000
	c) $1 < WLU < 5$	0,50139	0,36667
	d) $0,5 < WLU < 1$	0,48333	0,15000
2	Groups	0,49500	0,46000
3	Private majority shareholders	0,46250	0,50000
4	Listed on Stock Exchange	0,45833	0,67500
	Mean	0,48208	0,35500
	Median	0,52500	0,30000
	Standard deviation	0,09831	0,22821

In order to answer the second question of the research, that is to verify the link between the corporate governance and the performance of airports, the correlation between each of the two corporate governance indexes and the DEA indexes are calculated. Results, shown in table 6, clarify the

nature and the direction of the links between such variables.

Before investigating these relationships, however, it is useful to comment on the technical and financial performance of the different categories of airports. Taking into account the more significant DEA Index 2, made up of two inputs

and three outputs, we found that all the companies with private majority shareholders are on the efficient frontier. They show, in other words, the best performance. Also 80% of the companies which manage groups show the best performance, while the percentage falls down to 50% for the listed companies.

While analysing the relationship between corporate governance features and firm performance on the one hand it confirms some of the tendencies supposed by theory and highlights probable cause-effect links, on the other hand it shows weak linear relationships between the terms.

First of all a slight negative correlation emerges between the concentration of decision-making power and the development of governance systems in line with international best practices. Consistently, while the DPC Index is negatively correlated with performance, the BP Index shows a positive relationship with DEA Indexes. Considering the DEA Index 2, however, the inverse relationship between power concentration and performance is stronger than the positive one between best practices adoption and performance. So it is at least confirmed the direction of the relationships supposed by literature. A stronger concentration of power should interfere with comparison inside firms and thus lead to worse decisions and lower performance. A stronger alignment to best practices should lead to a more balanced corporate governance system and thus to better performance. Power concentration, furthermore, seems to be a stronger driver of performance than best practices adoption.

Weak correlations could be partially explained by the limits of the DEA method in expressing firm performance. In fact in DEA only inefficient DMU are put in order. But some other interesting points emerge from the analysis. Since our indexes, as well as DEA, are just preliminary diagnostic tools, it is necessary to understand the reason and the implications connected to the results (Talluri, 2000). The difficulty in assigning a direct link supports literature contributions which highlight the importance of focusing on dynamic and organizational aspects rather than structural or normative ones as factors which determine performance.

Managerial culture, skills and tools, in fact, in spite of being sometimes difficult to measure, seem to be more effective in driving companies towards better results. All the same, their presence is not automatically guaranteed by a more intense negotiation activity inside or among company's bodies, as well as by a tighter adherence to provisions of codes of conduct.

Moreover, the weak link between the BP and DEA indexes reflects some characteristics of the Italian airport context. Strong public presence, few stock exchange quotations and limited average sizes of the companies basically denote low management complexity which can probably lead to immaturity of governance systems, revealed by a sort of "accomplishment approach" to the best practices. In this sense, the formal adoption of the best practices may explain its weak relationship with performance improvement.

**Table 6.** Correlations between corporate governance indexes and performance indexes

N°	Airport company/Group	DPC Index	BP Index	DEA Index 1 (6 outputs, 3 inputs)	DEA Index 2 (2 inputs, 3 outputs)
1	So.Ge.A.Al.	0,48333	0,10000	0,73957	0,57621
2	Aeroporti di Puglia	0,48333	0,10000	1,00000	1,00000
3	S.A.C.B.O.	0,32500	0,30000	1,00000	1,00000
4	S.A.B.	0,40000	0,30000	0,95617	0,61694
5	So.G.Aer.	0,75833	0,20000	1,00000	0,58952
6	S.A.C.	0,43333	0,20000	1,00000	0,75619
7	A.d.F.	0,55833	0,70000	1,00000	0,75317
8	Aeroporto di Genova	0,40000	0,40000	1,00000	1,00000
9	S.A.CAL.	0,47500	0,20000	1,00000	1,00000
10	S.E.A.	0,53333	0,30000	1,00000	0,65567
11	Ge.S.A.C.	0,51667	0,20000	1,00000	1,00000
12	Ge.A.Sar.	0,48333	0,40000	1,00000	1,00000
13	Ges.A.P.	0,57500	0,30000	0,88940	0,76078
14	S.A.T.	0,37500	0,80000	1,00000	1,00000
15	A.d.R.	0,48333	0,50000	1,00000	1,00000
16	S.A.G.A.T.	0,41667	0,40000	1,00000	0,84148
17	Air.Gest.	0,52500	0,10000	1,00000	0,87265
18	S.A.Ve. Group	0,36667	0,90000	1,00000	1,00000

19	Aeroporto F.V.G.	0,44167	0,20000	1,00000	1,00000
20	Aeroporti del Garda Group	0,60833	0,50000	1,00000	1,00000
	Mean	0,48208	0,35500	0,97926	0,87113
	Median	0,52500	0,30000	1,00000	1,00000
	Standard deviation	0,09831	0,22821	0,06214	0,16225
	Correlation with BP Index	-0,26264			
	Correlation with DEA Index 1	-0,06034	0,27799		
	Correlation with DEA Index 2	-0,41041	0,28831		

## 6. Conclusions and perspectives

The empirical investigation found that, after about twenty years, the reform of the Italian airport industry resolved in a poor degree of maturity of the airport companies' corporate governance models. Because of the slowness and incompleteness of the liberalization process, corporate governance of the Italian airports is characterized by a medium level of concentration of decision-making power and a low degree of coherence with the best practices stated in the international codes of conduct or highlighted by literature.

In line with the approach of the contingency theory, specific internal features as well as external influences seem to be important drivers of corporate governance models in relation to different categories of airports. In particular, the analysis found that the adoption of best practices tends to decrease from the larger airports to the smaller ones. Furthermore, companies which control a number of airports present corporate governance models more concentrated but also more adherent to codes of conduct provisions.

Not surprisingly, the analysis showed the best results in the clusters quicker to take the reform's chance, those of airports with private majority shareholders and airports listed on a stock exchange. Liberalization seems to have had a good impact on them, as public presence is less intense in both the ownership structure and strategic management.

So the above mentioned categories present a lower decision-making power concentration and a higher best practices adoption than the sample average.

The study also confirms the existence of a negative relationship between the concentration of power and firm performance, as well as a positive, though less intense, relationship between alignment to best practices and firm performance. The weakness of the links, nevertheless, indicates the necessity to focus future analyses on more effective, sometimes intangible drivers of performance, such as the diffusion of managerial culture, logic and tools inside the organization. These elements, in fact, do not seem to be

necessarily connected to power concentration or best practices alignment.

The weak relationship between best practices adoption and firm performance, in particular, may indicate a sort of formal approach to good governance models, certainly connected to the development and the features of the Italian airport industry. Such an approach, clearly, does not easily turn into an improvement in efficiency.

### Notes

(1) The C.I.P.E. is a government body which intervenes in economic and financial affairs.

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