EUROPEAN RAILWAY REFORM:
A study for Britain, Germany, France and the case of Turkey

by

ÖZCAN ASLAN

This Dissertation is submitted by the Candidate
in Partial Fulfilment of the Requirements for the Degree of

MSc (Eng) Transport Planning and Engineering

Submission by the Candidate does not imply
that its content or standard is endorsed by the Examiners

Institute for Transport Studies
The University of Leeds

November 2012
# Table of Contents

Abstract ................................................................................................................................. 2

CHAPTER 1 ............................................................................................................................. 3
  1.1 Introduction ................................................................................................................... 3
  1.2. The Need for Vertical Separation ................................................................................ 4

CHAPTER 2 ............................................................................................................................. 9
  Britain .................................................................................................................................. 9
    2.1. Background ............................................................................................................... 9
    2.2. British Experience of Complete Separation ............................................................... 10

CHAPTER 3 ........................................................................................................................... 16
  Germany ............................................................................................................................ 16
    3.1. Background ............................................................................................................. 16
    3.2. Performance of the Rail Market ............................................................................... 17

CHAPTER 4 ........................................................................................................................... 21
  France ............................................................................................................................... 21
    4.1. Background ............................................................................................................. 21
    4.2. Performance of the Rail Market ............................................................................... 23

CHAPTER 5 ........................................................................................................................... 27
  Turkey .............................................................................................................................. 27
    5.1. History ..................................................................................................................... 27
    5.2. Recent Developments ............................................................................................ 28
    5.3. Current Structure ................................................................................................... 32
    5.4. Restructuring the Railways ................................................................................... 35
    5.5. Challenges and Recommendations ........................................................................ 36

CONCLUSION ....................................................................................................................... 38

Acknowledgements ............................................................................................................. 40

REFERENCES ....................................................................................................................... 41
Abstract

By 1990, there was obvious need for reforms in the European rail market since the state owned monopoly railways were functioning neither effectively nor efficiently. In this respect, the European Commission passed Directive 91-440, which required the Member States to open up access for certain categories of freight train operations and to separate railway operations from infrastructure at least at accounting level in order to improve the efficiency of railway transport. Following this directive Member States started to separate railway operations from infrastructure using different approaches. To this day, ‘which approach suits the best for what circumstance’ is open to discussion. In this context, this dissertation highlights the strengths and weaknesses of the different approaches observed across Europe based on the British, German and French experiences that represent the complete separation, integration and partial separation models respectively; making use of past academic studies and reports. In addition to that, the current structure of Turkish State Railways is discussed and some recommendations are provided on the forthcoming railway reforms, under the light shed by the European experiences. After the reforms all three Member States experienced growth in their freight and passenger volumes except the freight market in France, although to what extent this growth is attributed to the reforms is not clear. Britain and Germany were the first countries to establish an independent rail regulator and they experienced a high level of competition in their rail markets, proving the benefits of strong and independent regulation. As Britain went through complete separation and there is no incumbent operator, non discriminatory access charging and capacity allocation for all railway undertakings is ensured by the Infrastructure Manager. In France and Germany there is still concern for discrimination but they have advantages in dealing with interfaces that exist between infrastructure and operations, which leads to greater efficiencies. Turkey, on the other hand, is planning to go through complete separation with a state owned Infrastructure Manager and incumbent operator. There seems to be the need for a strong independent regulator unlike the current plan, which suggests the regulator to be within the Ministry of Transport. Regional franchising of passenger services through competitive tendering might be a good option for the passenger market. However, the reforms are still being discussed and they are subject to change.
CHAPTER 1

1.1 Introduction

Starting from the early 1990s the European railway market has witnessed a number of remarkable changes. European Union member states started to separate rail operations from infrastructure after the conventional fully integrated and publicly owned structure had proven to be inefficient. All of these “reforms” were implemented to introduce competition in the market for more efficient railways. Although the aim of all these reforms was the same, the railway structures observed today are quite different across EU Member States. In order to introduce competition to the European railway market and increase efficiency of railway operations, the EC passed Directive 91-440 in 1991 as a first step, which was also followed by three railway packages between 2001 and 2007. Briefly, the current EU legislation requires the following from the Member States:

- Separation of the management of infrastructure, freight and passenger services, at least into separate divisions with their own profit and loss accounts and balance sheets,
- Non-discriminatory access charges and capacity allocation,
- Open access for freight (both domestically and internationally) and for international passenger services,
- Establishment of a fully independent rail regulator to whom appeal could be made in the case of dispute,
- A performance regime to incentivise the Infrastructure Manager,
- Finally, financial equilibrium of the Infrastructure Manager to be ensured (Nash, 2010).

As none of these requirements address a certain type of railway organizational structure, there are different approaches observed across the member states. These structures can be analysed under three main types, although every single state has differences in implementation according to their specific conditions, needs and so on (IBM, 2006). The first one is the so called “complete separation” model where the infrastructure manager has no partnership with any of the railway undertakings like the case in Britain. The second one is the “integrated” model where a railway undertaking and the infrastructure manager work together under a common holding structure like the case in Germany. The last model, which is referred to as partially separated model, can be considered as lying between the full separation and integration structures as the incumbent train operator also maintains the network, manages
and operates the network traffic. However, the maintenance of the network is performed by the undertaking under a contract with the infrastructure manager, a completely separate body that owns the network. These are the three major types of railway organizational structures across the member states and they will be explained in more detail in the following chapters using Britain, France and Germany as the case study countries.

Although there have been a number of studies assessing the effectiveness of the aforementioned organizational structures in the European railway market, some of them found contradictory results and some were unable to find enough evidence to draw remarkable conclusions. Therefore the effectiveness of the railway reforms across the EU members still needs further research and discussion.

Considering there are 27 member states in the EU, it is quite difficult to assess the reforms implemented for each and every member state in a dissertation. Therefore, the purpose of this study is to focus only on Britain, France and Germany as these three sample countries can be considered to represent the three different structures observed in the EU. This study will not have an intention of trying to find what the best structure is but it will only try to highlight the strengths and weaknesses of the three different structures based on their implementations in the three countries that are the scope of this study.

Another objective of this study is to focus on Turkey’s status regarding the reforms already implemented in EU member states. Currently, Turkey is carrying out the negotiation process to be a full member of the European Union and similar railway reforms are in her political agenda as transport policy is one of the 33 negotiation chapters. Therefore, the overall frame of this study will be identifying the strengths and weaknesses of these three main structures and how they differ with circumstances, based on the case study countries; and under the light of these findings, bringing possible recommendations for Turkey, which has decided to reform its railways as a step forward for its ongoing EU membership negotiations.

1.2. The Need for Vertical Separation

Following the EC Directive in 1991 regarding accounting separation of railway operations and infrastructure and three railway packages between 2001 and 2007 aiming to revitalise railways, EU Member States started reforming their railway structures according to EU legislation and the major structures are observed across member states with considerable differences in implementation.
Table 1.2.1 – Separation Models across EU Member States

<table>
<thead>
<tr>
<th>Category</th>
<th>Member States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully legally, organisationally and institutionally independent infrastructure manager undertaking capacity allocation</td>
<td>Great Britain, Finland, Denmark, Netherlands, Norway, Spain, Sweden, Portugal, Slovakia, Lithuania, Romania, Czech Republic, Greece, Bulgaria</td>
</tr>
<tr>
<td>Independent infrastructure manager allocating capacity having delegated certain infrastructure management functions (e.g. traffic management, maintenance) to one of the train operating companies/ Integrated infrastructure manager working alongside an independent body in charge of capacity allocation</td>
<td>France, Estonia, Hungary, Slovenia, Luxembourg, Latvia</td>
</tr>
<tr>
<td>Legally (but not institutionally) independent infrastructure manager undertaking capacity allocation owned by a holding company which also owns one of the operators</td>
<td>Germany, Austria, Belgium, Italy, Poland</td>
</tr>
<tr>
<td>Infrastructure manager in charge of allocating capacity and railway undertaking still integrated</td>
<td>Ireland, Northern Ireland</td>
</tr>
</tbody>
</table>


The purpose of the EC by passing the aforesaid directives was to open up the rail markets in Europe to competition increasing efficiency and to reduce costs. However, to what extent separation of infrastructure from operations (vertical separation) reduces costs is still open to discussion. According to a study conducted by Mizutani et al. (2011) regarding the effect of vertical separation on costs, with lower train density vertical separation tends to reduce costs, while with higher train density it increases costs. Similarly, loss of economies of scope and reduced pressure on the infrastructure manager to provide good services in a cost efficient manner might also result in increases in cost (Nash, 2009). Merkert (2009), on the other hand, suggests that increases transactions costs are higher in vertically separated structures but the difference is only 1% of the total costs. There are also other studies discussing the effect of vertical separation on costs but the conclusions are rather case dependant, which is indeed expected since the implementation of vertical separation differs to a great extent amongst EU Member States. Whether the benefits of vertical separation exceed its disadvantages still remains to be the key issue (Nash, 2010).

The key advantages of vertical separation according to the European Commission (2006) are;
Transparency: Separation allows greater transparency of the capacity and the terms and conditions of the infrastructure manager. Furthermore, it allows the comparison of infrastructure costs with other transport modes enabling to see the real costs of running a railway business, which creates fair conditions for new entrants. However, one should note that the precise allocation of costs cannot always be made due to the interfaces between infrastructure and railway operations.

Cost efficiency: Based of economic theory railways are known to be experiencing economies of traffic density, that is to say, the marginal cost is substantially below average cost (Wheat and Smith, 2010). Therefore, as competition enhances due to vertical separation and traffic density increases on the network, the costs will decrease. On the other hand, splitting operations between multiple operators will increase costs.

Neutrality: In order to ensure non-discriminatory third party access to the network a true separation of the companies operating on the network from those responsible for infrastructure access charging is required. Obviously, this aim can be achieved most easily with a fully legally, organisationally and institutionally independent infrastructure manager undertaking capacity allocation like the case in Britain, which will be discussed in the next chapter.

Competition: It is essential for competition that the responsibilities of train operators and infrastructure managers are clearly separated. Competitive pressure ensures that railway operators pioneer innovation and development in railways.

Reliability: Independent network management and financing ensures that the decisions are taken in the best interest for the network.

Finally, vertical separation provides better possibilities to privatise commercial activities, increasing the efficiency of separate segments of the sector.

The possible disadvantages of vertical separation, on the other hand, according to the EC (2006) are;

Transitional costs: There are obvious costs involved since the structure is changed and restructuring for new companies, renegotiation of the existing contracts and changes in personnel are required.

Loss of economies of scope: Railways are said to experience economies of scope if splitting the production of freight and passenger outputs and of infrastructure into two or more
companies leads to increased costs (Nash, 2007). In this context, loss of economies of scope is expected after vertical separation since separation of infrastructure from operations causes the loss of some advantages arising from performing different railway activities within one integrated railway company.

**Increased risk of insufficient investments in infrastructure:** Usually, the incentives to invest in infrastructure in vertically integrated railways are greater than those in vertically separated ones. However, this issue can be resolved by stricter control of the regulator on the infrastructure manager.

**Double marginalisation:** In vertically separated railways companies are faced with more inelastic demand that is why they might demand higher prices than vertically integrated railways.

**Coordination problems:** It might be expected that conflict resolution in vertically separated railways is more challenging than in integrated railways due to the large number of complex interfaces within rail sector that require mutual and rapid decision making, increasing transaction costs.

**Lower level of quality and safety:** Since the quality and safety of rail services highly depend on close coordination of infrastructure and train operations, it might be expected that the level of quality and safety diminishes with vertical separation especially if there is a large number of actors involved.

**Negative impact on competition:** In some cases it might be possible that vertical separation has a negative effect on the level of competition. For instance, an unbundled company might become financially less strong and more vulnerable to the risk of mergers or takeovers reducing the number of rivals, thus the level of competition.

**Negative impact on reliability:** It is possible that the reliability of rail services is negatively affected by the increased pragmatist behaviours of the actors in the sector, by insufficient investment in the infrastructure and by lack of addressing responsibilities of the infrastructure managers and operators.

In short, despite its advantages and disadvantages discussed above, there is no existing evidence to conclude that vertical separation improves rail performance (Drew and Nash, 2011). Nash et al (2012) suggest that this is mainly due to the fact that “econometric studies suffer from the small sample of countries to deal with, the significant differences in the way in which reform has been carried out amongst them, and that few countries have seen
significant levels of competition, particularly in the passenger market”. Taking these into consideration the different approaches to vertical separation observed across Europe will be discussed in the following chapters based on Britain, Germany and France cases respectively.
CHAPTER 2

Britain

Britain has gone through complete separation of its railway operations from the infrastructure, which was pioneered by Sweden in Europe. In this approach, the infrastructure manager has no partnership with any of the railway undertakings but there is still a state owned incumbent operator and the infrastructure manager is also state owned in most of the countries having this structure. In the case of Britain, neither any of the railway undertakings, both in freight and passenger, nor the infrastructure manager are state owned. The complete railway market is in the hands of private companies both in freight/passenger operations and infrastructure management. The state, on the other hand, regulates the market by means of an independent regulatory body, awards the regional passenger franchises through Department for Transport and plays a key role in infrastructure investments. It is the subject of this chapter to highlight the strengths and weaknesses of complete separation under the light shed by British experience.

2.1. Background

Britain’s journey for reforming its railways started in 1994 with transferring most of the fixed railway infrastructure assets to a new company Railtrack, which was still a state owned company but separated from British Rail (Nash et al, 2011). Railtrack, being responsible for the management of infrastructure, all other activities of British Rail was divided into more than a hundred companies and privatised mainly by tendering. Railtrack was sold to private sector in 1996 and the infrastructure renewal and maintenance tasks were contracted to former BR units, which had become private companies. All the rolling stock of BR was transferred to three rolling stock leasing companies (ROSCOs) (Merkert et al, 2006).

The passenger operations were privatised by means of a franchising system run by 25 train operating companies and the freight operations were split into six companies and sold between 1995 and 1997 (Nash et al, 2011). In order to regulate Railtrack, a new regulatory body ORR (Office of Rail Regulation), and for regulating the rest of the operations in the market except safety, OPRAF (Office of Passenger Rail Franchising); which was later named SRA (Strategic Rail Authority) with expanded responsibilities, was established (Nash et al, 2011). After these reforms the railway market in Britain started experiencing open access competition for freight and passenger services subject to moderation of competition rules and independent market regulations by two regulatory bodies with separate responsibilities.
The positive outcomes of the reforms during the early period after privatisation were seen in freight and passenger numbers. However, a derailment at Hatfield in 2000 due to a track fault raised doubts on the reliability of the network and following severe speed restrictions across the network, Railtrack had to pay more than £500 m to train operators as compensation of their delays within the scope of franchising agreements, which accelerated the bankruptcy of Railtrack that was already in financial burden (Nash et al, 2011). In 2002, a new not-for-dividend company, which now owns and operates the rail network in Britain, Network Rail, purchased Railtrack (Merkert et al, 2006).

Following the publication the White Paper by the Department for Transport in 2004, SRA was abolished and its former functions plus safety were transferred to ORR except the strategic planning and franchising responsibilities, which were directly taken on by the Department for Transport (Nash et al, 2011).

2.2. British Experience of Complete Separation

In this section the details of the British experience of vertical separation are presented with discussions regarding the performance/success of the rail market in general.

Infrastructure Charging:

In all vertical separation models the railway undertakings pay access charges to the infrastructure manager in return for using the infrastructure. Currently, EU policy requires track access charges to be based on short run marginal social cost, with non-discriminatory mark-ups as necessary to meet financial requirements (Nash, 2005). Although the charging schemes observed across Europe differ to a great extent, the charging is mainly either based on recovering only the short run marginal costs or full costs. In most of the eastern European countries the charges are based on full costs whereas in Britain charges are based on short run marginal costs with a detailed charging scheme which differentiates type of rolling stock, time of day, increased congestion caused by running additional trains, type of train operation etc. (Nash, 2012). In addition to this variable cost based on compensation for the wear and tear on the network, passenger franchisees are also charged with a fixed amount by Network Rail. This detailed charging scheme is a significant incentive especially designed for the operators to reduce their costs. For instance, as they procure and operate more track friendly rolling stock, the track access charges they pay will be less. On the other hand, although there are incentives for the operators to reduce costs and increase efficiency, there seems to be
almost no incentives for the infrastructure manager to improve quality and capacity since the charges are based on short run marginal social costs (Nash, 2012).

Table 2.2.1 shows typical track access charges in Britain in 2008 based on International Transport Forum statistics.

<table>
<thead>
<tr>
<th>Table 2.2.1 – Typical Track Access Charges in Britain [€/train-km]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local and Suburban Passenger Trains</td>
</tr>
<tr>
<td>Intercity Passenger Trains</td>
</tr>
<tr>
<td>Freight Trains (960 Gross Ton)</td>
</tr>
</tbody>
</table>

*Source: ITF, (2008)*

In infrastructure charging, there is always concern regarding discrimination especially in vertically integrated structures or where there is an incumbent operator. In most countries being a state owned company, the IM might be expected to favour its own sister operating companies or the state owned incumbent operator (Nash, 2012). However, in the case of Britain, where there is not a state owned railway undertaking and the IM manager is a private company, these concerns for discrimination are at a minimum level.

Although Network Rail has a detailed infrastructure charging scheme, the charges only cover around 50% of Network Rail’s costs, thus it is still heavily subsidised by the state. In order to improve NR’s performance, ORR imposes a licence condition on NR to meet a certain level of quality for the undertakings’ use and closely monitors its financial conditions with periodic reviews (Nash, 2012). The government subsidies are also based on these reviews conducted by ORR on the financial performance of Network Rail enabling the regulator to see how efficiently and effectively the government subsidies are used. Furthermore, through benchmarking studies of other rail infrastructure managers, ORR is trying to find ways to reduce NR’s costs. According to a study jointly commissioned by ORR and DfT and conducted by McNulty (2011), Network Rail reduced overall operation, maintenance and renewal costs by 27% compared with the ORR target of 31% in the last five years to 2008/2009. However, the same study also found that Network Rail still has a 30-40% efficiency gap for maintenance and renewal costs compared to a number of European and North American railways.
Performance and Market Liberalisation:

The British rail market is the second most liberalised railway market according to a study conducted by IBM (2011) on the liberalisation indexes of European railway markets. This result is not surprising as Britain was one of the first countries to open up its rail market to competition in freight and passenger services both domestically and internationally. Although the causes are open to discussion, there has been growth observed both in freight and passenger traffic after the privatisation.

Figure 2.2.1 shows rail passenger and freight volumes before and after the privatisation of British Rail. It is seen that the trend before the privatisation was downwards for both freight and passenger, which was mainly due to the recession period in early 1990s. However, the numbers started to grow after privatisation and within two years the passenger numbers even exceeded the peak that was reached during the growth period in 1980s. Although much of the growth in freight volumes during early privatisation was due to the switch from domestically produced to imported coal, there is a consensus in the industry that introducing competition to the market and the injection of private capital helped to this growth to a great degree (Nash et al, 2011). There has also been competition in passenger sector both for the market as three or four bidders shortlisted for every franchise and in the market where franchises overlap and where new entries of open access operators have taken place (Nash et al, 2011). Rail passenger modal share is also growing as it is seen in Figure 2.2.2. However, there is not a continuous growth trend observed in rail freight modal share. At the moment there are 24 companies that deliver passenger services on British rail network, represented by the Association of Train Operating Companies (ATOC). In the freight market there are 26 valid licences, but much of the share is hold by DB Schenker with 56% and Freightliner with 34% (Nash, 2012). The rapid growth in passenger transport is also clearly seen in Figure 2.3.1 as the number of passenger kilometres has almost doubled from 1995 to 2010. Wardman (2006) suggests that, although there is econometric evidence suggesting that the driving force for this growth in passenger traffic was economic growth, road congestion and petrol prices, there is still a residual element in this growth that might be explained by the positive consequences of the privatisation.
According to a study by BCG (2012) on the performances of European Railways taking intensity of use, quality and safety as success indicators; Britain is ranked as 7th amongst 24 European countries with a performance index of 5.5 over 10. This ranking was both behind
Germany and France, which were 3rd and 2nd respectively. However, the rather interesting finding was that the safety index of Britain within the overall performance index is the highest amongst all. It might be possible to relate this success in safety to the comprehensive powers and independence of the regulator (ORR) to some extent, as it is considered to be one of the strongest rail regulators across Europe.

**Regulation:**

Effective regulation in railways has a significant effect on ensuring non-discrimination amongst railway undertakings and improving economic performance of railway activities through establishment of relevant incentives. In Britain these functions plus safety, unlike many European countries where there is a separate body responsible for safety, are within the responsibilities of the independent regulator ORR, Office of Rail Regulator. ORR is also responsible for a wide range of other activities including issuing licences, safety certificates; homologation of rolling stock, infrastructure charges, capacity allocation and so on. Although ORR is led by a Board appointed by the Secretary of State for Transport, it is not subject to government direction. However, it still receives guidance from the Department for Transport and especially pays attention to the financial implications of its decisions for the government (Nash, 2012).

Regarding ensuring non-discrimination by the regulator, it might be argued that this is easier in vertically separated structures than vertically integrated ones since the IM has no partnership with any of the railway undertakings, which reduces the risk of the IM favouring one RU over the others. However, when it comes to improving efficiency of the rail system, one might expect vertical integration to work better with close coordination of the RUs and the IM and appropriate incentives designed by the regulator (Nash, 2012). Nevertheless, it is still possible to create ways of closer arrangements between the IM and train operators to deliver capacity in more cost effective ways in vertically separated structures. A rather interesting example is seen between Network Rail routes and franchised train operating companies in the form of alliancing, joint ventures or leasing of infrastructure to the franchisee (Nash, 2012). South West Trains and the Network Rail Wessex route is the deepest alliance so far where a single management team is responsible for both infrastructure and operations although each party remains separate organisations and is responsible for its own staff (Nash, 2012). McNulty (2011) argues that improved interfaces and incentives are the areas where British rail currently lacks and suggests that through devolution (decentralisation) of Network Rail into route-level units could foster greater efficiency by
enabling better alignment with train operators, allow local management to respond to local conditions quicker and take more of their decisions and give ORR the ability to compare performances of route infrastructure managers and take comparative regulatory actions; all of which would make incentives more effective as they will be aligned at a more local level.

To sum up, British experience of vertical separation seems to be functioning satisfactorily to a great extent. The independence and extensive powers of ORR is the key in determining the problems of the industry and creating appropriate solutions. The concerns for discrimination are at a minimum level in British rail market thanks to the independence of Network Rail. The rail market is one of the easiest for new entrants thanks to the rather prompt adaptation of the EU legislation regarding opening up the market for competition and the absence of an incumbent operator. There has been a sustainable growth in passenger volumes just after the first steps through reforms were taken and there are some studies (Wardman, 2006) arguing that this growth can be attributed to the reforms implemented to some extent. In order to make incentives more effective alliancing seems to be an interesting solution allowing the close cooperation and efficiency of a vertically integrated structure without the difficulties attached to it regarding compliance with EU legislation. Regarding reduction of Network Rail’s costs, the benchmarking studies commissioned by ORR seem to shed some light for further steps to be taken. Under the light of these discussions it can be said that rail industry in Britain is picking the fruits of the rail reforms, especially in the demand-side, and experiencing problems in the cost-side as there has been quite a significant rise in costs (Smith et al, 2009); but to what extent the improvements can be attributed solely to vertical separation is still open to debate.
CHAPTER 3

Germany

The structure observed today in the German railway market is a good example of the so-called “holding structure”, where infrastructure and operations are separate subsidiaries of the same holding company. This structure is also observed in some other EU Member States like Austria and Italy. It is the subject of this chapter to discuss this structure with its strengths, weaknesses and controversial aspects based on its application in Germany.

3.1. Background

The first step of the railway reforms in Germany was the reorganization of the former West German Railway and East German Railway into a new state owned business enterprise, Deutsche Bahn AG, in 1994. The second step was the transfer of responsibilities for regional railway services to the federal states and the third step was the opening up the rail market for private companies, ensuring non-discrimination in accordance with Directive 91/440/EEC (Beckers et al, 2009). A new sector specific regulatory agency, Federal Railway Agency, was established and the regulatory powers were assigned to it. Germany and Britain were the first countries to establish a rail regulator, which has a crucial role in ensuring non-discriminatory access to the market for all railway undertakings. In 1999, DB AG was transferred into a holding company with legally separated subsidiaries, which now have the following functions and responsibilities (Kirchner, 2005);

*DB Bahn Long Distance* provides national and cross-border long distance rail services, *DB Bahn Regional* provides a fully comprehensive regional transport works linking conurbation and rural areas, *DB Arriva* performs all regional transport activities outside Germany, *DB Schenker Rail* pools the European activities for rail freight transport, *DB Schenker Logistics* provides transportation and logistics services, *DB Netze Track* is responsible for management and maintenance of the rail network, which is around 34,000 km being the longest in Europe; *DB Netze Stations* operates the train stations, *DB Netze Energy* is responsible for supplying energy of all kinds to DB, and finally *DB Services* is responsible for vehicle maintenance, communications, safety etc.

In 2002, a new regulator with improved powers, EBA, was established to ensure non-discriminatory third party access to the rail network managed and maintained by DB Netze. Later in 2006, the functions of this regulator were transferred to the cross-sector regulator
Bundesnetzagentur, BNA, which is also the regulatory body for the utility services like electricity, gas, telecommunications and postal services (Nash et al, 2012).

Infrastructure charges in Germany are based on a full cost recovery regime; hence the charges are quite high compared to those in other European countries. Around 60% of the total costs are covered by infrastructure access charges.

The typical access charges in Germany for different types of train services are tabulated in Table 3.1.1.

Table 3.1.1 – Typical Track Access Charges in Germany [€/train-km]

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Charge (€/train-km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local and Suburban Passenger Trains</td>
<td>3.5</td>
</tr>
<tr>
<td>Intercity Passenger Trains</td>
<td>4</td>
</tr>
<tr>
<td>Freight Trains (960 Gross Ton)</td>
<td>2.5</td>
</tr>
<tr>
<td>High Speed Passenger Trains</td>
<td>12</td>
</tr>
</tbody>
</table>

*Source: ITF, (2008)*

The common problem of not giving enough incentives to the infrastructure manager to improve quality and capacity needs regulatory solutions. In Germany the solution to this problem is through a multi-annual agreement between DB Netze and the government, according to which the government provides necessary funding and expects certain levels of quality and capacity improvements from DB Netze being the infrastructure manager (Nash, 2012).

### 3.2. Performance of the Rail Market

It is the subject of this section to discuss the performance of the rail market in Germany after the implementation of the holding company structure following the reforms implemented in accordance with the EU legislation. A recent study conducted by Boston Consulting Group (BCG, 2012) on the driving forces behind rail market performances showed that the performance index of Germany was 6.2 (same index with France) out of 10 and it was ranked 2nd among 24 European countries. Regarding the degree of liberalisation of the European rail markets, a liberalisation index study was conducted by IBM (2011) and German rail market was ranked 3rd most liberalised market after Sweden and Britain. However, the level of competition in the market both in freight and passenger services is still not at a satisfactory
level. The incumbent operator, DB AG, had 78% market share in freight and almost 90% share in passenger market in 2008. The freight market share of new entrants was 13.2% in 2005, so there has been an increase in the market share of new entrants by 2008 with 22%. 59 companies in passenger market and 315 valid licences in freight market had rights to deliver train services in German rail network. However, the actual number of active operators is much lower than the number of licences and most of the operators are rather small, running over their own infrastructure and not competing with DB (Nash et al, 2012). This rather high number of companies compared to other European countries lack in increasing their market share. The 10% share of the new entrants in the passenger market consists of mostly regional services with long-distance passenger services being only around 1% (Kirchner, 2011).

Figure 3.2.1 shows the freight and passenger volumes before and after the reforms were implemented. It is seen that there is a continuous growth in the freight volumes till 2008, whereas the passenger traffic shows no significant improvement. The same trend is also observed in Figure 3.2.2, which shows the rail passenger and freight modal shares. Although there might be many different factors affecting passenger traffic, Nash et al (2012) argues that low GDP growth in Germany could be the main reason in this case.

**Figure 3.2.1 – Rail Passenger and Freight Volumes for Germany**

*Source: EuroStat, (2012)*
The interesting fact is that the competitors of DB in regional passenger services are mostly subsidiaries of other European national railway undertakings like Vias with participation of the Danish DSB, Keolis as subsidiary of SNCF and Abellio as subsidiary of the Dutch NS (Kirchner, 2011). Same applies to DB, which has considerable shares (e.g. DB Schenker has 55% share in British rail freight market) both in freight and passenger markets of other EU Member States, as well. National railway undertakings of many Member States are trying to compete not only in their rail market but in other Member States’ markets as well that are opened up for competition in domestic train services.

The concerns for discrimination by the infrastructure manager subsidiary of DB AG, DB Netze, against new entrants still exist in the market, which is a crucial factor for enhancing competition in the market. Similarly, the European Commission Report on the development of the rail market (2010) also mentions this issue plus the following problems with the German rail market in adapting the first railway package:

- Insufficient safeguards to guarantee the independence of the infrastructure manager from the railway holding and its transport affiliates in the exercise of the essential functions,
- Insufficient incentives for Infrastructure Manager to reduce costs and the level of access charges,
- Infrastructure charges not based on direct costs of train services respectively insufficient verification whether the market can bear the charges,
- Regulatory Body not having sufficient powers to enforce requests for information.

Beckers et al (2009) argues that the low level of competition in the German rail market can be attributed to four factors. First one is the vertically integrated structure of DB with potential for discrimination and information advantages. Second one is the difficulties in getting network access (congestion). Third one is the expansion of local authorities that have begun to procure interregional services, and the fourth one is the difficulties in rolling stock procurement due to financial constraints. Among these reasons only the concerns for discrimination preventing improved competition can be attributed to the holding company model. The other factors are specific problems related to the conditions and implementations in Germany. Hence, to what extent the holding company model inhibits enhancement of competition in rail markets is open to debate. On the other hand, it can be argued that the holding company model enables better planning of the system and prevents potential disputes between the infrastructure manager and major operators since all of these functions are performed at a group level with closer coordination (Nash, 2010).

To sum up, the vertically integrated structure in Germany allows the different subsidiaries of DB AG to work together with high degree of coordination, which is essential considering the sector specific interfaces railways have. This allows DB AG to develop railway technologies and expertise and to market them to other railway companies. On the other hand, the most significant drawback this structure has is the concerns for discrimination, which inhibits improved competition in the market as new entrants have very low shares compared to DB; especially in the long distance passenger services. A study conducted by Nash et al (2012) comparing Sweden, Britain and Germany regarding the performance of their structural models finds that Germany has the slowest growth in financial support for railways and in fares. However, there is still not enough evidence to conclude whether the strong regulation in Britain or the vertically integrated structure in Germany would be more effective in controlling infrastructure costs (Nash et al, 2012). There is obvious need for further research on the performance of holding company structures in order to be able to draw more comprehensive conclusions.
CHAPTER 4

France

The current railway organizational structure in France can be defined as lying between the complete separation and the integration models discussed in previous chapters. In this model the infrastructure manager is responsible for planning, investment, infrastructure access charging and capacity allocation and the incumbent operator maintains and operates the infrastructure. It is the subject of this chapter to discuss the strengths and weaknesses of this model (partially separated or hybrid) based on the French experience.

4.1. Background

The first institutional reform observed in France after Directive 91-440 of European Commission aiming to improve the efficiency of railway transport through accounting separation between infrastructure and operations and open access for certain categories of freight train operations, was the establishment of RFF (Réseau Ferré de France) as the infrastructure manager in 1997. The ownership of all the infrastructure assets was transferred to RFF with a debt of € 25 Billion left from SNCF’s (Société Nationale des Chemins de fer Français) infrastructure investments (Gressier, 2005). Just after one year, RFF signed an agreement with SNCF, the state owned incumbent operator, and according to this agreement, SNCF started receiving an annual lump sum payment from RFF in return of network maintenance and traffic management works (Gressier, 2005). On the other hand, SNCF was paying infrastructure access charges to RFF for the passenger and freight trains they were operating on the network. However, in 1997 the access charges paid to RFF by SNCF was only 916 million Euros, whereas, government subsidy was € 1.8 billion (Gressier, 2005). Considering the fact that the amount received from access charges was only enough to cover one third of RFF’s costs, the state decided to increase infrastructure access charges to a great extent. Today, France has a relatively complex system of track access charges (a mixture of reservation charges and charges per train kilometre differentiated by type of infrastructure and time of day), designed to recover an increasing proportion of infrastructure costs from railway operators and it is one of the highest railway infrastructure access charging scheme in Europe, which is based on short run marginal costs, that is to say; the charges only consist of the marginal costs of using the infrastructure including congestion but not the external costs like accidents, noise, pollution etc. Although the infrastructure access charges covers more than 60% (ITF, 2008) of RFF’s costs, Nash (2012) suggests that, where charges are simply
based on short run marginal social cost, there is no incentive to improve capacity or quality at all.

Table 4.1.1 – Typical Track Access Charges in France [€/train-km]

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local and Suburban Passenger Trains</td>
<td>4</td>
</tr>
<tr>
<td>Intercity Passenger Trains</td>
<td>2.25</td>
</tr>
<tr>
<td>Freight Trains (960 Gross Ton)</td>
<td>2</td>
</tr>
<tr>
<td>High Speed Passenger Trains</td>
<td>14</td>
</tr>
</tbody>
</table>

*Source: ITF, (2008)*

Starting from 2002, after necessary legislative changes regarding decentralisation were completed, French regions; deciding on the services and tariffs themselves, started to establish contracts for regional services with SNCF using flat-rate financial support from the state (Quinet, 2011).

Following the first EU Railway Package, France made necessary legislative changes and opened its network for international freight traffic in 2003 and two years later the first private company started freight train operations on French railway network. In 2006, the domestic freight market was also opened up to competition and by the end of 2009 necessary legislative changes were made and the international passenger market was opened up to competition as well. The reforms continued with the establishment of ARAF (Regulatory Authority for Railway Activities) in 2009, which is now responsible for providing recommendations to the Ministry of Transport and monitoring network access conditions.

ARAF is primarily responsible for managing the relations between RFF and operators that are capacity allocation, setting infrastructure charges paid by the operators to RFF and the access conditions for essential installations like stations, electricity and so on. However, being the subsidiser of RFF, the state holds much of the powers regarding infrastructure access charges and the influence of ARAF on this issue stays only at an advisory level (Quinet, 2011). However, France is gradually moving away from this model to a more independent regulatory body (Nash, 2012). This issue might seem rather problematic since it causes doubts regarding unfair access charges set under state intervention. However, one might expect governments to be highly involved in the financial management of companies if they are subsidising them to some extent, in fact, to a great extent in the case of RFF.
4.2. Performance of the Rail Market

According to a study by the Boston Consulting Group (BCG) in 2012 estimating the performances of European railways based on intensity of use, quality of service and safety into; France had the second best performing railways after Switzerland with a performance index of 6.2 out of 10. The safety performance of France in the same study is estimated to be 7 out of ten. One can argue that this high performance might be related to SNCF being both the major train operator and maintainer of the network which allows it to make use of the technical expertise when it comes to resolving problems regarding interfaces like interactions between wheel-rail and overhead line-pantograph. This issue, being crucial in railway safety, might cause safety problems in the other structures where the RUs are not involved in infrastructure maintenance except some examples of alliancing like the one Nash (2012) discusses in Britain (South West Trains, where a single management team is responsible for both infrastructure and operators).

The passenger and freight traffics followed inverse trends in France. As shown in Figure 4.2.1, there has been a gradual increase in passenger numbers and rail passenger modal share with a slower rate. On the other hand, the freight traffic experienced a significant decline where the freight tonne-kilometre decreased almost by 50% between 2000 and 2010. Drew and Nash (2011) mention that France was the only major EU15 country in which rail freight declined by more than 20% between 1998 and 2008 and argue that to some extent it might be related to the fact that France was one of the last countries in the EU to establish a regulator, implying the significance of a strong rail regulator in keeping the traffic growing. In addition to that, SNCF’s concentration has been more on the passenger market, especially high speed rail services, which is argued by Quinet (2011) to be the sole source of profit to the company.
According to Nash (2010), although SNCF has separate divisions performing different railway operations, the integration of real time train control and the undertaking of track maintenance work with the major operator may yield efficiencies. However, the risk of discrimination is the possible concern in this case.
Regarding competition in the market, France does not seem to be a good example. There are around 10 new entrant freight operators in the French network and the total market share of them was around 10% in 2008, whereas it is around 20% now (Nash, 2012). The only passenger train operator is SNCF as there is no open access for the domestic passenger market in France.

SNCF seems to be holding all the know-how and expertise in all railway operations like signalling, network traffic management, rolling stock maintenance, infrastructure maintenance including track, overhead line etc. This monopoly of know-how seems to be the most significant reason in France against the introduction of competition in both the freight and passenger market. Not only the IM, but also any new entrant needs SNCF to perform certain activities causing great concerns regarding discrimination. For instance, the safety certificate required from new railway undertakings to run on the network is delivered by the Ministry of Transport based on a technical report delivered by SNCF on behalf of RFF. Furthermore, the fact that SNCF receives a lump sum annually from RFF in return of the maintenance activities it performs on the network prevents both RFF and SNCF from optimising network maintenance and regeneration (Gressier, 2005).

Despite the limited availability for competition within the French rail market, SNCF is highly interested in other European markets and expanding its overseas business like DB, which now has around 55% share in British freight market and considerable market shares in Netherlands and Switzerland. SNCF now has 20% share in NTV, the new passenger operator in Italy and today around 23% of SNCF’s total revenue is from its international division.

The Rail Liberalisation Index study by IBM (2011) shows that France has the 21st most liberalised railway market amongst 27 European countries. Whereas, Britain has the second and Germany has the third most liberalised railway market according to the same study. This shows that the French rail market is not opened up to competition practically although it is so legally (only for freight).

According to a report by the European Commission regarding the adaptation of the first railway package by the member states, France mainly has the following problems;

- Part of the essential functions is still performed by the incumbent railway undertaking infringing the provisions on independence of essential functions,
- Infrastructure charges not being determined by the IM itself,
- Insufficient incentives for IM to reduce costs and level of access charges,
- Absence of a performance scheme to incentivise RUs and the IM to minimise disruption and improve the performance of the railway network,
- The regulatory body having insufficient powers and resources to monitor competition in the rail service market,
- Insufficient independence of regulatory body from the incumbent operator and/or IM,
- Insufficient powers of regulatory body to enforce its decisions and requests for information (2010).

It is seen that the concerns on discrimination by the incumbent operator and the ineffectiveness and dependence of the regulatory body are the most significant problems observed by the EC in French rail market parallel to our discussions above.

One should note that the discussions in this chapter regarding the hybrid railway structure are only on the French experience and the conclusions drawn regarding the performance of this structural model are solely based on the current implementation of this structure in France. In order to be able to assess the success of this structure and draw more comprehensive conclusions, the railway markets of other Member States applying this structural model must be analysed as well.
CHAPTER 5

Turkey

5.1. History

The history of Turkish railways started in 1856 when the construction of the 130 km long line connecting Izmir, a major trade centre at the time, to Aydin, a south-western province, was commissioned to a private English initiative by the Ottoman government, parallel to the developments in the railway industry, pioneered by the United Kingdom. The rapid construction of railways connecting Anatolian cities to Rumelia (the part of the Ottoman Empire in Europe) and the Middle East (Aleppo, Damascus, Bagdad, Basra, Medina, Jerusalem) continued until the World War I. During this period a network of 8619 km (mostly standard gauge and partially narrow gauge) was achieved across then Ottoman territories. After the World War I and the foundation of the new Turkish State, 4136 km of this network was left within the borders of the new state.

The second rapid expansion Turkish Railways witnessed was during the young republic era. After nationalising the railways under a new economic policy, 3764 km of railway line was constructed between 1923, declaration of the republic, till 1950; connecting the new capital Ankara to the rest of the country.

Figure 5.1.1 - Turkish State Railways Network (1856-2012) (Source: tcdd.gov.tr, 2012)
Following the technological enhancements in the automobile industry, road construction started to become the priority in transport sector investments around the globe. This trend was also observed in Turkey and railways were totally neglected by the governments. The famous quote of the then Prime Minister, Ozal, in 1980s during the opening of a new motorway; “Railways are for Communists.” is a very clear indication of how railways were perceived by governments back then. Due to this policy, only 945 km of railway line was constructed between 1950 and 2004, and the network was left to wear with poor maintenance and underused capacity.

The next section discusses the recent developments observed in the Turkish railway market and provides some comparative data with the European cases discussed in the previous chapters.

5.2. Recent Developments

After the 2001 economic crisis and the taking office of the current government in 2002 general elections, there has been a significant policy change toward railways. Projects waiting on shelves due to financial bottlenecks were brought back on the table and the transport budget allocated for railway projects started to increase.

![Figure 5.2.1 - Budget Allocated for Railways [million TL*]](image)

\textit{Source: ubak.gov.tr, (2012)}

*1£≈2.9TL

The most important of these projects, first introduced in 1996, was the rehabilitation of the current Ankara-Istanbul line for passenger operation at higher speeds up to 200 km/h, which
was considered to attract public attention back to railways that was lost years ago. Using Spanish government funds, this rehabilitation project, which was planned to reduce journey time between Ankara and Istanbul to 5 hours and compete with road transport, was completed and commercial passenger operation started in June 2004. Just after two months, however, a severe accident due to derailment caused a serious number of fatalities. This grievous incident strengthened the idea that “railways were not reliable” in public eye and swept away the hardly growing attention and excitement towards railways.

After the accident, the government’s approach towards railways shifted from rehabilitating the current railway lines to building brand new lines compatible for high speed operation with all necessary infrastructure and rolling stock. In this respect, a project for the construction of a double-track high speed line, compatible with 250 km/h passenger operation, connecting Ankara to Istanbul was approved by the government in 2005. The construction was separated into phases and tenders were carried out for each phase in the following years. The 250 km long first phase of the project, connecting Ankara to Eskisehir, was opened for passenger services in March 2009. These high speed train services reduced the journey time, which was around 3 hours by coach, to around 1.5 hours between Ankara and Eskisehir. Although this line was constructed using railway technologies for high speed operation and allocated for only high speed trains, the negative perception towards railways and concerns regarding safety caused many people to approach this technology with caution and doubt. However, after the new high speed trains proved to be fast, reliable, safe, comfortable and at the same time affordable (same price with coaches), a growing attraction of passengers was observed. This resulted in the cancellation of most of the coach services between Ankara and Eskisehir and the high speed train being almost the only public transport mode used by passengers on that route. By the end of 2009, 924,000 passengers were carried on this route by the high speed trains and this number was doubled in 2010. However, Nash (2009) argues that the breakeven volume of passengers to justify a new high speed line is at least 9 million passengers per annum even under favourable conditions. Therefore, the volume of passengers this high speed line attracts is way below the breakeven volume, unlike France, for instance, where all high speed lines comfortably exceeds this volume. However, it should be noted that this line is only the first phase of the Ankara-Istanbul project, which is expected to easily exceed the breakeven point once commercial operation starts.

The introduction of the high speed train services was very much appreciated by the public and new high speed lines connecting Ankara to south and east were designed and tendered
following the strong demand from public to have access to high speed train services. In 2011, another high speed line connecting Ankara to a southern province, Konya, was also opened for commercial operation, being the first direct railway link between Ankara and Konya with a journey time of around 100 minutes. This rather expensive technology, which required special infrastructure and rolling stock, made railways receive the biggest share in total transport budget.

![Figure 5.2.2 – Rail Share in Total Transport Budget [%]](source: ubak.gov.tr, (2012))

Although there have been improvements in the railway network in general (conventional track renewals, rolling stock renewals and so on) and in the introduction of high speed train services and the rapid extension of the high speed network in particular; the big picture does not reveal a significant change in railways as a transport mode. That is to say, there has not been a significant change in the share of railways neither in passenger transport nor in freight transport and the market has not seen a major structural change to improve efficiency. Moreover, currently only 28 % of the railway network is signalised and only 21 % electrified. The railway network length (9921 km of mainline including 888 km of high speed line) is far behind the European examples discussed above, although the country has a population around 74 million (2nd largest in Europe after Germany) and its total area being larger than any EU Member State. Therefore, there is no doubt that there is still a huge need for further infrastructure investments. Furthermore, the financial situation is seen to be under pressure
due to lack of monitoring operating costs and the “ambitious high-speed train investment programme” according to the 2012 progress report on Turkey by the European Commission.

As it is seen in Figure 5.2.3, rail freight transport share in Turkey is only around 4-5 % and rail passenger share is around 1.5-2 %. The rail freight share in 2001 and 2002 were even less than 4%, which was closely related to the 2001 financial crises. Road transport still dominates both freight and passenger transports in Turkey. Rail modal share data for the European countries discussed in previous chapters are also shown on the same figure with increasing modal shares both in passenger and freight transport with the exception of freight in France, which was discussed in Chapter 4. Turkey’s rail freight and passenger modal shares are significantly low compared to the European examples and there is not a continuous growth.

![Figure 5.2.3 – Compared Rail Passenger and Freight Modal Share [%]](image)

**Source:** Eurostat, (2012)

Rail passenger and freight volumes between 2004 and 2009 in Turkey are also compared in Figure 5.2.4 and Figure 5.2.5 respectively with the European countries subject to discussion. It is seen that both freight and passenger annual volumes for Turkey are far below the European values. Especially the difference in passenger volumes is quite dramatic and it continues to grow as passenger volumes are increasing in the European markets, whereas there is no significant change in Turkey.
Figure 5.2.4 – Compared Rail Passenger Volumes
Source: Eurostat, (2012)

Figure 5.2.5 – Compared Rail Freight Volumes
Source: Eurostat, (2012)

5.3. Current Structure
Turkish State Railways (TCDD) is a state owned “Public Economic Enterprise” with monopoly powers and it provides all kinds of railway services in Turkey under the
supervision of the Ministry of Transport. There is no accounting separation between the infrastructure and operations, so it is vertically integrated. All maintenance and operational services are divided into seven regions, which are presented in the company organizational chart in Figure 5.3.2. TCDD also has three subsidiaries namely Tulomsas, locomotive (under licence agreements) and passenger car manufacturer, Tudemsas, freight car manufacturer and Tuvasas, passenger car manufacturer. These subsidiaries manufacture rolling stock in accordance with TCDD’s needs and to some extent they also receive orders from foreign railway operators. Unlike many other state-owned railways, TCDD also owns and operates several ports that have connection to the network. These ports are the only parts of TCDD that make profit, which is used to cross subsidise other non-profit activities. Not surprisingly, TCDD has been the biggest loss making public company for a long time.

Currently there are around 32,800 employees of TCDD most of them being public workers and civil servants. However, the total number of personnel is decreasing gradually. All new personnel are recruited through a central public exam, which inhibits TCDD to hire skilled personnel according to its needs at the minimum time.

![Figure 5.3.1 – Total Number of TCDD Personnel](source: TCDD Annual Statistics, (2012))

The revenues (excluding the ports) covered 34% of the costs, which was 2.63 Billion TL in 2010 (Ecorys, 2012). Therefore, TCDD is heavily subsidised from the government and the fact that there is no accounting separation between operations and infrastructure prevents to see which activities require more cost effectiveness. The finances of TCDD are granted through the approval of the Under-secretariat of Treasury.
Figure 5.3.2 – Organizational Chart of TCDD
(Source: TCDD Annual Statistics, 2012)
5.4. Restructuring the Railways

Turkey opened accession talks with the EU in 2005 on 33 chapters one of them being transport policy. In the context, the current government asked the Ministry of Transport to work on the restructuring of the Turkish State railways (TCDD) in order to liberalise the railway market in Turkey, similar to those observed across Europe after the European Commission’s legislation packages aiming to introduce competition in the railway market and improve efficiency. A number of studies were conducted in this context since 1995, but no further step was taken. On the other side, there have been general improvements in the network and new investments were made in order to revitalise the rail market, but there has not been any major structural change yet. In this respect, railway sector was stated to be the only transport sector where there was no remarkable progress observed according to the European Commission’s progress report on Turkey in 2010. The lack of “adopting a more comprehensive railway law” was also mentioned as a problem in 2012 progress report recently. Therefore, Turkey is finally planning to implement similar railway reforms in the near future in order to comply with the current European railway legislation which requires having separate infrastructure and operations in railways at least in terms of accounting with non-discriminatory infrastructure charges and slot allocation. For this purpose a final draft railway package was prepared, which was commissioned by the Ministry of Transport. This draft railway reform package briefly consists of the following:

- TCDD to transfer all its functions regarding freight and passenger operations to a new independent company, TURKTREN, and become only responsible for the management and maintenance of the rail network turning itself into a state owned Infrastructure Manager,

- All the regulatory and safety functions to be performed within the Ministry of Transport,

- Opening up the railway market to new entrants for both passenger and freight operations.

In short, the plan for the restructuring of Turkish rail market is basically applying complete vertical separation with a state owned incumbent operator, like the case in most of the EU Member States, and opening up the market for competition in both freight and passenger services, but not separating freight and passenger (horizontal separation) as in Britain and in some other countries.
5.5. Challenges and Recommendations

Having roots before the modern Turkish Republic, TCDD, as a public company, has a sentimental value among Turkish citizens. This is a very important reason of people’s reluctance to changes in the structure of TCDD, although most of them either do not have access to railways or do not prefer it as a transport mode. Therefore, it is quite difficult to convince the citizens regarding the benefits of liberalising the railway market and introducing competition. For this reason extra effort should be spent to keeping the public informed at every stage of the reforms.

Currently TCDD has almost 33,000 employees most of whom are members of trade unions. There will be obvious need to reduce the number of employees and this issue is a potential conflict between the government and the trade unions that are very likely to object. As rail is a very specific industry that requires its own expertise and skills, it might be quite troublesome to find critical personnel in case of a serious conflict between the trade unions and the government. The reactions of the unions to the draft law have already been criticising and dissatisfied. Therefore, the potential problems with the employees should be taken into consideration critically before taking any further steps.

Mizutani et al. (2011) argue that vertical separation reduces costs if the traffic density is low. In this respect one might expect the costs to drop in Turkey after the reform process as the traffic density is low. However, the effects of a strong regulator and well designed incentives to improve capacity and efficiency are crucially important in the reduction of costs as discussed in previous chapters. Therefore, a strong regulator with extensive powers and a high degree of independence should be the priority. According to the draft law, the safety and market regulation will be conducted within the Ministry of Transport. This is also a controversial issue as there are concerns regarding whether a safety and regulatory body can function independently under the Ministry of Transport and ensure non-discrimination among all railway undertakings. Hence, a fully independent market regulator could have been a better option to ensure functioning without government intervention.

Like the independence of the market regulator the independence of the Infrastructure Manager is also critical in order to enhance competition in the market since the IM is responsible for infrastructure charging and capacity allocation. There is the likelihood of TCDD, as the Infrastructure Manager, to favour TURKTREN, the incumbent operator, due to many reasons discussed in previous chapters.
The first years of complete separation are potentially the most vulnerable years to failure as the various departments of TCDD that have been working closely together will have to split into infrastructure and operation divisions. This might of course bring some problems during the early periods of the reforms and increase transaction costs too, as argued by some studies discussed earlier. In order to prevent this rather sharp turn and allow a smoother transition Ecorys (2012) suggests that the company is structured like a holding company at first and after three years the complete separation is done. However, the current laws do not allow state owned companies to have holding structures in Turkey.

Another important issue that might arise after opening up the passenger market into competition is the problem of “cherry picking”, which Preston et al. (1999) define as; ‘Duplicating the most profitable services and losing economies of traffic density, so that the increase in costs outweighs the benefits to users’. The solution to this problem in Britain is that; the right to entry is not automatic but subject to public interest test undertaken by an independent regulator (Nash, 2009). However, in Britain most passenger market competition is achieved through franchising.

Franchising rail passenger services through competitive tendering might also be a suitable solution to introduce competition to the passenger market in Turkey, which is still to be decided. Competitive tendering is argued to be useful in cases in which competition in the market is not feasible due to need for subsidies or a lack of capacity (Nash et al, 2006). For most parts of Turkey lack of capacity and obvious need for subsidies seem to be the case and competition in the market does not seem to be feasible for the time being. Even the current high speed lines in commercial operation are not profitable due to very high costs and rather low passenger volumes compared to the breakeven point. Except some high speed lines under construction connecting major cities, this seems to be the case for the network. Therefore, franchising passenger services thorough competitive tendering and introducing competition for the market could be a good option for Turkey at least until the network capacity is brought to a certain level with further infrastructure investments.

To sum up, the most important issue that should be kept in mind in implementing the reforms is that, the reforms should not be considered as just an instrument to strengthen Turkey’s position for EU membership. The overall aim should be introducing competition to the rail market, which will lead better railway services and increase railway share in freight and passenger transport.
CONCLUSION

The discussions on the separation models observed in Britain, Germany and France show that every model has its advantages and disadvantages depending on different circumstances. The current EU legislation briefly requires non-discriminatory open access for freight (international and domestic) and international passenger services and separation of infrastructure from operations at least to accounting level. The adaptation of the three railway packages were different in all the countries subject to discussion, but today there is open access for international/domestic freight and passenger services except France, where there is still not open access for domestic passenger services. In general, it can be said that after the reforms the rail modal share and freight and passenger traffic volumes increased in all three countries except the fall in the freight volumes in France. Although the driving forces behind this growth might be completely different for each country, there are some studies attributing this improvement to the rail reforms made to some extent. Therefore, it can be said that the rail reforms in these countries helped the market improve despite of the problems specific to the country and separation model applied.

The most important advantage in the British model is the non-discriminatory access charges and capacity allocation to all of the railway undertakings as Network Rail has no partnership with any of the railway undertakings. The rail regulator, ORR, seems to be using its extensive regulatory powers effectively. There seems to be a problem with the level of costs Network Rail has that is closely related to NR not having sufficient incentives to reduce costs and improve capacity. However, ORR is closely assessing the issue and looking for solutions. The level of liberalisation in British rail market is also one of the top in Europe, which helps improved competition.

The German approach for separation remains at a low level with only legal separation of infrastructure and operations and institutional integration. The close coordination of the infrastructure manager and the operator working under a holding company maybe leads to efficiencies but raises concerns for discrimination in the market, where many freight and passenger operating companies exist. However, the share of the new entrants in passenger market is quite small since DB is almost the only operator delivering long distance services and other delivering mostly regional services. The interesting point is that DB has quite large shares in other Member States’ freight and passenger markets and constantly expanding its overseas business. The same applies for SNCF, which also has shares in other EU Member States’ markets like Italy and Germany.
The model SNCF applies is in between integration and complete separation. SNCF is the incumbent operator and it also manages the network traffic and performs the maintenance under a separate contract agreed with RFF, the infrastructure manager. In this model SNCF is functioning as one integrated company, but different functions are performed by separate divisions of SNCF. There is definitely great concern regarding discrimination and the fact that other railway undertakings need SNCF’s approval for some certain functions makes it even worse. There has been a serious decline in the freight volumes after the reform period, but to what extent this is related to the market structure is open to debate. France also was one of the last countries to establish a rail regulator and this can be one reason of the problems they had. Regarding the importance of the regulator regardless of the degree of separation Germany, Britain and France might be a good comparative example. Britain and Germany, the first countries to establish independent regulators, had a continuous growth in their rail traffics and experienced a significant level of competition in their markets, whereas France suffered a dramatic decline of 20% in its freight traffic between 1998 and 2008 and still lacks competition. Therefore, it can be argued that strong regulation promotes competition, efficiency and growth (Drew et al, 2011).

Finally, Turkey has started working on a railway package that will separate the current state owned monopoly into a state owned infrastructure manager and a state owned operator and open up the rail market to competition for both freight and passenger services. The reforms on the way for full membership to the EU will definitely be a first step to adapt its rail market to the EU legislation, which aims for improved efficiency. However, the difficult part is the establishment of a strong independent regulator that will ensure non discrimination in the market and take necessary actions to solve upcoming problems. The regulator under the Ministry of Transport has not proven to be the best option to achieve these.

To sum up, there is obvious need to revitalise railways in Turkey and increase rail traffic volumes and rail modal share. In order to achieve this aim, the EC suggests that the primary focus should be opening up the rail market into competition which would lead increased efficiency and quality. However, whether vertical separation reduces costs and increases efficiency is still a valid question to ask and requires further research and discussion.
Acknowledgements

I am grateful to my supervisor Prof. Chris Nash for his valuable guidance and support throughout this study and to Dr. Andrew Smith for his help. I also wish to acknowledge Jean Monnet Scholarship Programme for funding my study and my colleagues at Turkish State Railways for their contributions to the chapter on Turkey.
REFERENCES


Harris, N. G. and Godward, E., (1997), The Privatisation of British Rail


Johnson, Daniel and Chris Nash (forthcoming), ‘Competition and the Provision of Rail Passenger Services: a simulation exercise’, *Journal of Rail Transport Planning and Management*


Nash, C.A., (2008), Passenger Railway Reform in the Last 20 Years – European Experience. Research in Transportation Economics


Wardman, M. (2006), Demand for Rail Travel and the Effects of External Factors. Transportation Research E.
