

Private Capital for Railway Development

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China is considering ways to attract additional capital to finance investment in railways. Worldwide, private capital has been attracted to the railway sector through a range of mechanisms including (i) private sector provision of specific rail services or assets such as rolling stock; (ii) public private partnerships, (iii) leveraging commercial value of rail assets and increased land value around stations; and (iv) debt and equity financing of railway companies. Private sector investors seek to earn a return on their investment that is commensurate with the risk of the investment. Therefore they will be attracted to profitable opportunities with manageable risk. Steps China could take to attract private capital for railway development include: (i) creating a policy and legal environment that protects the interests of different types of investors in the railway sector; (ii) identifying and creating profitable railway markets and entities that are suitable for private sector investment; (iii) managing the perception of risk in railway activities and assets; (iv) promoting asset sharing opportunities; and (v) expanding PPPs in rail assets and services.

CHINA'S INTEREST IN ATTRACTING PRIVATE CAPITAL TO RAILWAY INVESTMENTS

China has explored a number of ways of for attracting financing to the railway sector. Starting in the 1960's, local railways (short branch lines connecting to the main railway network) were jointly financed by the Ministry of Railways (MOR) and local government. By the mid-1990's, MOR and Provincial governments financed joint venture railways, sometimes also involving local shippers, for example for the Shuohuang line. Shippers have also financed railway construction. For example, Shenhua Group, a large scale state owned energy company, owns and operates nine coal hauling railway lines. 1996 saw the first public trading of stock in a Chinese regional railway (Guangshen Railway). Since then, Daquin Railway and several railway construction entities have floated shares.

The challenge is to broaden and scale up these approaches, attracting private sector investors to railways in a broader set of markets. In August 2013, the State Council issued an Opinion that sought to identify ways that additional capital could be attracted to finance investment in the

railway sector.¹ The Opinion discussed broadening the base of ownership of railways, creating new financing mechanisms, adjusting the tariff and subsidy structure, and leveraging land owned by railways.

This Transport Topics note looks at the ways private capital has been attracted to the railway sector throughout the world, seeks to identify common characteristics of the more successful experiences, and suggests how those successful characteristics might be replicated in China. While this note discusses attracting private capital for railway development, attracting equity financing can also contribute to de-leveraging a rail entity's balance sheet by substituting equity for debt financing.

INTERNATIONAL EXPERIENCE WITH PRIVATE INVESTMENT IN RAIL

The experience of private investment in railways has a long history and is very broad. Governments have sought private investment in railways for different purposes, including (i)

¹ Opinion of the State Council on Reforming the Railway Investment and Financing System and Accelerating Railway Construction (Aug. 9, 2013).

accelerating network development; (ii) increasing efficiency in asset development, management and operations; (iii) improving service delivery through commercial focus and innovation; and (iv) reducing public sector financial exposure.

This note discusses four mechanisms for attracting private investment: (i) private sector provision of specific rail assets or services; (ii) public private partnerships, (iii) leveraging commercial value of rail assets and increased land value around stations; and (iv) financing railway companies. These mechanisms are discussed separately, but they overlap and can be combined as circumstances require.

Provision of Rail Assets & Services

Private investment is attracted to provision of railway assets or services in cases where a market is created for the provision of the asset or service and a private sector provider can make a profit providing it. The railway or railway customer will purchase the service when it benefits from lower cost, better service, or financing provided by the private sector. Examples include leasing of rolling stock, contract track or rolling stock maintenance services, and operation of rolling stock. In each case, the private sector finances assets previously financed by the railway (rolling stock, track maintenance machinery, depots or workshops). For services, the private sector also finances the working capital for operating the business.

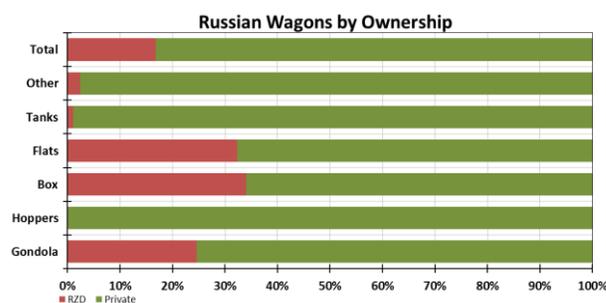
Rolling Stock Leasing. Leasing is a common way for railways to attract private financing for rolling stock. The lessor buys the rolling stock and rents it to railways or shippers for a price that, over time, covers the cost of the rolling stock plus a return on investment. The lessor itself is typically an entity financed by equity shareholders and debt holders. The lease is secured by the rolling stock so the risk for the lessor is relatively low (If the lessee fails to pay, the lessor can repossess the equipment and

lease it to someone else). Therefore, this form of financing tends to be relatively low cost.

Leasing allows railways or shippers to pay for the asset over its life as it generates profit rather than all at the beginning. It also allows for matching of various railways demands for rolling stock to the time period and type of rolling stock needed. For example, in Britain, the terms of most passenger service franchises were shorter than the life of the rolling stock needed to execute them. Leasing allows a franchise operator to rent rolling stock only for the period of its franchise and provides for smooth transfer from one franchise operator to another.

Considerable private investment in railway equipment has been attracted through leasing. In North America, for example, the Union Pacific Railway leases 29 percent of its locomotives (over 2,400 locomotives) and 45 percent of its freight wagons (30,000 wagons).²

Wagon Operations. In 2003, Russia allowed private companies to own and manage freight wagons and changed the tariff rules so that this activity could be profitable. This created a vibrant market for private financing and management of freight wagons. Currently about 85 percent of freight wagons in Russia (about 1.2 million wagons) are now owned by the private sector.

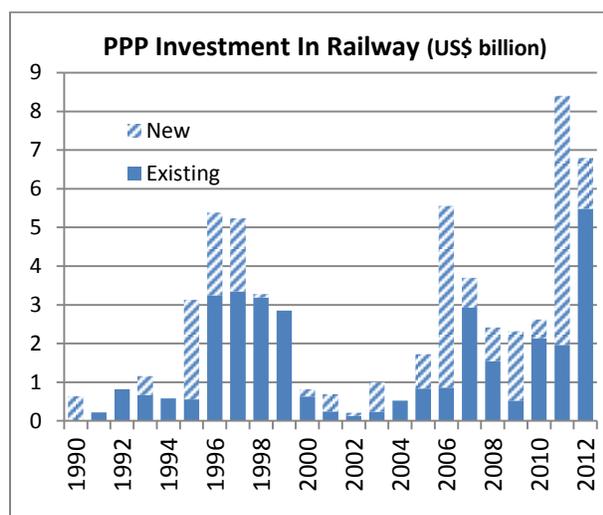


Source: Harral Winner Thompson Sharp Klein, Inc.

² Union Pacific, [Form 10-K](#) (2013). The present value of UP's minimum capitalized leases for the period of 2014 and beyond was US\$ 1.7 billion.

Public Private Partnerships

Investment and financing can also be attracted to the railways sector through Public Private Partnerships (PPPs) in which public and private sector cooperate to build and/or operate a railway. Between 1990 and 2012, some US\$ 60 billion of investment has been committed through PPP projects in low- and middle-income countries, with 56 percent through concessions of existing railway assets and 44 percent through green field projects.³



Source: World Bank PPI Database

Successful PPPs are structured so that the private sector makes money by accomplishing the objectives of the public sector. Typically, the private sector has higher financing costs than the public sector, which must be offset by other benefits, if the PPP is to create value-for-money. Thus careful analysis of each arrangement is necessary. PPPs work best when outputs can be clearly specified and monitored. The three examples described below demonstrate the range of such ventures in the railway sector.

HSR Concession. The Perpignan-Figueres Line is a 44 km high speed railway line between France

and Spain. It was built by a consortium of private firms under a 53 year concession agreement in which the concessionaire took financial risk in return for the right to charge a toll on passengers and freight that use the line. The public and private sectors each provided about half of the total investment of €1.1 billion. The line opened in December 2010.

Special Purpose Railway Concessions. Railways are often the most economical way for mining product to be transported to end users or ports for distribution, so mining companies may invest in railway infrastructure and operations. Such companies receive a financial return by providing transport to support their own operations and typically to other shippers for compensation. For example, Vale S.A., one of the largest metals and mining companies in the world, has invested in shares of railway concessions in Brazil, Mozambique and Malawi. In these concessions, it pays a concession fee to government for the right to operate the railway for a relatively long period (e.g., 30 years) and becomes responsible for investing in and maintaining the railway infrastructure and rolling stock.

In China, Shenhua Group is an example of a mining company that finances railway lines to transport its mining products. Shenhua Group owns and operates nine railway lines totaling 1,765 km, with an additional 313 km under construction. Shenhua Group railways carried over 200 billion ton-km in 2013.

Low Density Regional Railways. In Japan, low density railway lines are operated by so called “Third Sector” railway companies, which are jointly owned by the public and private sectors (the local community owns half to three-quarters of the equity, while private investors own the remainder). Typically, the railway operations are modestly profitable, but cannot support capital investment, which is provided by the public sector partner. In cases where operations do not cover costs, the public sector subsidizes the service to make it attractive to the

³ Investment amount made or to be made by the project company under the PPP contract (not actuals). If the project company is jointly owned by the Government and the private sector, this may represent both Government and private financing.

private sector investor. Many Chinese local railways operate on a similar model.

Leveraging Railway Assets

Railways often have assets that are valuable to the private sector as well as to the railway. Common examples, described below, include use of the railway right-of-way by communications companies and commercial development of railway real estate.

Right-of-Way. Railway rights-of-way are useful for many types of utilities—communications, power, water. For example, in India, RailTel, a wholly owned subsidiary of Indian Railway, has about 42,000 km of optic fiber cable running along the railway right-of-way. RailTel uses this capacity to sell telecommunications services to telecommunications companies in Indian and to large commercial clients. Similarly, in the US, the Southern Pacific Railroad pioneered selling shared use of its telecommunications network to commercial buyers. It is now part of the third largest wireless network operator in the US.

Real Estate. In Hong Kong, the metro company, MTR Corporation, leases retail and advertising space within its stations and has the right to develop residential and commercial projects both within and above existing stations and along new line extensions. It carries out the real estate projects through joint ventures with private, commercial real estate developers. As of 2013, MTR had completed developments at 33 stations, generating some 94,000 housing units and more than 2 million square meters of commercial space. In 2013, the station commercial business, property development and rental activities in Hong Kong generated an operating profit of US\$1.1 billion to support the railway activity. In addition, the property development near the station supports the metro by generating metro trips. This financing model is being explored for metros in China.

In Japan, agencies have long applied land value capture mechanisms to finance their railway development in conjunction with other funding

arrangements. The value capture schemes varied based on location and stakeholders. In the case of the Tokyo Metropolitan Area, six types of land value capture were applied.⁴ Among those methods, private railways were able to carry out land readjustment projects around stations, by receiving land reserved for new town development and by internalizing real estate capital gains to cover railway investments (e.g. Tokyu Corporation Tama Denentoshi Line). They sometimes also managed to share part of the costs with private developers and building owners (Yokohama MM21 Line). Former rail yards in central Tokyo were also transferred to the Japanese National Railway Settlement Corporation and then sold through public auctions and other transactions to reduce the amount of debt accumulated during the network expansion.

Financing Railway Companies

Private investors are also willing to buy bonds or equity shares in railways, when the underlying railway business is profitable. Examples include vertically integrated railways in China, Japan and North America and train operators in Europe and Australia.

China. The Guangshen Railway Company Limited provides passenger and freight rail services between Guanzhou and Hong Kong. Shares in the company were first listed on the New York and Hong Kong stock exchange in 1996, yielding RMB 4.2 billion net (US\$ 526 million). The company is profitable and trades at a P/E ratio of 12.5.⁵

North America. The freight railways in North America are privately owned. The equity of the large railways has a market value greater than

⁴ See “Financing Transit with Land Values”, World Bank 2014.

⁵ P/E ratio is the stock price/earnings of the previous fiscal year. Thus, a P/E ratio of 12.5 would equate to 8% current earnings rate on an investment, as a percentage of its current market price (E/P).

US\$ 250 billion⁶ and trades at an average P/E ratio of 22.9. While some of the railway were always private companies, two were government owned and were sold to private investors. In 1995, the Canadian government floated shares government-owned railway, Canadian National for US\$ 1.65 billion. In 1987, the US Government sold 85 percent of government-owned Conrail to private investors for US\$ 1.6 billion. After twelve years under private management, Conrail was bought by CSX and Norfolk Southern for US\$ 10.3 billion.

Japan. In 1987, Japan reformed its heavily loss making Japanese National Railway, by dividing it into regional railways, creating a commercial environment in which they would operate, and transferring accumulated debt to a settlement company. At first the stock was held by the public sector, but after they began showing positive financial results, shares were progressively sold to private investors and proceeds used to pay off the settlement company debt. The privatization was completed in 2002 for JR East, 2004 for JR West and 2006 for JR Central. Today, the three companies have raised equity of US\$ 45 billion and bonds of US\$ 31 billion from private investors and financial institutions.

ATTRACTING SUPPORT OF PRIVATE INVESTORS

Private sector investors seek to earn a return on their investment that is commensurate with the risk associated with it. Investors require a lower rate of return for an investment considered very safe and a higher rate of return for more risky investments. In weighing the risks, investors consider both the risk of receiving less than the expected return (in interest or dividends) and risk to the value of the investment principal (that the value of their investment may decline, or

⁶ Market Capitalization of Canadian National, Canadian Pacific, CSX, Genesee & Wyoming, Kansas City Southern, Norfolk Southern, and Union Pacific. This does not include the value of Burlington Northern Santa Fe, which was purchased by Berkshire Hathaway in 2010 (estimated value of US\$ 40 billion).

that the investment cannot be liquidated when needed).

Railway investors typically consider risks related to: traffic, tariff, competition, dominant industry players like CRC, regulation, labor, technology, environmental liabilities, transport of hazardous materials, operational safety, weather, and energy costs. Depending on the country, investors may also consider risks related to corporate governance, fair treatment of minority shareholders, expropriation, currency risk, war, and civil conflict. For example, a recent stock analyst's report highlights the "legal and regulatory risks associated with Chinese operations, our corporate governance concerns resulting from related-party transactions, dependence on operations of the national freight rail network, exposure to economic cycles, and exchange rate volatility."⁷

Railways typically finance their operations with a combination of debt and equity. The debt may take the form of borrowings from financial institutions or of bonds sold to the general public. Debt obligations are paid as a contractual obligation (and may be secured by rolling stock or other assets), so are less risky than stock, which receives a return only after the obligations to debt holders are satisfied. As a result the return required by investors on debt is normally lower than the return on equity.

A railway's overall Weighted Average Cost of Capital (WACC) is the return on all debt and equity weighted by their respective shares in the capital structure:

$$\text{WACC} = (\% \text{ share of capital that is debt}) \times (\text{expected return on debt}) + (\% \text{ share of capital that is equity}) \times (\text{expected return on equity})$$

For large US railways in 2012, the cost of long term debt was determined to be 3.3 percent,

⁷ S&P Capital IQ, *Stock Report: Guangshen Railway Co Ltd.* June 21, 2014.

while the cost of common equity was 13.4 percent and the overall WACC was 11.12%.⁸ Note that the return to shareholders as priced in the market is comprised of both (i) a current earnings rate (about 4.4% for large US railways) plus (ii) the expectation of increases in earnings per share into the future.

Investors seek companies that will earn enough profits to pay for both debt and returns on equity investment. Therefore, they invest in companies whose rate of expected return on assets is greater than the company's expected WACC.

CHARACTERISTICS OF SUCCESSFUL EXPERIENCE

Experience shows that railways can attract substantial private sector investment and that there are some common elements of successful experiences.

The Activity Must Be Profitable. Private sector investors want to make money. Therefore, they will only be attracted to activities that are profitable. If the activity is inherently profitable—wagon operations in Russia, station development in Hong Kong, or freight transport in the USA—private investors will naturally be attracted to it on a significant scale. If the activity is not inherently profitable, then the private sector can be attracted to invest in it, but only if government supports the activity financially and with sufficient certainty to make long term investment profitable and acceptably risky to the private partner. This can be achieved through a proper combination of dividend and potential capital appreciation, for example related to land use rights located near stations.

The Risks Must Be Manageable. Private sector investors are willing to take risks. However they

have to be able to understand the risks and believe that risks can and will be managed. Higher risks require higher return. Investors will typically pay a premium to obtain management control of an enterprise, because that assures them that they have the right to manage the risks to their investment.

PPPs Should Create Value for All Participants. When the public sector and the private sector work together in a PPP, the PPP must generate value for both parties to be sustainable. The public sector may benefit from the private sector's market responsiveness, cost efficiency, technological knowhow or financial capacity. The private sector may benefit from the public sector's existing assets, exclusive right to operate services, knowledgeable staff, access to resources or ability to manage certain risks. The deal has to work for both parties—lopsided PPPs usually end up in bankruptcy or with one party abandoning the PPP.

Risks in PPPs Should Be Taken by the Party Best Able to Manage Them. In structuring a PPP, the public sector is best able to manage certain risks (e.g., land acquisition or risks associated with government actions) while the private sector may excel at managing other risks (e.g., attracting customers). Successful PPPs share the risks in a way that the party best able to manage them has the responsibility and incentive to do so.

RELEVANCE FOR CHINA

A range of creative approaches are available within the framework discussed above to attract more private sector investment to the railway sector by “packaging” railway investments to provide a return and mitigate risks so they are attractive to private investors.

Identify and Create Profitable Railway Activities. The most fundamental step is to create railway markets (e.g., equipment leasing) and entities (e.g., service companies, leasing companies, real estate companies, railway infrastructure

⁸ United States Surface Transportation Board, *Railroad Cost of Capital – 2012* (decided: August 30, 2013) found that the weighted average cost of capital for US railways in 2012 was (22.56% debt capital X 3.29% return on debt) + (77.44% equity capital x 13.40 return on equity) = 11.12%.

companies) that are profitable and financially sustainable. This would build on the model, already partly in place, with joint ventures in charge of line construction and operation, and outsourcing of track maintenance and train operations to railway administrations. This model, adjusted with transparent rules on access and pricing could allow for private participation. Where China wants to attract private sector investment to inherently unprofitable activities, it will need to create a system for providing subsidies to those activities. The State Council Opinion of August 2013 takes a step in this direction, referring to “establishing a reasonable subsidy mechanism for welfare transportation.”

Create Policy and Legal Environment that protects the interests of different types of investors in the railway sector. Investors perceive a number of risks to the railway sector because the legal/regulatory framework, corporate governance and management control of railways, strongly focus on State-owned railways and China Railway Corporation. This environment provides limited protection and creates uncertainties for private investors. Investors considering development of branch lines or resource-based lines, would be particularly concerned about traffic routing and the interface with the rest of the network. Government can mitigate these risks by creating a legal framework for railways that is clear, objective, reliable, compensatory and neutral between public and private suppliers of similar goods or services. This would be an efficient way to reduce private investors risk level and their cost of capital.

Manage the Perception of Risk. The government and CRC currently control many of the “levers” of profitability of railway entities in China. For example, control of tariffs gives the government substantial control over the revenue component of the profitability equation, affecting both current earnings and the potential for growth in earnings over time. Establishing clear, objective, reliable, and compensatory tariff regulation could mitigate investor’s perception of this risk.

Investors are wary of investing in the equity of a company that is controlled by government, for fear that their concerns as minority shareholders will be ignored. This can be addressed by making a significant share of the entity’s stock available to investors and broadening the shareholder base. This issue is less of a concern for debt financing, as debt is a contractual obligation and government control of equity often creates an implied guarantee of the debt.

Any actions government takes to enhance the overall investment climate, such as enhancing protection of rights of minority shareholders (shareholders who do not have a significant direct ability to influence management control over risks), would also reduce the perception of risk.⁹

Promote Asset Sharing Opportunities. The potential for development of land around railway lines in China, although constrained by regulation, is high. The State Council Opinion of August 2013 affirmed the importance of encouraging “comprehensive land development and use” and “comprehensive development of railway stations land and the land along the railway lines.” This Opinion was clarified as part of a new State Council Directive [2014] (37) issued in July 2014 on “Land Comprehensive Development in Supporting Railway Construction”.

The new Directive establishes the principles of comprehensive land development around rail stations. It emphasizes the need for three-dimensional development (ground level, above ground and underground), good interface across transport modes, functional integration of the stations and economic and intensive and economic use of the stations and adjacent areas. It emphasizes the need for close planning by local governments, and the effective use of land around new and old stations by railway transport companies. It also encourages

⁹ See World Bank, “Railway Price Regulation In China: Time for a Rethink?” (2011).

investors in new rail projects to implement comprehensive development of land around stations and adjacent areas to secure financing and revenues.

This new Directive provides a valuable opportunity to broaden the source of financing for rail development and to increase the economic viability of new lines. Until recently, land value increases accrued to the local government and developers, only. The new Directive offers a possibility for an investor to combine land development rights with the development of a new railway projects. The application of the new Directive will require a number of pilots to turn those principles into reality, through clear mechanisms for integrating urban planning, land use and rail development in areas around stations. The definition of a priority development area around stations, as provided by the new Directive, could facilitate such process.

Expand PPPs for Services. Passenger and logistics service are fields where scope for development in China exists and private sector companies are active throughout the world. Private sector companies have strong technical and management knowledge, while Chinese railways have local knowledge, transport capacity, land and facilities. The potential for development of PPPs for rail-linked logistics services in China appears high and worth expanding.

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This note is part of the China Transport Note Series to share experience about the transformation of the Chinese transport sector. For comments, please contact Martha Lawrence (mlawrence@worldbank.org) from the Washington World Bank Office or Gerald Ollivier (gollivier@worldbank.org) from the Beijing World Bank Office.

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