



European Bank
for Reconstruction and Development

Railway Sector Reform Programme

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Abstract

The Russian rail system is one of the largest in the world in terms of the size of the network and the amount freight and passenger traffic carried. The railway is strategically important for the economy with a modal share of 85 per cent for freight, excluding pipelines, and 27 per cent for passengers. To set the context for the EBRD's operations in the sector, this paper describes the Russian Railway Reform Programme, the progress made to date in implementing the reform agenda and some of the remaining challenges.

Keywords: railway, Russia, reform, EBRD, restructuring

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The working paper series has been produced to stimulate debate on the EBRD's Russian Railway Reform Programme. Views presented are those of the authors and not necessarily of the EBRD.

Working Paper No. 1

Prepared in June 2014

Abbreviations

BRIC	Brazil, Russia, India and China
CIS	Commonwealth of Independent States
DMU	Diesel Multiple Unit
EMU	Electrical Multiple Unit
FAS	Federal Antimonopoly Service
FESCO	Far East Shipping Company
FSU	Former Soviet Union
FST	Federal Services for Tariffs
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
LSE	London Stock Exchange
MPS	Ministerstvo Putei Soobschenia (Ministry of Railways)
PP&E	Property, Plant and Equipment
PPP	Public Private Partnership
PSO	Public Service Obligation
ROSZHELDOR	Federal Railway Transport Agency
RZD	Rossiyskie Zeleznnye Dorogi (Russian Railway)
TML	TransMashHoldings Limited
UCLH	Universal Cargo Logistics Holding

Defined terms

FST	<p>Federal Services for Tariffs (FST) was established in its current form in 2004 and took over responsibilities from the Federal Energy Commission. The FST is an executive body that regulates the tariffs of natural monopolies, including the railway.</p> <p>The FST, which reports directly to the government, is an executive body that regulates tariffs of natural monopolies in the energy, oil and gas and transport sectors, as well as for the defence industry, basic social services and products and natural monopolies in communications. The FST's functions encompass tariff/price setting and control over issues related to tariff/price setting and their application for natural monopolies.</p>
Integrated approach	<p>The concept of IA was first presented to the EBRD's Financial Operations and Policy Committee in April 2008, in a paper examining the relationship between Transition and Environment. It was subsequently refined and presented to the Board in November 2009. It builds on the observation that transition impact at the sector level could be enhanced by bundling together a series of projects with a coherent set of common and well-defined transition objectives to achieve critical mass, together with associated policy dialogue and technical assistance.</p>
pkm	passenger kilometre
Public service obligation	<p>In transportation law of the European Union, public service obligation or PSO is an arrangement in which a governing body or other authority offers an auction for subsidies, thereby permitting the winning company a monopoly to operate a specified service of public transport for a specified period of time for the given subsidy. This is done in cases where there is not enough revenue for routes to be profitable in a free market, but where there is a socially desirable advantage in this transport being available.</p>
TEU	Twenty Foot Equivalent Unit (standard container size)
tkm	tonne kilometre

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1 Executive Summary

The Russian rail system is one of the largest in the world in terms of the size of the network and the amount freight and passenger traffic carried. The railway is strategically important for the economy with a modal share of 85 per cent for freight, excluding pipelines, and 27 per cent for passengers. To set the context for the EBRD's operations in the sector, this paper describes the Russian Railway Reform Programme, the progress made to date in implementing the reform agenda and some of the remaining challenges.

In the aftermath of the break-up of the Former Soviet Union (FSU), the Russian Ministry of Railways (MPS – *Ministerstvo Putei Soobschenia*) was created by transforming and downsizing the former MPS of the Soviet Union to manage Russian railway system. MPS was responsible for developing and implementing railway policies, regulation, tariffs, railway operations, infrastructure, locomotives, rolling stock and planning and allocating capital investments. The period following the break-up of the FSU was characterised by a sharp economic contraction, steep decline in industrial production and a corresponding fall in rail traffic. During the 1990s MPS dealt with massive problems associated with the economic crisis. Rather than focusing on major reforms, MPS' main priorities were to ensure that the railway continued to operate and remained solvent during those turbulent times.

Reform of the Russian railway system began in earnest in 2001. The objectives were to: (i) introduce competition in railway transport; (ii) facilitate private investment in rolling stock to renew the fleet; (iii) improve sustainability, safety, access, and the quality of railway system; and (iv) reduce the economic costs of freight and passenger transport. The railway reform strategy recognised that funding was required from the federal, regional and local governments and the private sector to achieve these objectives and that a more optimal combination of government regulation and market mechanisms was needed that clearly defined the roles of all actors in the system. The expected result was to create an environment conducive to increased private sector investment and enhanced competition.

Because of the strategic importance of the railway sector, the government adopted a cautious approach to implementing the reform programme to help manage risks and avoid major economic shocks because of disruptions caused by the reforms, challenges experienced during implementation and/or unanticipated economic difficulties. The reform programme sets out a clear direction but has been implemented flexibly. Changes were made as the market developed and responded to the reforms.

The challenging reform programme has been underway for 13 years and has dramatically changed the Russian rail sector. Progress has been made in the transition to creating a market for railway transport services and a competitive environment in some market segments that were previously dominated by *Rossiyskie Zeleznye Dorogi* (RZD – the Russian Railway) monopoly. During the reform process, the Russian railway system has provided stable rail transport operations (meaning that major shocks and disruptions in service were avoided) and worker productivity increased. The reform programme has resulted in significant transition impacts. Key achievements included:

- Separating the policy and regulatory frameworks from railway operations.
- Corporatising RZD, separating its major lines of business and establishing them as subsidiary joint-stock companies.

- Fully or partly divesting RZD's shareholding in some subsidiaries – this is an ongoing process.
- Changing the freight tariff regime to create opportunities for private companies to invest in freight wagons and eventually in mainline locomotives and deregulating tariffs for freight services provided by private companies and RZD subsidiaries.
- Deregulating passenger fares for higher classes of passenger services and passenger services provided by private companies and RZD subsidiaries.
- Creating a viable role for the private sector and competition in the provision of freight wagons.
- Largely eliminating the cross-subsidy of passenger services by freight services and providing some direct subsidies from the government and local/regional governments for regulated, money-losing passenger services.
- Attracting more than US\$ 50 billion of private investment in the sector.
- Renewing the fleet and other equipment and using new technologies.
- Improving financial transparency.
- Issuing euro and rouble denominated bonds and accessing the capital markets.

The RZD's share as a proportion of Russia's GDP declined by nearly one-third, from 3.8 per cent in 2004 to 2.2 per cent in 2012, although the share of rail freight as a percentage of the total freight turnover in Russia increased from 39 per cent to 44 per cent (including pipelines). The rail transport cost component of GDP has fallen, one of the goals of the reform. It is not clear if this is a broad measure of the improved economic efficiency attributable to the railway reform programme. There are some indications of declining efficiency in the use of freight wagons and passenger locomotives and increased congestion on the network in the more recent years. The falling share of the railway sector in GDP also reflects the impact of the government policy of capping the annual freight and passenger tariff increases at or below the inflation rate during a period when commodity prices increased substantially. As a result of this tariff policy there was an under investment in railway assets.

To date, Russia has chosen a somewhat different course of railway reform than other countries, in particular a different form of vertical separation. Unlike other countries, RZD has maintained a monopoly on both network services, including tracks, dispatching and scheduling, and locomotives and drivers. Horizontal separation is not possible in Russia because many cities and regions (for example, Siberia) have just one railway line serving them due to low traffic density (versus the density in the USA where tracks of several private railway companies serve the same cities or regions). Horizontal separation of the Russian railway would have led to smaller railway regional monopolies. Both RZD subsidiaries and private companies operate freight wagons and serve customers. The Federal Antimonopoly Service (FAS) has sanctioned RZD a number of times for using its position of the monopoly provider of infrastructure services to benefit RZD and RZD subsidiaries over private competitors.

Despite the considerable progress made, reforming the Russian railway is an unfinished agenda. More progress is needed in the areas of regulatory and tariff reform, introducing an effective Public Service Obligation (PSO), improving RZD's financial performance, generating the funds necessary for investment in upgrading the network and railway technology, building new railway lines to connect regions of the large country, liberalising

the provision of locomotives, creating competition in the passenger sector and creating an effective enabling environment for private sector investment in more areas (for example, ownership and operation of locomotives; full freight carriers; passenger operations and partial privatisation of RZD). RZD is still not commercially viable and relies on government subsidies for capital investment and the costs of money-losing passenger services. There is always room to improve RZD's financial performance by continuing to improve efficiency and cut costs. However, the current tariff regime does not set regulated tariffs at market levels or at levels sufficient to provide a return on RZD's assets, thus generating funds for capital investment and improving RZD's financial performance. The government plans more reforms in the period up to 2030 to address the remaining issues on the reform agenda.

2 Introduction

The Evaluation Department (EvD) of the European Bank for Reconstruction and Development (EBRD) is conducting an evaluation of its support to the Russian rail system. Approved by the EBRD Executive Board as part of EvD 2013's work programme, the Russian Railway Sector Evaluation is designed to assess how the combination of Bank-financed projects, technical cooperation (TC) grants and policy dialogue promoted transition by contributing to the reform of the Russian railway sector.¹ Broadly, the evaluation will:

- (i) review the specific transition and sector-reform objectives present in the full range of Bank operations, individually and in combination;
- (ii) examine selected projects that are representative "types" in terms of the ownership and structural nature of the borrower (RZD versus selected private sector projects) to assess how each embeds reform and transition content;
- (iii) assess the alignment of these with the Bank's strategic objectives as set out in sector, country and project documents;
- (iv) identify any significant ways in which strategy and operational choices and designs have changed and the reasons for such changes, including through adoption of the integrated approach²; and ,
- (v) review the key features, drivers, accomplishments and shortcomings of actual operational performance, particularly in areas identified as reform or transition targets or priorities.

The evaluation is designed to assess:

- (i) the relevance and clarity (including on expectations of results) of the Bank's strategy and operations in the Russian railway sector;
- (ii) the effectiveness of the Russian railway portfolio in achieving objectives results and client and financial performance;
- (iii) the efficiency of the Bank's operations both in terms of efficient use of resources and soundness of Bank handling;

¹ The promotion of transition impact is one of the core mandates of the EBRD. The Bank defines transition impact "the likely effects of a project on a client, sector or economy, which contribute to their transformation from central planning to well-functioning market-based structures". Further information is available at <http://www.ebrd.com/pages/about/what/mission/transition.shtml>.

² In 2009 EBRD established the so-called integrated approach which was defined as: "... a coordinated sequence of investment projects and some combination of technical assistance, policy dialogue and cooperation with other stakeholders (where relevant) that together aim at measurable and monitorable sector reform objectives and contribute to addressing important transition challenges with the defined period of time." The rationale for the introduction of the integrated approach was recognition that the Bank could have achieved greater transition impact if it "had taken into account the interrelationships between projects" ... "where critical mass is important for achieving transition impact." It was also in recognition of the importance of policy dialogue and "most importantly, an approach to policy dialogue driven by individual projects can be somewhat ad hoc in its choice of targets, rather than directed at the most pressing needs and gaps."

- (iv) the transition impact and environmental sustainability of the benefits resulting from the operations; and,
- (v) the overall performance, key lessons and recommendations for future operations.

The Russian Railway Sector evaluation is not an evaluation of the Russian Railway Reform Programme. However, understanding the context for the Bank's operations in the sector and the strategic choices made requires knowledge about the scope of the reforms, the progress made in implementing the reform agenda and the remaining challenges. These are the topics covered in this working paper.

3 Background on the Russian railway sector

3.1 Overview of the Russian railway system

The Russian rail system is world class by any measure. It is an immense network, stretching across eight time zones spanning countries from central Europe to Central Asia, from Kaliningrad on the Baltic Sea in the west to Sakhalin on the Sea of Japan in the east and from Murmansk on the Barents Sea in the north to the Black Sea in the south (see Figure 1). It is the world's third largest network (85,200 route km of which half is electrified) and freight tonne-km (after the USA and China), fourth in terms of passenger kilometres (after China, India and Japan), second in terms of traffic density (after China) and among the leaders, together with the USA and Canada, in terms of average length of freight movements.³ With nearly a million employees, the Russian railway system ranks third in the world in terms of rail sector employment after China and India.

Figure 1: Map of the Russian railway system



³ Approximately 90 per cent of the world's railway traffic (freight and passenger) is carried on six networks: North America (freight oriented), China, India, Russia, Japan (passenger oriented) and the EU 25. See OECD. Louis Thompson (2010), International Transport Forum. A Vision for Railways in 2050. and EBRD (1993) Railway Sector Survey of Russia, Belarus, Ukraine and Kazakhstan

Although a number of private companies provide freight services and manufacture and repair locomotives and rolling stock, Rossiyskie Zeleznnye Dorogi (RZD), a 100 per cent state-owned joint-stock company, and its subsidiaries is by far the largest group of companies in the Russian railway sector. The RZD Group is a vertically integrated company that manages the railway infrastructure services, provides virtually all mainline locomotives and through subsidiaries, in which RZD holds a controlling interest, operates freight and passenger services, provides repair and maintenance services for rolling stock, builds railway infrastructure, undertakes research and development and provides other ancillary services. RZD's market share in the freight transport sector has declined as more private operators begin to provide services. RZD is one of the largest transport companies in the world, is one of Russia's largest companies by revenue (over Rb 1,762.8 billion) and has assets worth over Rb 3,800 billion. Although RZD has reduced its workforce from 2.2 million in the 1990s, it remains the largest commercial employer in Russia, employing 934,000 people in 2012. To reduce staffing, which began in the 1990s, RZD used early retirements, attrition by not filling some vacancies, provided redundancy allowances and paid for employees living in remote railway towns where stations were closed to move to more populated regions so that they had a better opportunity to find new jobs. Overall, the labour reduction was reported to be relatively smooth and gradual. RZD believed that redundant railway workers had good chances of finding new jobs because they were better trained than average industrial workers.

In 2012 the Russian freight wagon fleet totalled 1.2 million railcars of various types, of which 530,000 were gondolas. More than 30 per cent of the gondolas were old, approaching end of their useful life. Between 2007 and 2013 operators purchased more than 500,000 new wagons, especially gondolas. However, the entire old gondola fleet has not yet been replaced. According to RZD 180,000 to 200,000 wagons, mostly all old gondolas, are not in use today. Russia has renewed a greater portion of its wagon fleet than most other former FSU countries, with the possible exceptions of Kazakhstan and Estonia. In 2012 RZD owned over 20,300 locomotives, 24,100 long-distance passenger carriages, 15,600 Electrical Multiple Units (EMUs) and commuter carriages and 37,100 non-commercial freight wagons for in-house or military use. RZD's fleet of rolling stock needs to be upgraded, particularly the mainline locomotive fleet. More powerful, more energy efficient locomotives are required. Efficient bulk cargo rail transport requires customised, more efficient wagons better suited for specific commodities and logistics operations.

The railway sector has been an important focus of the EBRD's support to Russia. Between 1996 and 2013, the EBRD provided €1.7 billion to finance 24 projects in the Russian railway sector, two of which were cancelled and several were pre-paid, and 33 related TC grants for €6 million. About half of the EBRD's financing supported private sector companies and half supported RZD and its subsidiaries. In 2009 the Bank provided a US\$ 500 million loan to RZD as the first step of the EBRD's Integrated Approach for the Russian railway sector.⁴ The coverage of self and independent evaluations of Russian railway projects is reasonable – EvD ratings are available for eight projects, including some approved as late as 2008, and self-evaluation ratings are available for three more projects. Most projects, nine out of 11 or 81 per cent, were rated as successful at completion. This success rating is the same as for all evaluated railway projects (81 per cent) and is higher than the success rates for all transport projects (68 per cent), transport projects in Russia (58 per cent), the Russian portfolio (54 per cent) and for all evaluated projects (61 per cent).

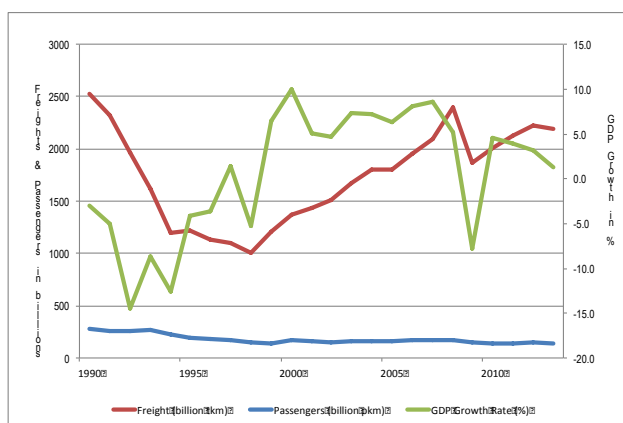
⁴ For a definition of integrated approach see the 'Definitions' section of this paper, page 2.

3.2 Traffic trends

The railway plays an important role in the Russian economy. In 2012 rail cargo accounted for 85 per cent of total freight shipments in Russia excluding pipelines (44 per cent including pipelines), more than most other countries.⁵ The railway's freight modal share grew steadily, increasing from 71 per cent in 1992 to 80 per cent in 2000 to 85 per cent in 2012. For passengers, the Russian rail system carried 27 per cent of the traffic, a modal share second to road transport. The railway's modal share for passengers fell consistently from 37 per cent in 1992 to 34 per cent in 2000 to 27 per cent in 2012.⁶ The economic and financial performance of the Russian railway sector is influenced by the performance of the domestic and international economies, the approved tariffs and the success of the government's reforms associated with the transition from a centrally planned to a market economy (for example, the legal and regulatory framework; tariff and price regimes; the tax regime; monetary policies and reforms; financial sector reforms; labour market policies; social policies to ameliorate some of the costs of the transition).

Traffic trends provide a broad indicator of the business environment in which railway companies operate and compete. The freight and passenger rail traffic trends are illustrated in Figure 2. After being stable at 2.5 trillion tonne kilometres (tkms) from 1985 to 1990, freight traffic fell by more than half between 1991 (2.3 trillion tkms) and 1998 (1.0 trillion tkms). During this period the Russian economy experienced prolonged, serious economic crisis due to the disruption of traditional ties between FSU republics and the "big bang" strategy for the transition from the centrally planned to market economy and price liberalization. GDP contracted to 58 per cent of the 1990 level, inflation was very high, particularly from 1993 to 1995, the rouble's exchange rate depreciated against international currencies and imports and exports fell. During the 1990s the volume of freight traffic carried on the railway was adversely affected by the economic crisis. Many large, state-owned enterprises, some of which were important railway customers, contracted or failed as prices and markets were liberalised and other reform measures were adopted. During this period, industrial employment fell by 28 per cent.

Figure 2: Trends in freight and passenger rail traffic and the GDP growth rate, 1990-13



Source: Data extracted from <http://databank.worldbank.org>

⁵ Comparative figures, excluding pipelines, are 61 per cent for Canada (2010), 47 per cent for the USA (2011), 41 per cent for China (2011) and 4.2 per cent for Japan. (2011). See Roland Berger (2013), The optimal setup of a rail system – Lessons learned from outside Europe.

⁶ Comparative figures are 29 per cent for China (2011) and Japan (2011), 0.3 per cent for Canada (2010) and 0.1 per cent for the USA (2011). See Roland Berger (2013), The optimal setup of a rail system – Lessons learned from outside Europe.

From 1999 onward the Russian economy generally performed well, driven largely by the 1998 rouble depreciation and the growth of exports of natural resources, for which international prices increased substantially. By 2012 GDP had doubled from the 1998 level, the exchange rate stabilised, inflation declined to single digits and both exports and imports increased substantially. The trend in freight traffic mirrored this economic performance. Freight traffic more than doubled between 1998 (1 trillion tkm) and 2008 (2.4 trillion tkm)⁷. The Russian economy did not perform well during 2008-09 because of the events triggered by the global financial crises. GDP fell by 7.8 per cent in 2009 before recovering in 2010 onwards. Freight traffic fell sharply in 2009, before recovering in 2010 and reaching 2.2 trillion tkm in 2012. Primary commodities dominate freight traffic on the Russian railway.⁸

Trends in rail freight traffic are related to the country's overall economic performance. RZD forecasts rail freight traffic to grow by 2 per cent per year up to 2030. However, that forecast was prepared when prospects for the Russian economy were more buoyant and before the ongoing events in Ukraine took place. Since 2012 there has been a soft transport market in Russia triggered by a fall in international prices for commodities and a weak recovery of European economies, the traditional market for Russian exports. The EBRD's May 2014 assessment of economic prospects stated that events in Ukraine and Russia have significantly increased geopolitical and economic uncertainty and have had negative effects on the economies of Ukraine and Russia and the region as a whole.⁹ During 2014 Russia's country risk premium increased, there were net capital outflows, a lower current account surplus, inflation is higher than desired and reserves fell by almost US\$ 50 billion. Household consumption, investment and syndicated loans fell and foreign banks began deleveraging. Ministry of Finance cancelled three government bond auctions due to lack of demand and the Russian Central Bank increased the interest rate. Because of these factors, the EBRD downgraded its economic forecasts compared to those prepared in 2013 and early 2014. The resulting Russian GDP growth forecasts were 0 per cent for 2014 and 0.6 per cent for 2015. Those forecasts assume that geopolitical tensions do not escalate, will ease slowly and trade sanctions will not be applied. The EBRD concluded that economic contraction would occur if the geopolitical uncertainties continue for a long period and/or trade sanctions were applied. A rapid de-escalation of tensions in Ukraine and intensified reforms to improve the business climate are needed to reinvigorate Russia's medium- to long-term growth potential. Trends in the railway sector, particularly freight traffic, will be driven by Russia's future economic performance, which is likely to be slow and uncertain in the short-term.

RZD moves 40 million tonnes of freight in containers out of 1,300 million tonnes of freight, about 7 per cent of total freight. RZD and private sector analysts predict that rail container transport will grow faster than overall rail freight traffic, doubling container traffic's share of railway freight by 2030. To capture market share of this container traffic, railway operators must offer value added services (for example, door-to-door services; logistics; warehousing) to complement basic rail transport.¹⁰ Meeting this demand will require investment in

⁷ Between 2000 and 2008 rail freight traffic grew by 6 per cent per year, higher than the 4 per cent growth for freight transported by road

⁸ Coal: between 22 per cent and 25 per cent; oil products: 23 per cent; metallurgical cargos (in other words, iron ores; ferrous metals; scrap; coke): 17 per cent; construction materials (for example, sand, gravel, rocks, stones): 13 per cent; others: 20 per cent.

⁹ Source: EBRD Office of the Chief Economist (2014), Regional Economic Prospects in EBRD Countries of Operations.

¹⁰ NB the World Bank's logistics performance index, on a scale of 1 (low) to 5 (high), is a weighted average of the country scores on six dimensions: (i) efficiency of the clearance process (in other words, speed, simplicity and predictability of formalities) by border control agencies, including customs; (ii) quality of trade and transport related infrastructure (for example, ports, railroads, roads, information technology); (iii) ease of arranging competitively priced shipments; (iv) competence and quality of logistics services (for example, transport operators, customs brokers); (v) ability to track and trace consignments; and (vi) timeliness of shipments in reaching destination within the scheduled or expected delivery time. Russia's 2014 score was 2.69, well below Germany, the world leader at 4.12. Russia's rating was worse than most Eastern European countries and the other BRICs (Brazil; India; China; South Africa) and the same or better than most Central European countries

and See A. T. Kerney (2010), Russian Rail Containers and Growth: The rail container shipping market is set to soar.

infrastructure and rolling stock. TransContainer has the largest container fleet and a market share of over 50 per cent (no other operator captures more than 10 per cent of the market). In 2014 RZD forwarded the documents to the government to establish the Integrated Transport and Logistics Company to create the conditions to increase the volume of China - Europe transit container traffic carried by national railway companies to 1 million Twenty-Foot Equivalent Units (TEUs) by 2020.

Year on year changes in passenger traffic were also sensitive to prevailing economic conditions and fell during periods of economic contraction. Although there were some years when passenger traffic recovered, during the past 25 years the volume of passenger traffic has fallen by nearly half from over 270 billion passenger kilometres (pkms) between 1988 and 1990 to about 140 billion pkms between 2010 and 2013 (see Figure 2). About 1 billion passengers travelled on the Russian railway in 2013. RZD expects passenger traffic to increase by 30 per cent during the period up to 2030.

4 Reform of the Russian railway sector

4.1 Models and lessons for railway reform

During the past 25 years many countries with the traditional railway structures (for example, one monolithic government entity responsible railway policy and operations facing little competition within the railway sector) have reformed, or are in the process of reforming, their railway sector. Broadly, there are three models used to reform railway sectors by introducing more competition and private sector investment: (i) vertical separation of infrastructure management and railway operations (as per EU Directives and evident in the UK and Sweden); (ii) third party access (for example in Germany and France); and (iii) horizontal separation (for example in the USA, Canada and Mexico).¹¹ Many economists, and generally the World Bank and the EBRD, feel that the most pro-competitive strategy for restructuring railways (and public utilities) includes complete vertical separation of the network from the operations where competition can be created. This model is promoted by the European Union. If an integrated company owns the infrastructure and provides rail services, there are concerns that other companies will face some form of discrimination related to accessing the network. The proponents of vertical restructuring of railways often overlook the substantial transaction costs that are sometimes associated with breaking up a monopoly railway.¹² A cautious, long-term approach is often needed to reduce and manage such costs and avoid unexpected difficulties and service disruptions.

Some have questioned whether the vertical separation model is the best model for railway reform. A study of five the leading railways outside Europe (including the USA, Canada, Japan, China and Russia), that together account for 80 per cent of global tkm and 50 per cent of global pkm, raised questions about whether the separation of infrastructure and transport services is the right way to increase intramodal competition and railway performance.¹³ The study concluded that a viable alternative is to facilitate intramodal competition in an

¹¹ See Russell Pittman (2011). Blame the Switchman? Russian Railways Restructuring After Ten Years
NB On vertical integration in the EU: The **EU Directive 91/440** is [European Union](#) legislation that sets out a framework and requirements for railways in the EU to allow [open access](#) operations on railway lines by companies other than those that own the rail infrastructure. The legislation was further extended by further directives to include cross border transit of freight. The subsequent directives 2001/12/EC, 2001/13/EC and 2001/14/EC which built upon the initial legislation are collectively known as the **First Railway Package**.

¹² See Russell Pittman (2005). Make, Buy, or Some of Both? The Case of Russian Railways.

¹³ See Roland Berger (2013). The optimal setup of a rail system – Lessons learned from outside Europe.

integrated railway system, the approach that is being taken in those countries. This model requires separating policy and regulatory functions from operational functions and a strong regulator that can ensure that there is effective competition (for example, safeguarding third-party access and fair-track access charges) and an encouragement of private sector investment. In 2013 the European Court of Justice ruled that the EU's First Railway Package does not require member states to separate the infrastructure manager and the railway operator.¹⁴ However, the court did find that track access charges must be set independently by the infrastructure manager and not by the state and that the infrastructure manager may only charge direct costs for use of the tracks. This decision was victory for the railways in Germany and Austria and a loss for the EU.

There is also evidence that vertical separation does not always deliver the intended benefits. An independent assessment of British Rail concluded that since the reform of the sector in the 1990s there were many positive achievements in terms of passenger and freight traffic growth, continued safety improvement, increasing customer satisfaction, improved operational performance and significant investment.¹⁵ However, the study found that the reforms did not deliver the expected benefits in terms of efficiency and costs. Unit costs per passenger kilometre have not improved since the mid 1990s. The study concluded that the rail industry should reduce unit costs per passenger-km by 30 per cent by 2018/19 because both passengers and taxpayers were paying at least 30 per cent more than their counterparts in other European countries.

The World Bank identified a number of lessons based on its experience with railways in Russia and countries of the FSU:¹⁶

- Reforming complex industries like railways is a long-term process.
- Structural change is only a means to an end – separating railway infrastructure from rail operations does not, by itself, improve business performance. The business and management culture must change in both the infrastructure and train operating companies to achieve the desired objectives.
- No one reform model fits all railways – the reform model must reflect local conditions.
- Governments must establish mechanisms to ensure good governance in the railway sector, monitor achievements and hold management accountable for performance.
- More private participation in core transport operations is needed and is likely to occur first in freight operations. Private sector entry into passenger services is unlikely unless there is a clear PSO mechanism. Private sector participation is more likely in non-core areas (for example, maintenance and support businesses; locomotive and rolling stock overhaul and repair; rolling stock leasing; private freight wagon ownership).
- Railway reform does not necessarily mean stand-alone profitability and continuing government support may be needed for both for investment and support of passenger services.
- Markets change over time and railways will face increasing competition from other modes.

¹⁴ International Railway Journal (2013) and see footnote 16.

¹⁵ British Department for Transport and the Office of Rail Regulation (2011). Realising the Potential of GB Rail: Report of the Rail Value for Money Study.

¹⁶ World Bank (2005). Reform, Commercialisation and Private Sector Participation in Railways in Eastern Europe and Central Asia.

- Public ownership and operation of national railway networks is a legitimate public policy choice but reform measures are needed to promote commercialisation under state-ownership.
- Full privatisation of railways in countries of the FSU is unlikely.

4.2 Russia's approach to reforming the railway sector

In 2001 the government developed and began implementing a comprehensive long-term reform plan for restructuring the railway sector (see Figure 3).¹⁷ Several factors drove the reform programme. The railway sector had large investment needs, which could not be funded from railway operations because of low profitability of the rail sector and because freight operations cross-subsidised loss-making passenger services. The government also recognised that competition had the potential to drive cost reduction and service improvements.

The reform programme's objectives were to:

- introduce competition in railway transport;
- facilitate private investment in rolling stock to renew the fleet;
- improve sustainability, safety, access, and the quality of the railway system; and
- reduce the economic costs of freight and passenger transport.

The railway reform strategy recognised that federal, regional and local government funding and private sector funding would be needed to achieve these objectives and that steps needed to be taken to develop a more optimal combination of government regulation and market mechanisms that clearly defined the roles of all actors in the system. The expected result was to create an environment conducive to increased private sector investment and enhanced competition.

At the beginning of the rail reform programme, the major goal was to get private investors buy new wagons. Wagons were in short supply and those that were available were old because of under investment in 1990s. To get their products to market in a timely manner, rail customers needed timely access to wagons. When customers ordered RZD wagons they were typically supplied late, in insufficient numbers and were in poor condition. When the trains were dispatched there were cargo losses due to defective wagons. Some wagons failed and had to be uncoupled and taken to repair facilities. That led to further delays in commodity deliveries to ports resulting in missed ship departures and the customer breaching its contract. Because of these market conditions, the new wagon operators could charge more than Tariff 10-01 (wagon tariff component)t. By 2007-08 private operators were charging 20, 30, 50 or 100 per cent more than the 10-01 tariff. Transport costs became more expensive for end customers but they were pleased that wagons were reliably supplied, facilitating the timely delivery of products to domestic and international markets.

Figure 3: Summary of the reform of the railway

Phase	Steps
Pre-2001	<ul style="list-style-type: none"> • MPS created from the larger Soviet MPS • Set out a vision for reform of the railway sector (1995) • Adopted legislation (1995) and decrees (1997 and 1998) consistent with the reform vision • Shed some social services • Privatised some railway supply industries

¹⁷ Decree No. 384 issued on 18 May 2001

	<ul style="list-style-type: none"> Introduced competitive bidding into the Russian Ministry of Railways' (MPS – <i>Ministerstvo Putei Soobschenia</i>) procurement processes Began reducing staffing levels
2001-2003	<p>Establishing the legal framework:</p> <ul style="list-style-type: none"> Adopted the law and regulations to separate policy/regulatory functions and commercial/business functions Assessed assets, audited companies and consolidated accounts
2003-2005	<p>Asset unbundling and institutional and legal separation of some of RZD's lines of business or subsidiaries by:</p> <ul style="list-style-type: none"> Roszheldor in the Ministry of Transport made responsible for railway sector policy ; Rostransnadzor made responsible for transport safety monitoring Federal Energy Commission (later - Federal Services for Tariffs) regulates rail tariffs; FAS restructured and regulations railway services provided by RZD as a natural monopoly; Created RZD as a company that initially took over all of MPS's assets and operating responsibilities; Maintained RZD as a single owner of infrastructure, signalling, dispatching system and mainline locomotives. Created 27 RZD subsidiaries including those for: <ul style="list-style-type: none"> General freight services Transit freight services Intermodal freight services Refrigerated freight services Wagon repair Production and repair of track maintenance equipment; Decree on non-discriminatory access to railway infrastructure issued; Issued Tariff 10-01 to encourage private investment in freight wagons by separating the wagon component in the tariffs and Tariff 10-02-16 for passengers. Freight tariffs for wagons owned by private companies or RZD subsidiaries deregulated;^A Began phasing out cross-subsidisation of passenger operations by freight operations; Introduced IFRS accounting and increased financial transparency by disclosing audited statements.
2006-2010	<p>Promoting competition for the provision of passenger and freight services by continuing to create RZD subsidiaries:</p> <ul style="list-style-type: none"> More freight subsidiaries including Freight One and TransContainer; Long-distance passenger services (Federal Passenger Company); Commuter passenger services with regional governments; Locomotive and rolling stock repair facilities; Construction services; Research and development; Began selling RZD shares in subsidiaries (for example, TransContainer; wagon depots) and established the first public-private partnerships (PPPs) RZD issued international bonds;

	<ul style="list-style-type: none"> • Revised and adjusted the tariff policy; • Subsidised long-distance passenger and commuter services from government and regional government budgets.
2010-2015	<p>Continuing the reforms:</p> <ul style="list-style-type: none"> • Full privatisation of Freight One; • Established Federal Freight (formerly Freight Two), the remaining 100 per cent RZD-owned freight railcar operator; • Continued selling or preparing to sell equity stakes in RZD subsidiaries (for example, Freight One) and RZD itself; • Changes in Tariff 10-01: separation of infrastructure and locomotive component; harmonisation of tariffs to Russian and Baltic ports to comply with WTO accession agreement; equalisation of empty return tariffs for some types of universal wagons, stopping the practice of exceptional tariffs for some commodities, companies or industries; allowing tariff corridors (-12 per cent/+13 per cent) for RZD under specified conditions; equalisation of tariffs within the Customs Union of Russia, Kazakhstan and Belarus; • Public discussion on the creation of private carriers that operate both their own wagons and locomotives; • End cross-subsidy of passenger services by revenue from freight services • Deregulated high quality long-distance passenger fares. The cheapest passenger fares are regulated and subsidised; • Suburban passenger companies no longer legally part of RZD; • First auction to sell shares in passenger commuter subsidiary; • The Federal Service for Tariffs (FST) approves regulated return on asset base tariff methodology, but it is not yet implemented.¹⁸
<p>Notes A = There are two tariff books for freight. Tariff 10-01, applies to all Russian domestic traffic, and export and import traffic via Russian ports. The second book is based on the 1993 Tariff Policy of CIS Railways. Both freight tariff books are complex and their length exceeds 100 pages. Tariffs are calculated according based on the methodologies and formulas set out in the freight tariff books. Tariff 10-02-16 applies to regulated domestic and international passenger traffic. The tariffs have been modified to support the reform programme to clarify issues and reflect experience gained. Some of the changes have been strategically important and others are more in the nature of details.</p>	
<p>Sources: (i) EvD (2005), Operation Performance Evaluation Review Railways Modernisation Project; (ii) Various Board documents; (iii) RZD Homepage; and (iv) Community of European Railway and Infrastructure Companies. Reforming Europe's Railways – Learning from Experience (2011), pp33-45.</p>	

Because of the strategic importance of the railway sector, the government adopted a cautious, long-term approach to the reform programme to help manage risks and avoid major economic shocks because of disruptions caused by the reforms, challenges experienced during implementation and/or unanticipated economic difficulties. The reform programme sets out a

¹⁸ See 'Definitions' section on page 2 for definition of Federal Services for Tariffs

clear direction but has been implemented flexibly. Changes were made as the market developed and responded to the sector reforms.

5 Reform accomplishments up to 2001

Prior to the break-up of the FSU, the Railway Ministry managed the world's largest railway system, which included 32 regional railway enterprises. It carried nearly half of the world's rail freight traffic and a quarter of worldwide passenger traffic. In the aftermath of the FSU break-up, the Russian Ministry of Railways (MPS – *Ministerstvo Putei Soobschenia*) was formed in 1992 by transforming and downsizing the USSR MPS to manage Russian railway system. It included 19 regional railways and other rail-related enterprises and institutes and had about 2.2 million employees.

MPS, reporting directly to the Council of Ministers, operated as one monolithic structure. It was responsible for developing and implementing railway policies, regulation, tariffs, railway operations, infrastructure, locomotives, rolling stock, testing and approving technologies and planning and allocating capital investments. MPS also addressed the asset division among the new Commonwealth Independent State railways and other railway issues related to the break-up for the FSU. The period following the break-up of the FSU was characterised by a sharp economic contraction, a steep decline in industrial production and a corresponding fall in rail freight traffic. During the first half of the 1990s, MPS dealt with massive problems associated with the economic crisis. Rather than focusing on major reforms, MPS's main priorities were to ensure that the railway continued to operate and remained solvent during these turbulent times.

For most of the period under review, MPS/RZD did not need to increase its throughput capacity because the railway system had more capacity than required because of the sharp fall in traffic after the break-up of the FSU. This only changed around 2010. In the 1990s thousands of locomotives and wagons were idle, and sometimes cannibalised for spare parts. The government approved MPS's requests for tariff increases in response to the deteriorating financial situation that reflected falling traffic levels.¹⁹ That reduced the need to aggressively try to match operating resources and costs to the reduced traffic demand.

MPS began to consider the fundamental policy changes that were necessary to reform the railway sector in 1994 and in June 1995 issued the policy document: *'Statement of Modernisation Strategy and Commercialisation Principles for Russian Railways in the Transition to a Market Economy'* that was prepared in cooperation with the EBRD. It set out the principles and policies governing railway reforms:²⁰

- **Commercialisation:** Railway activities should reflect commercial principles: (i) railways should provide transport services that meet market needs in a technically efficient way and at least cost; and (ii) railway revenues should recover the full costs of providing the services and maintaining and renewing capital assets.
- **Compensation for loss-making activities:** (i) Rail freight services should be profitable; (ii) long-distance passenger services should break even; and (iii) develop

¹⁹ Freight tariffs increased on average by 300 per cent in constant rouble terms from 1991 to 1994. In May 1994 the government indexed rail freight increases to the price index for the inputs used for freight transport. Passenger tariffs did not keep pace with inflation in 1991 and 1992, but the 1993 and 1994 increases raised the average level to 25 per cent above the 1990 level. In 1994 passenger tariff increases were regulated by the state and indexed to inflation.

²⁰ Source: EBRD (1996), Russian Federation Railways Modernisation Project. Annex 1.

contractual arrangements with other government departments or regional governments for some categories of passengers and local passenger services that the government requires the railway to provide for social welfare reasons at fares that do not cover the cost of providing the services.

- **Removal of cross-subsidies:** Gradually phase out the practice of using artificially high freight rates to cross-subsidise the cost of providing passenger services at below cost.
- **Natural monopoly:** Because railways had natural monopoly powers, tariffs would be regulated to minimise costs and ensure the most technically efficient provision of rail services. MPS would not use its monopoly power to increase tariffs before taking steps to minimise costs and maximise productivity improvements, particularly labour productivity, by introducing better technology and, where necessary, by reducing the labour force.
- **Management and accountability:** Commercialising railway activities required separating management responsibility and financial accounts for different types of passenger and freight services and introducing commercial and marketing departments that are responsive to market demands.
- **Ancillary activities:** Non-revenue generating activities that are not directly linked to transport operations would gradually be separated from MPS. However, socially significant ancillary activities, (for example, health care; education; cultural facilities) for railway staff would be managed and funded separately from railway operations.
- **Environment:** Rail transport enterprises would comply with environmental laws and regulations and progressively improve their performance in meeting environmental objectives.

In August 1995 the Federal Railway Transport law was adopted that defined the economic, legal and organisational basis for rail transport. The law classified the railway system as a natural monopoly, stated that the Federal Government was responsible for railway enterprises and assets, confirmed that MPS was responsible for administering and regulating railway activities and said that tariffs would be set at levels that, together with any explicit subsidies, would generate sufficient revenue to cover the costs of operating and maintaining the railway system. The Federal Railway Transport Law, supplemented by Presidential Edict No. 426 (1997) and Government Decree No. 448 (1998) covered increasing efficiency, reducing costs and promoting competition in the railway sector. Decree No. 448 enshrined some of the principles needed to implement MPS's June 1995 policy document (for example, providing access for private operators to rail infrastructure; ending cross-subsidies; funding money-losing passenger services from government budgets; improving the tariff-setting methodology; and improving the transparency of rail sector financial flows).

Despite its statements in MPS's policy document and the principles embodied in the subsequent law and regulations, many of the necessary major reforms had not been introduced up to 2001. MPS continued to operate as a monopoly and there were few mechanisms for private sector involvement. The continuation of the politically sensitive tariff regulation and geographically uniform tariffs limited the railway's ability to effectively compete with other transport modes by offering market related tariffs and premium services. The railways continued to cross-subsidise money-losing passenger operations with freight revenues and to rely on the government for subsidies and funding for capital investments. However, insufficient funding was available during this period to renew the rolling stock. By

2000 limited progress had been made in implementing the challenging agenda set out in the 1995 policy statement. However, some progress was made:

- (i) privatising some locomotive and wagon manufacturing facilities that came under the Ministry of Heavy Industries;
- (ii) divesting social facilities (for example, hospitals, schools, rest areas);
- (iii) improving procurement practices (for example, mandating competitive bidding in the procedures governing procurement); and
- (iv) beginning to reduce staffing levels.

6 Reform accomplishments since 2001

6.1 Establishing the legal framework

The legislation and supporting regulations adopted between 2001 and 2003 established the legal framework for the railway reform programme. Decree No. 384: A Programme for Structural Reform of Railway Transport (18 May 2001) set out the three phases for the 2001-10 reform programme. Based on this decree, the Duma passed the Federal Law on Railway Transport and Federal Charter of Railway Transport (December 2002), which provided the legal basis for reorganising the rail sector. Key provisions included:

- (i) making the government responsible for regulating rail transport;
- (ii) dividing the rail sector between infrastructure services and train operations and defining the legal relationships between them; and
- (iii) providing for open access to the infrastructure by railway operators.

Based on this legislation MPS was separated into two parts – the policy/regulatory part and the operational part. The Federal Railway Transport Agency (Roszheldor), an agency of the Ministry of Transport, became responsible for the policy and some regulatory functions, furthering railway reforms, preparing laws and licensing federal-level railway activities. The Register of Federal railway equipment, part of Roszheldor, became responsible for approving and certifying new rail technologies and manufacturing technologies and creating private test centres. Rostransnadzor, which reports directly to the Prime Minister, is responsible for transport safety monitoring.

The railway sector is also regulated by two other agencies:

- (i) the FST was established in its current form in 2004 and took over responsibilities from the Federal Energy Commission. The FST is an executive body that regulates the tariffs of natural monopolies, including the railway; and
- (ii) the FAS, established in its current form in 2004, enforces laws regulating natural monopolies, including the railway, in areas related to the development of rules for non-discriminatory access to railway infrastructure, separating potentially competitive sub-sectors and nominating one of the 12 members of the FST Management Board.²¹

²¹ FAS covers all companies whose market share exceeds 33 per cent in any market.

A new tariff system for determining rates for the freight movements in RZD wagons was approved in 2003 (Tariff Book 10-01) to help implement the open access reforms and the wagon component of tariff for freight moved in private wagons was deregulated. The locomotive component was transparently separated from the infrastructure component in Tariff 10-01 only in 2011. The coverage of the regulatory framework is broadly consistent with the principles set out in the World Bank's Railway Reform: Toolkit for Improving Rail Sector Performance.²²

RZD, a 100 per cent state-owned joint-stock railway company, was registered on 1 October 2003. RZD took over all MPS's assets and operating responsibilities. At the time RZD was a vertically integrated monopoly provider of freight and passenger rail services, the sole owner of railway infrastructure and related services and owned most locomotives, freight wagons (prior to the break up of the FSU, there were about 300,000 freight wagons owned by non-railway companies, mostly large state-owned enterprises), passenger coaches, repair facilities, rail infrastructure construction units, produced gravel ballast, sleepers and some railway equipment (there were also outside producers), research and development institutes and many other ancillary services. The railway assets were identified and valued. The Railway Charter established RZD as the public carrier (in other words, the carrier that must serve any customer that asks for services at the 10-01 Tariff level).²³

The latest documents laying out the government's railway reform vision are (i) Government Decree No. 877: The Strategy for Railway Transport Development to 2030 (2008); (ii) the Transport Strategy to 2030 prepared by the Ministry of Transport; (iii) Government Decree No. 377 (2008): On Federal Target Programme – Modernization of Russian Transport System (2010-2015); (iv) the RZD White Book – the Strategy for the Innovative Development of RZD to 2015 (2010); (v) the Strategy of Transport Machine Building for 2007-2010 and to 2015 (2007); and (vi) the RZD Subsidiaries Strategy (2012).

6.2 Restructuring RZD and separating business units

Significant progress has been made in restructuring RZD, separating lines of businesses and full or partial sale of RZD's share holdings in some subsidiaries. At the beginning of 2003 RZD began separating business units and setting them up as subsidiaries, mostly as joint stock companies, in the following areas: (i) freight wagon operations; (ii) long-distance and suburban passenger services; (iii) wagon repair services; (iv) locomotive repair plants; (v) design and construction units; (vi) industrial manufacturing facilities; (vii) research and development institutions; (viii) trading units; and (ix) catering and other services. Setting up the subsidiaries created an organisational structure that provided clearer incentives and mechanisms to improve operational and financial performance and to hold management accountable and provided a platform that could be used to diversify ownership and encourage

²² In principle, the best regulator is the market and economic regulation should only be used only to correct for market failures (in other words, when public interests differ from the commercial interests of service provider). The regulatory framework for the railway should cover: (i) economic regulation; (ii) safety; (iii) environmental protection; and (iv) technical standards. Economic regulation should address two major issues: (i) natural monopoly issues; and (ii) managing industry interfaces, particularly between the natural monopoly and the rest of the industry. There is no single best model for economic regulation. The regulatory framework must be designed to achieve transport sector objectives and take account of other aspects of the reform programme (for example, industry structure; private sector participation).

²³ RZD has used its public carrier status to argue against establishing new private carriers because such companies will not serve any customer at the prescribed 10-01 tariffs. There have been a few court cases in which rail customers sued RZD for its inability to provide its common carrier obligation at the 10-01 tariffs after RZD spun off all their commercial wagons into subsidiaries. As a result RZD leased back wagons from Federal Freight to provide such services for small and medium sized customers. The Railway Charter is being reconsidered.

full or partial privatisation. This structural reform was a necessary step to introducing competition in the railway sector. RZD's Subsidiaries Strategy sets out the principles identifying those subsidiaries that will be partially or fully sold and those in which RZD will retain control. RZD divided its subsidiaries into four groups:

- **Operational:** These are companies in which RZD plans to keep controlling interest for at least five years because their activities are directly related to RZD's major lines of business. The Operational Group is divided into two subgroups: (i) subsidiaries for which more than half of their revenue comes from customers outside of the RZD Group and provide freight and passenger services in a competitive environment using market prices (for example, Federal Freight; Federal Passenger; several regional commuter companies); and (ii) subsidiaries for which more than half of the revenues comes from within the RZD Group and there is no mature market of external providers of similar services. RZD may reduce its share holding in subsidiaries in this subgroup, but not below 25 per cent. However, the investor would have to agree to develop the company consistent with RZD's desires for the subsidiary. For subsidiaries from the second subgroup, RZD would likely sign long-term supply contracts with the new owners.
- **Investment:** These companies have high investment potential but little economic or technological ties with the rest of that RZD Group. Specific investment targets are set and when targets are likely to be met and market conditions are favourable, RZD may fully disinvest.
- **Subsidiaries for sale:** These are subsidiaries that the government, RZD's main shareholder, has decided to sell within the context of the railway reform programme. RZD's objective for such sales is to maximise its proceeds, preferably through open bids.
- **Others:** This group includes companies providing social or technical functions to RZD or in which RZD has a very small interest. The shares in most of the latter were contributed as equity to RZD when it was set up in 2003 and do not allow RZD to exercise any control over their operations. The sale of such shares may not be financially justified because the cost of sale of activities (for example, evaluation; sales agent fees) may be of the same magnitude or smaller than the proceeds of sale. RZD will keep its stakes in the service subsidiaries and try to divest its ownership in the others when market conditions permit.

At the end of 2012 RZD had 147 subsidiaries – in 76 RZD owned more than 50 per cent of the shares, in 52 between 20 per cent and 50 per cent, and in 19 less than 20 per cent. Figure 4 shows the major subsidiaries in which RZD retains control. The revenue of all RZD subsidiaries was about Rb 800 billion compared to Rb 1,366 billion for RZD itself. In 2012 RZD earned Rb 78.5 billion for selling subsidiaries and another Rb 14 billion as dividends from those that were sold. In 2013 RZD planned to sell shares worth Rb 34 billion. Sale proceeds help cover RZD's losses in its passenger businesses and to finance capital investments.

RZD has fully privatised Freight One, wagon depots and some companies that are not directly related to its core business (for example, TransCreditBank; TransTelekom). RZD has also reduced its shareholding in TransContainer to just over 50 per cent and to around 25 per cent in other subsidiaries [for example, Zeldorremmash (locomotive repair); Kedentransservice (transport and logistics); Novosibirskiy Strelochniy Zavod and United Electrical Engineering Plants (switching equipment manufacturers)]. Local commuter service

companies are no longer legally part of RZD. RZD is actively planning further sales to fully or partly privatise its many subsidiaries, depending on market conditions. There are also plans to partly privatise RZD. An RZD Initial Public Offering was planned by the end of 2013 but it was postponed because of the weak market conditions. The current target is 2015. A draft bill is under consideration at the State Duma on the possible sale of RZD's shares.

6.3 Reforms in the freight sector

The reforms succeeded in creating a private sector rail freight industry. Before the reforms were implemented, RZD was the dominant owner and operator, with a million or so freight wagons. Although RZD subsidiaries own about 20 per cent of the wagon fleet, RZD itself now only owns a non-commercial fleet of wagons for in-house purposes. Three major RZD owned freight subsidiaries were created:

- **TransContainer**, a container operator, was established in 2006. Partial privatisation of TransContainer took place through a 2010 IPO on the London Stock Exchange (LSE) and by the end of 2013 RZD had reduced its share holding to 50.6 per cent. TransContainer is the largest rail freight container operator in Russia (25,000 container wagons and 61,000 ISO containers). The government may contribute its share of TransContainer to support the establishment of a new international company, United Transport and Logistics, which will be co-owned by Russia, Kazakhstan and Belarus.
- **Freight One**, set up in 2007 with over 200,000 of RZD's wagons (about 20 per cent of the freight wagon fleet), has been fully privatised. Universal Cargo Logistics Holding (UCLH), a subsidiary of NLMK, a steel mill group listed on the LSE, purchased Freight One through a public bidding process (UCLH bought 75 per cent of the shares in 2011 and the remaining 25 per cent in 2012). UCLH, which operates rail wagons, shipping lines and ports, had a fleet of about 210,000 wagons in 2013 and became the largest private freight fleet operator in Russia with the acquisition of Freight One.
- **Freight Two** (subsequently renamed as **Federal Freight**) was established in 2010 with an initial allocation of 180,000 RZD wagons. Partial privatisation of Federal Freight is planned in 2015 or later. In 2013 Federal Freight and German company Knorr-Bremse announced a joint venture, of which Federal Freight owns 40 per cent, to produce high-tech brake equipment for rolling stock in Russia and the CIS. Knorr-Bremse has a similar joint venture with Freight One.
- **Other freight related subsidiaries:** (i) **Refservis** serves the refrigerated transport market (100 per cent RZD-owned); (ii) **TransLes**, a wholly owned RZD subsidiary specializing in wood products; (iii) **RailTransAuto**, formed in 2006 as a joint venture with a private company (TransGroup), to transport automobiles by rail (51 per cent RZD owned); (iv) **Russian Troika**, a joint enterprise with FESCO, that specialises in block container train services, primarily moving auto parts to automobile manufacturers; and (v) **Gefco**, a French logistics company in which RZD acquired a 75 per cent equity stake in 2012.

Figure 4: Major (by share) Subsidiaries in which RZD owned a controlling interest as of 31 December 2013

Company	Nature of businesses	% owned by RZD
Federal Passenger Company	Passenger transport	100
Gefco S.A. (A)	Logistics operator	75
Federal Freight (B)	Freight company	100
TransContainer	Container wagons operator	50.60
Refservice (C)	Reefer wagons operator	100
RailTransAuto	Operator of autocarrier wagons	51
High-speed Rail Lines	High-speed rail lines	100
RZDstroy	Railway infrastructure construction works	100
Roszheldorproject (d)	Design and engineering services	55.56
RZD Trading Company	Trade of rolling stock, railway equipment and spare parts	50 + 1 common share
TransTeleCom	Telecommunication services	100
Zhilsotsipoteka	Residential construction	100
Zheldoripoteka (e)	Residential construction	100

TransWoodService	Manufacturing of wood sleepers	100
BetElTrans	Manufacturing	100
First Nonmetallic Company	Extraction, processing and sale of non-metallic minerals (ballast)	100
Zeleznodorozhnaya Torgovaya Kompaniya	Trading	100
Wagon Repair Company – 1	Rolling stock repair and maintenance	100
Wagon Repair Company – 2	Rolling stock repair and maintenance	100
Wagon Repair Company – 3 (F)	Rolling stock repair and maintenance	100

Kaluga Plant Remputmash (G)	Repair of track-maintenance equipment	100
Incorporated Electrotechnical Plants	Manufacturing electrical engineering equipment	50 + 1 common share
<p>Notes</p> <p>A = In 2012 RZD acquired a 75 per cent equity stake in the French logistics operator Gefco S.A., a subsidiary of PSA Peugeot Citroen.</p> <p>B = In November 2012 Freight Two was renamed Federal Freight. Federal Freight may be partly privatised in the future. Freight One, a former RZD subsidiary, was 75 per cent privatised in 2011 and fully privatised in 2012.</p> <p>C = Refservice owns 15-16,000 refrigerated or insulated freight cars, at least 80 per cent of such rolling stock in Russia.</p> <p>D= In 2013 the government did not authorise the sale of RZD's stake in Roszheldorproject.</p> <p>E = Formed in 2006 through the merger of RZD's design and research institutes. In December 2012 RZD acquired 50 per cent less two shares in Zheldoripoteka, increasing its share holding to 100 per cent. RZD was unable to privatize Zheldorproject (RZD project) and now plans to sell 25 per cent plus one share in 2014.</p> <p>F = Initial public offerings (IPOs) for the three wagon repair companies are expected to take place when the markets are favourable. WRC-2 and WRC-3 were initially scheduled for IPO in 2013.</p> <p>G = On 31 December 2011 the repair factories Remputmash comprised nine separate legal entities. In June 2012 Kaluga Plant Remputmash issued 2,139,786 common shares with a par value of Rb 1,000 each to RZD in exchange for RZD's stakes in six other repair factories Remputmash.</p> <p>Source: RZD 2012 and 2013 Audited Financial Statements</p>		

As a result of the creation of these subsidiaries, RZD is no longer the dominant owner of freight wagons. RZD now owns 37,100 mostly obsolete freight wagons, which are used either for military transport services or for in-house use (for example, transport of ballast for track maintenance or for spare parts). This is well under 5 per cent of the freight wagon fleet compared to RZD owning 80 per cent of the fleet in 2003. Since their creation, these companies have invested to expand and modernise their fleets.

In addition to driving the restructuring and partial privatisation of RZD's formerly large fleet of freight wagons, the reform programme also succeeded in developing a private rail freight industry. Changes in policies, regulations and tariff structures attracted private investment in freight wagons. With the privatisation of Freight One, private players dominate the rail sector in terms of wagons. Private operators expanded their fleets through the acquisition of new railcars, increasing their share of all freight wagons from 31 per cent at the end of 2005 to 78 per cent at the end of 2012. There are many private rail freight wagon owners, about 2,000 in 2010. Although many private freight operators are small, about 20 have fleets of over 5,000 railcars. Companies like Freight One and UCLH, Globaltrans (and its subsidiaries), Gaspromtrans (a subsidiary of Gazprom), Transoil, NefteTransService, Transgarant [a subsidiary of the Far Eastern Shipping Company (FESCO)], Novotrans, and Financial

Alliance have between 20,000 and 50,000 wagons each and can operate on a countrywide basis. Further consolidation is required among freight operators, preferably led by market players promoting international corporate governance standards that can establish benchmarks in the sector. Although Federal Freight and TransContainer may be fully privatised at some point in the future, some commentators are concerned about market concentration among the three largest players (in other words, Freight One; Federal Freight; TransContainer). Initially the reform plan envisioned 5 to 10 RZD freight subsidiaries to ensure adequate competition in the sector. However, RZD now believes that two large nationwide operators (in other words, Freight One and Federal Freight) would maintain sufficient competition, be able to operate on a countrywide basis, allow for better wagon management and would be able to attract financing to buy new wagons on better terms than smaller private freight operators.

Private freight rail companies mainly focus on higher margin cargo by providing premium services and optimising empty runs. Experience in Australia, Canada and the USA demonstrates that in the right regulatory environment, private operators can offer cost effective services to customers with large volumes of bulk cargoes (in other words, high frequency, reliable service in block trains with maximum capacity wagons; minimal wagon turnaround time; high speeds; high volume loading and unloading facilities; minimal service downtime; own dispatching capability; efficient repair and maintenance facilities; transporting large volumes in shorter periods of time at a lower cost). Some private companies recently started with block trains and gradually began to offer services in the rail retail market. It remains to be seen how quickly, or whether, private companies will be able to capture significant shares of these markets.

6.4 Reforms in the passenger sector

The Federal Passenger Company, a wholly-owned subsidiary of RZD, began operating in 2010 to provide long-distance passenger train services in Russia and internationally. The Federal Passenger Company sets its own fares for its premium passenger services but receives subsidies from the government for providing lower class services at fares that are regulated. At the end of 2013 the company owned and operated a fleet of 22,894 passenger coaches and transported about 100 million passengers, virtually all of the long-distance rail passengers except for on the high-speed trains, Sapsan, operated by RZD. A few private passenger operators provide services by adding their passenger carriages to RZD trains or linking city centres to airports (for example, Aeroexpress recently became fully private when RZD sold its remaining shares to private investors). These companies own and operate passenger coaches that are hauled by RZD locomotives. Private passenger operators set their own fares, sell tickets, provide on-board and station staffing, and may invest in station facilities.

Local passenger entities (RZD divisions or subsidiaries in joint ventures with municipalities) were created for local transport. RZD receives financial support from both the federal and local governments to partly compensate for loss-making regional and suburban services. Suburban rail enterprises are now jointly owned, subsidized by local governments and are no longer legally parts of RZD. However, many municipalities or regional authorities have been reluctant to cover their portion of subsidies to commuter joint ventures with RZD. As a result these companies reduced, for financial reasons, the number of commuter trains.

There is little competition within the railway sector for the provision of passenger services. The railway does, however, face inter model competition. Most long-distance travellers can choose to travel by rail or fly (most prefer to fly to/from Siberia and the Far East). In the

European part of Russia, buses compete with the rail sector to provide transport services. Buses and private cars provide an alternative for commuter rail services. However, these alternatives are not available everywhere or to everyone.

6.5 Ownership and operation of locomotives²⁴

The original rail sector reform concept envisioned rail competition between licensed rail carrier companies that provided both wagons and locomotives, arranged loading and unloading, and assumed liability for the cargo transported. This vision has not yet been implemented. RZD continues to provide virtually all mainline locomotives and traction services. There are several hundred private mainline locomotives compared to the 20,000 or so owned and operated by RZD. As a result, rail wagon operators are not full carriers since they do not assume liability for transported cargo or passengers. Although some operators have carrier licenses (in other words, Globaltrans through its subsidiary BaltTransService), RZD strongly opposed introducing private locomotive ownership. RZD has acted to maintain its rail carrier monopoly by broadly defining its role as the infrastructure operator to include the provision of locomotives and train crews. In its comments on the reform strategy in 2002, the World Bank stated that locomotives should be considered essential assets of the train operating companies rather than of the infrastructure company.²⁵ The World Bank noted that no railway outside the CIS has spun off independent train-operating subsidiaries without giving them the locomotives and that EU legislation makes control over traction a key requirement for railway enterprises seeking operating licenses. During 2007-10, when it started losing traffic and revenues to private wagon-operators, RZD's opposition to private locomotives intensified and RZD started to protect its interests. RZD argues that rail carriers should be common carriers, able to provide universal service throughout the network. Providing train crews and locomotives across the vast railway network would require substantial capital investment in locomotives and locomotive maintenance facilities and the institutional capacity needed for training, housing and testing drivers and enough rail traffic to justify such investments. Only RZD trains locomotive drivers and procedures for training and licensing drivers outside of RZD have not yet been established.

The Railway Reform Programme states that in the future private companies will acquire locomotives. RZD wants to limit private locomotives use to only a limited number of lines, usually connecting some remote areas with RZD main tracks (for example, the line from TransSiberian to the North of Western Siberia, a major oil and gas extraction region). The creation of full rail carriers requires a clearer definition of how a multi-carrier system would work in terms of the supply and operation of locomotives, market access and the development of an appropriate regulatory framework. There is an ongoing public discussion in Russia how this could be done, focussing on two options: (i) competition for the route (and subsequently only one carrier on the dedicated line); or (ii) competition on the route (with a few carriers competing with each other on the same line). RZD prefers the former. A number of commentators²⁶ have stated that there is a need for legislation and regulations to permit private companies to operate as common carriers, in other words, to own and operate locomotives. In 2011 the FST issued a new version of Tariff 10-01 with a separate locomotive component, a necessary step to allow the use of private locomotives.

²⁴ See Community of European Railway and Infrastructure Companies (2011), *Reforming Europe's Railways – Learning from Experience*, pp 33–45.

²⁵ Source: World Bank (2002), *Russia Railway Restructuring*. Government Role in Overseeing a Pluralistic Railway System. Background Paper for Discussion with the Ministry of Railways. Moscow..

²⁶ See Russell Pittman (2011). *Blame the Switchman? Russian Railways Restructuring After Ten Years*.

6.6 Manufacturing and maintenance facilities

MPS and RZD were not involved in the manufacturing of freight wagons, locomotives, engines, passenger coaches, EMUs and Diesel Multiple Units (DMUs), electric, signalling, and other equipment as that was formerly under the Ministry of Heavy Machine Building Industry. Most of those companies, with a few exceptions, were privatised in the 1990s. Some were later bought by private investors and combined into large conglomerates. TransMashHolding Limited (TML), the largest one, was established in 2002 as a 100 per cent private company but in 2010 RZD acquired a 25 per cent share.²⁷ TML combined Russia's only (at that time) mainline electric locomotive plant (Novocherkassk), the mainline passenger diesel locomotive plant (Kolomna), several diesel engine builders (Bryansk and Perm), EMU builder (Demikhovo), metro wagons builders (Mytyschi and St.Pete), some shunting locomotive plants (Bryansk) and some wagon building facilities (Bryansk and Engels).²⁸ Sinara Transport Machines, a subsidiary of the privately owned Sinara Group with no RZD share holding, was later established as a competitor. It manufactures locomotives through its subsidiaries (Lyudinoversusky Locomotive Plant; Ural Diesel Engine Plant; Ural Locomotives, a joint venture with Siemens to produce mainline electric locomotives and commuter EMUs; the CTM Research and Development Centre). Major international companies have invested in these plants through joint ventures (for example, Siemens in Sinara; Alstom, Bombardier and Knorr-Bremse in TransMashHolding) to improve technology and managerial know how and introduce more powerful, energy efficient locomotives.

Prior to the reforms, MPS/RZD were monopolies in the repair of locomotives and rolling stock. Considerable progress has been made in separating RZD from the locomotive and rolling stock repair business. In 2008 RZD created Zheldorrem mash, a 100 per cent owned joint-stock company subsidiary, by consolidating 10 locomotive repair plants. It became the largest locomotive repair company in Russia. In 2012 RZD sold 75 per cent less two shares of Zheldorrem mash through a public bidding process and it is now operated as a subsidiary of TML.

The growing ownership of freight rolling stock by private companies and partly privatised RZD subsidiaries is creating a demand for independent wagon maintenance facilities. Because RZD's directly owned freight wagon fleet has shrunk dramatically, its need for wagon maintenance and repair facilities fell accordingly. Although RZD continues to own 100 per cent of the equity in three major Wagon Repair Companies (WRC-1, WRC-2, WRC-3), IPOs are planned when market conditions are favourable. In 2008 RZD began to sell excess wagon repair depots through an auction process. By the end of 2010 RZD had sold 22 of its approximately 140 freight wagon depots. Repair depots, both RZD-owned and privately owned, compete for wagon repair contracts from wagon owners. RZD's disinvestment of wagon repair subsidiaries should promote greater acceptance of new wagon maintenance practices (in other words, based on the wagon condition as determined by inspection rather than on mandatory preventive maintenance schedules). Rolling stock that does not visit the depots on time is currently not allowed by RZD inspectors to run on the network. The wagon owners pay for the inspection and maintenance of wagons and for insurance for the wagon and cargo. Under this system wagon owners are not responsible for third party damage caused by incidents or derailments. That is the responsibility of RZD because RZD imposes this wagon inspection and maintenance system on wagon owners, sets the quality standards for repair depots and inspects the quality of repairs afterwards.

²⁷ When Alstom wanted to buy a 25 per cent share in TransMashHolding it insisted that RZD, by far the largest customer, buy 25 per cent. Thus in 2010 RZD bought 25 per cent of TransMashHolding.

²⁸ Most wagon builders remain separate private companies.

The mandatory preventative maintenance system is a complicated, expensive wagon maintenance system targeted on rail safety rather than railway economics. In terms of safety, this system has been quite reliable and helped to reduce the number of incidents to a minimum. However, private companies and commercial RZD subsidiaries now own most of freight wagons and are becoming increasingly cost conscious. This has resulted on pressures on RZD and regulatory bodies (Roszheldor; Rostransnadzor) to change the mandatory preventive maintenance inspections, particularly for new types of wagon technologies are coming to the market that are more durable, last longer and require maintenance at greater mileage intervals. After RZD divests its share holding in the major wagon repair companies, it may be more open to moving to a maintenance system based on the actual condition of the rolling stock since it will no longer have a financial interest in securing high prices and revenue streams for wagon repairs. The introduction of such a system should be accompanied by a requirement for the wagon owners to carry adequate third party insurance and provisions in the regulatory and inspection mechanism to ensure the profit motive does not over ride potential rail safety issues.

International companies have also invested in joint ventures related to the construction and maintenance of track and signalling equipment. For example, in 2011 Bombardier Transport purchased a 50 per cent minus 1 per cent stake in United Electrical Engineering Plants, Russia's largest manufacturer of signalling equipment.

6.7 Rail freight wagon market

Going forward, the freight wagon operator market is expected to become more competitive. Competitive market pressures, coupled with appropriate regulatory and tariff incentives, should result in an increasing demand for freight wagons designed to efficiently service particular market segments so that shippers can reduce costs (in other words, higher capacity wagons that also facilitate more energy efficient railway operations and an increase the railway throughput capacity). This should lead to the introduction of more specialised wagons (for example, with rotary couplers for faster unloading; larger hopper wagons with fast unloading gates; wagons with aluminium bodies and lighter tare weight) and wagons that can travel at higher speeds, have lower maintenance costs, faster turnaround times and reduce wear and tear on the tracks. Russia has moved from 23.5 to 25 tonnes per axle load limits, and a new private plant in Tikhvin began to produce 25 tonnes per axle wagons with Barber bogies (USA technology was acquired by the company) in 2012 – gondolas, hoppers and flat wagons. The FST introduced a reduced tariff for those wagons, something RZD supported because it recognised the financial savings and increased railway throughput capacity associated with these larger, more efficient wagons. RZD is planning significant track investments to allow 27 tonne axle loads on major sections of the network by 2020 and 30 tonne axle loads on some dedicated lines by 2030.

Theoretically with the increased freight wagon manufacturing capacity, freight car prices should increasingly respond to supply and demand conditions in the market. Data indicates that market forces (for example, freight car prices reflect the market demand, the capacity of manufacturers, the cost of steel and the availability of credit) now drive the market price for freight wagons. Prices increased up to 2008 and then fell in 2009 with the sharp decline in the demand for rail transport caused by the fallout from the global financial crises. As the economy recovered, the demand for freight transport, and hence wagons, recovered and prices increased. Wagon lease rates also responded to market forces and track the cost of freight wagons but, as would be expected, are more volatile. The sharp fall in lease rates during the 2009 financial crises and its aftermath adversely affected the financial performance of companies leasing wagons.

6.8 Rail safety

Rail safety issues have emerged in some countries after the railway sector was restructured.²⁹ A review of Russian railway accident statistics and information on railway safety, accidents and events indicates that rail safety did not deteriorate as the reforms were implemented. Two indicators show that safety has improved: (i) the number of people affected by train accidents has fallen by 11 per cent per year since 2004; and (ii) the number of security violations fell by 2.5 per cent per year.³⁰ This reflects three factors: (i) RZD remains the only carrier and is liable for all such events; (ii) the preventive maintenance system for wagons, locomotives, tracks, and so on, remains in place; and (iii) RZD has invested in programmes to improve railway safety (for example, technologically advanced rail control systems using satellite technology). One concern that has emerged during the last five to seven years relates to the quality of wagon castings (cast bogies for freight wagons). The quality of the castings supplied by some Russian and Ukrainian foundries, typically new independent foundries or foundries integrated into wagon-building companies has deteriorated. In trying to meet the high demand for new wagons and their cast parts in 2010-12 some foundries paid more attention to the number of units sold rather than to quality. Trains killed some people because they violated the rail crossing points. Rostransnadzor, the transport safety agency, has investigated all recent castings failures and other rail safety related issues.

6.9 Tariff reform³¹

Prior to the onset of the railway sector reforms all railway tariffs were set, after approval by the government, and administered by MPS. The FST now regulates and approves tariffs for all natural monopolies, including RZD.³² The FST regulates railway tariffs on the basis of detailed price lists set out in Tariff 10-01 (for freight) and Tariff 10-02-16 (for passengers). The government approves rail tariffs recommended by the FST after considering the macroeconomic situation and the funding needed to cover RZD's operating expenditures and to repay borrowings. Tariffs are subject to annual, and occasionally supplemental, indexation. Generally, the basic railway tariffs have increased in line with inflation, but increases in the regulated tariffs were sometimes limited because of the government's concerns about macro economic impacts and/or social/political considerations in the case of passenger fares. In 2014 tariffs for all natural monopolies, including RZD, were not indexed. This practice creates uncertainty for RZD's business planning and contributes to the need for RZD to receive government subsidies to help fund capital investment and to cover losses on passenger operations. The FST's tariff decisions are binding on RZD as a natural monopoly. The tariffs charged by private operators and RZD subsidiaries were never regulated and are determined by market forces.

6.9.1 Reforming freight tariffs

The full Tariff 10-01 covers all costs associated with rail transport: access to rail track, signalling services, dispatching services and other related services, the locomotives used (including shunting locomotives) and their drivers, and freight wagons. Tariff 10-01 does not include the costs of loading and unloading of wagons (which usually occur on private tracks and yards), freight forwarding costs, the costs of moving the wagons from private industrial

²⁹ See Gérard Mathieu, *Japan Railway and Transport Review No. 34. The Reform of UK Railways — Privatisation and Its Results*, pp 16-31

³⁰ Roland Berger (2013). The optimal setup of a rail system – Lessons learned from outside Europe.

³¹ See the 2013 consolidated audited financial statements for the RZD Group, Note 1.

³² See 'Definitions' section on page 2 for more information on the FST.

tracks to RZD mainline tracks, the costs of keeping the wagons idle on RZD sidings when waiting for the freight to be loaded (demurrage costs) or insurance costs.

The tariff structure was designed to support the policy objective of allowing private operators to provide their own wagons. Since 2003 the freight tariffs have been divided into two components: (i) payment for infrastructure (for example, track; signalling; switching; dispatching) and locomotive services – about 85 per cent of total charges; and (ii) payment for wagon services – 15 per cent. In the early reform period RZD owned and operated most freight wagons so effectively the 15 per cent charge for wagons was a lease payment to RZD (this was later increased to 20 per cent for gondolas). Regulated tariffs applied if shippers opted to use RZD owned wagons, in which case the shipper paid 100 per cent of the Tariff 10-01 to RZD. If a private railcar operator or RZD subsidiary owned the freight wagon, shippers paid 85 per cent of the full 10-01 Tariff to RZD; payments for the use of the freight wagon were not regulated since those operators are not natural monopolies. For the freight wagon component of cargo transport costs private companies and RZD subsidiaries are free to set their own prices, either above or below the tariffs specified in Tariff 10-01, as determined by market forces and negotiations between the operators and their customers. The wagon operator can charge the shipper the wagon component equal to RZD wagon component, below it (as they did initially) or above it (as has been done since around 2005-06). Infrastructure and locomotive components are fixed by the FST and are paid to RZD either directly by the shippers or on their behalf by railcar operators. The locomotive and infrastructure tariffs were only separated in a transparent way in Tariff 10-01 in July 2011, thus providing a better tariff framework to allow shippers to determine whether it is more cost effective to use RZD or private locomotives.

Railways must compete against the road sector for freight business in areas like price, reliability, speed of delivery and quality of service. Although railways do not have any effective competition for bulk commodities, except for water transport on a small number of routes, the road sector competes effectively for container transport for distances of up to 2,500 km and up to 1,500 km for some non-bulk cargo (for example, food; equipment; machinery). Consistent with the experience in other countries, the railway lost modal share to the road sector for distances under 400 kms.

The private companies and RZD subsidiaries compete only for the wagon portion of the total freight shipping costs based on price, quality of service (for example, meeting customers' needs; on-time delivery; modern, more efficient wagons that reduce the costs of freight shippers; minimising empty back hauls). Discussions are ongoing about possible traction liberalisation. If that happens, competition in the freight sector would increase as the market for private carriers and RZD subsidiaries would increase from 15 per cent to 45 per cent of shippers' expenditures on rail services. Liberalising locomotive provision would require the establishment of a suitable regulatory regime to avoid discrimination between RZD and private operators in areas like access to the infrastructure, train scheduling and dispatching and certification of drivers and locomotives.

The tariffs for inter-country transit cargo for former USSR countries are agreed annually between the concerned countries through international agreements or the Council of Railway Administrations for CIS countries and the Baltic States. RZD represents Russia in such negotiations. Early in the reform process the rail charges for land border crossings, primarily with the Baltic States, were higher than for freight destined to Russian ports. Russia agreed to address this discriminatory pricing practice as part of its accession to WTO. The tariffs for most commodities (for example, coal, coke, nonferrous metal ores, nonferrous metals, automobiles and auto-parts, paper and containers) are now fully unified. However, the

harmonisation of tariffs for some commodities (for example, oil, oil products and wood) requires further investigation. Russia is expected to complete the required harmonisation to comply with its WTO accession undertakings in 2014-15.

Since 2013 RZD and other Russian market participants have not claimed, and the FST has not approved, any exceptional tariffs. Exceptional tariffs were provided to some market players such as specific industries (for example, coal), specific producers, for specific routes, towards some ports, or for some imported commodities³³. All exceptional tariffs now have to be approved by the Customs Union Commission of three countries (Russia, Kazakhstan and Belarus).

In 2013 RZD was allowed to alter the tariffs regulated by the FST within the range of -12 per cent to +13 per cent below of above tariff 10-01. RZD can use this right under certain conditions (these changes are only temporary and are offset by either increases or discounts for other routes, commodities or types of wagons). RZD used this right several times in 2013 and in 2014 to give it more flexibility to respond to the market situation.

Other tariff changes include the equalisation of the empty return tariffs for universal gondolas and universal flat wagons in November 2011. Since this measure was introduced wagon owners now pay the same empty return tariff for these types of wagon regardless of the last commodity carried in these wagons. Empty return tariffs for other types of wagons (for example, specialised wagons such as tank-wagons, hoppers, and so on) were not equalised. The wagon owner of a hopper pays more for the return of the wagon on the same distance if it carried a Class III commodity than the wagon owner whose hopper carried Class II or Class I commodity. Tariff 10-01 was further modified in April 2013 by reducing empty return tariffs for new wagons with 25 tonnes per axle loads. This FST measure was designed to stimulate wagon owners to buy more of these higher capacity wagons.

Tariffs for international traffic are based on the 1993 Tariff Policy of CIS Railways, an international agreement between the railway administrations of CIS countries and some other former Soviet republics (including Estonia and Latvia, but not Lithuania). This covers traffic originating in the participating countries and transit traffic from any third country (for example, the EU) and traffic to any station (including ports) on the territory of any other participant. The Council of CIS Railways renews this international agreement annually (or, sometimes semi-annually when inflation is high). Countries can change their transit rates outside this agreement, but no more than twice a year, by informing all participants in the agreement at least one month in advance.

Both freight tariff books are complex and each exceeds 100 pages in length. The methodology sets out on a commodity basis tariffs for a range of distances by wagon type, weight loaded in each wagon, number of wagons shipped, wagon ownership (whether or not private), speed, whether there is a guard and whether the shipment is in a block train or not³⁴ and other less important factors. The base tariff = $A + (B \times L)$ where A is a fixed delivery charge per wagon, per tonne or per container (depending on the type of traffic), B is the transport charge per delivery km per wagon, tonne or container, and L is distance transported. The distance transported is defined according to bands across the country.

³³ Coefficients were used which either raised (if more than 1) or lowered (if less than 1) the tariffs.

³⁴ Block trains are trains that run from origins to destination without passing through marshalling yards at which wagons would otherwise be reorganised into new trains.

6.9.2 *Reforming passenger tariffs*

Regulated long-distance and commuter passenger tariffs are not commercial and are not based on market values. Rather, they reflect other (social) principles. The FST sets tariffs for Plazkart (third) and Obschi (fourth) class long-distance rail passengers. Regulated passenger tariffs in 2014 were indexed at the 2013 inflation rate decreased by 30 per cent. Fares for SV (first) and Kupe (second) class long-distance passenger transport, compartments and sleeping cars are unregulated and are subject to market pricing in the context of intermodal competition with road and air travel. Regional authorities regulate tariffs for suburban passenger transport. International fares for rail passengers are set according to inter-governmental and inter-agency agreements, and vary depending on the countries involved.

At the beginning of the reform programme there was considerable cross subsidisation from freight operations to passenger services. In 2005 the cross-subsidisation accounted for 43 per cent of total passenger expenses. As part of the reform programme, passenger services were separated from RZD by creating the Federal Passenger Company and government budget subsidies were introduced to offset part of the losses incurred by RZD in operating money-losing passenger services. These steps helped to reduce the cross-subsidies between freight and passenger operations, an objective of the reform programme. ROSSAT estimated that in 2000 commuter passenger revenue covered only about 20 per cent of the costs and that this figure has now risen to about 50 per cent.

The mechanism for paying for passenger services has not been clearly defined and enshrined in legislation in a manner that is similar to the PSO concept that used in the European Union. From 2008 RZD has received subsidies from government budgets. The subsidies rose from Rb 22 billion in 2008 to over Rb 80 billion in 2009 and 2010 before falling to Rb 57 billion in 2011 and 2012 and then to Rb 50 billion in 2013. In 2013 the subsidies, of which 89 per cent came from the federal government budget and 11 per cent from regional government budgets, were about evenly split between long-distance and suburban passenger travel (see Figure 5). The suburban services reforms have not gone as smoothly as in other areas. Many of the regional authorities (in other words, Oblasts; cities) that now co-own the local rail commuter company have not paid the required subsidies so RZD, in turn, has cut the number of commuter trains, which has triggered complaints and some litigation cases. RZD last received a government subsidy for capital investments in 2010 although capital contributions from the government are expected in 2014 for the Baikal-Amur Mainline and TransSiberian. RZD last received significant subsidies for freight transport in 2010.

Commuter passenger transport companies are not breaking even or operating on a financially sustainable basis. Government subsidies do not fully offset the money lost by RZD in providing passenger services. In 2013 RZD provided an estimated Rb 22 billion to subsidise suburban commuter services: (i) Rb 5 billion by setting low rents for EMU/DMU rolling stock; (ii) a Rb 8 billion loss for providing infrastructure services; and (iii) Rb 9 billion in under-compensated revenues from suburban rail companies due to tariffs set by the regions that are below the cost of providing the services.³⁵

Government subsidies were reduced in 2013 to subsidise long-distance passenger services in this regulated segment. Although fares in sitting and open sleeping carriages were indexed twice during 2013 by 10 per cent, the required subsidy amounted to Rb 36 billion but RZD only received Rb 23 billion.³⁶ The lack of a well defined and properly functioning PSO

³⁵ Source: RZD web site

³⁶ RZD sued the Ministry of Finance regarding unpaid subsidies and the Court ruled recently that the Ministry of Finance had to pay RZD the RUB7 billion owed for the 2009 subsidies for exemptions.

mechanism is a barrier to creating competition and attracting private capital to this market segment³⁷.

³⁷ Well defined PSOs are better than governments providing deficit funding to railways because under the PSO mechanism: (i) there is a direct link between the government's social aims and expenditures; (ii) the intervention proceeds on an arms length from government on a commercial basis; and (iii) railway management can be held accountable for business performance. See World Bank. Railway Reform: Toolkit for Improving Rail Sector Performance.

Figure 5: government subsidies received by RZD (Rb million)									
	2013	2012	2011	2010	2009	2008	2007	2006	2005
Subsidies received from federal budget for compensation of the effects of tariffs' regulation – long-distance passenger transport	23,328	29,992	29,946	35,751	36,233	19,370	NA	NA	NA
Subsidies for compensation for the effects of tariffs' regulation from federal budget – suburban transport	21,186	21,186	21,186	-	-	-	NA	NA	NA
Subsidies received from federal budget for compensation of the effects of tariffs' regulation – cargo transport	-	360	1,352	23,000	40,688	-	NA	NA	NA
Subsidies received from regional and municipal budgets and other subsidies	5,514	5,185	4,852	4,454	3,152	2,727	NA	NA	NA
Subsidies for capital repair of railway infrastructure in common use	-	-	-	19,099	-	-	NA	NA	NA
Total subsidies from federal and municipal budgets	50,238	56,723	57,336	82,304	80,073	22,097	12,826	1,552	1,628
Source: RZD Audited Financial Statements									

The Federal Passenger Company is in the process of introducing dynamic market pricing for the unregulated passenger fares (in other words, Kupe, SV and so on). A Dynamic Pricing Model has been developed that calculates different passenger fares for those who book/buy their tickets in advance or closer to the day of departure, differences in weekend fares (or prior to weekend) and weekday fares (more expensive on Friday to Sunday than on Monday to Thursday) and to reflect seasonal travel patterns (in other words, higher fares during the summer months and for public holidays than during the winter). As of 1 June 2014, 160 trains travelling on 34 routes will be subject to dynamic pricing. Eventually dynamic pricing will be used for all unregulated Federal Passenger Company trains/classes.

6.9.3 *Further tariff reform*

In August 2013 the FST approved the Guidelines for the State Regulation of Tariffs for Railway Cargo Transport Services and Common Use Cargo Railway Infrastructure Utilization Services, the regulated return on asset base tariff system, which set out a new long-term return on invested capital. Implementation of the new tariff system was expected to begin in 2015. This type of tariff-setting mechanism should improve RZD's financial performance because tariffs would reflect a regulated net profit or return on the capital invested in property, plant and equipment (PP&E) taking into account:³⁸

- The value of PP&E and intangible assets owned by RZD prior to the transition to the long-term tariff regulation model based on a return on invested capital;
- The value of PP&E expected to be put into use in connection with railway cargo transport services over the period of the long-term tariff regulation;
- The expected financing from the government budget, off budgetary funds and other state funds;
- The structure of financing invested in railway cargo infrastructure;
- The return on capital determined separately for the capital formed prior to the transition to the long-term tariff regulation model based on return on invested capital and for the capital formed over the period of the long-term tariff regulation.

Subsequently, the government froze RZD's 2014 freight tariffs, as well as the tariffs of all other regulated monopolies, at the 2013 levels and set out cargo tariff growth rates for 2015 to 2018 that reflected the expected rate of inflation. It is unclear when, or if, the new tariff system will be introduced and when, or whether, a clear PSO mechanism will be developed to address the issue of losses related to providing government mandated passenger services.

Some commentators have identified other areas for tariff reform.³⁹ Some questions have been raised about the methodology used to calculate the infrastructure component of the tariff. Concerns have been expressed about the use of only three tariff classes (in other words, broadly⁴⁰ for raw materials [for example, coal; iron ore; cement], intermediate goods [for example, grain; crude oil; fertiliser] and finished goods [paper, beer, cotton, inorganic chemicals and steel]). Thousands of goods in each class are carried on the railway. Individual

³⁸ See the 2013 consolidated audited financial statements for the RZD Group, Note 1.

³⁹ See European Conference of Ministers of Transport and the Organisation for Economic Co-operation and Development. Regulatory Reform of Railways in Russia. Update. 2007. and Russell Pittman (2011). *Blame the Switchman? Russian Railways Restructuring After Ten Years*.

⁴⁰ The tariffs classes reflect the share of transport cost in the final market value of the products: Class III (below 10 per cent); Class II (between 10 per cent and 15 per cent); Class III (above 15 per cent).

tariffs in each category are determined using a declining scale for haul distance and adjusting for shipment size and charges for loading and unloading. Tariffs are adjusted by class indexes⁴¹ and by some commodity indexes. As a result, there are cross-subsidies between the freight categories.⁴² From around 2007 RZD became concerned because the private wagon operators captured an increasing share of the more profitable business, especially expensive Class 3 and Class 2 commodities like oil and oil products, metals, fertilizers, for example, leaving RZD with cheap and loss-making traffic like coal, mineral construction materials and the like. Many market players believe that RZD and the FST should equalise classes. The partial equalisation of empty tariffs in November 2011 could be viewed as the first step in this direction. If the class differences are reduced or equalised there will be consequences for coal tariffs, which may be economically sensitive. Coal is Class I and RZD loses money transporting it⁴³.

6.10 RZD's financial performance

The tariff policy is one of the fundamental drivers of RZD's financial performance. The evidence suggests mixed progress on improvements in RZD's financial performance during the reform period. On the positive side, compared to the situation prevailing in the 1990s, there has been a broad improvement in the quality of RZD's accounting and auditing, which have followed IFRS since 2002. Financial transparency has improved and RZD's audited financial statements have been publically disclosed since 2003. RZD is rated by major international and domestic rating agencies, has consistently had good ratings that are close to Russia's sovereign ratings, and has raised funds in the international and domestic capital markets.

Despite these positive observations, during the past 10 years RZD's revenues and operating costs have both grown at about the same rate (in other words, no significant improvement in the working ratio) (see Figure 6). RZD's assets have grown substantially, reaching Rb 3,800 billion in 2013 but RZD's audited financial statements consistently raised liquidity concerns. The reforms have not significantly improved RZD's bottom line financial performance. RZD still depends on government subsidies for both capital construction and for money-losing passenger operations. RZD government subsidies rose from Rb 22 billion in 2008 to over Rb 80 billion in 2009 and 2010 and fell to Rb 50 billion in 2013 (see Figure 5). Without the government subsidies RZD would have operated at a loss in 2012 with significantly lower net incomes in other years. The railway infrastructure requires upgrading to increase capacity and to allow faster, heavier trains to operate. Significant investments in this area are planned, which will require government subsidies because tariffs have been held lower than the level required for RZD's commercial viability.

Figure 6: RZD's financial performance (Rb billion)

Year	Total revenue ^a	Operating expenses ^b	Net income	Total assets ^c
2013	1,763	1,690	94	3,800
2012	1,540	1,434	37	3,493
2011	1,471	1,376	170	3,138

⁴¹ The Class I index ranges from 0.75 for distances less than 1200 km to 0.55 for distances over 5000 km. The Class II index is 1.0. The Class III index is 1.74.

⁴² Class III and partly Class II cross-subsidise Class I.

⁴³ The tariffs for copper are almost four times those for coal.

2010	1,356	1,138	208	2,760
2009	1,126	1,013	121	2,558
2008	1,203	1089	76	2,601
2007	1,016	822	145	1,996
2006	878	680	140	1,603
2005	749	615	91	1,442
2004	652	569	77	1,063
2003	571	516	37	979
2002	510	497	3	1,003

Notes: A= In 2013 freight and logistics revenues accounted for 75 per cent of total revenue, passenger revenue for 11 per cent and other revenue for 14 per cent. In 2002 the corresponding proportions were 78 per cent, 10 per cent and 12 per cent respectively.

B = In 2013 operating expenses were 96 per cent of total revenue compared to 98 per cent in 2002.

C = In 2013 non-current assets accounted for 90 per cent of total assets compared to 89 per cent in 2002.

Source: RZD's Audited Financial Statements

Despite concerns about RZD's financial performance and the fact that RZD faces the attendant risks of operating in a country that is still in the transition to a fully developed governance system needed for a market economy, all international and domestic rating agencies give RZD good credit ratings. This reflects RZD's strategic importance to the Russian economy, the fact that RZD is the monopoly owner of rail infrastructure services and nearly all locomotives and the expectation that RZD will continue to receive government support (for example, subsidies to partially compensate for limited tariff increases, loss-making passenger services and for a portion of RZD's capital investment), investments from the National Wealth Fund in RZD's share capital and support from the State Pension Fund in the form of long-term (15 to 30-year) low interest-rate (CPI plus 1 per cent) domestic bonds to finance infrastructure projects. Also, RZD has a favourable long-term debt maturity profile and low refinancing risk. Given these considerations RZD's ratings closely track Russia's sovereign ratings. Because of the heightened geopolitical risks associated with the events in Ukraine, international rating agencies revised their outlook for Russia's sovereign credit rating in local and foreign currency from stable to negative and one agency lowered Russia's sovereign credit rating in foreign currency. This is likely to impact on RZD's credit ratings as well as those of its subsidiaries. This assumption of implicit guarantee by government results in higher credit ratings than would be justified by the risks implicit in the business. This could result in a misallocation of financial resources. This is an argument for full privatisation of RZD because corporatisation will never remove the implicit guarantee. There are, however, many other political economy factors that determine decisions on whether or not to privatise railways.

7 Conclusions about the Russian Railway Reform Programme

Reforming something as large, complex and economically and politically important as the Russian railway is a major task that will likely take decades. The only comparable railway transformation is in China (which is of a similar size; both countries are in the midst of a long-term transition from a centrally planned to a market economy and the railways play major roles in both economies). Both countries have taken a long-term, slow and cautious approach to railway reform. Rather than adopting standard models to reform their railways, both countries have modified the standard approaches to suit local political economy circumstances because railway reform objectives, processes and progress are typically driven at the highest levels by political considerations rather than technical, financial or economic considerations.

The challenging rail reform programme has been underway for 13 years and has dramatically changed the Russian rail sector. The reforms are creating a competitive environment in some market segments that were previously dominated by an MPS/RZD monopoly. During the reform process, the Russian railway system provided stable rail transport operations (in other words, major shocks and disruptions in service were avoided) and worker productivity increased. Key achievements have included:

- Separating the policy/regulatory framework from railway operations.
- Corporatising RZD, separating its major lines of business and establishing them as subsidiary joint stock companies.
- Fully or partly divesting RZD's share holding in some subsidiaries – this is an ongoing process.
- Changing the freight tariff regime to create opportunities for private companies to invest in freight wagons.
- Deregulating tariffs for the higher class passenger services.
- Reducing the cross-subsidy of passenger services by freight services and providing some subsidies from the government and local/regional governments for regulated, money-losing passenger services.
- Creating a viable role for the private sector and competition in the provision of freight wagons.
- Attracting more than US\$ 50 billion of private investment in the sector.
- Renewal of the fleet and other equipment and use more new technologies.
- Improving financial transparency.
- Issuing euro and rouble denominated bonds and some listings on capital markets.

The reforms introduced by the Russian Railway Reform Programme were assessed in the contract of the EBRD's seven dimensions of transition impact, which are grouped under three broad headings:

- (i) contributions to the structure and extent of markets;
- (ii) contributions to the institutions and policies that support markets; and

- (iii) contributions to market-based conduct, skills and innovation (see Figure 7).

When the reform programme began there was no effective competition, private sector participation or use of market forces in the railway sector. A monolithic, vertically integrated government department was responsible for policy and regulatory matters, operating freight and passenger services, providing and operating the railway infrastructure and a host of ancillary services and planning and financing all investment, operated the railway. Given that starting point the railway reforms have achieved significant progress across all seven of the EBRD's dimensions of transition impact: (i) greater competition in the sector; (ii) expansion of competitive market interactions; (iii) more widespread private ownership; (iv) institutions, laws and policies that promote market functioning and efficiency; (v) transfer and dispersion of skills; and (vi) setting standards for corporate governance and business conduct. Drawing on the results shown in Figures 7, Overall Transition Impact of the reform programme was rated as **Good**. Based on the results achieved to date, Realised Transition Impact was rated as **Good**. However, the reforms are an unfinished agenda and further reforms are needed to achieve the vision set out at the beginning of the reforms. Assuming that the reforms will be fully implemented and the progress to date, the Transition Impact Potential was rated as **Excellent**. Although the pace, timing and exact details of the future reforms are not known, further reforms are likely to be implemented and there is little likelihood that the reforms will be rolled back. Given these factors, the Risk to Potential Transition Impact was rated as **Low**.

Even with the wide reaching reforms, the Russian railway system has been able to meet the traffic demands. RZD's share as a proportion of Russia's GDP declined by nearly one-third, from 3.8 per cent in 2004 to 2.2 per cent in 2012, although the share of rail freight as a percentage of the total freight turnover in Russia increased from 39 per cent to 44 per cent (including pipelines). The rail transport cost component of GDP has fallen, one of the goals of the reform. It is not clear if this is a broad measure of the improved economic efficiency attributable to the railway reform programme. The falling share of the railway sector in GDP also reflects the impact of the government policy of capping the annual freight and passenger tariff increases at or below the inflation rate, which resulted in railway tariffs increasing more slowly than the price of major commodities carried in the railway. As a result, the share of rail transport in the overall price of goods transported on the railway has fallen.⁴⁴ Because of this tariff policy there was an under investment in railway assets.

Figure 7: Assessing to transition impact of the Railway Reform Programme

Contributions to the structure and extent of markets	
<p>Greater competition in the sector:</p> <p>Overall transition impact: Good</p> <p>Realised transition impact: Good</p>	<p>– When the reform programme began, there was no effective competition in the railway sector. The policy, regulatory, and tariff reforms fostered extensive competition in the freight wagon operations sector. There are about 2,000 private wagon operators, including 20 or so that have fleets of more than 5,000 wagons. These private companies compete among</p>

⁴⁴ By 2012 regulated freight tariffs were 2.47 than they were in 2002. The corresponding figures for other industries were: (i) iron and steel: 2.61; (ii) power generation: 2.66; (iii) all industries: 2.94; (iv) coal: 3.81; and fuel: 5.35. The pattern is the same if a longer time period is used with 1991 as the base year. See RZD Annual Report 2012. This comparison is based on the regulated freight tariff. The freight wagon tariff accounts for 15 per cent of the total regulated freight tariff. However, virtually all shippers use freight wagons that are not regulated and usually pay more than the regulated tariff.

<p>Transition impact potential: Excellent</p> <p>Risk to potential transition impact: Medium</p>	<p>themselves and with RZD subsidiaries. More reforms are needed to facilitate the development of private carriers. There is competition in rolling stock manufacturing and repair and other ancillary services, but not for passenger operations. Future reforms will likely result in more competition in the sector, but the timing and exact nature of the reforms are not yet known. Steps must be taken to ensure that RZD does not abuse its monopoly for railway infrastructure and services to favour its subsidiaries.</p>
<p>Expansion of competitive market interactions:</p> <p>Overall transition impact: Good</p> <p>Realised transition impact: Good</p> <p>Transition impact potential: Excellent</p> <p>Risk to potential transition impact: Medium</p>	<ul style="list-style-type: none"> – The reforms have expanded competitive market interactions both up-stream and down-stream of freight and passenger operations. Freight shippers now select from a large number of companies when choosing, based on cost, quality of service, and timeliness and reliability of delivery, how best to transport their goods to international and domestic markets. While competition in the freight wagon sector improved the quality and reliability of services, it did not reduce costs to the shippers. Companies manufacturing and repairing locomotives and rolling stock and providing other ancillary services now compete for contracts. RZD has introduced competitive bidding as its procurement decisions. While there is intermodal competition, there is little competition within the rail sector for passenger services. While the private sector provides some premium services, most passengers have little choice if they travel by rail.
<p>Contributions to the institutions and policies that support markets</p>	
<p>More widespread private ownership:</p> <p>Overall transition impact: Good</p> <p>Realised transition impact: Good</p> <p>Transition impact potential: Excellent</p> <p>Risk to potential transition impact: Low</p>	<ul style="list-style-type: none"> – There is now more widespread private ownership in the railway sector. There are many private companies, some with partial international ownership, in the freight wagon sector. RZD has sold all or part of its ownership of many subsidiaries to private investors, including some major freight subsidiaries. There is foreign direct investment from leading international companies in private companies involved in the manufacturing and maintenance of locomotives and rolling stock and equipment and products related to the railway infrastructure. There is limited private ownership of passenger services and RZD remains 100 per cent state-owned. Going forward RZD plans to further divest shares in its subsidiaries and there are plans for an RZD IPO.
<p>Institutions, laws and policies that promote market functioning and</p>	<ul style="list-style-type: none"> – Laws and regulations have been adopted to separate policy/regulatory functions and commercial/business functions, promote railway reform and open the sector

efficiency: Overall transition impact: Excellent Realised Transition Impact: Excellent Transition Impact Potential: Excellent Risk to Potential Transition Impact: Low	to private investment and competition. Tariff reforms have created opportunities for the private sector to enter the freight wagon market and recently locomotive ownership. RZD has been restructured, its business lines set up as subsidiaries and its financial transparency improved. The result was a better system for holding management accountable for the delivery of results and an institutional structure that could be used to privatise some of its shareholdings. Despite the substantial progress, further tariff reforms are needed, as is a transparent PSO that is enshrined in legislation. The number of times that FAS has sanctioned RZD indicates that steps are required to ensure that RZD does not abuse its position as the monopoly operator of rail infrastructure services.
Contributions to market-based conduct, skills and innovation	
Transfer and dispersion of skills: Overall transition impact: Excellent Realised transition impact: excellent Transition impact potential: Excellent Risk to potential transition impact: Low	<ul style="list-style-type: none"> – International companies in joint ventures, procurement of world best technologies and direct foreign investments have helped to transfer management know how, systems and procedures and new technologies (for example, more efficient freight wagons; more powerful and energy efficient locomotives; equipment needed for the railway infrastructure). Management and staff of RZD and its subsidiaries developed new skills (for example, commercial management; financial management; accounting and auditing; systems and procedures; procurement; privatisation; knowledge of the domestic and international capital and financial markets).
Demonstration of new replicable behaviour and activities: Overall transition impact: Excellent Realised transition impact: Excellent Transition impact potential: Excellent Risk to potential transition impact: Low	<ul style="list-style-type: none"> – The railway sector reforms have had solid demonstration effects. RZD's lines of businesses were separated, set up as subsidiaries, commercialised and, in some cases, privatised or taken to the market. The replication of private sector investment is particularly evident in the freight wagon sector where there are now about 2,000 companies. New technologies have been demonstrated (for example, freight wagons; locomotives; equipment and components needed by the railway sector). The reforms have broadened the array of financial instruments, both domestic and international, available to finance the railway sector (for example, credit ratings for many companies; domestic and international bonds and IPOs; joint ventures; longer-term bank loans).
Setting standards for corporate governance and business conduct:	<ul style="list-style-type: none"> – Some private companies have introduced international best practice in corporate governance (for example, clear ownership structure; role and function boards;

Overall transition impact: Good	transparency; codes of corporate governance and accounting). The processes involved in getting credit ratings, listing on international capital markets and conditionalities imposed by EBRD and IFC, as well as progressively more stringent requirements in Russia, contributed to improved financial transparency and corporate governance. While progress has been made, more progress is required in some companies.
Realised transition impact: Good	
Transition impact potential: Excellent	
Risk to potential transition impact: Medium	
Source: EBRD Transition Impact	

The efficiency of cargo wagons declined after RZD's freight subsidiaries were created and the share of the wagon fleet operated by private operators increased (for example, tkms/wagon increased until 2006 and then declined until 2010; distances travelled by unloaded cargo cars compared with those travelled by loaded freight wagons the portion of empty wagons increased).⁴⁵ RZD had a higher efficiency level than the independent operators.⁴⁶ Because it managed the entire fleet, unlike private operators, RZD did not have to relocate empties and was able to optimise vehicle rotations and avoid railway traffic jams by loading idle wagons. Infrastructure limitations and traffic management challenges sometimes result in traffic jams on the network, especially in the Far East and near Russian Far Eastern ports where the flow of Russian exported commodities has grown substantially since 2010.

The Russian railway reform programme included many standard components of pro-market economic reforms typically urged by the World Bank, the IMF and the EBRD (for example, the spinoff of noncore activities; reduction of cross subsidies; privatisation; creation of competition). However, some of the details on how the restructured system would operate and the model that would be used to introduce competition were not clear. Unlike other countries, RZD maintained a monopoly on both network services, including tracks, dispatching and scheduling, and locomotives and drivers. Also, both public and private sector companies buy, lease and operate freight railway rolling stock and serve customers. This unusual form of vertical separation has been accompanied by the creation of several RZD subsidiaries that are passenger and freight operators and a number of private companies that also operate freight and a few passenger services. In commenting on the reform strategy in 2002, the World Bank concluded that the problems related to the unbundling of the Russian railway sector were properly diagnosed, the objectives were appropriate and a pragmatic approach was proposed.⁴⁷ The World Bank suggested that further consideration should be given to: (i) regulatory issues related to unbundled railway systems; (ii) rules for track access; and (iii) ownership of locomotives. These issues remain current for the reform programme.

⁴⁵ See Roland Berger (2013), *The optimal setup of a rail system – Lessons learned from outside Europe*.

⁴⁶ Large private operators (for example, Globaltrans) manage their fleets to reduce empty runs to a minimum (in other words, about 20 per cent).

⁴⁷ Source: World Bank (2002), *Russia Railway Restructuring. Government Role in Overseeing a Pluralistic Railway System. Background Paper for Discussion with the Ministry of Railways*. Moscow

A 2004 report prepared for the European Conference of Ministers of Transport and the Organisation for Economic Co-operation and Development⁴⁸ concluded that the profound transformation of the railway sector in the first two years of the reform programme had achieved positive results in terms of investment, productivity and traffic. One of the potential dangers identified in that 2004 report was that the Russian Railway Reform Programme would stall because of inertia and vested interests. The 2007 update stated that did not happen and confirmed that reforms were broadly on track and had achieved some major milestones, many of which were described in Figure 3.⁴⁹ Issues identified in the 2007 report that still remain to be addressed include: (i) defining and implementing a PSO mechanism; (ii) adopting reforms so that private companies own and operate locomotives and compete as carriers; (iii) further reforming the regulatory regime and tariff structure to promote competition and the desired railway reforms; and (iv) ensuring adequate funding for the rehabilitation and capacity expansion needs in the rail sector.

The FAS has periodically concluded that RZD violated provisions in the competition law that prohibit RZD, as a natural monopoly discriminating against private companies to benefit RZD or its subsidiaries. FAS sanctioned RZD accordingly.⁵⁰ The frequency of such cases raises some questions about whether the fines and sanctions are sufficient to deter such practices.

The reform strategy envisions that government agencies will be responsible for policy and regulatory matters, RZD will plan, operate and invest in the rail infrastructure and related services (for example, track, signalling and associated ancillary services) and the private sector will own and operate all transport services, manufacturing and repair facilities and other ancillary subsidiaries. This is a more traditional form of vertical separation than has been implemented to date. Against this ambitious agenda, significant progress has been made in improving the legal framework, restructuring RZD and separating business units, divesting some of RZD's ownership, promoting competition and developing a viable role for the private sector in the provision of freight wagons and locomotive and rolling stock repair and manufacturing. However, the Russian railway reforms are an unfinished agenda. More progress is needed in the areas of tariff reform, introducing an effective PSO, improving RZD's financial performance, generating the funds necessary for investment in upgrading the network and upgrading railway technology, liberalising the provision of locomotives, creating competition in the passenger sector and creating an enabling environment for private sector investment in more areas (ownership and operation of locomotives; full freight carriers; passenger operations; partial ownership of RZD). RZD is still not commercially viable and relies on government subsidies for capital investment and cost of operating money-losing passenger services. Some commentators believe that the slow pace of reforms in some areas reflects a reluctance of RZD to fully embrace the reform agenda and a genuine lack of conviction in the virtues of far-reaching unbundling and privatisation. The government plans more reforms in the period up to 2030 to address the remaining issues on the reform agenda (see Figure 8). Going forward the government will decide whether Russia will continue adopting its unique model of railways restructuring or move further in the direction of one of the standard models used in other countries to introduce more competition and private sector investment: (i) vertical separation (as per the EU Directives and in the UK

⁴⁸ European Conference of Ministers of Transport and the Organisation for Economic Co-operation and Development (2004). Regulatory Reform of Railways in Russia.

⁴⁹ European Conference of Ministers of Transport and the Organisation for Economic Co-operation and Development. Regulatory Reform of Railways in Russia. Update. 2007.

⁵⁰ See Russell Pittman (2011), Blame the Switchman? Russian Railways Restructuring After Ten Years.

and Sweden); or (ii) third party access (as in Germany or France); or horizontal separation (as in the USA, Canada and Mexico)⁵¹.

– **Figure 8: Key targets in the government’s June 2008 Strategy for Developing Rail Transport to 2030**

- **Acquiring new rolling stock:** RZD will replace all locomotives for which the service life has ended by 2015. The strategy states that by 2030 the Russian railway system will acquire large numbers of new locomotives, freight wagons and passenger coaches. RZD, its subsidiaries and private companies will purchase locomotives, freight wagons and passenger coaches.
- **Constructing new railways:** The target is to build between 16,017 km and 20,730 km of new routes by 2030. The government (58 per cent), local/regional governments (12 per cent), RZD (11 per cent) and private companies (19 per cent) will finance the new railway lines, some of which will be dedicated freight lines and lines for heavy axel loads, ensure transport to and from industrial zones and mineral deposits and improve inter-regional connections. Special tariffs on some new rail lines will be considered to ensure an adequate return on investment for these lines.
- **Upgrading existing railways:** This will involve upgrading secondary main tracks, third and fourth lines, electrification, installing automatic blocking, and renovating/building tunnels, bridges and bypasses around key railway junctions. Most (94 per cent) of these costs will be financed by RZD with the remainder financed by the government.
- **High-speed expansion:** Developing high-speed lines will require new technical specifications, national standards, regulations/legal framework and financial mechanisms, including PPP structures, and clarifying the roles of the state and private sector.
- **International transit corridors:** Creating an effective, safe and reliable land bridge and logistical network to allow through freight services between Europe and Asia. In addition to improving infrastructure and rolling stock, this will require simplifying procedures for customs clearance and border crossing, IT systems, tracking and on-time delivery.
- **Developing Terminal and Logistics Centres (TLCs):** Developing 40 TLCs in Russia’s major transport hubs by 2015. TLCs will be major technological complexes for processing, storage, warehousing and customs clearance of cargo and containers.
- **Mobilising the necessary investment funds:** The required investment is substantial. The funds are expected to come from a combination of government (20 per cent), RZD (40 per cent), private sector (35 per cent) and local/regional government (5 per cent) sources.

Source: RZD Homepage

⁵¹ See Russell Pittman (2011), Blame the Switchman? Russian Railways Restructuring After Ten Years.

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