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The European Railway Liberalization Process. The Case of Italy and the introduction of Competition in the High-Speed Rail Passenger Market.

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Table of Contents

Introduction **3**

Chapter 1
Main Characteristics of the Railway industry and European Regulatory Reforms **5**

1.1 Theoretical Framework
1.1.1 Market Efficiency 5
1.1.2 Market Failures 6
1.1.3 Failure of Competition: Natural Monopoly 6
1.1.4 Railways and Natural Monopoly 7
1.1.5 Problems Arising from Natural Monopolies and Regulatory Issues 10
1.1.6 Railway Pricing 13

1.2 Creating a New Industry Structure: The Movement Towards Liberalization
1.2.1 The Rail Transport Decline 13
1.2.2 The Railway Restructuring Process 14
1.2.3 An Outline of the European Reforms 18

Chapter 2
The Case of Italy in the European Context **24**

2.1 The Evolution of the Liberalization Process in the Italian Railway Industry
2.1.1 Formation and Organization of Ferrovie dello Stato 25
2.1.2 Further Steps 27
2.1.3 The Creation of an Independent Regulation Transport Authority 39
2.1.4 The Regional Railway Transport 30
2.1.5 Assessment 32

2.2 Competition in the High-Speed Rail Passenger Market: Trenitalia and NTV
2.2.1 The Impacts of Competition 34
2.2.2 Competitive Wars 35
2.2.3 The Solid Financial Position of the FS Group 37
2.2.4 The Financial difficulties of NTV 40

Conclusion **42**

References **45**

Introduction

Nowadays, most modern economies have what is called a mixed economic system where both public and private sectors play important roles in a country's economic activities. Nationalizations, privatizations, liberalizations and related topics have been highly debated concepts and ideas have frequently changed over time. Indeed, there are divergent opinions on the amount of government intervention considered optimal for efficient economic operations. In particular, views may differ according to how serious one considers the failures of the market to be and how effective one believes government in remedying them. After the Second World War, State intervention and nationalization processes were considered necessary and fundamental in order to ensure social stability together with economic and industrial growth. However, a sudden and clear change regarding the role of the public sector occurred at the end of the 70s and during the past three decades privatization and liberalization policies have dominated the field affecting many different industries including the railway transport sector.

The regulation of this industry is an extremely hard task and it is necessary to balance, in the appropriate way, both positive and negative effects of the two main forms of organization. The industry could be controlled and run directly by the government. In this case, the State will be able to provide essential public services to all citizens and could do this by operating at a loss. The problem is that the government may not be an efficient operator, providing a service that dissatisfies consumers, and the losses may be extremely high thus aggravating the public debt. The other option is to introduce competition in the industry letting different private companies to operate in the market. However, the degree of competition is limited by the structure of the market. Therefore, the regulator must assure that the competition created is effective. The study carried out in this work discusses the transformation in the regulatory setting of the railway transport industry in Italy within the European context, also trying to evaluate whether and to what extent this trend has led to effective competition.

The first part of the paper provides a theoretical framework considering the main economic and technical characteristics of the railway industry analysing the main issues related to natural monopolies, which in some way can explain the initial tendency of regulators and economists to treat, consider and run this industry mainly as a state-owned monopoly.

Moreover, the railway restructuring process, started in the 1990s, which has affected all Member States will be described. Finally, it will be provided an outline of the chief European directives and regulations that have influenced over time the structure of the industry.

The second part of the paper will focus on Italy in the context of the European liberalization process. It will describe and explain how Italy has implemented and adopted the main European policies and how the industry has reacted to these changes. The final part of the chapter will take in consideration the quite recent competition that Italy has experienced in the high-speed passenger transport segment namely competition between NTV (Nuovo Trasporto Viaggiatori) with their *Italo* trains and Trenitalia with their *Freccie* services.

Chapter 1

Main Characteristics of the Railway Industry and European Regulatory Reforms

1.1 Theoretical Framework

The railway industry presents some specific economic and structural characteristics that have led governments to consider this industry, for many years, a natural monopoly. In order to fully understand the concept of natural monopoly and its economic and regulatory implications it is important to start from the concept of market efficiency and market failure.

1.1.1 Market Efficiency

Pareto efficiency, named after the great Italian economist Vilfredo Pareto[1] (1848-1923), is the criterion normally used by economists when they tackle the issue of efficiency. It describes resource allocations that have the property that no one can be made better off without someone being made worse off. It is important to emphasize that the concept of Pareto efficiency is concerned only with each individual's welfare and does not consider inequality. Two of the most important results of welfare economics[2] describe the relationship between Pareto efficiency and competitive markets. These results are called the fundamental theorems of welfare economics. The first theorem maintains that; if the economy is competitive, it is Pareto efficient. The second has the implication that every Pareto efficient resource allocation can be attained through a competitive market mechanism, with the appropriate initial redistribution of wealth. Namely, the only thing the government needs to do, in order to obtain a particular and desired distribution of income, is to redistribute initial wealth and then leave the rest to the competitive market. In essence, these theorems provide the major rationalization for reliance on the competitive market mechanism. A competitive market is a market in which there are a sufficiently large number of firms that have a relatively small market share and that sell identical products. They cannot influence their prices meaning that they are price takers. Buyers have complete information about the product being sold and the prices charged by each firm. There is a wide availability of substitutes, if the good or service consumers wish to buy becomes too expensive or its quality begins to fall; switching costs[3]

[1] He was also an engineer, sociologist, political scientist, and philosopher. He made several important contributions to economics, especially in the study of individuals' choices and income distribution.
[2] Welfare economics became an established and distinct branch of economics in the 20th century. It is concerned with the evaluation of economic policies and their effects on social welfare.
[3] They are the negative costs that a consumer has to bear as a result of changing suppliers, brand or products. Although these costs are mainly monetary in nature, there are also psychological and time-based costs.

are extremely low. Moreover, the industry is characterized by freedom of entry and exit. New firms can easily enter the market, generating additional competition. Companies earn just enough profit to stay in business and no more, because if they were to earn excess profits, other companies would enter the market and drive profits back down to the minimum. Under these ideal conditions and assumptions competitive markets lead to efficiency in the economy.

1.1.2 Market Failures

Market efficiency entails stringent conditions that are rarely satisfied in reality. Perfect competition is a theoretical market structure, which is primarily used as a benchmark against which other real-life market structures are compared. Indeed, there is often dissatisfaction with markets. Markets often seem to produce too much of some things and too little of others. Furthermore, markets can lead to situations in which the outcome, even if efficient, is unequal. In these situations a rationale for government intervention is provided. Markets do not result in Pareto efficient outcomes in six conditions. These conditions are known as market failures: failure of competition, public goods, externalities, incomplete markets, information failures and unemployment and other macroeconomic disturbances.

1.1.3 Failure of Competition: Natural Monopoly

In some industries there are relatively few firms or one or two firms, which have a large share of the market and are able to influence prices namely they are price makers. When a single firm supplies the market economists refer to it as a monopoly while when few firms supply the market economists refer to them as an oligopoly. There are also cases in which there are many firms but each firm produces slightly different products, economists refer to such situations as monopolistic competition. In all of these cases, competition deviates from the ideal market structure. Another situation of limited competition is the presence of a natural monopoly; it is a distinct type of monopoly where for technical or social reasons there cannot be more than one efficient provider of a good or service. William J. Baumol provided the current formal definition of natural monopoly:

“[a] n industry in which multi-firm production is more costly than production by a monopoly.[4]”

[4] See Baumol, W.J. (1977), *On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry*, The American Economic Review, Vol. 67, pp. 809-822.

Specific features that characterize natural monopolies:

- The presence of extremely high fixed costs[5] that create potential for economies of scale. Where fixed costs are so high, firms can take advantage of economies of scale by spreading their fixed costs over a large amount of production. Therefore, in industries with large initial investment requirements, average total costs decline as output increases.
- The marginal cost of producing one more unit of product is roughly constant and small.
- The fixed costs are also sunk costs. Sunk costs are costs that are not recoverable upon the exit of the firm and thus, deter entry and exit. In such situations trying to increase competition by encouraging new entrants into the market creates a potential loss of efficiency. This loss to society exists if and only if the new entrant has to duplicate all the fixed factors, that is, the infrastructure in the case of the railway industry. Thus, It may be more efficient to allow only one firm to supply the market because allowing competition would mean a wasteful duplication of resources.

1.1.4 Railways and Natural Monopoly

The railway market has been traditionally considered a typical example of natural monopoly. The very high fixed costs of laying track and building a network, as well as the costs of buying or leasing the trains, would prohibit or deter the entry of a competitor. By allowing just one firm to operate large economies of scale would be created and exploited because fixed costs would be spread across a large amount of output.

Specific Economic Features of the Industry

Railway transport is a subsector of the wider transport industry so it shares many key economic features with other transport modes but, at the same time, it presents some unique characteristics.

- **The multi-product nature of the rail activity**

  Rail companies are, in most cases, multi-product firms. The rail transport market can be divided into two major segments; passenger and freight. The infrastructure for each segment is analogous or could be the same but the type of transport and equipment is

[5] They are expenses that do not depend on the level of goods or services produced by the firm.

often distinct. This multi-product nature has different implications. In accounting, for example, the allocation of total operating costs among the different services offered is often laborious due to the presence of costs that are joint or common to several rail users.

- **The economic role of infrastructure and networks**

  As previously mentioned, the existence of considerable fixed costs, particularly, those related to the infrastructure, traditionally led economists and governments to consider the rail transport service as an example of a natural monopoly. However, the introduction of new ideas into the industry's economic analysis has challenged this inclination. The duplication of fixed costs is generally inefficient but once the network has been deployed it is possible to separate infrastructure from services and manage them in different ways. The infrastructure will be managed by a single entity and will keep its monopolistic nature while competition can be introduced in the train operations where different companies will be able to operate efficiently. This is referred to as vertical separation.

- **The pervasive structure of railway costs**

  Railway costs are various and so allocating them to the multiple outputs produced and inputs could be quite complicated. In general, we can identify three different cost categories[6]:

  1) *Infrastructure Network Costs*

     They include capital and maintenance costs for track, engineering structures such as bridges and tunnels, communication systems, train signalling, power supply in electrified sections, and terminal infrastructure. These costs have a component that is fundamentally fixed and invariant with the level of infrastructure usage and a component that is variable with traffic levels over the long-term.

  2) *Train Operating Costs*

     These costs include: fuel or electrical energy, depreciation, leasing costs and maintenance for locomotive, rolling stock wagons and railcars. Moreover, they encompass driving and on-board crew, terminal operations and commercial costs such as, passenger ticketing and freight booking. Most train operating costs

[6] See World Bank/The International Bank for Reconstruction and Development (2011), *Railway Reform: Toolkit for Improving Rail Sector Performance*, The World Bank, Washington.

essentially vary in the long run with traffic volume. In general, greater traffic volume requires more trains and so more operational resources.

3) *Corporate Overhead Costs*

These are all the administrative costs, which include most railway headquarters functions such as Board and executive management, finance, legal, security and personnel functions. These costs fluctuate depending on the overall size of the firm.

- **The existence of indivisibilities in inputs and outputs**

  The rail industry is extremely capital-intensive, with several indivisibilities within its productive process. Transport infrastructure investment tends to be location-specific and physically fixed. These investments are also "lumpy" meaning that the capital units (rolling stock, tracks and stations) can only be expanded in discrete, indivisible increments, while demand varies in much smaller units. Consequently, increases (decreases) in supply can exceed increases (decreases) in demand, resulting in excess capacity.

- **The role of rail transport as a public service**

  The concept of rail transportation as a public and social service, irrespective of profitability, is another element that has determined the industry's organization and performance. One of the main reasons behind the public control over the rail industry is that this industry is considered an essential mechanism to overcome geographical barriers in certain areas, aid in the economic development of undeveloped zones, and even as a guarantee of minimum transport services for a particular segment of the population. It's an essential public service. It is important that people living in rural zones are not isolated. If transport services were completely left in the hands of private firms they would not serve such areas because considered unprofitable.

- **Externalities and the rail system**

  All transport modes have external effects on the environment. The negative impacts of accidents, gas emissions, noise, air, land and water pollution are hardly ever paid by the entities creating them. Rail transport is generally more fuel-efficient and there is ample empirical evidence showing that rail transportation contributes less to negative externalities than other transport modes. Moreover, another important positive externality created by railway transport is the fact that it may contribute to the development of rural parts of a country.

1.1.5 Problems Arising from Natural Monopolies and Regulatory Issues

Some problems arise from a natural monopoly if left unregulated:

- The lack of competition excises the incentives that the firm may have to cut costs and be efficient in their resource use, this is known as X-inefficiency[7]. As a result, these higher costs may be passed down to the consumer in the form of higher prices.
- A natural monopolist will have very little incentive to innovate or provide a good quality service or product to their customers. In some cases, it may also try to prevent the adoption of new technologies, which would weaken the position of their monopoly power.
- The resulting output and price will be inefficient.

This situation provides a rational for some sort of intervention by the State. There are different actions that the government can undertake in order to solve the problems that arise from natural monopolies:

- Take over the production directly and operate at a loss. It is important to emphasize that the most important market failure that has led to public production of private goods arises when markets are not competitive.
- Leave the production to the private sector but regulate prices to ensure that the firm does not take advantage of its monopoly position by:
    - Forcing the natural monopolist to charge a price equal to the marginal cost and provide subsidies to the industry in order to compensate them for their losses. However, there will be additional costs associated with the implementation of this policy and this solution ignores the question of how the revenues required to pay for the subsidies are to be raised.
    - Alternatively, there is the option of implementing an average cost pricing model. The natural monopolist will set a price equal to its average costs (see Figure 1). The government-managed natural monopoly will operate at the intersection between demand curve and average cost curve. This is called the zero profit point because the firm will make neither profits nor losses. In absence of sunk costs, the incumbent will fear potential entry.

[7] Harvey Leibenstein (1922-1994) introduced this concept. It refers to the difference between the efficient behaviour, assumed by economic theory, that the firm should have and their observed behaviour in practice, which is caused by the lack of competition. X-Inefficiencies occur when a firm has little incentive to control costs causing the average costs of production to be higher than necessary.

Assume that the incumbent firm sets a price, which is higher than the average costs. In the case of effective competition, a potential entrant will set a price lower than the incumbents' price but still higher than the average costs resulting in a situation, which would be still profitable. Thus, as long as there is potential competition the presence of a single firm in an industry does not necessarily imply that the firm can exercise monopoly power.

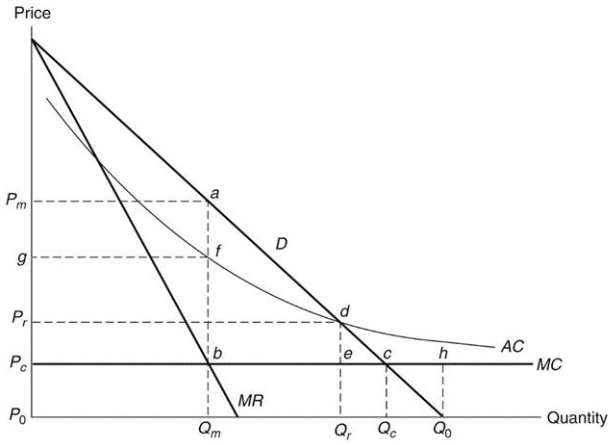

Figure 1: Market Conditions under Natural Monopoly

The efficiency condition requires that price equals marginal cost. The resulting output and price will be Q_c and P_c but when marginal costs are lower than average costs using this condition will make the firm incur in losses. Therefore, marginal-cost pricing is not financially feasible in presence of high fixed costs and economies of scale. A natural monopolist, left alone, will equate marginal revenue to marginal cost resulting in the quantity Q_m and price P_m namely higher prices and lower output with respect to the efficiency condition. Operating at the intersection point between demand curve D, and average cost curve AC, the resulting outcome will be Q_r and $P_{r.}$ This is a better situation than the one in which the natural monopoly is left unregulated.

The average cost pricing model seems to be the best solution in order to regulate a natural monopoly but there are a host of problems. Firstly, the natural monopolist will have no incentive to become more efficient because, becoming more efficient would imply decreasing its costs and thus prices and this would benefit only consumers. Another important issue is related to the presence of sunk cost indeed, all of the above reasoning would change. Sunk costs create asymmetry between the incumbent firm and a potential entrant. They act as a barrier to entry and allow the established firm a degree of monopoly power. Because practically all natural monopolies entail important sunk costs, the government cannot simply rely on the threat of potential competition. When there is a natural monopoly with sunk costs there is a danger that the monopolist will take advantage of its position and charge a high price.

1.1.6 Railway Pricing

The economic concepts are important in guiding a pricing principle however, in practice, there is no standard form of market-based pricing for railways. The mathematician Frank P. Ramsey (1903-1930), provided an economic formulation that became one of the most important practical approaches to rail pricing. This pricing system is known as Ramsey pricing or the inverse elasticity rule. The rule maintains that: the railway should mark up its long run variable costs to individual customers in inverse proportion to their price elasticity of demand. The idea is that; because prices should be increased above the marginal cost, a proper strategy is to increase this mark up according to each product's price elasticity of demand. Namely, customers with a more inelastic demand will be charged a higher mark up than the customers with a higher elasticity of demand[8]. Ramsey pricing is efficient and in some cases is it maximizes welfare, in addition, this pricing model can be applied to both freight and passenger services. The problem is that it may not always be in accordance with the aims and objectives of the government. Indeed, sometimes, the ability to undertake the Ramsey pricing model is limited, for example, by equity issues which are particularly important for the regulator and moreover, due to the fact that it is a form of price discrimination that can be perceived by the public as unfair. Obviously, railway-marketing managers cannot know the exact elasticity of demand of each customer but they should have enough information to estimate the effect of prices on customer volumes. In particular, in passenger markets, pricing aggregates customers by providing different options based on individual features such as service class, travelling hours, or ticket purchase restrictions. The passengers have the possibility to select the cheapest prices that fit their specific travelling needs.

With reference to infrastructure access pricing things become a bit more complicated especially when the infrastructure owner is separated from the train service operator. Access charges are different among countries and usually differ by train type and route standards. The benefits of Ramsey pricing, at least in principle, should apply both to a separated

[8] When customers alter the quantities purchased of a certain product as a response to a change in price the demand for that product is elastic. Instead, demand is inelastic if customers will not alter their purchasing patterns for a certain product in case of a change in price.

infrastructure system as well as to a vertically integrated one but unfortunately, the sustainability of this pricing system seems to be, to some extent, constrained in case of a separate infrastructure company. One of the main problems is that there are difficulties, for the infrastructure company, to apply price discrimination to the different market segments. This is partly due to the fact that the infrastructure company usually does not know the margin being earned by the train operating company. In addition to this, regulators may be disinclined to allow consistent differences in the prices charged for train paths that would make the train operators obtain the same outcome. Therefore, in presence of vertical separation it may be more difficult to recover the fixed costs present in the industry and maximize the utilization of the network.

1.2 Creating a New Industry Structure: The Movement Towards Liberalization

1.2.1 The Rail Transport Decline

Railways were, for a period of time, the most technologically advanced and dominant mean of land transport playing a crucial role in the national and international movement of people and goods. In many countries, the industry was traditionally organized as a single state-owned firm entrusted with the unified management of both infrastructure and services. The total control was in the hands of regulators, which possessed the power to influence the organization pricing and market entry. It was assumed that, in order to reduce the monopoly power of the national company, price and service regulation was necessary to protect the general interest therefore; competition was rare and often discouraged. Under this highly protected environment most national rail companies incurred growing deficits during the 1970s and 1980s, which were usually financed through public subsidies. Moreover, in this period, the industry experienced a substantial fall of market shares in both freight and passenger markets (see Table 1). The sharp decline was a common trend worldwide that can be attributed to exogenous but also endogenous causes. The former includes the rapid development of alternative modes of transport. Indeed, most countries, witnessed a significant shift in transport volumes especially away from railways to road. In particular, for passengers, competition with rail transport was arising from the development of the automobile market while in freight transport; the trucking sector gained growing importance. The endogenous causes are instead related to the inability of the sector to adapt to the changing conditions of the economic environment. This inability was mainly due to the way in which the industry was regulated. The traditional policies adopted by regulators resulted in a high degree of managerial inefficiency and business activities exclusively oriented toward production targets rather than commercial and market ones. These causes placed most railways in an extremely weak position in the competition against other modes of transport.

Type of Transport	**1970**	**1980**	**1985**	**1991**	**1994**
Passenger					
Rail	10.4	8.6	7.3	6.9	6.9
Private Car	77.3	80.0	83.4	84.4	84.4
Bus	12.3	11.4	9.3	8.7	8.8
Freight					
Rail	31.3	23.2	21.2	17.9	15.5
Road	55.2	65.9	69.3	74.0	76.2
Waterways	13.5	10.9	9.5	8.1	7.9

Table 1: Market Shares of Different Transport Modes, Selected Years, 1970-94
Source: CEMT (1996)

In order to stop the substantial reduction in market share many countries have promoted policies designed to render their railways more efficient and competitive. Indeed, a restructuring process of the railway industry began in the 1990s.

1.2.2 The Railway Restructuring Process

The United Nations defined railway restructuring as:

"The adaptation of railway industry structures, institutions and business processes in response to changing customer needs and technological change.[9]"

A widespread shift in thinking about the appropriate role of the State and the regulation of the railway industry took place in the 1990s. The worldwide restructuring process of the industry began with timid reforms and was different across countries. Despite the differences, the general direction of the reforms consisted of promoting competition in the rail sector in order

[9] See United Nations ESCAP (2003), *The Restructuring of Railways,* United Nations, New York.

to enhance efficiency and make the industry attractive to the private sector. It was important to find different and alternative organizational structures for the industry as a whole. Even though many steps have been made in order to achieve the desired objectives indeed, it seems that the monopolistic rail company is progressively disappearing as the dominant model around the world; railway reforms are still in progress in many countries.

In order to construct an alternative industry structure the regulators must concentrate on three important pillars: Business Organization, Market Competition and Separability. These building blocks are connected with each other and the way in which they are combined will result in different industry structures.

1) **Business Organization and the amount of Private Participation**

   Rail transport can be viewed as an important public and social service with all the positive impacts that have been previously mentioned but, at the same time, it is fundamental that it is efficient and competitive. There is a tradeoff between these two goals that regulators want to achieve. On one side, there are regulations that promote complete control of the government, which favors the social and public nature of the sector. On the other side, there is the favoring and the importance of privatization that would instead enhance competition and efficiency in the industry. It is crucial to find a balance between the roles of the private and public. The increasing role of private sector is one of the most relevant characteristics of the evolution of the rail industry. Even though there is no unique form of rail regulation, generally speaking, the industry regulation is moving accordingly towards more flexible schemes of public intervention. Galenson and Thompson (1993) provide a list of the different situations that can be found in the world's rail industry. The first is a *Government Department*, where basically the railroad is fully controlled and financed by the government. The second is a *Public Enterprise*, where the railway is characterized by a higher managerial autonomy but it still requires government approval for many decisions. Normally, these railways sign contracts with the government, specifying each party's objectives and the financing rules. Similarly, a *Reformed Public Enterprise* corresponds to a situation where the railway is incorporated into a shareholding company, it is autonomous under a financial and managerial point of view and it is subject to the country's company law. However, because the government remains the main owner, it will determine pricing policies and investment levels and will guarantee the supply of non-economical social services with the necessary subsidies.

There may also be mixed forms of cooperation between private and public capital. For example, rail service in some countries is provided through a *Service Contract* with the private sector. In such cases governments or public enterprises maintain full ownership but can contract activities to be performed by private sector entities, such as food catering, ticket sales, maintenance of physical assets. Moreover, another form of contracts is *Management Contracts* with the private sector, where the contractor assumes responsibility for the operations and maintenance of certain activities. Other situations involve leasing. There could be *Leasing to the private sector*, which is similar to contracting, but in this case the contractor pays a fee for the use of the fixed assets. The lease contractor will have a higher degree of autonomy, with respect to simple contracts, but at the same time, assumes more risk. Another form is *Leasing from the private sector*; in these cases a private company will buy a piece of equipment and leases it to the railway. In the case of limited use or specialized equipment these opportunities are particularly favourable. *Concessions* are a broader form of lease where the contractor agrees to make certain fixed investments and maintains the use of the assets for a longer period. *Joint Ventures* involve private partners contributing to the development capital, such as land, other real estate owned by a railway, or the planning and management expertise. Finally, there is full *Private Ownership*, where private firms operate certain services or whole companies. However, this does not fully hinder some sort of participation by the government. Few railways around the world have been fully privatized[10]. Instead, most countries have opted for Concession rail services and even rail infrastructures. This has been the favoured form of restructuring because it allows the government to retain ultimate control over the assets while the private sector carries out day-to-day operations according to the rules set by the contract.

2) **Market Competition**

As previously mentioned, traditionally, competition in the rail industry was absent and discouraged. Moreover, it is difficult to understand and separate the impacts that competition may have from the impacts of the increase in private participation in the industry. Beyond this, abundant evidence from other service industries and transport modes demonstrate that competition, or even just the threat of potential competition,

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[10] The privatization process of British Rail (BR) involved the passing of ownership and operation from the government control into the hands of the private sector. It begun in 1994 and it was completed in 1997. It was one of the few countries in Europe that opted for the private ownership organization.

actually creates incentives that will lead to increased performance, higher efficiency and better quality. Therefor, it is important to create conditions for internal competition. There are two forms: competition *in the* market and competition *for the* market.

- Competition *in the* market, also called on-rail competition, occurs when firms are allowed to compete on the same tracks for all or part of the demand and there are no entry barriers. Since there are restrictions to entry in the industry this type of competition is difficult to create. However, the strongest case for this kind of competition is for the rail freight market where indeed, competition is effective and significant in many countries.
- Competition *for the* market, also called competitive tendering, occurs when entry is restricted, one firm is given the right, for a certain period of time, to serve a specified route or a whole network that was previously in the hands of a monopolist. This form of competition is created by organizing an auction that would in turn force potential monopolists to compete with each other for the right to be a single supplier. This form of competition may be effective in both freight and transport services.

3) Separability: The Degree of Vertical Separation

According to Kopicki and Thompson (1995) one of the most clearly defined patterns emerging from deregulation and restructuring is that they carry out two critical dimensions: the involvement of private management in the sector and, most importantly, the degree of vertical separation between infrastructure and services.

- *Vertical Integration* corresponds to the traditional model of railway organization, in which a single, usually public entity controls the different infrastructure facilities as well as the operating and administrative functions. This was the preferred form before the restructuring process. With this structure responsibilities are extremely clear, there is a high degree of coordination and it enhances and improves transparency in financial performance.
- *Competitive Access* is characterized by the existence of an operator in charge of making rail facilities, such as tracks and stations, available to other operators on a fair and equal basis. Competitive Access keeps the advantages of integration in terms of coordinated and reduction in transaction costs. However, if this company has incentives to leave out other operators, the overall effectiveness of the system may be uncertain.

- *Complete Vertical Separation* is a scenario in which, the management of the facilities is fully separated from the rail operations. Although infrastructure may remain a natural monopoly, it is separated from rail services, where potential competition among different operators is possible. This separation considerably facilitates the entry of more than one operator, however, it also implies several disadvantages. One of the main problems is the potential loss of economies of scope. The relationship between the services, operations and the rolling stock used, as well as the quality and technical characteristics of the infrastructure, is extremely close that both aspects need to be planned together. Thus, there could a lower and inefficient utilization of resources due to the assignment of different services to several operators. Indeed, this option creates complexity and increases transactions costs. Moreover, the lack of integration may be confusing for the user and expensive to administer. In any case, regulators generally adopt the complete vertical separation structure in the case they want to introduce and amplify the participation of the private sector and enhance competition in the segment of train operations and services.

1.2.3 An Outline of the European Reform

Even if many steps forward have been made, railway reforms are still in progress in many countries. Substantial changes have taken place in Europe where first the freight market and then, the market for passenger services have been opened to competition. Even though, the general direction of rail restructuring in the EU was established in 1991, the pace of implementation has been slow and has accelerated only after 2004. The general approach adopted in Europe in order to improve the efficiency and competitiveness of railway undertakings has concentrated on fostering commercial freedom and implementing policies such as the vertical separation between infrastructure, the maintenance and railway operations, as well as particular reforms in order to enhance and facilitate competition and profitability for the sector as a whole.

*"*The European rail sector needs to become more efficient, integrated, modern and responsive to customer demand. Building a modern, competitive railway network is indeed a top priority for the EU, both for the smooth operation of the EU internal market and for the development of a sustainable transport system.[11] *"*

[11] See Official Publications of the European Communities (2008), *Modern Rail modern Europe,* Office for Official Publications of the European Communities, Luxembourg.

The EU aims at the creation of an efficient, competitive and single[12] rail market around Europe. In order to achieve this the implementation of regulations concerning the opening and promotion of competition, as well as the harmonisation of technical specifications and safety standards are necessary.

The first major legislation was the Directive 91/440/EC, on the Development of the Community's Railways, by the Council of Ministers. This Directive introduced a degree of liberalization into certain areas of rail transport, above all encouraging and introducing in the sector a degree of competition. It stipulated:

1) Clearer definition and separation of the roles of railway undertakings. Separation[13] of infrastructure management and transport operations with separate accounting as a minimum requirement. The main aim of the separate accounting was to achieve greater transparency in the use of public funds.
2) Setting of non-discriminatory rules and prices for track access. Obviously, competition must be fair. This puts constraints on infrastructure management (IM) by requiring equal track access for each railway undertaking (RU) and, for example, fair pricing that does not favour the incumbent operator. A further constraint was ensuring fair competition between all transport modes, namely among road, air, and waterways.
3) Allowing competition in transit freight[14] and in international combined freight[15]. It was generally accepted that introducing competition in the rail freight sector was easier than in passenger services due to the fact that the latter is also characterized by the idea of public service obligations that could impede a fast introduction of liberalization.

In order to achieve a common legal framework, the European Commission has put forward several legislative "packages":

[12] The aim is to promote interoperability. The idea is to allow trains to move through and across all Europe without technical, regulatory or operational constraints. The aim is to set single standards that would reduce regulatory complexity and costs.
[13] Although recommended, separation of institutions was not compulsory.
[14] It is referred to long-distance international transport between two countries crossing a third country without stopping inside.
[15] Market of combined freight transport having origin and destination in two different countries.

- **The First Railway Package**

The First Railway Directive[16] together with the White Paper[17] entitled 'A strategy for revitalizing the Community's Railways', published in 1996 by the European Commission, have been the starting point for three Directives 2001/12-14/EC known collectively as the First Railway Package. The Package was presented in 1998 and adopted in 2001 and outlined the main points for the opening of freight services.

- Directive 2001/12/EC sets the general framework for European Railways. It clearly defines the formal relationships between the State and the infrastructure manager as well as, between the service operator and the infrastructure managers.
- Directive 2001/13/EC defines the minimum requirements that freight operators must meet in order to be conferred with a licence that will allow them to operate in the European rail network.
- Directive 2001/14/EC establishes a formal policy that involves the issues of capacity allocation, infrastructure charging and safety certification.

However, despite the efforts put by the Union, it appeared that this gradual opening that would allow operators from all member states to use an integrated European network was not as easy as it was initially believed.

- **The Second Railway Package**

In January 2002, the European Commission proposed a new set of measures known as the Second Railway Package that was adopted in 2004. This Package focused on the creation of an integrated European railway area, under a legal and technical point of view. In order to achieve this goal the pieces of legislation focused on safety, interoperability and opening up of the rail freight market.

- Directive 2004/49/EC is the Railway Safety Directive that has been amended by Directive 2008/110/EC. It presents a joint approach to rail safety standards. It establishes a clear procedure for granting the safety certificates which every railway company must obtain before it can run trains on the European network and harmonises safety levels across Europe.

[16] I am referring to the EU Directive 91/440 EC previously mentioned.
[17] A White Paper is a document, which defines policy intentions and proposed programme of legislation.

- Directive 2004/50/EC concerns harmonised interoperability requirements, particularly for high-speed rail. It amended Directives 96/48 and 2001/16 and it has since been updated by 2008/57/EC.
- Directive 2004/51/EC allowed open access for freight services, nationally and internationally, starting in January 2007.
- Regulation 881/2004, now amended by Regulation 1335/2008, created an effective head body, the European Railway Agency, which has the aim to coordinate safety and interoperability.
- There is also a recommendation concerning the joining of the European Community to the Intergovernmental Organisation for International Carriage by Rail (COTIF).

❖ **The Third Railway Package**

The main focus of the Third Railway Package, adopted in 2007, was on the opening of the passenger market to competition. It introduced open access rights for international rail passenger services including cabotage[18] by 2010.

- Directive 2007/58/EC concerns open access, allocation of railway infrastructure capacity and definition of the charges for the use of the infrastructure. It was based on the conception that international passenger services could open to competition by January 2010.
- Directive 2007/59/EC, on harmonised licenses for train drivers. The idea is that this piece of legislation introduced a European driver licence allowing train drivers to circulate on the entire European network.
- Regulation 1371/2007 on rail passengers' rights and obligations. This regulation strengthened the rights of passengers providing them with a wider range of rights and minimum quality service standards to be respected by operating companies.

[18] It is the transport of goods or passengers between two places in the same country by a transport operator of another country.

- **The Recast of the First Railway Package**

The effects of the First Railway Package have been quite encouraging. In particular, after a long period of decline, in recent years, the situation of rail's modal share with respect to other transport modes, has stabilized but it is still modest. However, many problems are still persistent in the industry and have not been solved yet.

The Recast mainly aims at the simplification, consolidation, clarification and also modernization of the existing provisions by concentrating the three directives and their amendments into a single text. Moreover, the intention is to tackle some problems that have been identified in the recent years:

- There are low levels of competition due to the fact that market access conditions are not sufficiently precise and are still biased in favour of incumbents.
- National authorities often have insufficient independence, competences and powers. Moreover, in several Member States the office of the rail regulator belongs to the ministry of transport, which also owns or controls the incumbent railway undertaking thus, there could be a conflict of interest.
- There are low levels of public and private investment resulting in a decline of quality of infrastructure. The investments in railway services are less and less attractive both for incumbent and new operators.

The Recast exactly targets these problems and aims at solving them. The Recast strengthens the power of national rail regulators by extending their competences and requiring independence between national rail regulators and other public authority. Moreover, in order to improve transparency with reference to the issues of railway access it requires more detailed network statements[19] and establishes rules concerning conflicts of interest and discriminatory practices. Finally, it also aims at policies that would encourage and enhance investments. The Recast, Directive 2012/34/EC, was completed in 2012, and will be implemented in 2016.

[19] They are documents, which are published each year and provide details on the characteristics of infrastructures available and all conditions for its use.

- ❖ **The Fourth Railway Package**

  The European Commission has proposed the Fourth Railway Package in 2013. This package is expected to be the final stage towards the accomplishment of a single legal framework in the European area. It contains a set of changes to rail transport regulation in the European Union and it is another attempt that aims at reforming the rail sector by enhancing competition and improving the quality of rail services. It contains several legislative measure concerning:

- Infrastructure Governance: the proposal is to strengthen the role of infrastructure managers so that they will control all the functions of the rail network. Moreover, due to many user complaints, the Commission understands that infrastructure managers should have independence from any service operator, under a financial and operational point of view in order to protect the interests of all market participants.
- Opening of the market for domestic passenger transport services by rail from 2019: according to the Commission this will guarantee more competition that will result in higher degrees of customer satisfaction, lower prices and higher incentives for innovation. Other proposals include an enforcement of non-discriminatory access to integrated ticketing systems. A problem for new entrants is the access to rolling stock, in order to solve this, the Commission is proposing to introduce legislations that will facilitate the access to rolling stock and ensure non-discriminatory practices.
- Interoperability and safety: statistically rail transport is safer than road transport and it is important to take advantage of this important evidence to increase the use of rail transportation. Moreover, the proposals' are all concentrated on harmonization and the removal of barriers among the Member States in order to promote an integrated rail market in the EU. In addition to this, responsibility for issuing vehicle authorizations and safety certification would be shifted away from network owners towards the European Railway Agency; this is expected to be faster and cheaper.
- The social dimension: set of solutions that are aimed at providing the necessary safeguards to workers.

In 2015, the European Commission, Parliament and Council accepted the main pillars and proposals of the Fourth Railway Package. Moreover, the Parliament's Committee on Transport & Tourism approved the technical pillar in November. The text will now undergo further procedural steps and entry into force is expected in late June 2016, with implementation within three years.

Chapter 2

The Case of Italy in the European Context

2.1 The Evolution of the Liberalization Process in the Italian Railway Industry

The numerous regulations and directives proposed by the European Commission have had deep and considerable impacts on the railway industry of all Member States. Indeed, also in Italy, the process of liberalization and privatization has caused substantial transformations in the rail transport market and it is still in continuous evolution. As mentioned in the previous chapter, the main aim of the European authority is to introduce a degree of competition in an industry, which has been traditionally considered and regulated as a natural monopoly and characterized by a significant presence of the public sector. As we have learned, the directive 91/440/EC has just been the starting point of the deregulation process but it has had a fundamental role in the gradual opening of the market to effective competition. It is important to mention that the railway industry has not been the only sector in which liberalization and privatization policies have been introduced. Indeed, other industries such as telecommunications, energy and other transport modes have experienced, in recent years, an increase of competition and a greater presence of private operators. Similarly to other European countries, Italy has been extremely diligent and has tried to apply the regulations and European directives in the best possible way. Nevertheless, the implementation of these policies has been quite slow. Even though these delays have been common to many other Member States, at the same time, other countries have been able to quickly implement the policies and have already, in some cases, completed the liberalization process. The Italian experience is a clear demonstration of the many difficulties that there are in the implementation of the European policies also due to national resistances. Indeed, for Italy, a country that has always conceived railway transport as an essential public service, it is a hard task to leave behind the past and the traditional nationalization structure. The Italian regulator has made important changes mainly by reorganizing Ferrovie dello Stato (FS), which was, and still is, the principal public operator in the countries' railway industry having the monopoly of infrastructure access and rail services. Indeed, Italy has chosen a model of vertical legal separation between the infrastructure rail manager and the incumbent transport service provider, which are both under the same State-owned holding company, Ferrovie dello Stato. However, this reorganization has not put in discussion the monopolistic nature of the market and the public presence in the sector thus not leading to a real and genuine liberalization. It has been merely a formal transformation because the participation is completely public; in this case we can talk about "cold privatization". I will be more specific and describe all of the main steps, which have brought to the creation of FS in the following paragraph. In addition to this, Italy has pursued competition *for* the market for regional and local passenger services, which are under public service obligations (PSOs), while competition *in* the market for freight and for long-and medium-distance passenger transport. Finally, the recent establishment of the Italian Regulation Transport Authority shows how the country has had many difficulties in creating an independent entity with the aim of supervising the rail market. All of these circumstances have been an obstacle to the creation of an effective opening of the Italian railway market.

2.1.1 Formation and Organization of Ferrovie Dello Stato

In 1839 the Naples-Portici railway, of only five miles[20] in length, was opened. It was the first Italian railway and it marked the beginning of the Italian railway revolution highlighting the pace of industrialization in the country. From that moment, a process of construction and opening of new railways in the peninsula begun. At that time, different private companies managed the railways. The problem was that the services provided and the transport conditions were not optimal and this increased exponentially customer dissatisfaction and protests of railway workers. On April 21st 1905, under the Fortis government, the railway nationalization process[21] was undertaken and Ferrovie dello Stato came to birth. Even though the company started immediately growing, providing better quality services and faster and faster trains, people still preferred, with regards to the movement of goods, other alternative means of transport[22]. Indeed, it will be only under the fascist regime that the train acquires a fundamental role in the Italian society[23] and becomes an important symbol of progress. Particularly relevant for the analysis of the organization is the period during the end of the 80s and the beginning of the 90s, period in which, FS is subject to substantial structural and internal transformations. Indeed, at the end of 1985, with the approval of the Law 210/85, the autonomous company FS, *Azienda Autonoma delle Ferrovie dello Stato,* was replaced by the establishment of the *Ente Ferrovie dello Sato.* A new FS was created having legal personality and complete financial autonomy although subject to the supervision of the Minister of

[20] To be precise it was 7 kilometres and 250 metres.
[21] See Law n. 137 and the R.d. n. 259 of 1905.
[22] In particular, Italians preferred waterways and horses.
[23]The train becomes an idol in this period. During the war it was mainly used to transport the Italian troops and it became a symbol of hope and fight.

Transportation. In 1992, following the first European guidelines on the restructuring of the railway industry, the company was privatized[24] leading to the creation of Ferrovie dello Stato – *Società di Trasporti e Servizi per Azioni.* Even though the privatization was only formal, since shares were still owned by the Italian government, this marked the initial step of the process of liberalization in Italy. Indeed, in 1993 there was the establishment of five different areas: Railway Network, Transport, Goods, Engineering and Construction, and Stations. This is the first time that in Italy, a clear distinction and separation between trains operation and infrastructure management is made. In 1999 the divisions changed in Passenger, Regional Transport, Cargo and Infrastructure and in addition, also the section of Technology and Rolling Material was established. In June 2000, the company's two main broad divisions, service and infrastructure, were definitely separated and two different independent entities were created: Trenitalia *Società per Azioni* (SpA)[25], which is the incumbent service provider both in segments open to competition and under PSOs. In particular, it is responsible for transport service of both passenger and freight. While in 2001, Rete Ferroviaria Italiana SpA (RFI) was established, responsible for the design, construction, commissioning, management and maintenance of the rail infrastructure. Both limited companies were subsidiaries of Ferrovie dello Stato Holding, *Società a responsabilità limitata* (Srl)[26], created after the reorganization of the group in December 2000. Nowadays, Ferrovie dello Stato Holding Srl is denominated and known as Ferrovie dello Stato Italiane SpA.

Currently, Ferrovie dello Stato Italiane is one of Italy's largest and most influential industrial corporation: around 70,000 individuals contribute to running over 8,000 trains per day, transporting 600 million passengers and 50 million tons of freight per year, relying on a railway network spanning over 16,700 km, of which 1,000 km are dedicated to high-speed travel. Their mission is to create and manage railway transport works and services for their customers while contributing to the development of a great project of mobility and logistics for Italy[27].

The current organisation is that of an industrial Group with a Parent company, Ferrovie dello Stato Italiane SpA, which is 100% controlled by the Italian Ministry of Economy and Finance. It heads the Operating Companies in the various sectors of the chain and other

[24] Following the resolution CIPE: *Trasformazione dell'Ente Ferrovie dello Stato Società per Azioni*, with reference to art. 18 law 359.
[25] SpA is the equivalent of a limited company or joint stock Company.
[26] Srl is the equivalent of a limited liability company.
[27] See the web site of Ferrovie dello Stato.

companies servicing and supporting Group operations. The companies have their own specific corporate character and benefit from managerial independence in achieving business objectives (see Figure 2). In the area of transportation we find: Trenitalia, FS Logistica and Busitalia Sita Nord that are under the direct and full control of FS. In the Infrastructure area there are RFI and Italferr both with 100% participation. For the Urbanization Services there is Grandistazioni, Netinera and Centostazioni. Finally in the Other Services there is Freecredit, Ferservizi and FS Sistemi Urbani.

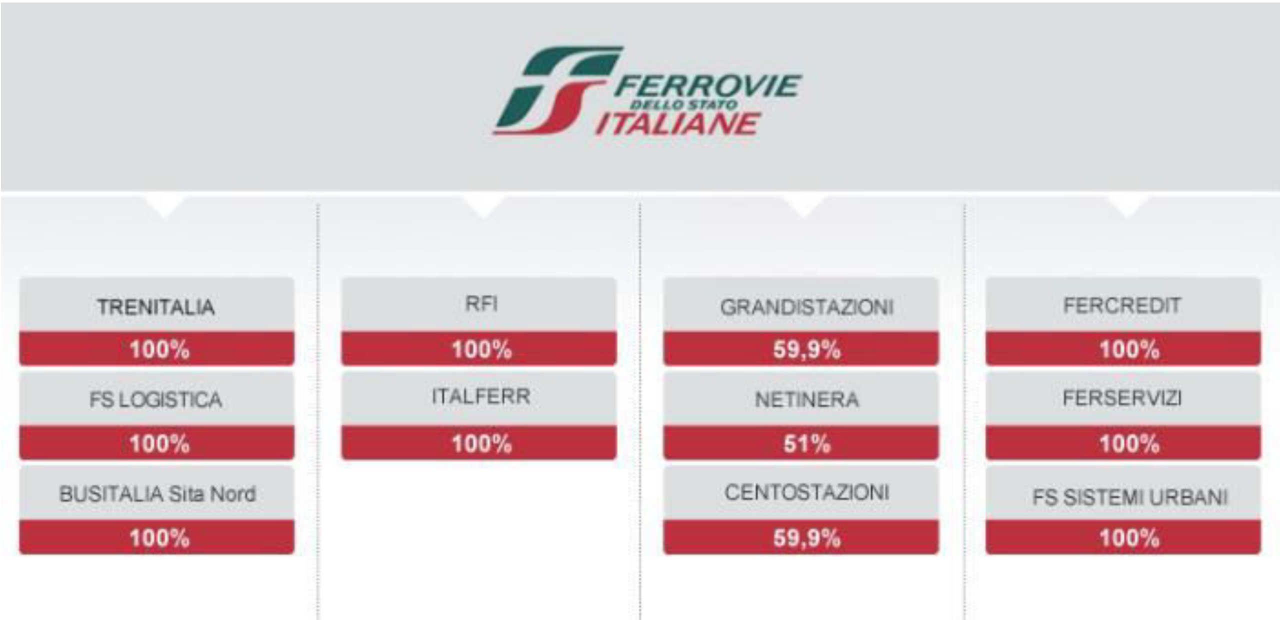

Figure 2: The Structure of the FS Group
Source: Web site of Ferrovie dello Stato

As we can notice, Rete Ferroviaria Italiana SpA and Trenitalia SpA have not been substantially divided and are still strongly related. Moreover, the decision of keeping the ownership of the Group Ferrovie dello Stato in the hands of the public sector highlights how the Italian regulator has adopted a quite timid approach to the liberalization process.

2.1.2 Further Steps

In Italy, the Legislative Decree n. 188 of 2003 transposed the First Railway Package; the Legislative Decree n. 162 and n.163 of 2007 transposed the Secondo Package; and the Legislative Decree n. 15 of 2010 transposed the Third Package.

The Legislative Decree n. 188 of 2003 has recognized, to the railway companies located in the EU, the right to access on the entire rail in the undertaking of international freight transport, namely freight international services have been fully liberalized. Moreover, the infrastructure manager must provide access in a fair, equal and non-discriminatory base to all rail operators. In addition to this, it has established the accounting separation[28] in order to represent in a transparent way the different activities of the public service and the public funding provided to each business. In summery, Italy has actually moved towards a more flexible and competitive regime, in a broader way than what was drafted in the First Railway Package. Consequently, there has been also the introduction[29] of the concept that the infrastructure manager, has to be an independent and autonomous entity under a legal, organizational and decisional point of view, with respect to the train operator entities. In particular, with reference to this, in 2009, there was the introduction of a modification of the charter of Rete Ferroviaria Italiana SpA, which articulates the incompatibility between the position of manager of the above-mentioned limited company and the position of manager of the controlling company, Ferrovie dello Stato, and of the others that carry out their business activities in the railway transport sector such as, Trenitalia SpA.

The European Commission started, in 2008, the violation procedure n. 2008/2097 addressed to Italy regarding the incorrect implementation of the European directives especially concerning the autonomy of the railway transport regulation organism. Many measures, in order to improve the power of the "Ufficio di regolazione dei servizi ferroviari" (Ursf), were undertaken. The entity gained increasing powers[30], for example, it obtained the power to impose administrative sanctions in case of violations of the discipline concerning access to the railway infrastructure and gained a higher degree of independence[31].

The Legislative Decree n. 162 of 2007 has established the National Agency for the security of the railways, which has legal personality, administrative and financial autonomy. Even though it is subject to the power and supervision of the Ministry of Infrastructure and Transportation, it is independent from the railway undertaking companies and from the infrastructure manager. The Agency is in charge of the security of the national system, has

[28] See art. 5, co. 4 bis, of the Legislative Decree n. 188 of 2003, and integrated by art. 24 of the Legislative Decree n. 69 of 2013 (c.d. *Decreto del Fare*).
[29] See art. 11, co.1, of the Legislative Decree n. 188 of 2003.
[30] See art. 2, co. 1, lett. c), of the Legislative Decree n. 135 of 2009, changed by the Law n. 166 of 2009, integrating the co. 6-bis in the art. 37 of the Legislative Decree n. 188 of 2003.
[31] See Legislative Decree n. 98 of 2011, changed in Law n. 111 of 2011.

technical regulatory powers and establishes, obviously in line with the European instructions, the principals and rules and standards necessary for the safety of rail circulation.

The adoption of the directive 2007/58/EC, has established that for the railway transport passenger services, that depart and have destination within Italy, it is necessary a licence that will be granted exclusively at those companies which have their Registered Office in Italy[32]. Moreover, passenger international services and cabotage has been recognized to the companies that operate internationally[33].

2.1.3 The Creation of an Independent Regulation Transport Authority

The Regulation Transport Authority established by art. 36 of Law 27/2012, modifying art. 37 of Law 201/2011, has become operational only in 2014 because of the many political difficulties. The establishment of this Authority has important consequences and influences substantially the railway transport sector. Indeed, this entity has substituted powers and has integrated the functions, which were exercised by the Ursf. The establishment of this Authority is finalized to go beyond the model of public regulation of the Italian railway transport industry that was substantially and, essentially prerogative of the Government. It was necessary to establish a new Authority due to different problems encountered with the previous one:

- Too many actors were present in the Ursf such as, politicians, regulators and shareholders of the dominant firm and this led to substantial conflicts of interest.
- It was necessary to provide credibility to the regulation policies by the establishment of a new entity with considerable powers and qualifications.
- It was also a way to simplify the regulation process that has always been complex and slow due to the fragmentation of the decisional processes and the presence of different and numerous actors. Thus, one of the final aims was to boost and encourage the liberalization process.

The new Authority is autonomous and independent and has general competencies in the sector of transportation. In particular, in the railway transport sector it has legislative, administrative, supervisory and prejudicial functions. Indeed it has the authority to grant

[32] For the companies that have their Registered Office abroad the licence will be granted only in case of reciprocity conditions.
[33] See Legislative Decree n. 15/2010.

firms and costumers access conditions, which are equal and non-discriminatory, it defines the criterions for the determinations of tolls and tariffs charged by the infrastructure manager. Moreover, it defines the correct schemas for the assignment of the capacity and routes to the different train operators. As regards to its supervision and control powers, it verifies that the infrastructure manager is correctly applying the rules concerning the assignment of the routes to the train operators, on a non-discriminatory base, and that it charges fairly the tariffs. It also considers complaints of users and consumers and settles eventual disputes between the infrastructure manager and the train operators. The Authority has many different powers concerning regulation, investigation and sanctions. Indeed, it can determine some criterions for the drafting and preparation of the accounting of the firms, it can impose the accounting separation and corporate separation in firms that are vertically integrated, it can also ask for information, documents and carry out investigations. Moreover, the Transport Authority has an additional task that concerns the analysis of the efficiency of the different degrees of vertical separation[34], between infrastructure manager and rail operator, and evaluates the best criterion. The evaluation has to be undertaken after a careful and comparative analysis also considering the situation in other Member States. After this analysis, the Authority has to prepare a report that will be sent to the Government and the Parliament. Finally the Authority has also some powers and competencies regarding the rail transport sector at the regional level. Indeed, it defines, in accordance with the Ministry and Regions, the scope and obligations of PSOs on each route and their financial coverage.

Considering all the powers and competencies that the Authority has, this entity is a fundamental and principal actor in the railway market and will consistently influence the development of the liberalization process in the industry. Its actions are also consumer-user oriented[35] indeed; it is a relevant and essential body for the safeguard of the rights and duties of passengers in the railway transport market. It exercises its regulatory powers being able, for example, to sanction and punish eventual violations of rail operators and in general is entitled to take interim measures.

2.1.4 The Regional Railway Transport

An important issue in the national regulatory framework concerns the proper discipline of the regional railway transport, which highlights, even more, how for Italy the introduction of

[34] See art. 37 of the Legislative Decree n. 1 of 2012.
[35] See Legislative Decree n. 70 of 2014 that fulfils the Regulation 1371/2007/EC.

competition in this market is an extremely devious task. With the Legislative Decree n. 422 of 1997 (c.d. *Decreto Burlando*), the responsibility of the management of the regional rail transport service lies in the hands of each Region. The Regions replaced the State in the role of interlocutor with the different entities that operate in the regional sector. In particular, in order to introduce a certain degree of competition also in the regional rail transport market, regions have the duty to choose the manager that will supply its regional rail transport through tendering procedures since the beginning of 2004[36]. Subsequently, this deadline was postponed for three times, to the end of 2005, 2006 and finally 2007, when the competitive tendering obligation was put into question by the enactment of Regulation 1370/2007/EC. According to the EU rules, under some circumstances, competent authorities may award public services contracts directly, provided that this is not prohibited by national law. Therefore, in 2009, the national legislator clarified that the competent authorities were not prevented from assigning the service provision through direct awards, making competitive tendering no longer mandatory. In the same year, it was also established[37] that the duration of the Public Service Contracts should have a minimum term of no less than six years, renewable for other six. In the end, the result was that Trenitalia SpA obtained the assignment of the regional rail transport, signing a contract lasting from 6 to 12 years. Obviously this regulatory action has discouraged new entrants in this market segment.

Competition is important and necessary also in this segment of the market. Indeed, also the Antitrust entity, believes that it is necessary to eliminate the rules that create barriers and deter the entry of new railway service operators. Due to this complex and fragmented regulatory framework and in absence of a coherent regulation, the presence of competitive tender could be a good starting point for the introduction of competition in the market. Recently three regions, the Abruzzi, Tuscany and Veneto have communicated their decision not to renew the service contract with Trenitalia SpA but instead; they will precede a tender in order to find a new service operator. This initiative seems to prospect a radical change in the competition of regional railway transport and demonstrates that in order to define a scenario that is really competitive it is important to reform the entire organization of the sector and, most importantly, completely eliminate the monopoly power of the public incumbent.

[36] See art. 38 of Law n. 166 of 2002.
[37] See Law n. 99/2009.

2.1.5 Assessment

The evolution of the European directives on the Italian railway industry and on the traffic volumes for freight and passenger transport has been quite modest. Italy is below the average and it is substantially below the performances of other Member States. The implementation and adoption of the three Railway Packages did not translate in an effective liberalization of railway transport and did not bring to the creation of a truly competitive environment. The privatization of Ferrovie dello Stato has been only formal and not substantial, since it is still controlled by the public sector. Italy has failed in the accomplishment of the objective present in the First Package by not being able to establish concrete independence between RFI and Trenitalia, which instead appears to be quite weak. Indeed, there is just a mere corporate distinction without an effective independence on an organizational and decisional point of view. FS is still the dominant player in the Italian railway sector, RFI manages the national rail network in a monopoly position while Trenitalia is the main national railway company holding monopoly powers in each of the different passenger rail transport services. With the exception of some new entrants in freight transport and in the high-speed passenger transport, the industry is still vastly unaffected by significant competition developments and the recourse to competitive tendering to allocate services under PSOs is very limited. Nevertheless, a growing number of railway companies have entered the rail freight transport market over time (see Figure 3). Along with major foreign rail companies, these new entrants include some regional RUs, which until a few years ago, were operating exclusively on their local networks. Rail Traction Company was the first railway company to enter the Italian freight market in 2001, and was followed over time by RUs such as NordCargo, Ferrovia Emilia Romagna, Ferrovia Adriatico Sangritana, InRail, Serfer and several companies controlled by foreign capital.

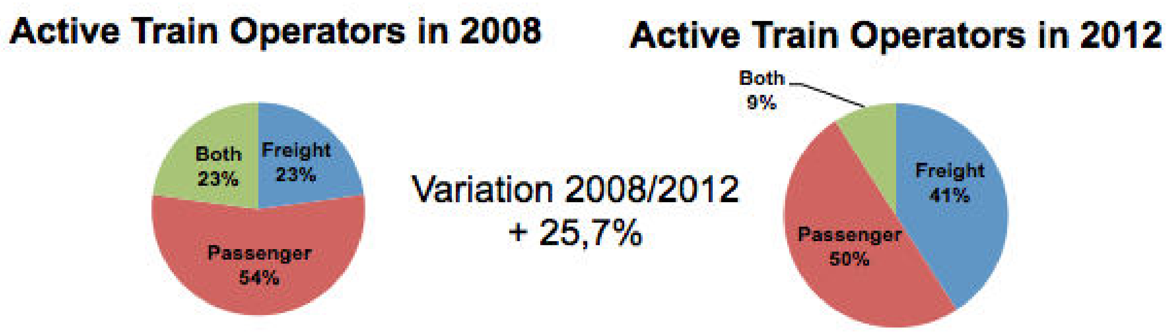

Figure 3: Active Train Operators in the Italian railway transport
Source: Torelli, C. & D'Elia, M., Istat (2014), *Il Trasporto Terrestre: Trasporto Ferroviario*

Even though the industry is still characterized by high barriers of technical and economic nature, the creation of the Italian Regulation Transport Authority represents an important step towards liberalization in substantial and effective terms. It will provide an important contribution to the completion of the regulatory system and to the improvement of competition in the sector. However, the protracted delay of its establishment and the significant control of the public sector in the industry, are all elements that reveal the difficulty for the Italian State to give up its control in the sector and abandon the traditional model.

Competition in the freight market has been achieved promptly and quite easily with respect to competition in the rail passenger market. However, a promising example of liberalization, in the rail passenger transport market, is given by the entry into the high-speed train segment of the newcomer Nuovo Trasporto Viaggiatori (NTV) at the beginning of 2012.

2.2 Competition in the High-Speed Rail Passenger Market: Trenitalia and Italo

At the beginning of the XXI century the revolution of the high-speed rail hit Italy. The construction and development of high-speed routes grew exponentially and the State built an entirely new system of high-speed track. This had a remarkable impact on the Italian railway industry. Indeed, during 2012, the Italian passenger market has experienced the entry of a new operator, Nuovo Trasporto Viaggiatori SpA (NTV), the company that operates Italo trains on the high-speed rail market segment, in competition with the incumbent Trenitalia and its *Frecciarossa* services. This limited company was formed in December 2006, by a group of well-known Italian managers such as: Luca Cordero di Montezemolo, Diego Della Valle, Gianni Punzo and Giuseppe Sciarrone ex manager of Ferrovie dello Stato. Even if NTV is a private company, the French national railway company SNFC Group possesses 20% of its ownership. The Italian market is the first and most extensive case in Europe where two railway companies compete for the high-speed rail services on open access basis. NTV, which aims at shaking up the state-controlled world of Italian rail, started operating on the Rome- Milan line and since then, it gradually entered in other routes moving from 2 million passengers, against 25 million of Trenitalia while in 2013 conquered 25% of market share moving about 7 million passengers. Compared to FS, the competitive company offers different timetables, solutions and services to passengers.

Luca Cordero di Montezemolo said: “The opening up of rail transport to competition is a historic event that will bring great benefits to travellers and will be a positive stimulus for the country’s transport system.[38]”

2.2.1 The Impacts of Competition

Despite the fact that the competition introduced is not perfect, the entry of this new operator has made the Italian train market one of the most competitive in the world, given that one carrier still only serves most domestic high-speed routes in Europe and North America. From the early stages, competition boosted quality, revolutionized commercial strategies and lowered prices mainly due to competitive tariffs offered by NTV. In 2012 prices of high-speed train tickets dropped by 30% with respect to 2011. Indeed, in September 2011, the lowest price charged by Trenitalia for a train ticket from Rome to Milan was of 51 euros, in 2012 it dropped to 49 euros alongside with other extremely cheap prices (35 up to extreme cases of 9 euros) due to particular promotions and discounts that were unimaginable before competition. Even though Trenitalia has always maintained that these strategies did not depend on the presence of NTV, affirming that it was simply a way to stimulate demand and was part of the usual business, it is not that convincing.

A recent study by Bergantino, Capozza and Capurso (2015), has empirically explored the competitive effects of the newcomer’s entry in the passenger market[39]. By studying the competitive effects of high-speed rail entry in the Italian passenger market they concluded that:

- The incumbent Trenitalia has not reduced its supply as a result of the entry of NTV. Instead, the data underline that Trenitalia increased the capacity deployed on the lines by 30% from the year previous to NTV entry. Indeed, the presence of the newcomer has led to an increase of the overall capacity in particular on the Rome-Milan route by 56%. The on-track competition has resulted in a greater utilization of the network.

- No evidence of predatory pricing by the incumbent has been found. Indeed, Trenitalia’s fares are 29.92% to 34.67% higher than NTV’s.

[38] See Wright, R. (May 25, 2010), *Private high-speed Rail for Italy*, The Financial Times.
[39] The paper tackles mainly two issues. Firstly, they studied price and capacity effects on the stemming *intra-modal competition*. Secondly, they measured the impact of *inter-modal competition* by high-speed rail on airline pricing behaviour.

- The two train operators engage in strategic pricing to a different degree and on different routes. They both take into account the dynamics of the rival's pricing behaviour and it seems that NTV pays more attention to this when setting its prices with respect to Trenitalia.

NTV encountered many obstacles and difficulties in becoming operative and in obtaining slots and authorizations. There is still, to some extent, the presence of discrimination favouring the incumbent Trenitalia. Indeed the domain of Ferrovie dello Stato remains persistent. NTV accuses FS of making as difficult as possible both the access to the stations and the organisation of timetables for Italo trains. However, officials from Trenitalia and RFI deny any collusion or unfair competition. The two companies went through harsh debates that often ended up in the courtyard.

Giovanni Pitruzella, head of Italy's antitrust commission, said: "We now have a new fight for competition happening, but getting where we want to be won't be easy.[40]"

2.2.2 Competitive Wars

Italy's rail wars have been a reminder and a confirmation of how hard it can be to extract power from a publicly owned company. RFI is supposed to treat competitors equally, but Italo accuses Trenitalia and RFI of unfair and discriminatory behaviour. The Italian Competition Authority[41] (ICA), has advocated the potential conflicts of interest inherent in the mere legal separation between RFI and Trenitalia. Indeed, according to the ICA, the fact that the two companies are under the control of the same state-owned holding company and that there is no concrete separation under a decisional and organizational point of view, may distort competition and restrain its development[42]. In fact, in this setting, RFI has fewer incentives to allow access to new competitors on a non-discriminatory base. In particular, in the Advocacy Report of 2003 the ICA observed that the separation principle, formally obtained through the corporate distinction, results evaded due to the organizational character of the group FS, that is a unique economic entity where Ferrovie dello Stato is able to exercise influence and condition both RFI and Trenitalia. The realization of a en effective

[40] See Faiola, A. (October 28, 2013), *Italy's train wars show the bumpy ride into competition*, The Washington Post.

[41] In Italian, the entity is the *Autorità Garante della Concorrenza e del Mercato*.

[42] See ICA (2003) Advocacy Report AS 265 on separation of the management of railway infrastructure and transport services; ICA (2008) Advocacy Report AS453 "Considerations and proposals for a pro-competitive market regulation supporting economic growth".

separation process between train operators and the infrastructure manager should be undertaken initially by the corporate and accounting separation but, in the end, there should be the final split that will be obtained only by the selling of the ownership of RFI by the ex monopolist. Indeed, the single corporate separation is not able to guarantee an effective equal treatment between the newcomers, which intend to have access to the infrastructure and to the facilities. To provide a solution to this situation it is necessary to undertake a substantial separation between RU and IM, this could be accomplished through the collocation of RFI outside of the Group Ferrovie dello Stato and still maintaining its ownership in the hands of the public sector. The Antitrust authority agreed and confirmed the sentence brought by the Court of Justice of the European Communities towards Italy for the missing fulfilment of the European directive on the liberalization of the railway market with reference to the independence of the infrastructure manger. The European Communities judge declared[43] that Italy is not providing the correct independence to the IM and thus not being able to guarantee fair and equal access conditions[44].

Moreover, the ICA has made use of its advocacy power to highlight the potential distortion of competition stemming from the fact that other facilities, such as freight terminals and maintenance infrastructures, are owned directly or managed by Trenitalia. Lately the ICA, in the context of its enforcement activity, has dealt with a number of practices allegedly carried out by FS, through RFI and Trenitalia, aimed at excluding the entry of new competitors into the markets of freight and passenger transport. Antitrust authorities fined the state-run company for anti-competitive practices against Arenaways, a small private start-up that was operating a limited route from Turin to Milan and then they started investigating also for the charges to NTV. In particular, in 2009, the ICA carried out an investigation on an RFI's alleged abuse of dominance in the national market for access to maintenance facilities for high-speed railway passenger transport services. It was actually NTV, which in 2008, presented a warning to the ICA, related to the bad conduct adopted by RFI with reference to the access and utilization to the maintenance centre of Naples and at the access of the major Italian stations. RFI was alleged to put in place a refusal to grant access to maintenance areas and station facilities, in order to exclude NTV in the high-speed segment. During the proceeding, RFI committed to provide a timely and cost effective access to the maintenance facility in use by Trenitalia to all interested rail operators. RFI further offered access on fair

[43] See case C-369/2011, October 3, 2013.
[44] See artt. 4, par.1, and 30, par. 3, of the directive 2001/14/EC.

and non-discriminatory conditions to another appropriate area, were to construct a new maintenance centre.

Recently, FS made a step forward and proposed the first armistice in years: a proposal was submitted to the Antitrust in order to allow a unique train pass both for Trenitalia and Italo trains so that passenger can buy a ticket regardless the company. But the situation remains tense both for economic and personal reasons[45].

2.2.3 The Solid Financial position of the FS Group

The financial position of Ferrovie dello Stato is extremely stable. Indeed, especially in the financial year 2014 the FS Group achieved positive and growing earnings before interest, taxes, depreciation and amortization (EBITDA); and it recorded a good performance in its gross profit (see Table 2).

Millions of Euros

Main Results and Financial Data	2015	2014	Change	%
Revenue	8,585	8,390	193	2.3
Operating Costs	(6,610)	(6,276)	(334)	(5.3)
Gross Operating Profit	1,975	2,114	(139)	(6.6)
Operating Profit	644	659	(15)	(2.3)
Profit for the year	464	303	161	53.1
	31.12.2015	**31.12.2014**	**Change**	**%**
Net Invested Capital (NIC)	44,695	43,715	980	2.2
Equity (E)	37,953	37,497	456	1.2
Net Financial Debt (NFD)	6,742	6,218	524	8.4
NFD/E	0.18	0.17	0.01	7.1
Investments of the year	5,497	4,261	1,236	29.0
Total cash flow used	(3)	(361)	358	99.2

Table 2: Consolidated Highlights of the FS Group, 2014-2015
Source: Financial Statements 2015, web site of Ferrovie dello Stato

[45] Indeed, some acts seemed to be little personal revenges between founders, presidents and shareholders of the different companies.

Since the second half of 2014 and throughout all 2015 the company was affected by the significant changes in legislation; such as the increase in the cost of energy[46], the decrease in toll revenue from the most profitable lines (high speed and high capacity), in accordance with the provisions of Ministerial decree no. 330/2013 and resolution no. 70/2014 of the Italian Transport Regulator that led to a minus €29 million, and the elimination of revenue from the Cargo service contract with the government, following the Stability Act dated 23 December 2014. However, the Profit for the year came to €464 million, up by €161 million (+53.1%). The negative impacts, of the above changes in legislation, led to a fall in both Gross Operating Profit and Operating Profit**,** which have decreased by 6.6% and 2.3% respectively. To be precise, the total negative impact of these external events, on gross operating profit amounts to approximately €173 million.

By considering the main indicators of the income statement of Trenitalia SpA, in the selected years 2013- 2014 (see Table 3), it is easy and clear to understand that also Trenitalia, like the whole FS Group, has a solid and stable financial position. The profit of Trenitalia for 2014 was of €59.5 million, compared to €181.5 million for 2013. As noted earlier, the 2014 income statement includes the significant loss (€185.2 million) on the Cargo Division's service contract. The gross operating profit, increased considerably in 2014, rising by 5.1% from €1,385.3 million in 2013 to €1,455.8 million, while the gross operating profit as a percentage of revenue in 2014 came to 26.1%, showing further growth on the 25.2% posted in 2013 and therefore highlighting an additional improvement in the company's business performance. The operating profit amounts to €288.0 million, below the one of the previous year of €431.7 million. Traffic revenue in the long haul sector performed well indeed, it increased by €111.6 million (+6.1%) with respect to 2013. In particular, overall market services grew by 6.9% mainly due to the rise in revenue generated by the *Freccie* trains. Moreover, revenue generated by international train service grew by €2.1 million. Finally, revenue from public service contracts (with the regions and the government) decreased by approximately €29.1 million (-1.4%) with respect to the previous year and revenue from public service contracts with special-status regions showed an overall decrease of €2.9 million.

[46] See Law decree no. 91/2014.

INCOME STATEMENT HIGHLIGHTS *(millions of Euros)*	**2014**	**2013**
Revenue	5,576.7	5,497.8
Operating costs	(4,120.9)	(4,112.5)
EBITDA	1,455.8	1,385.3
EBIT	288.0	431.7
Profit for the year	59.5	181.5
Performance Indicators		
ROI	3.6%	5.2%
ROS	5.2%	7.9%
NAT	0.69	0.66
Profitability Indicators		
Employees (FTE)	32,007	33,665
Train-km/Employee (thousands)	8.24	7.88
Revenue/Employee	174,232	163,307
Gross operating profit margin	26.1%	25.2%
Financial Indicators *(millions of Euros)*		
Net financial Debt	5,951	6,241
D/E	2.87	2.98
Operating cash flows	967	544
Investments (excluding routine investments)	(694)	(552)
Financial requirements	(290)	(98)

Table 3: Main Indicators Trenitalia 2013-2014
Source: Trenitalia Financial Statements, web site of Ferrovie dello Stato

2.2.4 The Financial difficulties of NTV

Since the starting of its business until 2015, NTV has always registered a negative net income. The railway Industry requires high initial capital and investment, moreover the impediments and difficulties faced by NTV due to the intense competition with Trenitalia, could explain why returns have been slow to come. However, the company experienced an extremely negative period and risked to exit the market. Indeed in 2013, NTV closed the year with a loss of €77.619.500 and in 2014 it closed with negative €55 million and revenues of €262 millions. Even though, in 2014 the company incurred in losses, there has been a reduction with respect to the to the previous year and managers have always been confident to reach the breakeven point and start making profits soon. In order to recover, a recapitalization of the company was necessary, NTV needed to find funding but it could not count on the help of the Italian government, moreover banks were not willing to provide the company with additional debt and capital flowing from SNFC was politically impossible, since there still are no reciprocity conditions between France and Italy. In the end the company, asked its partners €60 million, and other €40 million in case of necessity, to keep the business operating. Initially, in order to cut costs NTV wanted to fire one fourth of its thousand employees and in April 2015 there was the first strike. Eventually, the company was able to reach an agreement with the unions, indeed the firing procedure was stopped and 929 employees signed a *contratto di solidarietà*[47] of two years.

Surprisingly, in 2015, NTV communicated a gross profit of €1.8 million, the first positive result since 2012, with €308 million of revenues and costs of €258 million. This is an extremely important result for the future of the company and its survival in the industry. This positive result can be linked to a series of circumstances:

- Thanks to the construction of new trains, which are extremely environmentally friendly and less polluting, NTV received from the State €8 million.

- There has been an increase in passengers of 39,5%, 9,1 millions against the 6.6 millions of 2014. This increase probably due to the greater frequency on the Rome-Milan route and to the opening of the new routes.

[47] It is a type of employment contract that allows avoiding firing procedures. It involves a reduction in the working hours together with a reduction in wages. It is based on the concept that employees work less but there is work for everybody.

- At the end of 2014 there has been the first important measure of the Regulation Transport Authority that decided to reduce by 37% the tariffs charged by RFI on the high-speed routes. Obviously it was a provision that has favoured both Trenitalia and Italo but has had a negative impact on RFI. More recently, the Authority has decided that the tariffs that the rail operators pay for the access to the infrastructure cannot increase until 2021.

Finally, in 2015, NTV signed a contract with the creditors[48] to repay its debt of 683 millions: 70% in 2028, and the remaining 30% in 2031. It is clear that the initial strategy adopted by NTV was not a winning one, indeed the company was not able to outperform Trenitalia, that is capable of making consistent profits and is financially stable, moreover passengers seem to prefer the *freccie* of Trenitalia instead of Italo trains. NTV has started to implement a low cost strategy; they have reduced the initial luxurious design of the interior of their trains, such as the leather seats and the services offered on board, namely they have started to target a segment of passengers less demanding by also trying to reduce the cost of the train tickets. Despite the difficulties, NTV is planning to enlarge its routes and operate more. Their intention is to buy new trains not for high-speed, in order to target their new passenger segment. Moreover NTV plans for 2017, an increase in the number of trains and the coming of a new set of trains called EVO.

Antonello Perricone, ex President of NTV, said:
"It is important for not only Italy, but for Europe, that we succeed in competing here.[49]"

[48] Banks such as: Intesa Sanpaolo, Monte dei Paschi di Siena, Banco Popolare, Bnl.
[49] See Faiola, A. (October 28, 2013), *Italy's train wars show the bumpy ride into competition*, The Washington Post.

Conclusion

The European railways needed to be revitalized and reforms were necessary. There are clear signs that the reforms have had some positive effects but, at the same time, a lot of problems still remain. One of the main problems is to induce change in those countries where large historical operators have always dominated the industry. Indeed, competition, which is the ultimate objective of the Commission, is still very partial. In the countries that have tried to open the market to competition, new entrants have gained only a very small percentage of the total share and, in addition to this, regulation is difficult; in continental Europe regulators have failed to prevent the actions of incumbents against possible new entrants. Even though Italy has made many efforts in the adoption of the directives and regulations of the European Commission, and is actually considered one of the most competitive countries, at least with reference to the high-speed transport segment, the problem of low and effective competition remains. The changes made in the Group Ferrovie dello Stato have not been enough, indeed, FS has total control on both rail operator and infrastructure management, in particular; Trenitalia is still able to exercise important control and powers on RFI, due to the fact that the company separation did not bring to a propriety separation, the two entities are still strictly related. Indeed, in Italy it seems that competition in the rail transport sector, especially concerning the passenger segment, is highly limited by a sort of collusive management between the train operator and the infrastructure manager.

Part of these problems are linked to the technical and economical characteristics belonging to this specific industry which were discussed in the first chapter, but simultaneously, they may also depend on a wrong implementation of the European legislation:

- There has been no decisional, operational and ownership separation between RFI and Trenitalia but just a legal one, which in turn has not led to an effective independence between the two entities and has created higher barriers to entry.
- It took a lot of time for an independent regulatory body, the Regulation Transport Authority, entrusted with an adequate wide-ranging set of powers and competences, to enter into operation. Obviously, this brought to a delay in the liberalization process but its presence will overcome ambiguities and gaps of the present regulatory framework.

- Access conditions to service facilities, such as stations or maintenance facilities, have not been attractive for new entrants; the tariff policy and the requirements asked by RFI demonstrated the difficulties that new private operators encountered. Fortunately, with the activities undertaken by the Regulation Transport Authority this situation is changing.
- The lack of a precise identification of PSOs and incompleteness in PSC obligations has distorted incentives for greater efficiency, leaving room for conducts aimed at preserving dominance.
- The recourse to tendering procedures has been hampered by an unfavourable evolution of the legislation, which has contributed to grant a quasi-monopolistic position to the incumbent.

The Italian liberalization and privatization process of the railway industry has been only partially satisfactory. Indeed, by analysing competition in the high-speed passenger segment, between NTV and Trenitalia, and by simply looking at their respective financial positions, we can immediately realize the difficulties that NTV has faced and, that is still facing today. Italy has still many steps to undertake in order to concretely and substantially achieve a fully liberalized railway transport industry.

There are two important future events that could highly favour the passage from a formal liberalization to an effective one. On a European point of view, there is the imminent approval of the Fourth Railway Package. The investment plan presented in 2014 by the President of the European commission, Jean Claude Juncker, emphasizes the fundamental importance and priority of the transport sector and it has highlighted the necessity to adopt this Fourth Railway Package with urgency in order to consolidate the creation of a unitary railway market. The Package will have a major impact on Italy concerning mainly:

- The implementation of stringent measures that will strengthen the autonomy and independence of RFI with respect to the holding Ferrovie dello Stato SpA.
- The elimination of the distinction between international and national transport for passenger with the consequent recognition, to all European railway companies, of the right to access the national passenger services that will further expand the current norms.
- The introduction of the obligation to assign service contracts trough competitive tendering.

- The forecast of a unique European system with safety certificates provided by the European Railway Authority, that will substitute the provision relative to the release of these certificates by the National Agency for Rail Security.

On a national point of view we find a substantial beginning of the privatization process of Ferrovie dello Stato SpA. Indeed, recently, the Italian government has announced the intention to sell in the market a minority share equal to the 40% of Ferrovie dello Stato SpA. It has been observed that this action of substantial privatization if not combined by a propriety separation of RFI and Trenitalia could be only an action to provide income to the State but will not actually favour anything else.

The necessity to complete the liberalization process also derives from the circumstance that this industry is a central sector and has a strategic role in the industrial and social growth and development.

"Efficient transport is a critical component of economic development, globally and nationally. Transport availability affects global development patterns and can be a boost or a barrier to economic growth within individual nations.[50]"

[50] See Krugman, P. (1991), *Increasing Returns and Economic Geography*, Journal of Political Economy, Vol. 99, pp. 483-499.

References

Baumol, W. (1977), *On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry*, The American Economic Review, Vol. 67, pp. 809-822.

Bergantino, A., Capozza, C., & Capurso, M. (2015), *The impact of open access on intra- and inter-modal rail competition. A national level analysis in Italy*, Transport Policy, Vol. 39, pp. 77-86.

Beria, P. (November 28, 2014), *Italo al capolinea sarebbe un fallimento per tutti*, Lavoce.info.

Bognetti, G., & Obermann, G. (2008), *Liberalization and Privatization of Public Utilities: Origins of the Debate, Current Issues and Challenges for the Future*, Annals of Public and Cooperative Economics, Vol. 79, pp. 461-485.

Cantos, P., & Campos, J. (2005), *Recent changes in the global rail industry: facing the challenge of increased flexibility*, European Transport, Vol. 29, pp. 1-21.

Ceffa, L. (2011), *Dalla Bayard al Freccia Rossa- Breve storia delle ferrovie in Italia*, 3rotaie.it.

CEMT, (1996), *Évolution des transports 1970-1994.*

Domergue, P., & Quinet, E. (2001), *Situation and Problems of Railway Industry in Europe,* Japan Railway & Transport Review, No. 26, pp. 4-7.

Estache, A., & de Rus, G. (2000), *Privatization and Regulation of Transport Infrastructure, Guidelines for Policymakers and Regulators*, World Bank, Washington, DC.

European Communities (2008), *Modern Rail modern Europe*, Office for Official Publications of the European Communities, Luxembourg.

Faiola, A. (October 28, 2013), *Italy's train wars show the bumpy ride into competition*, The Washington Post.

Ferrovie dello Stato Italiane, Financial Statements, 2015.

Galenson, A., & Thompson, L. (1993), *Forms of private sector participation in railways*, Infrastructure notes, World Bank, No. RW-5.

Giachetti, M. (2016), *La Liberalizzazione del trasporto ferroviario: l'esperienza italiana nel contesto europeo,* federalismi.it, No. 5.

Grillo, P. (2013), *Liberalizzazione del trasporto ferroviario in Italia*.

Il Fatto Quotidiano (March 11, 2016), *Ntv,"nel 2015 il primo utile". Ma la società dei treni di Montezemolo e Della Valle non dà il dato netto*, Il Fatto Quotidiano.

Il Fatto Quotidiano (November 5, 2014), *Trasporti, L'Authority taglia del 37% i pedaggi pagati da Italo e Trenitalia,* Il Fatto Quotidiano.

Jensen, A. (1998), *Competition in Railway Monopolies*, Transportation research: an international journal, Vol. 34, pp. 267-288.

Kopicki, R., & Thompson, L. (1995), *Best methods of railway restructuring and privatization*, CFS Discussion Paper Series, World Bank, No. 111.

Krugman, P. (1991), *Increasing Returns and Economic Geography*, Journal of Political Economy, Vol. 99, pp. 483-499.

Kvizda, M. (2011), *Definition of Relevant Market in the Railway Industry*, Horizons of Railway Transport, Vol. 2, pp. 86-95.

Lang, M., Laperrouza, M., Finger, M. (2011), *Competition Effects in a Liberalized Railway Market*, Journal of industry, Competition and Trade, Vol. 13, pp. 375-398.

Martini, D. (June 13, 2015), *Ntv, i treni Italo in crisi fanno marcia indietro: meno lusso, più tratte low cost*, Il Fatto Quotidiano.

OECD (2013), *Recent Developments in Rail Transportation Services*, OECD Competition Policy Roundtables, OECD Publishing.

Padovese, I. (October 11, 2015), *Italo and Trenitalia: the two italian railway companies stormy relationship,* ROOSTERGNN.

Pilati, P. (October 18, 2012), *Sfida Italo-FS, il cliente ringrazia*, L'Espresso.

Stefanato, P. (July 18, 2015), *Ntv, rosso 2014 a 55 milioni. Ok all'aumento*, Il Giornale.

Stiglitz, J.E. & Rosengard, J.K. (2007), *Economics of The Public Sector*, W.W. Norton & Company, INC., New York, London.

TeMA*Lab*, (2011), *Unità d'Italia e Mobilità*, Laboratorio Territorio Mobilità e Ambiente - TeMALab Dipartimento di Pianificazione e Scienza del Territorio Università degli Studi di Napoli "Federico II", Vol. 4.

Torelli, C., & D'Elia M. (2014), *Il Trasporto Terrestre: Trasporto Ferroviario*, Istat.

Trenitalia SpA, Financial Statements, 2014.

Tropeano, M. (November 19, 2015), *Alta Velocità, fino al 2021 Rfi non potrà alzare le tariffe,* La Stampa.

Uniontrasporti, (2008), *I Processi di Liberalizzazione nel Settore Ferroviario.*

United Nations ESCAP (2003), *The Restructuring of Railways*, United Nations, New York.

Wheat, P., & Nash C. (2006), *Policy Effectiveness of Rail, EU policy and Impact on the rail system*, European Commission.

World Bank/The International Bank for Reconstruction and Development (2011), *Railway Reform: Toolkit for Improving Rail Sector Performance*, The World Bank, Washington.

Wright, R. (May 25, 2010), *Private high-speed Rail for Italy*, The Financial Times.